# PATENT AGENT EXAMINATION

# PAPER A

# 2018

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 a meeting transcript. 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 meeting transcript. 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 client's description, drawings, and the known prior art, taking into account what the inventor tells you are his/her observations, 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;
- The order of sections of the patent application is not important for Exam purposes.

<u>Claims</u>

You are required to submit a first independent claim of the apparatus type (30 marks), six dependent apparatus claims (12 marks, 2 marks each), a second independent claim of the method type (12 marks) and three dependent method claims (6 marks, 2 marks 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.**

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

| **Apparatus claims** | | **Method claims** | |
|---|---|---|---|
| Claim 1 - independent | 30 | Claim 8 - independent | 12 |
| Claim 2 - dependent | 2 | Claim 9 - dependent | 2 |
| Claim 3 - dependent | 2 | Claim 10 - dependent | 2 |
| Claim 4 - dependent | 2 | Claim 11 - dependent | 2 |
| Claim 5 - dependent | 2 | | |
| Claim 6 - dependent | 2 | | |
| Claim 7 - dependent | 2 | | |
| | | **Subtotal** | **60** |
| **Disclosure** | | | |
| Abstract | 1 | Summary of the Invention | 4 |
| Title | 1 | Brief Description of the Drawings | 2 |
| Field of the Invention | 2 | Description of the Embodiments (marks are allotted for proper reference to the drawings) | 20 |
| Background of the Invention | 10 | | |
| | | **Subtotal** | **40** |
| | | **TOTAL** | **100** |

The following is a transcript of an interview between you and an inventor. Following the interview, the inventor instructs you to prepare and file a patent application in Canada, for the invention discussed during the interview.

## Transcript of the Interview

**You:** I understand you have a new invention that you would like to patent. Please tell me about it.

**Inventor:** I have recently invented a new hand exerciser as well as a simple method for manufacturing it.

Hand exercisers are fairly common items. You may have heard of them casually referred to as "stress balls" since they can be used to reduce anxiety in stressful situations, such as during exams.

The reason I am familiar with hand exercisers is that I injured my left hand a few years ago during a cycling accident. Part of my physiotherapy involved using a hand exerciser to build back my hand strength. I used many types of hand exercisers during my rehabilitation and found that a lot of them had noticeable problems. This is what led me to invent my new hand exerciser: I wanted to provide a better tool for other people with hand injuries.

From experience, I've found that a good hand exerciser must have good resiliency so that when it is squeezed it returns to its original shape quite quickly. I'm really proud to say that my new hand exerciser achieves this goal.

**You:** Can you tell me a bit more about the problems you noticed with existing hand exercisers?

**Inventor:** Sure. Existing hand exercisers generally have some sort of granular material contained within a rubber balloon. The granular material, which is often sand or seeds, contains granules with flat or sharp edges. Over time, these sharp

edges abrade the interior surface of the rubber balloon, which can ultimately break the exerciser.

The other problem with these sharp particles is that they don't move smoothly against each other. This means that they give an unpleasant "crunching" feel when you squeeze the exerciser and they don't move back to their original shape quickly enough, which means that the user has to wait longer until he or she can squeeze the exerciser again.

**You:** Now tell me about your hand exerciser and what makes it an improvement over what already exists?

**Inventor:** I've brought some drawings with me and so let me show you what I'm talking about. As you can see, my hand exerciser is designed to fit comfortably within a user's hand. I've made it egg-shaped with a diameter of about 5 to 6 cm and a length of about 6.5-7 cm. But obviously it could be spherical in shape as well.

My hand exerciser has two bladders instead of just one. I've put a resilient inner bladder inside a resilient outer bladder to make the hand exerciser more durable. Both bladders are made of a resilient rubber material. The bladders have to be made of a resilient material otherwise the hand exerciser would not return to its original shape after being squeezed.

I've put a volume of particulate material inside the inner bladder and I've found that tiny glass spheres with nice, smooth edges work really well. They don't abrade the rubber bladders and they move smoothly in relation to each other so that the hand exerciser is able to return to its original shape quickly.

I've also included a layer of powder between the inner and outer bladders to reduce the chances of the two bladders sticking together. Again, this helps to make sure that the hand exerciser is easy to squeeze and able to resume its original shape quickly.

I've used a metal crimp to close the openings in the two bladders and it's this metal crimp that closes the whole thing shut.

**You:** I think I understand, but tell me a bit more about the tiny glass spheres?

**Inventor:** As I've mentioned, the tiny glass spheres don't have sharp edges and so they move smoothly in relation to each other. This allows me to avoid having to mix the spheres with any liquid or powder to lubricate their movement. The fact that the glass spheres are able to move smoothly within the bladders also avoids that unpleasant "crunching" feeling I was talking about.

If you want more specifics, the glass spheres that I use have a density of about 2.5 g/cm$^3$ and a diameter of between 0.1-0.2 mm. This gives them the consistency of a fine dust within the bladders. I generally put about 160 g of the glass spheres into each hand exerciser. In terms of the type of glass, I use a soda-lime glass, but glass oxide or any other type of glass could also be used.

**You:** Could a different material be used?

**Inventor:** My preference is to use glass spheres because that is what I have found to work best during my tests, but in theory, yes, any particulate material could be used.

**You:** Tell me a bit more about the layer of powder you were talking about?

**Inventor:** Sure. I have included a layer of talc between the two bladders to help reduce the likelihood of the two bladders sticking together. By reducing sticking between the two bladders, the layer of talc facilitates both a smooth squeezing of the hand exerciser and a quick return to its original position, both of which are improvements over existing hand exercisers.

The layer of talc could be quite thin and might only have a thickness of between about 0.1-0.5 mm. The friction coefficient of dry talc is about $\mu = 0.24–0.36$, which greatly reduces the chances of the two bladders sticking together and improves the ability of the two bladders to slide relative to each other.

I've also been thinking about making the talc scented or perfumed so that I could market the hand exerciser as providing aromatherapy in addition to exercise.

**You:** Anything else?

**Inventor:** Yes, as I've already mentioned, I also came up with a neat way of manufacturing the exerciser. Basically, you put one bladder inside the other and you fill the inner bladder with the particulate material.

The thin layer of powder is also put between the two bladders. This can be done by coating the internal surface of the outer bladder and the external surface of the inner bladder with the powder before assembly, such that when these two surfaces come into contact with each other, the two coatings come together to form the layer of powder. Talc is the best powder I've found for this purpose as it does not degrade over the life of the hand exerciser.

Coating the surfaces of the bladders with powder before putting the two bladders together is one way of achieving the layer of powder. However, you can also insert the layer of powder between the bladders after the inner bladder is positioned inside the outer bladder. You can do this by injecting the powder between the two bladders for example.

I have found that it is easier to make the hand exerciser if the inner bladder is filled with the particulate material after the inner bladder is placed inside the outer bladder.

**You:** And how do you get the inner bladder inside the outer bladder?

**Inventor:** Both the inner bladder and the outer bladder have a neck portion with an opening and a body portion. To put the inner bladder inside the outer bladder, the neck portion of the inner bladder is installed on the end of a funnel. The resiliency of the rubber of the inner bladder makes sure that it stays in place on the funnel. Just refer to the attached sketches to better understand what I'm explaining.

The funnel will later be used to pour the particulate material inside the body portion of the inner bladder. Before doing that however, a rod is slid into the funnel and the inner resilient bladder to stretch the inner bladder lengthwise. The inner bladder is stretched until its width is less than a width of the opening of the neck of the outer bladder. The inner bladder can then be easily slid into the outer bladder until their neck portions are aligned. Alternatively, the outer bladder could be stretched over

the inner bladder until the neck portion of the outer bladder surrounds the neck portion of the inner bladder.

Once the inner bladder is in the outer bladder, the rod can be removed. The particulate material can then be poured into the inner bladder through the funnel.

**You:** Could you fill the inner bladder before putting it in the outer bladder?

**Inventor:** Yes, but as you can imagine, it makes putting the inner bladder inside the outer bladder more difficult.

After the inner bladder is filled up, the funnel is removed and the neck portions are closed.

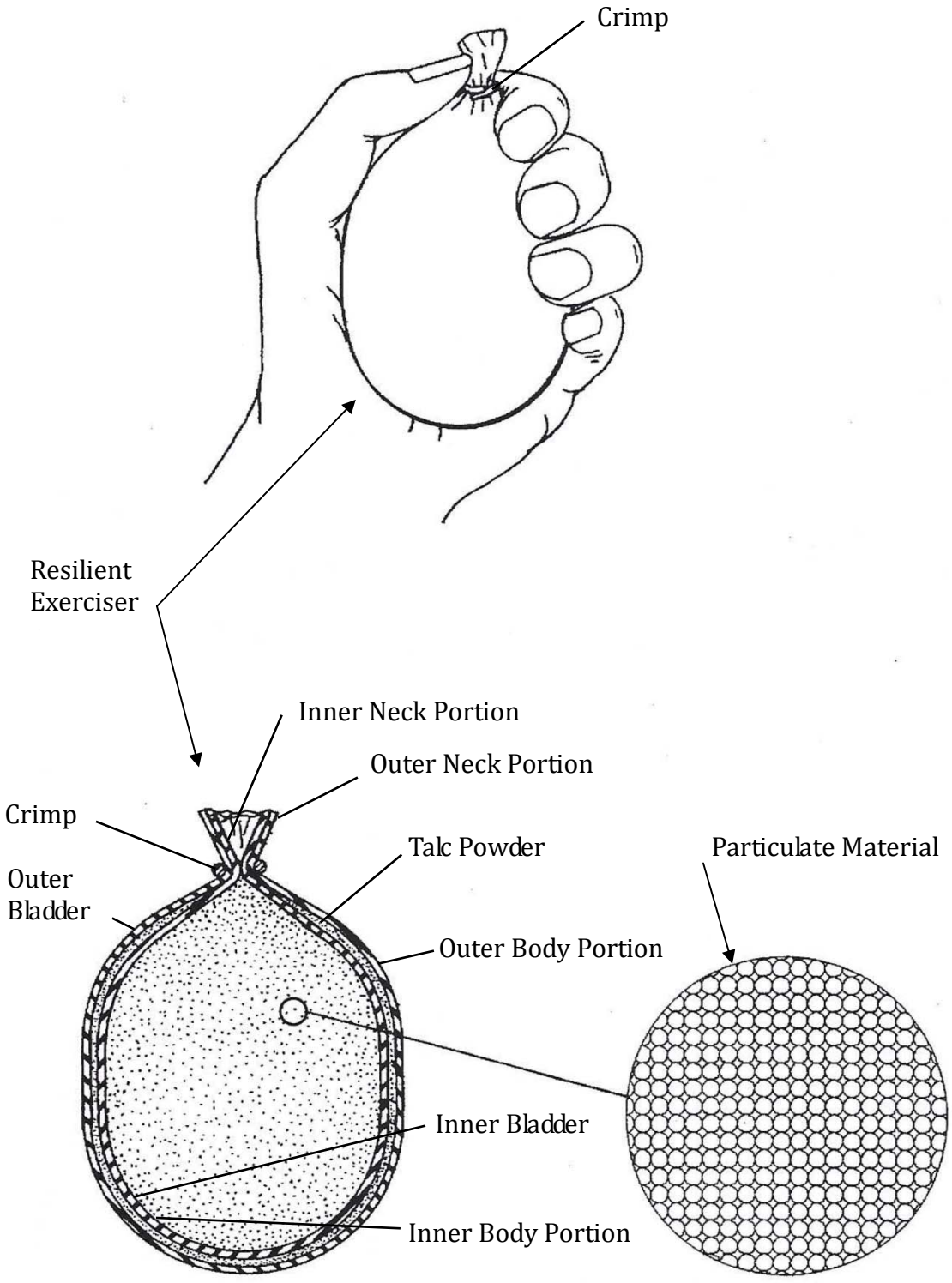
**You:** This is when you install the crimp?

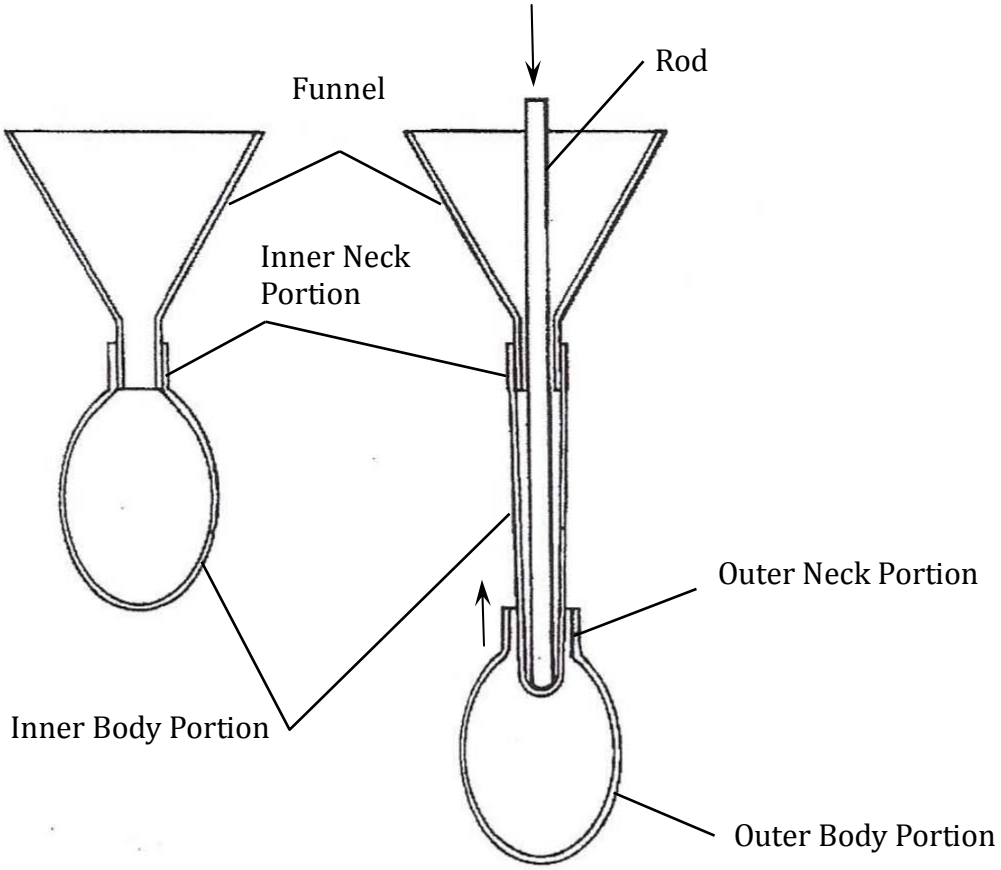
**Inventor:** Yes. The crimp I use is a wire staple that is crimped around the two neck portions without perforating them. It's like a sausage staple on a sausage casing. It is a fairly simple way of closing the bladders and provides a solid, child-proof seal.

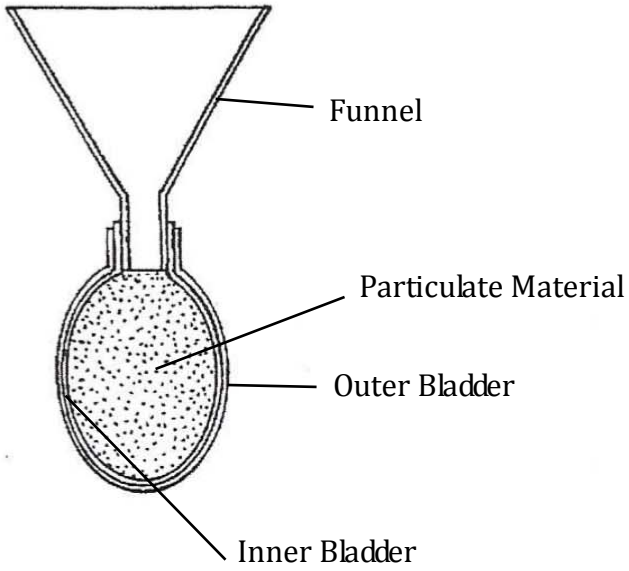
But, as you probably realize, the closure of the two bladders could be done in many different ways. For example, by using different attaching elements such as a tie-wrap, or a string, or by tying a knot with the neck portions. You could also simply misalign the openings of the two bladders, or even cauterize the openings. The way my hand exerciser is closed is not particularly important.

That's it!

Oh no! I forgot to tell you about a quick search I performed on my own. Here are copies of portions of two patents I found.


Crimp
Resilient
Exerciser
Inner Neck Portion
Outer Neck Portion
Crimp
Talc Powder
Particulate Material
Outer
Bladder
Outer Body Portion
Inner Bladder
Inner Body Portion


Rod
Funnel
Inner Neck Portion
Outer Neck Portion
Inner Body Portion
Outer Body Portion


Funnel
Particulate Material
Outer Bladder
Inner Bladder

**United States Patent** [19]
**Richardson**

[11] **Patent Number: 4,YYY,YYY**
[45] **Date of Patent: June 15, 1978**

[54] **DEFORMABLE TOY**

[75] Inventor: **Karen RICHARDSON**
Chicago, IL

[73] Assignee: **Toys and Gadgets Co.,**
Boston, MA

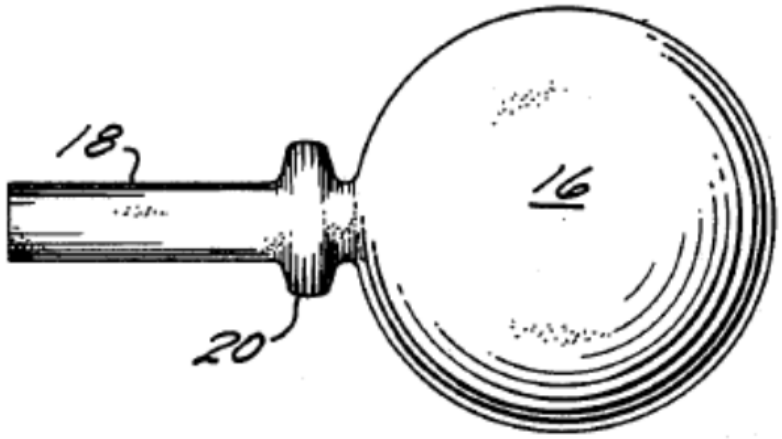
[21] Appl. No.: **06/ABC,DEF**

[22] Filed: **June. 20, 1976**

*Primary Examiner* - Douglas, R.
*Attorney, Agent or Firm* – Wiley & Dice LLP

[57] **ABSTRACT**

A toy including a flexible bladder in any desired shape having a sealable filling stem for receiving a moldable filling medium such as a cohesive volume of particles, wherein after being filled with the filling medium, the filling stem is sealed and pushed into the flexible bladder.



# U.S. Patent No. 4,YYY,YYY


FIG. 1

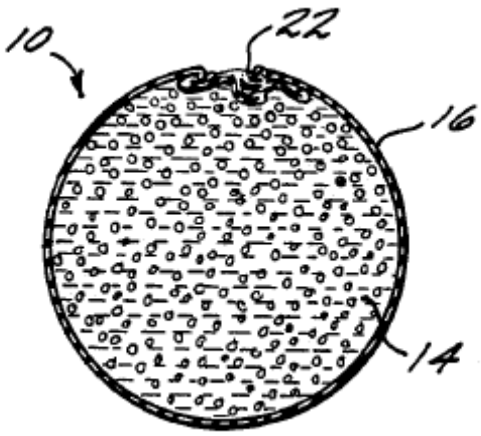



FIG. 2

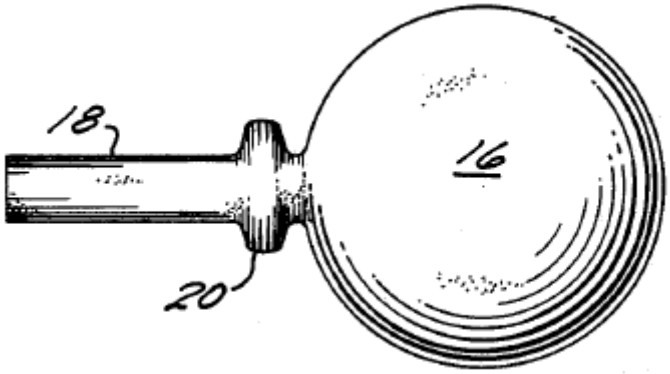



FIG. 3

# DEFORMABLE TOY

## FIELD OF THE INVENTION

This invention generally relates to a novelty toy. More particularly, it relates to a deformable toy in any variety of shapes such as a ball, doll, etc.

## BACKGROUND OF THE INVENTION

Toys such as balls, dolls, and the like are generally form stable. That is, once a toy is designed in a particular shape, it essentially retains said shape throughout its useful life. While there are deformable toys such as bean bags and clay-filled balls, bean bags do not retain a deformed state and clay-filled balls tend to harden over time and provide a relatively dense product which can cause injury to a user.

## DESCRIPTION OF THE DRAWINGS

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

FIG. 1 is a top plan view of the toy of the present invention;

FIG. 2 is a section view taken along lines 2-2 of FIG. 1; and

FIG. 3 is a plan view of a bladder used to make the toy shown in FIG. 1.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

A deformable toy is presented wherein a flexible bladder in any desired shape is provided with a sealable filling means for receiving a light-weight moldable filling medium comprising particles, which in some cases can be mixed with a compatible liquid such as water. When the flexible bladder is substantially filled with the moldable filling medium and the filling stem is sealed and tucked away within the bladder, a unique ball-like product is produced which has unique tactile capabilities, i.e. is light, can be thrown or hit very hard and can be caught with bare hands with little or no discomfort.

