PATENT AGENT EXAMINATION

PAPER A

2019

Paper A is a patent drafting exercise in which you are being requested to prepare a full patent specification, with significant weight (60%) given to the claims.

A description of the technology as the hypothetical inventor understands it is provided in the form of an Invention Disclosure form that has been completed by the inventor. The inventor has also provided the attached drawings. You are to assume that there is no more relevant prior art than what is mentioned in the Invention Disclosure form. You are cautioned not to impart your own knowledge of the subject matter into your analysis and preparation of the patent application.

On the basis of the description of the invention, drawings, and prior art provided by the inventor, prepare a patent application. Please note:

- The Petition and other such formal portions of an application are not required;
- Titles for sections of the patent application must be provided to assist with correction;
- Order of sections of the patent application is not important for Exam purposes.

Claims

You are required to submit a first independent claim of the apparatus type (36 marks) with six dependent apparatus claims (6 marks, 1 mark each), a second independent claim of the method type (15 marks) and three dependent method claims (3 marks, 1 mark each). You are to ignore any issues relating to unity of invention.

NOTE: FOR THE DEPENDENT CLAIMS, MARKS WILL BE GIVEN FOR ONLY THE FIRST 6 DEPENDENT APPARATUS CLAIMS, AND FOR ONLY THE FIRST 3 DEPENDENT METHOD CLAIMS. ADDITIONAL CLAIMS WILL NOT BE MARKED.

DEPENDENT CLAIMS THAT FURTHER DISTINGUISH THE CLAIMED INVENTION FROM THE PRIOR ART WILL BE GIVEN MORE MARKS THAN DEPENDENT CLAIMS THAT DESCRIBE KNOWN SUBJECT MATTER

Description of the Embodiments

While clever, the inventor is unlikely to have provided language, structure and organization appropriate for a patent application. Accordingly, full marks for the description will not be awarded for merely copying the transcript and, historically, lower marks have been awarded for exclusively cutting and pasting portions from the examination itself. The description should not simply consist of an enumeration of the elements on each figure. The description must address with more details the point(s) of invention including the subject matter recited in the dependent claims. Alternative embodiments provided by the inventor should also be discussed.

Drawings

You have been provided with duplicate unmarked copies of the drawings for your use.

MARK BREAKDOWN

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PART A – Long Answer Question (98 points)

Provided below is an Invention Disclosure form that has been completed by an inventor to explain an invention that she would like her company to patent. The company that the inventor works for is a packaging company that makes bags that are used to package food (such as frozen fruits and vegetables) that can be found at grocery stores.

The inventor has submitted this Invention Disclosure form to her company's in-house patent agent for consideration. You have been contacted by this in-house patent agent and given the mandate to prepare and file a patent application, in Canada, for the invention described in the Invention Disclosure form. The instructions specify that the patent application should include:

- an independent apparatus claim; and
- an independent method of manufacture claim.

INVENTION DISCLOSURE FORM

1. TITLE OF THE INVENTION

RE-SEALABLE BAG

2. BACKGROUND TO THE INVENTION

I wanted to make a re-sealable product bag that is better than existing ones (two examples of existing re-sealable bags are listed in section 5). Re-sealable bags are typically flexible, or non-rigid, so that they can be rolled, folded or bent once they have been opened to allow them to be re-sealed.

Existing re-sealable product bags have a number of drawbacks which detract from their effectiveness. For example, some re-sealable bags use twist ties or plastic clips that are removable and can be easily misplaced or lost between uses. They also wear out and stop working very well after repeated use.

Some other re-sealable bags (such as the ones listed in section 5) use adhesives to close the bag upon itself after opening, but the effectiveness of these adhesives is known to reduce over time. For example, after repeated exposure to a user's fingers, airborne dust, particles, and contaminants, the adhesives don't work as well. In addition, the adhesive is generally part of a strip that can be removed from the bag and lost, or accidentally ripped off at the junction with the bag.

I also find that a lot of re-sealable bags have very complex manufacturing and assembly techniques.

3. DETAILED DESCRIPTION OF THE INVENTION

My re-sealable bags are intended to be made of materials such as foil, paper, multi-walled laminate or plastic material and can be used to package food, such as frozen fruits and vegetables, and snack foods such as chips, cookies and crackers.

My re-sealable bags are able to be reclosed multiple times after the bag's initial opening (Figures A and B show the bag open and then closed after opening). The re-sealing is possible thanks to a layer of non-permanent pressure sensitive adhesive (PSA) that allows the bag to be rolled down and adhered to the non-permanent adhesive so that the bag is closed upon itself. The non-permanent adhesive is applied to the bag in a way that allows it to remain secured to the bag during its use, so that it can't be accidentally ripped off, as is possible with some other re-sealable bags.

An inventive aspect of my invention is that the layer of non-permanent PSA is put on a side of a carrier strip that has its other side permanently attached to an external surface of the bag.

Another inventive aspect of my invention is that the non-permanent PSA can be uncovered gradually so that as the bag is emptied, or as the exposed PSA becomes less sticky, a fresh portion of the PSA can be uncovered. The non-permanent PSA is covered by a release liner that can include many segments. When the bag needs to be closed, one or more segments (usually those closest to the bag's opening) is/are removed from the PSA and the bag is folded or rolled down at its opening until it adheres to the exposed PSA. This structure is shown in my figures C and D, in which a first segment of the release liner has been removed.

The carrier strip is permanently attached to the bag using a permanent adhesive (such as a rubber-based adhesive) which has a higher bond strength than the non-permanent PSA. The term "permanent" means an attachment bond that would cause damage to either the bag or the carrier strip if removed.

The carrier strip can be made of paper, plastic, vinyl or any other suitable material and should be flexible and tear resistant.

As illustrated in my figures, the carrier strip has an elongated shape with a length greater than the width. While a rectangular shape is shown (and preferred), other shapes such as ovals, etc. and a wide variety of strip sizes could also be used. The carrier strip is oriented in a direction perpendicular to the opening edge of the bag, and has a length extending over at least half of the height of the bag.

As mentioned above, a release liner covers the non-permanent PSA. The release liner can be made of paper, PET, polyethylene, polypropylene, or any laminate combination of these materials.

The release liner can be one complete strip of material that can be removed in one step, or that can be torn at a desired location to expose only a portion of the non-adhesive PSA. My preferred configuration for the release liner is to have it divided into multiple segments so that individual segments of the release liner can be removed from the non-permanent PSA separately. In such a case, the release liner includes perforation lines dividing the different segments. Each segment is therefore detachable from the other segments along these perforations. While perforations are my preferred choice, the release liner could also be scored to provide scoring lines between individual segments. The perforations or scoring lines are perpendicular to a longitudinal axis of the carrier

strip. Also, each segment of the release liner has a pull tab not covering the PSA so that the segments can be easily grasped for removal.

In-use, the same uncovered area of the PSA can be used for multiple re-seals of the bag. However, after multiple re-sealings of the bag, the bag may no longer adhere very well to the non-permanent PSA because of the accumulation of airborne dust, particles, contaminants or dirt onto the uncovered non-permanent PSA. At that time, or as the bag's contents are diminished (i.e. reduced fullness-level), a next segment of the release liner can be removed to enable a next uncovered area of the non-permanent PSA to be used. And so on until the full length of the non-permanent PSA has been exposed and used. The non-permanent PSA comprises polyisobutylene or an acrylic-based adhesive.

Dimension-wise, both the permanent and non-permanent adhesives should have a layer thickness that varies between 0.01 mm and 0.1 mm, and preferably between 0.02 mm and 0.05 mm.

For aesthetic reasons, the material of the release liner is usually suitable for being printed on (although this is not illustrated in the figures). The release liner could also be transparent or translucent to allow printing on the carrier strip to be seen through the release liner.

My re-sealable bag is also easy to manufacture, contrary to a number of existing re-sealable bags that have built-in adhesive tabs. During manufacture, the non-permanent controlled PSA is first applied to a side of the carrier strip, the release liner is then applied to cover the PSA, and the other side of the carrier strip is permanently attached to the external surface of the bag.

4. ADVANTAGES & VARIANTS OF THE INVENTION

4.1 List all advantages of the invention.

Because my new re-sealable bag uses a permanent adhesive that remains secured to the bag during its use, the carrier strip cannot be accidentally ripped off from the bag. This prevents a user from losing or destroying the mechanism that allows the bag to be re-sealed.

In addition, adhering the bag to the non-permanent adhesive prevents the rolled portion of the bag from unrolling and reduces the amount of air and moisture that enters the bag. My new re-sealable bag can also be closed at different fullness levels, which reduces the void space inside of the bag. This in turn allows the user to maintain the freshness of the bag's contents, which is particularly advantageous when the bag is used to contain food products.

The release liner segments also provide additional areas of adhesive when an exposed area of the PSA has lost its adhesive strength.

4.2 Describe any variants/alternatives for this invention that would achieve the same result

Techniques other than permanent adhesive can be used to permanently attach the carrier strip to the bag. For example, heat lamination or ultrasonic welding can be used to permanently attach the carrier strip to the bag.

There are also different ways of manufacturing my re-sealable bag. For instance, the carrier strip can be provided from a continuous tape of carrier material that has been coated on one side with the non-permanent PSA. The release liner can

similarly be fed from a continuous tape that is applied to the continuous tape of carrier material, over the PSA.

The perforations can be formed in the tape of release liner prior to its application to the carrier material tape. The release liner pull tabs can be formed by aligning the release liner tape over the carrier material tape so that the release liner tape overhangs the carrier material tape. The combined tapes are then cut into individual sections (sized to fit the bag) and placed on the bag as part of its in-line manufacturing process.

Alternatively, the carrier material tape can be die-cut off line into individual carrier strips and applied to the release liner tape. The release liner tape can then be die cut off line into individual sections and applied to the bag. Alternatively, the release liner tape can be cut into individual sections and applied to the individual carrier strips.

Figures E and F also show a different configuration for the non-permanent PSA on the re-sealable bag. In this alternative configuration, the layer of non-permanent PSA layer is divided into multiple portions that are spaced apart from each other. As such, there are gaps in the non-permanent PSA, which create adhesive free zones. These adhesive free zones correspond with the multiple segments of the release liner, meaning that the perforations of the release liner are aligned with the adhesive free zones between the PSA portions.

5. RELEVANT PRIOR ART DOCUMENTS

Type of Doc.	Title	Date of Document
5,XXX,XXX (Storkin) D1	Reclosable packaging	4/5/1991
6,YYY,YYY (Stevens) D2	Bag with built-in closure	5/4/1994

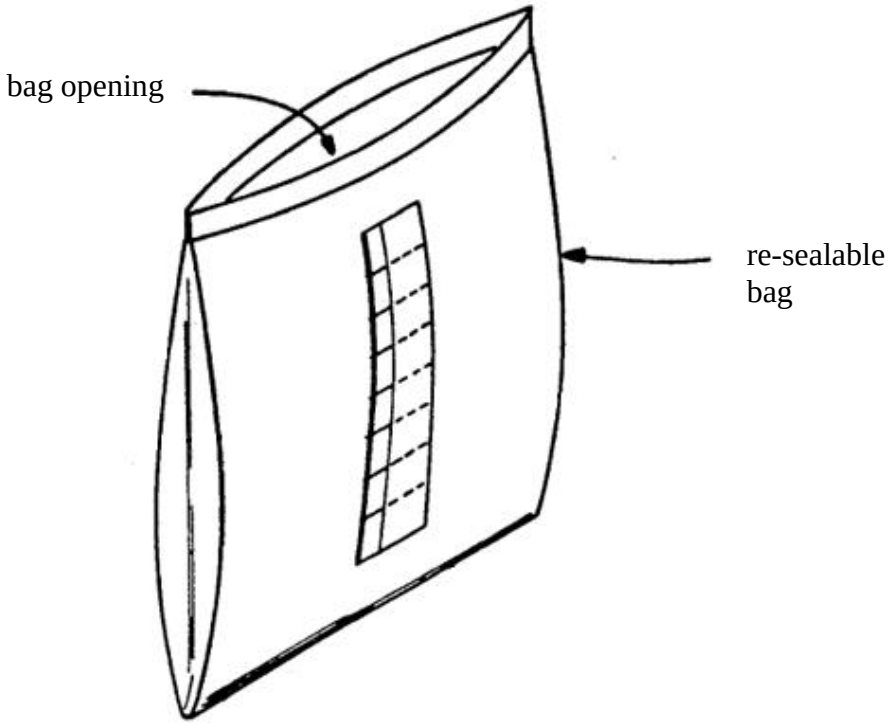


Figure A

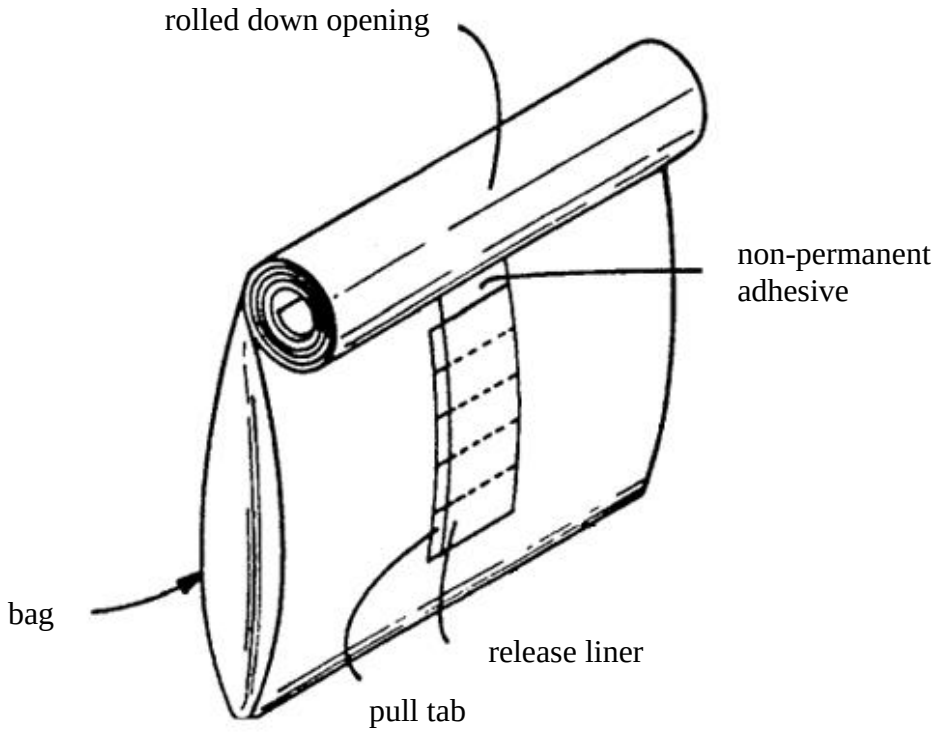


Figure B

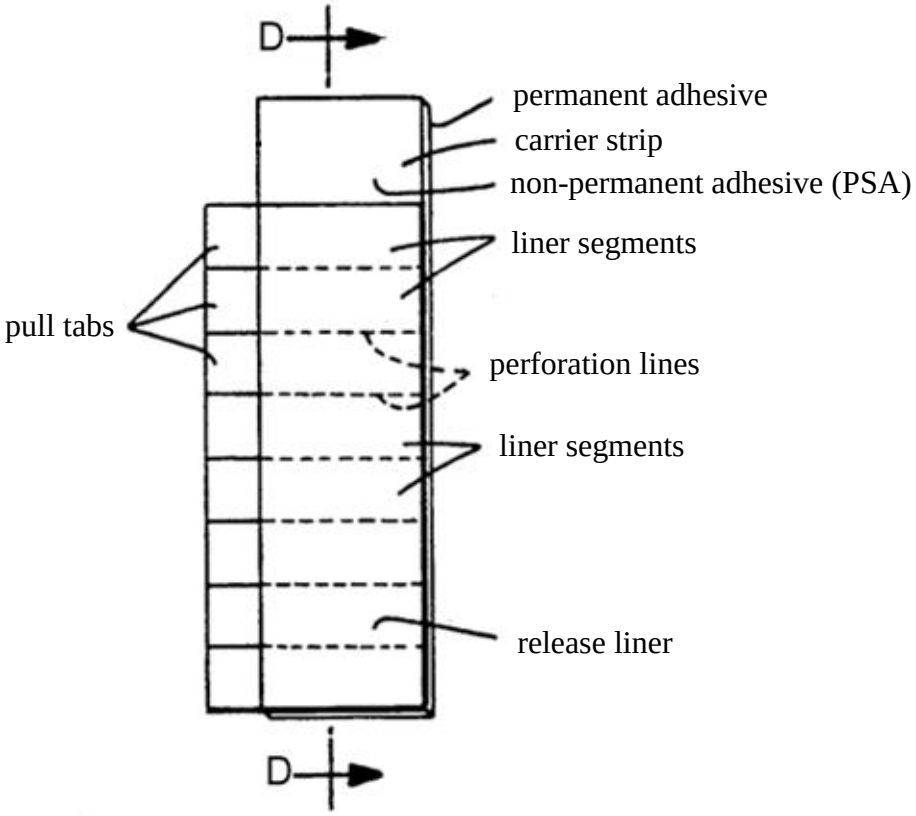


Figure C

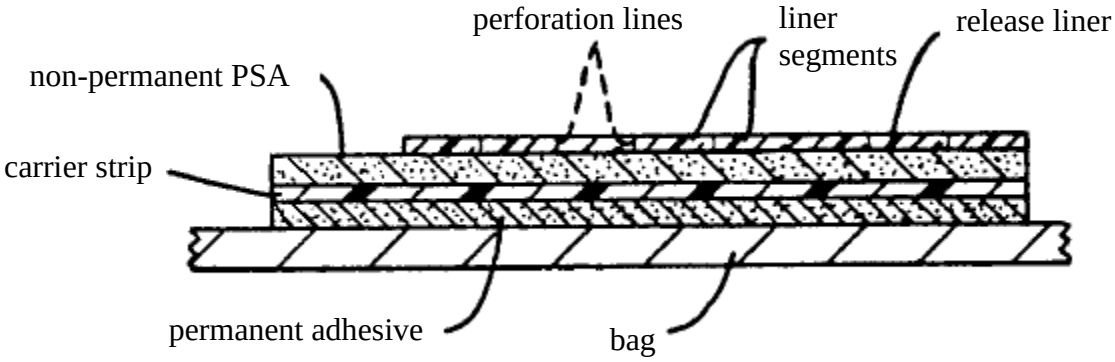


Figure D

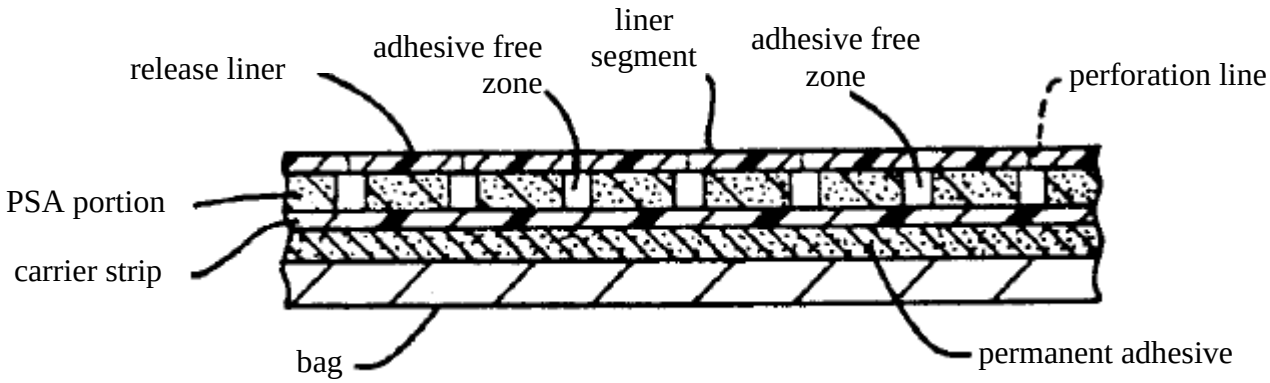


Figure E (Alternative embodiment)

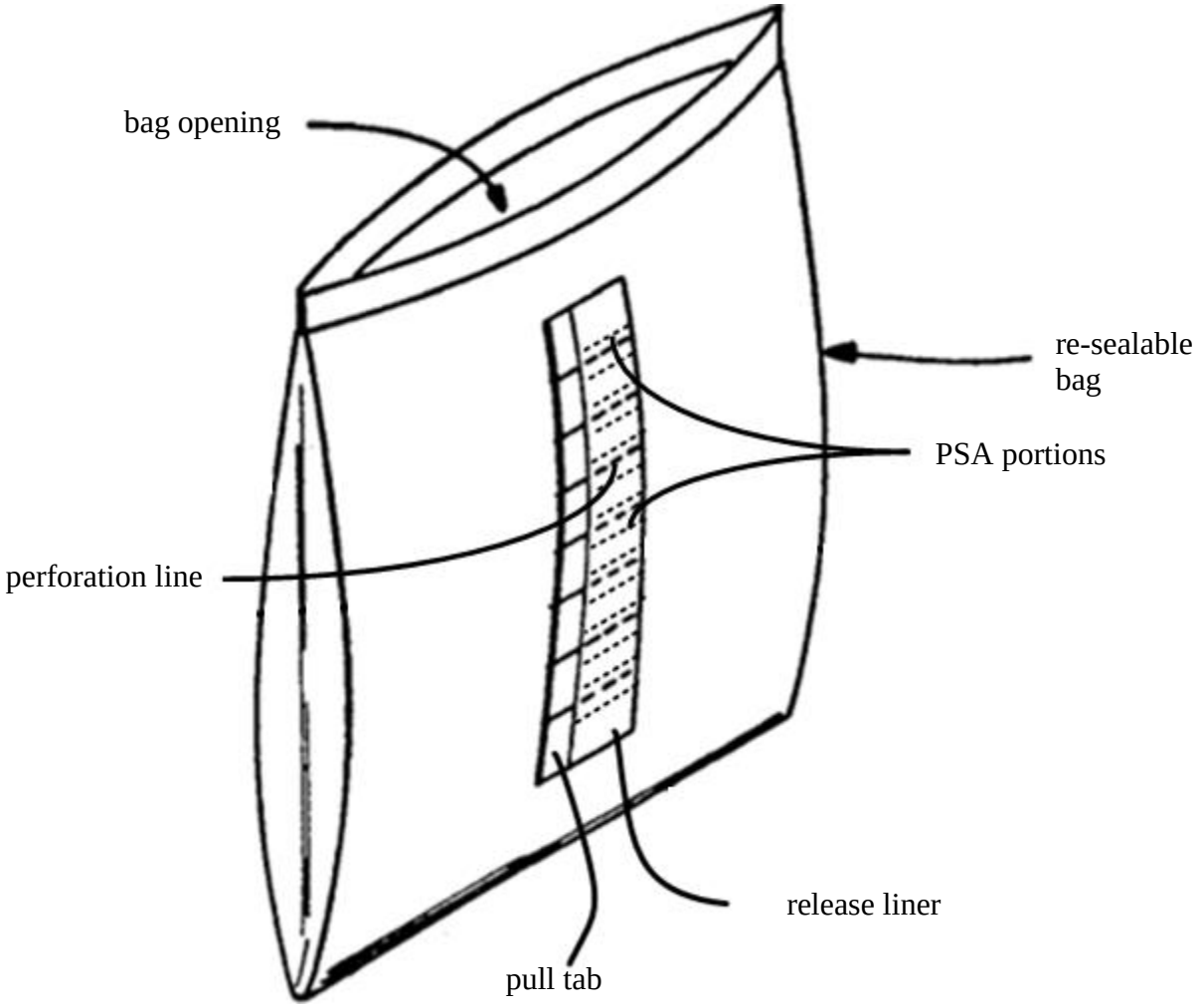
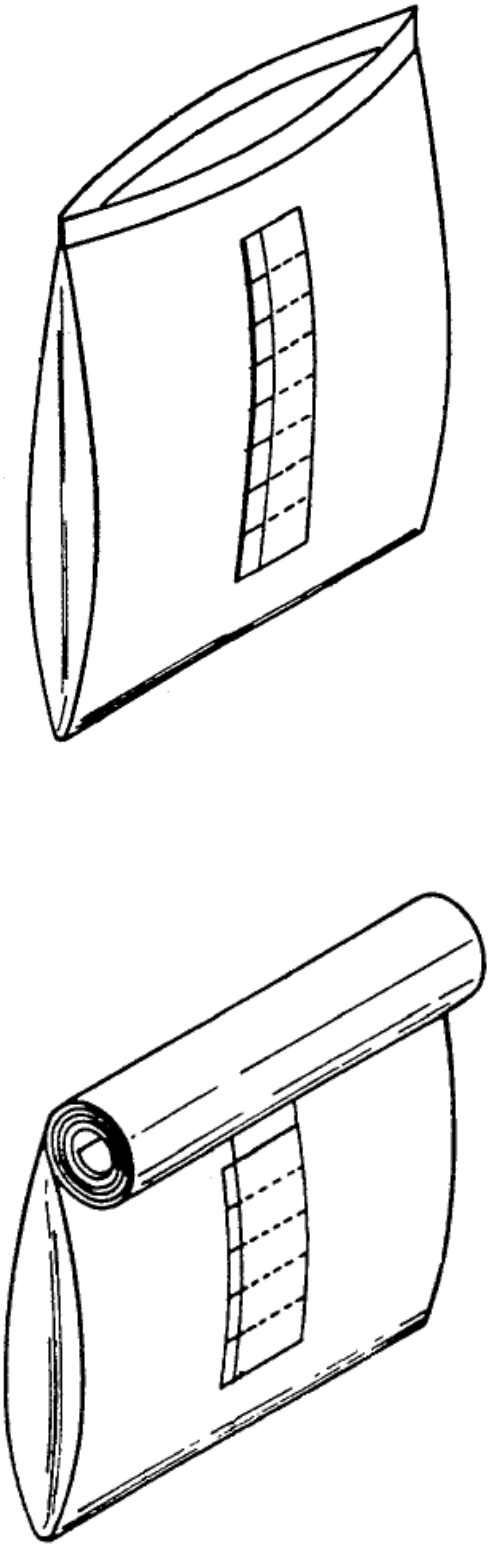
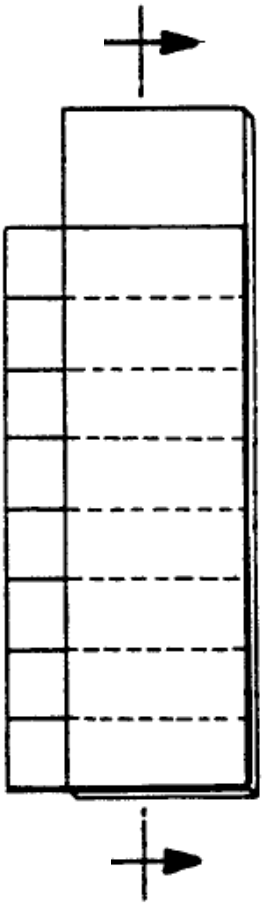
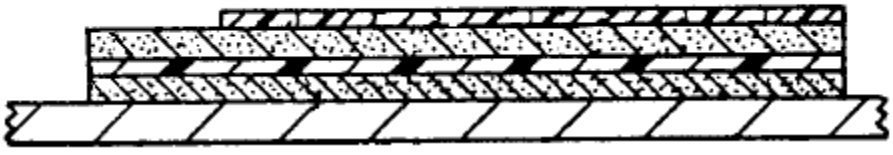
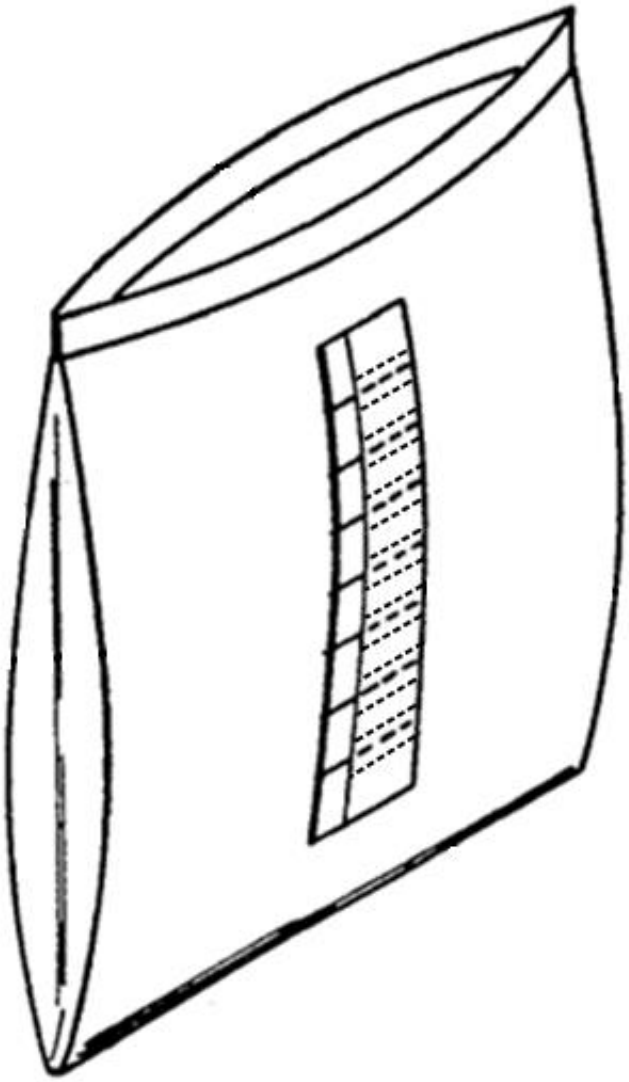


Figure F (Alternative embodiment)









United States Patent [19]
Storkin

[11] **Patent Number: 5,XXX,XXX**
[45] **Date of Patent: April 5, 1991**

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[54] **RECLOSABLE PACKAGING**

[75] Inventor: **Anthony STORKIN**
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[73] Assignee: **Storkin Industries,**
Palo Alto, CA

[21] Appl. No.: **08/ABC,DEF**

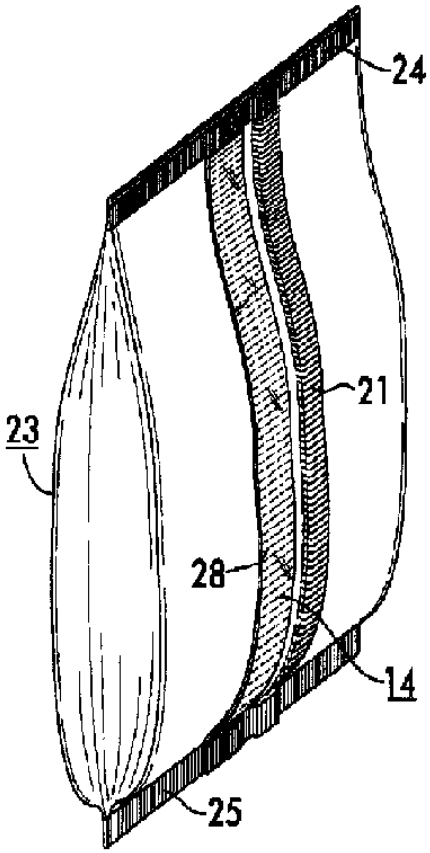
[22] Filed: **Mar. 18, 1989**

Primary Examiner - Downs, R.

[57] **ABSTRACT**

A reclosable package comprises an adhesive layer that extends the full width of a flexible strip of material. Formation of a dry edge on the strip, suitable for grasping by a user, is accomplished either by adhering a piece of material such as a dry tape over a portion of the adhesive layer or by the application of a liquid overcoating which chemically deadens the adhesive.

1 Drawing Sheet



U.S. Patent No. 5,XXX,XXX

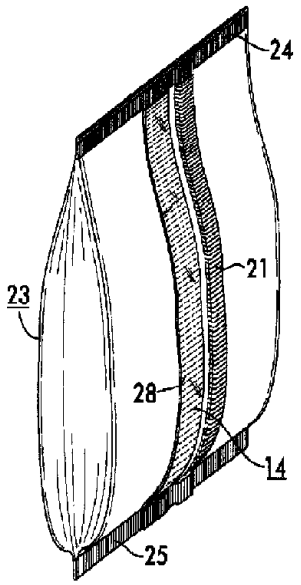


FIG. 1

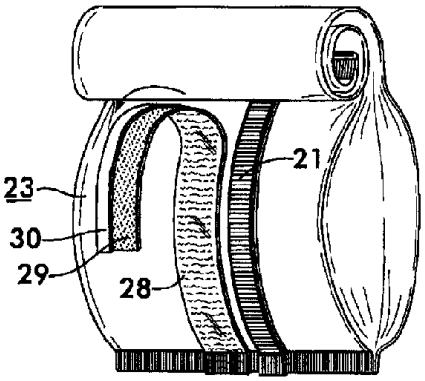


FIG. 2

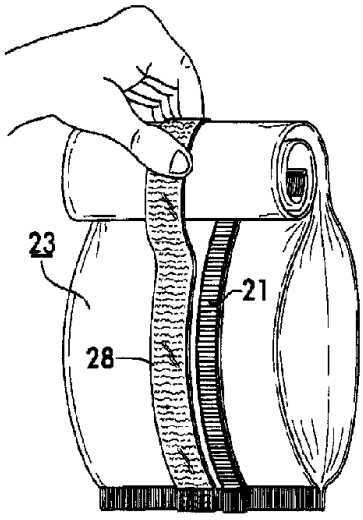


FIG. 3

RECLOSABLE PACKAGING

FIELD OF THE INVENTION

This invention relates to reclosable packages, and more particularly to flexible bags or pouch-type packages typically used for packaging food products where the package contents are not fully consumed within one opening of the package and it is desirable to reclose the package to store the remainder of the contents for subsequent use.

BACKGROUND OF THE INVENTION

Few satisfactory closure systems are available to re-close heavier weight foil packaging, paper bags, or multiwalled laminate packages used to package such items as potato chips and other snack items, lawn care products, dog food and the like. A common method of closing such flexible product bags involves expelling the air from the bag, pressing two sides of the bag together, and rolling the bag down from the top. The consumer normally relies on a number of folds or creases made in that rolled portion of the bag to hold the shape of this rolled portion and to keep out undesired moisture and air. However, over time or as a bag is transported, the rolled portion loosens and may permit the contents to spill out or allow air and moisture to enter the bag through the opening, thereby causing the product to spoil, become stale, or take on other undesirable properties.

SUMMARY OF THE INVENTION

The novel reclosable packaging according to the present invention utilizes a reclosure strip. In accordance with the present invention, an adhesive layer extends the full width of a flexible film strip. Formation of a dry edge of the strip suitable for grasping by the user is accomplished in either of two ways. In one embodiment, a strip of material, *i.e.*, a dry tape, is applied onto the adhesive extending longitudinally along one edge of the film strip. The adhesive secures the tape to the film strip and provides a dry edge by forming an overlaying barrier between the user and the adhesive. In an alternate embodiment, the longitudinally extending barrier to the adhesive along one edge of the flexible film strip can be provided by the application of a liquid overcoating which chemically deadens the adhesive. The overcoating makes the film strip dry to the touch and easy to grasp by the fingers of the user. The reclosure strip is laterally positionable anywhere along the running length of the package.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a flexible package with a package reclosing strip shown thereon, in accordance with an embodiment of the present disclosure;

FIG. 2 is a perspective view of the package of FIG. 1 which has been opened and had product removed, and with the open package top partly rolled down, but with the partly detached reclosing strip not yet applied to the rolled down package top to hold it closed; and

FIG. 3 is a perspective view of the package of FIG. 2 with the reclosing strip applied to the rolled down package top to hold it closed.

DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 shows a reclosable package 23, having top and bottom seals 24 and 25, a longitudinal seal 21, and with a package reclosing strip 14 adhered to the package and extending from the package top seal 24 to its bottom seal 25. As seen in FIGS. 1 through 3, the package reclosing strip 14 is a composite strip formed from a single-faced, adhesive-coated flexible film strip 28 and a dry tape 30. An adhesive coating 29 extends the full width of the film strip 28. The dry tape 30 is longitudinally coextensive with and adhered to a lateral portion of the film strip 28 by the adhesive coating 29.

The film strip 28 could be made of one of paper, plastic, or vinyl, coated with a pressure-sensitive adhesive 29 such as a rubber-based solvent adhesive, in the thickness range of 0.01 to 0.1 mm in coat weight. In some aspects, the adhesive coating 29 is in the thickness range of 0.02 to 0.05 mm in coat weight.

The adhesive coating 29 provides a protective barrier and a means to adhere tape 30. The adhesive portion of the film strip 28 not covered by the tape 30 secures the reclosing strip 14 to the package 23, while the tape 30 provides a dry edge suitable for grasping by a user.

Referring now to FIGS. 2 and 3, the reclosing strip 14 is activated by grasping the film

strip 28 by the dry tape 30 and lifting or pivoting it outward. As shown in FIG. 2, the package 23 has been opened and some contents removed. The construction of the invention facilitates grasping the reclosing strip 14 by the dry tape 30 and pulling the strip 14 downward to partially detach it from the package 23, which is then rolled down as shown. The detached section of the reclosing strip 14 is then laid over and detachably sealed to the rolled down package top by way of the exposed adhesive coating 29 on the film strip 28, as shown in FIG. 3. The film strip 28 is adhered to the package 23 and secured thereon by adhesive layer 29. The next time that it is desired to remove some of the contents from the package 23, the reclosing strip 14 is peeled down so that the package top may be unrolled for dispensing product, and the same reclosing process is then again performed. The reclosing strip 14 is progressively re-attachable to different points on the package 23 to hold the package 23 closed at selected reduced sizes as product is removed from the package 23.

In this embodiment of the invention, the film strip 28 could typically be about 12.7 mm wide and the dry tape 30 could be about 19 mm wide, with about 6.35 mm widthwise overlap of the tape 30 onto the film strip 28 to provide a composite reclosing strip 14 of about 25.4 mm in width.

In an alternate form of the invention, tape 30 may be replaced by a liquid coating which chemically deadens the tackiness of the adhesive coating 29, rendering it dry to the touch. In either case, any printed graphics on the film strip 28 in the area of the dry edge are protected against frictional wear by the adhesive coating 29, which is subsequently partially covered either by the dry tape 30 or the liquid coating.

United States Patent [19]
Stevens

[11] **Patent Number: 6,YYY,YYY**
[45] **Date of Patent: May 4, 1994**

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[54] **BAG WITH BUILT-IN CLOSURE TAB**

[75] Inventor: **Roger STEVENS**
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[73] Assignee: **Adhesives Co.,**
Seattle, WA

[21] Appl. No.: **08/JKL,MNO**

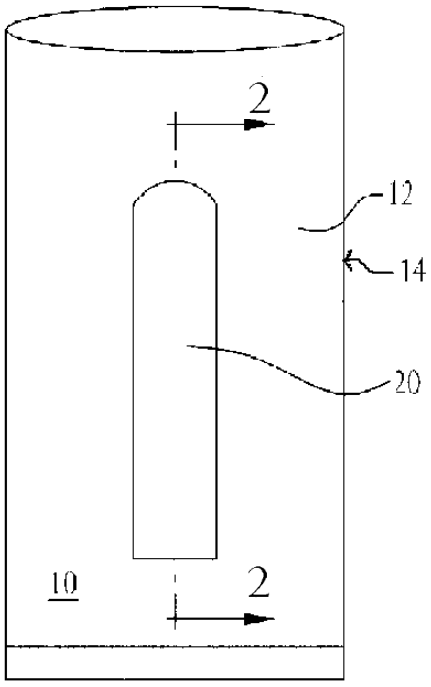
[22] Filed: **June 26, 1992**

Primary Examiner - Evanston, C.

[57] **ABSTRACT**

A bag having a built-in closure tab is defined. The closure tab is formed from the outer layer of laminate which makes up the bag. When a user wishes to close the bag, the user folds or rolls the sides of the bag together down the side of the bag having the tab. The tab is partially separated from the rest of the outer layer of the laminate. A pressure sensitive adhesive disposed on the interior surface of the tab is used to affix the tab to the rolled down portion of the bag, preventing unwanted opening of the bag. The tab may be affixed and removed from the rolled down portion a number of times, thereby allowing the user to repeatedly open and reseal the bag.

1 Drawing Sheet



U.S. Patent No. 6,YYY,YYY

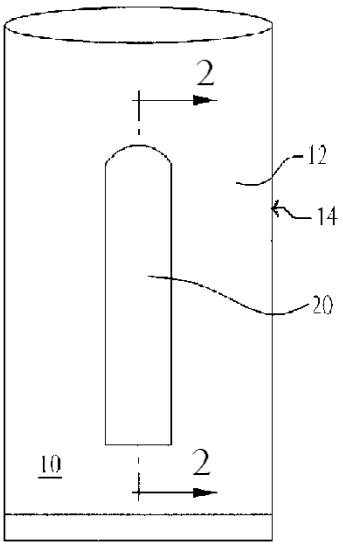


FIG. 1

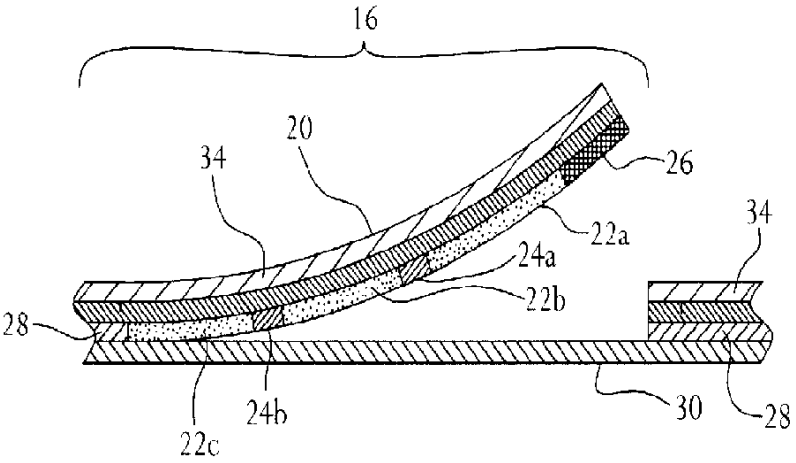


FIG. 2

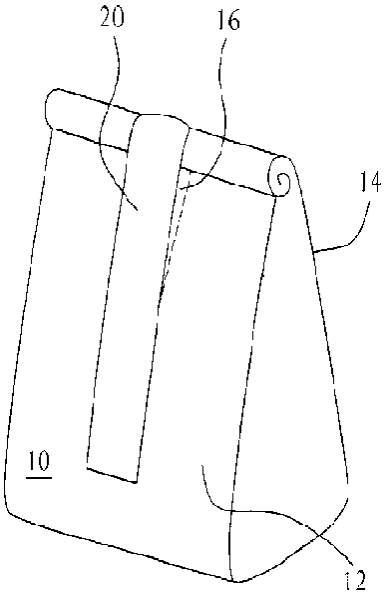


FIG. 3

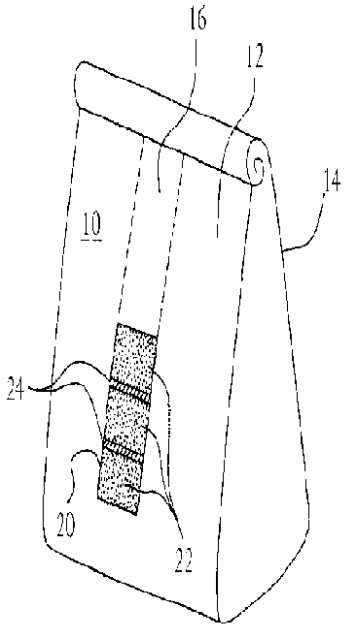


FIG. 4

BAG WITH BUILT-IN CLOSURE TAB

FIELD OF THE INVENTION

The invention relates to a resealable bag. More particularly, the invention is directed to a bag having a built-in reusable closure tab.

BACKGROUND OF THE INVENTION

Film bags are used for containing a wide variety of items, such as food items. A typical film bag is made from a laminate that includes an outer film layer adhesively secured to an inner layer that allows the package to be sealed. The outer and inner layers are both typically made from plastic film, such as polyethylene or polypropylene.

The conventional bag is closed by bringing two opposing sides into contact and downwardly folding or rolling them together. When closed, the bag may tend to free itself from the rolled configuration, thereby reopening and exposing its contents to ambient air. Various methods of preventing the conventional bag from reopening have been attempted, such as using clips, twist ties, and adhesive tape. However, these things have a tendency to be misplaced and are often unavailable when needed.

SUMMARY OF THE INVENTION

The invention is directed to a bag having an inner layer and an outer layer, which form the sides of the bag, with a portion of the outer layer defined as a reusable built-in closure tab. The tab portion is mostly separable from the remainder of the outer layer, the remainder of the outer layer defining a fixed portion of the outer layer. The tab portion is attached to the fixed portion of the outer layer only at its base. A pressure sensitive adhesive, rather than a permanent adhesive, is disposed on the underside of the tab, releasably attaching the tab to the inner layer. Thus, the tab may be easily pulled away from the inner layer, although remaining attached to the inner layer and the fixed portion of the outer layer at its base. The pressure sensitive adhesive disposed on the inside of the tab may be used to affix the tab to a rolled down portion of the bag, thereby sealing the bag closed.

DESCRIPTION OF THE DRAWINGS

Referring to the drawings, wherein like elements are numbered alike in the several FIGURES:

FIG. 1 is a front elevational view of an open bag according to the present invention;

FIG. 2 is a cross sectional view of a portion of the side of the bag shown in FIG. 1, taken along lines 2--2 in FIG. 1;

FIG. 3 is a perspective view of the bag shown in FIG. 1 in a closed configuration; and

FIG. 4 is a schematic view of the bag shown in FIG. 1, showing the built-in closure tab being transparent to show its underside.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to FIG. 1, there is shown a film bag 10. Disposed on a wall of the bag 10 is a built-in reusable closure tab 20.

Bag 10 has a front wall 12 and a back wall 14. The walls 12, 14 of the bag 10 are formed from a laminate having at least two layers. Tab 20 is provided on front wall 12 and is formed from an outer layer 34 of the laminate, as seen in FIG. 2.

Generally, tab 20 is substantially coplanar with the remainder of the front wall 12 before the bag 10 is opened. While tab 10 is shown having a rectangular bottom portion and a curved top portion, the person skilled in the art would understand that the tab could be any elongate shape, such as a rectangle or oval.

Once a user opens the bag 10 and consumes a portion of the contents stored therein, the user brings both walls 12, 14 of the bag 10 together to re-close the top of the bag 10. The user pulls at least part of the tab 20 away from the plane of the wall 12. The top of the bag 10 is then rolled or folded down, the roll forming along front wall 12. The user then engages the tab 20 with the rolled portion, the tab 20 adhering to the folded portion with enough affinity to prevent the bag 10 from unrolling.

FIG. 2 shows a schematic cross section of a portion of the front wall 12, taken along line 2--2 of FIG. 1. The laminate that forms bag 10 comprises an inner layer 30 and an outer layer 34. The inner layer 30 is substantially uniform across the entire bag, there being no holes, cut-outs or regions substantially different than the rest.

The outer layer 34 is bonded to the inner layer 30 by a permanent adhesive 28, except for a knock-out zone 16 which is not bonded with permanent adhesive 28. Thus, the outer layer 34 comprises two portions: the fixed portion and the tab 20. The fixed portion of outer layer 34 is permanently adhered to inner layer 30. The area of the outer layer 34 corresponding with knock-out zone 16 forms tab 20. The knock-out zone 16 extends near enough the bottom of the bag 10 as to be capable of releasing the closure tab 20 for effective closure of bag 10, even when bag 10 is nearly empty.

As seen in FIGS. 3 and 4, tab 20 is never fully removed from the fixed portion of outer layer 34. Rather, tab 20 remains tangentially attached to the remainder of outer layer 34 along a line or region to avoid accidental total separation. The tab 20 may be formed by any process capable of accurately cutting the outer layer 34 while leaving the inner layer 30 intact.

Within the knock out zone 16, where permanent adhesive is not dominant, a pressure sensitive adhesive (PSA) 22 is provided. The particular PSA selected for use may vary depending on the material of outer layer 34. The PSA should, however, have a greater affinity for the interior surface of outer layer 34 than for the inner layer 30 and the exterior surface of outer layer 34. It is preferable to use an adhesive which is pressure sensitive such that the closure tab 20 may be applied and removed a plurality of times from engagement with inner layer 30 and with the fold of bag 10, as shown in FIG. 3.

In one embodiment, PSA 22 is provided in zones, shown as 22a through 22c in FIG. 2. When the PSA 22 on the tab 20 is provided in zones, only one zone need be used at a time, keeping the remaining zones free of dust or other potential contaminants. Once the PSA 22 on the zone in use has reached the end of its useful life, the user may expose the next zone for use. Separating each zone is a gutter of a stronger adhesive 24, shown as elements 24a and 24b in FIG. 2. For purposes herein, a "stronger adhesive" means any adhesive with a greater affinity to inner layer 30 than the affinity of PSA 22 to inner layer 30. As such, stronger adhesive 24 may be another PSA or may be a heat curable adhesive. However, stronger adhesive 24 should not be so strongly adhered to inner layer 30 as to be inseparable therefrom without causing damage to tab 20 or inner layer 30.

It is preferred to provide an adhesive-free zone 26 at the tip of the tab 20. The adhesive-free zone 26 may be provided to assist the user in grasping the tab 20 for separation thereof from inner layer 30.

When the PSA 22 is provided in zones, as shown in FIGS. 2 and 4, a user may grasp the tip of tab 20 and pull with an adequate force to separate PSA zone 22a from inner layer 30. The force initially used should not be so great as to separate stronger adhesive 24a from inner layer 30. Thus, the user may initially reveal only zone 22a, keeping zones 22b and 22c protected from contamination. With zone 22a revealed, the user may roll down the bag 10, such as one might normally do to close a bag, and affix zone 22a to the rolled portion to ensure the bag 10 remains closed. FIG. 3 shows the tab 20 affixed to the rolled portion.

In the event PSA 22a loses its affinity and fails to properly keep the bag closed or if it is desired to roll the bag down beyond where tab 20 remains affixed to inner layer 30, the user may reveal an additional PSA zone 22b. The user may do so by pulling tab 20 away from inner layer 30 with adequate force to separate a first stronger adhesive gutter therefrom, identified by the numeral 24a in the drawings. The separation of stronger adhesive 24a from inner layer 30 reveals PSA zone 22b. Tab 20 may then be affixed to the folded portion of the bag 10 via PSA 22b, in a way similar to that shown in FIG. 3.

Additional PSA zones 22 may be sequentially revealed as needed. It is preferable that the last PSA zone 22 be near the bottom of the bag such that it is capable of holding the bag 10 closed when the bag 10 is nearly empty and the user rolls or folds the bag 10 downwardly to near its bottom.

Three zones of PSA22, as shown in the drawings, may be adequate for the design of most bags. However, more zones may be desirable for very large bags or bags which a user must open and reseal an excessive number of times.

PART B – Short Answer Question (2 points)

When preparing the patent application, you were specifically instructed by the packaging company to prepare an independent claim towards a method of manufacture. Given the nature of the product being patented, please provide at least one reason why the packaging company might not have asked for an independent claim towards a method of use?

END OF PAPER A EXAM

CANADIAN PATENT AGENT QUALIFYING EXAMINATION 2019: PAPER A – DRAFTING MARKING GUIDE AND MARKS BREAKDOWN	
Candidate #	
Total # of Exam Pages Received From CIPO	

CLAIM 1	**APPARATUS – INDEPENDENT CLAIM – 36 MARKS MAXIMUM**	

Sample claim:
A re-sealable bag comprising:
- an external surface;
- a carrier strip having a first side and a second side;
  o the first side comprising a layer of non-permanent adhesive disposed thereon;
  o the second side being permanently affixed to the external surface;
- a release liner covering the layer of non-permanent adhesive and being removable to expose the non-permanent adhesive to allow a portion of the external surface to adhere to the non-permanent adhesive.		

Claim Element	**Explanation**	**Mark**
A re-sealable bag comprising	Will accept: package, container, receptacle instead of bag Will accept: a closure/sealing system or mechanism or device for a re-sealable bag so long as all the bag elements are included indirectly in the claim. Re-sealable can be included in the preamble, or can be indirectly claimed through another limitation of claim 1.	0 or 3
an external surface	The external surface can be recited positively, or indirectly through another limitation of claim 1. Will accept: side, first side and second side instead of external surface.	0 or 2
a carrier strip having a first side and a second side;	Will accept: strip of material, carrier material, carrier tape or piece of material instead of carrier strip. Will accept: front side and back side, internal side or external side instead of first and second side. Will accept surface instead of side so long as it is defined that the first surface is opposite to the second surface, otherwise, will not accept.	0 or 5
the first side comprising a layer of non-permanent adhesive disposed thereon	Will accept: pressure-sensitive adhesive (PSA) *in addition* to non-permanent. See below for omission of "non-permanent"	0 or 8
the second side being permanently affixed to the external surface;	Omission of "permanently" = 0 Will accept: permanently fixed, permanently secured, permanently attached instead of permanently affixed. Will accept specification that the first side is opposite to the second side. See below for penalty for "permanently *adhered*"	0 or 10
a release liner covering the layer of non-permanent adhesive	Will accept release layer, release film, release strip instead of release liner Will not accept release paper. Will accept: overlaying instead of covering	0 or 5
and being removable to expose the non-permanent adhesive	Will accept: detachable, releasable, separable or configured for removal instead of removable	0 or 2
to allow a portion of the external surface to adhere to the non-permanent adhesive	Will accept "external surface to adhere to the *first side of the carrier strip*". Will accept "to allow an opening of the bag to be re-sealed" Will accept "for adhering the external surface of the bag to the non-permanent PSA".	0 or 1

DEDUCTIONS:		Amount
For omitting: *non-permanent* adhesive	-4	
For including: release liner being segmented	-15	
For each other superfluous claim limitation or element (e.g. specifying location of carrier strip on the bag, carrier strip being permanently *adhered*)	-5	
For unclear language or inconsistencies	Max -5	
TOTAL INDEPENDENT APPARATUS CLAIM (MINIMUM = 0)		**/36**

CLAIMS 2-7	**APPARATUS – DEPENDENT CLAIMS – 6 MARKS MAXIMUM: ONLY THE FIRST 6 DEPENDENT APPARATUS CLAIMS ARE CONSIDERED**	
Claim Element		
Worth 1 point		

- the release liner comprises separately removable segments
  o the release liner comprises perforations between the separately removable segments.
  ▪ The perforations are perpendicular to a longitudinal axis of the carrier strip.
  o the release liner comprises scoring lines that separate the separately removable segments.
  ▪ The scoring lines are perpendicular to a longitudinal axis of the carrier strip.
- the release liner is transparent/translucent.
- the release liner comprises one of paper, PET, polyethylene or polypropylene or laminate combination thereof.
- the second side of the carrier strip is permanently adhered to the external surface via permanent adhesive.
  o the permanent adhesive is stronger than the non-permanent adhesive.
  o the permanent adhesive is rubber based.
- the second side is permanently affixed to the external surface via one of heat lamination and ultrasonic welding.
- the layer of non-permanent adhesive comprises a plurality of portions spaced from one another by non-adhesive zones.
  o the perforations of the release liner are positioned in between the plurality of spaced portions.
- non-permanent adhesive comprises polyisobutylene or is acrylic-based.	

Worth 0.5 points		

- the carrier strip comprises one of paper, plastic, vinyl or any other material that is flexible and tear resistant.
- the carrier strip is perpendicular to an opening edge of the re-sealable bag.
- the carrier strip has a length of greater than half the height of the bag.
- the carrier strip has an elongated shape.
- the carrier strip has a length greater than a width.
- the carrier strip is one of rectangular or oval.
- the carrier strip comprises printing thereon.
- the release liner comprises pull tabs.
- the release liner comprises printing thereon.
- the permanent adhesive has a thickness of 0.01 to 0.1 mm.
  o the permanent adhesive has a thickness of 0.02 to 0.05 mm.
- the permanent adhesive is rubber based.
- the non-permanent adhesive has a thickness of 0.01 to 0.1 mm.
  o the non-permanent adhesive has a thickness of 0.02 to 0.05 mm.
- the bag comprises one of foil, paper, multi-walled laminate or plastic material.	

Claim Marking	Mark
Claim 2	0 or 1
Claim 3	0 or 1
Claim 4	0 or 1
Claim 5	0 or 1
Claim 6	0 or 1
Claim 7	0 or 1
DEDUCTIONS:	
For each dependent claim that does not have a proper dependency (-0.5 per claim)	
For unclear language or inconsistencies (max -0.5 per claim)	
Total Dependent Apparatus Claims Mark:	**/6**

CLAIM 8	**METHOD – INDEPENDENT CLAIM – 15 MARKS MAXIMUM**	
Sample claim: A method of manufacturing a re-sealable bag, the re-sealable bag comprising an external surface, the method comprising: - providing a carrier strip; - applying to a first side of the carrier strip a non-permanent adhesive; - applying a release liner to cover the non-permanent adhesive; - permanently affixing a second side of the carrier strip to the external surface of the bag.		
Claim Element	**Explanation**	**Mark**
A method of manufacturing a re-sealable bag, the re-sealable bag comprising an external surface, the method comprising:	Will accept: package, container, receptacle instead of bag Re-sealable can be included in the preamble, or can be indirectly claimed through another limitation of claim 8. The bag having an external surface can be included in the preamble, or can be indirectly claimed through another limitation of claim 8. Will accept: side, first side and second side instead of external surface.	0 or 2
providing a carrier strip	Will accept: strip of material, carrier material, carrier tape or piece of material instead of carrier strip. Will also accept positive recital of the carrier strip having a first side and a second side.	0 or 2
applying to a first side of the carrier strip a non-permanent adhesive	Will accept: front side or external side instead of first side. Will accept surface instead of side so long as it is defined that the first surface is opposite to the second surface, otherwise will not accept surface. Will accept: pressure-sensitive adhesive *in addition* to non-permanent. Omission of "non-permanent" = 0	0 or 3
applying a release liner to cover the non-permanent adhesive	Will accept release layer, release film, release strip instead of release liner Will not accept release paper. Will accept: to overlay instead of to cover	0 or 2
permanently affixing a second side of the carrier strip to the external surface of the bag	Omission of "permanently" = 0 Will accept: permanently fixed, permanently secured, permanently attached instead of permanently affixed. See below for penalty for "permanently *adhered*"	0 or 6
DEDUCTIONS:		**Amount**
For including: release liner being segmented	-7	
For each superfluous claim element (e.g. specifying location of carrier strip on the bag, carrier strip being permanently *adhered*)	-3	
For unclear language or inconsistencies	Max -4	
Total Independent Method Claim Mark:		**/15**

CLAIMS 9-11	METHOD – DEPENDENT CLAIMS – 3 MARKS MAXIMUM: ONLY THE FIRST 3 DEPENDENT METHOD CLAIMS ARE CONSIDERED	
Claim Element		
Worth 1 point		
- Wherein providing a carrier strip comprises providing a continuous tape of carrier material; o wherein applying to a first side of the carrier strip the non-permanent adhesive comprises coating the continuous tape of carrier material with the non-permanent adhesive. ▪ wherein applying the release liner comprises applying a continuous tape of release liner to the continuous tape of carrier material over the non-permanent adhesive. ▪ further comprising applying perforations to the continuous tape of release liner prior to applying it to the tape of carrier material. ▪ further comprising aligning the application of the tape of release liner over the tape of carrier material such that a portion of the tape of release liner overhangs the carrier material so as to form tabs. • further comprising cutting the combined continuous tape of carrier material and continuous tape of release liner into individual sections. ▪ wherein the continuous tape of carrier material is die-cut into individual carrier strips and applied to the continuous tape of release liner. • further comprising cutting the continuous tape of release liner into individual sections.		
Claim Marking		**Mark**
Claim 9		0 or 1
Claim 10		0 or 1
Claim 11		0 or 1
DEDUCTIONS:		
For each dependent claim that does not have a proper dependency (-0.5 per claim)		
For unclear language or inconsistencies (max -0.5 per claim)		
Total Dependent Method Claims Mark:		**/3**

DISCLOSURE	**DISCLOSURE/DRAWINGS – 38 MARKS MAXIMUM**	
Disclosure/Drawings Element	**Requirement for Full Marks**	**Mark**
ABSTRACT *NOTE: Independent claims inserted in sentence form may not be fully suitable. For example, even good claims might not "be drafted in a way that allows a clear understanding of the technical problem, the gist of the solution of the problem through the invention, and the principal uses of the invention" as required by S. 79(4) of the Patent Rules.*	Is consistent with claims and disclosure as drafted **AND** does not contain more than 150 words; **AND** method and apparatus both need to appear (if above three criteria are met = 0.5 marks) **AND** drafted in a way that allows clear understanding of technical problem and gist of the solution (if all four criteria are met = 1 mark) However, see below: ***Note***: due to wording constraint, the Abstract does not need to parrot the entirety of each of the apparatus and method claims	0, 0.5 or 1
TITLE Example: Re-sealable Bag and Method of Manufacturing a Re-sealable Bag	Must be consistent with description / claims as drafted **AND** must indicate both apparatus and method aspects	0 or 1
FIELD OF INVENTION Example: The present invention relates to re-sealable bags and methods of manufacturing re-sealable bags, and more particularly to re-sealable bags that are re-sealable using non-permanent adhesive strips.	Must be consistent with description / claims as drafted **AND** must indicate both a general field and a particular field (if above two criteria are met = 1 mark) **AND** must mention both apparatus and method (if all three criteria are met = 2 marks)	0, 1 or 2
BACKGROUND D1 –5,XXX,XXX	Must mention: • recloseable package • adhesive layer or film strip • dry edge (tape or deadening chemical) **AND** • that the problem is that the reclosing member can be torn off and lost **OR** • that the adhesive layer can become contaminated and lose its tackiness so as to become ineffectual	0 to 4
BACKGROUND D2 – 6,YYY,YYY	Must mention: • built-in closure tab • pressure-sensitive adhesive layer • discrete pressure-sensitive adhesive zones or segments **AND** • that the problem is that it is complex to assemble or manufacture **OR** • that the closure tab could be ripped off.	0 to 4

SUMMARY *NOTE: If candidate has merely asked that the independent claims be considered inserted in sentence form into this section by reference, it will typically be the case that, even if the inserted claims are very good as claims, they are not fully suitable for the Summary. For example, even good claims might not "describe the invention in terms that allow understanding of the technical problem, even if not expressly stated as such, and its solution" as required by S. 80(1)(d) of the Patent Rules.*	Must include paragraph that uses the same language as the independent apparatus claim **AND** must include a paragraph that uses the same language as the independent method claim **AND** must include a concise summary of the technical problem and the solution (if only one criteria is met = 0) (if two criteria are met = 2 marks) (if three criteria are met = 4 marks)	0 to 4
BRIEF DESCRIPTION OF DRAWINGS Example: Note that order of Figures may be different	Must be correctly described (views) **AND** must be numbered (Arabic numerals) **AND** must use terms consistent with description/claims (if one of the above criteria is not met = 0 marks; if above three criteria are met = 1 mark) **AND** must include relationship between the drawings (if all four criteria are met = 2 marks)	0, 1 or 2
Sub-total before description of embodiments and drawings		**/18**

DESCRIPTION OF EMBODIMENTS AND DRAWINGS	
Requirement	Mark
CONSISTENCY	
If independent apparatus claim as drafted is fully and clearly supported by description and drawings [claim language used in spec, consistent language used throughout, all elements clearly described]	0 or 4
If ALL dependent apparatus claims as drafted are fully and clearly supported by description and drawings (i.e. if one or more dependent claims not fully supported, mark is 0)	0 or 2
If independent method claim is fully and clearly supported by description and drawings:	0 or 2
If ALL dependent method claims as drafted are fully and clearly supported by description and drawings (i.e. if one or more dependent claims not fully supported, mark is 0)	0 or 1
If proper reference numerals are used in text and drawings (different numerals for different elements, no text matter in drawings, consistent use of reference numerals, etc.	0 or 2
COMPLETENESS	

If the following features are ALL described clearly (if any is missing: 0):
 	
• a re-sealable bag
• a carrier strip having a first side and a second side;
  o the first side comprising a layer of non-permanent adhesive disposed thereon;
  o the second side being permanently affixed to the external surface;
• a release liner covering the layer of non-permanent pressure sensitive adhesive
• the release liner being removable to expose the non-permanent adhesive to allow a portion of the external surface to adhere thereto.
	0 or 3

If the following features are described clearly (3 marks = 18 or more features described, 1.5 marks = 9 to 17 features described, 0 marks = 8 or less features described):
 	
- the release liner comprises separately removable segments
  o the release liner comprises perforations between the separately removable segments.
  ▪ The perforations are perpendicular to a longitudinal axis of the carrier strip.
  o the release liner comprises scoring lines that separate the separately removable segments.
  ▪ The scoring lines are perpendicular to a longitudinal axis of the carrier strip.
- the release liner comprises pull tabs.
- the carrier strip is perpendicular to an opening edge of the re-sealable bag.
- the carrier strip has a length of greater than half the height of the bag.
- the second side of the carrier strip is permanently adhered to the external surface via permanent adhesive.
  o the permanent adhesive is stronger (or has greater strength) than the non-permanent adhesive.
  o the permanent adhesive is rubber based.
- the second side is permanently affixed to the external surface via one of heat lamination and ultrasonic welding.
- the layer of non-permanent adhesive comprises a plurality of portions spaced from one another by non-adhesive zones.
  o the perforations of the release liner are positioned in between the plurality of spaced portions.
- the release liner comprising printing thereon.
- the release liner comprises one of paper, PET, polyethylene or polypropylene.
- the carrier strip comprises one of paper, plastic, vinyl.
- the carrier strip has an elongated shape.
- the carrier strip has a length greater than a width.
	0, 1.5 or 3

- the carrier strip is one of rectangular or oval.
- the release liner is transparent/translucent.
- the carrier strip comprises printing thereon.
- the permanent adhesive has a thickness of 0.01 to 0.1 mm.
  o the permanent adhesive has a thickness of 0.02 to 0.05 mm.
- the permanent adhesive is rubber based.
- the non-permanent adhesive has a thickness of 0.01 to 0.1 mm.
  o the non-permanent adhesive has a thickness of 0.02 to 0.05 mm.
- non-permanent adhesive comprises polyisobutylene or is an acrylic-based.
- The bag comprises one of foil, paper, multi-walled laminate or plastic material.	

If the following features are <u>ALL</u> described clearly (if any is missing: 0): A method of manufacturing a re-sealable bag: - providing a carrier strip; - applying to a first side of the carrier strip a non-permanent adhesive; - applying a release liner to cover the non-permanent adhesive; - permanently affixing a second side of the carrier strip to an external surface of the bag.	0 or 2

If the following features are described clearly (1 mark = 3 or more features described, 0 mark = 2 or less features are described):
 	
• Wherein providing a carrier strip comprises providing a continuous tape of carrier material;
  o wherein applying to a first side of the carrier strip the non-permanent adhesive comprises coating the continuous tape of carrier material with the non-permanent adhesive.
  ▪ wherein applying the release liner comprises applying a continuous tape of release liner to the continuous tape of carrier material over the non-permanent adhesive.
  ▪ further comprising applying perforations to the continuous tape of release liner prior to applying it to the tape of carrier material.
  ▪ further comprising aligning the application of the tape of release liner over the tape of carrier material such that a portion of the tape of release liner overhangs the carrier material so as to form tabs.
  • further comprising cutting the combined continuous tape of carrier material and continuous tape of release liner into individual sections.
  ▪ wherein the continuous tape of carrier material is die-cut into individual carrier strips and applied to the continuous tape of release liner.
  • further comprising cutting the continuous tape of release liner into individual sections.
	0 or 1

DEDUCTIONS	
Non-essential element characterized as essential or essential element characterized as optional -3	
For unclear or informal language, inconsistencies in language, poorly organized draft Max -3	
Sub-total description of description of embodiments and drawings	**/20**

Part B – Short Answer Question		
Acceptable Answers	**Requirement for Full Marks**	**Mark**

Answers
- If infringement is done by users who buy the packaging company's bag:
  o It would not make good business sense for the company to sue its own customers.
  o There is an implied license when someone buys a product that they are getting the license to use it (patent exhaustion).
- If infringement is done by users who buy a competitor's knock-off product:
  o damages from an individual user would be miniscule. Only makes sense to sue the competitor for inducement to infringe. It would be much easier to go after the competitor for the apparatus or method of manufacture (i.e. direct infringement).
	An answer that identifies either one of the three reasons identified gets full marks.	0 or 2

TOTAL	**TOTAL MARK – 100 MARKS MAXIMUM**	
Independent Apparatus claim	**Mark on 36**	
Dependent Apparatus claims	**Mark on 6**	
Independent Method claim	**Mark on 15**	
Dependent Method claims	**Mark on 3**	
Sub-total before description of embodiments and drawings	**Mark on 18**	
Sub-total description of description of embodiments and drawings	**Mark on 20**	
Short Answer Question	**Mark on 2**	
Total		

PATENT AGENT EXAMINATION

PAPER B

2019

PART A

The following four (4) documents are provided:

1. Canadian Patent No. 2,xxx,100
2. D1: Australian Patent No. 2013/xxx,985
3. D2: Canadian Patent No. 2,xxx,435
4. D3: United States No. 7,xxx,610

INSTRUCTIONS TO CANDIDATES

Review the following background and provided documents and provide an appropriate response to each question. Do not provide extraneous commentary if not directly relevant to the question. For example, if the question requires a determination as to novelty, do not comment on other criteria such as utility, obviousness, etc. Note that statements of authorities or pertinent law (which may include case law and statutory and regulatory provisions), analysis and argument are required ONLY when requested. Unless otherwise stated, point form answers are acceptable provided that such answers are sufficiently clear and convey the required information.

BACKGROUND

Your client is Jane who is a human resources manager of a law firm. Following the unexpected departures of several employees who were injured using the office's old paper shredder, she had asked the firm's mechanical engineer Bob to fix the old shredder.

While doing so, Bob invented a shredder including safety features. Jane and Bob started a company "Smart Shredder, Inc." and filed a United States provisional patent application before the remaining employees in the firm started to use the improved shredder. Due to its popularity, a subsequent Canadian patent application was filed to cover the improved shredder with safety features, and Canadian Patent No. 2,xxx,100 was obtained. Sales of the shredder have soared, with 500 units being sold annually.

However, it has come to Jane's attention that an employee of the law firm, Jim, has been selling a competing shredder that might fall within the scope of Canadian Patent No. 2,xxx,100. Further, Jane was informed that competitors added the same safety features to their own design of shredders immediately after the first release of the claimed shredder of "Smart Shredder, Inc."

Before approaching Jim regarding the delicate issue of patent infringement, Jane asks you to assess the validity of Canadian Patent No. 2,xxx,100. Jane provides you with Canadian Patent No. 2,xxx,100 and the results of her prior art search (D1-D3) which revealed documents which do not appear to have been considered by the Canadian Examiner.

QUESTION 1: [5.0 marks]

a) Name the leading Canadian Supreme Court case pertaining to novelty and obviousness. **[0.5 marks]**

b) Evaluate the citability of D1-D3 in view of anticipation and obviousness. Provide reasons why the documents are citable or not and apply all the appropriate sections of the *Patent Act*. **[4.5 marks]**

QUESTION 2: [9.0 marks]

Assuming that these elements are essential, construe the following selected claim terms of Canadian Patent No. 2,xxx,100:

a) "an opening formed in the housing" (claims 1 and 4) **[1.0 mark]**

b) "a shredder mechanism" (claims 1, 4 and 6) **[2.0 marks]**

c) "a sensor positioned in proximity to the opening" (claims 1 and 6) **[1.5 marks]**

d) "an inherent electrical characteristic" (claims 1 and 6) **[1.0 mark]**

e) "a movable part defining at least part of an opening" (claims 4 and 6) **[1.5 marks]**

f) "movable from a first position to a second position" (claims 4 and 6) **[2.0 marks]**

QUESTION 3: [23.0 marks]

Are claims 1, 2, 4, and 5 anticipated by any one of D1-D3? Provide detailed supporting arguments and references to the appropriate sections of the documents and figures.

In the event that features are repeated in subsequent claims, it is acceptable to refer to analysis in previous claim(s).

QUESTION 4: [31.0 marks]

Is claim 6 obvious in view of D1-D3? Provide detailed supporting arguments, apply the appropriate test from the case law, and refer to the appropriate sections of the documents and figures.

QUESTION 5: [5.0 marks]

In addition to the primary considerations for obviousness (i.e., D1-D3), identify and briefly explain **three** other secondary considerations to support your conclusion of non-obviousness or obviousness.

QUESTION 6: [5.0 marks]

a) Is there a presumption with respect to the validity of CA 2,xxx,100? Who can request the Court to invalidate CA 2,xxx,100? Apply the appropriate sections of the *Patent Act*. **[2.0 marks]**

b) Apart from anticipation and obviousness, identify and briefly explain **two** other issues that may affect the validity of Canadian Patent No. 2,xxx,100. **[3.0 marks]**

END OF QUESTIONS IN PART A

CA '100

Canadian Patent No. 2,xxx,100
Issue Date: April 10, 2014

IMPROVED SHREDDER WITH SAFETY FEATURES

Filing Date: **June 14, 2012**
Publication Date: **December 22, 2012**
Priority Data: **US 62/xxx,953 filed June 16, 2011**
Inventors: **Jane Smith and Bob Jones**
Owner: **Smart Shredder, Inc.**

FIELD OF THE INVENTION

[1] The present invention relates to shredders for destroying articles safely.

BACKGROUND OF THE INVENTION

[2] Shredders are known devices for destroying various articles and can range from simple home and office paper shredders to industrial disintegrators, crushers, rolling mills, and pierce-and-tear shredders. A shredder has blades that shred articles fed therein. A common accident occurs, however, when a person has a body part caught by the shredder when the article is being shredded. As far back as the 1980's, shredder designers have been trying to improve shredder safety to prevent such accidents. Examples of design features include narrowing the opening to prevent finger insertion; warning labels; placing the shredder opening at a higher point to prevent access by children or pets; increasing the distance between the shredder mechanism and opening so it is less likely that fingers will reach the shredder mechanism; using flaps to restrict access to the opening; and reducing the pull force so that the user is not pulled as quickly into the shredder. There remains a need in the art for an effective solution for preventing injuries caused by shredders.

SUMMARY OF THE INVENTION

[3] In one aspect, a shredder is provided comprising a housing, opening, shredder mechanism, sensor, controller, and waste container. The shredder mechanism enables an

item to be shredded to be fed through the opening into the blades, and a motor drives the blades so that the blades shred the item fed therein. The sensor is located adjacent the opening and detects the presence of a person in proximity to the opening. The controller performs a predetermined operation responsive to the indicated presence of the person.

[4] In another aspect, a shredder is provided comprising a housing, opening, shredder mechanism, movable part, detector, and controller. The movable part provides at least part of the opening enabling an item to be fed therethrough into the blades of the shredder mechanism for shredding. The movable part is biased to a first position, and is movable from the first position to a second position. A detector detects movement of the movable part to the second position. The movable part moves from the first position to the second position upon a person's body part or item having a thickness greater than a predetermined thickness inserted through the opening. The controller performs a predetermined operation responsive to the detector detecting that the movable part has moved to the second position.

[5] In yet another aspect, a shredder is provided comprising the combination of the above sensor and movable part such that the controller performs predetermined operations responsive to both the indicated presence of the person and the detected movement of the movable part to shut off the blades in an emergency.

BRIEF DESCRIPTION OF THE DRAWINGS

[6] The invention will now be described in more detail with reference to the accompanying drawings which by way of example illustrate different embodiments of the invention.

[7] FIG. 1 is a perspective view of an embodiment of a shredder according to the invention.

[8] FIG. 2 is an exploded perspective view of the shredder of FIG. 1.

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[9] FIG. 3 is a perspective view of a shaft with a plurality of blades for use with the shredder of FIG. 1.

[10] FIGS. 4A and 4B are cross-sectional views showing a portion of a shredder opening having a pressure-sensitive switch.

[11] FIG. 5 is a perspective view of the safety features of the shredder of FIG. 1 in use.

[12] FIG. 6 illustrates a flow diagram of an embodiment of a method for shredding an item using the shredder of FIG. 1.

DETAILED DESCRIPTION

[13] The invention will now be described in more detail by means of embodiments and with reference to the accompanying drawings.

[14] As shown in FIGS. 1 and 2, the shredder 1 sits atop a waste container 2. The shredder housing 3 sits on the upper periphery of the container 2. The shredder 1 includes a shredder mechanism 4 that destroys an item in any way; for example, by cutters including rotating rollers, blades, hole punchers, crushers, etc. The shredder 1 is not intended to be limited to devices that literally shred documents and articles, but is instead intended to cover any device that destroys documents and items in a manner that leaves each document or item illegible and/or useless.

[15] The shredder mechanism 4 generally comprises at least one form of cutter powered by a motor 5. In one embodiment, the shredder mechanism 4 comprises blades 6 which are mounted on parallel rotating shafts 20 (FIG. 3, of which one rotating shaft 20 is shown), and a motor 5 which uses electrical power to rotatably drive the shafts 20 and blades 6 through a transmission 7 so that the blades 6 shred items fed therein. The shredder mechanism 4 may also include a sub-frame 21 for mounting the shafts 20, the motor 5, and the transmission 7.

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[16] A receptacle 8 receives the shredder mechanism 4, and defines an opening 9 through which the shredder mechanism 4 discharges shredded items into the container 2.

[17] The housing 3 includes top wall 10 which has a laterally extending opening 11. The opening 11 extends above and parallel to the blades 6. The opening 11 enables items being shredded to be fed into the blades 6. The top wall 10 also has an on/off switch 12 having a switch module which connects the motor 5 to the power supply 13. The power supply 13 comprises a standard power cord with a plug that plugs into a standard AC outlet.

[18] The shredder 1 has a sensor 14 which detects the presence of a person or an inanimate item (e.g., paper, credit card) in proximity to the opening 11. A person or item is in proximity to the opening 11 when a part thereof is outside and adjacent to the opening 11 or at least partially within the opening 11.

[19] In one embodiment, the sensor 14 comprises a capacitive sensor which rapidly detects the presence of a person or item without requiring direct physical contact to the capacitive sensor, such as if the person's hand is between sheets of paper. The capacitive sensor is in the form of a conductor connected to a circuit (not shown). The conductor serves as the first plate of a capacitor, while the person or item to be detected serves as the second plate thereof. As the distance between the conductor and the person or item decreases, the mutual capacitance therebetween increases. This increase in capacitance results in increased signal levels in the capacitive sensor. These levels can be used to detect the proximity of the person or item.

[20] Capacitance depends in part on the dielectric constant of the second plate (e.g., the person or item) of a capacitor. A higher dielectric constant translates into a larger capacitance. The capacitive sensor of the shredder 1 can detect the proximity of a nearby animate or inanimate entity provided that its respective dielectric constant is sufficiently high. Because human beings inherently have high dielectric constants, they are detectable by the capacitive sensor. Conversely, items with low or moderate dielectric

constants, such as paper or credit cards, are not detectable by the capacitive sensor. This discriminating functionality based on an inherent electrical characteristic is a feature that enables the sensor 14 to function properly when appropriate items (e.g., paper) are being fed into the opening 11, but also enables warnings or shutdown upon detecting a human body part. Thus, the shredder 1 can be characterized as having an intelligent discriminating capability based on detecting inherent electrical characteristics.

[21] The conductor can be in the form of a metal strip, foil tape, conductive paint, a silk-screened conductive ink pattern, etc. In one embodiment, the conductor is a 9-inch by 1-inch capacitive sensing strip that is affixed to the housing 3 near the opening 11 (FIG. 1). Since the conductor extends adjacent the opening 11 along the entire length of the opening 11, sensor coverage is provided along the entire length of the opening 11. When a person or item is within about 2 cm to 5 cm of the opening 11, at any point along its entire length, the capacitance between the conductor and the person or item increases, resulting in an increase in the signal level used for detection.

[22] The conductor is coupled to a controller (not shown) which takes appropriate action in response to an increased signal level. The controller denotes structures that control one or more modules, devices, and/or circuit components. The controller illuminates an error light (not shown) and/or activates an audible alert (not shown) to warn the person that he is too close to the opening 11 and blades 6.

[23] While the sensor 14 may be used to detect a person or item (e.g., paper, plastic credit card) in proximity to the opening 11, it is desirable for the shredder 1 to also be sensitive enough to detect the person's body part through multiple sheets of paper, without requiring contact between the body part and the sensor 14. For example, a person's fingers may be between sheets of paper or wearing a glove when entering the opening 11. This may prevent overly thick items, such as human fingers or large stacks of documents, from being fed into the blades 6, which could lead to injury and/or jamming.

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[24] In another embodiment, the shredder can further include a mechanical switch 15 which acts as an additional safeguard which confirms the presence of a person's body part or an object based on thickness (FIGS. 4A and 4B). When the mechanical switch 15 is actuated, the blades 6 are shut off, stopping shredding. Items that are appropriate for shredding are thin and flat (e.g., paper and credit cards). Human or pet body parts are thicker.

[25] As a result, insertion of a finger into the opening 11 will result in pressure against the sides of the opening 11. For an opening 11 having angled sides, this pressure will include both a component in the direction in which articles are fed through the opening (vertical) and a component perpendicular to the feed direction (horizontal). By allowing for movement of the opening 11, this pressure may be used to actuate the mechanical switch 15. By appropriate selection of the size of the opening 11 and the throw distance of the switch 15, the shredder 1 can be designed not to allow any item greater than a predetermined thickness (e.g., the thickness of a human finger, the thickness of a stack of paper too large for the shredder to handle) to enter the opening 11 without actuating the switch 15. This arrangement can also be used to prevent a human from inserting overly thick stacks of documents or other articles that could cause injury to fingers, or jam the shredder mechanism 4.

[26] As shown in FIG. 4A, the housing 3 includes an opening 11. The walls 16 of the opening 11 are movable parts that form a throat plate that is movable relative to the housing 3. Each of these walls 16 has an upper portion mounted against a pressure sensitive pad 17. The mechanical switch 15 may have an open state ("on" position – FIG. 4A) and a closed state ("off" position – FIG. 4B).

[27] The mechanical switch 15 includes an upward biasing member (not shown) that tends to maintain the mechanical switch 15 in an open position, as well as to bias the walls 16 of the opening 11 in their upper positions. Each wall 16 is independently movable and has an associated pressure sensitive pad 17.

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[28] FIG. 4A illustrates the open position of the switch 15. FIG. 4B illustrates what happens when a relatively large item 18 is inserted into the opening 11. As the item 18 is inserted into the opening 11, the item 18 presses against the walls 16, and moves them downwardly, compressing the pressure sensitive pad 17. The action completes a circuit (not shown) and is relayed to the controller which disables delivery of power to the motor 5, thereby disabling or shutting off the blades 6.

[29] The controller can thus be responsive to either or both of the detected inherent electrical characteristic of the item or the person and to movement of the movable part to the second position. Having the controller responsive to both the detected inherent electrical characteristic of the person or item, and to movement of the movable part to the second position is particularly useful in an emergency shown for example, in FIGS. 5 and 6. The document is fed into the opening 11 of the shredder 1. The person has her necklace caught by the blades 6 with the document being shredded, and is being pulled downwardly towards the blades 6. The sensor 14 detects the presence of the person who is approaching too closely to the opening 11 and blades 6, and illuminates an error light and/or activates an audible alert.

[30] Since the combined thicknesses of the document and necklace being shredded is greater than a predetermined thickness, the controller disables delivery of power to the motor 5, thereby shutting off the blades 6. This arrangement reduces potential injury to humans and damage to the shredder 1 caused by oversized items becoming partially lodged in the opening 11, placing a strain on the motor 5. The shredder 1 may prevent injuries to unsupervised children or pets (e.g., dog tongues) who do not necessarily understand the hazards of a shredder and will not act in a logical and safe manner.

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CLAIMS:

1. A shredder comprising:

a) a housing;

b) an opening formed in the housing for receiving an item to be shredded;

c) a shredder mechanism positioned in the housing for shredding the item;

d) a sensor positioned in proximity to the opening for detecting an inherent electrical characteristic of the item or a person;

e) a controller responsive to the inherent electrical characteristic of the item or the person and operable to perform a predetermined operation; and

f) a waste container for receiving the shredded item.

2. The shredder according to claim 1, wherein the sensor extends adjacent to the opening to provide sensor coverage along an entire length of the opening.

3. The shredder according to claim 1 or 2, wherein the sensor comprises a conductive metal strip.

4. A shredder comprising:

a) a housing;

b) an opening formed in the housing for receiving an item to be shredded;

c) a shredder mechanism positioned in the housing for shredding the item;

d) a movable part defining at least part of an opening for receiving the item, the movable part being movable from a first position to a second position;

e) a detector for detecting movement of the movable part to the second position; and

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f) a controller responsive to the detected movement of the movable part, and operable to perform a predetermined operation.

5. The shredder of claim 4, wherein the movable part is formed by a pair of walls of the opening, wherein a portion of the walls is movable downwardly in response to pressure of the item having a thickness greater than a predetermined thickness.

6. A shredder comprising:

a) a housing;

b) an opening formed in the housing for receiving an item to be shredded;

c) a shredder mechanism positioned in the housing for shredding the item;

d) a sensor positioned in proximity to the opening for detecting an inherent electrical characteristic of the item or a person and providing sensor coverage along an entire length of the opening;

e) a movable part defining at least part of an opening for receiving the item, the movable part being movable from a first position to a second position upon the item having a thickness greater than a predetermined thickness;

f) a detector for detecting movement of the movable part to the second position; and

g) a controller responsive to the detected inherent electrical characteristic of the item or the person and to the detected movement of the movable part, the controller being operable to perform predetermined operations.

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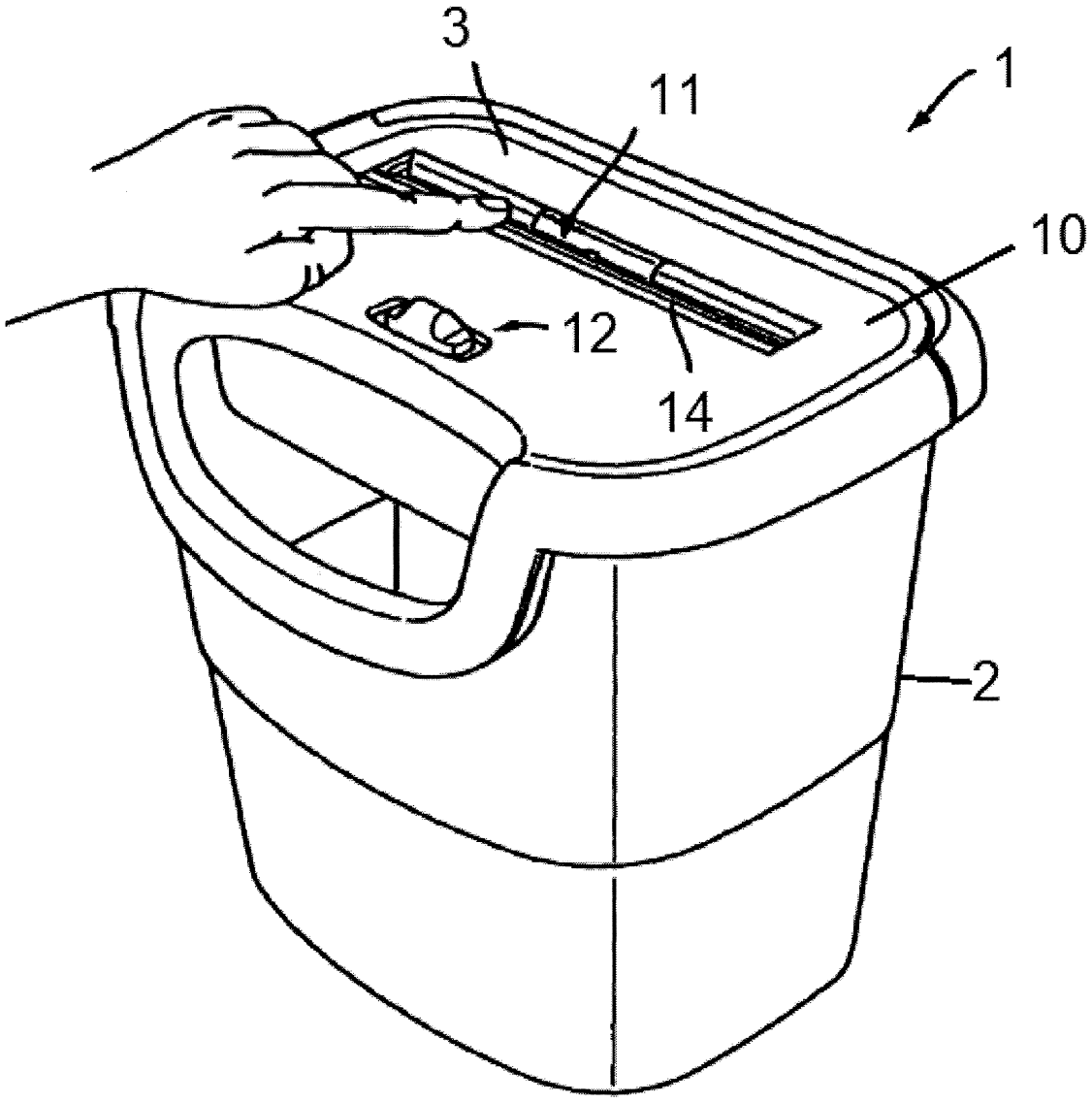

FIG. 1

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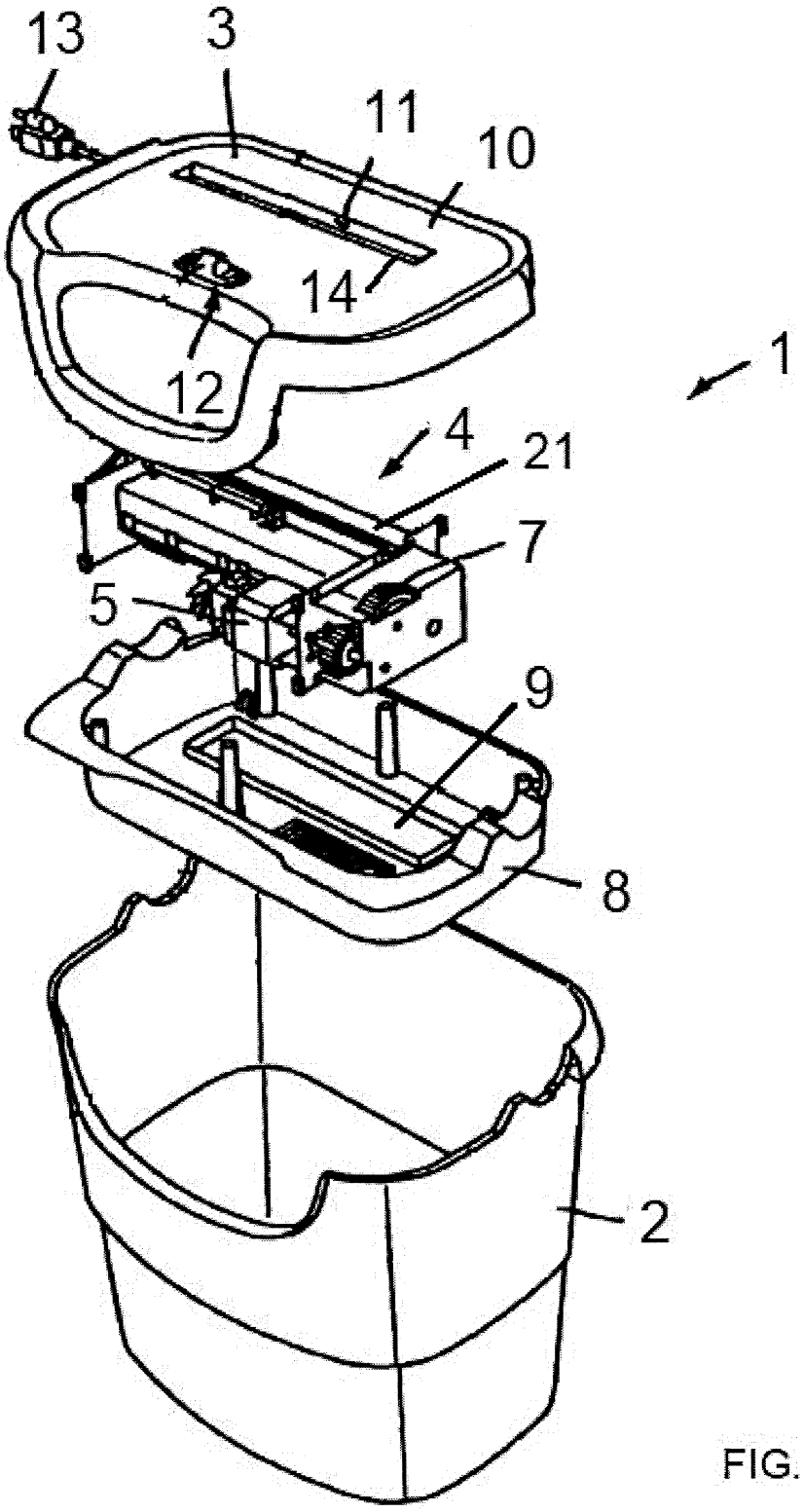

FIG. 2

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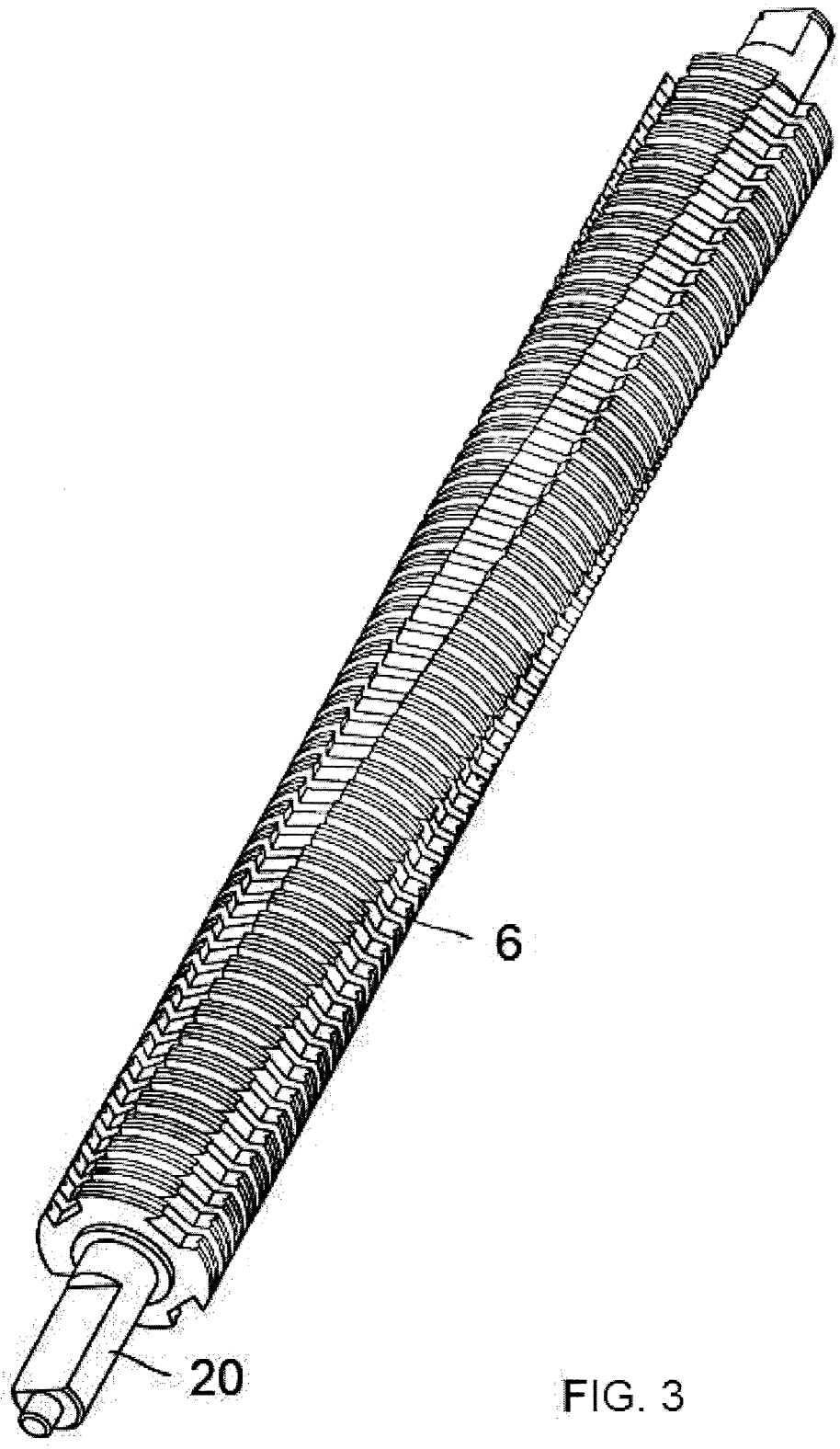