Referring to FIGS. 1-3, a novelty toy in the shape of a ball is shown generally at 10. The toy 10 is comprised of two major parts, a flexible bladder 16 and a moldable filling medium 14.

As best seen in FIG. 3, the bladder 16 is a sphere-shaped hollow pouch or balloon having an elongated filling stem 18 extending outwardly and in fluid communication with the hollow inside of the bladder 16. The filling stem 18 is further provided with a relief portion 20 disposed adjacent the outer surface of the bladder 16.

The bladder 16 may be formed from a variety of rubber-like materials such as synthetic rubber or plastic. It may be fabricated through the use of standard balloon manufacturing processes such as dipping a mandrel in a selected rubber. While a typical skin thickness is approximately 0.03 inch, said thickness may vary according to the ultimate use of the toy.

The filling medium 14 is a cohesive moldable volume of particles. In some aspects, a compatible liquid is also provided to get the medium 14 to an acceptable density. Said liquid may include water, mineral oils, glycols, etc. It should be noted, however, that the liquid is not required for the invention to work, and in some aspects, the filling medium 14 contains no liquid at all. Said particles can be hollow or solid and are generally irregular in shape. For example, the particles can have rough surfaces and edges or can be a mixture of several irregularly-shaped or imperfect particles. The shape of the particles can allow each individual particle to get caught on adjacent particles when disrupted, allowing the particles to stick together somewhat and retain their positions relative to one another after movement. In other aspects, some liquid could be added to achieve further cohesivity between the particles. The particles can have average diameters of from about 0.0001 inch to about 0.06 inch and a density from about 4.0 $lbs/ft^3$. to about 10 $lbs/ft^3$. The particles could be smaller or larger in some cases, and in some cases could appear on a macro level to be a fine dust. The particles may be produced from a variety of materials such as synthetic plastics, glass, etc. This material can be selected to allow for a sticky cohesiveness between particles wherein the particles are inherently attracted to one another.

The filling medium 14 is used to substantially fill the bladder 16. The resulting toy 10 is a substantially filled ball having a diameter of approximately 2 in. and will have a mass significant enough to permit the toy 10 to be thrown with significant speed; however, due to its lightness and deformability, the toy 10 will not damage solid objects or injure one's hand as deformation of the toy 10 absorbs much of the force exerted upon it.

From the above and with reference to FIG. 3, it is understood that the filling medium 14 for the bladder 16 is deposited therein through stem 18. When the stem 18 is sealed, such as by gluing the same, the stem 18 is rolled down upon itself to the relief portion 20. When this has been accomplished, the stem 18 is then pushed into the relief 20 and the relief 20 with stem 18 rolled up therein is pushed into the interior of the bladder 16. This action creates the appearance of a navel 22, as shown in FIG. 1.

While the embodiment shown herein is a ball-shaped toy 10, in alternative embodiments, the bladder and resulting toy could be other shapes, such as a doll-like figure.

**United States Patent** [19]
**Deeley**

[11] **Patent Number: 7,XXX,XXX**
[45] **Date of Patent: July 8, 1998**

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[54] **RESILIENT HAND EXERCISER**

[75] Inventor: **Martin DEELEY**
Denver, CO

[73] Assignee: **Exercise Co.,**
Detroit, MI

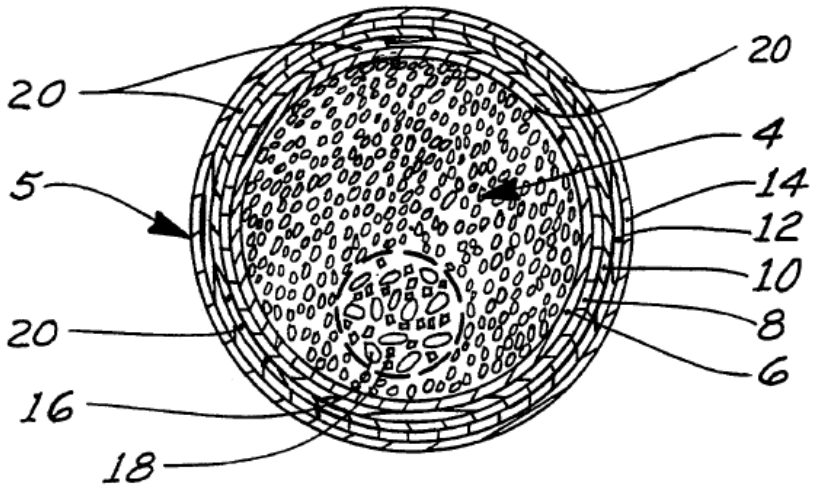
[21] Appl. No.: **08/ABC,DEF**

[22] Filed: **Mar. 20, 1994**

*Primary Examiner* - Levitt, R.
*Attorney, Agent or Firm* - AAA LLP

[57] **ABSTRACT**

The invention is a hand exerciser that has a particulate core surrounded by a resilient rubber covering. Within the core there is a dry lubricant that lubricates the particles and allows the particles to move over each other easily and without damage. The outer covering may consist of a single thick rubber layer, a thin rubber layer surrounded by a thick rubber layer or a number of thin rubber layers. The resiliency of the rubber covering enables a user to move the hand exerciser within the hand and elastically deform it repeatedly to thereby temporarily change its shape, while allowing the hand exerciser to re-assume its original shape each time.



**U.S. Patent No. 7,XXX,XXX**

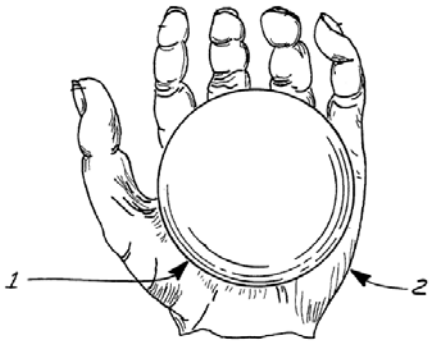



*FIG. 1*

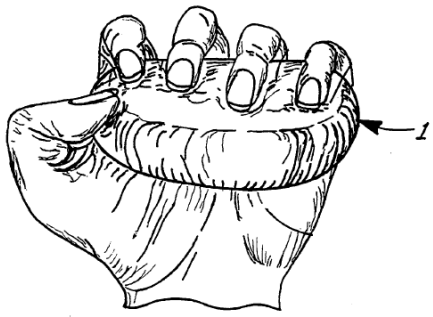



*FIG. 2*

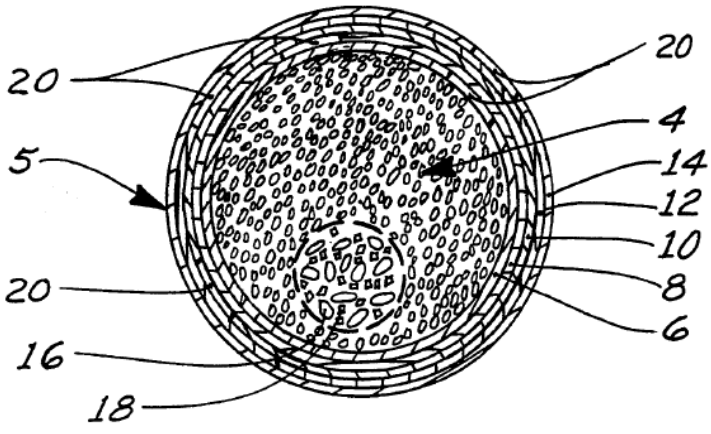



*FIG. 3*

# RESILIENT HAND EXERCISER

## FIELD OF THE INVENTION

The invention is in the field of exercising equipment. More particularly, the invention is a hand exerciser designed to be squeezed by a user's hand to thereby improve the strength of the user's hand, wrist and forearm.

## BACKGROUND OF THE INVENTION

In the exercise field, there are numerous devices designed to help a user improve his or her grip strength and the muscles of the wrist and forearm. These devices fit within a user's hand and are squeezed by the user. These exercise devices normally include a rigid, elongated base and a plurality of spacedly attached springs that are individually connected to the fingers of one of the user's hands. The user places his or her hand onto the device and uses his or her fingertips to stretch the springs or elastic bands. When the user stops applying force, the springs or elastic bands return to their original length.

## DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the invention being held in a user's hand;

FIG. 2 is a perspective view of the invention shown in FIG. 1 being squeezed by the hand; and

FIG. 3 is a cross-sectional view of the invention shown in FIG. 1 and also shows a magnified view of a portion of the core.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

The invention is a hand exerciser that a user holds within one hand. The user applies pressure to the hand exerciser with his or her fingers to compress the hand exerciser between their palm and fingers, and to thereby temporarily deform the hand exerciser's shape. The hand exerciser has a structure that makes it resilient, in that when the user stops applying pressure to the hand exerciser, it returns to the shape it had prior to the deformation.

Referring now to FIGS. 1 and 2, there is shown a hand exerciser 1 being held by a user's hand 2. The hand exerciser 1 is sized to comfortably fit a user's palm.

FIG. 3 provides a cross-sectional view of the hand exerciser 1 in which the interior of the hand exerciser 1 is detailed. As can be seen, the hand exerciser 1 includes a core 4 that is surrounded by a resilient rubber covering 5 comprised of a plurality of rubber layers 6, 8, 10, 12 and 14. In some aspects, fewer or more layers can be used, such as one layer or two or more layers.

The core 4 of the hand exerciser 1 is formed from a dense packing of loose particles 16. In practice, seeds such as millet have been used as the particles 16. As an alternative, the particles 16 can be hard plastic or glass beads or any other matter that is similar in size and shape to millet and that is hard enough to withstand the compressive pressures experienced when the hand exerciser 1 is being squeezed by a user. The particles 16 can have rounded edges and in some cases can be spherical to reduce the potential for damage to the particles 16 as the particles 16 are squeezed together. This can also reduce the potential for the particles 16 to puncture the covering 5 as the hand exerciser 1 is squeezed and the covering 5 is stretched by a bulging of the particles 16. Mixed in with the particles 16 is a powdery dry lubricant 18 such as talc. This combination of materials can allow the particles 16 to slide over each other without damage or excessive amounts of friction and helps to reduce the internal resistance to sliding movement within the core 4.

Each of the rubber layers 6, 8, 10, 12 and 14 are very thin and are sized and shaped to fit in a user’s hand 2. As the core 4 is inserted into the rubber layers 6, 8, 10, 12 and 14, the rubber layers 6, 8, 10, 12 and 14 stretch, but due to the inherent resiliency of the rubber material, tend to maintain the shape they had when in an unstretched condition. To allow for the insertion of the core, each rubber layer 6, 8, 10, 12 and 14 includes a single hole 20. The exterior surface of the covering 5 may be textured to facilitate the

grasping of the hand exerciser 1 and to improve user comfort.

To construct the hand exerciser 1, the particles 16 and lubricant 18 that make up the core 4 can be inserted through hole 20 of the first rubber layer 6. The entering material stretches the rubber layer 6 in a manner similar to when water is forced into a balloon to make a water balloon. Sufficient material is inserted to create a tightly-packed core that has a diameter of approximately two and one-half inches. Once the first rubber layer has been filled, the single wrapped (by layer 6) core can then be inserted through hole 20 of the second layer 8 thereby causing it to stretch to a similar diameter. During the latter insertion process, the hole 20 in the layer 6 is located so that it is spaced approximately ninety to one-hundred-eighty degrees apart from the hole 20 in the encircling layer 8. This procedure is then repeated with the remaining layers for the remaining three layers 10, 12, and 14 until the hand exerciser's core 4 is enveloped by five layers of the rubber material.

In an alternate mode of manufacture, the layers 6, 8, 10, 12, and 14 can initially be nested one inside another with their respective holes 20 aligning to form an opening into the inner layer 6. The inner layer 6 can then be filled with the particles 16 and lubricant 18 to form the core 4. Subsequently, the outer layers 8, 10, 12, and 14 can be pulled around the core 4 in varying directions so that the respective holes 20 of each layer 6, 8, 10, 12, and 14 do not overlap.

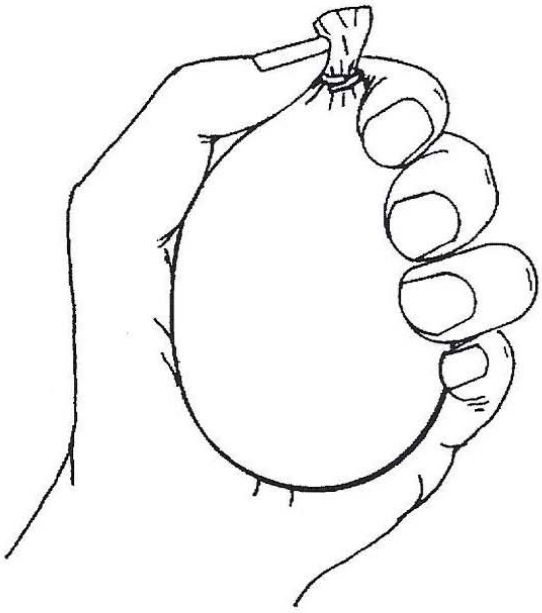
Once assembled, glue is placed around the perimeter of hole 20 of layer 14 to fix the rubber surrounding the hole 20 to the underlying layer 12. It should be noted that in receiving the core 4, each succeeding rubber layer 6, 8, 10, 12, and 14 is stretched, thereby causing a constant inward force to be exerted on the core 4 by the rubber layers 6, 8, 10, 12, and 14.

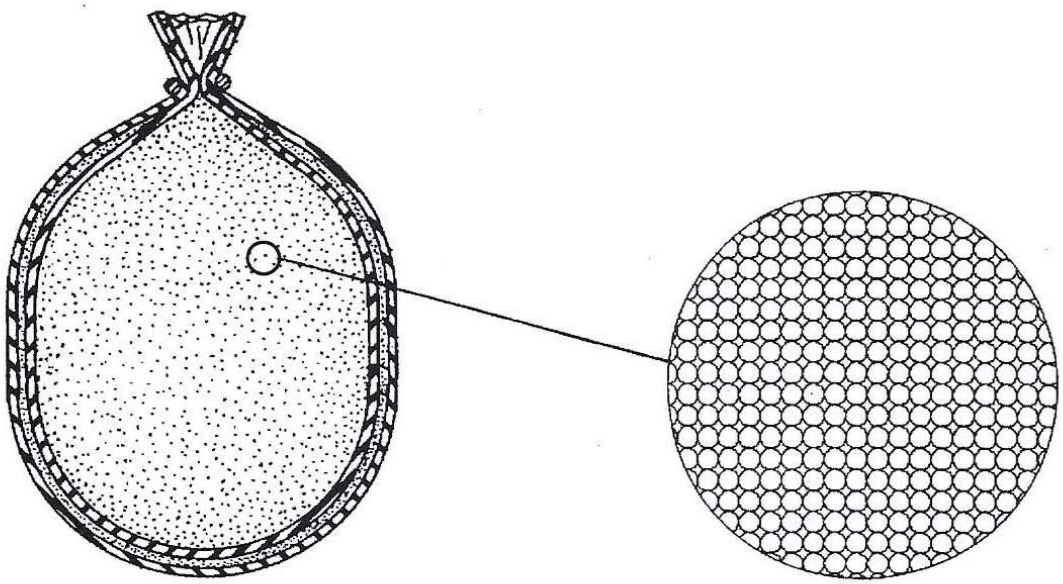
In a further alternate mode of manufacture, the core material 4 is first placed within a rubber sack similar to layer 6. The enveloped core 4 is then dipped into molten rubber to thereby form an outer resilient layer that does not have an opening 20. In another alternate mode of manufacture, the core 4 can be received within a single, thick resilient rubber covering that is then plugged to prevent the escape of the core material 4.

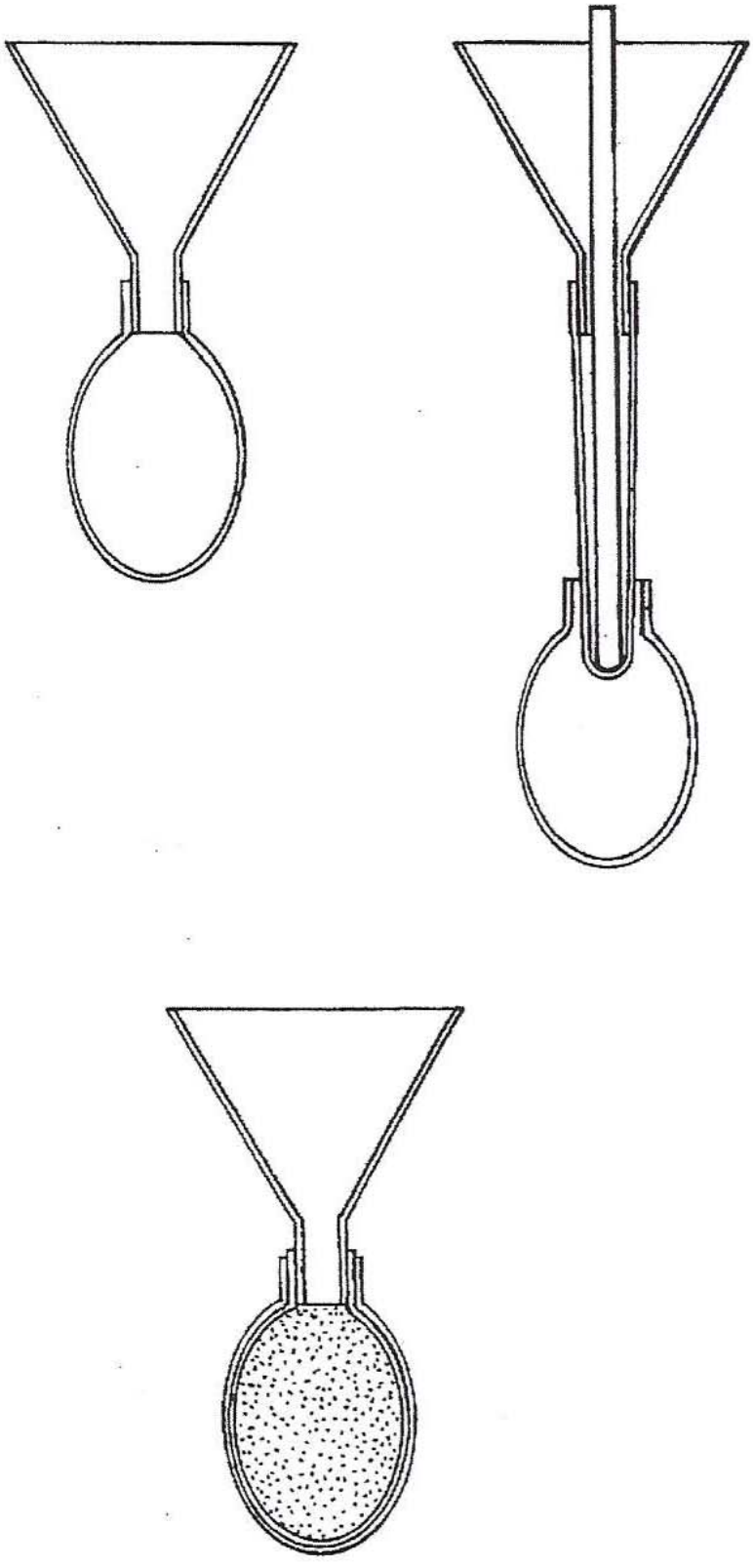
The combination of a resilient covering 5 and a non-resilient core 4 provides for unique characteristics and capabilities not found in the prior art. When the hand exerciser 1 is initially deformed by a user's hand 2, the user must overcome the core 4's resistance to deformation and cause the resilient covering 5 to stretch. When the user ceases compressing the hand exerciser 1, the rubber layers 6, 8, 10, 12, and 14 exert pressure on the core 4 as they try to resume the shape they had prior to the deformation and the hand exerciser 1 will recover its pre-deformation shape.

An example of how the hand exerciser 1 may be used is provided in FIGS. 1-2. In FIG. 1, the hand exerciser 1 is shown prior to deformation being held in a user's hand 2. FIG. 2 shows the hand exerciser 1 at a point when the user has deformed its shape using his fingers and palm to compress the hand exerciser 1. When the user initially compresses the hand exerciser 1, they will need to overcome the resistance to deformation of the layers 6, 8, 10, 12, and 14. When the user relaxes the hand 2 and is no longer exerting compressive forces on the hand exerciser 1, the hand exerciser 1 will substantially return to its pre-deformed state. The user exercises by repeatedly squeezing and then releasing the hand exerciser 1. While exercising, the hand exerciser 1 is normally maintained in a single position without any rotation caused by the user's fingers.