FIG. 3

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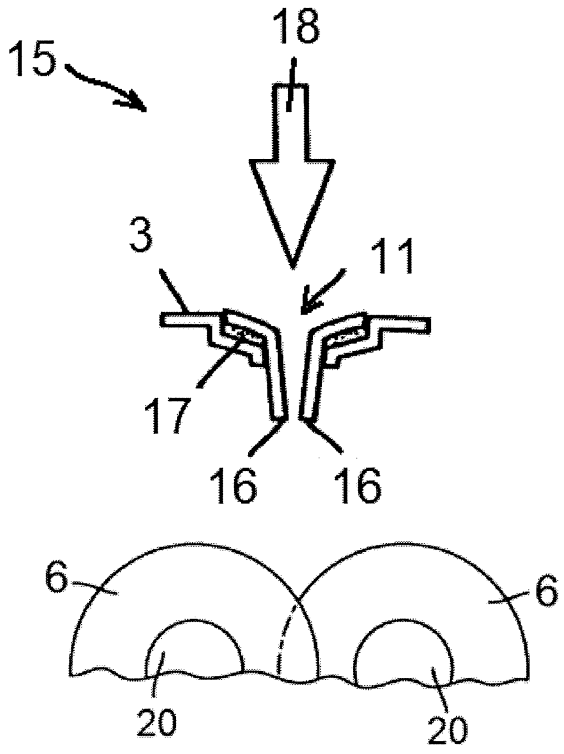

FIG. 4A

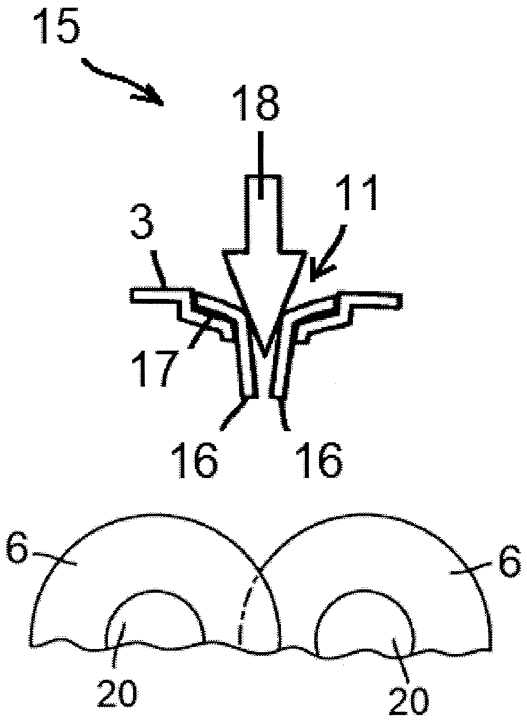

FIG. 4B

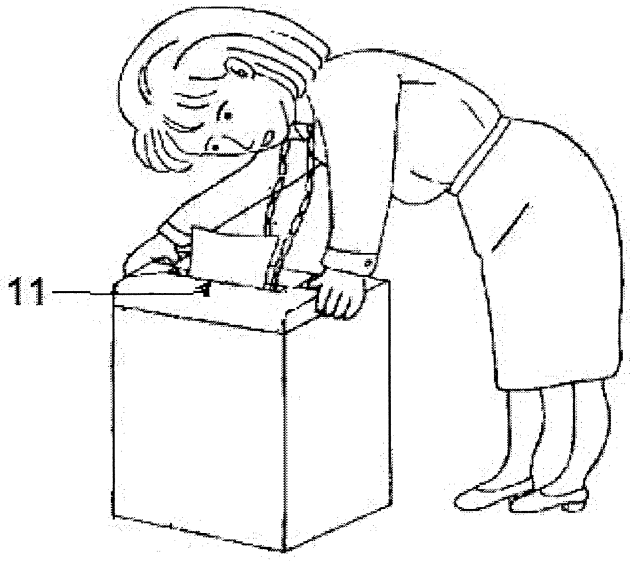

FIG. 5

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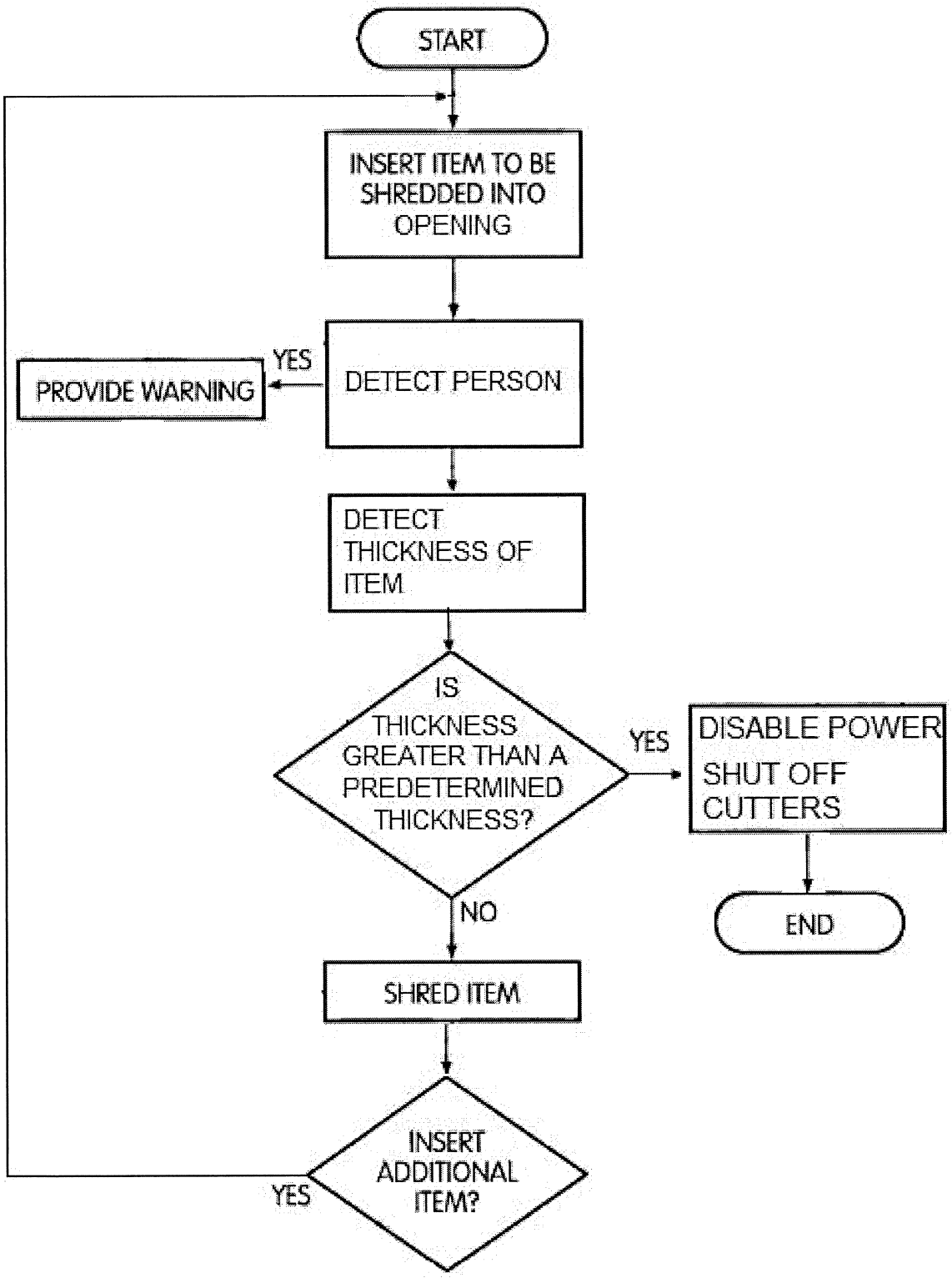

START
INSERT ITEM TO BE SHREDDED INTO OPENING
DETECT PERSON
YES
PROVIDE WARNING
DETECT THICKNESS OF ITEM
IS THICKNESS GREATER THAN A PREDETERMINED THICKNESS?
YES
DISABLE POWER SHUT OFF CUTTERS
END
NO
SHRED ITEM
INSERT ADDITIONAL ITEM?
YES

FIG. 6

DOCUMENT D1

DOCUMENT D1

Australian Patent No. 2013/xxx,985
Issue Date: June 1, 2013

SENSOR AND SAFETY DEVICE

Filing Date: **November 21, 2010**
Publication Date: **May 28, 2011**
Priority Data: **US 14/xxx,332 filed November 26, 2009**

Inventor: **Glen Fitzgerald**
Owner: **Safety First Limited**

BACKGROUND OF THE INVENTION

[1] In devices that have a drive mechanism such as machine tools, processing equipment, etc., there are some where the drive element is exposed to the exterior or where it is possible to come close to the drive element from the exterior. For example, with rolling mills for the purpose of making thin pieces from plastic chips for use in testing, it is easily possible to move the hands dangerously close to the rolling mill due to the fact that it has a configuration where the chips are thrown in between a pair of blades by hand.

BRIEF DESCRIPTION OF THE DRAWINGS

[2] FIG. 1 is a front view showing a part of a rolling mill to which the present invention is applied.

[3] FIG. 2 is a partial cross-sectional side view of FIG. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

DOCUMENT D1

[4] The present invention relates to a sensor where it is possible to detect the presence or absence of a human body only within a desired detection area, and a safety device using the sensor.

[5] FIGS. 1 and 2 show a rolling mill 10 for rolling a chip 12 of plastic material in order to make test pieces 14. A pair of reduction rollers 16, 18 rotate in opposite directions. When the chip 12 is thrown between the rollers 16, 18, the chip 12 is shredded between the rollers 16, 18 and falls downward as piece 14.

[6] The throwing of the chip 12 is done by human hand (FIG. 1). It is undesirable for the hand to come too close to the rollers 16, 18; thus, the rolling mill 10 is provided with a safety device 24 using a sensor 22.

[7] The sensor 22 comprises a pair of electrode plates 26, 28 that have been arranged so as to face each other in parallel at a prescribed gap. One electrode plate 26 is positioned at one side of the rolling mill 10 and directly above the area between the rollers 16, 18. The other electrode plate 28 is positioned at the other side of the rolling mill 10 and directly above the area between the rollers 16, 18. The space between these electrode plates 26, 28 and immediately above the rollers 16, 18 forms a relatively large detection area or zone/volume of safety for the purpose of detecting whether or not a part of a human body is present before the body part gets near the exposed, rotating rollers 16, 18. The detection area also serves as a wide opening into which the chip 12 can be thrown by hand from a distance into the rolling mill 10.

[8] Shield plates 30, 32 are arranged on the back side of each electrode plate 26, 28. The shield plates 30, 32 have a relatively small gap, and are arranged in parallel facing the corresponding electrode plates 26, 28. The shield plates 30, 32 are composed of a good conductor such as stainless steel, copper, etc., and have dimensions that completely cover the electrode plates 26, 28. The electrode plates 26, 28 and the shield plates 30, 32 are supported by support plates 36, 38 which are provided on the frame 34 of the rolling mill 10.

DOCUMENT D1

[9] The sensor 22 is connected to a capacitance detecting circuit 44 which detects that a human body part has entered between the electrode plates 26 and 28 as a change in capacitance. The operation of circuits is known in the art. An output from the capacitance detecting circuit 44 is input to the controller 68. The controller 68 transmits a control signal corresponding to the signal that has been input to the drive system 20 of the rolling mill 10, and performs emergency shutdown of the rolling mill 10 when appropriate.

[10] When a chip 12 is thrown between the rollers 16, 18 and the hand is positioned outside of the space between the electrode plates 26, 28, then the capacitance between the electrode plates 26, 28 does not change significantly and the driving of the rolling mill 10 continues. A change in capacitance is produced when a chip 12 crosses the space between the electrode plates 26, 28, but the amount of this change is minimal compared to the amount of change that occurs in the presence of the hand. When the hand is inserted between the electrode plates 26 and 28, a major change in capacitance is produced, and the safety device 24 operates so that emergency shutdown is performed for the rolling mill 10. The driving of the rolling mill 10 is shut down by the signal from the controller 68 of the safety device 24.

[11] If a hand or another part of the human body is positioned on the back side of the electrode plates 26, 28 which is not a dangerous area, no change in capacitance is produced between the plates 26, 28, and the rolling mill 10 will not enter into an unnecessary shutdown state.

[12] Devices where the present invention can be applied are not limited to the rolling mill 10. It can be applied to any device where a human body can come close to a drive element. For example, it can be applied to a press device, a shredder, a cutting machine, etc., whereby the rollers 16, 18 are blades.

DOCUMENT D1

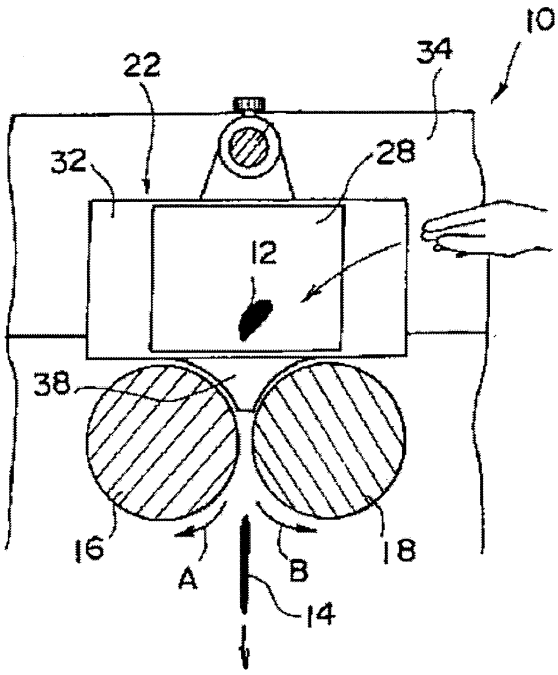


FIG. 1

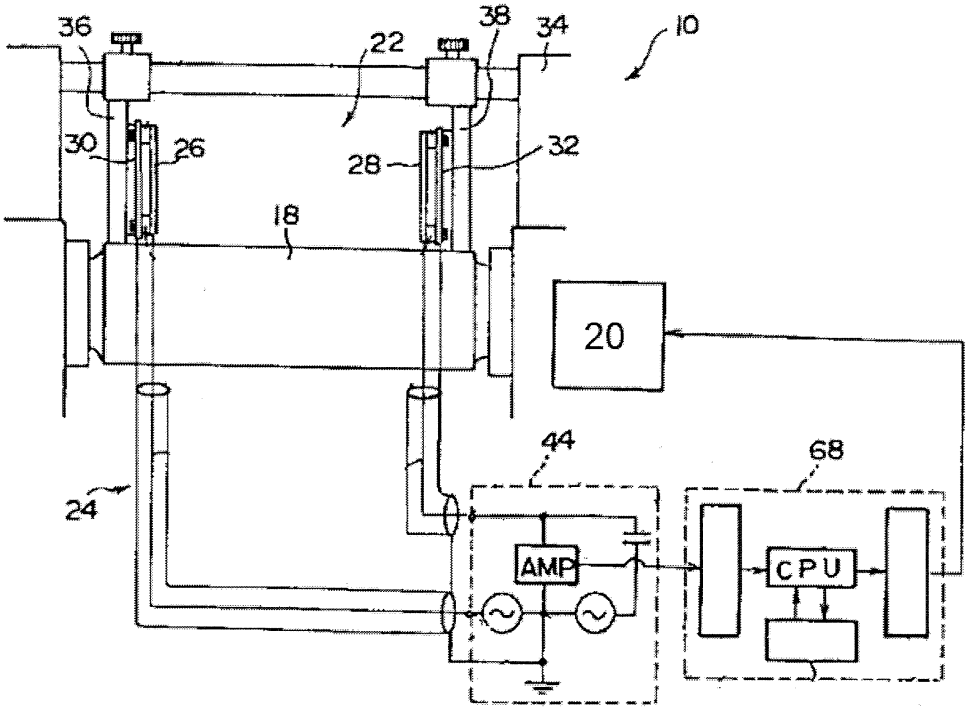


FIG. 2

* * *

DOCUMENT D2

DOCUMENT D2

Canadian Patent No. 2,xxx,435
Issue Date: October 30, 2018

SAFETY DEVICE FOR SHREDDER

Filing Date: **August 2, 2012**
Publication Date: **February 4, 2013**
Priority Data: **DE 10 2011 xxx xxx filed August 4, 2011**

Inventors: **Vincent Collins and Faisal Padiar**
Assignee: **Office Supplies, Inc.**

BACKGROUND OF THE INVENTION

[1] A shredder is used to cut discarded paper into pieces. A conventional shredder typically includes blades below an opening into which the paper is inserted. The dimensions of the opening are fixed to conform to the cutting capability of the shredder. Consequently, large shredders are hazardous. Since they have a large opening, the user may become injured when his hands or fingers become caught in the opening by mistake while the discarded document is being shredded.

BRIEF DESCRIPTION OF THE DRAWINGS

[2] FIG. 1 is a longitudinal sectional side view of a shredder.

[3] FIG. 2 is a block diagram of the safety device for the shredder of FIG. 1.

[4] FIG. 3 is a perspective view of the shredder of FIG. 1 having the safety device.

DOCUMENT D2

DISCLOSURE OF THE PREFERRED EMBODIMENTS OF THE INVENTION

[5] The present invention relates to a safety device which uses thermal rays emanating from a human to stop the shredding operation of a shredder 11. As shown in FIG. 1, a pair of blades 3 engage with one another and are rotated by a suitable motive force in the direction shown by the arrow, directly below an opening 2 which is disposed on the upper part of the housing 1. Document 4 which has been inserted in the opening 2 is cut into pieces 5.

[6] As shown in FIGS. 2 and 3, concave mirrors 14 are provided on both left and right ends lengthwise of the opening 2 on the front surface of the shredder 11 (the concave mirror on the left is not shown in FIG. 3) so that they face each other. Air curtains 24 face the surface of the concave mirrors 14 to ensure that any pieces 5 coming from the shredder 11 do not stick to them.

[7] An infrared sensor 15 is mounted on the focal point of each of the concave mirrors 14 to sense thermal rays 22 emanating from a human. Output from each infrared sensor 15 is amplified in an amplifier 16, passes through a noise elimination filter 17, and is inputted to a lock circuit 18. It uses the output from the lock circuit 18 so that the normally closed switch 21, which is placed in the middle of the electrical supply lines 20 of the motor 19 used to drive the shredder 11 is opened.

[8] When the user's hands and fingers mistakenly come in contact with the blades 3, the thermal rays 22 emanating from the user are reflected by the concave mirrors 14 and the output voltage of the infrared sensor 15 changes. The voltage is amplified by the amplifier 16, passes through the filter 17, operates the lock circuit 18, opens the switch 21, and immediately stops the motor 19. Stopped motor 19 shuts off the normally opened reset switch 23 which is connected to the lock circuit 18 so that the lock of the lock circuit 18 is released and the switch 21 is opened, thereby starting rotation.

DOCUMENT D2

FIG. 2

FIG. 1

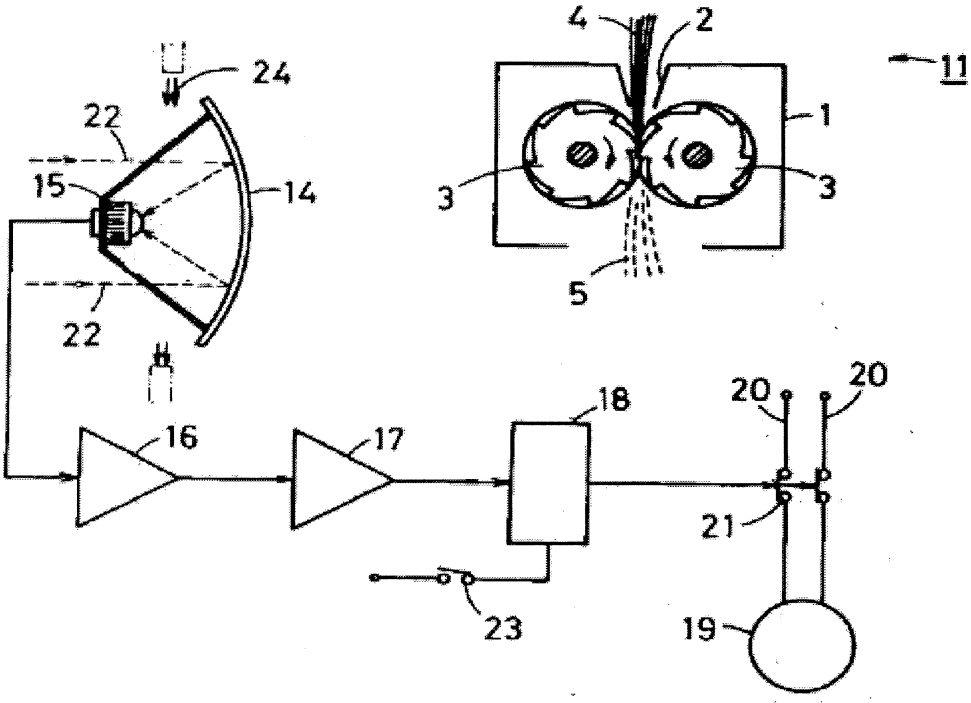
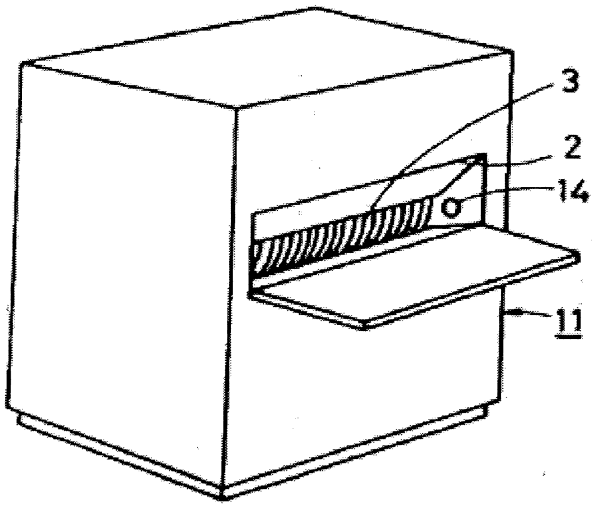


FIG. 3



* * *

DOCUMENT D3

United States Patent No. 7,xxx,610
Issued: November 19, 2008

SHREDDER WITH THICKNESS DETECTOR

Filing Date: **February 14, 2005**
Publication Date: **August 25, 2005**
Priority Data: **US 60/xxx,126 filed February 16, 2004**

Inventor: **Sandeep Garcha and Darius Singh**
Assignee: **Engineering India**

BACKGROUND OF THE INVENTION

[1] A common type of shredder has a shredder mechanism contained within a housing. The shredder mechanism has blades that shred articles fed therein and discharge the shredded articles into a container. The shredder typically has a stated capacity, such as the number of sheets of paper that may be shredded at one time; however, the opening of a typical shredder can receive more sheets of paper than the stated capacity. A common frustration of users is to feed too many papers into the opening, only to have the shredder jam after it has started to shred the papers. In addition, the shredder usually includes a safety mechanism in case the user needs to shutdown the shredder in an emergency such as when the user's body parts become caught by the shredder during operation. The present invention endeavors to provide various improvements over known shredders.

BRIEF DESCRIPTION OF THE DRAWINGS

[2] FIG. 1 is a perspective view of a shredder in accordance with the present invention.

DOCUMENT D3

[3] FIG. 2 is a schematic diagram of the interaction between a controller and other parts of the shredder.

[4] FIG. 3 is a schematic diagram of an indicator located on the shredder.

[5] FIG. 4 is a partial cross-sectional view of a detector configured to detect a thickness of an article to be shredded by the shredder.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[6] The present invention relates to a shredder that does not jam as a result of too many papers or an article that is too thick being fed into the shredder.

[7] As shown in FIG. 1, the shredder 10 sits atop a waste container 12. The shredder housing 14 sits on the upper periphery of the container 12. The shredder 10 includes a shredder mechanism 16 that includes a motor (not shown) and blades 19 mounted on rotating shafts 20 (FIG. 4). The motor operates using electrical power to rotatably drive the shafts 20 and blades 19 through a transmission so that the blades 19 shred articles fed therein.

[8] The shredder housing 14 includes a laterally extending opening 36 which extends above and parallel to the blades 19. The opening 36 enables items being shredded to be fed into the blades 19. The opening 36 is narrow, which is desirable for preventing overly thick items, such as large stacks of documents, from being fed into blades 19, which could lead to jamming. An on/off switch 42 connects the motor to an electrical power supply (not shown). In the "on" position, power is delivered to the motor. In the "off" position, the delivery of power to the motor is disabled.

[9] A selector switch 201 may be used to set predetermined thicknesses. As shown in FIGS. 2 and 4, the shredder 10 includes a thickness detector 100 to detect overly thick stacks of documents or other items that could jam the shredder mechanism 16, and to communicate such detection to a controller 200 (FIG. 2). Upon such detection, the controller 200 communicates

DOCUMENT D3

with an indicator 110 that provides a warning signal to the user, such as a visual and/or audible signal. The indicator 110 is a progressive indication system that includes indicators in the form of lights to indicate the thickness of the stack of documents or other items relative to the capacity of the shredder (FIG. 3). The system includes a green light 112, yellow lights 114, and a red light 116.

[10] The green light 112 indicates that the detected thickness of the item (e.g., a single paper, a stack of papers, a compact disc, a credit card, etc.) that has been placed in the opening 36 of the shredder 10 is below a first predetermined thickness and well within the capacity of the shredder.

[11] The yellow lights 114 provide a progressive indication of the thickness of the item. The first yellow light 114, located next to the green light 112, would be triggered when the detected thickness is at or above the first predetermined thickness, but below a second predetermined thickness that triggers the red light 116. If there is more than one yellow light 114, each additional yellow light 114 may correspond to thicknesses at or above a corresponding number of predetermined thicknesses between the first and second predetermined thicknesses. The yellow lights 114 may be used to train the user into getting a feel for how many documents should be shredded at one time.

[12] The red light 116 indicates that the detected thickness is at or above the second predetermined thickness, which may be the same as the predetermined maximum thickness, thereby warning the user that this thickness has been reached.

[13] Audible signals may also be used to provide a progressive indication of the thickness of the item. No signal is provided when the detected thickness is well below the predetermined maximum thickness, and a series of "beeps" that increase in number (e.g., more "beeps" the closer the detection is to the predetermined maximum thickness) and/or frequency (e.g., less time between beeps the closer the detection is to the predetermined maximum thickness) as the detected thickness approaches the predetermined maximum thickness may be provided. If the detected thickness is equal to or exceeds the predetermined maximum thickness, the series of "beeps" may be continuous, thereby indicating to the user that such a threshold has been met and

that the thickness of the item to be shredded should be reduced. This gives the user the opportunity to reduce the thickness of the stack of documents or reconsider forcing the thick item through the shredder, knowing that any such forcing may jam and/or damage the shredder.

[14] FIG. 4 shows the detector 100 used to detect the thickness of an item (e.g., a compact disc, credit card, stack of papers, etc.) that is placed in the opening 36 of the shredder 10. Visible indicator lines 18 (FIG. 1) are provided on the shredder housing 14 at a midpoint of the opening 36 to guide insertion of items (e.g., a compact disc or credit card) above the detector 100 which is positioned directly beneath and within the opening 36 to provide sensor coverage limited to the midpoint. The detector 100 includes a contact member 120 and a pressure sensor 124. The contact member 120 is mounted such that it protrudes through one wall 126 defining part of the opening 36 and into the opening 36 by a small amount, thereby creating a narrower opening. A spring 128 biases the contact member 120 into the opening 36. The narrower opening that is created by a tip 130 of the contact member 120 and a wall 132 opposite the spring 128 is less than the predetermined maximum thickness. Therefore, if an item that is too thick to be shredded enters the opening 36, it will engage a top side 134 of the contact member 120. Because the top side 134 of the contact member 120 is sloped, the contact member 120 will move against the bias of the spring 128 and increase the force applied to the sensor 124, thereby causing a voltage to be created within the sensor 124. As the thickness of the item increases, the force applied by the contact member 120 to the sensor 124 increases, thereby increasing the voltage generated within the sensor 124. The resulting voltage may be communicated to the controller 200, thereby causing the indicator 110 to indicate that the item is above the predetermined maximum thickness by emitting a warning.

[15] The controller 200 may cause the red light 116 to illuminate and/or cause an audible signal to sound. The user should then remove the item from the opening 36 of the shredder 10, and reduce the thickness of the item before inserting the item back into the opening 36.

[16] If the controller 200 determines that the thickness that has been detected is less than the predetermined maximum thickness, the controller 200 may cause the green light 112 to

DOCUMENT D3

illuminate and/or allows power to be supplied to the shredder mechanism 16 so that the shredder 10 may proceed with shredding the item.

[17] If the controller 200 determines that the thickness that has been detected is less than the predetermined maximum thickness, but close to or about the predetermined maximum thickness, the controller 200 may cause one of the yellow lights to illuminate, depending on how close to the predetermined maximum thickness the detected thickness is. Although power will still be supplied to the shredder mechanism 16, the user will be warned that that particular thickness is very close to the capacity limit of the shredder 10.

[18] In the event that the user has a body part caught by the blades 19 by mistake with the document, he would spontaneously react to cut the power to the motor by hand by depressing the on/off switch 42 which stops the blades 19 during emergency. If both hands are trapped by the blades 19, the audible signals may alert other work colleagues in the vicinity to come to the aid of the trapped user.

DOCUMENT D3

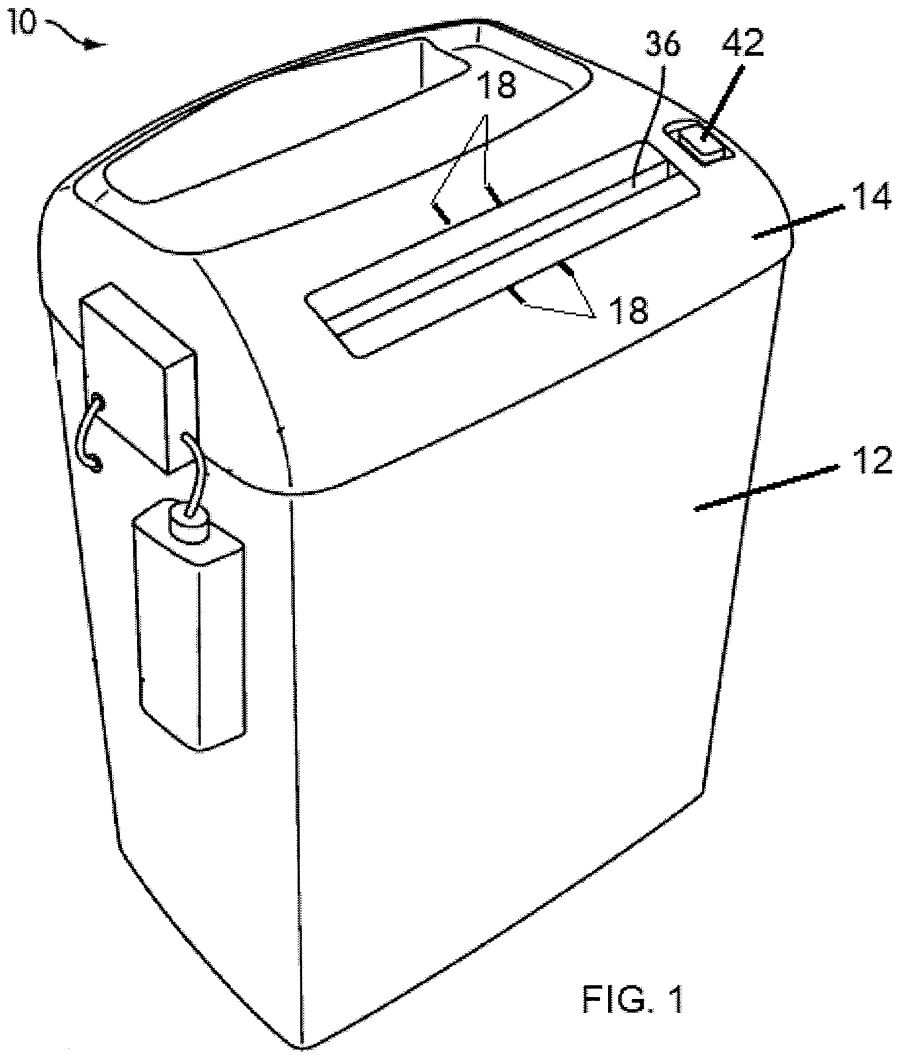


FIG. 1

DOCUMENT D3

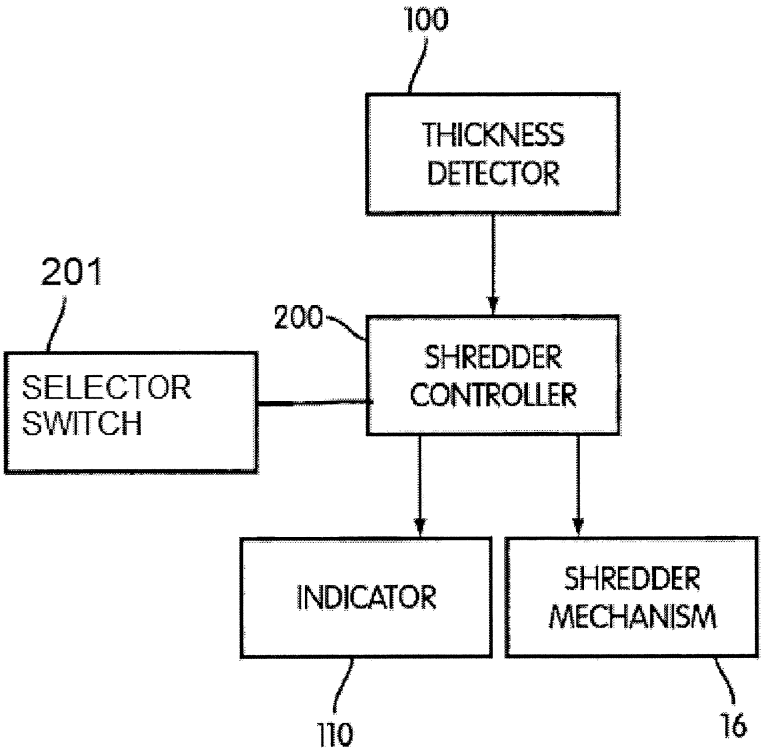


FIG. 2

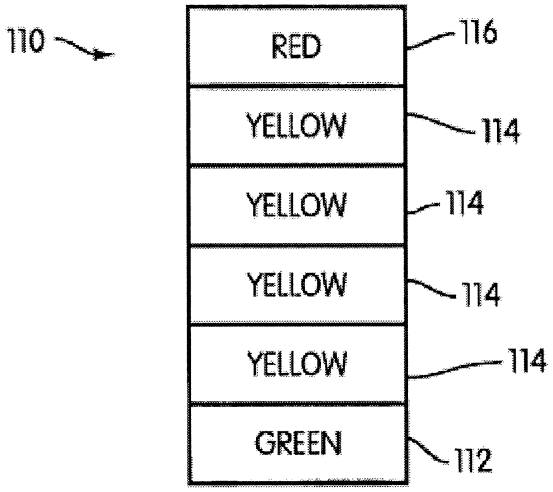


FIG. 3

DOCUMENT D3

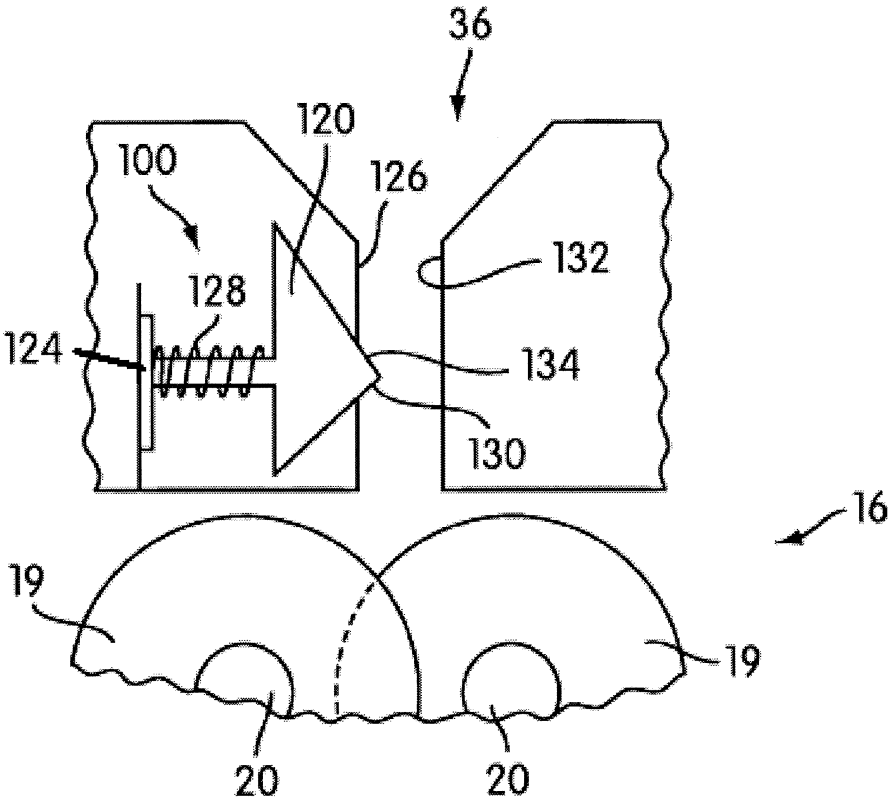


FIG. 4

* * *

PART B – Short Answer Questions

INSTRUCTIONS TO CANDIDATES

Provide an appropriate response to each question. Do not provide extraneous commentary if not directly relevant to the question. Note that statements of authorities or pertinent law (which may include case law and statutory and regulatory provisions) and analysis are required ONLY when requested.

QUESTION 7: [2.0 marks]

Dr. White is the owner of a pharmaceutical company and believes he has invented a new drug for the treatment of dry eye. He is ready to market his product but has consulted with you to file a patent application. After performing a search of the prior art, you realize that the drug is not new. The drug *per se* has been patented in Canada by ABC Corp. and is presently marketed for the treatment of nail fungus.

a) Can Dr. White still obtain a patent for the treatment of dry eye with this drug? Explain why.
b) Dr. White wants to bring his product to market but does not want to invalidate ABC Corp's Canadian patent. List one way this could be achieved without attracting a lawsuit from ABC Corp.

No authority or statutory support is required for a) or b).

QUESTION 8: [2.0 marks]

A PCT application was filed March 14, 2017, claiming priority from a United States provisional patent application filed March 17, 2016. If today is October 5, 2018, in which of the following countries would this application **NOT** be able to enter national phase? Provide only letter(s) as your answer. No authority or statutory support is required.

a) Canada
b) United States
c) China

d) Europe

e) Taiwan

QUESTION 9: [2.0 marks]

You are contacted by foreign associates whose client has belatedly decided to enter national phase in Canada. The International patent application has an international filing date of December 30th, 2015 and a priority date of December 30th, 2014.

If today's date is September 27th, 2018, would this application be able to enter national phase if priority to the December 30th, 2014 application is actively withdrawn? Cite the relevant authority or statutory support.

QUESTION 10: [2.0 marks]

a) Your client wishes to transfer ownership of their Canadian patent application to ABC Ltd. The client provides you with an assignment for recordal in the Canadian Intellectual Property Office (CIPO). List two steps required to record the assignment in CIPO.

b) What Section of the *Patent Rules* applies?

QUESTION 11: [3.0 marks]

A regular Canadian patent application is filed on March 2, 2014. The applicant does not file a request for priority at the time of filing, but on June 3, 2014 files a request claiming priority from a United States patent application filed on March 3, 2013 and from a Canadian patent application filed on August 1, 2013. The applicant provides the patent application number, country and filing date for each of these previously filed United States and Canadian patent applications and requests priority from these patent applications.

Will the applicant be entitled to claim priority? Why or why not? Cite the relevant statutory support.

QUESTION 12: [2.5 marks]

An inventor has been inadvertently omitted from a regular Canadian patent application.

a) What steps are required to rectify this omission? Cite the relevant statutory support.

b) What document(s) must be submitted?

QUESTION 13: [2.0 marks]

In accordance with the *Canadian Patent Act* and/or *Rules*, which of the following sources of information may not be citable against a patent application in view of anticipation and/or obviousness? No authority or statutory support is required.

A. A paper that was orally presented at a meeting, where the meeting was open to all interested persons and the paper was distributed in written form to six people without restriction.

B. A doctoral thesis that was indexed, catalogued, and shelved, in a single, university library.

C. A research report distributed in numerous copies but only internally within an organization and intended to remain confidential.

D. A reference available in electronic form on the Internet.

E. A technical manual that was shelved and catalogued in a public library, where there is no evidence that anyone ever actually looked at the manual.

F. The preamble of a Jepson claim.

G. One of the figures in the drawings of the patent application labelled as prior art.

QUESTION 14: [2.5 marks]

You file a Canadian patent application on May 1, 2018 for your client, a Taiwanese individual inventor and resident in Taiwan. Your client tells you she has signed a license agreement with a Canadian company to produce her invention commercially. The license agreement requires that your client file a PCT application and name both the Canadian company and your client as co-Applicants. When entering national phase(s), the Canadian company will be the sole Applicant

in Canada but a licensee for all other countries. Your client will then be the sole Applicant for all countries other than Canada.

a) Are you permitted to file the PCT application in the Canadian Intellectual Property Office (CIPO)? Please explain. No authority or statutory support is required.

b) Can you record the licence before the International Bureau? Please explain. No authority or statutory support is required.

QUESTION 15: [2.0 marks]

Independent claim 1, fully supported by the description in a patent application, states:

> *Claim 1. An apparatus comprising: a plastic valve; a copper pipe connected to the plastic valve; and an aluminum pipe connected to the plastic valve.*

Which of the following claims, presented in the application, are objectionable under Subsection 27(4) of the *Patent Act*? Provide a reason for your answer. No authority or statutory support is required.

> *Claim 2. The apparatus of claim 1, wherein said pipe is statically charged.*
>
> *Claim 3. The apparatus of claim 1, wherein a large portion of an outer circumference of said copper pipe is preferably statically charged.*
>
> *Claim 4. The apparatus of claim 1, further comprising a thermostat connected to said plastic valve.*

A. Claim 2

B. Claim 3

C. Claim 4

D. Claims 2 and 3

E. Claims 3 and 4

QUESTION 16: [2.0 marks]

An inventor files a Canadian patent application by mail with the Canadian Intellectual Property Office on January 2, 2019, claiming priority from a patent application filed with the Japanese patent office on January 8, 2018. Several days later, the inventor is informed that the Canadian Intellectual Property Office received only the petition, the fee and a certified copy of the Japanese priority document, written in Japanese, on the last day of the priority year. The copy of the Canadian patent application written in English was not included by the inventor. Can a filing date be secured with a valid priority claim? Cite the relevant authority or statutory support.

END OF QUESTIONS IN PART B

END OF PAPER B

MARKING GUIDE - PAPER B (2019)

PART A

QUESTION 1: [5.0 marks]

a) Name the leading Canadian Supreme Court case pertaining to novelty and obviousness. **[0.5 marks]**

Apotex Inc. v. Sanofi-Synthelabo Canada Inc., 2008 SCC 61, [2008] 3 S.C.R. 265.

b) Evaluate the citability of D1-D3 in view of anticipation and obviousness. Provide reasons why the documents are citable or not and apply all the appropriate sections of the *Patent Act*. **[4.5 marks]**

- **D1** – Third party AU patent published before claim date. Citable for anticipation [28.2(1)*(b)*] and obviousness [28.3*(b)*].
- **D2** – Third party CA patent has claim date after the claim date of Canadian Patent No. 2,xxx,100. NOT citable for anticipation [28.2(1)*(d)*] and obviousness [28.3*(b)*].
- **D3** – Third party US patent published before claim date. Citable for anticipation [28.2(1)*(b)*] and obviousness [28.3*(b)*].

QUESTION 2: [9.0 marks]

Assuming that these elements are essential, construe the following selected claim terms of Canadian Patent No. 2,xxx,100:

a) "an opening formed in the housing" (claims 1 and 4); **[1.0 mark]**

- The opening 11 of the top wall 10 of the housing 3 (Figs. 1, 2);
- The laterally extending opening 11 enables the item being shredded to be fed into the blades 6.

b) "a shredder mechanism" (claims 1, 4, and 6) **[2.0 marks]**

- The shredder mechanism 4 (Fig. 2) comprises at least one form of cutter powered by a motor.
- The shredder mechanism 4 may destroy an item in any way; for example, by rotating rollers, blades, hole punchers, crushers, etc. An example is shown as blades 6 which are mounted on parallel rotating shafts 20 (Fig. 3) and a motor 5 which uses electrical power to rotatably drive the shafts 20 and blades 6 through a transmission 7 so that the blades 6 shred objects fed therein.

c) "a sensor positioned in proximity to the opening" (claims 1 and 6) **[1.5 marks]**

- The sensor 14 is disposed in proximity to the opening 11.
- "In proximity" to the opening 11 means a part of a person or item is outside and adjacent to the opening 11 or at least partially within the opening 11.
- Example: the sensor 14 comprises a capacitive sensor in the form of a conductor (e.g., metal strip; Figs. 1, 2).

d) "an inherent electrical characteristic" (claims 1 and 6) **[1.0 mark]**

- "Inherent" refers to an attribute which is naturally intrinsic or existing in a person or item.
- "Electrical characteristic" refers to the dielectric constant of the person or item.

e) "a movable part defining at least part of an opening" (claims 4 and 6) **[1.5 marks]**

- The mechanical switch 15 is a part that moves (Figs. 4A and 4B)
- The opening may comprise elements other than the mechanical switch (15)
- Example: walls 16 of the opening 11 are movable parts that form a throat plate that is movable relative to the housing 3.

f) "movable from a first position to a second position" (claims 4 and 6) **[2.0 marks]**

- In the first position, the mechanical switch 15 is in the open state or "on" position (Fig. 4A).
- Example - Upward biasing members bias the walls 16 of the opening 11 in their upper or "first position" to maintain the mechanical switch 15 in the open position (Fig. 4A).
- In the second position, the mechanical switch 15 is the closed state or "off" position (Fig. 4B)
- Example - When an item 18 is inserted into the opening 11, the item 18 presses against the walls 16 which moves them downwardly into the "second position," compressing the pressure sensitive pad 17 to complete a circuit shutting off the blades 6.

QUESTION 3: [23.0 marks]

Are claims 1, 2, 4, and 5 anticipated by any one of D1-D3? Provide detailed supporting arguments and references to the appropriate sections of the documents and figures. In the event that features are repeated in subsequent claims, it is acceptable to refer to analysis in previous claim(s).

Anticipation Breakdown	**D1 – AU '985**	**D3 – US '610**
Claim 1		
A shredder comprising:	Yes, rolling mill (10). Also device can be a shredder (last paragraph of patent)	Yes, shredder 10 (Fig. 1)
a) a housing;	Yes, frame 34 (Figs. 1, 2)	Yes, housing 14 (Fig. 1)
b) an opening formed in the housing for receiving an item to be shredded;	Yes, detection area serves as wide opening into which chips 12 are thrown for shredding	Yes, opening 36 formed in housing 14 enables items being shredded to be fed into blades 19
c) a shredder mechanism positioned in the housing for shredding the item;	Yes, drive system 20 and rollers 16, 18 (Figs. 1, 2); drive system 20 causes rotation of rollers 16, 18; chip 12 crushed between rollers 16, 18 (replaced by blades-last paragraph of patent) into pieces 14	Yes, shredder mechanism 16 comprising blades 19 and motor; motor drives shafts 20 and blades 19 to shred articles (Figs. 2, 4)

d) a sensor positioned in proximity to the opening for detecting **an inherent electrical characteristic** of the item or a person;	Yes, sensor 22 comprising electrode plates 26, 28 and shield plates 30, 32; space between plates 26, 28 forms detection area; detects capacitance of person or item (Figs. 1, 2)	No, detector 100 or pressure sensor 124 detects thickness of item placed into opening 36 (Fig. 4)
e) a controller responsive to the inherent electrical characteristic of the item or the person and operable to perform a predetermined operation; and	Yes, controller 68 responds to mutual capacitance between the conductor and the object or person (Fig. 2); controller 68 shuts down rolling mill 10	No, controller 200 (Fig. 2) is responsive to thickness of item; controller 200 causes indicator 110 to emit a warning in form of lights or causes audible signals to sound
f) a waste container for receiving the shredded item.	No, does not disclose a waste container.	Yes, waste container 12 (Fig. 1)
Enablement + Conclusion	No, with support	No, with support
	[4.5 marks]	**[4.5 marks]**
Claim 2 (dep 1)		
The shredder according to claim 1, wherein the sensor extends adjacent to the opening to provide sensor coverage along an entire length of the opening.	No, electrode plates 26, 28 are positioned outside of longitudinal ends of the detection area/opening, and extend perpendicular to a longitudinal direction of the detection area/opening (Figs. 1, 2).	No, detector 100 or pressure sensor is positioned beneath and within opening 36 to provide sensor coverage limited to the midpoint of the opening 36.
Enablement + Conclusion	No, with support	No, with support
	[1.0 mark]	**[1.0 mark]**
Claim 4		
A shredder comprising:	Yes, device can be a shredder (last paragraph of patent) (acceptable to refer to analysis for preamble of claim 1)	Yes, shredder 10 (Fig. 1) (acceptable to refer to analysis for preamble of claim 1)
a) a housing;	Yes, frame 34 (Figs. 1, 2) (acceptable to refer to analysis for element (a) of claim 1)	Yes, housing 14 (Fig. 1) (acceptable to refer to analysis for element (a) of claim 1)

b) an opening formed in the housing for receiving an item to be shredded;	Yes, detection area serves as wide opening into which chips 12 are thrown for shredding (acceptable to refer to analysis for element (b) of claim 1)	Yes, opening 36 enables articles being shredded to be fed into blades 19 (acceptable to refer to analysis for element (b) of claim 1)
c) a shredder mechanism positioned in the housing for shredding the item;	Yes, drive system 20 and rollers 16, 18 (Figs. 1, 2); drive system 20 causes rotation of rollers 16, 18; chip 12 crushed between rollers 16, 18 (replaced by blades-last paragraph of patent) into pieces 14 (acceptable to refer to analysis for element (c) of claim 1)	Yes, shredder mechanism 16 comprising blades 19 and motor; motor drives shafts 20 and blades 19 to shred articles (Figs. 2, 4) (acceptable to refer to analysis for element (c) of claim 1)
d) a movable part defining at least part of an opening for receiving the item,	No movable part defining the detection area/opening	Yes, contact member 120 is movable and protrudes into opening 36 to create a narrower opening for receiving the item
the movable part **being movable from a first position to a second position**;	No	Yes, contact member 120 protrudes into opening 36 and is biased by a spring 128 (first position); thick item moves contact member 120 into contact with sensor 124 (second position)
e) a detector for detecting movement of the movable part to the second position; and	No	Yes, thick item moves contact member 120 into contact with sensor 124 (second position); sensor 124 detects movement of contact member 120
f) **a controller** responsive to the detected movement of the movable part, and operable to perform a predetermined operation.	No	Yes, controller 200 causes indicator 110 to emit a warning in form of lights or causes audible signals to sound
Enablement + Conclusion	No, with support	Yes, with support
	[4.5 marks]	**[5.5 marks]**

Claim 5 (dep on 4)		
The shredder of claim 4, wherein the movable part is formed by a pair of walls of the opening,	No	No, walls 126 and 132 do not move; movable part is contact member 120; contact member 120 is not formed by pair of walls.
wherein a portion of the walls is movable downwardly in response to pressure of the item having a thickness greater than a predetermined thickness.	No	No, contact member 120 is moved towards the sensor 124 in a backwards motion, not downwards motion.
Enablement + Conclusion	No, with support	No, with support
	[1.0 mark]	**[1.0 mark]**

QUESTION 4: [31.0 marks]

Is claim 6 obvious in view of D1-D3? Provide detailed supporting arguments, apply the appropriate test from the case law, and refer to the appropriate sections of the documents and figures.

A) POSITA and CGK **[1.0 mark]**

(i) Person skilled in art

- engineer or designer experienced in manufacture of mechanical devices, particularly shredders.

(ii) Common general knowledge

- person skilled in the art would be familiar with various types of shredders for destroying objects. Examples include simple home and office paper shredders to industrial disintegrators, crushers, rolling mills, and pierce-and-tear shredders.

B) Inventive concept **[9.0 marks]**

Inventive concept is a combination of the following features:

The invention presents a shredder that has multiple safety features that operate effectively to prevent injuries to human or pet body parts, but still allows the shredder to retain its functionality when used correctly for shredding appropriate items.

a) Sensor [3.0 marks]

- The sensor is positioned in proximity to the opening to detect the presence of a person or an item outside and adjacent to the opening or at least partially within the opening.

- The sensor detects an inherent electrical characteristic of the item or a person; thus, it can discriminate between an item (low or moderate dielectric constant) and a person (high dielectric constant).

- The sensor is configured to provide sensor coverage along an entire length of the opening such that the presence of a person's body part or item entering any part of the opening along its entire length is detected.

- The sensor discriminates between a person and inanimate item entering the opening based on the dielectric constant. Thus, even if a finger smaller than the permitted thickness of a paper stack is inserted into the opening, or a hand between two sheets of paper is entering into the opening, the person can be detected and the controller will emit an error light and/or activates an audible alert.

b) Movable Part [3.0 marks]

- The movable part defines at least part of an opening for receiving the item. Movable walls form the opening and move in response to pressure of an item being inserted through the opening.

- The movable part moves from a first position to a second position upon the object having a size greater than a predetermined thickness.

- The shredder is designed not to allow any object greater than a predetermined size to enter the shredder. Thick objects such as human body parts result in pressure against the sides of the opening which can be used to actuate the mechanical switch by allowing for movement of the parts (i.e., walls) forming the opening. The movable part helps detect thickness to confirm the human has entered the opening, causing the controller to shut off the blades.

c) Controller [3.0 marks]

- The controller performs predetermined operations in response to both the detected inherent electrical characteristic of the object or the person and to movement of the movable part to the second position.

    - The sensor discriminates between a human and inanimate item based on the dielectric constant, causing the controller to emit an error light and/or activates an audible alert when the human is detected. The movable part detects thickness to confirm the human has entered the opening, causing the controller to shut off the blades.

    - Because it can discriminate based both on an electrical characteristic and thickness, the shredder can differentiate from items that are appropriate for shredding (e.g., paper, credit cards) and human body parts which are inappropriate for shredding.

C) Differences **[6.0 marks]**

- D1

  i) The sensor does not provide sensor coverage "along an entire length of the opening." Rather, the electrode plates 26, 28 are positioned outside of longitudinal ends of the opening, and extend perpendicular to a longitudinal direction of the opening.

ii) No movable part for detecting thickness.

iii) The controller does not discriminate based both on an electrical characteristic and thickness – addresses only electrical characteristic (or does not detect thickness).

- D3

  i) No sensor detecting an inherent electrical characteristic of an item or person.

  ii) Sensor coverage is limited to the midpoint of the opening.

  iii) The controller does not discriminate based both on an electrical characteristic and thickness – addresses only thickness (or does not detect inherent electrical characteristic).

D) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require a degree of inventiveness? **[14.0 marks]**

a) Not obvious in view of D1 alone [2.0 marks]

- The shredder of D1 does not detect thickness using a movable part.

- There is no disclosure in D1 of a controller discriminating based both on an electrical characteristic and thickness – addresses only an electrical characteristic.

b) Not obvious in view of D3 alone [4.0 marks]

- The shredder of D3 does not detect an inherent electrical characteristic and detects only thickness of an item placed into the opening but cannot distinguish a person from an item. D3 relies on a restriction of the thickness of items that can enter the opening, but has a critical flaw that it must be able to accommodate a minimum amount of paper, but this still allows the fingers of children and pet appendages (e.g., dog tongues) to be inserted in and through the opening. The opening will still permit anything below a certain size to enter the shredder, irrespective of whether it is human flesh, paper, or otherwise.

- There is no disclosure in D3 of a controller discriminating based both on an electrical characteristic and thickness – addresses only thickness.

c) <u>Not obvious when combining D1 and D3</u> [8.0 marks]

- **Not obvious to replace D1's wide opening with narrow opening of D3**

    - D1 focuses on the use of a sensor only in connection with a large area input opening. D1 uses a capacitive sensor that detects the presence of a person in a detection area between plates. D1 has a large input feed opening to allow a person to "throw plastic chips 12" into the mill. D1's sensor creates a detection area above the large opening into D1's mill. D1's mill automatically stops if it detects the presence of a human body in the detection area between the plates above the mill's opening. This area is so large so as to detect a person's body part well before the body part gets near the rollers. As shown in FIG. 1 of D1, to use D1's mill, the person must "throw the plastic chip 12" into a large feed area above the rollers of the mill, while keeping the person's body parts outside of the detection area between the plates.

    - It would not have been obvious to replace D1's large, wide opening with a "narrow opening" as taught by D3 because doing so would impair the ability of the person to insert chips into the opening. As shown in FIG. 2 of D1, because almost all of the area immediately above the space between the rollers is the detection area, the person using D1's mill must stay far away from the opening and must "throw the plastic chip 12" into a large feed opening above the rollers of the mill, while keeping the person's body parts outside of the detection area between the plates.

    - While the large, wide input opening into D1's mill enables chips to be imprecisely thrown into D1's mill from a distance, the "narrow, laterally extending opening" of D3 would prohibit or significantly impair such imprecise, long-distance feeding of chips into D1's mill. Thus, replacing D1's wide opening with a "narrow, laterally extending opening" as taught by D3 would impair the functionality of D1's mill and render the mill unsatisfactory for its intended purpose.

- **Not obvious to incorporate D1's industrial sensor into D3's consumer shredder**

    - It would not have been obvious to incorporate D1's industrial-machine-based sensor and plates into a consumer shredder such as D3 with a narrow, laterally extending opening for the purpose of detecting a human presence near the device of D3. Doing so would render D3's shredder unsatisfactory for its intended purpose of facilitating easy shredding of documents of various thicknesses. As shown in FIG. 1, D3 discloses a conventional paper shredder that includes a "narrow, laterally extending opening." Documents must be carefully positioned into the opening in order to feed the documents into the shredder.

    - While the large input opening into D1's mill 10 enables chips 12 to be imprecisely thrown into D1's mill from a distance, the elongated opening in D3's shredder prohibits such imprecise, long-distance feeding of documents into D3's shredder. If D1's plates 26, 28 were added to D3's shredder, the sensed volume between the plates 26, 28 would extend significantly upwardly above the opening 36 in D3's shredder. It would force the person to keep his hands far away from D3's opening – which would make it difficult or impossible for the person to efficiently and effectively feed flimsy, loose documents, like paper, into the opening without tripping the sensor and disabling the shredder. The problem would be even worse when the person attempts to shred a credit card or small piece of paper, which requires the person's hand to get that much closer to the opening to feed the item to be shredded properly into the shredder.

    - In D1, the two opposing plates 26, 28 of its sensing system extend vertically upward. D1 does not specify where on a shredder these plates would be located. It is clear they are at the longitudinal ends of the rollers, and therefore on a shredder, they would also be at the longitudinal ends of the shredder's opening. As such, a body part can enter the opening at different distances from the sensor elements. This means the sensor sensitivity must be set sufficiently high so that, at a minimum, a body part entering the midpoint of the opening can be detected. This is problematic and not workable because a sheet of paper with a low

dielectric constant, but very close to the sensor elements, may still trigger the sensor and inadvertently shut off the shredder. Likewise, a hand getting close enough to feed a credit card (but still safely above the opening) will most likely be detected, leading to false shutdown.

- Although D1 makes a passing reference to use of its sensor 22 and plates 26, 28 in a "shredder," one skilled in the art would have understood that such a "shredder" to be a large, industrial shredder with a large input opening comparable to the input opening of the industrial rolling mill disclosed in D1. D1 fails to explain how to integrate its sensing system into a shredder such as an office paper shredder in an enabling manner. It would not have been obvious to use such a sensor 22 and plates 26, 28 in a consumer shredder with a narrow, laterally extending opening such as that disclosed in D3.

E) Conclusion: Not obvious **[1.0 mark]**

QUESTION 5: [5.0 marks]

In addition to the primary considerations for obviousness (i.e., D1-D3), identify and briefly explain **three** other secondary considerations to support your conclusion of non-obviousness or obviousness.

- **There has been along-felt need in the art for the claimed invention, and others have failed to solve that need:**

  CA '100 evidenced issues faced by the shredder industry and the need for an effective solution for preventing injuries caused by shredders as far back as the 1980's. In view of the myriad of solutions for improving safety in the shredder art, it was not obvious for one skilled in the art to combine a sensor that discriminates based on an inherent electrical characteristic and a thickness detector in a shredder. Yet in the ensuing decades, no one invented a solution to mitigate this long-felt need. This shows clear evidence that the claimed invention was not obvious.

- **Commercial success:**

  The fact that sales of the shredder have soared with 500 units being sold annually supports non-obviousness of the invention.

- **Copying by others:**

  Competitors have added the same safety features to their own designs of shredders immediately after the first release of the claimed shredder of "Smart Shredder, Inc." This fact supports non-obviousness of the invention, as for decades, competitors had not applied such features to products to improve safety until the claimed shredder was invented.

QUESTION 6: [5.0 marks]

a) Is there a presumption with respect to the validity of CA 2,xxx,100? Who can request the Court to invalidate CA 2,xxx,100? Apply the appropriate sections of the *Patent Act*. **[2.0 marks]**

An issued patent is presumed to be valid. Section 43(2) of the *Patent Act*. A patent may be declared invalid or void by the Federal Court at the instance of the Attorney General of Canada or at the instance of any interested person. Section 60(1) of the *Patent Act*.

b) Apart from anticipation and obviousness, identify and briefly explain **two** other issues that may affect the validity of Canadian Patent No. 2,xxx,100. **[3.0 marks]**

- Issue of whether proper inventors have been named – Jane is named as a co-inventor on CA '100. A rule of thumb is that an inventor can be defined by someone who is the first to contribute to the inventive concept and reduction to a definite and practical shape of one or more of the claims in a patent. Jane only instructed Bob to fix the office's old shredder and may not be a co-inventor.

- Issue of ownership – Bob invented the invention while he was employed as the firm's mechanical engineer. However, CA '100 names "Smart Shredder, Inc." rather than the firm as the owner. It is not known whether Bob was hired to invent by the law firm.

END OF QUESTIONS IN PART A

PART B – Short Answer Questions

QUESTION 7: [2.0 marks]

Dr. White is the owner of a pharmaceutical company and believes he has invented a new drug for the treatment of dry eye. He is ready to market his product but has consulted with you to file a patent application. After performing a search of the prior art, you realize that the drug is not new. The drug *per se* has been patented in Canada by ABC Corp. and is presently marketed for the treatment of nail fungus.

a) Can Dr. White still obtain a patent for the treatment of dry eye with this drug? Explain why.
b) Dr. White wants to bring his product to market but does not want to invalidate ABC Corp's Canadian patent. List one way this could be achieved without attracting a lawsuit from ABC Corp.

No authority or statutory support is required for a) or b).

ANSWER TO QUESTION 7:

a) The new use of a known drug, provided the drug was never used for the treatment of dry eye.

b) **One** of:

i) Purchase the drug from ABC Corp; or

ii) Obtain a licence to the drug from ABC Corp, until their patent expires. In a way, i) is a subset of ii) as an implicit license is provided upon purchase of the drug from ABC Corp.

QUESTION 8: [2.0 marks]

A PCT application was filed March 14, 2017, claiming priority from a United States provisional patent application filed March 17, 2016.

If today is October 5, 2018, in which of the following countries would this application **NOT** be able to enter national phase? Provide only letter(s) as your answer. No authority or statutory support is required.

a) Canada
b) United States
c) China
d) Europe
e) Taiwan

ANSWER TO QUESTION 8:

B and E

QUESTION 9: [2.0 marks]

You are contacted by foreign associates whose client has belatedly decided to enter national phase in Canada. The International patent application has an international filing date of December 30th, 2015 and a priority date of December 30th, 2014.

If today's date is September 27th, 2018, would this application be able to enter national phase if priority to the December 30th, 2014 application is actively withdrawn? Cite the relevant authority or statutory support.

ANSWER TO QUESTION 9:

No. The 42-month period is in fact the 30-month deadline, plus a one-year period to pay an additional fee for late payment (Section 58(3)(b) of the Patent Rules) and any maintenance fees if more than 2 years from the international filing date. If these fees are not timely paid within the 42-month period, the application cannot enter the national phase in Canada.

QUESTION 10: [2.0 marks]

a) Your client wishes to transfer ownership of their Canadian patent application to ABC Ltd. The client provides you with an assignment for recordal in the Canadian Intellectual Property Office (CIPO). List two steps required to record the assignment in CIPO.

b) What Section of the *Patent Rules* applies?

ANSWER TO QUESTION 10:

a) Any two of the following:

- submit a request to register the assignment;
- include an indication of the patent application or patent to which the document relates; and
- pay the prescribed fee ($100) set out in item 21 of Schedule II of the *Patent Rules*.

b) Sections 38, 39, and 42 of the *Patent Rules*

QUESTION 11: [3.0 marks]

A regular Canadian patent application is filed on March 2, 2014. The applicant does not file a request for priority at the time of filing, but on June 3, 2014 files a request claiming priority from a United States patent application filed on March 3, 2013 and from a Canadian patent application filed on August 1, 2013. The applicant provides the patent application number, country and filing date for each of these previously filed United States and Canadian patent applications and requests priority from these patent applications.

Will the applicant be entitled to claim priority? Why or why not? Cite the relevant statutory support.

ANSWER TO QUESTION 11:

The applicant is entitled to claim priority from the previously filed United States and Canadian patent applications filed on March 3, 2013 and August 1, 2013, respectively. The request for priority was filed before the expiry of the 16 months period after the *filing date* of the earliest filed United States patent application and the request therefore complies with Subparagraph

88(1)(*c*) of the *Patent Rules* in respect thereof. The applicant will receive priority based on both the US and Canadian patent applications.

QUESTION 12: [2.5 marks]

An inventor has been inadvertently omitted from a regular Canadian patent application.

a) What steps are required to rectify this omission? Cite the relevant statutory support.

b) What document(s) must be submitted?

ANSWER TO QUESTION 12:

a) Pursuant to subsection 31(4) of the *Patent Act*, the inventor may be joined on satisfying the Commissioner that the inventor should be so joined, and that the omission of the further inventor had been by inadvertence or mistake and was not for the purpose of delay.

b) A petition/request with a new Declaration as to the Applicant's entitlement for the new inventor.

QUESTION 13: [2.0 marks]

In accordance with the *Canadian Patent Act* and/or *Rules*, which of the following sources of information may not be citable against a patent application in view of anticipation and/or obviousness? No authority or statutory support is required.

A. A paper that was orally presented at a meeting, where the meeting was open to all interested persons and the paper was distributed in written form to six people without restriction.

B. A doctoral thesis that was indexed, catalogued, and shelved, in a single, university library.

C. A research report distributed in numerous copies but only internally within an organization and intended to remain confidential.

D. A reference available in electronic form on the Internet.

E. A technical manual that was shelved and catalogued in a public library, where there is no evidence that anyone ever actually looked at the manual.

F. The preamble of a Jepson claim.

G. One of the figures in the drawings of the patent application labelled as prior art.

ANSWER TO QUESTION 13:

C

QUESTION 14: [2.5 marks]

You file a Canadian patent application on May 1, 2018 for your client, a Taiwanese individual inventor and resident in Taiwan. Your client tells you she has signed a license agreement with a Canadian company to produce her invention commercially. The license agreement requires that your client file a PCT application and name both the Canadian company and your client as co-Applicants. When entering national phase(s), the Canadian company will be the sole Applicant for Canada but a licensee for all other countries. Your client will then be the sole Applicant for all countries other than Canada.

a) Are you permitted to file the PCT application in the Canadian Intellectual Property Office (CIPO)? Please explain. No authority or statutory support is required.

b) Can you record the licence before the International Bureau? Please explain. No authority or statutory support is required.

ANSWER TO QUESTION 14:

a) Yes. To file a PCT application in Canada, only one applicant needs to be a national or resident of a PCT contracting state (Canada). The Taiwanese inventor is not entitled, but the Canadian company is entitled.

b) PCT contains no provisions for registration of licences. This must be done with national or regional offices upon national/regional phase entry, if possible with those offices.

QUESTION 15: [2.0 marks]

Independent claim 1, fully supported by the description in a patent application, states:

> *Claim 1. An apparatus comprising: a plastic valve; a copper pipe connected to the plastic valve; and an aluminum pipe connected to the plastic valve.*

Which of the following claims, presented in the application, are objectionable under Subsection 27(4) of the *Patent Act*? Provide a reason for your answer. No authority or statutory support is required.

> *Claim 2. The apparatus of claim 1, wherein said pipe is statically charged.*
>
> *Claim 3. The apparatus of claim 1, wherein a large portion of an outer circumference of said copper pipe is preferably statically charged.*
>
> *Claim 4. The apparatus of claim 1, further comprising a thermostat connected to said plastic valve.*

A. Claim 2

B. Claim 3

C. Claim 4

D. Claims 2 and 3

E. Claims 3 and 4

ANSWER TO QUESTION 15:

D. Claim 2 is indefinite because it is not clear which "said pipe" the claim is referring to since claim 1 recites a copper pipe and an aluminum pipe. Claim 3 could be construed as indefinite for recitation of the imprecise word "preferably" and the phrase "a large portion" as "large" is a relative term. **(1.0)**

QUESTION 16: [2.0 marks]

An inventor files a Canadian patent application by mail with the Canadian Intellectual Property Office on January 2, 2019, claiming priority from a patent application filed with the Japanese

patent office on January 8, 2018. Several days later, the inventor is informed that the Canadian Intellectual Property Office received only the petition, the fee and a certified copy of the Japanese priority document, written in Japanese, on the last day of the priority year. The copy of the Canadian patent application written in English was not included by the inventor. Can a filing date be secured with a valid priority claim? Cite the relevant authority or statutory support.

ANSWER TO QUESTION 16:

Assuming that the Japanese priority application does not contain any text written in English or French, it does not appear that the application contains "a document, in English or French, that on its face appears to describe an invention" and hence the application documents do not meet the criteria of Subsection 27.1(1)(a) of the *Patent Rules* and a filing date cannot be attributed to the application documents that have been submitted.

END OF QUESTIONS IN PART B

CANADIAN PATENT AGENT QUALIFYING EXAMINATION

2019

PAPER C - PATENT OFFICE PRACTICE

This examination is four (**4**) hours in length.

This examination is composed of two parts:

Part A, comprising question C1 (**70** marks); and

Part B, comprising questions C2 to C14 (**30** marks).

For Part A, you will be evaluated on the following:

Dealing correctly with all issues; and

Appropriate statutory/regulatory citations.

For Part B, you will be rated on the correctness and clarity of the answers.

Please pay attention to organization and neatness in your answers.

PART A: Question C1 (70 marks)

C1. You are the patent agent responsible for the prosecution of Canadian patent application no. 2,XXX,999. You are provided with the following documents:

1. A copy of the patent examiner's office action dated 18 April 2019.
2. A copy of application 2,XXX,999 that is the object of the office action.
3. A copy of each of the prior art references cited in the office action. Although these references are based on actual documents, please note that these documents have been altered for the purposes of this examination.
4. A supplemental copy of the claims of the application.

Instructions to Candidates

Respond to the situation above by providing a response to the office action, including:

(i) a set of claims, drafted with due consideration to their allowability and the rights of your client; marks will be deducted for any unnecessary limitations in independent claim(s) [42 marks including 28 marks for claim 1 and 14 marks for other claim amendments];

(ii) a discussion of the cited art indicating how the anticipation and obviousness defects have been overcome [13 marks]; and an indication where support is derived for any claim amendments [2 marks]; and

(iii) a specific response to each of the other defects raised in the office action, including a statement explaining the nature thereof and how it corrects each of the noted defects. It is not required to physically amend the description. [13 marks]

18 April 2019 (18-04-2019)

RAY AGENT
ipmail@ra.com

Application No.:	**2,XXX,999**
Owner:	ANIMAL CARE INC.
Title:	**SUPPORT**
Classification:	A01K 13/00 (2006.01)
Your File No.:	**WXYZ-000**
Examiner:	G. Boulet

YOU ARE HEREBY NOTIFIED OF A REQUISITION BY THE EXAMINER IN ACCORDANCE WITH SUBSECTION 30(2) OF THE *PATENT RULES*. IN ORDER TO AVOID ABANDONMENT UNDER PARAGRAPH 73(1)(*a*) OF THE *PATENT ACT*, A WRITTEN REPLY MUST BE RECEIVED WITHIN THE **SIX (6)** MONTH PERIOD AFTER THE ABOVE DATE.

This application has been examined taking into account the applicant's correspondence received in this office on 30 June 2017 (30-06-2017).

The number of claims in this application is 11.

Documents Cited:

D1:	US 5871111	DEARBORN	16 February 1999 (16-02-1999)
D2:	US 5910222	BOYD et al.	8 June 1999 (08-06-1999)
D3:	US 6918333	CARTY	19 February 2004 (19-02-2004)

The examiner has identified the following defects in the application:

<u>New subject matter</u>

The subject matter of claim 10 as amended by the applicant's correspondence received on 30 June 2017 (30-06-2017) does not comply with section 38.2 of the *Patent Act* because it is not reasonably to be inferred from the specification or drawings as originally filed. Specifically, there is no support in the original specification of drawings for an equine support boot comprising a “splint pad”. It should be noted that the subject matter of this claim has not been included in the search of the prior art.

Non-statutory subject matter

Claim 11 is directed to subject matter that lies outside the definition of “invention” and does not comply with section 2 of the *Patent Act*. The defined method is a method of medical treatment and is consequently not a statutory “art” or “process” (see section 17.03.01 of the *Manual of Patent Office Practice*). It is noted that methods of preventing injuries are considered to fall within the scope of methods of medical treatment and are therefore not patentable.

Lack of novelty

Claims 1, 2, 4 and 11 do not comply with paragraph 28.2(1)(b) of *Patent Act*. D1 disclosed the claimed subject matter before the claim date.

Regarding claim 1, D1 discloses an equine support boot (20), comprising a base portion (22) configured to wrap around a fetlock joint (12) of a horse, at least one upper strap (26, 56A, 56B) configured to adjustably secure the base portion (22) around the leg of the horse above the fetlock joint, a concave portion (46) formed in the base portion (22), the concave portion (46) being configured to engage the fetlock joint, an orthopedic pad (24A-24C) disposed in the concave portion (46), and a first sling strap (64A) connected to the lower part of the base portion and configured to wrap around the support boot (20).

Regarding claim 2, D1 discloses the equine boot further comprising a second sling strap (64B) connected to the first sling strap (64A), wherein the first sling strap (64A) wraps around the support boot (20) in one direction and the second sling strap (64B) wraps around the support boot (20) in the opposite direction, wherein the second sling strap overlaps the first sling strap (see Figs. 1 and 3).

Regarding claim 4, D1 discloses wherein the orthopedic pad is formed from a compliant material (paragraphs [0043]-[0044]).

Regarding claim 11, D1 discloses that the equine boot serves to prevent injury to the ankle (paragraphs [0031] and [0053]).

Obviousness

Claim 5 does not comply with section 28.3 of the *Patent Act*. The subject matter of this claim would have been obvious on the claim date to a person skilled in the art having regard to D1 in view of D3. D1 does not explicitly disclose that the orthopedic pad is formed from an ethylene-vinyl acetate foam. This feature, however, is well known in the art as shown by D3. D3 discloses an equine support boot (10) comprising an orthopedic pad (36) that is formed from an ethylene-vinyl acetate foam (paragraph [0020]). It would have been obvious to one skilled in the art to produce the claimed equine support boot by combining the teachings of D1 with the ethylene-vinyl acetate foam orthopedic pad of D3 in order to help ensure passage of moisture and/or air when the boot is applied.

Claims 7-9 do not comply with section 28.3 of the *Patent Act*. The subject matter of these claims would have been obvious on the claim date to a person skilled in the art having regard to D1 in view of D2. D1 does not explicitly disclose the equine support boot further comprising at least one inwardly protruding tendon support member carried by the base portion. This feature, however, is well known in the art as shown by D2. D2 discloses an equine support boot (100) comprising at least one inwardly protruding tendon support member (132, 136) carried by a base portion (112), wherein the at least one tendon support member (132, 136) has a selected shape (see Figs. 8 and 9), wherein the shape is at least one of an elongated rib, a circular button, and an oval ridge, and wherein the at least one tendon support member is removable (paragraph [0048]). It would have been obvious to one skilled in the art to produce the claimed equine support boot by combining the teachings of D1 with the inwardly protruding tendon support member of D2 in order provide lateral support and stabilization to the tendons and ligaments of the fetlock joint and lower pastern.

Claims 3 and 6 do not comply with section 28.3 of the *Patent Act*. The subject matter of these claims would have been obvious on the claim date to a person skilled in the art having regard to D1 in view of common general knowledge. The subject matter of claims 3 and 6 does not appear to contain any additional features which, in combination with features of any claim to which they refer, including the D1 features, involve inventive structure, since they relate to minor constructional changes and/or mere design choices (first and second sling strap form an angle relative to the concave portion of about 45°; orthopedic pad includes a cut-out portion on a bottom edge) which come within the scope of equine protective/supportive wear by persons skilled in the art and producing results no other than expected from their combinations. It would have been obvious to one skilled in the art to produce the claimed equine support boot by combining known features.

Lack of support

Claim 5 is not fully supported by the description and does not comply with section 84 of the *Patent Rules*. The claimed feature, “ethylene vinyl acetate foam”, is not described in the description.

Other defects in the claims

Claim 4 is a dependent claim that does not refer to a preceding claim by number and does not comply with subsection 87(1) of the *Patent Rules*.

Claim 5 is indefinite and does not comply with subsection 27(4) of the *Patent Act*. There is no antecedent basis for the "compliant material" in claim 1.

Claim 7 is indefinite and does not comply with subsection 27(4) of the *Patent Act*. The preamble should read “according to any one of claims...”, so it is clear that the above claim depends upon each claim individually, rather than in combination.

Claim 9 does not comply with subsection 87(2) of the *Patent Rules*. A dependent claim must refer to a preceding claim or claims.

Defects in the title, description and drawings

The title of the invention is not precise and does not comply with paragraph 80(1)(*a*) of the *Patent Rules*. A suitable title must be provided by the applicant.

The description uses reference to the claims to teach the nature of the invention and does not comply with subsection 27(3) of the *Patent Act*. Statements such as those found at paragraph [006] do not correctly describe the invention and should be removed.

Figures 6A, 6B and 6D of the drawings do not comply with section 82 of the *Patent Rules*. Reference characters not mentioned in the description should not appear in the drawings, and vice versa. Furthermore, the same reference character should be used to denote the same feature throughout the application. In paragraph [029] of the description, the "cut-out portion" is alternatively referred to using reference characters 202 and 302. In addition, it is noted that reference character 302 does not appear in any of the drawings. Appropriate correction is required.

The description does not comply with section 76 of the *Patent Rules*, which requires that trade-marks mentioned in the application be identified as such. If “Kevlar” in paragraph [020] is a trade-mark, it must be so identified.

In view of the foregoing defects, the applicant is requisitioned, under subsection 30(2) of the *Patent Rules*, to amend the application in order to comply with the *Patent Act* and the *Patent Rules* or to provide arguments as to why the application does comply.

Under section 34 of the *Patent Rules*, any amendment made in response to this requisition must be accompanied by a statement explaining the nature thereof, and how it corrects each of the above identified defects.

G. Boulet
Patent Examiner
819-555-4213

(21) **CA 2,XXX,999**

(12) APPLICATION FOR CANADIAN PATENT

(54) TITLE: SUPPORT
(86) FILING DATE: 2014/02/26
(87) PUBLICATION DATE: 2015/08/26
(51) INT. CL.: A01K 13/00
(71) APPLICANT: ANIMAL CARE INC.
(72) INVENTOR: CORCORAN, J.

TITLE OF THE INVENTION

SUPPORT

ABSTRACT

Described is an equine support boot, comprising: a base portion configured to wrap around a fetlock joint of a horse; at least one upper strap configured to adjustably secure the base portion around the leg of the horse above the fetlock joint; a concave portion formed in the base portion, the concave portion being configured to engage the fetlock joint; an orthopedic pad disposed in the concave portion; a first sling strap connected to the lower part of the base portion and configured to wrap around the support boot; and a second sling strap connected to the first sling strap and configured to wrap around the support boot.

TECHNICAL FIELD

[001] The present invention relates to equine support boots. In particular, the present invention relates to support boots for the lower limbs of horses.

DESCRIPTION OF THE PRIOR ART

[002] For centuries, the bond between man and horse has been a strong one. At times in history, the survival of people would not have been possible without horses. Today, although most people are no longer dependent upon horses, the livelihoods of many people are still dependent upon access to strong, healthy horses. Indeed, the equine industry has never been stronger. Every day, around the world, thousands of horses are bought, sold, and traded for a wide variety of uses. Some are race horses, some are show horses, and some simply work day in and day out on farms and ranches throughout the world. Regardless of how they are used, horses must be cared for and maintained if they are to continue to be healthy, strong, and valuable.

[003] Each year, vast sums are money are spent on the health and maintenance of horses. Hundreds of millions of dollars are spent on tools, tack, equipment, gear, supplies, accessories,

training, and veterinary services to ensure that horses remain healthy and fit. Not only are horses treated after they have become injured, but significant resources are expended to prevent injuries from ever occurring. In recent years, the emphasis on prevention of injuries to horses has increased dramatically. Significant strides have been made in the areas of medicine, education, training, and equipment to help reduce the types and numbers of injuries sustained by horses.

[004] One area of the equine industry that has seen tremendous growth is protective wear for horses' legs. These days, a myriad of products are available to protect a horse's legs from injury, including many different types of ankle boots, skid boots, splint boots, knee boots, support boots, and leg wraps. These products often offer new designs and incorporate new materials. Unfortunately, some of these products perform their advertised and intended purposes, and some do not. For example, some boots are advertised as support boots, but provide little or no support whatsoever.

[005] Thus, although there have been significant developments in the area of equine support boots, considerable shortcomings remain.

BRIEF DESCRIPTION OF THE DRAWINGS

[006] The novel features believed characteristic of the equine support boot of the present application are set forth in the appended claims. The equine support boot of the present application itself, however, as well as a preferred mode of use and further objectives and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

[007] Figure 1 is a perspective view of an equine support boot according to the present application;

[008] Figure 2 is a rear view of the support boot of Figure 1 installed onto the lower leg of a horse;

[009] Figure 3 is a front view of the support boot of Figure 1 installed onto the lower leg of a horse;

[010] Figure 4 is a left side view of the support boot of Figure 1 installed onto the lower leg of a horse;

[011] Figure 5 is a longitudinal cross-sectional view of the support boot of Figure 1 taken at V-V of Figure 2 with a portion of the horse's lower leg included to illustrate the general alignment of the support boot; and

[012] Figures 6A-6F are oblique and orthographic views of the orthopedic pad of the support boot of Figure 1.

[013] Deleted

DETAILED DESCRIPTION

[014] The equine support boot of the present application provides support to the fetlock joint and the bones, tendons, and ligaments, and other structures associated with the fetlock joint. The support boot restricts and selectively controls the movement of the fetlock joint. The support boot may be used both as an injury prevention device and as a therapeutic device for horses that have already been injured. For horses that have already been injured, the support boot provides stability in the rehabilitation process, which allows the horse to react better to treatment. Use of the support boot during rehabilitation of a lame horse can reduce the overall time required to rehabilitate the horse.

[015] The support boot may be utilized in a wide variety of configurations. Although the support boot is depicted with an orthopedic pad, the support boot may be used without such pad as a support wrap to add cushioning between a horse's fetlock joint and the ground, or to add support, cushioning, and protection from crossover injuries.

[016] When applied, the support boot extends from the proximal cannon bone to the distal pastern. The support boot covers and protects areas proximal to the fetlock joint, and provides support to the flexor tendons and suspensory ligament by decreasing the palmar/plantar movement, i.e., "bowing", of these structures during load-bearing. The area of coverage and the materials used in the construction of the support boot and its component parts also provides protection from blunt force injuries, such as over-reach, interference, run-down injuries, and others.

[017] The support boot also provides additional load-bearing support by the incorporation of a force-resistant orthopedic pad disposed below the level of the fetlock. When the support boot is applied to a horse's lower leg, the orthopedic pad fits snuggly between the palmar/plantar aspect of the proximal pastern and the ventral portion of the sesamoids, i.e., the rear, bottom portion of the fetlock. This added support and control decreases the extension of the fetlock joint, thereby decreasing the tensile stress that can occur in the suspensory ligament and the flexor tendons during load-bearing.

[018] In one embodiment, the invention is directed to an equine support boot, comprising: a base portion configured to wrap around a fetlock joint of a horse; at least one upper strap configured to adjustably secure the base portion around the leg of the horse above the fetlock joint; a concave portion formed in the base portion, the concave portion being configured to engage the fetlock joint; an orthopedic pad disposed in the concave portion; a first sling strap connected to the lower part of the base portion and configured to wrap around the support boot; and an optional second sling strap connected to the first sling strap and configured to wrap around the support boot.

[019] Referring to Figure 1 in the drawings, the preferred embodiment of an equine support boot **100** is illustrated. Support boot **100** comprises a base portion **102**, a first sling strap **104**, a second sling strap **106**, one or more upper straps **108a**, **108b**, and **108c**, a concave portion **110**, and an orthopedic pad **200** (see Figures 5 and 6A-6F). Base portion **102** includes a top edge **112**, a rear edge **114**, a bottom edge **116**, and a front edge **118**. Base portion **102** is formed by one or more layers of compliant materials. For example, in the preferred embodiment, base portion **102** is formed by an inner neoprene layer **120** that is bonded on an exterior surface to an outer loop fabric layer **122**. Loop fabric layer **122** is preferably made of or includes an unbroken loop fabric. A thin knit fabric is preferably bonded to the interior surface of neoprene layer **120** to protect and enhance the performance of neoprene layer **120**. Loop fabric layer **122** forms the loop portion of a hook and loop type bond between first sling strap **104** and base portion **102**, and between second sling strap **106** and base portion **102**, as explained in more detail herein. Stitching **124** along edges **112**, **114**, **116**, and **118** prevents neoprene layer **120**, the thin knit fabric, and loop fabric layer **122** from delaminating. Upper straps **108a**, **108b**, and **108c** are adjustable and ensure that the upper portion of support boot **100** is snuggly and securely wrapped around the horse's lower leg above the fetlock joint. Concave portion **110** is preferably formed in or adjacent to bottom edge **116**, and is shaped by at least one pleat, such as pleats **126a** and **126b**, formed in base portion **102**. Bottom edge **116** may curve upwardly adjacent concave portion **110**, and may also curve upwardly near first sling strap **104** to aid in providing a snug fit around the horse's leg. Orthopedic pad **200** is disposed in the interior region of concave portion **110**.

[020] The exterior surface of base portion **102** at concave portion **110** may optionally be coated, treated, or overlaid with a tough, durable material, such as nylon, Kevlar, rubber, plastic, or other suitable materials, to prevent damage to base portion. This feature is particularly useful in embodiments in which the support boot is adapted for use as a support wrap. It will be appreciated that such treatment or addition to concave portion **110** may be integral with concave portion, may be bonded to concave portion **110**, or may be releasably coupled to concave portion **110**.

[021] Base portion **102** may also include one or more optional tendon support members **128a** and **128b**. Tendon support members **128a** and **128b** are preferably semi-rigid, compliant structures that extend inwardly from base portion **102** and are configured and arranged to engage the tendon grooves of the horse's lower leg. When support boot **102** is applied to the lower leg of a horse, tendon support members **128a** and **128b** provide lateral support and stabilization to the flexor tendons, the suspensory ligament, the sesamoidean ligaments, the sesamoid bones, and other tendons, ligaments, and bones in the area of the fetlock joint and lower pastern. In addition, tendon support members **128a** and **128b** ensure that support boot **100** is properly aligned during application to the horse's lower leg, and prevent rotation of support boot **100** about the horse's leg during operation.

[022] Tendon support members **128a** and **128b** may be implemented in a wide variety of materials, shapes, and sizes. For example, tendon support members **128a** and **128b** may be integral with and formed of the same material as base portion **102**, or may be formed of a

different material, such as nylon, leather, rubber, or plastic, and may be coated or treated with other compliant materials. In those embodiments in which tendon support members **128a** and **128b** are formed of alternative materials, tendon support members **128a** and **128b** may be bonded to base portion **102** or secured into slots, pouches, or pockets in base material **102**. In another embodiment, tendon support members **128a** and **128b** may be removably placed into slots, pouches, or pockets. This latter embodiment allows the user to choose whether tendon support members are used or not on a case-by-case basis. As is shown, tendon support members **128a** and **128b** may comprise elongated ribs, circular buttons, oval ridges, and other shapes, either alone or in combination with each other. In addition, tendon support members **128a** and **128b** may have custom configurations of shapes and materials that are selectively tailored for particular maladies, applications, or individual horses.

[023] First sling strap **104** comprises an extension portion **130**, a first connector portion **132**, a first receiver portion **134**, and a second connector portion **136**. In the preferred embodiment, extension portion **130** is formed as an elongated extension of base portion **102** and extends outward from the corner formed by the intersection of bottom edge **116** and front edge **118**. First connector portion **132** is preferably attached to extension portion **130** by stitching. First connector portion **132** is formed from hook-type fabric and functions as the hook portion of a hook and loop type bond between first sling strap **104** and base portion **102**. First receiver portion **134** is formed by loop-type fabric and functions as a portion of the loop portion of a hook and loop type bond between second sling strap **106** and base portion **102**. First receiver portion **134** is stitched or otherwise bonded to the exterior surface of connector portion **132** and, as is shown, may also extend over onto a portion of the exterior surface of extension portion **130**. Second connector portion **136** is stitched or otherwise bonded to the interior surface of extension portion **130** and functions as the hook portion of a hook and loop type bond between first sling strap **104** and base portion **102** between pleats **126a** and **126b**.

[024] Second sling strap **106** comprises a tab portion **140**, a third connector portion **142**, and a fourth connector portion **144**. Tab portion **140** is preferably formed of the same laminar material as base portion **102** and is attached to extension portion **130** of first sling strap **104** by stitching. Third connector portion **142** is preferably attached to tab portion **140** by stitching. Third connector portion **142** is formed from hook-type fabric and functions as the hook portion of a hook and loop type bond between second sling strap **104** and the combination of base portion **102** and first receiver portion **134**. Fourth connector portion **144** is stitched or otherwise bonded to the interior surface of tab portion **140**. Fourth connector portion **144** is formed from hook-type fabric and functions as the hook portion of a hook and loop type bond between second sling strap **106** and extension portion **130**. It is preferred that fourth connector portion **144** be aligned with second connector portion **136** during installation of support boot **100** onto the horse's leg.

[025] Referring now also to Figures 2-5 in the drawings, support boot **100** is shown installed around the fetlock joint and lower leg of a horse. As is shown, support boot **100** extends from the proximal cannon bone to the distal pastern. Although many of the components of support boot **100** are constructed from compliant materials, when wrapped around a horse's lower leg, support boot **100** forms a strong and rigid support structure. This feature allows support boot

100 to cover and protect the areas proximal to the horse's fetlock joint, and provides support to the flexor tendons and suspensory ligament by decreasing the palmar/plantar movement, i.e., "bowing", of these structures during load-bearing. In addition, because support boot **100** is formed of generally padded, compliant materials, the configuration and construction of support boot **100** provides protection from blunt force injuries, such as over-reach, interference, run-down injuries, and others.

[026] As shown in Figures 2, 4, and 5, orthopedic pad **200** fits snuggly between the palmar/plantar aspect of the proximal pastern and the ventral portion of the sesamoid bones, i.e., the bottom, rear portion of the fetlock joint. This added support restricts the extension of the fetlock joint, thereby decreasing the tensile stress that can occur in the suspensory ligament and the flexor tendons during load-bearing. In Figure 3, a cross-over attachment configuration of first sling strap **104** and second sling strap **106** is shown. This sling-strap configuration provides significant upward forces that pull upward on the lower area of concave portion **110** and orthopedic pad **200**. This configuration provides additional resistance to extension of the fetlock joint.

[027] In Figure 4, the relative location of orthopedic pad **200** and the upward support of first sling strap **104** and second sling strap **106** can be seen. In the preferred embodiment, first connector portion **132** of first sling strap **104** and tab portion **140** of second sling strap **106** form an angle A of about 45° with respect to concave portion **110**. It will be appreciated that angle A may vary considerably depending upon the application in which support boot **100** is used.

[028] In Figure 5, support boot **100** is shown in a longitudinal cross-sectional view taken at V-V of Figure 2 with a portion of the horse's lower leg included to illustrate the general alignment of support boot **100**. As is shown, orthopedic pad **200** is disposed in concave portion **110**. Orthopedic pad **200** may undergo some deformation during assembly of support boot **100** and may undergo additional deformation during application onto the horse's leg. This deformation, which is shown in Figure 5, allows orthopedic pad **200** to better conform to the palmar/plantar aspect of the proximal pastern and the ventral portion of the sesamoid bones. It will be appreciated that orthopedic pad **200** is a relatively thick member, i.e., several times thicker than first sling strap **104** or second sling strap **106**. The thickness of orthopedic pad **200** ensures that the fetlock joint will be supported and stabilized during use by the horse.

[029] Referring now also to Figures 6A-6F in the drawings, orthopedic pad **200** is illustrated in several views. Figure 6A is an oblique view, Figure 6B is a top view, Figure 6C is a front view, Figure 6D is a bottom view, Figure 6E is a left side view, and Figure 6F is a rear view. Orthopedic pad **200** is generally rectangular in shape with some or all of the edges being beveled or rounded. Orthopedic pad **200** preferably includes a cut-out portion **202** centered along a bottom edge **204**. Although cut-out portion **202** is shown as being semicircular in shape, it will be appreciated cut-out portion **302** may take on other shapes and sizes, depending upon the use, application, and desired effect of support boot **100**. Orthopedic pad **200** is preferably made of a polymeric foam. This allows orthopedic pad **200** to be easily manufactured according to a wide variety of shapes, sizes, and other properties, and allows the performance

characteristics of orthopedic pad **200** to be selectively chosen and tailored for particular applications. However, it should be understood that orthopedic pad **200** may be formed of other materials, as well, depending upon the use, application, and desired effect of support boot **100**. For example, orthopedic pad **200** may be formed of the same material as base portion **102**, and may be formed integrally with base portion **102**.

[030] Application of support boot **100** to a horse's leg will now be described. First, concave portion **110** and orthopedic pad **200** are located adjacent to and just below the fetlock joint of the horse's leg. Then, base portion **102** is wrapped snuggly around the horse's leg and secured in place by attaching upper straps **108a**, **108b**, and **108c** to the exterior surface of loop fabric layer **122**. In this step, it is preferred that top edge **112** be aligned as base portion **102** is wrapped around the horse's leg. In addition, in those embodiments in which optional tendon support members **128a** and **128b** are employed, base portion **102** is arranged such that tendon support members **128a** and **128b** engage the tendon grooves of the horse's lower leg. Next, first sling strap **104** is wrapped underneath concave portion **110** and orthopedic pad **200**, pulled around the horse's leg in an upward direction, and secured to the front of base portion **102**. In this step, it is preferred that second connector portion **136** be located directly aligned with concave portion **110** and orthopedic pad **200**. Then, optional second sling strap **106** is wrapped in the opposite direction underneath concave portion **110** and orthopedic pad **200**, pulled around the horse's leg in an upward direction, crossed over first sling strap **104**, and secured to both first receiver portion **134** and the front of base portion **102**. In this step, it is preferred that fourth connector portion **144** be aligned with second connector portion **136**. The cross-over attachment and multiple connection points of first sling strap **104** and second sling strap **106**, which is best seen in Figures 2 and 3, provides a very secure attachment of support boot **100** and ensures that the concave portion exerts an upwardly force from the bottom of the proximal sesamoid bone.

[031] Once applied, support boot **100** covers and protects areas proximal to the fetlock joint and provides support and stability to the horse's leg. Base portion **102** provides support, particularly lateral support, to the flexor tendons and suspensory ligament by decreasing any bowing of these structures during load-bearing. Support boot **100** also provides protection from blunt force injuries, such as over-reach, interference, run-down injuries, and others. Orthopedic pad **200** is secured snuggly between the palmar/plantar aspect of the proximal pastern and the ventral portion of the sesamoid bones, thereby restricting movement of the fetlock joint and providing load-bearing support to the bottom portion of the fetlock joint. This added support decreases the extension of the fetlock joint, thereby decreasing the tensile stress that can occur in the suspensory ligament and the flexor tendons during loadbearing. In addition, orthopedic pad **200** cushions collisions between the horse's fetlock joint and the ground.

[032] It will be appreciated that additional and/or other materials may be utilized to selectively tailor the strength, stiffness, and performance characteristics of support boot **100**. For example, additional layers of fabric may be used to add strength. In addition, fabrics with specific directional characteristics, such as composite materials, may be used to selectively tailor the strength and stiffness of support boot **100** in particular directions. As an example, the knit

material surrounding base portion **102** may be configured to be stronger and/or stiffer in the longitudinal direction than in the transverse direction. Such a configuration would allow compliance in the transverse direction, but restrict movement in the longitudinal direction.