The low resistance to deformation of the core 4 allows movement, while the resiliency of the rubber covering 5 provides a satisfying resistance to deformation. The hand exerciser 1 is thus deformable and resilient, making it more enjoyable and challenging to use than the base-secured hand exercisers of the prior art.







| CANADIAN PATENT AGENT QUALIFYING EXAMINATION 2018: PAPER A – DRAFTING<br>MARKING GUIDE AND MARKS BREAKDOWN | |
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| **Candidate #** | |
| **Total # of Exam Pages Received From CIPO** | |

| **CLAIM 1** | **APPARATUS – INDEPENDENT CLAIM – 30 MARKS MAXIMUM** |
|---|---|

**Sample claim:**

1. A hand exerciser comprising:
   a resilient outer bladder;
   a resilient inner bladder disposed in the resilient outer bladder;
   a particulate material disposed in the resilient inner bladder; and
   a layer of powder provided between the resilient inner bladder and the resilient outer bladder for reducing sticking between the resilient inner bladder and the resilient outer bladder.

| Claim Element | Explanation | Mark |
|---|---|---|
| Preamble | Acceptable: exerciser, resilient hand exerciser, hand exercising device<br>Acceptable transition: comprising, including | 0 or 2 |
| a resilient outer bladder | Acceptable: first resilient bladder, outer bladder made of resilient material<br>Not acceptable: rubber outer bladder, resilient rubber outer bladder | 0 or 3 |
| a resilient inner bladder… | Acceptable: second resilient bladder, inner bladder made of resilient material<br>Not acceptable: rubber inner bladder, resilient rubber inner bladder | 0 or 3 |
| …disposed in the resilient outer bladder | Acceptable: the resilient outer bladder being provided over the resilient inner bladder | 0 or 2 |
| a particulate material… | Acceptable: particles of material, particles, a filling of particles<br>Not acceptable: spherical particles, glass particles | 0 or 3 |
| …disposed in the resilient inner bladder | Acceptable: received, provided, filling | 0 or 2 |
| a layer of powder… | Acceptable: powder layer | 0 or 8 |
| …provided between… inner bladder and… outer bladder… | Acceptable: placed, disposed, located | 0 or 5 |
| …for reducing sticking between… inner bladder and… outer bladder. | Acceptable: for enabling movement of the resilient outer bladder relative to the resilient inner bladder | 0 or 2 |

| **DEDUCTIONS:** | | **Amount** |
|---|---|---|
| For omitting “layer” and only including “powder” | -3 | |
| For including “talc” | -3 | |
| For each other superfluous claim limitation or element (e.g., closure, crimp, neck of the bladder) | -5 | |
| For unclear language or inconsistencies | Max -5 | |
| **TOTAL INDEPENDENT APPARATUS CLAIM (MINIMUM = 0)** | | **/30** |

| CLAIMS 2-7 | APPARATUS – DEPENDENT CLAIMS – 12 MARKS MAXIMUM: ONLY THE FIRST 6 DEPENDENT APPARATUS CLAIMS ARE CONSIDERED |
|---|---|
| **Claim Element** | |
| Inner and outer resilient bladders are made of rubber | |
| Each of the inner and outer resilient bladders has a neck portion | |
| The hand exerciser is generally egg-shaped (or spherical) | |
| Dimensions of the hand exerciser (diameter: about 5-6 cm; length: about 6.5-7 cm) | |
| The particulate material is free of sharp edges/flat faces | |
| The particulate material includes spherical particles | |
| The spherical particles are glass spherical particles | |
| The glass spherical particles are made of soda-lime glass or glass oxide | |
| The particulate material is glass particles | |
| Dimensions of the particles (diameter: 0.1-0.2 mm) | |
| Density of the particles (about 2.5 $g/cm^3$) | |
| The particulate material is the only material inside the resilient inner bladder | |
| Weight of particulate material (about 160 g) | |
| Powder is talc | |
| Powder is scented | |
| Layer of powder includes a coating of powder on an inner surface of the resilient outer bladder and a coating of powder on an outer surface of the resilient inner bladder | |
| Friction coefficient of the powder (about 0.24-0.36) | |
| Thickness of powder layer (about 0.1-0.5 mm) | |
| Closure for closing the resilient inner and outer bladders | |
| The closure is a staple/crimp | |
| The closure is a knot formed by the resilient inner and outer bladders, or cauterizing the openings, or a tie-wrap, or misalignment of the two openings | |
| **Claim Marking** | **Mark** |
| Claim 2 | 0 or 2 |
| Claim 3 | 0 or 2 |
| Claim 4 | 0 or 2 |
| Claim 5 | 0 or 2 |
| Claim 6 | 0 or 2 |
| Claim 7 | 0 or 2 |
| **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:** | **/12** |

| CLAIM 8 | METHOD – INDEPENDENT CLAIM – 12 MARKS MAXIMUM | |
|---|---|---|
| **Sample claim:**<br>8. A method for manufacturing a hand exerciser comprising:<br>filling a resilient inner bladder with a particulate material;<br>disposing the resilient inner bladder in a resilient outer bladder; and<br>providing a layer of powder between the resilient inner bladder and the resilient outer bladder for reducing sticking between the resilient inner bladder and the resilient outer bladder. | | |
| **Claim Element** | **Explanation** | **Mark** |
| Preamble | Acceptable: "A method for making a…"<br>Not acceptable: simply "A method comprising" or "A method of manufacturing comprising" | 0 or 2 |
| Filling a resilient inner bladder with a particulate material; | Acceptable: pouring, inserting, adding | 0 or 2 |
| Disposing… inner bladder in… outer bladder | Acceptable: inserting, placing, surrounding, receiving, putting | 0 or 2 |
| Providing a layer of powder... | Acceptable: layering powder, putting, placing, disposing, applying, powdering | 0 or 3 |
| …between… inner bladder and… outer bladder | | 0 or 2 |
| …for reducing sticking between… inner bladder and… outer bladder. | Acceptable: for enabling movement of the resilient outer bladder relative to the resilient inner bladder | 0 or 1 |
| **DEDUCTIONS:** | | **Amount** |
| For omitting that the bladders are "resilient" | -2 | |
| For omitting "layer" (or equivalent language) and only including "powder" | -2 | |
| For each superfluous claim element | -3 | |
| For unclear language or inconsistencies | Max -4 | |
| **Total Independent Method Claim Mark:** | | **/12** |

| CLAIMS 9-11 | METHOD – DEPENDENT CLAIMS – 6 MARKS MAXIMUM: ONLY THE FIRST 3 DEPENDENT METHOD CLAIMS ARE CONSIDERED |
|---|---|
| **Claim Element** | |
| The step of providing the layer of powder occurs before the step of filling the resilient inner bladder | |
| The step of disposing the resilient inner bladder in the resilient outer bladder occurs before filling the resilient inner bladder | |
| Inserting a funnel in the resilient inner bladder (or installing the resilient inner bladder on a funnel) | |
| Inserting (or sliding) a rod in the resilient inner bladder to stretch the resilient inner bladder prior to disposing the resilient inner bladder in the resilient outer bladder | |
| The rod is inserted before filling the resilient inner bladder | |
| Inserting a funnel in the resilient inner bladder and the rod is inserted (or slid) in the resilient inner bladder via the funnel | |
| Providing the layer of powder includes inserting powder between the resilient inner bladder and the resilient outer bladder after disposing the resilient inner bladder in the resilient outer bladder. | |
| Providing the layer of powder includes coating an inner surface of the resilient outer bladder with powder (or applying a coating… on) and coating an outer surface of the resilient inner bladder with powder. | |
| Closing the resilient inner and outer bladders | |
| Closing the resilient inner and outer bladders includes crimping neck portions of the resilient inner and outer bladders (or applying, or installing a tie-wrap on the neck portions…) | |
| Closing the resilient inner and outer bladders includes knotting neck portions of the resilient inner and outer bladders (or misaligning the openings of the inner and outer resilient bladders, or cauterizing the openings of the inner and outer resilient bladders) | |
| **Claim Marking** | **Mark** |
| Claim 9 | 0 or 2 |
| Claim 10 | 0 or 2 |
| Claim 11 | 0 or 2 |
| **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:** | **/6** |

| **DISCLOSURE** | **DISCLOSURE/DRAWINGS – 40 MARKS MAXIMUM** | |
|---|---|---|
| **Disclosure/Drawings Element** | **Requirement for Full Marks** | **Mark** |
| ABSTRACT<br><br>*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.* | Drafted in a way that allows clear understanding of technical problem and gist of the solution through the layer of powder between the resilient inner and outer bladders<br>**AND**<br>is consistent with claims and disclosure as drafted<br>**AND**<br>does not contain more than 150 words:<br>**AND**<br>method and apparatus both need to appear. However, see below:<br><br>***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<br>Example: Hand Exerciser and Method for Manufacturing a Hand Exerciser | Must be consistent with description / claims as drafted<br>**AND**<br>must indicate both apparatus and method aspects | 0, 0.5 or 1 |
| FIELD OF INVENTION<br>Example: The present application relates generally to exercisers and more particularly to a hand exerciser and a method for manufacturing a hand exerciser. | Must be consistent with description / claims as drafted<br>**AND**<br>must indicate both a general field and a particular field<br>**AND**<br>must mention both apparatus and method | 0, 1 or 2 |
| BACKGROUND D1 –4,YYY,YYY | Must mention:<br>• Deformable toy<br>• Single flexible bladder<br>• Moldable filling medium<br>• Particles that are irregular in shape<br>• Problem: Particles abrade the bladder and/or the toy does not return to the original shape | 0 to 5 |
| BACKGROUND D2 – 7,XXX,XXX | Must mention:<br>• Hand exerciser<br>• Particulate core<br>• Particles can include glass beads<br>• Resilient covering having one or more layers<br>• Problem: The multiple layers can stick to each other resulting in an unpleasant "crunching" feeling and/or the hand exerciser does not return to its original shape fast enough | 0 to 5 |

| | | |
|---|---|---|
| <u>SUMMARY</u><br><br>*NOTE: If candidate has merely asked that the independent claims be considered inserted in sentence form into this section by reference, it will <u>typically</u> 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<br>**AND**<br>must include a paragraph that uses the same language as the independent method claim<br>**AND**<br>must include a concise summary of the technical problem and the solution | 0 to 4 |
| <u>BRIEF DESCRIPTION OF DRAWINGS</u><br>Example:<br>Figure 1 is a side view of a hand exerciser held in a user's hand;<br>Figure 2 is a cross-sectional view of the hand exerciser of Figure 1;<br>Figure 3 is a close-up view of particulate material of the hand exerciser of Figure 1; and<br>Figure 4A, 4B, and 4C illustrate various steps of a method of manufacturing the hand exerciser of Figure 1.<br><br>Note that order of Figures may be different | Must be correctly described (views)<br>**AND**<br>must be numbered (Arabic numerals)<br>**AND**<br>must include relationship between the drawings<br>**AND**<br>must use terms consistent with description/claims | 0 to 2 |
| **Sub-total before description of embodiments and drawings** | | **/20** |

| **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):<br><br>• a resilient outer bladder;<br>• a resilient inner bladder disposed in the resilient outer bladder;<br>• a particulate material disposed in the resilient inner bladder; and<br>• a layer of powder provided between the resilient inner bladder and the resilient outer bladder for reducing sticking between the resilient inner bladder and the resilient outer bladder. | 0 or 3 |
| If the following features are described clearly (3 marks = 17 or more features described, 1.5 marks = 10 to 16 features described, 0 mark = less than 10 features described):<br><br>• Resilient inner and outer bladders:<br>  o *are made of rubber*<br>  o *has a neck portion*<br>• Dimensions of hand exerciser (diameter: about 5-6 cm; length: about 6.5-7 cm)<br>• Hand exerciser is generally egg-shaped (or spherical)<br>• Particulate material:<br>  o *is free of sharp edges/flat faces*<br>  o *includes spherical particles*<br>  o *particles are made of glass*<br>  ▪ *glass is soda lime or glass oxide*<br>  o *dimensions of particles (diameter: 0.1-0.2 mm)*<br>  o *density of particles (about 2.5 g/cm$^3$)*<br>  o *weight of particulate material (about 160 g)*<br>  o *particulate material is the only material inside the resilient inner bladder*<br>• Layer of powder<br>  o *is talc*<br>  o *is scented*<br>  o *includes a coating of powder on an inner surface of the resilient outer bladder and a coating of powder on an outer surface of the resilient inner bladder*<br>  o *friction coefficient of the powder (about 0.24-0.36)*<br>  o *thickness of powder layer (about 0.1-0.5 mm)*<br>• Closure for closing the resilient inner and outer bladders<br>  o *is a staple/crimp*<br>  o *is a knot formed by the resilient inner and outer bladder*<br>  o *is a tie-wrap*<br>  o *is a cauterization of the openings of the two openings*<br>  o *is a misalignment of the openings of the two openings* | 0, 1.5 or 3 |

| | |
|---|---|
| If the following features are <u>ALL</u> described clearly (if any is missing: 0):<br><br>• filling a resilient inner bladder with a particulate material;<br>• disposing the resilient inner bladder in a resilient outer bladder; and<br>• providing a layer of powder between the resilient inner bladder and the resilient outer bladder for reducing sticking between the resilient inner bladder and the resilient outer bladder | 0 or 2 |
| If the following features are described clearly (1 mark = 10 or more features described, 0.5 = 5 to 9 features described, 0 mark = less than 5 features described):<br><br>• step of providing the layer of powder occurs before the step of filling the resilient inner bladder<br>• step of disposing the resilient inner bladder in the resilient outer bladder occurs before filling the resilient inner bladder<br>• inserting a funnel in the resilient inner bladder<br>• inserting a rod in the resilient inner bladder to stretch the resilient inner bladder prior to disposing the resilient inner bladder in the resilient outer bladder<br>o the rod is inserted before filling the resilient inner bladder<br>• inserting powder between the resilient inner bladder and the resilient outer bladder after disposing the resilient inner bladder in the resilient outer bladder<br>• coating an inner surface of the resilient outer bladder with powder and coating an outer surface of the resilient inner bladder with powder<br>• closing the resilient inner and outer bladders<br>o *crimping neck portions*<br>o *with a knot*<br>o *with a tie-wrap*<br>o *cauterizing*<br>o *misaligning the two openings* | 0, 0.5 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 embodiments and drawings** | **/20** |

| **TOTAL** | **TOTAL MARK – 100 MARKS MAXIMUM** | |
|---|---|---|
| **Independent Apparatus claim** | **Mark on 30** | |
| **Dependent Apparatus claims** | **Mark on 12** | |
| **Independent Method claim** | **Mark on 12** | |
| **Dependent Method claims** | **Mark on 6** | |
| **Sub-total before description of embodiments and drawings** | **Mark on 20** | |
| **Sub-total description of embodiments and drawings** | **Mark on 20** | |
| **Total** | | |

# PATENT AGENT EXAMINATION

# PAPER B

# 2018

## PART A

The following four (4) documents are provided:

1. Canadian Patent No. 2,xxx,242
2. D1: US Patent No. 6,xxx,077
3. D2: European Patent Publication No. 2,xxx,925
4. D3: Canadian Patent Application No. 2,xxx,275

**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.

**BACKGROUND**

Your client Rob Roberts is the owner of Garden Tech Ltd., a multi-million dollar company that sells and distributes a wide array of gardening equipment. Rob is always on the lookout for new products for his company to acquire or licence. A mutual acquaintance has introduced him to Chloe O. Green, who has invented a new type of hose clamp that is apparently amazing. Chloe tells him that she has obtained Canadian Patent No. 2,xxx,242 (the '242 patent). Rob is quite excited about this potential new product, and is pleased that Chloe has a patent in Canada on the technology.

Before making a deal with Chloe, you explain to Rob that he should ensure that everything is in order with the patent. As a result, Rob instructs you to determine if the '242 patent is valid.

You perform a search of the prior art and identify documents D1 to D3, which do not appear to have been considered by the Canadian Examiner or even the US Examiner of the counterpart patent.

When you obtain a copy of the '242 patent, you notice that Chloe is co-inventor with Teresa L. Waters, and that the patent is co-owned by Chloe and Greenhouses Ltd., which is a small garden business, also selling a wide array of gardening equipment. You later learn that Chloe invented the hose clamp with her cousin, Teresa, and Teresa assigned her rights to her company, Greenhouses Ltd. The counterpart US patent has the same inventorship and ownership as the '242 patent.

**QUESTION 1: [5.0 marks]**

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*.

**QUESTION 2: [9.0 marks]**

Assuming that these elements are essential, construe the following selected claim terms of Canadian Patent No. 2,xxx,242:

a) “a locking portion” (claims 1 and 4)

b) “an adjusting component, arranged adjacent to the locking portion” (claims 1 and 4)

c) “a fixing attachment, which is substantially immovably connected to the locking portion” (claims 1 and 4)

d) “fixedly attach to said hose” (claims 1 and 4)

e) “fixing attachment being integral with the locking portion” (claim 1)

f) “an abutment for positioning the hose clamp at a distance from an end of the hose” (claim 4)

g) “an immobilizing component” (claim 4)

**QUESTION 3: [37.0 marks]**

Are claims 1, 2, and 3 anticipated by any one of D1-D3? Provide detailed supporting arguments and reference to the appropriate sections of the documents and figures.

**QUESTION 4: [22.0 marks]**

Is claim 4 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: [3.0 marks]**

(i) Based on the information provided and assuming the ownership and inventorship is correct, is Chloe Green permitted to grant a license to Rob’s company for:

**a)** the CA ‘242 patent? Apply the appropriate Canadian case law.

**b)** the counterpart US patent?

(ii) Based on the information provided and assuming the ownership and inventorship is correct, is Chloe Green permitted to assign her sole ownership rights to Rob’s company for:

**a)** the CA ‘242 patent?

**b)** the counterpart US patent?

**QUESTION 6: [1.0 mark]**

During your discussion with Rob, you learn that Chloe named her cousin, Teresa Waters, as an inventor because Teresa could pay for the patent applications, although Teresa had not contributed to the invention itself. What do you recommend to your client to eliminate this potential ground of invalidity? Apply the appropriate Section(s) of the *Patent Act*.

**END OF QUESTIONS IN PART A**

**CA ‘242**

**Canadian Patent No. 2,xxx,242**
**Issue Date: November 23, 2014**

# HOSE CLAMP

**National Phase Entry Date:** **June 27, 2013**

**International Publication Number:** **WO 2012/xxx040**
**International Publication Date:** **July 5, 2012**

**International Application Number:** **PCT/CA2011/xxx456**
**International Filing Date:** **December 20, 2011**

**Priority Data:** **US 61/xxx,135 filed December 30, 2010**

**Inventors:** **Chloe O. Green; Teresa L. Waters**
**Owner:** **Chloe O. Green; Greenhouses Ltd.**

## FIELD OF THE INVENTION

The present invention relates to a hose clamp. The hose clamp can be fixed to a hose. The hose clamp has a band forming an open ring. The ends of the open ring have a locking portion and a device to vary the diameter of the ring and to hold the ends of the ring of the band together.

## BACKGROUND OF THE INVENTION

Hose clamps are often used for mounting on a hose end to connect the hose to other components. Hose clamps are usually made of a band in the form of an open ring. At the ends of the open ring, the band is closed by a locking portion and a clamping screw.

In some cases, it is desirable to pre-mount hose clamps on hoses in order to facilitate the mounting of the hose. Loose, pre-mounted hose clamps are perceived as a problem with hose clamps according to prior techniques. Orientation of the hose clamp and, in particular, its clamping screw may cause problems as well. If the hose clamp is displaced in mounting, the tool and/or the clamping screw of the hose clamp may get caught or become inaccessible.

## CA ‘242

For these reasons, there is still a need for improved hose clamps.

### SUMMARY OF THE INVENTION

A first aspect is a hose clamp to be fixed to a hose, which hose clamp comprises a band forming an open ring. The ends of the open ring are arranged adjacent to a locking portion. Adjacent to the locking portion, a means is arranged to vary a diameter of the ring and to hold the ends of the ring of the band together. Parts that are substantially immovably connected to the locking portion are arranged for fixed attachment to the hose.

In another aspect, there is provided a hose clamp to be fastened to a hose, said hose clamp comprising: a) a locking portion, b) a band forming an open ring, end portions of the open ring being arranged adjacent to the locking portion, c) an adjusting component, arranged adjacent to the locking portion, to vary a diameter of the open ring and to hold the end portions of the open ring of the band together, and d) a fixing attachment, which is substantially immovably connected to the locking portion, and arranged to fixedly attach to said hose, said fixing attachment being integral with the locking portion.

In a further aspect, there is provided a hose clamp to be fastened to a hose, said hose clamp comprising: a) a locking portion, b) a band forming an open ring, end portions of the open ring being arranged adjacent to the locking portion, c) an adjusting component, arranged adjacent to the locking portion, to vary a diameter of the open ring and to hold the end portions of the open ring of the band together, and d) a fixing attachment, which is substantially immovably connected to the locking portion, and arranged to fixedly attach to said hose, said fixing attachment being a bracket-like attaching component coupled to the locking portion.

In yet another aspect, there is provided a hose clamp to be fastened to a hose, said hose clamp comprising: a) a locking portion, b) a band forming an open ring, ends of the open ring being arranged adjacent to the locking portion, c) an adjusting component, arranged adjacent to the locking portion, to vary a diameter of the open ring and to hold the ends of

the open ring of the band together, and d) a fixing attachment, which is substantially immovably connected to the locking portion, and arranged to fixedly attach to said hose, wherein said fixing attachment has (i) an abutment for positioning the hose clamp at a distance from an end of the hose on which the hose clamp is mounted and (ii) an immobilizing component for fixedly attaching the locking portion to the hose.