[033] It is apparent that an invention with significant benefits advantages has been described and illustrated. The benefits and advantages of support boot **100**, include: (1) transverse support of the fetlock joint; (2) upward support for the fetlock joint; (3) restriction of movement of the fetlock joint; (4) cushioning for collisions between the fetlock joint and the ground; and (5) an orthopedic pad that can be used in different types of equine boots, including support boots and wraps.

[034] The description of support boot **100** has been presented for purposes of illustration and description, and is not intended to be exhaustive or limited to the form disclosed. Although support boot **100** has been shown in a limited number of forms, support boot **100** is not limited to just these forms, but is amenable to various changes and modifications without departing from the spirit thereof. Many modifications and variations will be apparent to those of ordinary skill in the art.

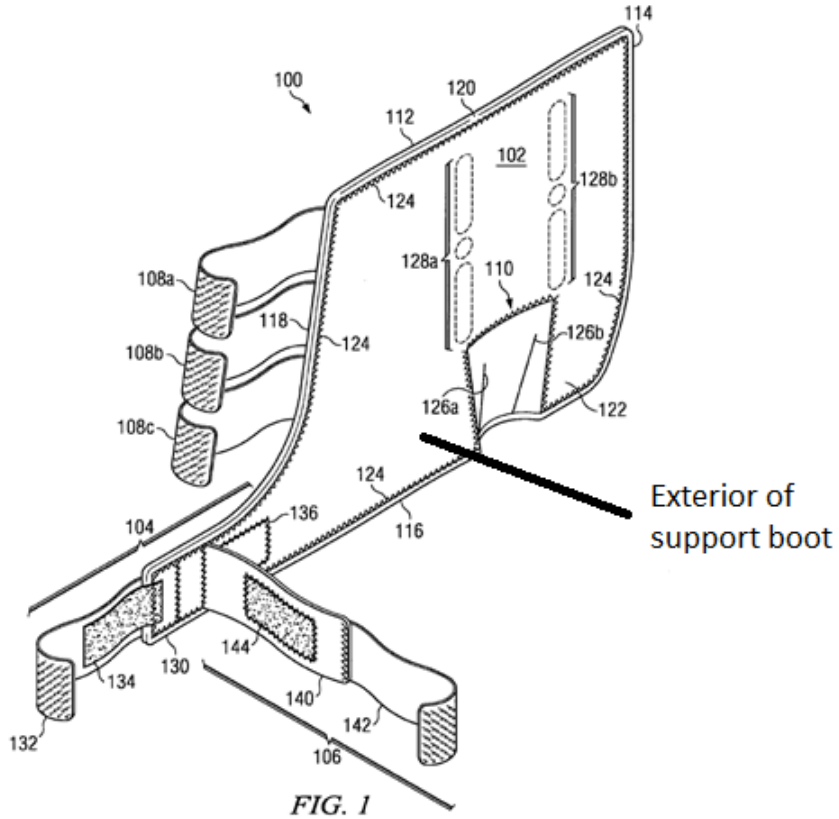


FIG. 1

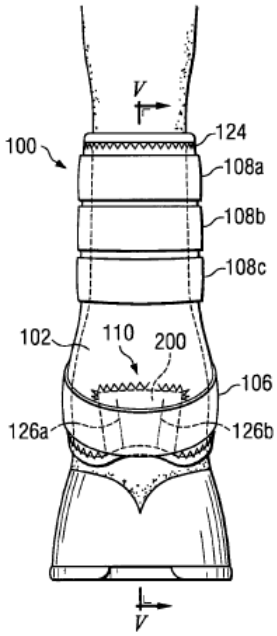


FIG. 2

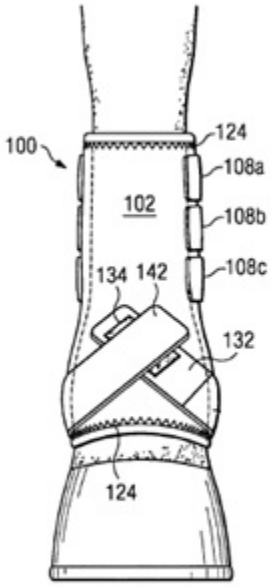


FIG. 3

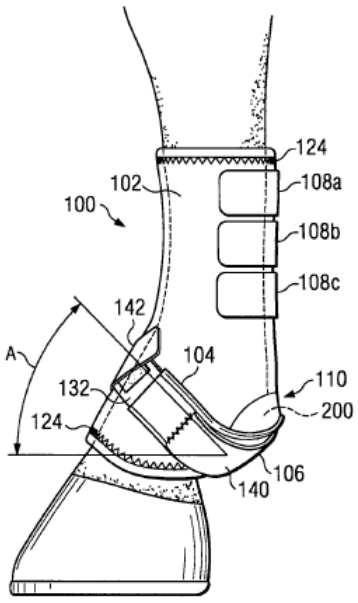


FIG. 4

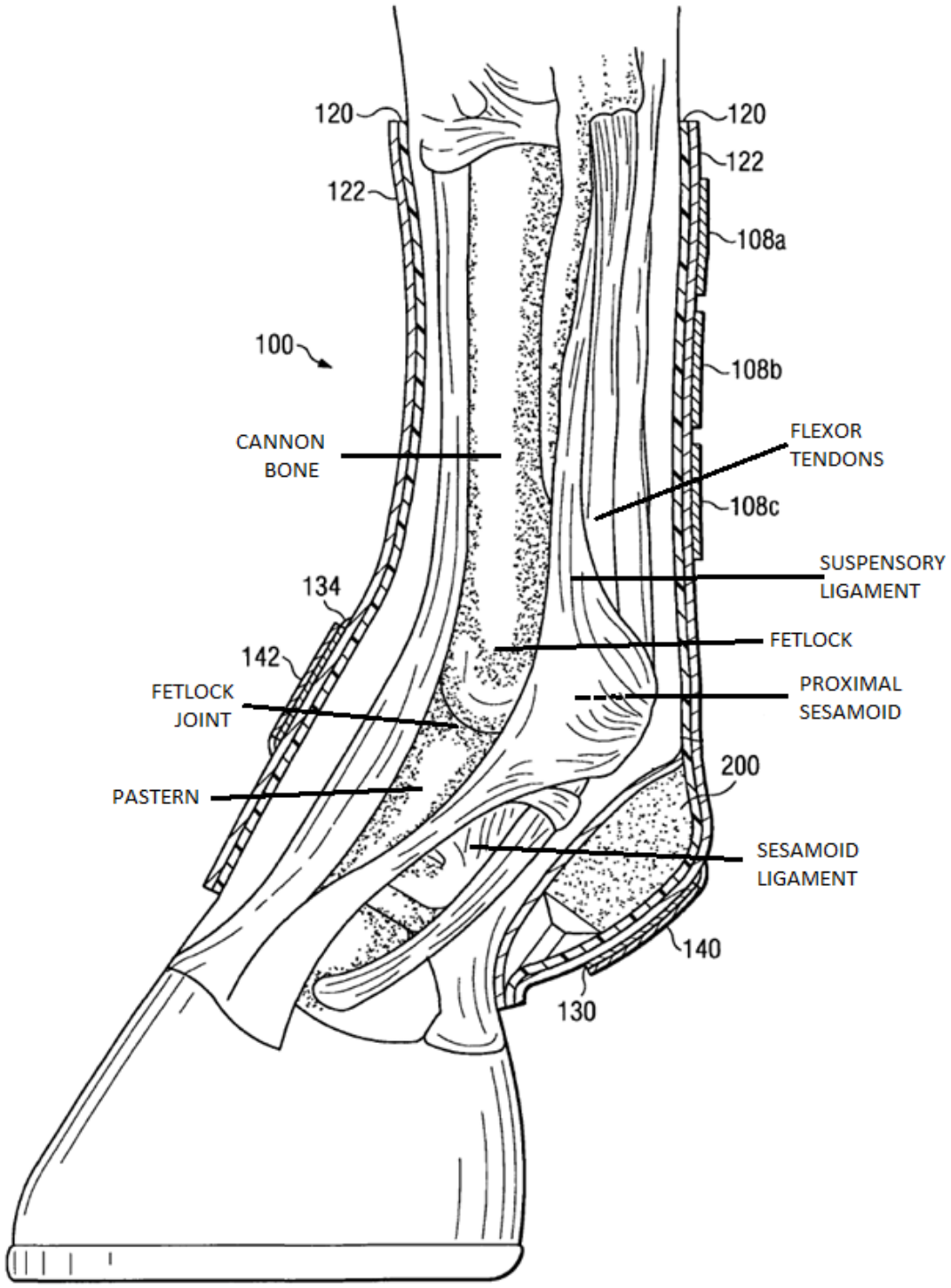

120
122
100
CANNON BONE
134
142
FETLOCK JOINT
PASTERN
120
122
108a
108b
FLEXOR TENDONS
108c
SUSPENSORY LIGAMENT
FETLOCK
PROXIMAL SESAMOID
200
SESAMOID LIGAMENT
140
130

FIG. 5

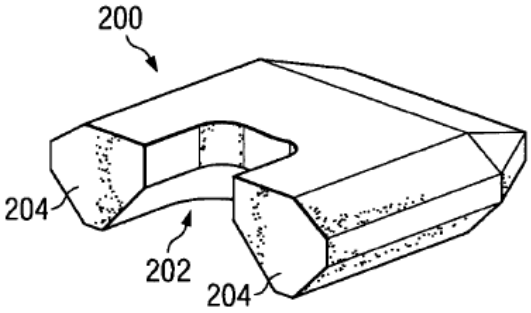


FIG. 6A

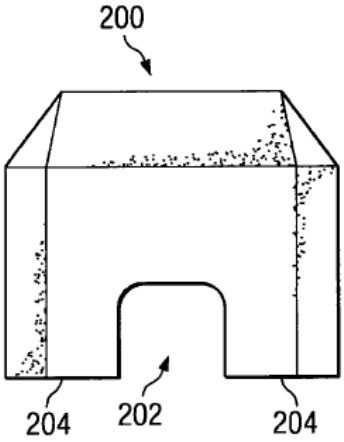


FIG. 6B

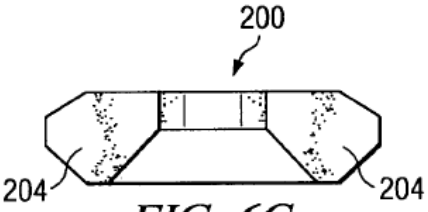


FIG. 6C

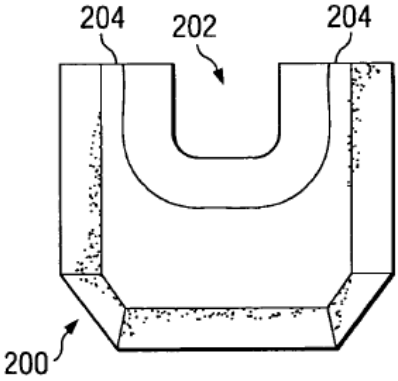


FIG. 6D

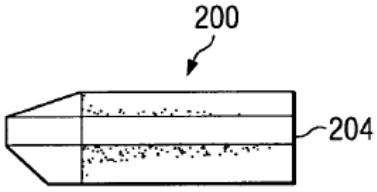


FIG. 6E

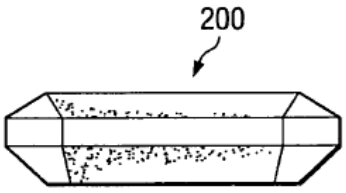


FIG. 6F

CLAIMS

1. An equine support boot, comprising: a base portion configured to wrap around a fetlock joint of a horse; at least one upper strap configured to adjustably secure the base portion around the leg of the horse above the fetlock joint; a concave portion formed in the base portion, the concave portion being configured to engage the fetlock joint; an orthopedic pad disposed in the concave portion; a first sling strap connected to the lower part of the base portion and configured to wrap around the support boot; and a second sling strap connected to the first sling strap and configured to wrap around the support boot.

2. The equine support boot according to claim 1, wherein the first sling strap wraps around the support boot in one direction and the second sling strap wraps around the support boot in the opposite direction, wherein the second sling strap overlaps the first sling strap.

3. The equine support boot according to claim 1, wherein the first sling strap and the second sling strap form an angle relative to the concave portion of about 45°.

4. The equine support boot according to any of the preceding claims, wherein the orthopedic pad is formed from a compliant material.

5. The equine support boot according to claim 1, wherein the compliant material is an ethylene-vinyl acetate foam.

6. The equine support boot according to claim 1, wherein the orthopedic pad includes a cut-out portion on a bottom edge.

7. The equine support boot according to claims 1 to 6, further comprising at least one inwardly protruding tendon support member carried by the base portion.

8. The equine support boot according to claim 7, wherein the at least one tendon support member has a selected shape, wherein the shape is a least one of an elongated rib, a circular button, and an oval ridge.

9. The equine support boot according to claim 10, wherein the at least one tendon support member is removable.

10. The equine support boot according to claim 1, further comprising a splint pad.

11. A method of aiding in the prevention of injury to a fetlock joint of a horse, comprising: providing a support boot as defined in any one of claims 1 to 10; wrapping the support boot around the fetlock joint such that the concave portion is disposed below the fetlock joint; and stabilizing movement of the fetlock joint with the orthopedic pad.

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CLAIMS – SUPPLEMENTAL COPY

1. An equine support boot, comprising: a base portion configured to wrap around a fetlock joint of a horse; at least one upper strap configured to adjustably secure the base portion around the leg of the horse above the fetlock joint; a concave portion formed in the base portion, the concave portion being configured to engage the fetlock joint; an orthopedic pad disposed in the concave portion; a first sling strap connected to the lower part of the base portion and configured to wrap around the support boot; and a second sling strap connected to the first sling strap and configured to wrap around the support boot.

2. The equine support boot according to claim 1, wherein the first sling strap wraps around the support boot in one direction and the second sling strap wraps around the support boot in the opposite direction, wherein the second sling strap overlaps the first sling strap.

3. The equine support boot according to claim 1, wherein the first sling strap and the second sling strap form an angle relative to the concave portion of about 45°.

4. The equine support boot according to any of the preceding claims, wherein the orthopedic pad is formed from a compliant material.

5. The equine support boot according to claim 1, wherein the compliant material is an ethylene-vinyl acetate foam.

6. The equine support boot according to claim 1, wherein the orthopedic pad includes a cut-out portion on a bottom edge.

7. The equine support boot according to claims 1 to 6, further comprising at least one inwardly protruding tendon support member carried by the base portion.

8. The equine support boot according to claim 7, wherein the at least one tendon support member has a selected shape, wherein the shape is a least one of an elongated rib, a circular button, and an oval ridge.

9. The equine support boot according to claim 10, wherein the at least one tendon support member is removable.

10. The equine support boot according to claim 1, further comprising a splint pad.

11. A method of aiding in the prevention of injury to a fetlock joint of a horse, comprising: providing a support boot as defined in any one of claims 1 to 10; wrapping the support boot around the fetlock joint such that the concave portion is disposed below the fetlock joint; and stabilizing movement of the fetlock joint with the orthopedic pad.

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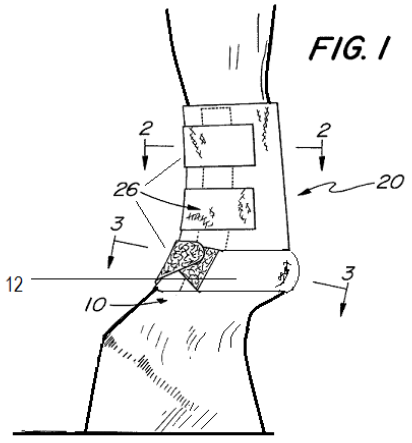
[19] UNITED STATES PATENT DOCUMENT
[11] **US 5,871,111**
[22] Filing Date: 6 November 1997 (06-11-1997)
[43] Publication Date: 16 February 1999 (16-02-1999)
[51] Int. Cl.: A61F 5/00 (2006.01)
[71] Applicant: Harold Dearborn
[72] Inventor: Dearborn

[54] Title: Equine Ankle Brace System

Abstract

An equine ankle brace system. The system includes a brace and at least one treatment insert arranged to be releasably secured within the brace. The brace comprises a panel of a resilient thermally insulating, heat retaining, e.g., neoprene rubber, material, having a cup-shaped bottom portion for enabling the panel to be wrapped around the ankle to readily conform to it. The panel has an inner surface and an outer surface, a pair of front marginal edges and three groups of releasably securable straps coupled to the panel to enable the panel to be wrapped about the horse's ankle in close conformance therewith and to be held in place thereon against accidental disconnection. One group of straps is secured adjacent one of the front edges of the panel while the other group of straps is secured adjacent the other of the front edges and is arranged to overlap the one group of straps. The third group is connected to the panel adjacent the cup shaped portion to provide fetlock support. The system also includes plural treatment inserts, each one being of a different material depending upon the desired result to be provided thereby. In each embodiment, the treatment insert comprises a material arranged to produce a beneficial effect, e.g., shock absorption, on the horse's ankle and has a releasable securable connector, e.g., one component of a hook and loop fastening system, fixedly secured to it to releasably engage a cooperating connector secured to the panel to mount the insert on the brace and to hold it in place.



Description

BACKGROUND OF THE INVENTION

[0001] This invention relates generally to ankle braces and more particularly to ankle braces for horses.

[0002] Horses, particularly those involved in athletic activities, such as running, jumping, etc., frequently suffer from a variety of ailments to their ankles and the muscles and tendons associated therewith. These ailments can vary from simple tendonitis to severe joint degeneration.

[0003] Deleted

[0004] While the foregoing prior art equine ankle braces may be generally suitable for their intended purposes, they nevertheless leave something to be desired from one or more of the standpoints of adaptability for various applications, effectiveness, ease of mounting and dismounting, ease of use, ease of adjustment, resistance to accidental disconnection or loosening, and customization of the brace for a particular therapy desired.

OBJECTS OF THE INVENTION

[0005] Accordingly, it is a general object of this invention to provide an ankle brace system for horses which overcomes the disadvantages of the prior art.

[0006] It is a further object of this invention to provide an ankle brace system for horses which provides support to the ankle and includes means which enables the provision of a particular modality of therapy to be applied to the ankle while the brace system is in place.

[0007] It is a further object of this invention to provide an ankle brace system for horses which includes a brace arranged to wrapped about the ankle of the horse and to be readily configured for a particular type of therapy by the selection of an appropriate insert for the brace.

[0008] It is a further object of this invention to provide an ankle brace system for horses which provides a contoured fit to the horse's ankle.

[0009] It is a further object of this invention to provide an ankle brace system for horses which is easy to apply and remove.

[0010] It is a further object of this invention to provide an ankle brace system for horses which, once in place on the ankle of the horse, is resistant to accidental disconnection or loosening.

SUMMARY OF THE INVENTION

[0011] These and other objects of this invention are achieved by providing an equine ankle brace system. The system comprises a brace arranged to be wrapped about the ankle of a horse, and at least one treatment insert arranged to be releasably secured within the brace.

[0012] The brace is in the form of a panel of a resilient thermally insulating, heat retaining material and has a cup-shaped bottom portion. This portion is configured to enable the panel to

conform to the horse's ankle and contiguous portions of the horse's lower leg, e.g., the fetlock area. The panel also includes an inner surface, an outer surface and releasably securable strap means coupled to the panel. The releasably securable strap means enables the panel to be wrapped about the horse's ankle to conform to the horse's ankle and contiguous portions of the leg and to be held in position thereon. The brace also includes a first releasable securement means, e.g., one component of a hook and loop (VELCRO®) fastening system, fixed to portions of the inner surface of the panel.

[0013] The system includes at least one, and preferably plural, different treatment inserts. Each insert is arranged to produce a different beneficial effect on the ankle of the horse, dependent on the type of insert employed. To that end, each insert includes or is formed of a particular material, e.g., a shock absorbing material, an air-pervious material, a thermally insulative heat retentive material, a cooling material, etc., which is arranged to produce a desired beneficial effect, e.g., shock absorption, wound healing promotion, heat application, cold application, etc., respectively on the horse's ankle and contiguous anatomical structure(s). Each treatment insert includes second releasable securement means, e.g., the other component a hook and loop (VELCRO®) fastening system, fixedly secured to it to enable it to be releasably secured to cooperating means in the brace for location between the brace and the horse's ankle to hold it in place resistant to accidental displacement.

[0014] In accordance with one preferred aspect of this invention the panel forming the brace has a pair of front edges and the releasably securable strap means comprises two groups of mounting straps located adjacent those edges. In particular, one group of mounting strap is secured to the panel forming the brace adjacent one of the front edges and the other group of mounting straps is secured to the panel adjacent the other of its front edges. Moreover, one of the groups of straps is arranged to overlap the other group of straps to prevent accidental loosening of the straps of that other group and thereby securely hold the brace in place against accidental disconnection even under adverse conditions such as wet or muddy environments.

[0015] In accordance with another preferred aspect of this invention the releasably securable strap means includes a third group, e.g., a pair of straps secured to the panel forming the cup shaped lower portion (i.e., the fetlock receiving pocket).

DESCRIPTION OF THE DRAWING

[0016] Other objects and many attendant features of this invention will become readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawing wherein:

[0017] FIG. 1 is a side elevational view of an equine ankle brace system constructed in accordance with the subject invention and shown in place on a left ankle of a horse when viewed from the lateral (outside) side of the leg;

[0018] FIG. 2 is an enlarged sectional view taken along line 2--2 of FIG. 1 and showing the brace system with one type of an insert mounted within the wrap of the system;

[0019] FIG. 3 is an enlarged sectional view of the brace system taken along line 3--3 of FIG. 1;

[0020] FIG. 4 is an enlarged sectional view of the brace system within the area bounded by the oval designated as "FIG. 4" in FIG. 2, but showing an alternative type of insert of the system of this invention mounted within the brace of the system;

[0021] FIG. 5 is an enlarged sectional view of the brace within the area bounded by the oval designated as "FIG. 5" in FIG. 2, but showing yet another alternative type of insert of the system of this invention mounted within the brace of the system;

[0022] FIG. 6 is an exploded isometric view showing the brace system with one type of inserts, i.e., the insert of FIG. 1, used with the brace of the system;

[0023] FIG. 7 is an enlarged sectional view taken along line 7--7 of FIG. 6;

[0024] FIG. 8 is a reduced isometric view of an alternative insert type for use in the brace system of this invention;

[0025] FIG. 9 is an enlarged sectional view taken along line 9--9 of FIG. 8;

[0026] FIG. 10 is a reduced isometric view of yet another alternative type of insert for use with the brace system of this invention; and

[0027] FIG. 11 is an enlarged sectional view taken along line 11--11 of FIG. 10.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0028] Referring now to the drawing where like reference numerals refer to like parts there is shown at **20** in FIG. 1 a brace system constructed in accordance with this invention for use on an ankle **10** of a horse, only a portion of which is shown. The brace system **20** basically comprises a support brace **22** in the form of a panel of neoprene rubber (or some other good thermally insulative, stretchable material) arranged to be wrapped around the horse's ankle and at least one treatment insert, e.g., one of the inserts **24A**, **24B**, or **24C** (FIGS. 6, 8, and 10) for mounting within the brace. As will be appreciated from the discussion to follow, the brace **22** and each of the inserts **24A-24C** are constructed so as to be used on the ankles of only one side of the horse. Thus, in accordance with this invention there is a "right" side system for use on either right side ankles, and a mirror image "left" side system for use on either left side ankles.

[0029] The brace **22** is arranged so that it can be mounted quickly and easily on the horse's ankle and in good close conformance therewith. Thus, as will be described later, the brace includes a cup-shaped portion which, in cooperation with the stretchable nature of the neoprene, enables the brace to closely conform to the ankle and adjacent equine anatomy when it is wrapped about the ankle and secured in place. The cup shaped portion defines a pocket or recess for accommodating the horse's fetlock **12**. The securement of the brace on the ankle is achieved through the use of readily adjustable securement means **26**, also to be described later. Thus, when the brace **22** is in place it provides excellent horizontal support for the ankle, irrespective of variations in the size or shape of the horse's ankle.

[0030] As mentioned above, the brace **22** is preferably formed of neoprene rubber or some other good thermally insulative stretchable material since such materials will effectively hold in the horse's body heat. This factor enables the brace system to increase blood circulation through the affected body part (e.g., ankle and contiguous structure), thereby helping prevent stiffness and soreness by keeping the affected tissues warm and allowing for gradual cool-down. The use of neoprene or other similar materials to form the brace also allows for a quicker warm-up to avoid overstretching muscles and tendons and concomitant "micro-tears" in such tissue which could occur without an adequate warm-up. Another advantage of neoprene or

other similar materials for the brace is that since such materials can stretch virtually omnidirectionally, the brace when wrapped about the ankle will apply a uniform compression thereto. While neoprene is a particularly suitable material for the equine bracing system of this invention, it must be reiterated, that other good thermally insulative, heat retaining, compression enhancing materials can be used in lieu of neoprene.

[0031] Each of the inserts **24A-24C** of the system **20** serves to provide additional functionality for the brace **22** by providing some characteristic or attribute not inherent in or provided by the brace **22** itself. For example, in a preferred embodiment of the system **20** of the invention shown herein there are three different therapy-inducing inserts **24A**, **24B**, and **24C** mentioned heretofore. The insert **24A**, which is best seen in FIG. 6, is arranged to enhance the shock absorption characteristics of the brace **22**. The system **20** with that insert is particularly suitable for use in lieu of a conventional "shipping boot" for transporting, e.g., trailering the horse. In such application, in addition to providing support and warmth to the ankle, the brace **22** with the insert **24A** serves to prevent injury to the ankle or to protect an injured ankle from further injury which could result from impact to the ankle. The insert **24B**, which is best seen in FIG. 8, is arranged to increase the heat retention properties of the brace **22**, thereby promoting healing. The brace system **20** with the insert **24B** has particular utility as a training aid to keep the ankle warm and limber. The insert **24C**, which is best seen in FIG. 10, is arranged to enable some air to flow to the ankle between it and the brace **22**, thereby rendering the brace system **20** using the insert **24C**, particularly suitable for injury rehabilitation wherein the ankle has a wound which could benefit from airflow while being supported. The insert **24C** also provides some wicking or moisture absorption properties which may be useful for various applications.

[0032] It must be pointed out at this juncture that these three therapeutic inserts **24A-24C** are merely exemplary of many types of inserts suitable for use in this system to provide some type of treatment or therapy to the ankle. For example, an insert similar in size and shape to any of the inserts **24A-24C** can be formed of any suitable material or can be provided with a pocket or some other means to hold ice or a reusable cold application pack within the brace **22**. The brace system employing such a cold-applying insert may be particularly suitable for treating a bruise, tendonitis or some other injury or condition wherein swelling is to be avoided or reduced. Moreover, the brace **22** of that system will not only provide support but also uniform compression by virtue of its omni-directional stretch characteristics.

[0033] In order to attach or mount each of the inserts **24A-24C** to the brace **22** so that the particular insert selected is held in place at its desired position within the brace, the system **20** includes releasably securable attachment means **28** (FIG. 6). This means will be described later. Suffice it for now to state that that means **28** includes cooperating components which form a portion of the brace **22** itself and a portion of each of the inserts **24A-24C**.

[0034] As shown clearly in FIG. 6, the brace **22** basically comprises a blank or sheet starting out as a generally rectangular shape having a top edge **30** a bottom edge **32**, a pair of vertical side edges **34** and **36**. The panel includes an inner surface **38** and an outer surface **40** (FIG. 2). Each of the surfaces **38** and **40** of the panel is in the form of a fabric coating or covering. In particular, the outer surface **40** of the panel comprises a plush type fabric fixedly secured, e.g., glued, to the neoprene core whereas the inner surface **38** comprises a smooth fabric fixedly secured, e.g., glued, to the core. A pair of darts **42** and **44** are provided in the panel adjacent the lower edge **32** and are stitched closed to form a cup shaped portion **46** defining a pocket or recess for accommodation of the horse's fetlock. The darts **42** and **44** are located laterally of the vertical midline of the panel so that the cup shaped portion **46** is located closer to the side edge **36** than to the side edge **34** (as noted earlier there is a right side brace system and a left side brace system).

[0035] The panel forming the brace **22** is arranged to be wrapped around the ankle of the horse so that the two side edges **34** and **36** are oriented vertical and located on the anterior (front) portion of the horse's ankle **10** and lower leg, and with the horse's fetlock **12** located within the cup shaped recess **46** as shown in FIG. 1.

[0036] The releasable securable means **26** for mounting the brace **22** on the horse's ankle **10** basically comprises three groups of releasably securable straps. The first group of straps is in the form of three generally triangular shaped tabs **48A**, **48B**, and **48C** which are each fixedly secured, e.g., sewn by stitch lines **50**, to the outer surface **40** of the panel **22** adjacent the edge **34** so that the tapered free end of each tab extends beyond the margin of the edge **34**. The inner surface of each of the tabs **48A-48C** is in the form of a multitude of small hook-like projections **52** which are arranged to releasably engage the plush fabric outer surface **40** of the panel contiguous with the opposite marginal edge **36**. The outer surface of each of the tabs **48A-48C** is in the form of a plush or multiloop fabric **54**. The feature enables other straps (to be described later) of the releasably securable means **26** to be releasably secured to the outer surface of the tabs **48A-48C** and the contiguous outer surface fabric **40** of the brace **22**. In accordance with the preferred embodiment of this invention, each of the tabs **48A-48C** of the type sold by Velcro Corporation, under the trademark VELTAB.

[0037] The releasable, securable mounting means **26** includes a second group of straps. This group is composed of a pair of straps **56A** and **56B** (FIG. 6). Each of the straps **56A** and **56B** is an elongated member having a proximal portion **58** formed of an elastic fabric, e.g., Lycra, which is fixedly secured, e.g., sewn by stitch line **60,** onto the outer surface **40** of the panel **22** from approximately the vertical mid-line of the panel. The elastic strap portion **58** terminates in a distal portion **62** forming the free end of the strap. The distal portion **62** is in the form of a flexible strip of a multi-hook component of a hook and loop fastening system, e.g., a Velcro® fastening system. The portion **62** is sewn onto the end of portion **58** and includes an inner surface having a multitude of hooks **52** thereon.

[0038] The strap **56A** and **56B** are arranged to be stretched over the tabs **48A-48C** after those tabs are secured, as described earlier, to hold the tabs in place and to provide additional securement for the brace **22**. To that end each strap **56A** and **56B** is arranged to be pulled over the area contiguous with the brace's adjacent vertical edges **34** and **36** so that the hooks **52** on the inner surface of the distal end portion **62** of the strap engages the plush outer surface on the brace adjacent the opposite vertical edge, from which it extended. Since the entire outer surface **40** of the brace **22** is plush, the multitude of hooks **52** on the undersurface of the strap portion **62** of strap **56A** can be releasably secured at any place on that outer surface. Moreover, the portions of the strap **56A** with its multi-hooks may also engage the plush outer surface of the upper most of the tabs, i.e., tab **48A**, projecting from side **34** of the panel.

[0039] The other strap **56B** of the second pair of straps is constructed identically and is arranged to overlie the middle tab **48B** to releasably engage its plush outer surface while also engaging the plush outer surface of the panel adjacent thereto. Thus, when the three projecting tabs are secured in place and then the two straps are extended over them and secured in place, the brace will be held in place on the horse's ankle by the straps **56A** and **56B** overlapping the tabs **48A-48C**. The overlapping straps overlooks the tabs to assure positive closure of the brace so that it is resistant to accidental opening even under wet, muddy or other adverse conditions which may tend to loosen a conventional hook and loop fastening system. Nevertheless, the brace can be readily removed by merely pulling the straps **56A** and **56B** off of the plush surfaces to which they are releasably secured and then pulling the tabs **48A-48C** off of the plush surface to which the tabs are releasably secured.

[0040] The releasable, securable mounting means **26** includes a third group, i.e., a pair of straps **64A** and **64B**. These straps are formed by a single web of fabric-covered-neoprene, like that forming the panel of the brace **22**. The web is sewn at **66** at its midpoint to the heel of the brace **22** between the two darts **42** and **44** to form the two straps **64A** and **64B**. Each of the straps **64A** and **64B** includes a generally triangular tab **68** fixedly secured, i.e., sewn, to its free end. Each of the tabs **68** is constructed of the same material as that forming the tabs **48A-48C**. The straps **64A** and **64D** are arranged to provide horizontal support for the horse's fetlock through the application of a lateral force, the horse's fetlock being located within the brace at the location of the cup-shaped recess **46**.

[0041] As mentioned earlier, the brace **22** is designed for use on either of the right side ankles of the horse or either of its left side ankles. Thus, as can be appreciated from the sectional views of FIGS. 2 and 3 and the exploded isometric view of FIG. 6 the panel forming the brace **22** is asymmetrical, i.e., the fetlock receiving recess or pocket **46** is located laterally of the vertical midline of the panel forming the brace. Moreover, as will also be described later, each of the inserts **24A-24C** is similarly asymmetrical to be accommodated within the brace **22**.

[0042] The brace **22** is placed on the horse's ankle with the wider side of the brace, i.e., the side from the vertical midline to the edge **34**, being located on the inside of the horse's ankle and with the short side of the brace, i.e., the side from the vertical midline to the edge **36** being located on the outside of the ankle, and with the horse's fetlock **12** being located within the cup-shaped recess **46** in the rear of the brace centered on the vertical midline.

[0043] Each of the inserts **24A-24C** is also asymmetrical and shaped like the brace **22** to be readily accommodated thereon. Thus, as can be seen in FIG. 7 the insert **24A** basically comprises a sheet or panel of a flexible, resilient, good-shock absorbing material. The insert **24A** includes an upper edge **70**, a lower edge **72** and a pair of marginal vertical side edges **74** and **76**. A cup shaped portion **78** is formed in the panel of the insert **24A** by means of sewn darts **80** and **82** in a similar manner to that used to form the cup shaped portion **46** of the brace **22**. The darts **80** and **82** are also located off center of the vertical midline of the insert **24A** like darts **42** and **44**.

[0044] One particularly good shock absorbing material for the insert **24A** is a cellular urethane foam sold by Rogers Corporation of East Woodstock, Conn. under the trademark PORON. This material is available in various densities and durometers so that various levels or degrees of shock absorption can be provided by an appropriately configured insert **24A**.

[0045] In order to releasably secure the insert **24A** onto the inner surface **38** of the brace **22**, the insert includes one part of a releasably securable hook and loop attachment system. That one part is in the form of a pair of longitudinally extending flexible strips **84** and **86**. In particular, each strip comprises a multi-hook component of a hook and loop, e.g., Velcro®, fastening system. The strip **84** extends along the marginal edge **74** on the rear surface of the insert and is sewn thereto while the strip **86** extends along the marginal edge **76** and is sewn onto the insert. The strips **84** and **86** are arranged to be releasably secured to the other part of the releasably securable hook and loop attachment system. That other part comprises a corresponding pair of strips **88** and **90**, which are each preferably multi-loop plush strips of the Velcro® fastening system. These strips are fixedly secured, e.g., sewn, on the inner surface of the brace adjacent the respective marginal edges **34** and **36**.

[0046] As should be appreciated from the foregoing, the multi-hook strips **84** and **86** and the multi-loop or plush strips **88** and **90** together form the heretofore identified releasably securable attachment means **28**.

[0047] The insert **24A** is arranged to be located so that its cup shaped recess portion **78** fits within the cup shaped recess portion **46** in the brace **22**, whereupon the multi-hook component strips **84** and **86** releasably engage the multi-loop components strips **88** and **90**, respectively, to hold the insert in position.

[0048] The brace **22** with the insert **24A** is now ready to be wrapped about the ankle of the horse and secured in place by pulling the tabs **48A-48C** into engagement with the brace's plush outer surface as described earlier, and then by pulling the straps **56A** and **56B** into position over the tabs, as also described earlier. The two fetlock supporting straps **64A** and **64B** are then pulled into engagement with each other and with contiguous plush surfaces **40** of the brace **22** as shown in FIGS. 1 and 3. This completes the mounting of the ankle brace on the horse.

[0049] In FIG. 8 the insert **24B** is shown. The insert **24B** is formed like insert **24A** except that insert **24B** is formed of a sheet of neoprene having a plush fabric inner surface **92** and smooth fabric outer surface **94**. A pair of strips **84** and **86**, like those of insert **24A**, are secured along the two marginal edges of the insert **24B**. The insert **24B**, being formed of neoprene, provides an additional layer of a thermal insulation when it is mounted within the brace **22** and the brace is in place on the horse's ankle. Thus, the system **20** with insert **24B** provides additional heat retention for the ankle.

[0050] In FIG. 10 the insert **24C** is shown. This insert is constructed in the same manner as inserts **24A** and **24B** except for the material forming the panel. To that end, the insert **24C** is constructed of a sheet **96** of orthopedic felt. The interstitial spaces between the various fibers forming the felt sheet **96** provide a multitude of air passageways, thereby enabling air to reach the portion of the ankle covered by the brace **22**. This arrangement is particularly suitable for applications wherein the horse has a wound at the ankle or on the leg contiguous with the ankle which would be covered by the brace.

[0051] It should be pointed out at this juncture that while the inserts **24A-24C** as shown and described heretofore are each constructed so that they are the same shape, that is, a shape corresponding to the shape of the brace **22**, this arrangement is not exclusive. Thus, the system **20** of this invention can make use of an insert of various shapes, depending upon the function the insert is to achieve, as long as it is releasably securable to the brace body.

[0052] It should be pointed out that the brace system of the subject invention is designed to accommodate a wide range of sizes of ankles. However, the braces and inserts may have to come in some different sizes to accommodate all different sizes of horses' ankles. Depending on the specific anatomy of the ankle and contiguous leg portion, there may be some overlap (not shown) of the vertical marginal edges of the brace at the top of the brace.

[0053] As should be appreciated from the forgoing the subject invention enables one to readily change inserts to suit particular condition or application. For example, in uses under hard riding conditions a more shock absorbent insert, i.e., insert **24A**, can be provided in the brace than the insert **24B**, to ensure against injury. Moreover, with the subject invention, one need not buy shipping boots to use on the horse's ankles when trailering the horse since braces of the subject invention can utilize an insert within a brace to provide good protection for the ankle from injury during transport.

[0054] By virtue of the cross-over strapping arrangement, i.e, the one group of straps overlooking or overlying the other group of straps, a good secure closure system is provided, which is more resistant to accidental disconnection than prior art neoprene braces including Velcro® component straps used heretofore for human beings, as well as those used for horses

as identified above. Moreover, the straps which support the fetlock also serve to provide a customized fit to the needs of the horse and conditions by virtue of their adjustability.

[0055] Without further elaboration the foregoing will so fully illustrate my invention that others may, by applying current or future knowledge, adopt the same for use under various conditions of service.

(**Claims omitted**)

FIG. 1

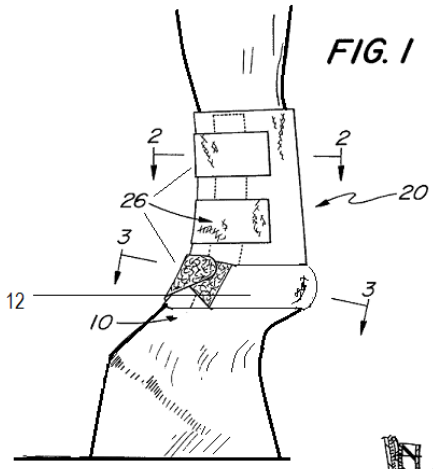


FIG. 2

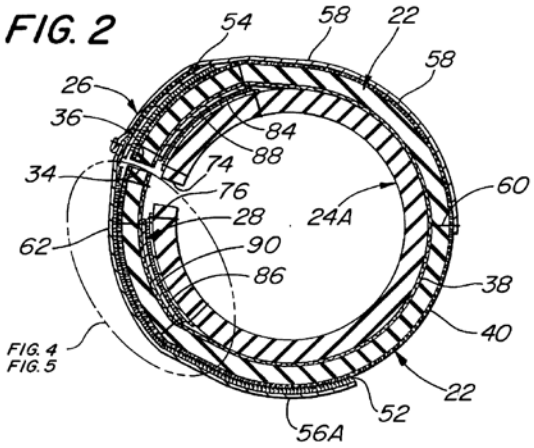


FIG. 4

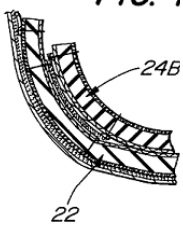


FIG. 5

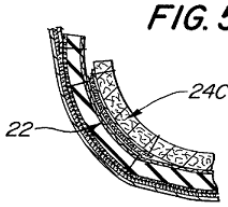
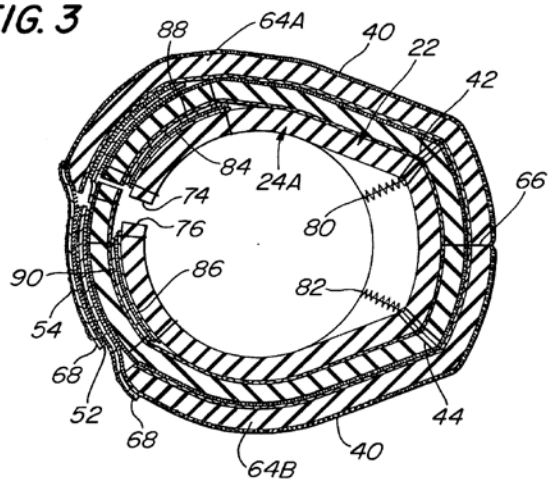


FIG. 3



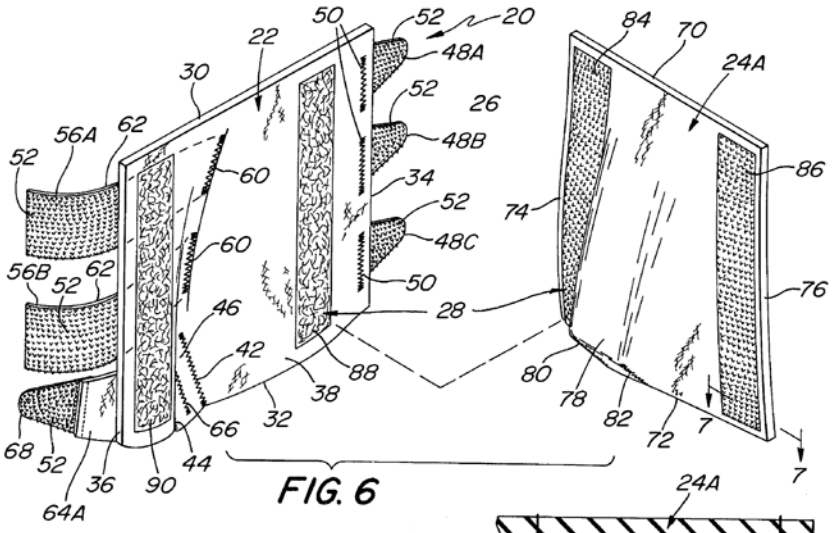


FIG. 6

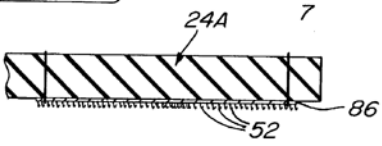


FIG. 7

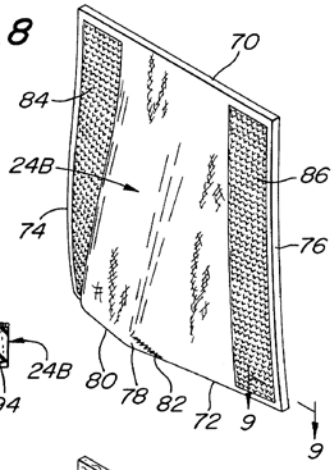


FIG. 8

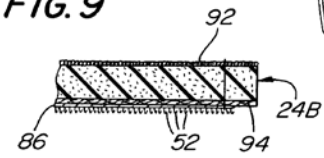


FIG. 9

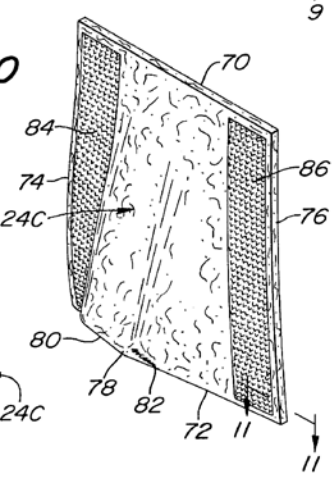


FIG. 10

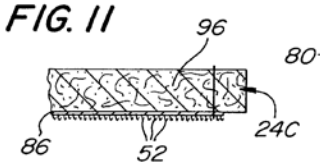


FIG. 11

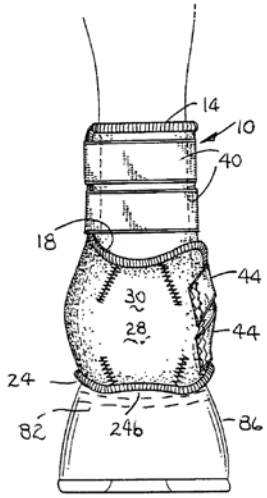
D2

[19] UNITED STATES PATENT DOCUMENT
[11] **US 5,910,222**
[22] Filing Date: 27 August 1997 (27-08-1997)
[43] Publication Date: 08 June 1999 (08-06-1999)
[51] Int. Cl.: A61F 13/00 (2006.01)
[71] Applicant: Equibrand Corporation
[72] Inventor: Boyd et al.

[54] Title: Protective Support Wrap for Equine Limb

Abstract

A flexible protective support wrap or boot for supporting and protecting the lower leg of a horse, including the fetlock joint, is formed of a panel having a layer of flexible support material, an outer layer of closed loop fabric and an inner layer of woven fabric for contact with the horse's leg. Spaced apart pocket or cup portions are formed in the panel to engage the fetlock joint in overlying relationship to each other when the wrap is secured around the leg. A splint bone protection pad may be secured between and spaced from the side edges and provided with a ridge for locating the pad between the cannon bone and the front deep digital flexor tendon. The entire panel may include a layer of shock absorbing material in addition to the flexible support layer. Multiple spaced apart fastener straps with hook fastener pads are secured to the panel adjacent one side edge for engagement with the loop fabric layer to secure the wrap around the leg in snug fitting relationship.



Description

FIELD OF THE INVENTION

[0001] The present invention pertains to a flexible, protective, support wrap or boot for a horse's lower leg including features which facilitate attachment of the wrap to the leg and which provide improved support and protection for the leg and the fetlock.

BACKGROUND OF THE INVENTION

[0002] Horses are particularly susceptible to injuries to the lower legs resulting from stress and shock forces incurred during hard running and from external blows due to the horse kicking itself or being kicked by other horses in close proximity, such as during races.

[0003] Accordingly, flexible, support boots or wraps have been developed to protect the lower leg area from external blows and to provide support for the tendons, bones and suspensory ligaments. Examples of prior art leg support wraps for horses are disclosed in U.S. Pat. No. 5,115,627 to Scott and 5,579,627 to Vogt.

[0004] However, in spite of the prior devices developed, such as disclosed in the Scott and Vogt patents, certain problems have gone unsolved with regard to providing support and protection for equine limbs, such as both the front and rear lower legs of a horse, particularly between the pastern and the knee and including the ligaments, tissues, tendons, the fetlock, fetlock joint and the splint bone. The fetlock joint, in particular, is susceptible to injury during hard running since stress on the joint structure tends to cause the joint to flex sufficiently to overstretch the joint tissues and such that the fetlock will impact the ground.

[0005] The construction of prior art support wraps does not provide adequate protection for the fetlock and the fetlock joint. For example, wraps which are provided with laterally extending straps or cradle slings for the fetlock are susceptible to being attached improperly when the wrap is applied to the leg, thus not adequately supporting the fetlock or the leg tendons and tissues. Moreover, the so-called fetlock cradle sling straps of the wraps disclosed in the Scott and Vogt patents do not adequately cover the fetlock and thus do not add additional protection to the fetlock to prevent injury from impact blows or contact with the ground, for example.

[0006] Prior art wraps have also been susceptible to rapid wear and deterioration of the cradle sling portions of wraps applied to the rear legs, since the fetlock joints of the rear legs, in particular are likely to make hard and scuffing contact with the ground.

[0007] Another problem with prior art support devices pertains to the difficulty with which the wrap or support is attached to the leg and properly positioned on the leg. If the wrap is not properly positioned on the leg, support for the suspensory ligaments, tendons and bone structure is inadequate and, if the wrap is improperly secured, it may become loose and fall off during use. If the wrap is applied too tightly it will be uncomfortable to the horse and may actually be the cause of injury.

[0008] Another longstanding problem in the art of protecting and supporting the lower legs of a horse pertains to the tendency for the horse to kick itself in the vicinity of the splint bone of the lower leg. This action typically occurs during turning movements of the horse while it is running and may result in breaking the bone in some instances.

[0009] Accordingly, further improvements in support wraps or boots for horses' legs have been sought and have been obtained with the present invention.

SUMMARY OF THE INVENTION

[0010] The present invention provides an improved protective support wrap or boot for the lower leg of a horse.

[0011] In accordance with one important aspect of the present invention a protective support wrap or boot is provided by a panel of flexible cushioning and uniform support material which is formed to be wrapped around the horse's lower leg and to include a portion forming a first pocket or cup, sometimes referred to as a cradle sling, for placement over the fetlock joint and further wherein the panel includes a portion forming another pocket or cup which is placed over the first pocket when applied to the horse's lower leg to provide additional support and protection for the fetlock and fetlock joint. The panel is preferably formed as a generally rectangular or trapezoidal shaped member with a laterally projecting arm and being further constructed to form the first and second pocket or cup portions.

[0012] In accordance with another important aspect of the invention a protective support wrap or boot for a horse's leg is provided which is easy to apply to the leg and includes a flexible panel adapted to be wrapped around the leg, the panel including a first fastener which temporarily fastens the support wrap to the leg so that the person applying the wrap may then grasp the wrap and secure it more easily with additional fastening means, preferably plural straps.

[0013] In accordance with another important aspect of the invention a flexible, shock absorbing support wrap or boot for a horse's leg is provided which includes plural pocket or cup portions formed thereon which are adapted to be nested one in the other and disposed over the fetlock joint and further wherein the protective wrap includes plural spaced apart straps for securing the wrap to itself snugly around the leg with minimum risk of the wrap becoming loose or detached from the leg during use. The configuration of the wrap is such as to provide for proper fitting and securement of the wrap to the horse's leg even by inexperienced or untrained persons.

[0014] In accordance with a further aspect of the present invention, an improved flexible support wrap or boot is provided which is fabricated of improved materials including an inner layer of a soft, protective fabric, a middle layer of cushioning and tissue support material and an outer layer of closed loop fabric or pile material which is cooperable with securement straps formed of hook fastener material. This combination of material layers provides improved support and comfort when the wrap is applied to a horse's leg and facilitates ease of securing the wrap on the leg with the fastener straps which may be engaged with the outer surface of the panel in any position of the straps so that the wrap may be secured to the horse's leg in a desired well fitted position. Still further, a shock absorbing or impact absorbing layer of material may be added to the inner surface of the wrap to minimize any injury caused by impact blows such as from the horse kicking itself or being kicked by another horse in close proximity.

[0015] In accordance with still a further aspect of the present invention, an improved support wrap or boot is provided which includes a unique support pad disposed on the wrap panel and adapted to support and protect the splint bone area of the horse's leg, in particular. An embodiment of the wrap which includes the flexible support panel and extra layers of support and impact absorbing material in the vicinity of the splint bone minimizes the thickness and bulk of the rest of the wrap panel. Moreover, the protective support pad area for the splint bone also

includes means forming an elongated ridge in the pad to assist in locating the support wrap and the pad properly on the horse's leg between the back cannon bone and the front deep digital flexor tendon. In this way improved protection and support is provided for the splint bone and associated suspensory ligaments.

[0016] In accordance with still a further aspect of the present invention, support wraps or boots for a horse's lower legs, including the rear legs, in particular, is characterized by an abrasion resistant covering over the outer surface of the outer cup or pocket portion of the wrap to minimize wear and deterioration of the wrap as a result of frequent contact with the ground or other running surface which occurs in particular at the fetlock of the horse's rear legs.

[0017] Those skilled in the art will further appreciate the above-mentioned advantages and superior features of the invention together with other important aspects thereof upon reading the detailed description which follows in conjunction with the drawing.

BRIEF DESCRIPTION OF THE DRAWING

[0018] FIG. 1 is an outside plan view of a support wrap or boot of the present invention;

[0019] FIG. 2 is a developed plan view of the wrap or boot shown in FIG. 1 prior to finish fabrication to form the protective pocket or cup portions of the wrap;

[0020] FIG. 3 is a detail section view showing the layers of material forming the wrap panel;

[0021] FIG. 3A is a detail section view illustrating multiple layers of material for a support wrap or boot providing maximum support and impact protection;

[0022] FIG. 4 is an inside elevation of a lower left leg of a horse showing a support wrap or boot in accordance with the invention fitted thereto;

[0023] FIG. 5 is a rear elevation of the leg and wrap shown in FIG. 4;

[0024] FIG. 6 is a section view taken generally along the line 6--6 of FIG. 5;

[0025] FIG. 7 is a section view taken generally along the line 7--7 of FIG. 4;

[0026] FIG. 8 is an inside plan view of a first alternate embodiment of a protective support wrap or boot in accordance with the invention;

[0027] FIG. 9 is a section view taken generally along the line 9--9 of FIG. 8;

[0028] FIG. 10 is a perspective view of a proportion of the support wrap shown in FIG. 8 illustrating a wear resistant pad portion disposed over the outer cup or pocket portion which covers the fetlock joint; and

[0029] FIG. 11 is a plan view of the wear resistant pad portion showing its general configuration prior to assembly to the support wrap.

DESCRIPTION OF PREFERRED EMBODIMENTS

[0030] In the description which follows, like parts, portions and areas are marked throughout the specification and drawing with the same reference numerals, respectively. The drawing figures are not necessarily to scale in the interest of clarity and conciseness.

[0031] Referring to FIGS. 1 and 2, a flexible protective support wrap or boot in accordance with the present invention is illustrated and generally designated by the numeral **10**.

[0032] In FIG. 1, the wrap **10** is shown in an unfolded generally planar or flat position and viewing the outside surface of the boot. The specific wrap **10** illustrated in FIG. 1 is for a horse's left leg. A corresponding boot or wrap for the right leg would be the mirror image of the wrap **10**. As shown in FIG. 1, the wrap **10** comprises a panel **12** formed of a composite flexible material to be described in further detail herein. The panel **12** is delimited by a generally straight upper or top edge **14**, a first, generally, straight or slightly curved side edge **16** and a second, opposite side edge **18**, part of which is concavely curved at **18a** between its juncture with the top edge **14** and an arm **20** of the panel. Generous convex curved corner edge portions interconnect top edge **14** with side edges **16** and **18**, respectively. The panel arm **20** has an outer side edge **22** which extends to a bottom edge **24** having a somewhat irregular shape, including two spaced apart concave curved portions **24a** and **24b**, which may be at least partially formed by a fabrication step to be described in detail herein. Bottom edge **24** is joined to side edge **16** by a convex curved corner portion **26**. Unlike the narrow straps or cradle slings of prior art leg wraps, the arm **20** of panel **12** has an overall height which is approximately 40% to 50% of the overall height of the panel **12**, defined generally as the distance between edges **14** and **24**.

[0033] The wrap **10** is advantageously provided with a first sling, pocket or cupped portion **28** formed generally adjacent to bottom edge **24**, spaced from side edge **16** and causing the panel **12** to project upwardly out of the plane of the paper when viewing FIG. 1. A second pocket or cupped portion **30** is, preferably, formed in the arm **20** of the panel **12** and also causes the panel to project upwardly out of the plane of the paper when the wrap **10** is arranged flat and viewed in accordance with FIG. 1. The pocket **30** is generally of the same or slightly larger proportions as the pocket **28** and is spaced from the pocket **28** a distance sufficient such that, when the panel **12**, including the arm **20** is wrapped around a horse's leg, the pocket **30** will be disposed over the pocket **28** in a somewhat stacked or nesting configuration to provide two layers of the panel **12** in a protective and supportive position for the fetlock joint.

[0034] The proportions of the wrap **10** for a medium size horse would require a panel **12** having a height of about eleven inches between edges **14** and **24**, a width between side edges **16** and **18** of about eleven inches and a width of the arm **20** of about five inches. The overall dimensions or size of the wrap **10** are dependent on the length of the cannon bone and the horse's weight.

[0035] The wrap **10** is preferably fabricated of a composite layered material wherein a flexible, elastic, supportive layer **32** of neoprene or similar material is provided as a core layer, FIG. 3. The thickness of the layer **32** is preferably about seven millimeters. An outside layer of unbroken loop fabric **34** is bonded to one side of layer **32** and an inside layer of woven nylon lining **36** of about two millimeters thickness is bonded to the opposite side of layer **32**, as indicated in FIG. 3. The periphery of the panel **12** may be provided with a suitable serging or stitching **38**, as indicated in FIG. 1.

[0036] As further shown in FIG. 1, the wrap **10** is provided with fastener means comprising spaced apart elongated flexible straps **40** suitably secured to the outer surface of the panel **12**, extending generally parallel to the top edge **14** and extending beyond the side edge **18**. The fastener straps **40** are secured to the panel **12** by suitable stitching **41** at a point adjacent to

edge **18** but spaced therefrom about twenty-five millimeters to thirty-seven millimeters. The flexible straps **40** are formed of a polymer fabric having hook fastener means **42** formed on the surfaces of the straps opposite the surfaces shown in FIG. 1 so that, as the wrap **10** is secured around the leg of the horse, the straps **40** may be secured to the fabric layer **34** thereby forming cooperating hook and loop fastener means.

[0037] A second pair of fastener straps **44** is secured to the arm **20** adjacent and generally normal to the side edge **22** by suitable stitching **45**, as indicated in FIG. 1. The straps **44** are preferably formed of the same material as the straps **40** and have hook fastener means **46** formed on the surfaces thereof opposite the surfaces shown in FIG. 1. The straps **40** and **44** are preferably, for a wrap having the other dimensions given herein, of about fifty-one millimeters width. The length of straps **40** is about one hundred fifty millimeters and the length of straps **44** is preferably about one hundred millimeters.

[0038] In accordance with an important aspect of the present invention, fastener means in the form of a relatively small pad **48** of hook fastener material is secured to the inside surface of the panel **12**, defined by the material layer **36**, see FIG. 2 also. The fastener pad **48** is secured to the panel **12** by suitable stitching **50**. The fastener pad **48** is preferably disposed adjacent the pocket **30** at the base of the arm **20** at its juncture with the remainder of the panel **12**, as shown in FIGS. 1 and 2.

[0039] FIG. 2 is also provided to illustrate one preferred manner of fabricating the wrap **10** wherein the laminated, three layer panel **12**, prior to attachment of the fastener straps **40** and **44** and binding of the edges with the stitching **38**, is fabricated to form the pockets **28** and **30** by cutting elongated somewhat V-shaped notches or darts **53**, **55** and **57** in the panel, generally in the areas indicated along the bottom edge **24** and in the arm portion **20**, respectively. The darts **53**, **55** and **57** preferably have a length of about forty-four millimeters for a wrap **10** having the other dimensions given herein. The pocket portion **28** is formed by gathering the edges of the panel **12** to close the gaps formed by the darts **53**, and then applying stitching **29**, FIG. 1, to form the pocket or cup portion **28**. In like manner, the darts **55** and **57** are closed by stitching **59** and **61**, respectively, FIG. 1, to form the pocket or cup portion **30**. Only one dart **57** may be necessary, as indicated by the construction of an alternate embodiment described hereinbelow. The fabrication of the wrap **10** is then completed by providing the serging or border stitching **38** followed by attachment of the straps **40** and **44**.

[0040] Referring to FIGS. 4 through 7, the wrap **10** is illustrated in a working position on a horse's lower left leg **80** between the knee and the cornet band **82**. The leg **80** also includes a fetlock **84** and hoof **86**. The wrap **10** is taken from an open position, such as illustrated in FIG. 1, and placed on the lower leg **80** just above the cornet band **82** by placing the pocket portion **28** over the fetlock **84** with one hand while wrapping the panel **12** around the leg fairly tightly so that, as the panel arm **20** is brought around the leg, the person applying the wrap can easily judge if the pocket **30** is going to be in an appropriate position disposed over the pocket **28**.

[0041] When the wrap **10** has been drawn tight enough to achieve this general position of the pocket **30** and with side edge **16** overlapped by the panel **12**, the panel is pressed toward itself to cause the fastener pad **48** to engage the outer layer **34** and secure the wrap generally in its working position. At this time, the person applying the wrap **10** to the leg **80** will have both hands free to adjust the position of the wrap and the snugness of the fit of the wrap on the leg **80** by, for example, pulling on the straps **40** while holding the upper portion of the panel **12**, adjacent the edge **14**, snugly engaged with the leg **80**, for example. The straps **40** are then drawn reasonably tight and moderately forcibly engaged with the fabric layer **34** to securely

engage the hook fasteners **42** with the loop fabric layer to secure the panel **12** in supportive relationship to the leg **80**.

[0042] The straps **44** are then secured in their working position shown by being drawn reasonably tight to cause the pocket portion **30** to fit snugly over the pocket portion **28** and the fetlock joint **84**. Thanks to the continuous fastener surface provided by the fabric layer **34** the fastener straps **40** and **44** may be secured to the panel **12** in essentially any position of one with respect to the other. The straps **40** are typically wrapped around the leg **80** and spaced apart in horizontal band like positions and the straps **44** are also preferably secured, in generally parallel relation to each other against the outer layer **34** over the entire extent of the straps. Accordingly, the straps **40** and **44** function not only as fastener means but as additional support structures of the wrap **10**.

[0043] FIGS. 4 through 7 also illustrate an important aspect of the invention wherein, as opposed to providing a relatively narrow elastic strap disposed under the fetlock **84**, as in prior art wraps, the wrap panel **12** itself is configured to have an integral portion **20** which is of sufficient height, i.e., about 40% to 50% of the overall height of the panel, which is also configured to form the pocket or cup portion **30** operable to be disposed over the inner pocket or cup **28** to provide additional shock absorbing or cushioning structure to prevent damage to the fetlock during intense exertion or prolonged running by the horse.

[0044] Moreover, the provision of the arm **20** with the pocket or cup **30** also assures that this portion of the wrap **10**, as well as the pocket **28**, is secured to the horse's leg in a proper working position, since it would be clear to a casual observer, as well as an inexperienced person applying the wrap, that the wrap **10** will not fit on the horse's leg with both pocket portions **28** and **30** out of their proper working relationship with respect to the fetlock. Accordingly, even unskilled persons attempting to apply the wrap **10** to the horse's leg will be much more likely to properly position the wrap on the leg. The relatively short, wide, substantially non-elastic fastener straps **40** and **44**, also assure that the straps will not be misoriented as they are secured to the outer layer **34** of the panel **12**, which could result in loosening of the wrap **10** after it is initially applied to the leg or cause discomfort to the horse. Accordingly, the elasticity or stretchability of the wrap **10** is embodied substantially in the panel **12** and not in the fastener straps **40** and **44**.

[0045] The construction and use of the wrap **10** is believed to be readily understandable to those of ordinary skill in the art from the foregoing description. As mentioned previously, left and right leg versions of the wrap **10** are preferably fabricated, a left wrap being shown and described in detail herein by way of example only.

[0046] Referring briefly to FIG. 3A, the support wrap **10** may be modified to have an additional layer of shock absorbing material applied over the entire area of the panel **12** to provide additional impact blow absorption and protection for the horse's leg. As shown in FIG. 3A, a layer of shock or impact blow absorbing material, generally designated by the numeral **90** may be interposed between the inner layer **36** of woven nylon and the layer **32**. A preferred material for the inner layer **90** is vinyl nitrile having a density of about 5-10 pounds per cubic foot. Still further, the elastic flexible support layer **32** may be of a substantially greater thickness than previously described and the layer **90** omitted. However, the combination of the flexible elastic support layer **32** and the impact blow absorbing layer **90** may be advantageous for use with horses which are in early phases of training or are particularly clumsy. The thickness of the material layer **90** may also be approximately five to seven millimeters and the material layer **90** may be secured to the panel **12** by the perimeter stitching **38** together with the material layers **32**, **34** and **36**.

[0047] Referring now to FIG. 8, an alternate embodiment of a support wrap or boot in accordance with the present invention is illustrated and generally designated by the numeral **100**. The support wrap **100** is of a similar overall shape as compared with the support wrap **10** and is characterized by a flexible panel **112** having a generally straight upper edge **114**, a slightly convexly curved side edge **116** and an opposite side edge **118** concavely curved at **118a** between its juncture with the top edge **114** and an arm portion **120**. The arm **120** has an outer side edge **122** extending to a bottom edge **124** adjacent which are two spaced apart concave pocket or cup portions **128** and **130**. The pocket portion **128** is formed by cutting darts in the panel **112** as described above and stitching the V-shaped edges of the darts together at **129**. In like manner, the pocket **130** is formed by cutting darts in the material layers forming the panel **112** and stitching the side edges of the darts together by stitching **131**. It is noted that only three darts are required to form the pocket **130** as indicated in FIG. 8. Straps **40** and **44** are secured to the panel **112** and the arm **120** in the same manner as for the wrap **10**. A fastener pad **48** is suitably secured to the inside surface of panel **112**.

[0048] Referring also to FIG. 9, an important feature of the wrap **100** is the provision of an additional support and impact blow absorbing and supportive pad, generally designated by the numeral **132**, which is preferably secured to the panel **112** on the inside surface thereof and is characterized as a generally oblong or oval shaped portion extending between the top edge **114** and the bottom edge **124** and located approximately 60% of the distance from the side edge **116** to the side edge **118** as regards its longitudinal centerline **132a**. The overall width of the pad **132** for a wrap having the dimensions given above is about seventy-five millimeters and the overall length is about 190 millimeters. The top edge of the pad portion **132** is spaced about twenty-five millimeters from the edge **114**. As shown in FIG. 9, in particular, the pad portion **132** is formed of a layer of vinyl nitrile shock absorbing material **135** of approximately five to seven millimeters thickness and an elongated generally cylindrical, flexible rod, ridge forming member **136**, substantially centered on the pad portion **132** and extending along the centerline **132a**. The member **136** forms a ridge which fits between the back cannon bone and the front deep digital flexor tendon of the leg to protect the splint bone and the suspensory ligaments and also to assist in locating the pad portion **132** properly with respect to the horse's leg when the wrap **100** is applied thereto. The member **136**, which is removable, is preferably formed of a flexible elastomeric material, such as natural or synthetic rubber and has a diameter of about ten to fourteen millimeters and a length of about one hundred millimeters. The member **136** is secured in its working position by an inner pad layer **138** overlying the pad layer **135** and preferably formed of the same material as the layer **32**. The layer **138** is also of about the same thickness as the material layer **32** and may be secured to the pad member **135** by an adhesive and by stitching around the periphery of the pad portion **132** as indicated at **140**.

[0049] Referring now to FIGS. 10 and 11, the wrap **100** is also advantageously provided with an abrasion resistant wear pad **150** disposed over the outer surface of the pocket portion **130** to resist abrasion and rapid wear and tear on the pocket portion when the pocket portion comes into forcible contact with the ground or other running surface on which the horse is traversing.

[0050] The wear pad **150** is preferably formed in a somewhat rectangular configuration, as indicated in FIG. 11, with appropriate numbers of darts **151** formed therein so that it may be secured in a working position adjacent the darts cut in the panel **112**. As shown in FIG. 10, the wear pad **150** is secured over the outer surface of the pocket portion **130** by suitable stitching **153** and **38** and is also secured in a cup-shaped configuration by the same stitching **131** which forms the pocket portion **130**. The material forming the wear pad **150** is preferably an abrasion resistant fabric including Kevlar brand aramid fibers, and sold under the tradename Armortex. With the provision of the wear pad **150** covering the outer surface of the pocket **130**, the wrap

100 is particularly advantageous for use on the rear legs of a horse since the fetlock of the rear leg is more likely to come into hard scuffing contact with the ground when the horse is running. However, the wrap **100** may be used on any or all of the legs and a wrap such as the wrap **100** with or without the wear pad **150** may be used to provide additional support for the splint bone thanks to the protective pad portion **132**. Thanks also to the provision of the pad portion **132** and its overall configuration, additional support for the tissues and tendons of the horse's leg in the vicinity of the splint bone is provided as well as the additional impact blow absorbing action. In all other respects, the wrap **100** may be substantially like the wrap **10** including the provision of the attachment or fastener pad **48**, the peripheral stitching **38** and a configuration wherein the material layers provided for the panel **112** are substantially like those shown in FIGS. 3 or 3A.

[0051] However, since the splint bone area is the most sensitive and likely to incur damaging impact blows, a wrap such as the wrap **100** provides the added impact blow resisting or absorbing pad portion **132** in the most susceptible area and therefore eliminates the requirement for additional impact blow resisting material in areas which are not likely to be susceptible to impact blows. Thus, the overall thickness of the wrap **100** is such as to make the wrap less bulky.

(**Claims omitted**)

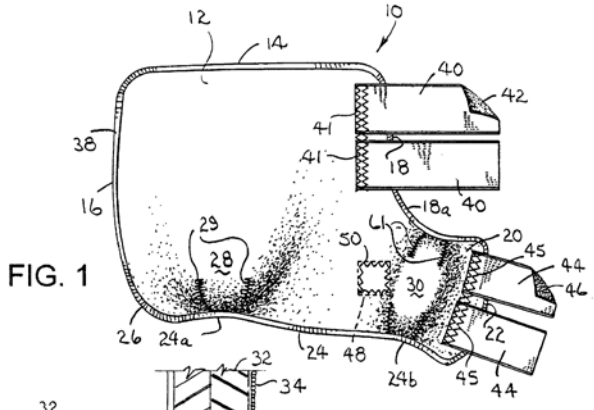


FIG. 1

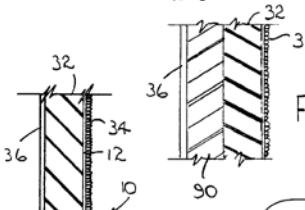


FIG. 3A

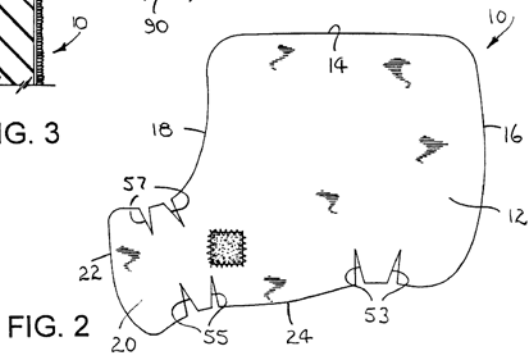


FIG. 2

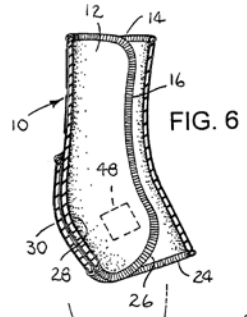


FIG. 6

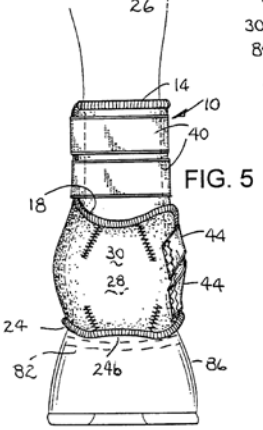


FIG. 5

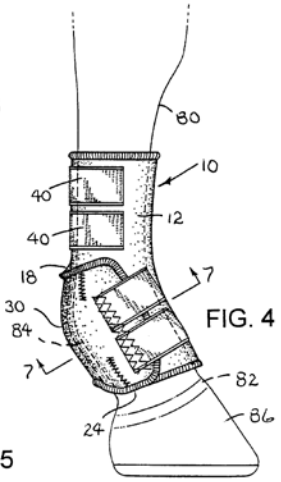


FIG. 4

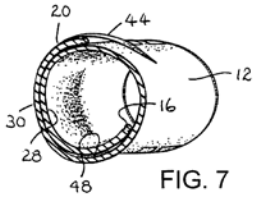


FIG. 7

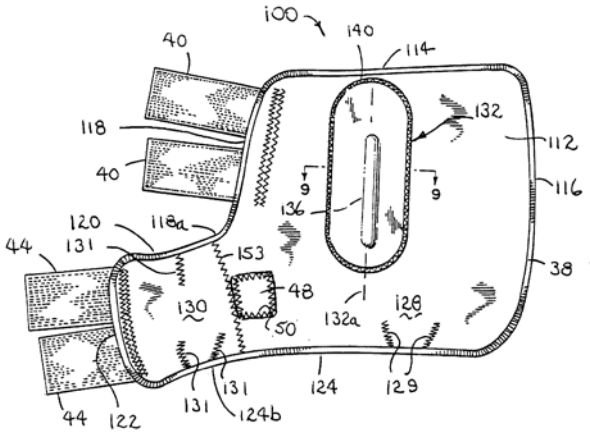


FIG. 8

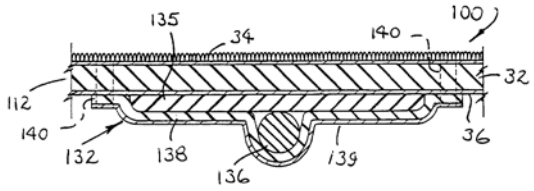


FIG. 9

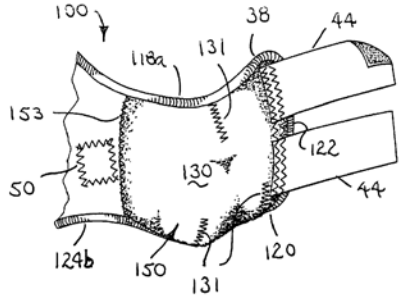


FIG. 10

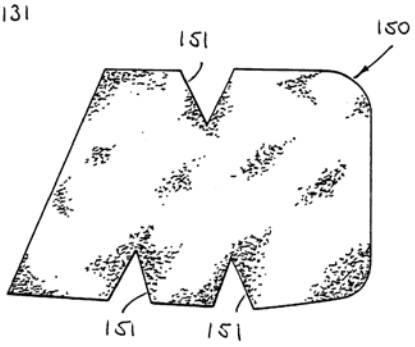


FIG. 11

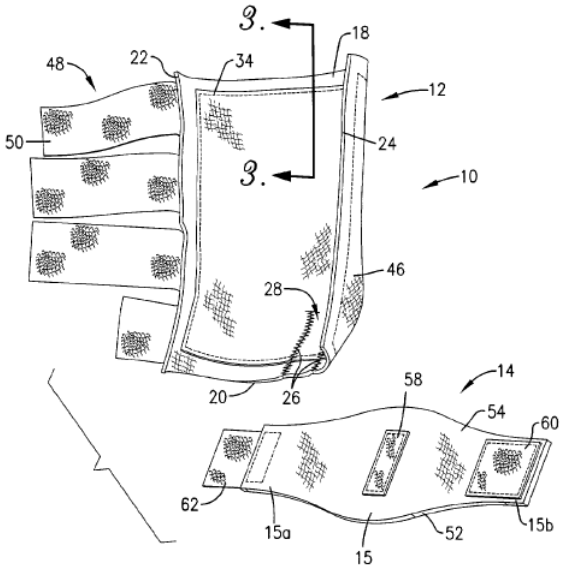
D3

[19] UNITED STATES PATENT DOCUMENT
[11**] US 6,918,333**
[22] Filing Date: 14 August 2002 (14-08-2002)
[43] Publication Date: 19 February 2004 (19-02-2004)
[51] Int. Cl.: B68C 5/00 (2006.01)
[71] Applicant: ORTHO CARE
[72] Inventor: Carty

[54] Title: Breathable Equine Leg Wrap

Abstract

A two-component protective equine leg wrap is provided which is designed for application to the lower part of a horse's leg. The wrap includes a panel having a fetlock joint-receiving section which is adapted to be applied to the leg part and secured by means of connection straps. A separate reinforcing strap also forms a part of the wrap and is configured for attachment to the applied panel to provide additional fetlock joint support and protection. The panel preferably includes an inner laminate layer made up of a foam body having a plurality of phase change microcapsules embedded therein to lessen heat buildup, and an outer breathable laminate layer.



Description

[0001] FILED OF THE INVENTION

[0002] The present invention is broadly concerned with improved protective wraps adapted for application to the lower legs of horses in order to provide comfort and protection for the horse. More particularly, the invention is concerned with improved equine leg wraps including a flexible main panel configured for wrapping about the horse's leg including the fetlock joint, with a separate reinforcing strap which can be custom placed and secured about the applied panel. Preferably, the main panel includes an inner laminate layer made up of a resilient foam having embedded therein a plurality of phase change microcapsules serving to eliminate heat buildup.

[0003] DESCRIPTION OF THE PRIOR ART

[0004] Many horses, and especially competition horses, are prone to lower leg injuries resulting from stress and shock forces incurred during running or performing. Such forces may result from external impacts due to the horse kicking itself or being kicked by other horses. In order to ameliorate these problems, flexible support wraps or boots have been developed in the past to protect the lower legs of horses and to provide support for the tendons, bones and ligaments in the horse's legs.

[0005] For example, U.S. Pat. Nos. 5,910,126, 5,115,627 and 5,579,627 describe various types of equine leg wraps and supports. Generally speaking, these prior devices include flexible panels configured to wrap about the lower portions of horse's legs and have attachment means for securing the panels in place. Typically, the flexible panels are formed of resilient neoprene or similar foam materials having conventional fabric facings.

[0006] A serious problem encountered with these prior equine leg wraps stems from the buildup of heat, particularly when the horse is running or engaged in competition. Such heat buildup can be very uncomfortable, and even injure the horse; for example, it is believed that undue heat buildup can cause a condition known as "bowed tendons."

[0007] Furthermore, the one-piece equine leg wraps of the prior art may not provide an adequate degree of protection and support for all horses. For example, U.S. Pat. No. 5,579,627 describes a wrap including an integral lower fastener to provide additional support for the fetlock joint. However, owing to the fact that this support is integral with the panel itself, it cannot be adjusted in terms of position to provide the maximum degree of support for all horses.

[0008] There is accordingly a need in the art for improved equine leg wraps which overcome the persistent problems of heat buildup and inadequate fetlock joint support.

SUMMARY OF THE INVENTION

[0009] The present invention overcomes the problems outlined above and provides a protective wrap adapted for application to the lower leg of a horse. Broadly speaking, the wrap of the invention includes a flexible panel presenting upper, lower and side margins,

with a concavo-convex or cup-like section formed in the panel adjacent the lower margin thereof between the side margins. The overall panel is configured for application to a horse's lower leg with the concavo-convex section receiving the fetlock joint of the horse's leg, and with the remainder of the panel disposed about adjacent leg portions. A fastening assembly is provided for securing the panel to the horse's leg, and preferably is in the form of a plurality of attachment straps. The overall wrap further includes an elongated reinforcing strap separable from the panel and configured for selective attachment about the panel when applied to the horse's leg. The reinforcing strap includes a central section configured for engaging the applied panel at an area corresponding to the lower portion of the horse's fetlock joint with securement sections extending from the central strap section and operable to attach the reinforcing strap about the main panel.

[0010] In preferred forms, the panel includes an inner laminate layer comprising a preferably open cell foam body having a plurality of microcapsules embedded therein, with the microcapsules containing a phase change material such as one or more paraffinic hydrocarbons. The microcapsule-loaded foam body has inner and outer facings, preferably formed of a nylon-based fabric. The panel further includes an outer laminate layer secured by stitching or other means to the inner laminate layer. The outer layer advantageously includes a breathable resilient foam layer such as an open cell neoprene or ester layer. The foam layer is faced with a nylon-based fabric as an inner facing, and a conventional nylon UBL fabric as the outer facing.

[0011] If desired, the inner region of the panel may be equipped with a cushioning pad formed of open cell neoprene or similar material such as a closed cell perforated foam permitting transmission of air. This cushioning pad extends vertically along the length of the panel and provides an added degree of protection for the horse.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is a perspective view of an equine protective wrap in accordance with the invention, illustrated as applied to the lower part of a horse's leg;

[0013] FIG. 2 is a perspective exploded view of the protective wrap, illustrating the main panel and separable reinforcing strap;

[0014] FIG. 3 is an enlarged sectional view taken along line 3-3 of FIG. 2 and illustrating the laminate construction of the panel;

[0015] FIG. 4 is a side elevational view of another embodiment of the invention, with the panel applied to the lower portion of a horse's leg and depicting the inner reinforcing pad forming a part of the panel; and

[0016] FIG. 5 is a sectional view taken along line 5-5 of FIG. 4 and illustrating the construction thereof at the region of the reinforcing pad.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0017] Turning now the drawings, a two-part equine leg protective wrap **10** is illustrated in FIGS. 1 and 2, and broadly includes a panel **12** and a separate reinforcing strap **14.** It will

be observed that the panel **12** is configured to wrap about the lower portion **16** of a horse's leg, receiving the fetlock joint thereof. The strap **14** includes a central section **15** as well as endmost securement sections **15a**, **15b**.

[0018] In more detail, the panel **12** is of dual laminate construction and presents an upper margin **18**, a lower margin **20,** and spaced apart side margins **22**, **24**. The panel has, by virtue of lower stitching **26,** a concavo-convex or cup-like section **28** adjacent the lower margin **20.** The section **28** is designed so as to receive and comfortably accommodate the horse's fetlock joint.

[0019] Referring to FIG. 3, it will be seen that the panel **12** is formed of an inner laminate layer **30** and an outer laminate layer **32.** The layers **30, 32** are interconnected by marginal stitching **34** (FIG. 2), with the outer layer **32** being slightly larger than the corresponding inner layer **30.**

[0020] Inner laminate layer **30** is designed to provide dynamic temperature control and includes an inner foam body **36** with inner and outer fabric facings **38** and **40.** The facings **38, 40** are preferably made of a fabric comprising nylon, and especially a nylon/lycra blend (83% nylon/17% lycra). This fabric is commercialized under the designation Dryz® by Dicon Technologies of Fair Lawn, N.J., and serves as an antimicrobial barrier; it also permits passage of moisture through the remainder of the wrap **10.** The foam body **36** may be made up of a variety of suitable foams (e.g., "breathable" polyurethane, ethylene/vinyl acetate copolymer, latex, polyethylene, polypropylene, silicon, cellulose acetate, neoprene, and polyvinylchloride foams), especially neoprene foams. However, the body **36** also has interspersed and embedded therein a large number of microcapsules including a phase change material. In practice, the foam body **36** is formed of ComforTemp® material commercialized by Frisby Technologies, Inc. This foam material includes Frisby's micron-sized Thermasorb® phase change microcapsules therein; alternately, Dicon's Intellitempg would be suitable. Generally speaking, the microcapsules have an average diameter of from about 1-1,000 microns, and have a paraffinic hydrocarbon phase change material with a surrounding synthetic resin capsule. Such microcapsules and complete foam products are described in U.S. Pat. No. 5,637,389 incorporated by reference herein.

[0021] The outer laminate layer **32** is of breathable construction and includes an open cell neoprene foam layer **42** with an inner facing **44** and an outer facing **46.** In this case, the inner facing **44** is formed of a fabric comprising nylon whereas the outer facing **46** is made of nylon UBL (unbroken loop) which is an effective loop Velcro material. In this way, moisture and/or air may pass through the layer when the wrap **10** is applied.

[0022] The overall panel **12** further includes a fastening assembly **48,** in this instance a plurality of elongated connection straps **50** secured to the panel **12** by stitching adjacent side marginal edge **22.** The straps **50** are formed of Velcro hook material which is adapted for mating, separable connection to the nylon UBL material of outer facing **46.** It will be observed that the respective straps **50** are of a length for maintaining the panel **12** in conforming application to the lower portion **16** of the horse's leg as will be explained.

[0023] The reinforcing strap **14** is made up of the same materials as outer laminate layer **32,** i.e., it includes an open cell neoprene foam layer **52,** an inner nylon fabric facing **54** and a nylon UBL outer facing **56.** In addition, the inner surface of strap **14** at central section **15** is equipped with an elongated Velcro hook segment **58,** and an end most Velcro hook patch **60** is secured to securement section **15b**; the segment **58** and patch **60** are attached

by stitching to the strap **14.** Finally, the section **15a** comprises a connector **62** attached by sewing to the opposite end of strap **14,** the connector **62** being formed of Velcro hook material attachable to the outer nylon UBL facing **56**.

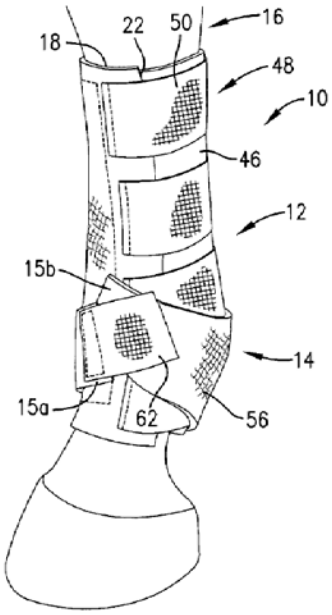
[0024] The application of wrap **10** to the lower portion **16** of a horse's leg is best understood from a consideration of FIG. 1. That is, the panel **12** is initially positioned adjacent the rear portion of the horse's leg, with the section **28** receiving and substantially surrounding the horse's fetlock joint. Thereupon, the remainder of the panel is applied about the horse's leg, with side marginal edge **22** in overlapped relationship relative to edge **24**. The connection straps **50** are then pulled laterally and secured to the outer nylon UBL facing **46** of the panel.

[0025] At this point, the separate reinforcing strap **14** is applied to the in-place panel **10.** This involves positioning the central section **15** of the strap **14** adjacent the lower regions of the panel **12** corresponding to the lower part of the horse's fetlock joint, and securing the strap **14** via the Velcro segment **58.** Next, the strap **14** is firmly secured in place by first attaching the patch **60** to the facing **46** and then overlapping the strap end with Velcro connector **62**.

[0026] FIGS. 4 and 5 illustrate another embodiment in accordance with the invention, including a panel **10a** and separate strap **14.** The panel **10a** is identical with panel **10** except for the provision of an elongated cushioning pad **64** along the inner part of the wrap to provide extra protection for the horse's leg. As illustrated in FIG. 5, the pad **64** (which may be formed of any resilient protective material such as neoprene) is sandwiched between the inner and outer laminate layers **30, 32,** with appropriate stitching **66** to maintain the pad **64** in place. In all other respects, the panel **10a** is identical with panel **10**, and accordingly like reference numerals have been applied. While the reinforcing strap **14** is not illustrated in FIG. 4, it will be understood that the complete wrap would include this component as well.

[0027] The use of phase change microcapsules in the inner laminate layer **30** of panel **10** provides a number of very significant advantages. That is, this construction serves to maintain a substantially constant, relatively cool temperature adjacent the horse's leg, and avoids the heat buildup problems associated with prior equine leg wraps. Moreover, use of the breathable layer **32** also facilitates temperature control and avoids moisture accumulation.

(Claims omitted)


18
22
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16
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62
56

Fig. 1.

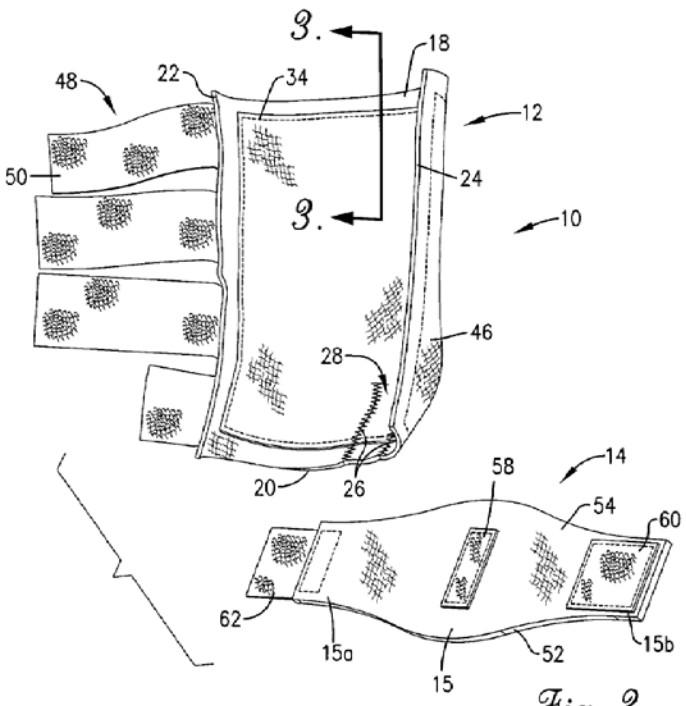
3.
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Fig. 2.

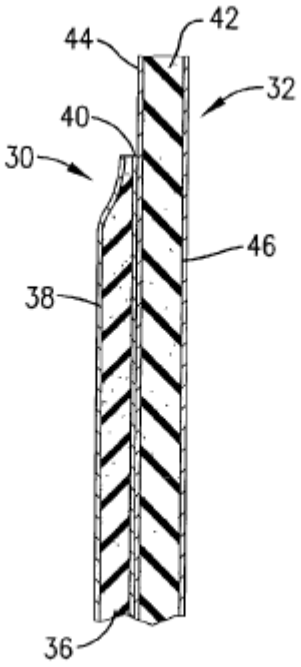

Fig. 3.

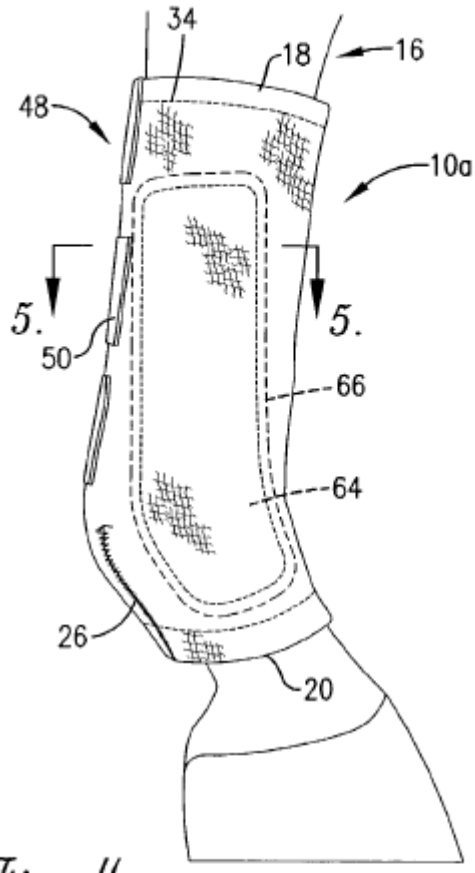

Fig. 4.

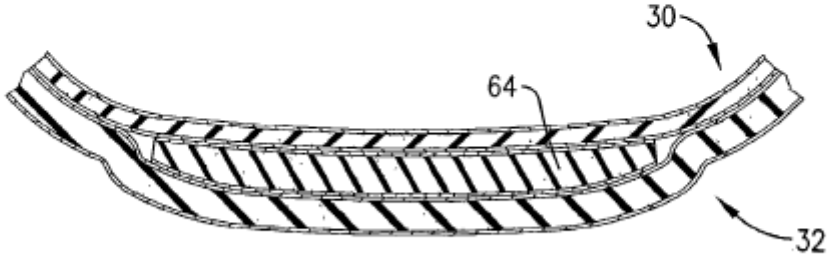

Fig. 5.

PART B: Questions C2 to C14 (Total of 30 marks)

C2. A request for advanced examination can only be granted by the office if the application in question is open to public inspection and a request for examination has been made. In the case of a third party requesting advanced examination of an application before the expiry of the confidentiality period, under what circumstances would the request still be held for consideration? **[1 point]**

C3. Following the transmittal of the ISR and WO-ISA, the applicant may submit claim amendments under Article 19 of the PCT. What is the time limit to submit an Article 19 amendment to the International Bureau? **[2 points]**

C4. What is the name of the treaty under which WIPO administers the deposit of biological material? **[1 point]**

C5. In a claim, a chemical compound can be defined in three different ways. One way is by structure. Name the two other ways a chemical compound may be defined in a claim. **[2 points]**

C6. True or False: **[6 points]**

A) In a claim directed to a kit, the kit must be explicitly defined in the claim as containing at least two components in order to comply with subsection 27(4) of the *Patent Act*.

B) A proviso may be introduced in a claim to establish novelty, or inventive step, over the prior art.

C) The time limit for filing a request for re-examination of a patent is four (4) years from its date of grant.

D) The language of the petition for grant of a patent (English or French) must be the same as that of the specification.

E) The utility of an invention has to be established as of the publication date of the patent.

F) If a PPH application is abandoned in accordance with subsection 73(1) of the *Patent Act*, it continues to receive accelerated examination under the PPH once the application is reinstated.

C7. An applicant has filed a patent application on November 4, 2016, with a valid priority date of January 20, 2016. State whether the following pieces of prior art would, or would not, be citable with regards to (i) anticipation, and (ii) obviousness. Indicate the relevant subsections of the *Patent Act*. **[3 points]**

(a) An article by one of the inventors of the patent application published in a scientific journal on January 15, 2016.

(b) An application filed on June 15, 2015 in the USPTO by the same applicant with a valid priority date of June 16, 2014, and published on December 15, 2015.

(c) A Canadian application from a different applicant filed on March 14, 2016, with a valid priority date of March 30, 2015, and published on September 30, 2016.

C8. Consider a case where an applicant files two applications consecutively: application A, with a filing date of June 9, 2015, has claims directed to feature X, and application B, with a filing date of December 18, 2015, has claims directed to feature Y. Both applications have a dependent claim that defines X+Y. Application B issued to patent on December 4, 2017. With respect to the doctrine of double-patenting, can application A be granted with the claim defining X+Y? **[1 point]**

C9. List four (4) possible causes of abandonment for a patent application. **[4 points]**

C10. Name four (4) functions of the Patent Appeal Board. **[4 points]**

C11. Where the title of the invention in the description differs from the title in the petition for Grant of a Patent, what is the Office policy in determining the title of the invention when the application grants to patent? **[1 point]**

C12. What is the difference between an aggregation and a combination? **[2 points]**

C13. Where a request for examination has been made on a divisional application, examination will include a determination of whether the application is entitled to divisional status. Assuming that the divisional was filed within acceptable time limits, what two criteria are used to determine whether the application is entitled to divisional status? **[2 points]**

C14. Define the term “small entity” in respect of an invention. **[1 point]**

CANADIAN PATENT AGENT QUALIFYING EXAMINATION 2019
MARKING GUIDE for PAPER C – PATENT OFFICE PRACTICE

Part A – Question C1 [70 pts]

Features	Points awarded
Amendments to claim 1 [28 points]	
Addition of "the concave portion being positioned below a proximal sesamoid bone of the fetlock joint" [support: par. 30]	8
Addition of "the first sling being configured to apply an upward force on the concave portion, which in turn results in the concave portion exerting an upwardly force from the bottom of the proximal sesamoid bone" [support: par. 26, 30]	8
Broadening by removal of "orthopedic pad" [support: par. 15]	4
Broadening by removal of "second sling strap" [support: par. 18, 30]	4
Remaining features kept	4
Other claim amendments [14 pts]	
Addition of "orthopedic pad" [1 mark if kept in claim 1]	2
Addition of "second sling strap" [1 mark if kept in claim 1]	2
Deletion of claim 10 (new matter)	2
Convertion of claim 11 (MMT) to use claim	4
Correction of claim 4 (ref. by number)	1
Correction of claim 5 (lack of antecedent)	1
Correction of claim 7 (preamble)	1
Correction of claim 9 (reference to preceding claims only)	1
*Introduction of new formality defects (-1 per defect; maximum -3)	
Response to examination report [28 pts]	
Discussion of novelty	5
Discussion of obviousness	8
Statement indicating support for features added to claim 1	2
Discussion of defect in claim 10 (new matter)	1
Discussion of defect in claim 11 (MMT)	2
Amending the description to include "ethylene-vinyl acetate"	1
Discussion of defects in claims 4, 5, 7 and 9	4
Provision of a new title	2
Discussion of reference to claims in the description	1
Discussion of defect in the drawings	1
Discussion of trade-mark	1

Example Claims

1. An equine support boot, comprising: a base portion configured to wrap around a fetlock joint of a horse; at least one upper strap configured to adjustably secure the base portion around the leg of the horse above the fetlock joint; a concave portion formed in the base portion, the concave portion being configured to engage the fetlock joint, the concave portion being positioned below a proximal sesamoid bone of the fetlock joint; and a first sling strap connected to the lower part of base portion and configured to wrap around the support boot, the first sling strap being configured to apply an upward force on the concave portion, which in turn results in the concave portion exerting an upwardly force from the bottom of the proximal sesamoid bone.

2. The equine support boot according to claim 1, further comprising an orthopedic pad in the concave portion, the orthopedic pad being adapted to fit snuggly in the rear, bottom portion of the fetlock thus decreasing a tensile stress that can occur in a suspensory ligament and a flexor tendon during load-bearing.

3. The equine support boot according to claim 1 or claim 2, further comprising a second sling strap connected to the first sling strap, wherein the first sling strap wraps around the support boot in one direction and the second sling strap wraps around the support boot in the opposite direction, wherein the second sling strap overlaps the first sling strap.

4. The equine support boot according to claim 3, wherein the first sling strap and the second sling strap form an angle relative to the concave portion of about 45°.