## BRIEF DESCRIPTION OF THE DRAWINGS

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.

FIGS. 1a and 1b are perspective views of an embodiment of a hose clamp according to the invention.

FIGS. 2a and 2b are perspective views of another embodiment of a hose clamp according to the invention.

FIG. 3 is a perspective view of an embodiment of the attachment of the hose clamp.

FIG. 4 is a perspective view of a hose clamp according to the invention arranged on a hose.

FIG. 5 is a perspective view of a further embodiment of a hose clamp according to the invention.

FIG. 6-7 are perspective views of part of a locking portion with alternative embodiments of a fastening element.

## DETAILED DESCRIPTION

## CA ‘242

For exemplification purposes, the invention will now be described in more detail by means of embodiments and with reference to the accompanying drawings.

One embodiment of a hose clamp is shown in FIGS. 1 a-b. A hose clamp 1 has a band 2 forming an open ring, a locking portion 3 and a clamping screw 4. End portions 2a and 2b of the band 2 are arranged adjacent to the locking portion 3. The locking portion 3 and the clamping screw 4 are used in combination to adjust a diameter of the band 2 at end portion 2a. The clamping screw 4 cooperates with grooves 9 in end portion 2a of the band 2 so that, as the screw 4 rotates clockwise or counter-clockwise, the enclosing diameter of the band 2 decreases or increases, respectively. The hose clamp 1 is mounted on a hose 5 (FIG. 4). The hose clamp 1 can be positioned at the end of the hose 5 using fixing attachment 8. In particular, abutment 7’ of fixing attachment 8 is used to position the hose clamp 1 at a distance from the end of the hose 5. Although abutment 7’ is shown to be integral in fixing attachment 8, abutment 7’ may be a separate part. The abutments described herein, such as abutment 7’, assists in positioning the hose clamp 1 at a distance from the end of the hose 5 so one can correctly and accurately position the hose clamp 1. The fixing attachment 8 also includes two teeth 8a and 8b. The fixing attachment 8 is made of a material that can be bent towards the locking portion 3 of the hose clamp 1 such that the two teeth 8a and 8b engage the inside of the hose 5 and hold the hose clamp 1 in place. This prevents the hose clamp 1 from moving relative to the length of the hose 5. The diameter of the band 2 can be adjusted using the locking portion 3 and the clamping screw 4 to lock the hose clamp 1 in place on the hose 5. The fixing attachment 8 is made of the same sheet metal material as the locking portion 3. In another embodiment, the fixing attachment 8 can be made of any suitable material that is capable of being bent such that the two teeth 8a and 8b are able to engage the inside of the hose 5. In additional embodiments, the fixing attachment 8 is integral with the locking portion 3. The integrated fixing attachment is preferably made of metal and in one piece with the locking portion 3. The fixing attachment 8 can be fixed to the hose 5 using its integrated teeth 8a and 8b, or alternatively, a projecting integral part of the locking portion 3 can be folded around the edge of the hose end in order to fixedly attach the locking portion 3 to the hose 5.

**CA ‘242**

Another embodiment of a hose clamp is shown in FIGS. 2a-b, 3 and 4. The locking portion is fixed to the hose by means of a bracket-like attaching component. In this embodiment, positioning of the hose clamp 1 to the hose 5 occurs by means of a separate resilient attachment 6 which is snapped over the locking portion 3 by spring action due to the design of the separate resilient attachment 6 and its internal hooks (not shown) which snap over the edge portions of the locking portion 3. In this manner, the separate resilient attachment 6 is fixed to the locking portion 3 of the hose clamp 1 and the hose clamp 1 is premounted on the hose 5. The separate resilient attachment 6 has abutment 7, which is used to position the hose clamp 1 at a distance from the end of the hose 5. The separate resilient attachment 6, attached on both sides of the locking portion 3, is also attached to the outer wall portion of the hose 5, for example by gluing or welding, and in this way the hose clamp 1 is fixedly attached at the end of the hose 5. When the separate resilient attachment 6 is fastened as a bracket over the locking portion 3, the locking portion 3 and rigidly connected parts of the hose clamp 1 are prevented from moving relative to the hose 5. Abutments (not shown) inside the separate resilient attachment 6 cooperate with the locking portion 3 and prevent the locking portion 3 from moving in the peripheral direction.

In the embodiment where the separate resilient attachment 6 and adhesive are used to pre-mount the hose clamp 1, holes 10 in the attachment 6 are also used to establish a strong mechanical joint between the separate resilient attachment 6 and the hose 5. The inner sides of the holes 10 have a geometry so that the cross-sectional surface of the hole increases away from the outer circumferential surface of the hose 5. Therefore, the holes 10 have an internal conical shape. When applying adhesive between the separate resilient attachment 6 and the outer circumferential surface of the hose 5 and pressing the components together, the adhesive is driven up into the conical holes 10, after which the adhesive solidifies and locks the separate resilient attachment 6 mechanically due to the conical shape of the holes 10, which mechanically prevents the separate resilient

attachment 6 from detaching. The holes 10 in conjunction with the adhesive provides a stronger mechanical joint compared to adhesive alone.

The separate resilient attachment 6 can be made of any suitable material that is flexible and bendable. The separate resilient attachment 6 can be attached to the hose by gluing, welding or some other type of attachment to the hose 5.

With the two embodiments as illustrated in FIGS. 1 a-b and 2 a-b, the locking portion 3 is prevented from being moved in the peripheral direction while actuating the clamping screw 4 to adjust the diameter of the band 2, because the attachment 8 and 6 fixes the locking portion 3 relative to the hose 5.

Pre-mounted hose clamps described herein are capable of repeatedly orienting the hose clamps in the same manner in, for instance, an assembly-line mounting process. Moreover, with the hose clamp pre-mounted, there is no risk of forgetting to mount a hose clamp before mounting the hose.

When the locking portion or neighbouring immovably connected parts are fixed to the hose, the locking portion remains in place while tightening the band with the aid of the adjusting component (e.g. clamping screw 4), which is useful since the spaces where hose clamps are mounted are frequently narrow, such as in engine compartments. It is also possible to prevent the locking portion and the adjusting component from being moved along the periphery of the hose during tightening. Therefore, the locking portion also constitutes a suitable fastening point for other components, such as hoses, cables or flexible cords that can be fastened to the locking portion by means of a fastening element intended for the purpose.

In another alternative embodiment, the locking portion is arranged with a fastening element for other surrounding components. Since the locking portion is fixed relative to the hose, the locking portion constitutes a suitable fastening point to fasten other surrounding components. With the aid of fastening elements, surrounding components

are fastened to the hose clamp by spring action that is elastically resilient metal bands formed to a suitable shape to fix surrounding components. The metal bands project from the locking portion and can also be designed to constitute attachment for other holding elements, for instance with holes for fastening strips.

In additional embodiments, fastening elements are shown, which are integrated with the locking portion of the hose clamp, which attachments can be used to fasten surrounding components. In these embodiments, the hose clamp need not be fixedly fastened to the hose by means of teeth but can be coupled thereto by any other immobilizing component.

FIGS. 5-7 illustrate embodiments of the locking portion 3 with a fastening element 11 for wiring for instance, and the fastening element 11 is a bent metal sheet that can resiliently snap around a cable or alternatively be bent around a cable to retain it. The purpose is not that the fastening element 11 itself be fixedly attached to hose 5 as above. The hose clamp is clamped around the hose by tightening the hose clamp. It is evident from FIGS. 5-7 how integrated fastening elements 11 can be designed in order to resiliently hold elongate objects such as pipes, cables, and hoses.

## CA ‘242

**CLAIMS:**

1. A hose clamp to be fastened to a hose, said hose clamp comprising:

a) a locking portion,

b) a band forming an open ring, end portions of the open ring being arranged adjacent to the locking portion,

c) an adjusting component, arranged adjacent to the locking portion, to vary a diameter of the open ring and to hold the end portions of the open ring of the band together, and

d) a fixing attachment, which is substantially immovably connected to the locking portion, and arranged to fixedly attach to said hose, said fixing attachment being integral with the locking portion.

2. A hose clamp to be fastened to a hose, said hose clamp comprising:

a) a locking portion,

b) a band forming an open ring, end portions of the open ring being arranged adjacent to the locking portion,

c) an adjusting component, arranged adjacent to the locking portion, to vary a diameter of the open ring and to hold the end portions of the open ring of the band together, and

d) a fixing attachment, which is substantially immovably connected to the locking portion, and arranged to fixedly attach to said hose, said fixing attachment being a bracket-like attaching component coupled to the locking portion.

3. The hose clamp as claimed in claim 2, wherein said bracket-like attaching component is made of a resilient material and has an abutment.

**CA ‘242**

4. A hose clamp to be fastened to a hose, said hose clamp comprising:

a) a locking portion,

b) a band forming an open ring, ends of the open ring being arranged adjacent to the locking portion,

c) an adjusting component, arranged adjacent to the locking portion, to vary a diameter of the open ring and to hold the ends of the open ring of the band together, and

d) a fixing attachment, which is substantially immovably connected to the locking portion, and arranged to fixedly attach to said hose, wherein said fixing attachment has (i) an abutment for positioning the hose clamp at a distance from an end of the hose on which the hose clamp is mounted and (ii) an immobilizing component for fixedly attaching the locking portion to the hose.

5. The hose clamp as claimed in claim 4, wherein said immobilizing component, together with a wall portion of the hose, surrounds the locking portion of the hose clamp, said immobilizing component being attached to an outer wall portion of the hose.

6. The hose clamp as claimed in claim 4 or 5, wherein said immobilizing component is made of a polymer material.

**CA ‘242**

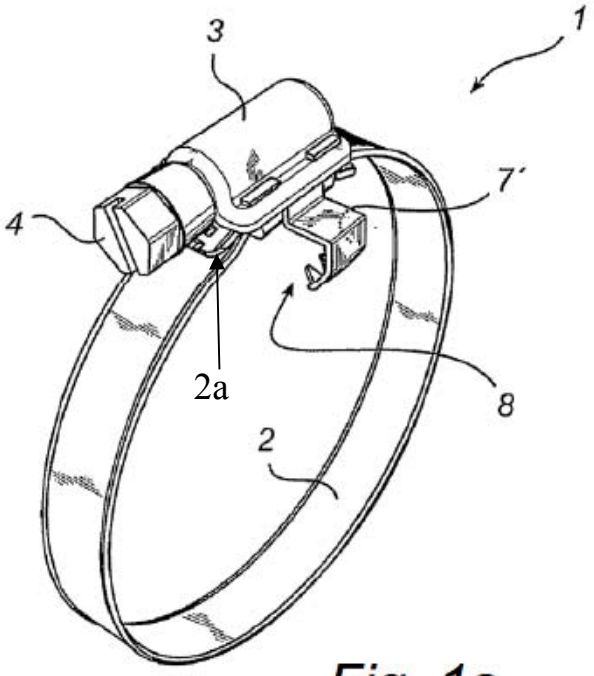


Fig. 1a

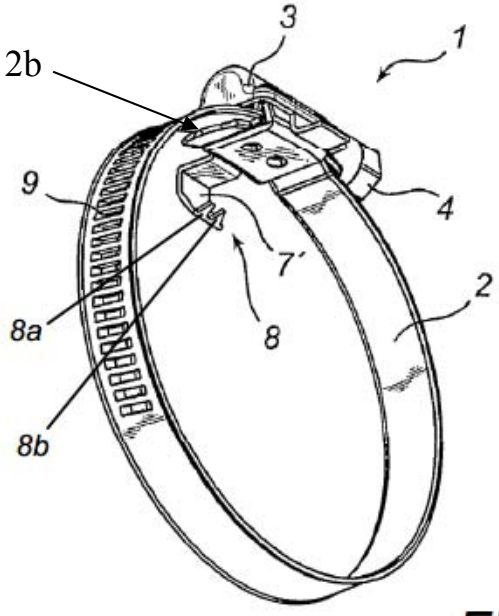


Fig. 1b

**CA ‘242**

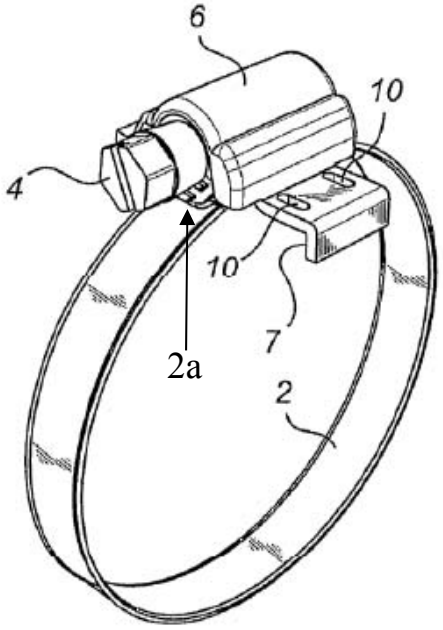


Fig. 2a

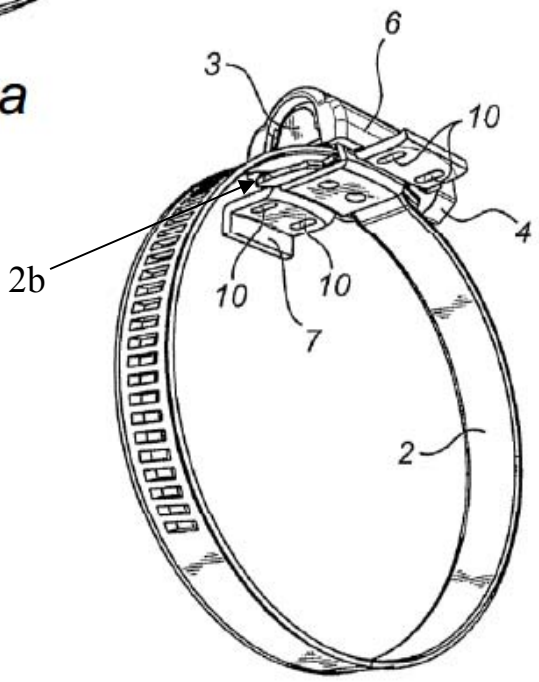


Fig. 2b

**CA ‘242**

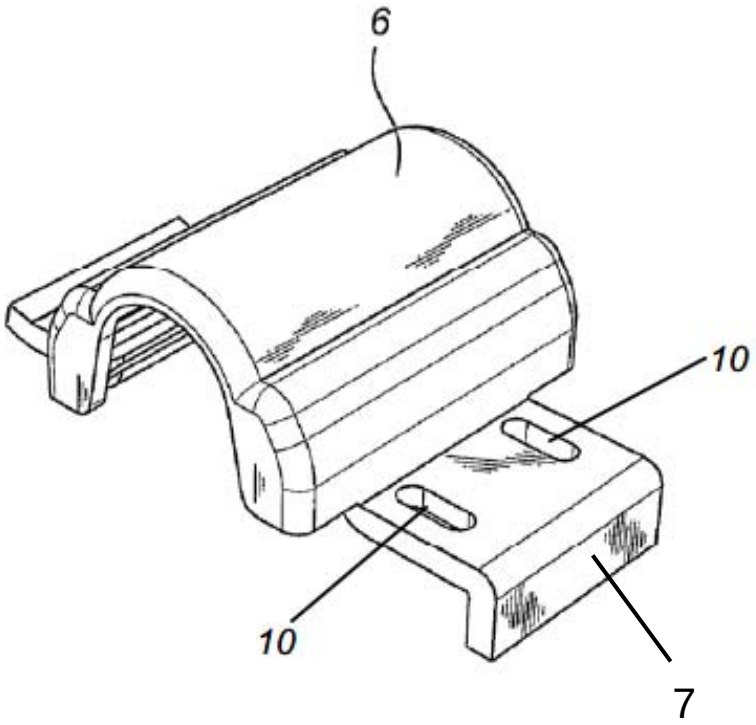


Fig. 3

**CA ‘242**

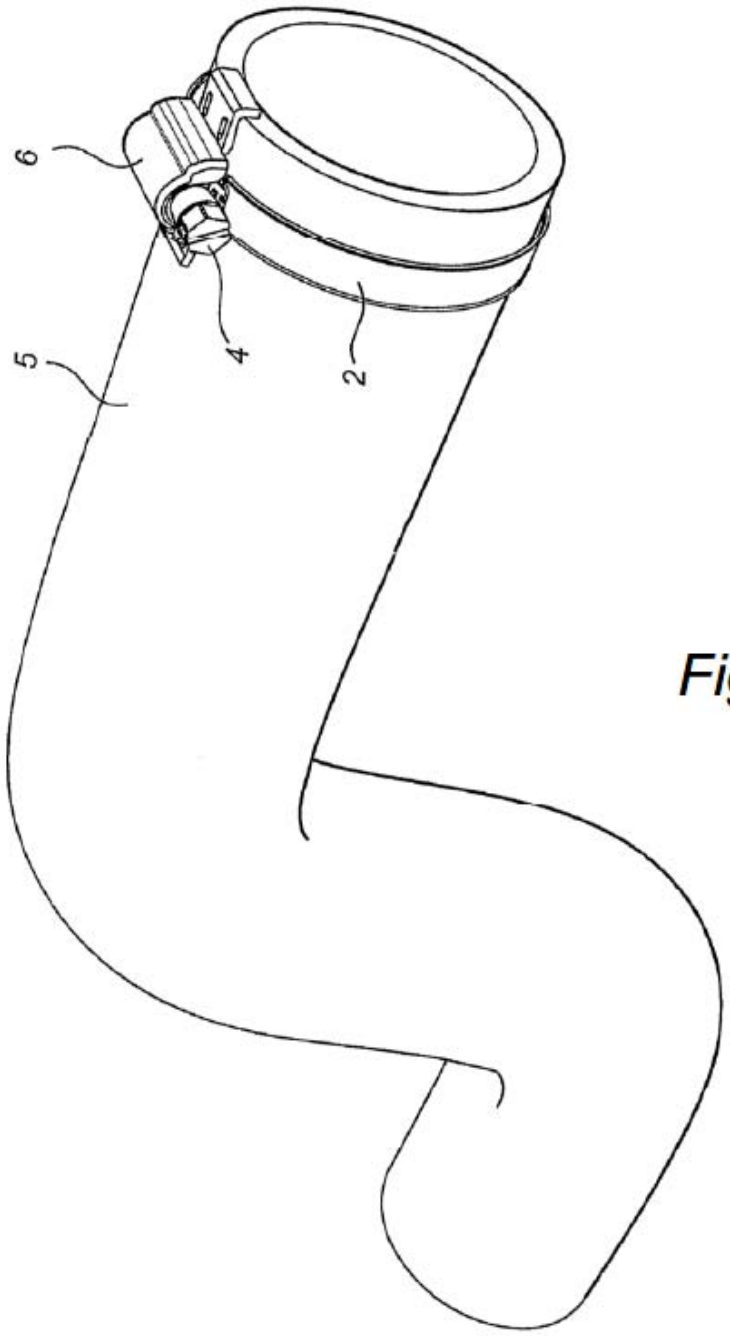


*Fig. 4*

**CA ‘242**


Fig. 5

**CA ‘242**

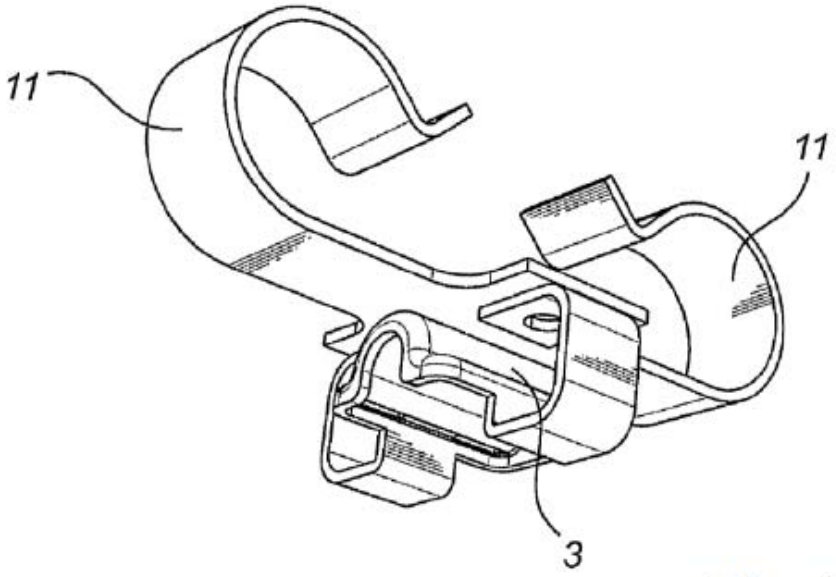


Fig. 6

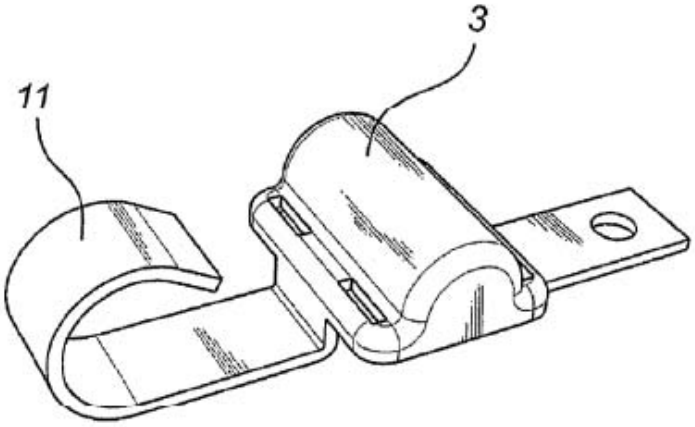


Fig. 7

**DOCUMENT D1**

**DOCUMENT D1**

**US Patent No. 6,xxx,077**
**Issue Date: August 10, 2004**

# BRACKET FOR ATTACHING A HOSE CLAMP

**Filing Date:** **November 20, 2001**
**Publication Date:** **May 23, 2002**
**Priority Data:** **US 60/xxx,713 filed November 22, 2000**

**Inventor:** **Sam R. Haligonian**
**Assignee:** **Spiggot Inc.**

## BACKGROUND OF THE INVENTION

The present invention relates generally to a bracket pressed over a screw housing of a worm drive clamp for attaching the worm drive clamp to a hose.