5. The equine support boot according to claim 2, wherein the orthopedic pad is formed from a compliant material.

6. The equine support boot according to claim 5, wherein the compliant material is an ethylene-vinyl acetate foam.

7. The equine support boot according to claim 2, wherein the orthopedic pad includes a cut-out portion on a bottom edge.

8. The equine support boot according to any one of claims 1 to 7, further comprising at least one inwardly protruding tendon support member carried by the base portion.

9. The equine support boot according to claim 8, wherein the at least one tendon support member has a selected shape, wherein the shape is a least one of an elongated rib, a circular button, and an oval ridge.

10. The equine support boot according to claim 8 or claim 9, wherein the at least one tendon support member is removable.

11. Use of a support boot as defined in claim 2 for the prevention of injury to a fetlock joint of a horse.

Part B – Questions C2 to C14 [30 pts]

C2. A request for advanced examination can only be granted by the office if the application in question is open to public inspection and a request for examination has been made. In the case of a third party requesting advanced examination of an application before the expiry of the confidentiality period, under what circumstances would the request still be held for consideration?

Answer:

A request to advance examination made by a third party will only be held for consideration if the application is scheduled to be opened to public inspection within three months of the request. [1 point]

Reference: MOPOP 13.03.01

C3. Following the transmittal of the ISR and WO-ISA, the applicant may submit claim amendments under Article 19 of the PCT. What is the time limit to submit an Article 19 amendment to the International Bureau?

Answer:

The later of:

- 2 months from the transmittal of the ISR or WO-ISA; [1 point] or
- 16 months from the priority date. [1 point]

Reference: PCT Rule 46.1

C4. What is the name of the treaty under which WIPO administers the deposit of biological material?

Answer:

Budapest Treaty [1 point]

Reference: MOPOP 17.10.01

C5. In a claim, a chemical compound can be defined in three different ways. One way is by structure. Name the two other ways a chemical compound may be defined in a claim.

Answer:

- in terms of the process by which it is made; [1 point]
- in terms of its physical or chemical properties; [1 point]
- also accepted: by name.

Reference: MOPOP 11.08

C6. True or False:

A) In a claim directed to a kit, the kit must be explicitly defined in the claim as containing at least two components in order to comply with subsection 27(4) of the *Patent Act*.
B) A proviso may be introduced in a claim to establish novelty, or inventive step, over the prior art.
C) The time limit for filing a request for re-examination of a patent is four (4) years from its date of grant.
D) The language of the petition for grant of a patent (English or French) must be the same as that of the specification.
E) The utility of an invention has to be established as of the publication date of the patent.
F) If a PPH application is abandoned in accordance with subsection 73(1) of the *Patent Act*, it continues to receive accelerated examination under the PPH once the application is reinstated.

Answers:

A) false [1 point] Reference: MOPOP 17.03.03a
B) true [1 point] Reference: MOPOP 15.08
C) false [1 point] Reference: MOPOP 23.02
D) False [1 point] Reference: MOPOP 4.01
E) False [1 point] Reference: MOPOP 12.04.02
F) True [1 point] Reference: CIPO website, "Frequently Asked Questions about the Patent Prosecution Highway"

C7. An applicant has filed a patent application on November 4, 2016, with a valid priority date of January 20, 2016. State whether the following pieces of prior art would, or would not, be citable with regards to (i) anticipation, and (ii) obviousness. Indicate the relevant subsections of the *Patent Act*.

(a) An article by one of the inventors of the patent application published in a scientific journal on January 15, 2016.
(b) An application filed on June 15, 2015 in the USPTO by the same applicant with a valid priority date of June 16, 2014, and published on December 15, 2015.
(c) A Canadian application from a different applicant filed on March 14, 2016, with a valid priority date of March 30, 2015, and published on September 30, 2016.

Answers:

(a) (i) Not citable;	*Patent Act* 28.2 (1)(a)	[0.5 point]
(a) (ii) Not citable;	*Patent Act* 28.3 (a)	[0.5 point]
(b) (i) Not citable;	*Patent Act* 28.2 (1)(a)	[0.5 point]
(b) (ii) Not citable;	*Patent Act* 28.3 (a)	[0.5 point]
(c) (i) Citable;	*Patent Act* 28.2 (1)(d)	[0.5 point]
(c) (ii) Not citable;	*Patent Act* 28.3 (b)	[0.5 point]

C8. Consider a case where an applicant files two applications consecutively: application A, with a filing date of June 9, 2015, has claims directed to feature X, and application B, with a filing date of December 18, 2015, has claims directed to feature Y. Both applications have a dependent claim that defines X+Y. Application B issued to patent on December 4, 2017. With respect to the doctrine of double-patenting, can application A be granted with the claim defining X+Y?

Answer:

No [1 point].

Reference: MOPOP 15.06.02

C9. List four (4) possible causes of abandonment for a patent application.

Answer:

- Failure to reply in good faith to any requisition of an examiner within the time limit specified.
- Failure to complete the application and pay the completion fee within the time limit specified (or failure to comply with a notice given pursuant to subsection 27(6) of the *Patent Act*).
- Failure to pay the prescribed maintenance fees within the time limit specified (or failure to pay the fees payable under section 27.1 of the *Patent Act*).
- Failure to make a request for examination or pay the prescribed fee within the time limit specified.
- Failure to make a request for examination or pay the prescribed fee, when required to do so by the Commissioner, within the time limit specified (or failure to comply with a notice given under subsection 35(2) of the *Patent Act*).
- Failure to pay the final fee within the time limit specified.
- Failure comply with any requisition of the Commissioner within the time limit specified.

[1 point each, maximum of 4 points]

Reference: MOPOP 20.02 / *Patent Act* 73 (1)

C10. Name four (4) functions of the Patent Appeal Board.

Answer:

- Reviewing examiners' rejections of applications.
- Chairing re-examination boards.
- Determining the first inventor in conflict situations.
- Reviewing rejections of re-issue applications.
- Administering procedures under Canada’s Access to Medicines Regime.
- Administering procedures in cases of alleged abuse of patents.
- Advising government departments regarding the Public Servants Inventions Act.
- Settling terms and conditions for use of patented inventions by government.
- Dealing with complaints in regard to Registered Patent Agents.
- Administering the Patent Agent and Trademark Agent Qualifying Examinations.

[1 point each, maximum of 4 points]

Reference: CIPO website: http://www.ic.gc.ca/eic/site/cipointernet-internetopic.nsf/eng/h_wr01971.html

C11. Where the title of the invention in the description differs from the title in the petition for Grant of a Patent, what is the Office policy in determining the title of the invention when the application grants to patent?

Answer:

In instances where the title of the invention in the description differs from the title in the petition for Grant of a Patent, the Office will only have regard to the title as specified in the description. The application will grant to patent with the title as it appears on the first page of the description. [1 point]

Reference: MOPOP 4.01.02

C12. What is the difference between an aggregation and a combination?

Answer:

- Aggregation: merely a juxtaposition of parts or known devices; each part or device merely functions as would be expected if it were used on its own. [1 point]
- Combination: the elements or steps cooperate in an unexpected manner or cooperate in a known way to give an unobvious result or effect. [1 point]

Reference: MOPOP 11.07.01 and 15.02.04

C13. Where a request for examination has been made on a divisional application, examination will include a determination of whether the application is entitled to divisional status. Assuming that the divisional was filed within acceptable time limits, what two criteria are used to determine whether the application is entitled to divisional status?

Answer:

- The purported divisional application may not contain new matter, i.e. the specification and drawings may not be amended to describe matter not reasonably to be inferred from the specification or drawings as originally filed [1 point]; and
- the claims in the purported divisional application must be directed to a different invention than those of the original application [1 point].

Reference: MOPOP 14.13

C14. Define the term “small entity” in respect of an invention.

Answer:

The term “small entity” is defined, in respect of an invention, as an entity that employs 50 or fewer employees or that is a university. [1 point]

Reference: MOPOP 4.03

PART A – TOTAL 77.5 marks

Documents

The following documents are included in this examination:

D1 Pamphlet for installing the XR Suspension Trainer

D2 Canadian Patent Serial Number X XXX 896 ('896 Patent)

D3 Pamphlet for using the RT Suspension Trainer

Two duplicate sets of '896 Patent claims as well as a table version of the claims are provided at the end of this paper to assist you in presenting your answers in the answer booklet. Use of the duplicate claim sets or the claim table is optional. Providing your answer in point form is acceptable.

Muscle Buff

Your client, **Muscle Buff**, provides sophisticated training equipment to high-end gyms in Vancouver, Toronto and Montréal. Muscle Buff's only office is located in Calgary.

XR Suspension Trainer

One of the products that Muscle Buff has sold to its clients, since October 1, 21013, is a suspension trainer, known as the **XR Suspension Trainer**. The XR Suspension Trainer allows a large number of movements using the user's own weight. The XR Suspension Trainer sold by Muscle Buffer to its clients comprises a **XR Fixator**.

XRT Systems and Healthcare Co.

The XR Suspension Trainer is provided to Muscle Buff by its supplier **XRT Systems.** XRT Systems operates in Vancouver, near the Port. XRT Systems has also designed the XR Fixator which is sold as an optional component to the XR Suspension Trainer. The XR Fixator is manufactured in China by **Healthcare Co.** and directly shipped in containers to Canada to XRT Systems' clients.

XRT Systems designed the XR Suspension Trainer in the fourth quarter (Q4) of 2011 but, due to a lack of start-up funds, only started manufacturing the XR Suspension Trainer in the third quarter (Q3) of 2013. Muscle Buff was actually XRT Systems' first customer and has helped XRT Systems becoming Canada's largest manufacturer of suspension trainers. Each XR Suspension Trainer sold by XRT Systems includes a pamphlet. A copy of this pamphlet is enclosed as **D1**.

Handy People

In order for Muscle Buff's clients to use their training equipment properly, maximize the useful life of their equipment as well as for Muscle Buff to maintain its high end reputation, Muscle Buff not only sells but also offers installation of XR Suspension Trainers directly at their client's premises. As part of the installation process of the XR Suspension Trainers, Muscle Buff contracts a certified installer from the **Handy People**. Each Handy People installer is trained and certified by XRT Systems to properly set up the XR Suspension Trainer. For each system installed, Muscle Buff provides to Handy People the XR Suspension Trainer (without the XR Fixator) purchased by the client and pays for Handy People's labour and parts (a fee which is invoiced to Muscle Buff's clients). Handy People installers have obtained the XR Fixator directly from Healthcare Co.

Your mandate

On February 15, 2019, the owner of Muscle Buff receives a cease-and-desist letter from the Health and Well Being Foundation (**HWBF**), a well-known Canadian patent troll alleging that Muscle Buff infringes Canadian Patent Number 2 XXX 896 ('896 Patent, enclosed as **D2**). Muscle Buff's owner immediately phones you up to ask for your assistance.

A1 (28.5 marks)

You counsel to Muscle Buff that the first step in determining if HWFB's allegation has any value is to construe the elements of the claims of D2. Your construction must include the following items and could be presented in a table format:

1. Mapping/identification	2. Analysis of purpose/function
3. Essential features (if any)	4. Support by appropriate reasoning and citations to the '896 Patent (including, if any, material effect and inventor's intent)

The extent of analysis expected to construe each claim element is commensurate with the marks allocated for that claim term. A mere mapping of elements to components in the '896 Patent is not sufficient and will receive no marks if you conduct no further analysis.

Please provide your construction of each of the following claimed elements (highlighted in bold in the set of claims of the '896 Patent). During your analysis, please consider the physical and structural characteristics, the relative position, the function and/or the configuration of the claimed elements.

(i) Elongated member (6.5 marks)

(ii) A pair of ends (3 marks)

(iii) Lengthening mechanism (3 marks)

(iv) Flat strap (2 marks)

(v) Anchor (4 marks)

(vi) Anchor loop (3 marks)

(vii) Fixed position (2 marks)

(viii) Will not damage (2 marks)

(ix) At least one cam buckle (3 marks)

A2 (19 marks)

You counsel to Muscle Buff that the second step in the infringement analysis is to compare the construed claims of the ‘896 Patent to the XR Suspension Trainer in order to determine whether or not there is infringement. Please provide your claim analysis, including a conclusion on whether each of the below-identified claims of the ‘896 Patent is infringed. A response in a table format is suggested.

No further comment on claim construction needs to be provided, although your analysis must clearly show how each element is or is not present. For full marks, your analysis must address each element of the claim, including the relevancy of its dependency(ies). In the event you wish to identify a feature in D1 which is not labelled in the drawings, your answer must clearly and explicitly identify the element to which you are referring. Answers such as “shown in Fig.1” or “clearly visible” are not sufficiently explicit.

For your convenience, a duplicate set of claims is also provided in a table format providing a numeric identifier for various claimed features. You can refer to the numeric identifiers provided in the table rather than writing or pasting the whole claim in the answer booklet.

The following marks are awarded for each claim:

(i) Claim 1 (7 marks)

(ii) Claim 2 (1.5 marks)

(iii) Claim 3 (1.5 marks)

(iv) Claim 4 (1.5 marks)

(v) Claim 5 (1.5 marks)

(vi) Claim 6 (3 marks)

(vii) Claim 7 (3 marks)

A3 (10.5 marks)

After having received your infringement analysis, the owner of Muscle Buff phones up the owner of XRT Systems, to (furiously) indicate to him that her company received a cease-and-desist letter from HWBF threatening infringement. The owner of XRT Systems replies to the owner of Muscle Buff that HWBF cannot assert patent infringement against Muscle Buff or XRT Systems since the wall-fixation mechanism used in the XR Suspension Trainers, the XR Fixator, is manufactured in China by HealthCare Co. and is provided directly to Handy People.

Before choosing to sell the XR Suspension Trainer, you had been asked, in 2012, to perform a freedom-to-operate opinion for Muscle Buff: the application corresponding to the ‘896 Patent was identified as being potentially problematic, but since it had not been granted, it was decided to go forward with the commercialization of the suspension trainer while monitoring the prosecution of the ’896 Patent application. This opinion was not shared with XRT Systems. Upon the issuance of the ‘896 Patent, Muscle Buff was made aware of the fact that the ‘896 Patent granted in 2015 and took no further action.

Assuming that the ‘896 Patent is valid and that at least one of the claims of the ‘896 Patent is infringed by the XR Suspension Trainer and XR Fixator, please address the following:

(i) Do you agree with XRT Systems’ conclusions with respect to the absence of infringement of the ‘896 Patent by Muscle Buff? Please support your answer by providing and applying the appropriate test and citing a legal authority. (**2.5 marks**)

(ii) Indicate one (1) party **directly** infringing the ‘896 Patent. You are asked to provide and apply the test to make such determination as well as cite a legal authority. (**2 marks**)

(iii) Provide the test for determining if a party induces infringement. Cite a legal authority for this test. (**2 marks**)

(iv) Indicate if XRT Systems induces infringement of the ‘896 Patent. You are asked to apply the test cited at A3(iii) and specify the circumstances under which you are basing your analysis. (**2 marks**)

(v) Indicate if Muscle Buff induces infringement of the ‘896 Patent. You are asked to apply the test cited at A3(iii) and specify the circumstances under which you are basing your analysis. (**2 marks**)

A4 (**19.5 marks**)

In order to calm Muscle Buff and resolve this potential dispute with one of its best clients, XRT Systems suggest providing an alternative product, the **RT Suspension Trainer**, to Muscle Buff. The RT Suspension Trainer was designed and prototyped by XRT Systems in 2004 for use by physiotherapists for the rehabilitation of stroke patients. There were 20 prototypes made in 2004. The RT Suspension Trainer is not currently sold to clients in Canada. It is XRT Systems' intention to first obtain Health Canada's approval to commercialize the RT Suspension Trainer as a medical device. As such, XRT System is currently testing these 20 prototypes of the RT Suspension Trainer in clinical trials in several hospitals and rehabilitation clinics in Ontario to gather the information necessary to make its submission to Health Canada. The pamphlet of the RT Suspension Trainer is included as **D3**.

(i) Assuming that the '896 Patent is valid and based on the facts presented in A4, indicate two (2) defenses that could be used by XRT Systems in response to HWFB's allegation of infringement of the '896 Patent with respect to the RT Suspension Trainer. For each proposed defense, indicate and apply the appropriate test(s) and cite a legal authority. If appropriate, include the limitations of each of these defenses. (**6.5 marks**)

(ii) In order to assist Muscle Buff in determining if it should accept XRT Systems' suggestion with respect to the RT Suspension Trainer:

(a) Determine if the RT Suspension Trainer infringes claim 1 of the '896 Patent. You are required to use the same guidelines as presented in A2 to present your analysis and your conclusion. (**7 marks**)

(b) Is the feature "a lengthening mechanism" an essential element of claim 1? You are required to cite and apply the appropriate test for determining if a feature is essential or not and support your statement with an appropriate citation. You are invited to take under consideration the claim construction provided in A2 to justify if the element is essential or not. (**5 marks**)

(c) Based on your analysis above in (b), provide your recommendation if Muscle Buff should accept XRT' systems' offer to now buy and install the RT Suspension Trainer at Muscle Buff client's premises. (**1 mark**)

END OF QUESTIONS IN PART A

PART B – TOTAL 25.5 MARKS

B1 (7 marks)

Specify whether each of the following is true or false. For a statement to be true, it must be unambiguously true in its entirety. Each answer must be provided with an explanation or a legal citation. If no explanation or legal citation is provided of if the explanation or legal citation is not accurate, no marks will be awarded for the particular question.

(i) A claim of a Canadian Patent that was granted in 2018 can have more than 22 years of term. (**1 mark**)

(ii) A potential infringer who has privately used an invention can use the Gillette defense to avoid liability for infringement (**1 mark**)

(iii) A non-infringing alternative does not need to be economically viable. (**1 mark**)

(iv) Obtaining a Canadian Patent to an improvement over a third party patented technology excludes liability from infringing the third party's patent. (**1 mark**)

(v) A patent including claims to an illegal process (for example for making an illegal recreational drug) cannot be enforced against a potential infringer. (**1 mark**)

(vi) Recycling the main parts of a system excludes liability from infringing a patent on the system. (**1 mark**)

(vii) An accused infringer must show that he/she does not practice the subject matter defined by the claims of a patent to avoid infringement. (**1 mark**)

B2 (**9 marks**)

Your client has obtained Canadian Patent ‘432 on an electronic ticketing system. Canadian Patent ‘432 was filed on **February 13, 1997**, published on **August 13, 1999** and granted on **May 5, 2010**.

On **September 3, 2018**, your client sued the organizers of a BBQ competition for infringement of the ‘432 Patent. The competition was held in Medicine Hat in **June 2008, 2010, 2012, 2014, 2016** and **2018**. During discovery, it was determined that the organizers netted a profit of $100 000 by using the patented ticketing system each year the competition was held. On **February 13, 2019**, the Court concluded that the ‘432 Patent was infringed by the organizers of the BBQ competition.

(i) For the competition held in 2008, indicate two reasons why the net profits cannot be the subject of an award granted under the Court order. Provide the basis for each of the reasons put forward. (**1 mark**)

(ii) For each of the competitions held in June 2010, 2012, 2014, 2016 and 2018, indicate if the net profits made during these specific years would be the subject of the award granted under the Court order. Explain each of your answers, no marks will be granted without explanation or if the explanation is not accurate. (**4 marks**)

(iii) Indicate one (1) additional remedy that could apply to the competition held in 2018. Provide the circumstances under which this remedy could be sought. Support your answer by citing a relevant legal authority. (**1.5 marks**)

(iv) A divisional patent application of the ‘432 patent was filed on **July 4, 1999** and granted on **March 24, 2016**. The claims filed in the divisional patent application were granted without amendment. Assuming that the divisional patent application was also ordered to having been infringed, (1) indicate the period at which reasonable compensation can be awarded, (2) the legal authority for same, (3) the condition(s) which needs to be met for an award of reasonable compensation, and (4) explain reasonable compensation could be obtained for the divisional patent application. (**2.5 marks**)

B3 – (**6.5 marks**)

The Great Canadian Toy Co. is manufacturing toy figurines having deployable parachutes for sale in Europe only. The figurines are dropped from a height (such as off a balcony), and the parachute deploys once a freefall of 200 cm is detected. The deployable parachutes are readily replaceable and are sold as separate parts as they tend to last only 3-4 drops.

The figurines are manufactured in Canada by The Great Canadian Toy Co. just outside Halifax, Nova Scotia. The parachutes are manufactured exclusively in China by **ParaToys Co.** based directly on a design provided by The Great Canadian Toy Co. Ten percent (10%) of the parachutes manufactured in China are imported into Canada to be packaged with the figurines prior to shipping. The remaining 90% are sold directly to toy stores in Europe to be sold as replacement parachutes. Both the replacement parachutes and the figurines themselves include instructions for installing replacement parachutes.

Trolls Inc. own Canadian Patent Number '747 on toys with deployable parachutes. Canadian Patent No. '747 is infringed by the fully assembled toy sold by The Great Canadian Toy Co., but makes no mention of replaceable parachutes.

Based on the above facts, answer the following questions:

(i) Is The Great Canadian Toy Co. liable for patent infringement in Canada of Canadian Patent No. '747 for its sale of the figurines to Europe? Explain your answer and support your conclusion with a legal authority. (**2 marks**)

(ii) Is ParaToys Co. liable for patent infringement in Canada for the 10% of parachutes sold to Great Canadian Toy Co? Explain your answer and support your conclusion with a legal authority. (**2 marks**)

(iii) When a European user purchases replacement parachutes in Europe to replace a damaged parachute, are any parties liable in Canada for infringement of Canadian Patent No. '747? Explain your answer. (**1 mark**)

(iv) The director of research and development of The Great Canadian Toy Co. decides to take a couple of figurines at home in Cape Breton to test the new of parachutes received from ParaToys Co. He does assemble the toy during the week-end and replaces the broken parachutes several times with new ones. Would the director be

found liable in Canada for infringement of Canadian Patent No. ‘747? Explain your answer and support your conclusion with a legal authority. (**1.5 marks**)

END OF QUESTIONS IN PART B

D1 – XR Suspension Trainer Instructions

[1] The XR Suspension Trainer was designed for athletes looking for performing a variety of movements in an effective manner with a minimum amount of material. The XR Suspension Trainer is made from ultra-durable material that resists the wear and tear of extreme training.

[2] The XR Suspension Trainer includes the following components (shown on Figure A):

- A rectangular-shaped and 3-centimeter-wide super-resistant nylon belt which does not deform even when a stretching force of more 450 kilograms is applied (element **B** on Figure A). The belt also includes a dome fastener (element **F** on Figures A and B).
- A pair of removable plastic handles cushioned with a soft grip foam (element **H** on Figure A). The handles are intended to be pulled by the athlete's hand or feet.
- Two clamps (shown as elements **C** on Figure A) for fastening the belt.

[3] The installer must provide a metallic wall-fixation mechanism (element **W** on Figures A and B) as well as the material required to secure the wall-fixation mechanism to the wall, ceiling or floor (glue, nails, screws, etc.). The wall-fixation mechanism allows both fixation to a wall, a ceiling or a floor (via the exterior section of the mechanism) and an internal curved rod (element **R** on Figures A and B) for securing the belt. The internal curved rod includes multiple grooves (not shown on Figures A and B) which prevent the belt from slipping while the athlete is using the trainer.

[4] It is preferred that a specific wall-fixation mechanism, the XR Fixator (shown on Figure C) be purchased directly from HealthCare Co. and used with the XR Suspension Trainer. The XR Fixator includes a wall-fixation mechanism (**W** shown on Figure C), two screws (**V1** and **V2** as shown in Figure C) and two metallic disks (**G1** and **G2**) that can be conveniently used to attach the wall-fixation mechanism to a wall, a ceiling or a floor.

[5] The installer must first insert the belt within the wall-fixation mechanism **W** around the internal curved rod **R**. Then, the dome fasteners **F** must be snapped together to make sure

than the middle section of the belt remains centered around the internal curved rod of the wall-fixation mechanism while the suspension trainer is being used.

[6] At each end of the belt, the installer must pass the extremity of belt successively through clamp **C**, the handle **H** and through the same clamp **C** to form a handle section (shown as element **T** on Figure A). A section of the extremity of the belt that has been threaded through the clamp and the handle must be overhanging out of the clamp to allow the enlargement or the tightening of the handle section **T**. The athlete can reposition clamps **C** to increase or decrease the length of the handle section **H** to ultimately increase or decrease the length of the belt **B** to ultimately provide more or less distance from the wall-fixation mechanism.

[7] The XR system should only be installed by personnel having been trained and certified by XRT systems.

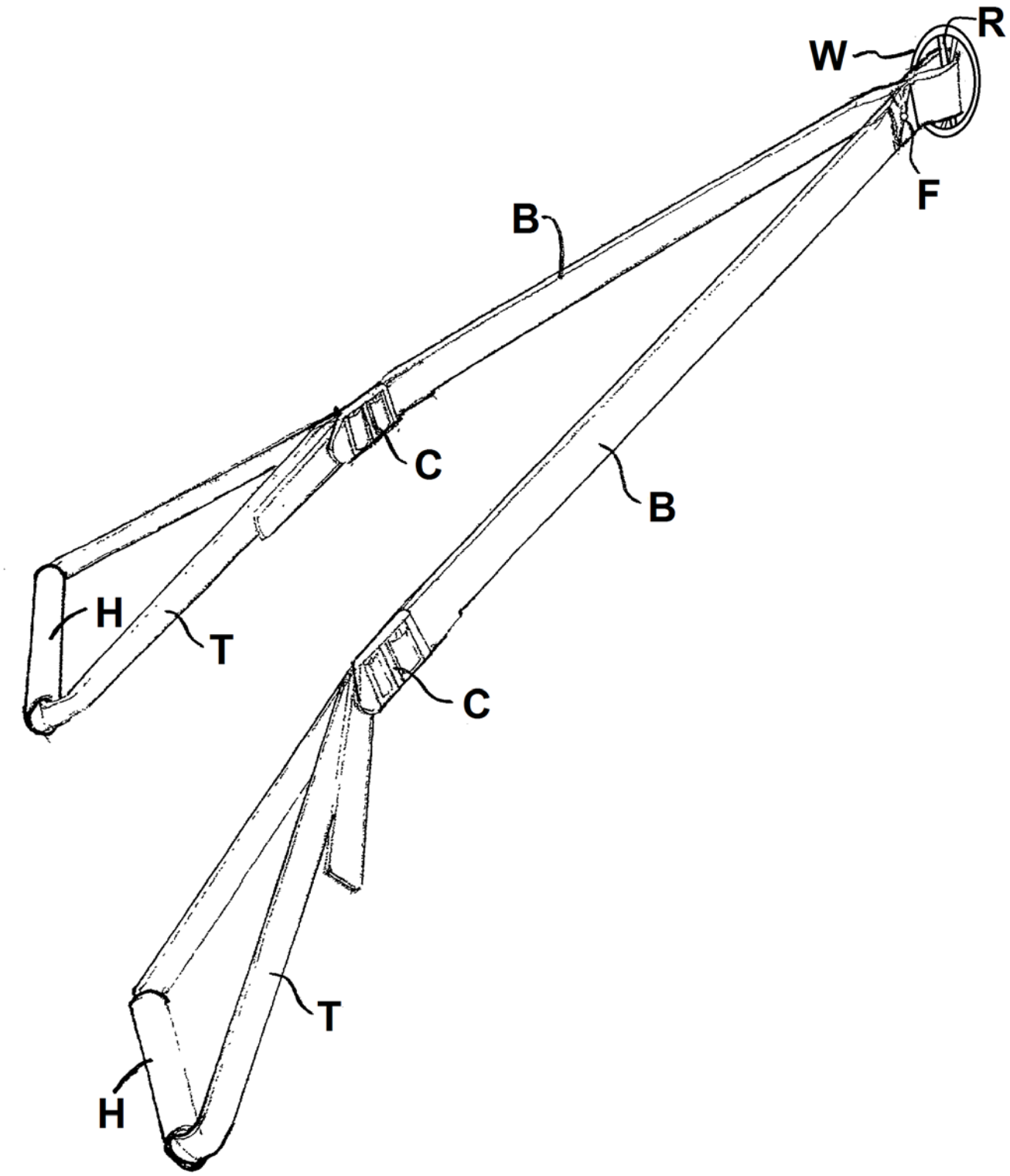

Figure A. Representation of the XR Suspension Trainer once it has been assembled.

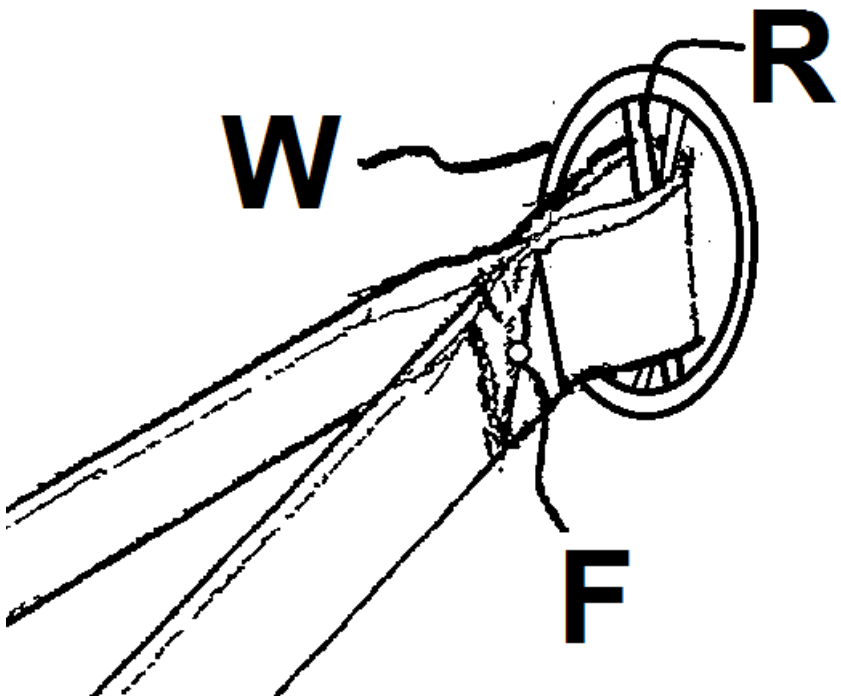

Figure B. Representation of the association between the wall-fixation mechanism (**W**) and the dome fastener (**F**) of the XR Suspension Trainer.

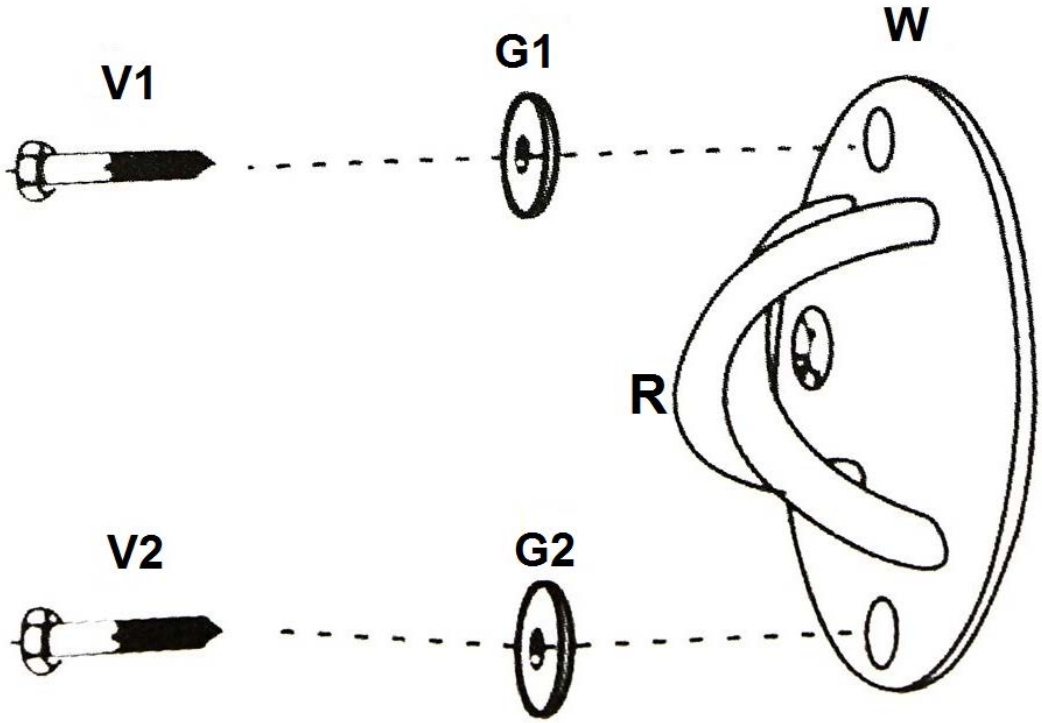

Figure C. Representation of the XR Fixator.

D2 - CA 2 XXX 896 Patent

CA XXXX896 C 2015/04/18

(11)(21) **2 XXX 896**

(12) **BREVET CANADIEN**

CANADIAN PATENT

(13) **C**

(22) Date de dépôt/Filing date: 2006/06/22 (41) Mise à la disp. pub./Open to Public Insp.: 2006/12/23 (45) Date de délivrance/Issue Date: 2015/04/18 (30) Priorité/Priority: 2005/06/23 (US60/XXX,412)	(72) Inventeurs/Inventors: Amanda Jones (CA) James Fish (CA) (73) Propriétaires/Owners: Health and Well Being Foundation (CA)

[*Remainder of cover page and abstract omitted*]

EXERCISE DEVICE INCLUDING ADJUSTABLE, INELASTIC STRAPS

BACKGROUND OF THE INVENTION

[1] Resistance exercise devices having elastic bands typically restrict the motion of a user's arms and/or legs, or the motion between the user and a support structure. Elastic exercise devices can be small, even portable, but have limited usefulness that result from their resistance characteristics, which depend on the length and elasticity of the elastic band. As a result of these characteristics, the elastic bands are useful for a specific length range, thus restricting the diversity of exercises for which it can be used. In addition, it may not be possible for different users to use the same device for the same exercise due to differences in height, weight, or strength between different users. Thus, for an elastic device to be generally useful, such as to provide a complete workout or to allow for different users, a plurality of elastic bands are required that must be easily interchangeable. No known prior art device provides the ease of use necessary to be generally useful across a wide range of exercises.

[2] Another limitation of elastic resistance exercise devices is that the resistance is inconsistent and increases with increasing displacement, and also tends to snap back when the user decreases his/ her effort. The goal of the present disclosure is to provide an exercise device which does not rely on the use of elastic resistance.

SUMMARY OF THE INVENTION

[*Section omitted*]

BRIEF DESCRIPTION OF DRAWINGS

[3] **FIG. 1** is a schematic front view of one embodiment of an exercise device of the present invention as anchored between a door and door jamb;

[4] **FIG. 2** is a partial schematic sectional view 2--2 of FIG. 1 showing the exercise device anchored between a door and doorjamb;

[5] **FIG. 3** is illustrative of a user performing a high row exercise with the exercise embodiment of FIG. 1;

[6] **FIG. 4** is a perspective view of another embodiment of the exercise device of the present invention;

[7] **FIG. 5** is a schematic top view of the elongated member of the embodiment shown in FIG. 4 having two lengthening mechanisms and two hand grips;

[8] **FIG. 6** is a perspective view showing details of the grip and the lengthening mechanism of the embodiment of FIG. 4;

[9] **FIG. 7** is an alternate embodiment anchor that can be used for attaching the exercise device to a pole or railing.

DETAILED DESCRIPTION

[10] In general, the present invention provides an inelastic exercise device that is supported by, or that can be easily attached to, a supporting structure, and that allows a user to perform a large number of exercises by easily adjusting the length of the device and thereafter balancing the device as the user transfers his/her weight to the device. Several of the features of the present invention will now be illustrated with reference to FIGS. 1 to 3, which show the

set-up and use of the device of the present invention, and which are not meant to limit the scope of the present invention. FIG. 1 is a schematic front view of one embodiment of exercise device **100** that is anchored at a point **A** between a door **D** and doorjamb **J** of a wall. FIG. 2 is a partial sectional view 2--2 of FIG. 1 taken through door **D** and showing exercise device **100** in profile, and FIG. 3 is illustrative of a user **U** exercising with the exercise device of FIG. 1.

[11] In general, exercise device **100** includes an anchor **110** and an elongated member **120** having a pair of arms **122**, indicated as a first arm **122a** and a second arm **122b**, and a pair of ends **121**, indicated as first end **121a** and a second end **121b**, on either side of the anchor, as shown schematically in FIGS. 1 and 2. A pair of grips **123** is provided, with one positioned at the end of each arm **122**, specifically first arm **122a** has a first grip **123a**, and second arm **122b** has a second grip **123b**. Elongated member **120** is substantially inelastic with a length **S** between the pair of grips **123**, and a lengthening mechanism **135** that provides for increasing or decreasing the length **S**, as indicated by double arrows **S**.

[12] Anchor **110** is used to provide a fixed anchor point for exercise device **100** and to support a user's weight as it is applied to arms **122** as indicated by an arrow in FIG. 2 and as shown in FIG. 3. Anchor **110** includes a portion for mounting to a structure (which is, in the embodiment shown in FIG. 2, enlarged portion **111**) as well as a portion for supporting the elongated member (which is, in the embodiment show in FIG 2., anchor loop **115**). As shown in FIG. 2, anchor **110** is adapted for positioning exercise device **100** in a door and providing support to elongated member **120** by having an enlarged portion **111**, a strap portion **113**, and an approximately triangular shaped anchor loop **115** for slidably supporting the elongated member. With enlarged portion **111** on the opposite side of door **D** from elongated member **120**, anchor **110** supports the weight of a user as grips **123** are pulled. In addition, anchor **110** provides for positioning the relative length of arms **122** as shown in FIG. 1 by double arrow **C**. Thus, the total length of elongated member **120** and distribution of that length between each of arms **122** can be easily adjusted through the lengthening mechanism **135** and by pulling the ends of the elongated member. FIG. 2 shows arms **122** each having a length L.

[13] When supported by a structure, such as door **D** (shown in FIGS. 1 and 3) or a railing, pole or other support member (not shown) the exercise device provides a pair of grips **123** for

a user to exercise against his/her weight according the user's position relative to the device, and provides for easily adjusting the length of the device. As described below, the device can be used to exercise in any one of a large number of orientations according to the selected adjustable length and according to where and how the user stands relative to the exercise device. In general, a user first sets the exercise device to a desired length, positions himself/herself on the ground near the exercise device, supports a portion of his/her body weight from the exercise device by his/her hands or feet, and then exercises by moving his/her body with her weight supported by the ground and the exercise device. Examples of support on the ground and exercise device include, but are not limited to, standing on one or both legs, lying on the stomach or the back, kneeling, or by having the hands on the ground, and having the exercise device support one's weight by the hands or feet, as appropriate.

[14] With reference to FIG. 3, a user **U** is shown in one of the many exercise positions, in particular a high row exercise, gripping the pair of grips **123** with the user's hands and having the user's feet placed a horizontal distance **X** from anchor point **A**. When anchored to a door, it is preferred that anchor point **A** is on the inwards side of the door (that is, that the door open away from user **U**) so that jamb **J** can support the user's weight. The user **U** is shown leaning away from anchor point **A** and supporting a fraction of his or her weight through device **100**. It is apparent that user **U** can vary the amount of supported weight, and thus the resistance of exercise device **100**, by adjustment of his or her stance relative to anchor point **A** (distance **X**) and the length of arms **122** (length **L**). The user **U** of FIG. 3 performs a high row exercise by moving his body in a direction **E** towards and away from anchor point **A**. Note that other exercises are also possible with the user in this position by the user moving in other directions with the user's weight supported by the ground and exercise device **100**.

[15] Several embodiments of the present invention will now be described with reference to the drawings. These embodiments are meant to illustrate the invention, and are not meant to limit the scope of the invention.

[16] FIGS. 4 to 7 are various views of another embodiment of an exercise device **400** of the present invention. Referring first to FIG. 4, a perspective view of exercise device **400** is shown as including an anchor **410** and an elongated member **420**. Anchor **410** includes an inelastic strap **413** having an enlarged first end **411** that is wider than the strap, and a second end that

forms an anchor loop **415**. Elongated member **420** passes through anchor loop **415**, defining a pair of arms **422**, indicated as arm **422a** and **422b**. Each arm **422** has a respective end **421**, shown as end **421a** and **421b**, each forming a handle loop **425**, shown as handle loop **425a** and handle loop **425b**, to support one of a pair of grips **423**, shown as grip **423a** and **423b**. Elongated member **420** also includes a pair of lengthening mechanisms **435**, shown as buckle **435a** and **435b**, at either end of a central strap **429** that provides for the adjustment of the length of the elongated member. Specifically, strap **429** passes through buckle **435a** and **435b**, respectively. As described subsequently, elongated member **420** is substantially inelastic, with the length of the elongated member being adjustable through the action of one or both of the pair of buckles **435**. The anchor loop **415** and elongated member **420** interact to provide frictional restraint with respect to the anchor as a function of the force applied to each of the pulled grips. Thus in one embodiment, the frictional restraint restrains the elongated member with the grips equidistant from the anchor when the sum of the forces is increased while the user positions each of the grips a distance of one half of the length from said anchor.

[17] It is preferred that the majority of lengths of anchor **410** and elongated member **420**, especially the strap, are formed of materials that include, but are not limited, to straps of a webbing of a natural or synthetic material having a strength sufficient to support the weight of a device user. Preferred webbings include, but are not limited to, webbings made of nylon, polypropylene or other polymeric fibers. It is understood that a single length of material according to the present invention can alternatively comprise two or more pieces that are stitched, glued, or otherwise attached to one another. It is preferred that the length of anchor **410** is from 15 to 45 centimeters, or more preferably, approximately 30 centimeters.

[18] Strap **413** has an enlarged first end **411** that is wider than the strap, and a second end **417** that is attached to the strap so as to form an anchor loop **415**. Since one of the intended uses of anchor **410** is to anchor exercise device **400** between a door and jamb, it is preferable that the end **411** includes materials that are soft enough to prevent damage to a wood door or door frame, yet be sturdy enough to support the weight of a user.

[19] Elongated member **420** is shown in greater detail in FIGS. 5 and 6, where FIG. 5 is a schematic top view of the elongated member and FIG. 6 is a perspective view of one of the

pair of grips **423** and the corresponding one of the pair of buckles **435**. As shown in FIG. 5, the elongated member **420** has length **S**, and includes two inelastic strap portions **427**, indicated as **427a** and **427b**, strap **429** and the pair of buckles **435** for adjusting the length S. The portion of elongated member **420** from each end to the nearest buckle has a fixed length--that is, each of the two portions from one of the pair of ends **421a** and **421b** to the corresponding one of the pair of buckles **435** has a fixed length. It is preferred that the length **S** is adjustable over a length that allows for a wide range of exercises. Preferably, length **S** can be varied in length from approximately 2 to 4 meters. Also preferably, elongated member **420** has a width of approximately 4 centimeters. It is also preferred that the surface finish of strap **429** and anchor loop **415** allows the user to easily slide the elongated member **420** along anchor **410**, while providing enough friction so that there can be some mismatch in forces on the two ends **421** without the elongated member sliding through the anchor while a user is exercising.

[20] The details of one of the pair of ends **421**, including strap **429,** grip **423**, and buckle **435** are shown in FIG. 6. In one embodiment, the buckle **435** is a cam buckle, the design and use of which are well known in the art. Buckle **435** is attached to strap **427**, and thus the length of each of end **421** is not adjustable. Buckle **435** slidably accepts and grips strap **429**, allowing for adjustment of the length **S**.

[21] FIG. 7 shows alternative embodiment anchor **1410** which includes an adjustable loop **1419** and an anchor loop **1415**. As described subsequently, anchor **1410** is an alternative anchor, and can, for example, present anchor loop **1415** for accepting strap **429** of elongated member **420** to form an exercise device **1400**. Adjustable loop **1419** is formed from strap **1411** and a cam buckle **1412**. Cam buckle **1412** can be, for example, cam buckle **435**. Strap **1411** has a free, first end **1414** that is threaded through the cam portion of cam buckle **1412**. Strap **1411** also has a second end **1418** that is attached to cam buckle **1412**. Strap **1411** thus threaded through buckle **1412** forms an adjustable loop **1419** that can be increased or decreased in size by actuating cam buckle **1412** to release strap **1411**, moving the strap through the cam buckle, and releasing the cam. End **1414** is held against strap **1411** by a slack sleeve **1413**.

[22] It is preferred that the majority of lengths of anchor **1410** are formed of materials that include, but are not limited to, straps of a webbing of a natural or synthetic material having a strength sufficient to support the weight of a device user. Preferred webbings include, but are not limited to, webbings made of nylon, polypropylene or other polymeric fibers. It is understood that a single length of material according to the present invention can alternatively comprise two or more pieces that are stitched, glued, or otherwise attached to one another.

[23] In addition to being attached to a pole, anchor **1410** can be tensioned to support exercise device **1400** about a railing, post, or other member. Alternately, the anchor can be attached to a carbiner that is fixed to a wall or other structure.

[24] The inventive exercise device allows for a wide range of exercises. In addition, the device can be used to perform one handed exercises.

[25] It is to be understood that this invention is not limited to those embodiments and modifications described in the specification. Modifications and variations can be made by one skilled in the art without departing from the sprit and scope of the invention. Moreover, any one or more features of any embodiment of the invention may be combined with any one or more other features of any other embodiment of the invention, without departing from the scope of the invention.

What is claimed is:

1. An adjustable, substantially inelastic exercise device comprising:
    (a) an **elongated member** having a **pair of ends** separated by a length and **a lengthening mechanism**, wherein the elongated member is made from **a flat strap** and, wherein the pair of ends includes a first end having a first grip and a second end having a second grip; and
    (b) an **anchor** having a mounting portion and an **anchor loop** portion supporting the elongated member at a position along the length when both of the grips are pulled in a direction away from the anchor and wherein the elongated member passes through the anchor loop.

2. The exercise device of claim 1, wherein the lengthening mechanism is located at **a fixed position** from the first or second grip.
3. The exercise device of claim 1, wherein the mounting portion of the anchor is removably attachable to a structure.
4. The exercise device of claim 1, wherein the mounting portion of the anchor that contacts a structure **will not damage** the structure.
5. The exercise device of claim 1, wherein the first grip and the second grip are hand grips.
6. The exercise device of claim 1 or 2, wherein the elongated member includes **at least one cam buckle**, allowing the length to be adjusted according to the length of the flat strap through the cam buckle.
7. The exercise device of claim 1 or 2, wherein the anchor loop exerts a force on the elongated member sufficient to prevent movement of the elongated member.

DUPLICATE COPY OF THE CLAIMS

1. An adjustable, substantially inelastic exercise device comprising:

    (a) an **elongated member** having a **pair of ends** separated by a length and **a lengthening mechanism**, wherein the elongated member is made from **a flat strap** and, wherein the pair of ends includes a first end having a first grip and a second end having a second grip; and

    (b) an **anchor** having a mounting portion and an **anchor loop** portion supporting the elongated member at a position along the length when both of the grips are pulled in a direction away from the anchor and wherein the elongated member passes through the anchor loop.

2. The exercise device of claim 1, wherein the lengthening mechanism is located at **a fixed position** from the first or second grip.
3. The exercise device of claim 1, wherein the mounting portion of the anchor is removably attachable to a structure.
4. The exercise device of claim 1, wherein the mounting portion of the anchor that contacts a structure **will not damage** the structure.
5. The exercise device of claim 1, wherein the first grip and the second grip are hand grips.
6. The exercise device of claim 1 or 2, wherein the elongated member includes **at least one cam buckle**, allowing the length to be adjusted according to the length of the flat strap through the cam buckle.
7. The exercise device of claim 1 or 2, wherein the anchor loop exerts a force on the elongated member sufficient to prevent movement of the elongated member.

TABLE FORMAT OF THE CLAIMS

Claim 1	
(1)	An adjustable, substantially inelastic exercise device comprising:
(2)	an **elongated member**
(3)	having a **pair of ends** separated by a length and
(4)	**a lengthening mechanism**
(5)	wherein the elongated member is made from **a flat strap**
(6)	wherein the pair of ends includes a first end having a first grip and a second end having a second grip
(7)	an **anchor** having a mounting portion and
(8)	an **anchor loop** portion supporting the elongated member at a position along the length when both of the grips are pulled in a direction away from the anchor and
(9)	wherein the elongated member passes through the anchor loop
Claim 2	
(10)	The exercise device of claim 1,
(11)	wherein the lengthening mechanism is located at **a fixed position** from the first or second grip.
Claim 3	
(12)	The exercise device of claim 1,
(13)	wherein the mounting portion of the anchor is removably attachable to a structure.
Claim 4	
(14)	The exercise device of claim 1,
(15)	wherein the mounting portion of the anchor that contacts a structure **will not damage** the structure.
Claim 5	
(16)	The exercise device of claim 1,
(17)	wherein the first grip and the second grip are hand grips.
Claim 6	
(18)	The exercise device of claim 1 or 2,
(19)	wherein the elongated member includes **at least one cam buckle**,
(20)	allowing the length to be adjusted according to the length of the flat strap through the cam buckle.
Claim 7	
(21)	The exercise device of claim 1 or 2,
(22)	wherein the anchor loop exerts a force on the elongated member
(23)	sufficient to prevent movement of the elongated member.