The worm drive clamp is attached to the hose to facilitate the installation of the hose on a vehicle. The clamps are made of stainless steel to provide for maximum corrosion protection. However, as quick setting glues do not bond well to stainless steel, glues are not a desirable method of attachment.

Worm drive clamps can be attached to the hose by a metal clip spot-welded to the band of the clamp. The clip is attached to the end of the hose and clinched into the interior wall. However, as the clip may damage the interior wall, this method of attachment is also undesirable.

An elastomeric patch or a woven patch of synthetic fabric has also been used as a method of attachment. The elastomeric patch is positioned over the band and vulcanized to the outer surface of the hose. A drawback to the elastomeric patch is that it is time consuming to prepare the surface of the hose and to vulcanize the elastomeric patch. The woven

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patch is glued over the clamp band, but is difficult to handle, making installation slow. Additionally, both types of patches are unattractive as they protrude over the exterior of the band.

In all of the above-mentioned methods of attachments, the worm drive clamp is attached to the hose at the band. A drawback associated with attaching the worm drive clamp at the band is that the worm drive clamp can twist around the outer surface of the hose as the screw is tightened, causing the screw to travel. If the screw travels into a tight space, problems can result in reaching the screw.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a perspective view of the molded bracket of the present invention pressed over a screw housing of a worm drive clamp;

FIG. 2 illustrates a perspective view of the molded bracket;

FIG. 3 illustrates a front view of the molded bracket;

FIG. 4 illustrates a top view of the molded bracket;

FIG. 5 illustrates a perspective view of an alternative embodiment of the molded bracket; and

FIG. 6 illustrates a front view of the alternative embodiment of the molded bracket.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 illustrates the bracket 10 of the present invention pressed over a screw housing 12 of a worm drive clamp 14. The worm drive clamp 14 has a band 20 with ends next to

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screw housing 12. As a screw 16 is turned in the screw housing 12 by a screw driver, the threads of the screw 16 engage grooves 18 embossed on the band 20 of the worm drive clamp 14, tightening the worm drive clamp 14 around the outer surface 22 of a hose 24.

In FIG. 2, the bracket 10 includes a substantially U-shaped screw housing cover 26 and a pair of opposing outwardly extending tabs 28. Preferably, the bracket 10 is made of plastic and is injection molded. However, the bracket 10 can also be made of metal or a thermal plastic elastomer. The tabs 28 have a width W and a length L and are an integral part of the screw housing cover 26. The tabs 28 each have an end 32 and a curvature 30 which approximately equals the curvature 58 of the outer surface 22 of the hose 24 (shown in FIG. 1).

As illustrated in FIGS. 3 and 4, the screw housing cover 26 includes a large portion 34 which receives the screw housing 12 and includes an adjacent small portion 36 which covers the screw housing offset 38 (shown in FIG. 1). A first end cap 40 on the front side 42 of the large portion 34 and a second end cap 44 on the opposing rear side 46 of the small portion 36 prevent the sliding of the screw housing 12 within the bracket 10 during assembly of the bracket 10 onto the hose 24.

The bracket 10 further includes a pair of protrusions 48 on the opposing interior surfaces 50 of the screw housing cover 26. After the bracket 10 is pressed over the screw housing 12, the protrusions 48 retain the bracket 10 over the screw housing 12. Preferably, each protrusion 48 is approximately 3/16 of an inch long and approximately 0.010 of an inch in height.

When assembling the worm drive clamp 14 to the hose 24, the bracket 10 is pressed onto the screw housing 12, the protrusions 48 retaining the bracket 10 over the screw housing 12. The worm drive clamp 14 is placed into a clamp block of a clamp gluing machine. After inserting the hose 24 into the gluing machine, a drop of glue 52 is applied on the outer surface 22 of the hose 24 at the locations where the tabs 28 will be positioned. Preferably, the glue is cyanoacrylate glue. However, it is to be understood that other types of glue can be employed. The clamp block orients the worm drive clamp 14 over the hose

**DOCUMENT D1**

24 and brings the bracket 10 into contact with the hose 24, providing pressure until the glue 52 hardens. After the clamp block is removed, the hose 24 is removed from the gluing machine with the bracket 10 attached. The band 20 is tightened around the outer surface 22 of the hose 24 by turning the screw 16 with a screw driver. The end caps 40 and 44 prevent sliding of the screw housing 12 as the worm drive clamp 14 is tightened, insuring later alignment of the screw driver within the screw 16.

FIGS. 5 and 6 illustrate an alternative embodiment of the bracket 110 of the present invention. The bracket 110 includes a screw housing cover 126 and a pair of opposing inwardly extending tabs 128 having a curvature 130 which approximately equals the curvature 58 of the outer surface 22 of the hose 24 (shown in FIG. 1). The tabs 128 preferably are approximately 0.015 of an inch thick. The tabs 128 are separated by a gap 132 having a curvature 148 which approximately equals the curvature 54 (FIG. 1) of the band 20. Preferably, the gap 132 is approximately 0.125 of an inch wide.

The screw housing cover 126 further includes a large portion 134 which receives the screw housing 12 and an adjacent small portion 136 which receives the screw housing cover offset 38 (FIG. 1). A first end cap 140 on the front side 142 of the large portion 134 and a second end cap 144 on the opposing rear side 146 on the small portion 136 prevent the sliding of the screw housing 12 within the bracket 110.

When assembling the bracket 110 on the worm drive clamp 14, the thickness 60 of the band 20 is inserted through the gap 132 of the bracket 110 having the curvature 148. The bracket 110 is then rotated approximately $90^{o}$ such that the inner surface 56 of the band 20 overlays the inwardly extending tabs 128. The bracket 110 is then slid over the screw housing 12. The bracket 110 slightly flexes and opens as the bracket 110 is slid over the screw housing 12 to prevent the end caps 140 and 144 from interfering with the sliding. The worm drive clamp 14 is then attached to the hose 24 in the same manner as described above with respect to the bracket 10 embodiment.

The tabs 128 extend inwardly and can be made larger without affecting the size of the

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bracket 110. However, the main advantage of the tabs 128 is that it is easier to apply the glue 52 and there is a greater surface area for attachment of the tabs 128 to the surface of the hose 24.

The bracket 10 can also be pressed over the band 20 of the worm drive clamp 14 rather than over the screw housing 12. The bracket 10 can be over-molded around the worm drive clamp 14 or formed from strip metal. Preferably, the hose 24 is a low-permeation hose. However, other types of hoses can be employed. The bracket 10 can also be utilized with other types of clamps, such as spring steel constant tension clamps, wire band clamps, and pipe boot clamps. The bracket 10 of the present invention is low in cost and has an attractive appearance.

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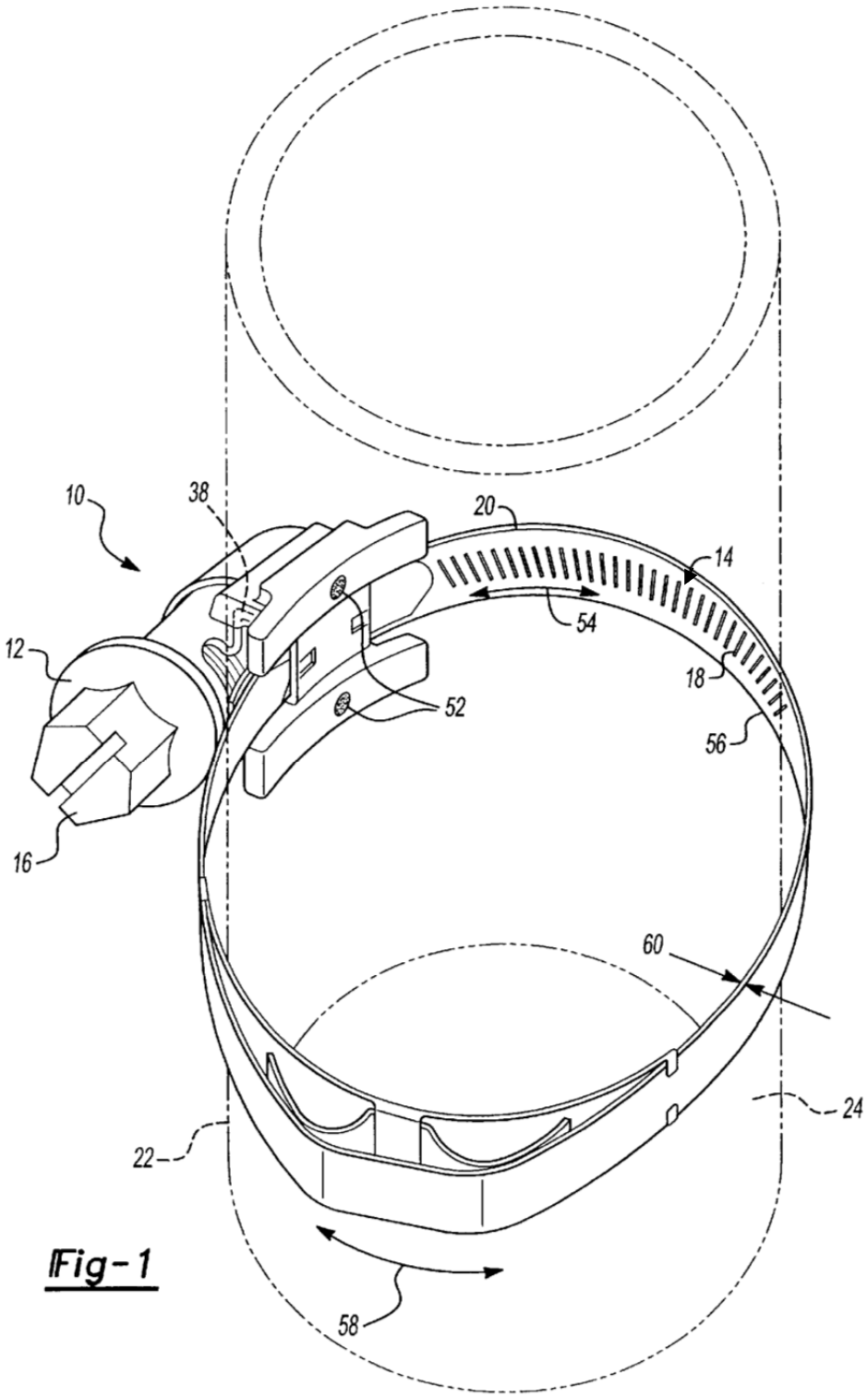


Fig-1

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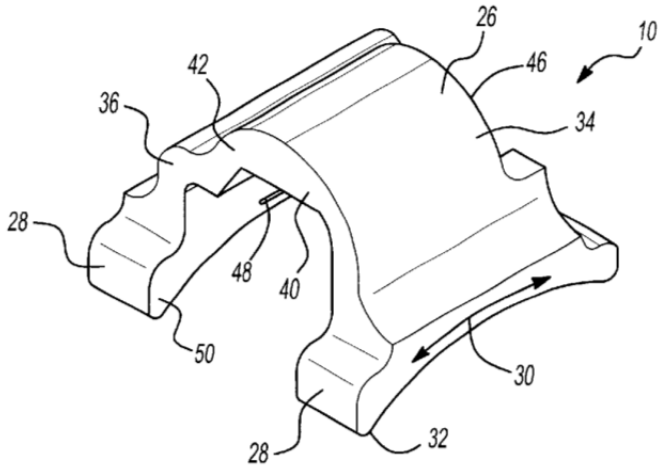


Fig-2

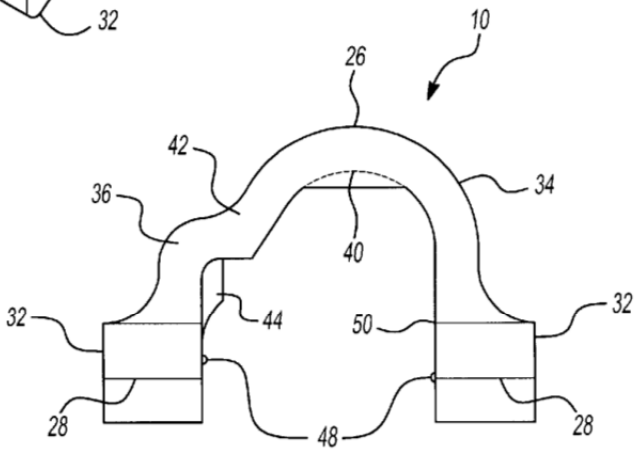


Fig-3

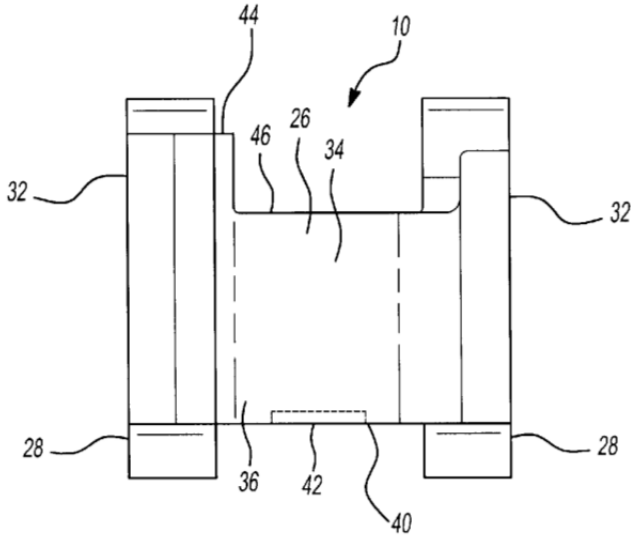


Fig-4

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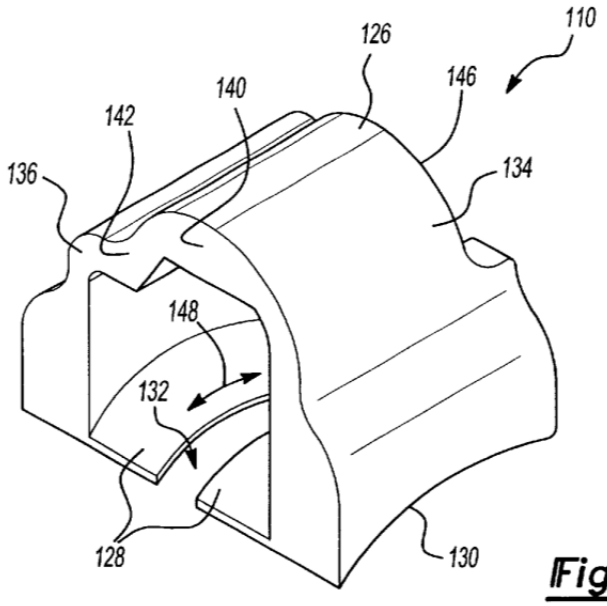


Fig-5

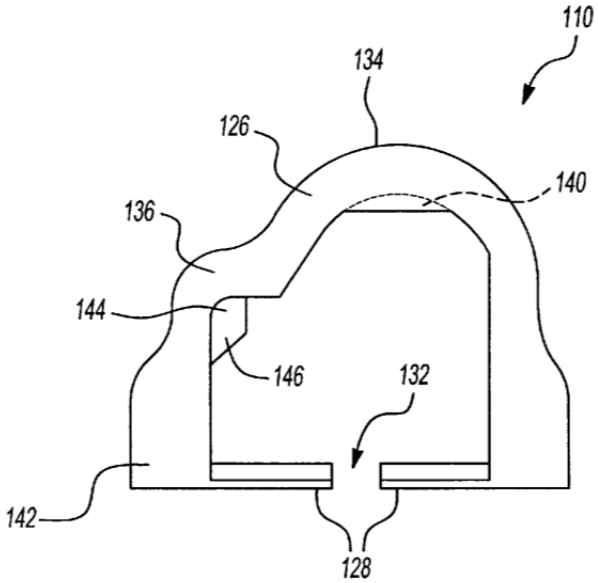


Fig-6

* * *

## DOCUMENT D2

**DOCUMENT D2**

**European Patent Publication No. 2,xxx,925**

# TAB AND HOSE CLAMP

**Filing Date:** **February 4, 2009**
**Publication Date:** **August 17, 2010**
**Priority Data:** **FR 105xxx6 filed February 4, 2008**

**Inventor:** **Sherry Longwood and Claire Sackville**
**Assignee:** **Clampers Inc.**

## BACKGROUND OF THE INVENTION

Hose clamps are commonly utilized to join hoses and fittings together, especially within the automotive industry. With the increasing demands for efficiency within the manufacturing/installation process, manufacturers have requested that parts be delivered already partially assembled. With respect to hose clamp assemblies, this translates to having the hose clamps located on and around a hose a given distance from its end and at a predetermined radial orientation, prior to their delivery for installation. In this manner, an assembler does not have to rotate or longitudinally move the clamp around to a different position to effect tightening of the clamp and completion of installation. Several methods have been utilized to attach and locate hose clamps for one or more of these purposes. Examples of locators that are used in conjunction with clamps include: spring liners that circumscribe a hose and constrict it to maintain its position; adhesive for attaching the clamp to the hose at the prescribed location; plastic retainers that "tie" around a hose; a rubber "patch" which has been positioned over the band and then vulcanized; and various clip configurations that attach to the clamp and around the end of a hose, very similar to a paper clip.

There is a need for a modified locator and clamp that is able to statically position a hose clamp in a predetermined radial orientation, and in close proximity to the end of a hose, and resist substantial pull-off loads.

**DOCUMENT D2**

SUMMARY OF THE INVENTION

Accordingly, it is an aspect of the present invention to provide an improved locator and clamp configuration that is able to statically position a hose clamp in a predetermined radial orientation, and in close proximity to the end of a hose, and resist substantial pull off loads. The improved hose clamp locator comprises a connection portion, a head portion, a deflecting portion having a reduced bending resistance positioned between the connection and head portion, an end portion extending angularly from the head portion, a clip portion extending angularly from the end portion, and a tooth portion disposed to engage an interior surface of a hose extending angularly from the clip portion.

The above and other features and advantages of the invention will be apparent from the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a clamp locator in accordance with the present invention;

FIG. 2 is a side view of the clamp locator of FIG. 1;

FIG. 3 is a side view of a clamp locator and associated hose clamp in accordance with the present invention;

FIG. 4A is an end view of the clamp locator and associated hose clamp of FIG. 3;

FIG. 4B is a magnified view of the clamp locator and associated hose clamp of FIG. 4A taken at 4B-4B;

FIG. 5A is a sectional partial view of a clamp locator and the band of the associated hose clamp in accordance with the present invention;

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FIG. 5B is a sectional partial view of the clamp locator and the band of the associated hose clamp of FIG. 5A positioned on a hose in accordance with the present invention; and

FIG. 5C is a sectional partial view of the clamp locator and the band of the associated hose clamp secured on a hose and further mounted on a fitting in accordance with the present invention.

DISCLOSURE OF THE PREFERRED EMBODIMENTS OF THE INVENTION

Referring to FIG. 1, a clamp locator (shown generally at 10) is comprised of a connection portion 14, deflecting portion 13, and head portion 15. Connection portion 14 is disposed to be connectable to a hose clamp, so it is preferable that it is substantially planar or slightly rounded to match the radial shape of the hose clamp. The deflecting portion 13 is located between the connection portion 14 and head portion 15, and may be generally shaped by partial apertures 12. The deflecting portion 13 shall have a generally reduced bending resistance compared to the head portion 15, in order to facilitate deflection under hose tightening operations, as further described below.

The partial apertures 12 illustrated in FIG. 1 are shown as two semi-circle cutouts located at the edges. The purpose of the apertures 12 is to sufficiently degrade the rigidity of the overall clamp locator 10 to allow it to deflect under loads caused by the tightening of an associated hose clamp, as further described below, and to have that deflection occur in the region of the deflecting portion 13. Through the utilization of partial apertures 12, the deflecting portion 13 has a reduced bending resistance compared to the head portion 15. As such, the partial apertures may take on numerous configurations, including, but certainly not limited to, a single partial aperture. It is further contemplated that use of apertures or partial apertures may not be required if the clamp locator 10, and particularly the deflecting portion 13, is comprised of a sufficiently flexible material. However, it is contemplated that use of a locator tab comprising a sufficiently flexible material, or a

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constriction in its width or reduction in its thickness, may provide adequate deflecting properties to negate the need for partial apertures.

Referring to FIG. 2, additional elements of clamp locator 10 become apparent. An end portion 16 extends angularly from the head portion 15, preferably at a substantially perpendicular angle, and is sufficiently long enough to enable the clamp locator 10 to be positioned on the end of the associated hose. Extending from the end portion 16 at angle a is a clip portion 18. It is preferable that angle α is a slightly obtuse angle so that the clamp locator may be easily positioned on the end of the applicable hose. An angle α of between about $100^{o}$ to about $130^{o}$ has been found to work adequately, although any angle α greater than $90^{o}$ but less than $155^{o}$ is contemplated. Then extending from the end of the clip portion 18 at angle β is a tooth portion 20. The tooth portion 20 is disposed to engage an interior surface of a hose, and therefore may have the same width as the rest of the clamp locator 10, or may be configured to narrow along its length to thereby form a sharper engagement point to act as a barb once in contact with a hose, and keep the clamp locator in position. As further described below, the head portion 15, end portion 16, clip portion 18, and tooth portion 20 work cooperatively to statically position the clamp locator relative to the end of a hose.

FIG. 3 illustrates a hose clamp (shown generally at 30) in conjunction with a clamp locator 10. Hose clamp 30 is a typical hose clamp comprised of a circumferential band 32 and an adjustor 34. Adjustor 34 is illustrated as a worm drive adjustor, having a screw 35 meshable with inclined perforations 33 and rotated by rotating the screw 35 with a suitable tool in a known manner, although any common hose clamp adjustor may be used. The clamp locator 10 may be positioned at any desired radial point along the band 32, however it is preferable to position it where it will not interfere with adjustment operations. FIG. 4A is an end view of the hose clamp 30. The connection portion 14 of the clamp locator 10 is attached to the band 32 at point 38. It is contemplated that the connecting portion 14 may be attached to band 32 by any means that provides an adequate bond, such as, but not limited to, heat welding, chemical welding, chemical bonding, staking, use of mechanical fasteners, or a combination of two or more of the

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foregoing.

It is further contemplated that the clamp locator 10 may be positioned in a predetermined manner to band 32 to effect a desired positioning of the overall clamp assembly 30 relative to an associated hose. In this manner, it is possible to position the clamp locator 10 at a specific angle point along band 32 so that during installation, an installer may merely align the clamp locator 10 with a predetermined point on the associated hose. This would provide for a consistent positioning of the clamp adjustor 34 relative to the hose, which in turn creates efficiencies in the installation process. Additionally, in applications with limited clearance, such as the engine compartment of some vehicles, the clamp adjustor 34 may be specifically positioned in order to assure access to the clamp adjustor 34 for tightening and later maintenance operations. As such, the clamp locator 10 may be utilized to both locate a hose clamp 30 a specific distance from the end of a hose, as well as at a specific angle of rotation relative to the hose.

The band 32 may additionally have a partial aperture 36 that works cooperatively with a clamp locator 10 in allowing the hose and locator to deflect towards the band without conflicting with the restrictive sealing process of the clamp, as further described below. The partial aperture 36 may take any size and shape, but should not be significant enough in size to degrade the tensile properties of band 32 and prevent proper sealing functions. Additionally, the partial aperture 36 is preferably wide enough to allow the clip portion 18 of clamp locator 10 to pass through as it is being deflected, as well as a portion of the hose pressed in between the head portion 15 and clip portion 18 that is being deflected as well. It is important to note that it is not required that the clip portion 18 actually deflect through the partial aperture 36 for the assembly to work properly, but it is preferred only that it be able to. For the foregoing reasons and referring to FIG. 4A, it has been found that for a typical application, a ratio of partial aperture depth $D_1$ to band depth $D_2$ of from about 1:6 to about 1:2 is desirable. Additionally, a ratio of clamp locator width $W_1$ to partial aperture width $W_2$ of about 1:1.2 to about 1:2.5 is contemplated.

FIGS. 5A-5C represent a typical assembly process incorporating the present invention.

## DOCUMENT D2

FIG. 5A is a sectional view of a clamp locator 10 having a partial aperture 12, and attached band 32 having a partial aperture 36. In FIG. 5B, the assembly is positioned over the end of a hose 50, which is shown in partial cutaway for clarity. In FIG. 5C, the clamp locator 10 has been clamped into position on the hose 50, so that the tooth portion 20 compresses and "grabs" a portion of the hose 50. It is contemplated that this clamping can be performed by the use of a machine, simple tools such as a pair of pliers, or even by hand for some limited applications. The angle of the tooth portion 20 relative the belt 50 prevents the clamp locator 10 from easily being pulled off. The hose 50 can then be positioned over a fitting 52, for which clamping of the two components together is desired.

**DOCUMENT D2**

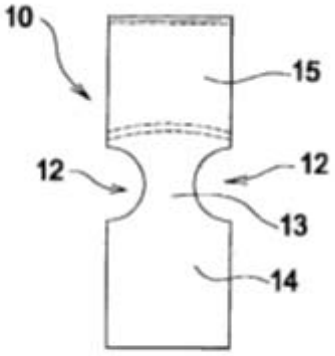


FIG.1

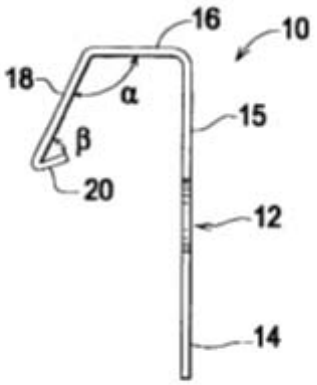


FIG.2

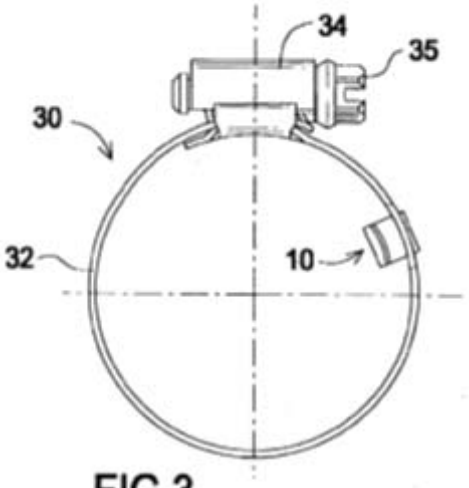


FIG.3

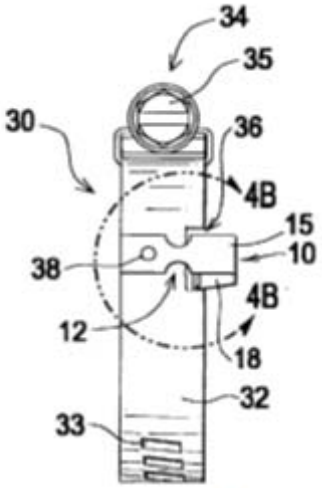


FIG.4A

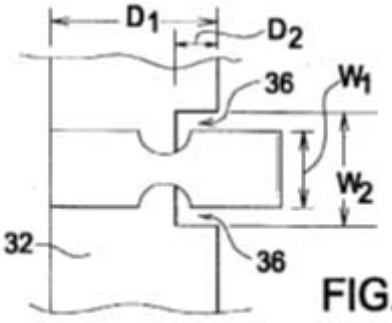


FIG.4B

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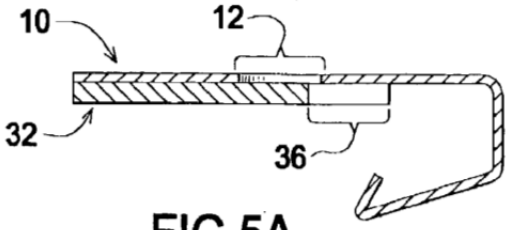



FIG.5A

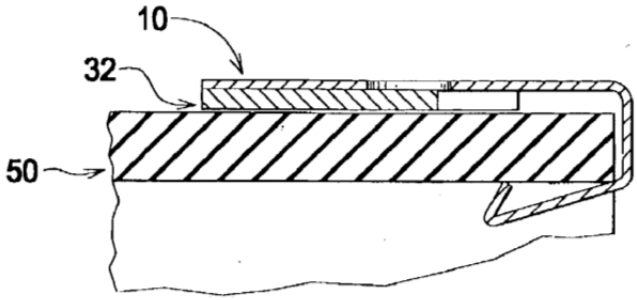



FIG.5B

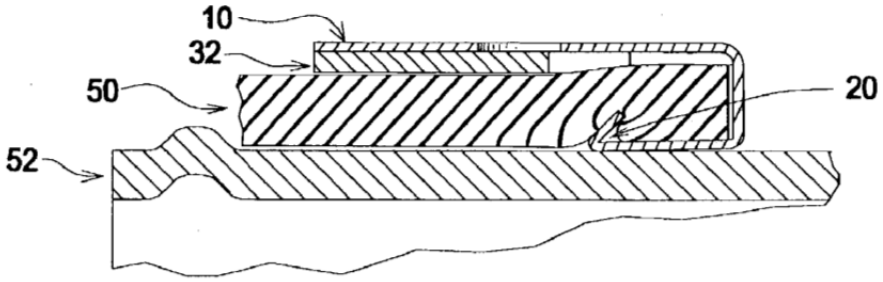



FIG.5C

* * *

**DOCUMENT D3**

**DOCUMENT D3**

**Canadian Patent Application No. 2,xxx,275**

# STABILIZER CLAMP

**Filing Date:** **December 1, 2011**
**Publication Date:** **June 1, 2012**
**Priority Data:** **US 61/xxx,127 filed December 1, 2010**

**Inventor:** **Graham T. Bird and Dylan K. Nash**
**Assignee:** **J.T. Smokers Inc.**

## BACKGROUND OF THE INVENTION

Couplings for fluid lines typically comprise two pipes, one with a push-on fitting and another with integrated O-rings. The push-on fitting pipe also has a flange at the end. Further, the other pipe has a cage with a garter-type coil spring enclosed within the cage near the end for receiving the flanged end of the push-on fitting. The push-on fitting of a coupling has an end that is flared and sized to fit into a cage that houses a garter-type coiled spring. The fitting is pushed onto the pipe and over the O-rings on the end of the pipe. When the flared end of the fitting enters the cage, the spring is forced over the flared end of the pipe and down to encircle the fitting. The fitting is thus prevented by the spring from being pulled out of the cage. Pressurized fluid between the pipe and the push-on fitting is sealed within the line by the O-rings.

The push-on fittings are used, for example, in air conditioning systems to connect flexible hoses to the condenser, evaporator, accumulator and the compressor. Also, the push-on couplings can be used for connecting the gasoline tank to the carburetor of the vehicle. The push-on couplings have a high incidence of failure in the O-rings used to seal the connection between the push-on fitting and the pipe to which it is coupled. For example, high line pressures cause a high incidence of O-ring failures. Further, the running of the vehicle's engine causes constant vibration and movement of the flexible hose. Thus, the fitting moves back and forth transverse to its axis, causing wear and eventual rupture of the seal between the O-rings and the inner surface of the push-on fitting. Therefore, the clamp in the present invention is designed so that radial

**DOCUMENT D3**

forces are applied uniformly around the entire push-on coupling. Thus, the clamp of the present invention will not allow the push-on coupling to leak because the clamp is always secured uniformly to the coupling. The present invention is a one piece part and is easy to manufacture and install. Further, the clamp in the present invention is universal and can be adjusted to fit any pipe diameter.

SUMMARY OF THE INVENTION

The present invention discloses an adjustable stabilized clamp for fluid line couplings, wherein the clamp is placed around the push-on coupling arrangement between the line and the push-on fitting. The clamp prevents engine vibration and vehicle movement from eventually rupturing the seals of the push-on coupling. Ruptured seals are undesirable because they can result in leakage, for example, of dangerous CFC's into the ozone. The clamp uniformly urges the push-on coupling together and holds the push-on fitting into concentric alignment with the pipe to which the fitting is coupled. In addition, a uniform radial force is directed on the seal between the O-rings and the inner surface of the fitting to maximize the O-ring seal.

The clamp has a stainless steel stabilizer bar having a fitted groove for receiving the cage of the pipe. The stabilizer bar has two circle clamps located at each arm of the stabilizer bar for support. The circle clamps are radially secured onto the pipe.

The centered fitted groove is placed over the cage of the pipe and the two circle clamps are radially encircled over the pipe. This arrangement ensures that the pipe is secured by uniform radial forces, thereby locking the pipe and fitting into concentric alignment. This uniform radial clamping system improves the sealing of couplings utilizing push-on fittings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view showing the clamp of the present invention securing a push-on coupling;

**DOCUMENT D3**

FIG. 2 is a perspective view showing the stabilizer bar;

FIG. 3 is a perspective view of the circle clamp; and

FIG. 4 is a perspective view of the interaction between the stabilizer bar and two circle clamps.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 illustrates a push-on coupling 10 having an adjustable stabilizer clamp 12 thereon to prevent the coupling 10 from separating due to vibration or other movements. The coupling 10 is further used extensively on vehicle refrigerant lines and fuel lines. The push-on coupling 10 includes a pipe 14 and a push-on fitting pipe 16. Both pipes 14 and 16 can have varying diameters depending on the application and vehicle. Pipe 14 has a cage 18 near the coupled section where the two pipes 14 and 16 are connected. The cage 18 is integral with the end portion of the pipe 14.

Continual transverse movement between pipe 14 and pipe 16 due to engine vibration and temperature changes tends to cause the failure of the push-on coupling 10. However, the adjustable stabilizer clamp 12 securely clamps and fastens the cage 18 and pipes 14 and 16 together. When the clamp 12 is secured to the push-on coupling 10, it prevents the failure or separation of the push-on coupling 10 under the above recited circumstances.

FIG. 2 illustrates the stabilizer bar 20 of the adjustable stabilizer clamp 12. The stabilizer bar 20 has a fitted groove 22 centered between two arms 24, wherein the arms 24 are preferably equidistantly spaced apart from each other. Each arm 24 has a semi-annular recess 26. The groove 22 also has a semi-annular recess 28, which is shaped and sized to clip-on over the pipe cage 18 of FIG. 1. It is preferred that stabilizer bar 20 be stainless steel and bendable, although other materials could be used as well.

FIG. 3 illustrates the circle clamp 30 of the adjustable stabilizer clamp 12 of FIG. 1. The circle clamp 30 has a band 32 and a head 34 coupled to band 32. The band 32 has slots 33 throughout and the head 34 has an integrated adjusting mechanism 36. The adjusting mechanism 36 is

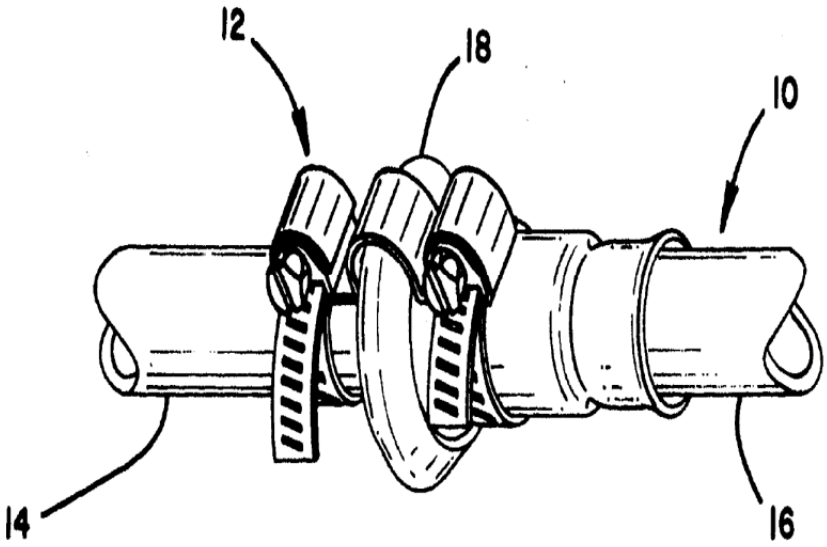
**DOCUMENT D3**

typically a screw 36 having threads (not shown). The threads of the screw 36 are geared to the slots 33 of the band 32. Thus, when the screw 36 is turned, the threads of the screw 36 mesh into the slots 33 to traverse the band 32 thereby allowing the diameter 38 of the band 32 to be adjusted. Therefore, the band 32 can be tightened and loosened radially on the coupling 10 and also can be fitted to any pipe diameter, such as pipe 14 and 16 of FIG. 1.

FIG. 4 illustrates the interaction between the stabilizer bar 20 and the two circle clamps 30. The head 34 of the circle clamp 30 in FIG. 3 is semi-annularly shaped to receive the semi-annular recess 26 of FIG. 2. The semi-annular recess 26 of FIG. 2 is shaped and sized to clip-on over the head 34. The clamp 12 receives push-on coupling 10 of FIG. 1 by encircling pipes 14 and 16 with circle clamps 30. Next, the respective adjusting mechanisms 36 of circle clamps 30 are tightened to secure circle clamps 30 around pipes 14 and 16 of FIG. 1 respectively. The tightening of the adjusting mechanism 36 forces the groove 22 of the stabilizer bar 20 to be urged securely against the cage 18 of the push-on coupling 10 of FIG. 1. Thus, the push-on coupling 10 is subject to uniform radial forces from the clamp 12, which helps prevent the failure of the push-on coupling 10.

**DOCUMENT D3**

FIG. 1



**DOCUMENT D3**

FIG. 2

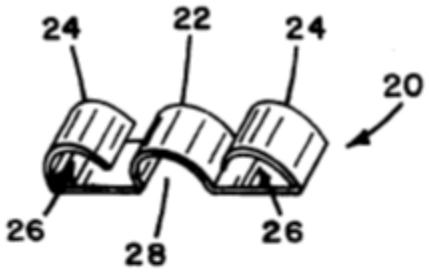



FIG. 3

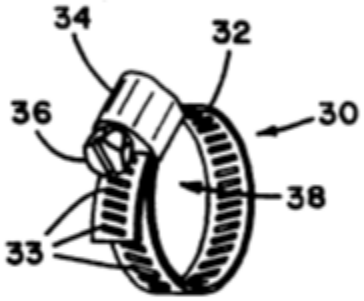
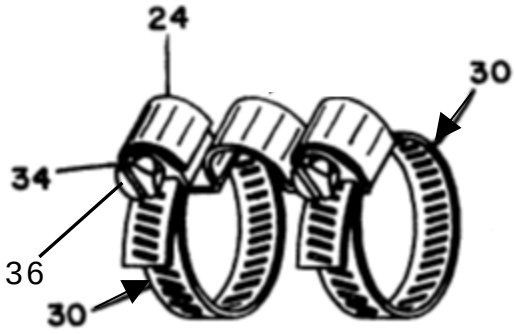



FIG. 4




* * *

## 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: [3.0 marks]

In his backyard, Frank discovered and isolated mushroom X containing a novel compound Y. He tested compound Y in tumor-containing mice and found that the tumors disappeared, whereas tumor-containing mice which did not receive compound Y died. Frank subsequently filed a Canadian patent application on his discoveries. The claims are as follows:

A. Mushroom X comprising novel compound Y for treating a tumor in a subject.

B. Novel compound Y for use in treating a tumor in a subject.

C. A method of treating a tumor comprising administering mushroom X to a subject.

D. An animal feed comprising mushroom X.

E. Use of a composition comprising mushroom X and a salt for treating a tumor in a subject.

**i)** List one reason why or why not each of the claims may be patentable subject matter in Canada.

**(ii)** What is the appropriate Section of the *Patent Act* that applies to patentable subject matter.

### QUESTION 8: [1.0 mark]

In the United States, according to 35 U.S.C. 112 "the specification….shall set forth the best mode contemplated by the inventor of carrying out his invention." As can be understood from

this language, U.S. patent applications have a best mode requirement that is relevant to all technologies. Does the Canadian Patent Act impose a similar best mode requirement? Apply the appropriate Section(s) of the *Patent Act*.

**QUESTION 9: [2.0 marks]**

A Canadian patent application was abandoned for failure to respond to an Office Action. Your client contacts you in a state of panic a few days before the reinstatement deadline, and tells you that he is unable to provide you with instructions by the deadline. He nevertheless wants to keep this application from becoming irrevocably abandoned. Can an extension of time be requested? Apply the appropriate Section(s) of the *Patent Act and/or Rules*.

**QUESTION 10: [2.0 marks]**

i) Name the three-part test for sound prediction; and
ii) Name the relevant case law for the test.

**QUESTION 11: [4.0 marks]**

You promptly report to a US Associate a Notice of Allowance you received this morning for a Canadian patent application. She is very excited about getting the patent application allowed for this technology in Canada. She sends you a listing of new claims that were allowed in several US counterpart Continuation patent applications. She requests that you promptly file a divisional application before paying the final fee for the allowed Canadian patent application.

You have a look at the claims and they are directed to subject matter that is close to the subject matter of the allowed Canadian patent application. No unity of invention rejection was raised during prosecution of the allowed Canadian patent application.

Based on your assessment, what would you recommend to the US Associate before filing a divisional application with these claims?

**QUESTION 12: [2.0 marks]**

A PCT application was filed June 1, 2016, claiming priority from a US provisional patent application filed June 2, 2015. If today is December 12, 2017, would you be able to enter national phase in:

(a) Canada?

(b) US?

(c) India?

(d) Taiwan?

Provide reasons to support your answer. No authority or statutory support is required.