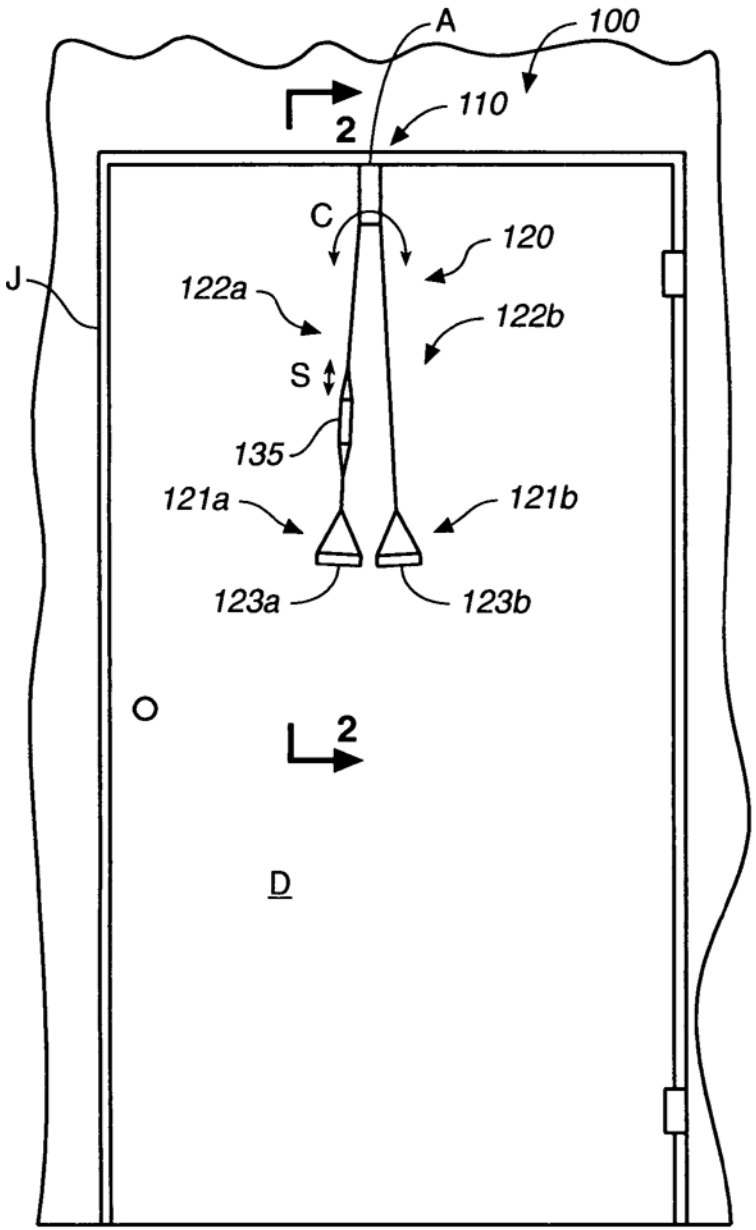
A
100
110
2
C
120
J
122a
122b
S
135
121a
121b
123a
123b
2
D

FIG._1

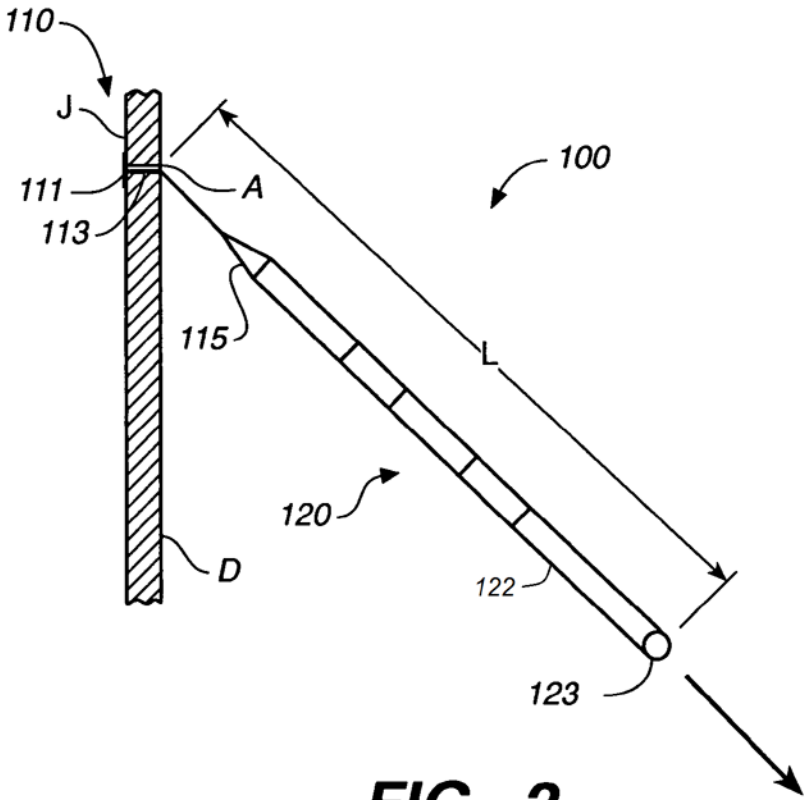
110
J
111
113
A
100
115
L
120
D
122
123

FIG._2

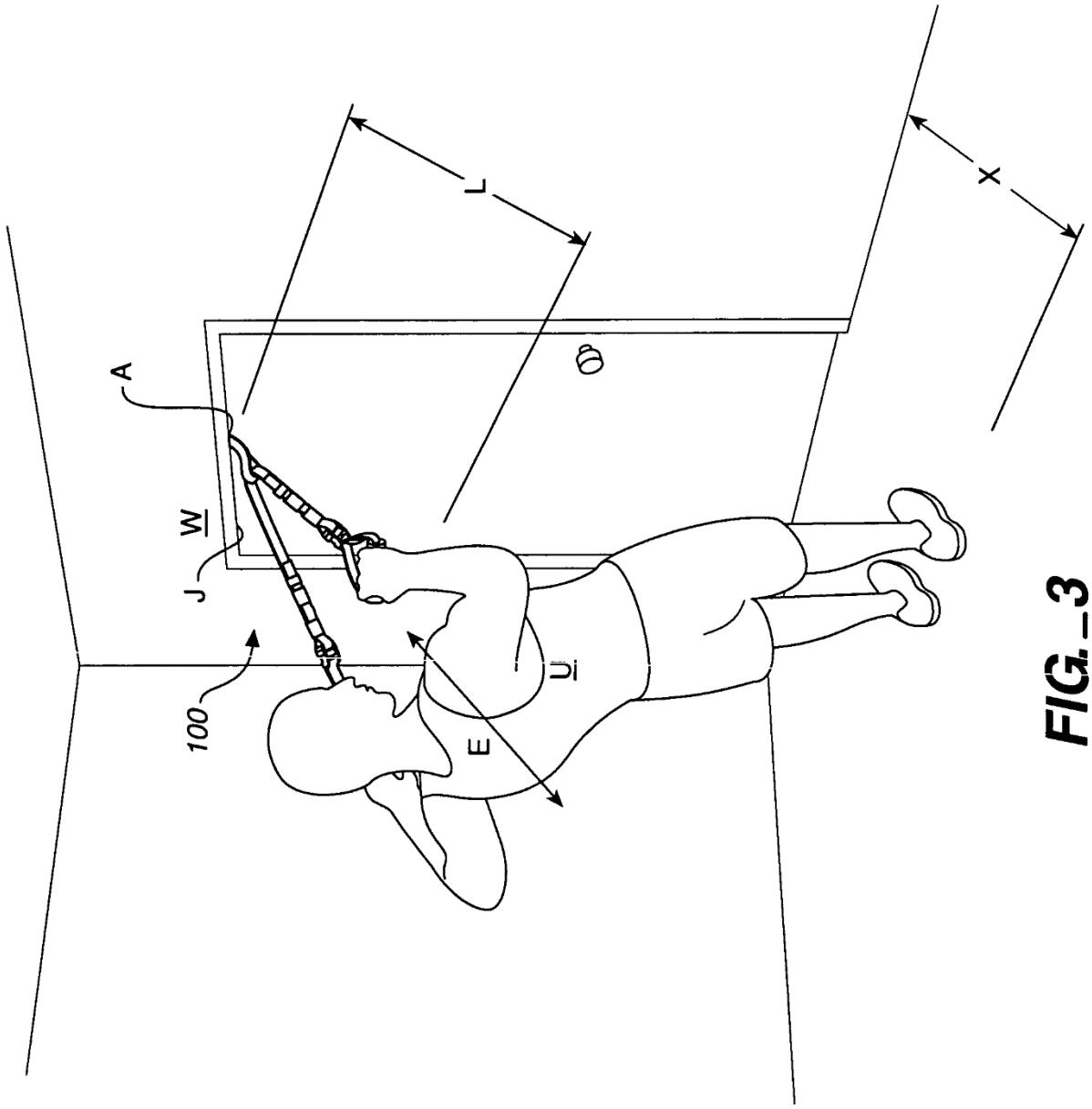

FIG._3

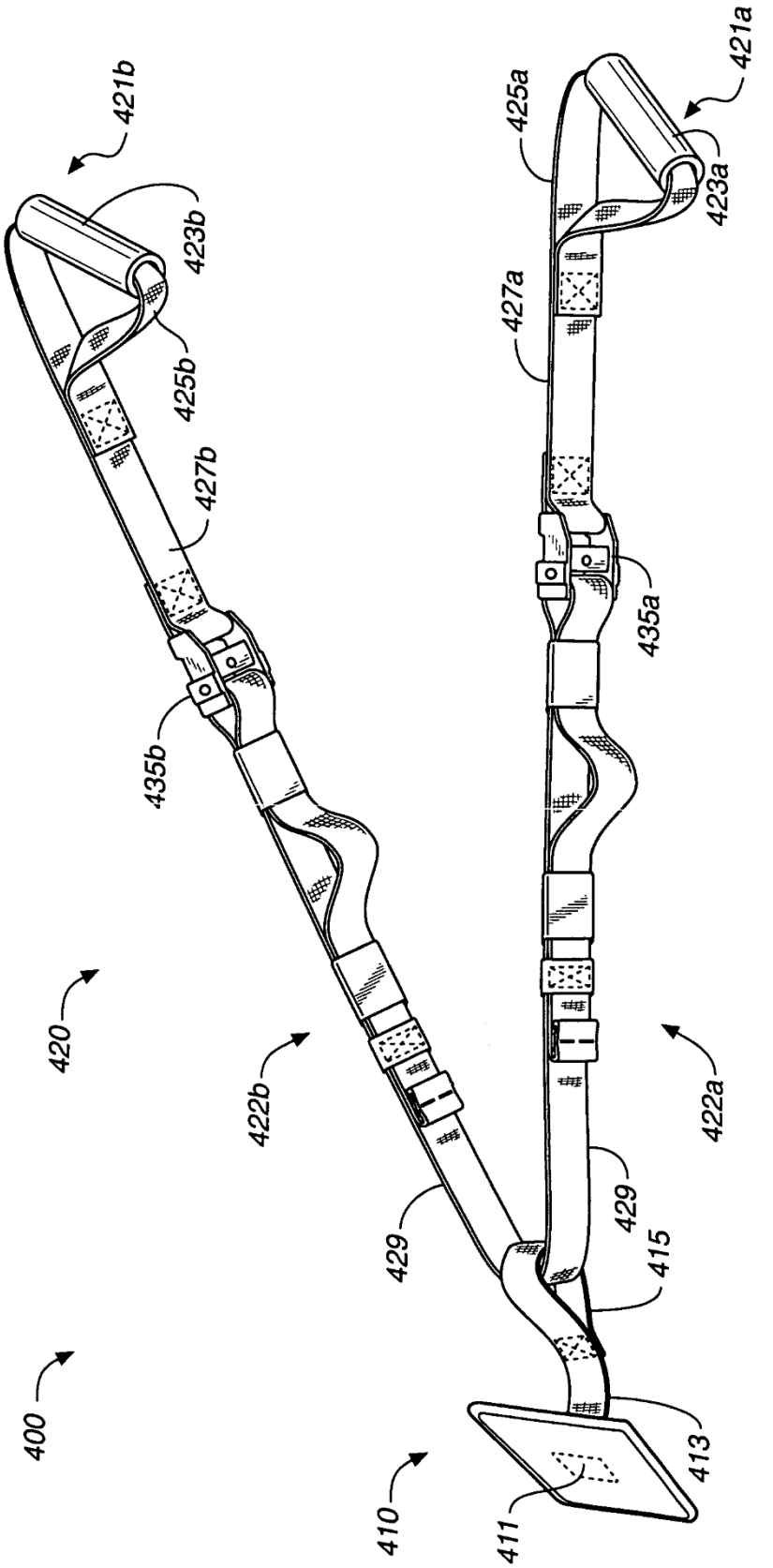
400
410
411
413
415
420
421a
421b
422a
422b
423a
423b
425a
425b
427a
427b
429
429
435a
435b

FIG._4

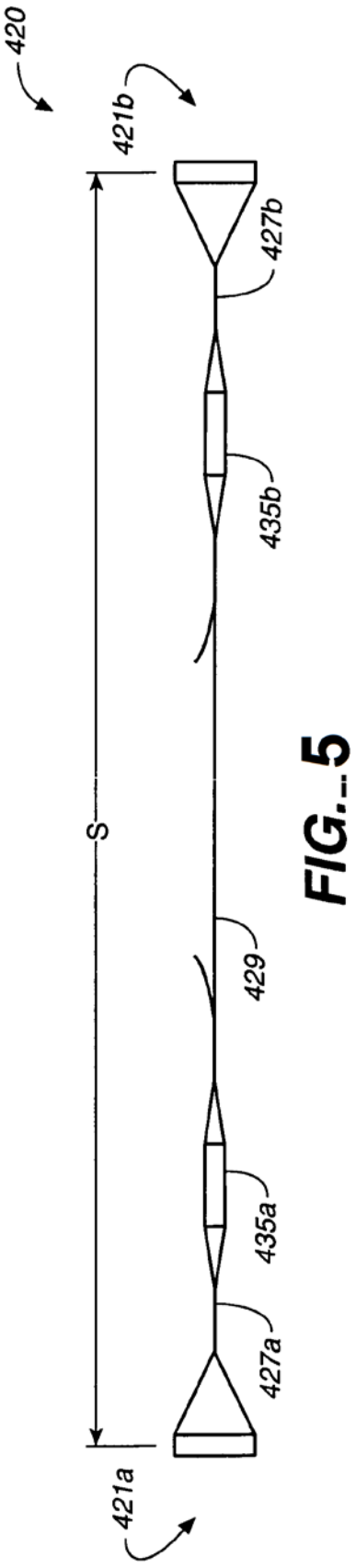

FIG._5

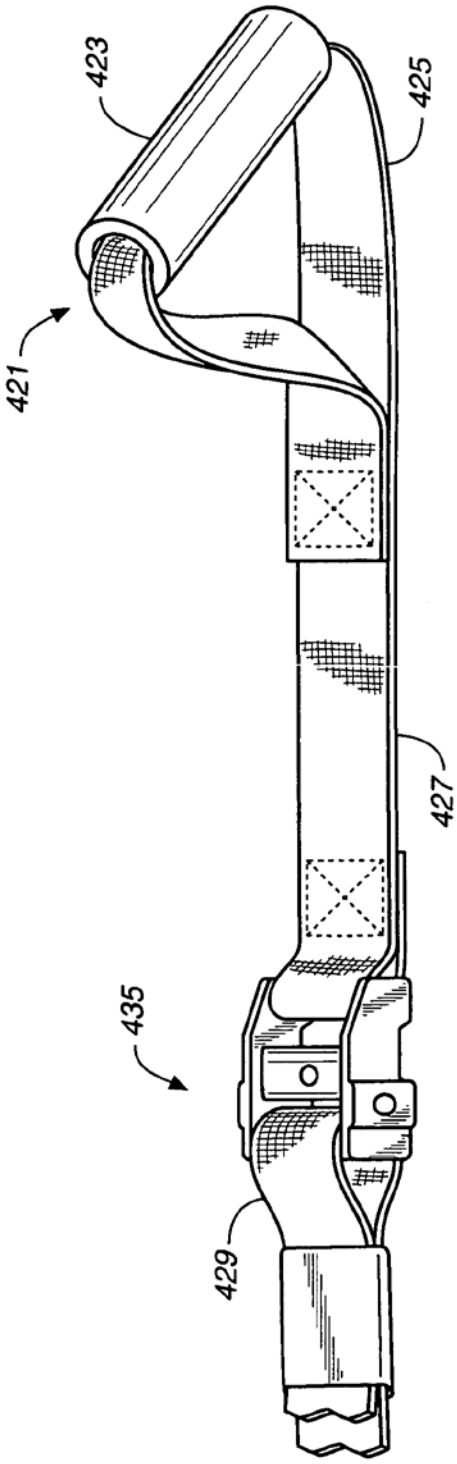

FIG._6

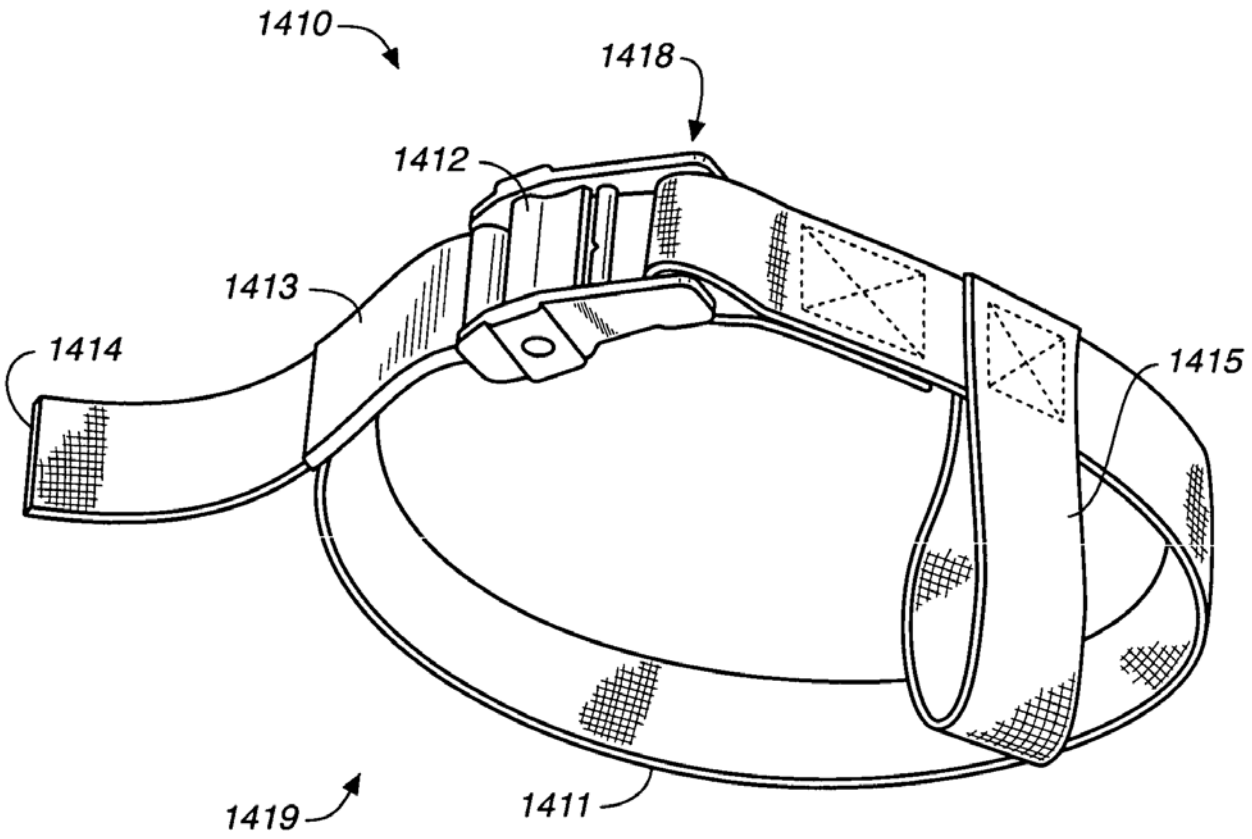

FIG._7

D3 - RT suspension trainer instructions

[1] The RT system is specially designed to facilitate the rehabilitation of patients having lost muscle mass and who are partially immobilized. As shown on Figure I below, the RT system includes various features facilitating its use by physiotherapists and occupational therapists with different patient clienteles.

[2] The RT system includes:

a. a hook,

b. a supporting band with an adjustable fastener,

c. a ring, and

d. a patient's band with 2 extremities, each separated by a distance, each forming a loop comprising a cover to make a handle.

[3] The RT system is *portable*. It includes a hook which can easily be positioned directly to a wall, a ceiling or a bed post. The RT system version includes an eye to receive the hook so that the system can be securely fixed on a wall, a ceiling or bed post.

[4] The length of the RT system is *adjustable*. The supporting band includes an adjustable fastener which can increase or decrease the distance between the hook and the patient. The supporting band can thus be adjusted at the appropriate height, irrespective of the condition of the patient (bedridden, able to sit or able to stand), allowing the adjustment of the height of the handles.

[5] The RT system is *light and durable and can be sterilized*. The bands and the handle covers of the RT system are made from a RT Strong® textile, which is a unique blend of polyesters that is woven into a fabric having a uniform height of 2.7 millimetres. Even though the RT Strong® textile is ultra-light, it is also ultra-resistant and does not deform when pulling forces of up to 250 kg are applied.

[6] The RT system is *easy to install*. The RT system is provided already assembled as shown in Figure I. The RT system is only made from detachable components which facilitates cleaning or replacing broken or overused parts. The handle covers are secured over the handles with a Velcro®-type system. The patient's band can easily be detached from the supporting band by passing the handles through the ring.

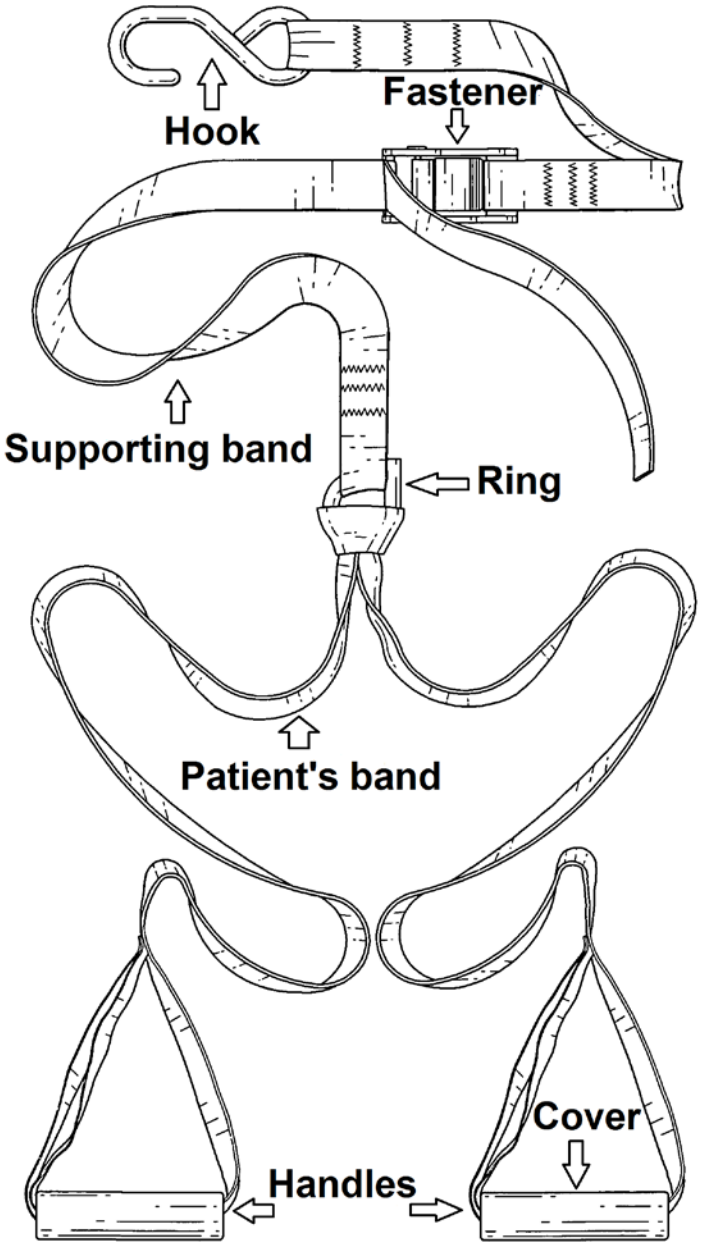

Figure I. Representation of the RT system.

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Marking grid for exam D - 2019

CANDIDATE NO:
Language (E/F)

Part A

	Max	Mark
Question A1	**28.5**	**0.0**
(i) Elongated member	**6.5**	**0.0**
Mapping - One of : element 120 of Figure 1 or 2 OR element 420 of Figure 4 or 5	0.5	
Purpose - Once passed through the anchor loop, providing a pair of arms for engaging with the user	0.5	
Purpose - Length, once adjusted, allows user to perform exercises by moving his/her body	0.5	
Essential element - Must provide enough length to allow the user, once adjusted, to perform a wide range of movements	0.5	
Essential element - Must be made from a material allowing it to slide through the anchor loop while providing enough friction	0.5	
Essential element - One of: Must not be able to stretch when force is applied OR Must be inelastic	0.5	
Essential element Must exhibit sufficient strength to resist to the force applied during exercise	0.5	
Reasoning - Support - inventor intent - material effect - One of: If the elongated member is too short or too long it will reduce the range of movements of the user OR Inventor's intent: "It is preferred that the length S is adjustable over a length that allows for a wide range of exercises" [19] OR Inventor's intent [13]	0.5	
Reasoning - Support - inventor intent - material effect - If it cannot slide along the anchor, it will restrict the types of movement that can be made by the user	0.5	
Reasoning - Support - inventor intent - material effect - If it slides too much along the anchor, it may destabilize the user while exercising	0.5	
Reasoning - Support - inventor intent - material effect - If the elongated member elongates while being or pulled or shortens when the force is removed, it will destabilize the movement of the user	0.5	
Reasoning - Support - inventor intent - material effect - One of: * If the material were elastic, it would restrict the motion of the user's members OR * If the material were elastic it would restrict the motion between the user and a support structure OR * Inventor's intent: "Resistance exercise devices having elastic bands typically restrict the motion of a user's arms and/or legs, or the motion between the user and a support structure." [1] OR * Elastic material provides inconsistent and increasing/decreasing resistance during displacement OR * Inventor's intent: "Elastic material restricts the motion between the user and a support structure" [2]	0.5	
Reasoning - Support - inventor intent - material effect - One of: * If the elongated member does not exhibit sufficient strength, the elongated member will tear or break and the user may be hurt OR * Inventor's intent: "a webbing of a natural or synthetic material having a strength sufficient to support the weight of a device user" [17] * Inventor's intent: [10]	0.5	
(ii) A pair of ends	**3.0**	**0.0**
Mapping - One of: elements 121a and 121b of Figure 1 OR elements 421a and 421b of Figure 4 or 5	0.5	
Purpose - Providing a point of engagement with the user	0.5	
Essential element - Each end must include a grip	0.5	
Essential element - The grip must form a loop	0.5	
Reasoning - Support - material effect – - One of: * If the ends do not include grips, the user cannot engage with the device OR * Inventor's intent as indicated in at least one of: ** "gripping the pair of grips 123 with the user's hands" [14] OR ** Figure 3	0.5	
Reasoning - Support - material effect – If the handle does not form a loop it can inconvenience the athlete	0.5	
(iii) Lengthening mechanism	**3.0**	**0.0**
Mapping - One of: element 135 of Figure 1 OR element 435a or 435b of Figure 4 or 5 OR element 435 of Figure 6 Negative marking (-0.5) if candidate identified element 1412 of Figure 7 (which is not a mechanism for adjusting the length of the elongated member)	0.5	
Purpose - By adjusting the length of the strap, the mechanism allows a variety of movement by the user	0.5	
Essential element - Must be located between the anchor and the grip	0.5	
Essential element - While the user is exercising, the length of the elongated remains fixed as the lengthening mechanism does not allow shortening or elongating of the strap	0.5	

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Reasoning - Support - inventor intent - material effect •One of: * This location allows the user to modify his/her position or the resistance with respect to the anchor OR * Inventor's intent: "It is apparent that user U can vary the amount of supported weight, and thus the resistance of exercise device 100, by adjustment of his or her stance relative to anchor point A (distance X) and the length	0.5	
Reasoning - Support - inventor intent - material effect - If the length of the elongated member increases or shortens during the exercise, it will destabilize the movement of the user	0.5	
(iv) Flat strap	**2.0**	**0.0**
Mapping - Element 429 of Figure 4 or 5 Negative marking (-0.5) if candidate identified element 413 of Figure 4 or 5 or 1411 from Figure 6 (which relates to the anchor, not the elongated member)	0.5	
Purpose - Providing a longitudinal section of the elongated member accepted by the lengthening mechanism	0.5	
Essential element - Must be selected or configured to engage with the lengthening mechanism	0.5	
Reasoning - Support - inventor intent - material effect One of: * If it cannot engage with the lengthening mechanism, the length of the elongated member cannot be adjusted * Inventor's intent: "Elongated member 420 also includes a pair of lengthening mechanisms 435, shown as buckle 435a and 435b, at either end of a central strap 429 that provides for the adjustment of the length of the elongated member. Specifically, strap 429 passes through buckle 435a and 435b, respectively." [16]	0.5	
(v) Anchor	**4.0**	**0.0**
Mapping - One of: element 110 of Figure 1 or 2 OR element 410 of Figure 4 OR element 1410 from Figure 7	0.5	
Purpose - One of: Providing a fixed anchor point for the exercise device OR Positioning the exercise device with respect to the user	0.5	
Essential element - Must engage with a structure	0.5	
Essential element - Must engage with elongated member	0.5	
Essential element - Must be made from a material having sufficient strength to support the weight of the user	0.5	
Reasoning - Support - inventor intent - material effect •One of: * If the anchor does not engage with a structure, it cannot provide a fixed anchor point for the exercise device * Inventor's intent: "Anchor 110 is used to provide a fixed anchor point for exercise device 100 and to support a user's weight" [12]	0.5	
Reasoning - Support - inventor intent - material effect •One of: * If the anchor does not engage with the elongated member, the exercise device could not be positioned to support the user's weight and allow movement * Inventor's intent: "Anchor 110 is used to provide a fixed anchor point for exercise device 100 and to support a user's weight" [12]	0.5	
Reasoning - Support - inventor intent - material effect •One of: * If the anchor does not exhibit sufficient strength, it will destabilize the user * Inventor's intent: "materials that include, but are not limited, to straps of a webbing of a natural or synthetic material having a strength sufficient to support the weight of a device user" [22]	0.5	
(vi) Anchor loop	**3.0**	**0.0**
Mapping - One of element 115 of Figure 2, element 415 of Figure 4 or element 1415 of Figure 7 Negative marking (-0.5) if candidate refers to elements 425, 425a or 425b of Figure 4 or element 1419 of Figure 7	0.5	
Purpose - For providing support to/accepting the elongated member	0.5	
Essential element - Must have a conformation allowing the elongated member to pass within the anchor loop	0.5	
Essential element - Must have be made from a material providing friction with the material of the elongated member	0.5	
Reasoning - Support - inventor intent - material effect - If the elongated member cannot be positioned within the loop, the exercise device could not be positioned to support the user's weight and allow movement	0.5	
Reasoning - Support - inventor intent - material effect One of: * If the loop does not allow enough friction, when there is mismatch in forces in the two ends, the elongated member may slide and destabilize the user * Inventor's intent: "while providing enough friction so that there can be some mismatch in forces on the two ends 421 without the elongated member sliding through the anchor while a user is exercising" [19]	0.5	
(vii) Fixed position	**2.0**	**0.0**

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Mapping - One of: * Position of element 435a or 435 b defined by length 427a or 427b on Figure 4 or 5 * Position of element 435 defined by length 427 on Figure 6	0.5	
Purpose - Indicates that it is not possible to adjust the length between the mechanism for adjusting length and the handle or grip	0.5	
Essential element - The distance between the mechanism for adjusting the length and the grip must not vary for providing stability	0.5	
Inventor's intent, one of: * "The portion of elongated member 420 from each end to the nearest buckle has a fixed length--that is, each of the two portions from one of the pair of ends 421 to the corresponding one of the pair of buckles 435 has a fixed length." [19] * "Buckle 435 is attached to strap 427, and thus the length of each of end 421 is not adjustable." [20]	0.5	
(viii) Will not damage	**2.0**	**0.0**
Mapping - Property of the material of the anchor presented in paragraph [18]	0.5	
Purpose - Preserving the integrity of the structure in contact with the anchor	0.5	
Essential element - Material of the anchor must be softer/malleable when compared to the material of the structure	0.5	
Inventor's intent: "materials that are soft enough to prevent damage to a wood door or door frame" [18]	0.5	
(ix) At least one cam buckle	**3.0**	**0.0**
Mapping - Element 435 of Figure 6 Negative marking (-0.5) if candidate refers to element 1412 of Figure 7 as this element does not refer to the cam buckle for adjusting the length of the elongated member	0.5	
Purpose - For adjusting the length of the elongated member	0.5	
Essential element - The cam buckle must accept the strap	0.5	
Essential element - Must not allow movement of the strap inside the lengthening mechanism while the device is being used	0.5	
Reasoning - Support - inventor intent - material effect •One of: * If the cam buckle does not accept the strap, the length of the elongated member cannot be adjusted and the variety of exercises will be limited * Inventor's intent: "Buckle 435 slidably accepts and grips strap 429, allowing for adjustment of the length S" [20]	0.5	
Reasoning - Support - inventor intent - material effect - If the length of the elongated member increases or shortens during the exercise, it will destabilize the movement of the user	0.5	
Question A2	**19.0**	***0.0***
Claim 1	**7.0**	**0.0**
(1) Yes, D1 was designed to train athletes [1]	0.5	
(2) Yes, The belt B of D1	0.5	
(3) Yes, The belt B of D1 has two ends / handle sections T [2]	0.5	
(4) Yes, Once assembled, the belt B of D1 includes two clamps C [2] (**0.5 marks**) which can be used to lengthen or shorten its length [2] (**0.5 marks**)	1.0	
(5) Yes, The belt B of D1 forms a rectangular shape	0.5	
(6) Yes, Once assembled, D1 includes two handles H [2] (**0.5 marks**), one associated at each end of the belt (**0.5 marks**)	1.0	
(7) Yes, D1 includes a wall-fixation mechanism W having an exterior section [3] (**0.5 marks**) that can be mounted to a wall, a ceiling or a floor [4] (**0.5 marks**)	1.0	
(8) Yes, D1 includes a wall-fixation mechanism having an interior rod R [3] (**0.5 marks**) for positioning the middle section of the belt when the handles are pulled in an opposition direction [5] (**0.5 marks**)	1.0	
(9) Yes, The belt B of D1 is passed within the wall-fixation mechanism around the interior curved rod [6]	0.5	
Conclusion: Yes, D1 infringes claim 1	0.5	
Claim 2	**1.5**	**0.0**
(10) Yes, all the features of claim 1 are present in D1	0.5	
(11) No, to adjust the length of the belt, the position of the handle is changed with respect to the clamp [6]	0.5	
Conclusion: No, D1 does not infringe claim 2	0.5	
Claim 3	**1.5**	**0.0**
(12) Yes, all the features of claim 1 are present in D1	0.5	
(13) No, the wall-fixation mechanism W is securely affixed to a wall, a ceiling or a floor using glue, nails or screws [3] and [4]	0.5	
Conclusion: No, D1 does not infringe claim 3	0.5	
Claim 4	**1.5**	**0.0**
(14) Yes, all the features of claim 1 are present in D1	0.5	
(15) No, elements G1 and G2 of the wall-fixation mechanism W necessarily damage the surface of the structure	0.5	
Conclusion: No, D1 does not infringe claim 4	0.5	
Claim 5	**1.5**	**0.0**

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(16) Yes, all the features of claim 1 are present in D1	0.5	
(17) Yes, the handles H of D1 are intended to be used with the athlete's hand or feet [2]	0.5	
Conclusion: Yes, D1 infringes claim 5	0.5	
Claim 6	**3.0**	**0.0**
(18) Yes, when the claim depends from claim 1 because D1 infringes claim 1 (**0.5 marks**) No, when the claim depends from claim 2 because D1 does not infringe claim 2 (**0.5 marks**)	1.0	
(19) Yes, D1 includes a clamp C which functions as a cam buckle	0.5	
(20) Yes, Moving the clamp C along the belt will shorten or lengthen it [6]	0.5	
Conclusion: Claim 6 is infringed when it depends from claim 1 (**0.5 marks**) Claim 6 is not infringed when it depends from claim 2 (**0.5 marks**)	1.0	
Claim 7	**3.0**	**0.0**
(21) Yes, when the claim depends from claim 1 because D1 infringes claim 1 (**0.5 marks**) No, when the claim depends from claim 2 because D1 does not infringe claim 2 (**0.5 marks**)	1.0	
(22) Yes, once D1 is installed, the wall-fixation mechanism of D1 exerts a force on the belt	0.5	
(23) Yes, The internal rod R of the wall-fixation mechanism includes grooves preventing slippage of the belt during use [3]	0.5	
Conclusion: Claim 7 is infringed when it depends from claim 1 (**0.5 marks**) Claim 7 is not infringed when it depends from claim 2 (**0.5 marks**)	1.0	
Question A3	**10.5**	**0.0**
Question A3 (i)	**2.5**	**0.0**
No	0.5	
Without assembly there can be no purpose in a purchaser buying the unassembled parts	0.5	
Windsurfing International Inc. v. Trilantic Corp. (1985), 8 C.P.R. (3d)	0.5	
XRT systems provides the suspension trainer in two distinct systems: the XR Suspension Trainer and the XR fixator	0.5	
There is no other purpose for Muscle Buff buying the unassembled parts than to make and assemble the XR Suspension Trainer with the XR fixator	0.5	
Question A3 (ii)	**2.0**	**0.0**
Test for direct infringement: The Patent Act grants to the patentee and the patentee's legal representatives for the term of the patent, from the granting of the patent, the exclusive right, privilege and liberty of making, constructing and using the invention and selling it to others to be used	0.5	
Application of the test - Who performs the act of direct infringement? One of: * Handy People * Clients of Muscle Buff (gym owners) * Clients of the clients of Muscle Buff (athletes)	0.5	
Application of the test - How is the act of direct infringement performed? At least one of (in line with the previous entity identified as performing the act of direct infringement: (0.5 marks) * Handy People make (assemble) the XR Suspension Trainer and the XR fixator * Clients of Muscle Buff (gym owners) use the assembled XR Suspension Trainer and the XR fixator * Clients of the clients of Muscle Buff (athletes) use the assembled XR Suspension Trainer and the XR fixator	0.5	
Legal authority: Section 42 of the Patent Act	0.5	
Question A3 (iii)	**2.0**	**0.0**
Test for induced infringement (1) Act of direct infringement **(0.5 mar**ks) (2) Completion of the act of infringement was influenced by the acts of the seller **(0.5 mar**ks) (3) The seller knew his influence would result in completion of the act of infringement **(0.5 marks**)	1.5	
Legal authority One of: * MacLennan v. Les Produits Gilbert, 2008 FCA 35 * AB Hassle v. Canada (Minister of National Health and Welfare) (2001), 16 C.P.R. (4th) 21 (F.C.T.D.) * Dableh v. Ontario Hydro, [1996] 3 FCR 751 * Windsurfing International Inc. v. Trilantic Corp. (1985), 8 C.P.R. (3d) * Slater Steel Industries Ltd. v. R. Payer Co. (1968), 55 C.P.R. 61 (Exch. Ct.)	0.5	
Question A3 (iv)	**2.0**	**0.0**
(1) Act of direct infringement performed by one of: * Handy People make the suspension trainer * Clients of Muscle Buff's or clients of clients of Muscle Buff use the trainer	0.5	
(2) XRT Systems does not control the infringement as it does not provide the XR Fixator	0.5	
(3) XRT Systems was not made aware of the '896 during the due diligence process	0.5	
Conclusion: XRT Sytems does not induce the infringement of the '896 Patent	0.5	

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Question A3 (v)	**2.0**	**0.0**
(1) Act of direct infringement by one of: * Handy People make the suspension trainer * Clients of Muscle Buff's or clients of clients of Muscle Buff use the trainer	0.5	
(2) Muscle Buff controlled, via the Handy People company, how the XR Suspension Trainer and XR fixator are installed at their client's premises	0.5	
(3) Muscle Buff was made aware of the 896 Patent prior to its grant during the due diligence process	0.5	
Conclusion: Muscle Buff does induce the infringement of the '896 Patent.	0.5	
Question A4	**19.5**	**0.0**
A4 (i)	**6.5**	**0.0**
Defense: Prior user's rights	0.5	
Legal Authority: Paragraph 56(1) of the Patent Act	0.5	
(6) Subject to subsection (7), the use of an article is not an infringement of a patent or any certificate of supplementary protection that sets out the patent, in respect of a claim, if the article was acquired, directly or indirectly (0.5 marks), from a person who, before the claim date of that claim (0.5 marks), in good faith, made or sold, or made serious and effective preparations to make or sell, an article that is substantially the same as the one used, for that use.	1.0	
XRT systems has constructed (prototyped) the RT system	0.5	
The RT system corresponds, according to HWFB, to the subject matter defined by the claims of the '896 Patent in 2004, prior to the claim date (2005/06/23) of the '896 Patent	0.5	
XRT systems has the right to continue to use these RT Suspension Trainers.	0.5	
Limitations: One of: * Not possible to make, use or sell new prototypes/trainers made after the claim date * Only possible to repair the old ones	0.5	
Defense: Experimental use	0.5	
Legal Authority: Paragraph 55.2(1) of the Patent Act	0.5	
It is not an infringement of a patent for any person to make, construct, use or sell the patented invention solely for uses reasonably related to the development and submission of information required under any law of Canada, a province or a country other than Canada that regulates the manufacture, construction, use or sale of any product.	0.5	
XRT systems is only using the RT Suspension Trainer to gather information to make a submission to Health Canada	0.5	
XRT systems cannot be considered to infringe the 896 Patent	0.5	
A4 (ii) (a)	**7.0**	**0.0**
(1) Yes, D3 is a system that can be used in the rehabilitation of patients	0.5	
(2) The patient's band is an elongated member	0.5	
(3) Yes, The patient's band of D3 has two extremities	0.5	
(4) No, The distance between the two extremities of the patient's band cannot be adjusted (**1 mark**)	1.0	
(5) Yes One of (**0.5 marks**): - The patients's band is rectangular - The RT Strong® textile has a uniform height of 2.7	0.5	
(6) Yes, D3 includes a pair of handles (**0.5 marks**) at both ends of the patient's band (**0.5 marks**)	1.0	
(7) Yes, D3 includes a hook (**0.5 marks**) that can be used to position the system on a wall, a ceiling or a bed post (**0.5 marks**)	1.0	
(8) Yes, The supporting band of D3 includes a ring (**0.5 marks**). The supporting band provides sustenance for the patient's band in the middle of the patient's band when the handles are pulled in an opposite direction (**0.5 marks**)	1.0	
(9) Yes, Once assembled, the middle section of patient's band of D3 is placed within the ring	0.5	
Conclusion: No, The RT system does not infringe claim 1	0.5	
A4 (ii) (b)	**5.0**	**0.0**
(a) Does the "mechanism for adjusting said length" have a material effect upon the way the invention works? (**0.5 marks**) •If YES, the variant is outside of the claim (**0.5 marks**) •If NO, go to (b)	1.0	
(b) Would the variant having no material effect have been obvious at the date of publication of the patent to a reader skilled in the art? (**0.5 marks**) •If NO, the variant is outside of the claims (**0.5 marks**) •If YES, go to (c)	1.0	
(c) Would the reader skilled in the art have understood from the language of the claims that the patentee intended that strict compliance with the primary meaning was an essential requirement of the invention? (**0.5 marks**) •If YES, the variant is outside of the claims (**0.5 marks**)	1.0	
The legal authority is at least one of: •Improver v. Remington (1990) F.S.R. 181 •Free World Trust v. Électro Santé 2000 SCC 66 •Whirlpool v. Camco 2000 SCC 67	0.5	

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As indicated in the claim construction section above, the lengthening mechanism must be located on the same piece of material between the first and thsecond grip	0.5	
This feature is essential	0.5	
This feature is missing from the RT system which provides a mechanism for adjusting the length on a separate piece of material (a supporting band) instead of the patient's band	0.5	
A4 (ii) (c)	**1.0**	**0.0**
Because an essential feature of the '896 Patent is missing from the RT system, the 896 Patent is not infringed	0.5	
A recommendation to Muscle Buff to use this new system instead of the XR system should be made	0.5	
Total Part A / Total Partie A	**77.5**	**0.0**

Part B	**Max**	**Mark**
Question B1	**7.0**	**0.0**
(i) False – For patents granted in 2018, the maximum term for a claim in a patent can be 22 years (20 years + years of certificate of supplemental protection).	1.0	
(ii) False – Gillette defense only applies to prior public uses.	1.0	
(iii) False – Apotex v. Lilly 2018 FC 217 or Apotex v. Merck 2015 FCA 171	1.0	
(iv) False – Obtaining a patent for an improvement does not negate the right of the third party to enforce it patent (Section 32 or 42 of the Patent Act).	1.0	
(v) False – the fact that the subject matter of the claims is illegal is irrelevant to enforceability.	1.0	
(vi) False – depending on the fact, recycling can be interpreted as remanufacture which would be considered a infringing act or Rucker Co v Gavel's Vulcanizing Ltd (1985), 7 CPR (3d) 294.	1.0	
(vii) False – The Patentee has the burden of proving infringement	1.0	
Question B2	**9.0**	**0.0**
Question B2 (i)	**1.0**	**0.0**
Accounting of profits (on the net profits of the infringer) only apply for periods occurring after the grant of the patent	0.5	
The 2008 competition falls outside the 6-year limitation period	0.5	
Question B2 (ii)	**4.0**	**0.0**
Year - Subject to an award?- Reasoning		
2010- No - Outside the limitation period	0.5	
2012- No - Outside the limitation period	1.0	
2014 - Yes - Inside the limitation period patent is in force	1.0	
2016 - Yes - Inside the limitation period patent is in force	1.0	
2018- No- Patent expired	0.5	
Question B2 (iii)	**1.5**	**0.0**
Post-expiry springboard damages	0.5	
The patentee would have to show that the infringing activity provided the infringer with a springboard into the market, giving it an advantage that resulted in benefitting from the infringement after expiry of the patent	0.5	
Dow Chemicals vs. Nova chemicals 2017 FC 350	0.5	
Question B2 (iv)	**2.5**	**0.0**
(1) September 3, 2012 (**0.5 marks**) to March 23, 2016 (**0.5 marks**)	1.0	
(2) Section 55(2) of the *Patent Act*	0.5	
(3) The granted claims must have a substantively similar scope to those at publication	0.5	
(4) Yes because the claims that were published were the same as those that were granted.	0.5	
Question B3	**6.5**	**0.0**
(i) Liable	0.5	
(i) for manufacture and on export to Europe	0.5	
(i) since it is *assembling* the figurine with the parachute in Canada	0.5	
(i) Section 42 of the *Patent Act*	0.5	
(ii) No liability	0.5	
(ii) ParaToys Co. are manufacturing parachutes for The Great Canadian Toy Co. to import into Canada	0.5	
(ii) There is no infringement until the parachutes are assembled on the toys.	0.5	
(ii) Windsurfing International Inc. v. Trilantic Corp. (1985), 8 C.P.R. (3d)	0.5	
(iii) Repair (**0.5 marks**) done by the user does not result in infringement of a Canadian Patent. (**0.5 marks**)	1.0	
(iv) Yes	0.5	
(iv) Remanufacture does result in infringement of a Canadian Patent.	0.5	
(iv) Rucker Co v Gavel's Vulcanizing Ltd (1985), 7 CPR (3d) 294	0.5	
Total Part B	**22.5**	**0.0**

Paper D / ÉPREUVE D -- 2017
MARKING SHEET / FICHE DE POINTAGE

TOTAL PART A + PART B	**100.0**	**0.0**