**QUESTION 13: [2.0 marks]**

Your client, FalCO Inc., is the Applicant of a Canadian patent application. The Canadian patent application is the national phase of a PCT application that was filed in 2006.

As a result of an administrative error at the International stage, employees of FalCO Inc., Kyle Loren and Bob A. Flett, were incorrectly named as inventors in the Request form for the PCT Application. Subsequently, the Canadian patent application was filed naming these incorrect inventors.

In fact, Anne Solo, who is an employee of FalCO Inc., is the sole inventor of the invention that is the subject of both the PCT application and the Canadian patent application.

a) What is required to add Anne Solo as an inventor? Apply the appropriate Section(s) of the *Patent Act* and/or *Patent Rules*.

b) What is required to remove Kyle Loren and Bob A. Flett as inventors? Apply the appropriate Section(s) of the *Patent Act* and/or *Patent Rules*.

**QUESTION 14: [1.0 mark]**

Which of the following transitional phrase(s) is understood NOT to include additional, unrecited elements or method steps within the scope of a claim? Mark will be awarded only for full correct answer. List only the letter(s) as your answer.

A. Comprising

B. Consisting of

C. Containing

D. Including

**QUESTION 15: [4.0 marks]**

Are the following statements concerning re-examination of a Canadian patent true or false? Apply the appropriate Section(s) of the *Patent Act* and/or *Patent Rules*.

A) A request for re-examination may only be filed by the patentee, or a competitor of the owner.

B) A re-examination board has to complete the re-examination proceeding within 12 months once the re-examination board has caused a re-examination to be made of the claim of the patent in respect of which the request for re-examination was submitted.

C) A patentee may submit a reply to the notice of the re-examination board setting out substantial new questions on the patentability of one or more claims.

D) A determination by the re-examination board that the request for re-examination did not raise a substantial new question affecting patentability of a claim of the patent may not be appealed to any court.

**QUESTION 16: [2.0 marks]**

You are the Patent Agent for JU CORP in Canada and you inform the CEO that his Canadian patent application became abandoned last month for failure to pay a maintenance fee. He does not understand this at all, because he remembers that he personally paid the correct amount to

CIPO well before the fee was due. Explain to him what went wrong and how it can be corrected, if possible. No authority or statutory support is required.

**END OF QUESTIONS IN PART B**

**END OF PAPER B**

**MARKING GUIDE - PAPER B (2018)**

**PART A**

**QUESTION 1: [5.0 marks]**

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*.

- **D1**–Third party US patent published before claim date. Citable for anticipation [28.2(1)*(b)*] and obviousness [28.3*(b)*].

- **D2** –Third party EP patent application published before claim date. Citable for anticipation [28.2(1)*(b)*] and obviousness [28.3*(b)*].

- **D3** –Third party Canadian patent application has a filing date after claim date. Third party Canadian patent application has a claim date before claim date and was published after claim date. Citable for anticipation [28.2(1)*(d)*] but NOT for 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,242:

a) "a locking portion" (claims 1 and 4) **[1.0 mark]**

- The locking portion 3 is a component that works in combination with the adjusting component (e.g. a clamping screw 4) to adjust the diameter of the band (page 8, lines 4-8 and 18-20, see Figures 1a-b, 2a-b).

- The locking portion is a suitable fastening point for other components (e.g. a fixing attachment 8 (Figs. 1a-b) that is connected to the locking portion or integral therewith (page 8, lines 20-25), a projecting integral part that is used to be folded around the edge of the hose end (page 8, lines 26-28), or a suitable fastening point for other components, such as hoses, cables or flexible cords, using a fastening element (page 10, lines 20-30).

b) "an adjusting component, arranged adjacent to the locking portion" (claims 1 and 4) **[1.5 marks]**

- The adjusting component is a fastener, such as a screw (e.g. clamping screw 4 in Figs. 1 a-b, 2 a-b and 4) that can cooperate with the band (e.g. cooperate with grooves 9 in end portion 2a of the band 2) so that, as the screw 4 rotates clockwise or counter-clockwise, the enclosing diameter of the band 2 decreases or increases, respectively (page 8, lines 6-8).

- "arranged adjacent to the locking portion" means next to, within, neighboring, beside or near the locking portion 3 as shown in the figures. For example, clamping screw 4 is arranged within the locking portion 3 as shown in Figs. 1 a-b, 2b, 4 and 5.

c) "a fixing attachment, which is substantially immovably connected to the locking portion" (claims 1 and 4) **[2.0 marks]**

- The fixing attachment can be, for example, the fixing attachment 8 or bracket-like attaching component such as separate resilient attachment 6, which is connected to the locking portion in some manner such that there is very little or no movement relative to one another.

- Examples are shown as i) locking portion 3 and fixing attachment 8 (see Fig. 1a), which can be connected to the locking portion either integrally or as separate parts or ii) locking portion 3 and the bracket-like attaching component such as the separate resilient attachment 6, which snaps over the locking portion 3 (see Fig. 4).

d) "fixedly attach to said hose" (claims 1 and 4) **[1.0 mark]**

- The fixing attachment is coupled to the hose to hold the locking portion in place on the hose so that it does not move relative to the hose.

- The fixing attachment can be held in place using glue through holes 10 on separate resilient attachment 6 (Fig. 4), using teeth (e.g. two teeth 8a and 8b engage the inside of the hose (Fig. 1a) or a projecting integral part of the locking portion is used to be

folded around the material of the edge of the hose end, holding the locking portion in place. (page 8, lines 26-28)

e) "fixing attachment being integral with the locking portion" (claim 1) **[0.5 marks]**

- The fixing attachment is not a separate part from the locking portion; the fixing attachment and locking portion are one piece.

f) "an abutment for positioning the hose clamp at a distance from an end of the hose" (claim 4) **[2.0 marks]**

- An abutment 7' or 7 is a part of the fixing attachment that is able to position the hose clamp (locking portion) such that the clamp is held at the end of the hose so the clamp does not slide down the length of the hose and the clamp. The abutment with the "for" limitation is any component that assists in positioning the clamp at a distance from the end of the hose so one can correctly and accurately position the clamp.

- The abutment 7' or 7 is a part that is positioned/butted against the end of the hose. The abutment could be integral or a separate part of the fixing attachment (page 8, lines 11-12). Examples are shown in Figs. 1 a-b, 2 a-b and 4 as abutment 7' of fixing attachment 8 which is integral therewith (page 8, lines 11-12) and abutment 7 of separate resilient attachment 6 (Figures 2a-b, 3 and 4).

g) "an immobilizing component" (claim 4) **[1.0 marks]**

- The fixing attachment is arranged to attach to the hose using the immobilizing component (e.g. teeth 8a and 8b engage the inside of the hose) as to hold the locking portion (hose clamp) in place on the hose so that it does not move relative to the hose in any manner.

- The hose clamp need not be fixedly attached to the hose by means of teeth - any other immobilizing component can be used (page 11, lines 5-6) such as a projecting

integral part of the locking portion can be folded around the edge of the hose end in order to fixedly attach the locking portion to the hose.

**QUESTION 3: [37.0 marks]**

Are claims 1, 2, and 3 anticipated by any one of D1-D3? Provide detailed supporting arguments and references to the appropriate sections of the documents.

| **Anticipation Breakdown** | **D1** (US Patent No. 6,xxx,077) | **D2** (EP Patent Publication No. 2,xxx,925) | **D3** (Canadian Patent Application No. 2,xxx,275) |
|---|---|---|---|
| **Claim 1** | | | |
| A **hose clamp** to be fastened to a hose, said hose clamp comprising: | Yes, worm drive clamp 14 (Fig. 1) | Yes, hose clamp 30 (Fig. 3) | Yes, circle clamp 30 (Fig. 3) |
| a) a **locking portion**, | Yes, screw housing 12 (Fig. 1) | Yes, adjustor 34 (Fig. 3) | Yes, a head 34 (Fig. 3) |
| b) a **band** forming an open ring, **end portions of the open ring being arranged adjacent to the locking portion**, | Yes, band 20 (Fig. 1) has an open ring with ends of the band 20 next to the screw housing 12 (page 21, line 30-page 22, line 1; Fig. 1) | Yes, circumferential band 32 (Fig. 3) with end portions shown in Fig. 3 next to the adjustor 34. | Yes, a band 32 (Fig. 3) with end portions shown in Fig. 3 adjacent to the head 34. (page 38, lines 26-31) |
| c) an **adjusting component**, **arranged adjacent to the locking portion**, to vary a diameter of the open ring and to hold the end portions of the open ring of the band together, and | Yes, screw 16 arranged adjacent to the screw housing 12 (page 22, lines 1-3; Fig. 1) | Yes, a screw 35 arranged adjacent to the adjustor 34 (Fig.3); the screw 35 is meshable with inclined perforations 33 and rotated by rotating the screw 35 (page 31, lines 21-23) | Yes, integrated adjusting mechanism 36 (typically a screw 36) arranged adjacent the head 34. Varies diameter and holds ends of the band together. The screw 36 engages the slots 33 of the band 32 and when the screw 36 is turned, the threads of the screw 36 mesh into the slots 33 to traverse the band 32 |

| | | | |
|---|---|---|---|
| | | | thereby allowing the diameter 38 of the band 32 to be adjusted. Therefore, the band 32 can be tightened and loosened radially. (page 38, lines 26-31 to page 39, lines 1-3) |
| d) **a fixing attachment**, which is | Yes-fixing attachment:<br><br>bracket 10 (Figs. 2-4) and bracket 110 (Figs. 5-6) having a substantially U-shaped screw housing cover 26 and a pair of opposing outwardly extending tabs 28. (page 22, lines 4-5) | Yes-fixing attachment:<br><br>clamp locator 10 (Figs. 1, 2, 4a and 5) | Yes-fixing attachment:<br><br>stabilizer bar 20, in particular arms 24 and semi-annular recess 26 (Figs. 2 and 4) |
| **substantially immovably connected to the locking portion**, | Yes- substantially immovably connected to the locking portion:<br><br>bracket 10 is shown in Figs. 1, 3 and 4, and has a screw housing cover 26 which receives the screw housing 12. The first end cap 40 on the front side 42 of the large portion 34 and a second end cap 44 on the opposing rear side 46 of the small portion 36 ***prevent the sliding of the screw housing 12 within the bracket 10.*** After the bracket 10 is pressed over the screw housing 12, **the protrusions 48** | No-not substantially immovably connected to the locking portion:<br><br>clamp locator 10 is not near the locking portion 34; it is positioned further along band as shown in Figs. 3-4a | Yes- substantially immovably connected to the locking portion:<br><br>stabilizer bar 20 (see Fig. 4)- The head 34 of the circle clamp 30 in FIG. 3 is semi-annularly shaped to receive the semi-annular recess 26 of FIG. 2. The semi-annular recess 26 of FIG. 2 is shaped and sized to clip-on over the head 34. |

| | | | |
|---|---|---|---|
| | **retain the bracket 10 over the screw housing 12.** (page 22, lines 19-20 and 24-26) | | |
| and arranged **to fixedly attach** to said hose, | Yes-arranged to fixedly attach to said hose: Glue is placed onto the outer surface 22 of the hose 24 at the locations where the tabs 28 of bracket 10 will be positioned and affixed thereto. (page 22, lines 27-30) | Yes, arranged to fixedly attach to hose: See Fig 1-2 and 5a-c-Specifically, in Fig. 5B, the assembly is positioned over the end of a hose 50 and in Fig. 5C, the tooth portion 20 of clamp locator 10 compresses and "grabs" a portion of the hose 50. | Yes-arranged to fixedly attach to said hose: fitted groove 22 of bar 20 receives cage 18 (see Fig. 1), which is integral with pipe 14 (page 38, line 12) and therefore, arm 20 is coupled to the hose to hold the locking portion in place. |
| said **fixing attachment** being **integral with the locking portion.** | No-fixing attachment is not integral with locking portion**:** bracket 10 is separate from the locking portion (the screw housing 12). | No-fixing attachment is not integral with locking portion: clamp locator 10 is separate from the locking portion (adjustor 34). | No-fixing attachment is not integral with locking portion: stabilizer bar 20, in particular arms 24 and semi-annular recess 26 (Figs. 2 and 4) are separate pieces from head 34 (Fig. 3). |
| Enablement + Conclusion | No, with support | No, with support | No, with support |
| | [**5.5 marks**] | [**5.0 marks**] | [**5.5 marks**] |

| **Claim 2** | | | |
|---|---|---|---|
| A **hose clamp** to be fastened to a hose, said hose clamp comprising: | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) |
| a) a **locking portion**, | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) |
| b) a **band** forming an open ring, **end portions of the open ring being arranged adjacent to the locking portion**, | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) |
| c) an **adjusting component**, **arranged adjacent to the locking portion**, to vary a diameter of the open ring and to hold the end portions of the open ring of the band together, and | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) |
| d) **a fixing attachment**, which is | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) |
| **substantially immovably connected to the locking portion**, | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) |
| and arranged **to fixedly attach** to said hose, | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) | Yes, (same as above with respect to Claim 1) |
| said **fixing attachment** being **a bracket-like attaching component coupled to the locking** | Yes-fixing attachment is a **bracket-like attaching component coupled** | No-fixing attachment is not a **bracket-like attaching** | Yes-fixing attachment is a **bracket-like attaching component coupled to the locking** |

| | | | |
|---|---|---|---|
| **portion**. | **to the locking portion**: bracket 10 includes a pair of protrusions 48 on the opposing interior surfaces 50 of the screw housing cover 26 (locking portion). After the bracket 10 is pressed over the screw housing 12, the protrusions 48 retain the bracket 10 over the screw housing 12. (page 22, lines 19-20 and 24-26) so bracket is coupled to the locking portion. | **component coupled to the locking portion**: clamp locator 10 is separate from the locking portion (adjustor 34) and is not "bracket-like". | **portion**: stabilizer bar 20, in particular arms 24 and semi-annular recess 26 (Figs 2 and 4) are bracket-like. Stabilizer bar 20 (see Fig. 4)- The head 34 of the circle clamp 30 in FIG. 3 is semi-annularly shaped to receive the semi-annular recess 26 of FIG. 2. The semi-annular recess 26 of FIG. 2 is shaped and sized to clip-on over the head 34. |
| Enablement + Conclusion | Yes, with support | No, with support | Yes, with support |
| | [**5.0 marks**] | [**4.5 marks**] | [**5.0 marks**] |
| **Claim 3 (dep. 2)** | | | |
| The hose clamp as claimed in claim 2, wherein said bracket-like attaching component is | Yes, bracket-like as described above in claim 2. | No, not bracket-like as described above in claim 2. | Yes, bracket-like as described above in claim 2. |
| **made of a resilient material and** | Yes, resilient material: The bracket 10 can be made of plastic, metal or a thermal plastic elastomer. (page 22, lines 5-7) | Yes, resilient material: clamp locator 10, is comprised of a sufficiently flexible material (page 30, lines 29-31) | Yes, resilient material: stabilizer bar 20 can be stainless steel and bendable and shaped and sized to clip-on over the head 34. (page 38, lines 24-27) |
| **has an abutment**. | Yes, abutment: the bracket 110 includes a pair of opposing inwardly extending tabs 128 having a curvature 130 (e.g. abutment) which approximately equals | Yes, abutment: See Figs. 5a-5c and in Fig. 2-an end portion 16 is an abutment. Positioning is described for Figs. 5a-c. | Yes, abutment: bar 20 and, in particular fitted groove 22 (Figs. 1, 2, and 4) abuts cage 18 of the pipe 14. (page 38, line 23-24 and page 39, 10-12) |

| | | | |
|---|---|---|---|
| | the curvature of the outer surface 22 of the hose 24 (shown in FIG. 1) (page 23, lines 9-11). The surface 130 of the bracket 110 abuts the hose. | | |
| Enablement + Conclusion | Yes, with support | No, with support | Yes, with support |
| | [**2.5 marks**] | [**2.0 marks**] | [**2.0 marks**] |

**QUESTION 4: [22.0 marks]**

Is claim 4 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 clamps for hoses and pipes.

(ii) Common general knowledge

- person skilled in the art would be familiar with various types of hose clamps used to attach and seal a hose onto a fitting and adjustable using, for example, a screw-driver.

B) Inventive concept **[4.0 marks]**

**Inventive concept is a combination of the following features:**

- A fixing attachment, such as fixing attachment 8 or a bracket-like attaching component (e.g. separate resilient attachment 6), which is connected to the locking portion in some manner such that there is very little or no movement of the fixing attachment relative to the locking portion. Examples are shown in the combination of locking portion 3 and fixing attachment 8 (see Fig. 1a), which is connected to the locking portion as shown, or the combination of locking portion 3 and the bracket-like attaching component such as the separate resilient attachment 6, which snaps over the locking portion 3 (see Fig. 4).

- The fixing attachment has an abutment for positioning the hose clamp at a distance from an end of the hose on which the hose clamp is mounted such that the hose clamp does not move down the length of the hose. The abutment positions the hose clamp at the end of the hose, whereby the abutment is positioned/butted against the end of the hose. The abutment may or may not be integral with other parts of the fixing attachment (page 8, lines 11-12). Examples are shown in the Figures as abutment 7' of fixing attachment 8 (Figures 1a-b) which is connected to the locking portion or integral with the locking portion (page 8, lines 20-25) and abutment 7 of separate resilient attachment 6 (Figures 2a-b, 3 and 4). The abutment assists in positioning the clamp at a distance from the end of the hose so one can correctly and accurately position the clamp.

- The fixing attachment has an immobilizing component for fixedly attaching the locking portion to the hose. The fixing attachment is arranged to attach to the hose using the immobilizing component so that the locking portion (hose clamp) is held in place on the hose so that it does not move relative to the hose (e.g. lengthwise or rotationally). The fixing attachment can be held in place using glue with the immobilizing components of holes 10 on separate resilient attachment 6 (Fig. 4), teeth (e.g. two teeth 8a and 8b engage the inside of the hose) or a projecting integral part of the locking portion is used to be folded around the material of the edge of the hose end, holding the locking portion in place.

C) Differences **[2.0 marks]**

- D1

  No abutment for positioning the hose clamp at a distance from an end of the hose on which the hose clamp is mounted. The surface 130 of the bracket 110 abuts the outer surface of the hose but does not disclose an abutment that positions the hose clamp at a distance from the end of the hose on which the clamp is mounted.

- D2

  No fixing attachment substantially immovably connected to the locking portion. The clamp locator 10 is not near the locking portion; it is further along the band as shown in Figs 3-4a.

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]**

- Not obvious in view of D1 alone **[5.0 marks]**

  - In D1, does not teach or suggest an abutment for positioning the hose clamp at a distance from an end of the hose on which the hose clamp is mounted. The bracket 110 includes a pair of opposing inwardly extending tabs 128 having a curvature 130 (e.g. abutment) which approximately equals the curvature of the outer surface 22 of the hose 24 (shown in FIG. 1 and page 23, lines 9-11). The surface 130 of the bracket 110 abuts the outer surface of the hose but does not disclose an abutment that is able to position the hose clamp at a distance, defined by the abutment, from the end of the hose on which the clamp is mounted. D1 teaches that "the main advantage of the tabs 128 is that it is easier to apply the glue 52 and there is a greater surface area for attachment of the tabs 128 to the surface of the hose 24" (page 24, lines 1-3).

  - D1 recognizes the problem of the clamp twisting around the hose as the screw is tightened, causing the screw to travel and if the screw travels, it could get into a tight

space (see page 21, lines 6-9). The bracket 110 of D1 includes a pair of opposing inwardly extending tabs 128 having a curvature 130 (e.g. abutment) which approximately equals the curvature of the outer surface 22 of the hose 24 (shown in FIG. 1 and page 23, lines 9-11). The surface 130 of the bracket 110 abuts the outer surface of the hose and is simply glued (52; FIG.1) at any random position along the hose to prevent the clamp from twisting around the hose when tightening the screw 16.

- The abutment of '242 helps to position the clamp at a distance from the end of the hose so one can correctly and accurately position the clamp and properly seal the hose. D1 does not teach or suggest such an abutment. The abutment of D1 is simply glued randomly along the surface of the hose.

- Not obvious in view of D2 alone **[3.0 marks]**

  - In D2, the clamp locator 10 is not near the locking portion; it is further along the band as shown in Figs. 3-4a. The only embodiments described have the clamp locator coupled directly to the band 32 itself.

  - In D2, the clamp locator 10 has to be sufficiently bendable at 13. One skilled in the art would not consider connecting it to the adjustor 34 as it may lose it essential bendability according to D2. As shown in Fig. 1, a clamp locator 10 has a connection portion 14, deflecting portion 13, and head portion 15. The deflecting portion 13 is located between the connection portion 14 and head portion 15, and may be generally shaped by partial apertures 12. The deflecting portion 13 needs to be bendable (see page 30, lines 10-31 to page 31, line 1) in order to facilitate deflection under hose tightening operations. This is done, for example, through the utilization of partial apertures or sufficiently flexible material. D2 does not teach or suggest a fixing attachment substantially immovably connected to the locking portion. The fixing attachment (clamp locator 10) is separate from the locking portion (adjustor 34); otherwise, it may lose its bendability from being immovably connected to the locking portion.

- Not obvious when combining D1 and D2 **[6.0 marks]**

  - In ‘242, a fixing attachment, such as fixing attachment 8 or a bracket-like attaching component (e.g. separate resilient attachment 6), is connected to the locking portion in some manner such that there is very little or no movement of the fixing attachment relative to the locking portion. Examples are shown in the combination of locking portion 3 and fixing attachment 8 (see Fig. 1a), which is connected to the locking portion as shown, or the combination of locking portion 3 and the bracket-like attaching component such as the separate resilient attachment 6, which snaps over the locking portion 3 (see Fig. 4). D1 teaches this feature: bracket 10 includes a pair of protrusions 48 on the opposing interior surfaces 50 of the screw housing cover 26 (locking portion). After the bracket 10 is pressed over the screw housing 12, the protrusions 48 retain the bracket 10 over the screw housing 12 (page 22, lines 19-20). Therefore, bracket 10 is coupled to the locking portion (screw housing 12). D2 does not teach coupling the clamp locator 10 to the locking portion (the adjustor 34) as the clamp locator 10 has to be sufficiently bendable at 13. One skilled in the art would not consider connecting it to the adjustor 34 of D2 or consider connecting it to the bracket 10 of D1 as it may lose its essential bendability according to D2.

  - D2 does not teach coupling the clamp locator 10 to the locking portion (the adjustor 34) in any embodiments. It always teaches that the clamp locator 10 is coupled directly to the band 32 itself. Therefore, one skilled in the art would not consider combining the bracket 10 of D1 with the clamp locator 10 since it is essential in D2 for the clamp locator 10 to be coupled to the band.

  - In ‘242, the fixing attachment has an abutment for positioning the hose clamp at a distance from an end of the hose on which the hose clamp is mounted such that the hose clamp does not move down the length of the hose. The abutment assists in positioning the clamp at a distance from the end of the hose so one can correctly and accurately position the clamp. One skilled in the art would not consider coupling the clamp locator 10 of D2 directly to the bracket 10 of D1 for the reasons noted in the first two paragraphs above.

- In ‘242, the fixing attachment has an immobilizing component for fixedly attaching the locking portion to the hose. The immobilizing component holds the locking portion (hose clamp) in place on the hose so that it does not move relative to the hose (e.g. lengthwise or rotationally). Both D1 and D2 have immobilizing components: the surface 130 of the bracket 110 of D1 abuts the outer surface of the hose and is simply glued (52; Fig. 1) at any random position along the hose to prevent the clamp from twisting around the hose when tightening the screw 16 and, for D2, see Figs. 1-2 and 5a-c. Specifically, in Fig. 5B, of D2 the assembly is positioned over the end of a hose 50 and in Fig. 5C, the tooth portion 20 of clamp locator 10 compresses and "grabs" a portion of the hose 50. Although D1 and D2 have immobilizing components, one skilled in the art would not consider coupling the clamp locator 10 of D2 directly to the bracket 10 of D1 for the reasons noted in the first two paragraphs above.

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

**QUESTION 5: [3.0 marks]**

(i) Based on the information provided and assuming the ownership and inventorship is correct, is Chloe Green permitted to grant a license to Rob’s company for:

**a)** the CA ‘242 patent? Apply the appropriate Canadian case law.

**b)** the counterpart US patent?

(ii) Based on the information provided and assuming the ownership and inventorship is correct, is Chloe Green permitted to assign her sole ownership rights to Rob’s company for:

**a)** the CA ‘242 patent?

**b)** the counterpart US patent?

ANSWER

i) **a)** In Canada, a valid licence can only be obtained for the CA '242 patent if both Chloe Green and Greenhouses Ltd. consent to the license to Rob. (*Forget v. Specialty Tools of Canada Inc (1993), 48 CPR (3d) 323 at 331 (BCSC), aff 'd (1995), 62 CPR (3d) 537(BCCA)).*

**b)** In the US, each owner can grant a valid licence without the consent of the co-owner, so Chloe can license without the consent of Greenhouses Ltd.

ii)

**a)** In Canada, Chloe would be permitted to assign her sole interest in the CA '242 patent without the consent of the co-owner, Greenhouses Ltd.

**b)** In the US, each owner can assign their sole right without the consent of the co-owner, so Chloe can assign without the consent of Greenhouses Ltd.

**QUESTION 6: [1.0 mark]**

During your discussion with Rob, you learn that Chloe named her cousin, Teresa Waters, as an inventor because Teresa could pay for the patent applications, although Teresa had not contributed to the invention itself. What do you recommend to your client to eliminate this potential ground of invalidity in Canada? Apply the appropriate Section(s) of the *Patent Act*.

ANSWER

- The Federal Court has jurisdiction to order that any entry in the records of the Patent Office relating to the title of a patent be varied (Section 52 of the *Patent Act*). It will thus be necessary to make an application at the Federal Court to remove an inventor.

**END OF QUESTIONS IN PART A**

**PART B – Short Answer Questions**

**QUESTION 7: [3.0 marks]**

In his backyard, Frank discovered and isolated mushroom X containing a novel compound Y. He tested compound Y in tumor-containing mice and found that the tumors disappeared, whereas tumor-containing mice which did not receive compound Y died. Frank subsequently filed a Canadian patent application on his discoveries. The claims are as follows:

A. Mushroom X comprising novel compound Y for treating a tumor in a subject.

B. Novel compound Y for use in treating a tumor in a subject.

C. A method of treating a tumor comprising administering mushroom X to a subject.

D. An animal feed comprising mushroom X.

E. Use of a composition comprising mushroom X and a salt for treating a tumor in a subject.

**(i)** List one reason why or why not each of the claims may be patentable subject matter in Canada.

**(ii)** What is the appropriate Section of the *Patent Act* that applies to patentable subject matter.

**Answer to Question 7:**

(i)

A. Claim would be rejected since mushroom X is a higher life form.

B. Claim would be accepted since compound Y is patentable.

C. Claim would be rejected for being directed to a method of medical treatment.

D. Claim would be accepted since it includes a higher life form within its scope as a component of a composition or food product.

E. Claim would be accepted since it includes a higher life form within its scope as a use.

(ii) Section 2 of the *Patent Act*.

**QUESTION 8: [1.0 mark]**

In the United States, according to 35 U.S.C. 112 "the specification….shall set forth the best mode contemplated by the inventor of carrying out his invention." As can be understood from this language, U.S. patent applications have a best mode requirement that is relevant to all technologies. Does the Canadian Patent Act impose a similar best mode requirement? Apply the appropriate Section(s) of the *Patent Act*.

**Answer to Question 8:**

YES, but limited to machines. Section 27(3)(c) of the *Patent Act.*

**QUESTION 9: [2.0 marks]**

A Canadian patent application was abandoned for failure to respond to an Office Action. Your client contacts you in a state of panic a few days before the reinstatement deadline, and tells you that he is unable to provide you with instructions by the deadline. He nevertheless wants to keep this application from becoming irrevocably abandoned. Can an extension of time be requested? Apply the appropriate Section(s) of the *Patent Act and/or Rules*.

**Answer to Question 9:**

Yes. The time limit for reinstatement may be extended under Subsection 26(1) of the *Patent Rules* provided that the request for the extension of time is made before the period for reinstatement expires and the fee set out in item 22 of Schedule II of the *Patent Rules* is paid before the period for reinstatement expires.

**QUESTION 10: [2.0 marks]**

i) Name the three-part test for sound prediction; and

ii) Name the relevant case law for the test.

**Answer to Question 10:**

i)

1) Factual basis for the prediction

2) An articulable and "sound" line of reasoning

3) Sufficient disclosure

ii) *Apotex Inc.* v. *Wellcome Foundation Ltd.*, [2002] 4 S.C.R. 153

**QUESTION 11: [4.0 marks]**

You promptly report to a US Associate a Notice of Allowance you received this morning for a Canadian patent application. She is very excited about getting the patent application allowed for this technology in Canada. She sends you a listing of new claims that were allowed in several US counterpart Continuation patent applications. She requests that you promptly file a divisional application before paying the final fee for the allowed Canadian patent application.

You have a look at the claims and they are directed to subject matter that is close to the subject matter of the allowed Canadian patent application. No unity of invention rejection was raised during prosecution of the allowed Canadian patent application.

Based on your assessment, what would you recommend to the US Associate before filing a divisional application with these claims?

**Answer to Question 11:**

The claims could be construed as being directed to the same or a similar invention, and a double patenting rejection could be raised for the divisional:

- **i.** If the claims would not necessitate a further search:
    - **1.** File an amendment after allowance to submit the claims and pay the fee ($400) for such amendment.
- **ii.** If the claims would necessitate a further search:

1. Let the application go abandoned (Section 73(1)(f) of the *Patent Act*; Section 30(10)(a) of the *Patent Rules*) for failure to pay the final fee,
2. Pay the reinstatement fee ($200) (Section 73(3) of the *Patent Act*),
3. Pay the final fee ($400) (Section 32(a) of the *Patent Rules* and item 5 of SCHEDULE II), and
4. File a voluntary amendment at the same time to introduce the new claims.

**QUESTION 12: [2.0 marks]**

A PCT application was filed June 1, 2016, claiming priority from a US provisional patent application filed June 2, 2015. If today is December 12, 2017, would you be able to enter national phase in:

(a) Canada?

(b) US?

(c) India?

(d) Taiwan?

Provide reasons to support your answer. No authority or statutory support is required.

**Answer to Question 12:**

(a) Canada – Yes, can enter national phase within 42 months of the priority date;
(b) US – No, more than 30 months from the priority date;
(c) India – Yes, still within 31 months from the priority date;
(d) Taiwan – No, Taiwan is not a PCT contracting state.

**QUESTION 13: [2.0 marks]**

Your client, FalCO Inc., is the Applicant of a Canadian patent application. The Canadian patent application is the national phase of a PCT application that was filed in 2006.

As a result of an administrative error at the International stage, employees of FalCO Inc., Kyle Loren and Bob A. Flett, were incorrectly named as inventors in the Request form for the PCT Application. Subsequently, the Canadian patent application was filed naming these incorrect inventors.

In fact, Anne Solo, who is an employee of FalCO Inc., is the sole inventor of the invention that is the subject of both the PCT application and the Canadian patent application.

a) What is required to add Anne Solo as an inventor? Apply the appropriate Section(s) of the *Patent Act* and/or *Patent Rules*.

b) What is required to remove Kyle Loren and Bob A. Flett as inventors? Apply the appropriate Section(s) of the *Patent Act* and/or *Patent Rules*.

**Answer to Question 13**:

a) Pursuant to subsection 31(4) of the *Patent Act*, where an application is filed by one or more applicants and it subsequently appears that one or more further applicants (includes an inventor) should have been joined, the further applicant or applicants may be joined on satisfying the Commissioner that he or they should be so joined, and that the omission of the further applicant or applicants had been by inadvertence or mistake and was not for the purpose of delay.

b) Pursuant to subsection 31(3) of the *Patent Act*, where an application is filed by joint applicants and it subsequently appears that one or more of them has had no part in the invention, the prosecution of the application may be carried on by the remaining applicant or applicants on satisfying the Commissioner by affidavit that the remaining applicant or applicants is or are the sole inventor or inventors.

**QUESTION 14: [1.0 mark]**

Which of the following transitional phrase(s) is understood NOT to include additional, unrecited elements or method steps within the scope of a claim? Mark will be awarded only for full correct answer. List only the letter(s) as your answer.

A. Comprising

B. Consisting of

C. Containing

D. Including

**Answer to Question 14:**

B

**QUESTION 15: [4.0 marks]**

Are the following statements concerning re-examination of a Canadian patent true or false? Apply the appropriate Section(s) of the *Patent Act* and/or *Patent Rules*.

A) A request for re-examination may only be filed by the patentee, or a competitor of the owner.

B) A re-examination board has to complete the re-examination proceeding within 12 months once the re-examination board has caused a re-examination to be made of the claim of the patent in respect of which the request for re-examination was submitted.

C) A patentee may submit a reply to the notice of the re-examination board setting out substantial new questions on the patentability of one or more claims.

D) A determination by the re-examination board that the request for re-examination did not raise a substantial new question affecting patentability of a claim of the patent may not be appealed to any court.

**Answer to Question 15:**

A) False – 48.1 (1) of the *Patent Act*. Any person can request re-examination.

B) True – 48.3 (3) of the *Patent Act*.

C) True – 48.2 (5) of the *Patent Act*.

D) True – 48.2 (5) of the *Patent Act*.

**QUESTION 16: [2.0 marks]**

You are the Patent Agent for JU CORP in Canada and you inform the CEO that his Canadian patent application became abandoned last month for failure to pay a maintenance fee. He does not understand this at all, because he remembers that he personally paid the correct amount to CIPO well before the fee was due. Explain to him what went wrong and how it can be corrected, if possible. No authority or statutory support is required.

**Answer to Question 16:**

In Canada, only the authorized representative of JU CORP (usually the Agent) can pay the maintenance fees for patent applications. The CEO was not the authorized representative. The application can be reinstated by having the authorized representative pay the reinstatement fee ($200) and pay the missing maintenance fee.

**END OF QUESTIONS IN PART B**

PATENT AGENT EXAMINATION

PAPER C

2018

RESPONSE TO AN OFFICE ACTION

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 C10 (totalling **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 answer.

Please pay attention to organization and neatness in your answers.

PART A: QUESTION C**1** (**70** marks)

**C**1. You are the patent agent responsible for the prosecution of Canadian patent application no. **2,XXX,123**. You are provided with the following documents:

1. A copy of the patent examiner's office action dated April 18, 2018.

2. A copy of the application 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 these documents have been altered for the purposes of this examination. Assume that all priority dates are valid.

4. An additional 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) [**50** marks including **32** marks for the independent claim(s) and **18** marks for the dependent claims];

(ii) a discussion of the cited art indicating how the anticipation and obviousness defects have been overcome [**12** 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**. [**6** marks]

JOS AGENT
555 Smith Road
OTTAWA Ontario
K1A 0C9

April 18, 2018

| | |
|---|---|
| Application No.: | 2,XXX,123 |
| Owner: | ABC INNOVATION INC. |
| Title: | HANGER FOR HOLLOW WALLS |
| Classification: | A47G 1/20 (2006.01) |
| Your File No.: | XXXX |
| Examiner: | J. Smith |

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 as originally filed.

The number of claims in this application is 12.

**Documents Cited**:

| | | |
|---|---|---|
| **D1**: US 4485111 | Palmer | 1 December 1984 (01-12-1984) |
| **D2**: US 4422222 | Leblanc | 2 December 1983 (02-12-1983) |
| **D3**: US 6431333 | Decker | 3 August 2002 (03-08-2002) |

The examiner has identified the following defects in the application:

Novelty (claims 1 and 2)

Claims 1 and 2 are directed to subject-matter that was disclosed in D1 before the claim date and do not comply with paragraph 28.2(1)(b) of the *Patent Act*.

Dl discloses an anchoring system for use with hollow panels, comprising an anchor member (**26**, fig. 6; **56**, fig. 13) and a separate hook member (**35**, fig.6; **55**, fig. 12), which are adapted to be mounted together, the anchor member consisting of an elongated element (**31**, fig. 6; **66**-**73**, fig. 13) having an upper portion (**66**, fig. 13), which is adapted to be inserted into and through a hollow panel (**29**, fig. 6; **74**, fig. 17) and to engage a rear surface of the panel, the hook member being adapted to bear against a front surface of the panel, thereby securing the anchoring system to the panel, wherein the elongated element is an elongated wire (rod **26**, fig. 6; **56**, fig. 13; cf. spring steel, ¶30), and wherein the hook member is provided at an upper end thereof with a rearwardly-extending spike (**38**, fig. 6) for engaging the panel.

Obviousness (claims 3 to 7)

Claims 3 to 7 do not comply with section 28.3 of the *Patent Act*. These claims are directed to subject-matter that lacks an inventive step and would have been obvious at the claim date to a person skilled in the art or science to which it pertains having regard to D1 in view of D2 or D3.

Regarding claim 3, D1 does not show an anchoring system wherein the hook member includes a support plate adapted to be joined to the hook cover portion. However, this feature is disclosed in D2, as shown for example in figures 3 and 4 (disk **12**) and also in D3, as shown for example in figures 7 and 8 (mounting member **20**). It would have been obvious for one skilled in the art looking to increase the stability of the anchoring system to include such a support plate in D1's system.

Regarding claim 4, D1 shows the elongated element extending at an upper end (**66** and **67**, fig. 17) thereof and penetrating the panel. D1 does not show a support plate. However, as discussed above, it would have been obvious to include a support plate. Furthermore, the feature of the elongated element extending from an upper end of the support plate and being adapted to penetrate the panel and to engage the rear surface of the panel is disclosed in D2, as shown for example in figure 3 (needle point penetrator **4**) and in D3, as shown for example in figure 6 (second leg **28** with free end **29**).

Regarding claim 5, D1 shows the elongated element further having a lower portion that penetrates the panel (**71** and **72**, fig. 17). D1 does not show a support plate. However, as discussed above, it would have been obvious to include a support plate. Furthermore, the feature of the elongated element having a lower portion that extends from a lower end of the support plate and penetrates the panel is disclosed in D3, as shown, for example in figure 7 (components **23**, **31** and **32**).

Regarding claim 6, D1 shows the upper portion of the elongated element (**66**, **67**, fig. 17; **76**, **77**, fig. 19) including an engaging portion adapted to biasedly bear (¶0040) against a rear surface of

the panel (**74**, fig. 17; **79**, fig. 19). D1 does not show a support plate. However, as discussed above, it would have been obvious to include a support plate. Furthermore, this feature of the elongated element extending at an upper end of the support plate is disclosed in D2, as shown, for example in figure 3 (needle point penetrator portion **4**), and in D3, as shown, for example in figure 6 (second leg **28**).

Regarding claim 7, D1 shows the upper portion of the elongated element (**76**, **77**, fig. 19) including an engaging portion adapted to penetrate a rear surface of the panel. D1 does not show a support plate. However, as discussed above, it would have been obvious to include a support plate.

Obviousness (claims 8 to 11)

Claims 8 to 11 do not comply with section 28.3 of the *Patent Act*. These claims are directed to subject-matter that lacks an inventive step and would have been obvious at the claim date to a person skilled in the art or science to which it pertains having regard to D1 in view of D3.

Regarding claim 8, D1 does not show the hook cover member adapted to be slidably connected to a support plate. However, as discussed above, it would have been obvious to include a support plate. With respect to the slidable connection, this feature is disclosed in D3, as shown for example in figs. 7 and 8. It would have been obvious for one skilled in the art looking to provide an assembly in which the anchor member is not visible when installed to modify D1's system by incorporating this feature from D3.

Claims 9 to 11 further introduce particular co-operating elements to form a connection between the hook cover portion and the support plate. D1 does not show a support plate. However, as discussed above, it would have been obvious to include such a support plate. With respect to the particular co-operating elements, guides and male and female engagement, and a rib for biasing the co-operating elements together, these are well-known engagement means, as shown, for example in D3 (¶25), which were available to the skilled person as alternative engagement means and would not be considered inventive.

Missing essential feature (claim 1)

Claim 1 is not fully supported by the description and does not comply with subsection 84 of the *Patent Rules*. The description teaches at paragraph [0032] that the lower pin or spike 20 rotationally stabilises the assembly of the hanger (H) in the wall (W) and therefore materially affects the way the invention works. This feature is therefore considered to be an essential feature of the invention. As such, this feature must be included in this claim.

Claim unnecessarily relying on description, drawings (claim 12)

Claim 12 unnecessarily refers to the description and drawings and does not comply with subsection 86(1) of the *Patent Rules*. Features of the invention should not, unless required, rely on references to the description or drawings. The technical features being defined can be described in words and, as such, reference to the description and drawings is not required.

Claims indefiniteness

Claims 3 and 6 to 9 are indefinite and do not comply with subsection 27(4) of the *Patent Act*. It is unclear whether the above claims depend upon each claim individually, or in combination.

Claim 8 is indefinite and does not comply with subsection 27(4) of the *Patent Act*. There is no antecedent for the expression “the hook cover member.”

Claim 9 is indefinite and do not comply with subsection 27(4) of the *Patent Act*. The terms "support plate" and “hook cover portion” have no antecedent in claims 1 and 2.

Claim 10 is indefinite and does not comply with subsection 27(4) of the *Patent Act*. Each claim must end with a period.

Defect in the description

The description contains statements that incorporate by reference other documents and does not comply with subsection 81(1) of the *Patent Rules*. Such statements are found at paragraph [0001] and should be removed.

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.

J. Smith
Examiner
819-555-4213

**CA 2,XXX,123**

[**19**] APPLICATION FOR CANADIAN PATENT
[**21**] **CA 2,XXX,123**
[**54**] Title: Hanger for hollow walls
[**22**] Filing Date: 2009-11-18
[**43**] Laid Open Date: 2010-05-27
[**30**] Priority Date: 2008-11-18
[**51**] Int. Cl. A47G 1/20 (2006.01)
[**71**] Applicant: ABC INNOVATION INC
[**72**] Inventor: Cohen, R.
[**73**] Owner: ABC INNOVATION INC

TITLE OF THE INVENTION

HANGER FOR HOLLOW WALLS

ABSTRACT

An anchoring system for use with hollow panels, comprises an anchor member and a separate hook member, which are adapted to be mounted together. The anchor member includes an elongated element, such as a wire, adapted to be inserted into and partly through a hollow panel, such as a wall, and to bear against a rear surface of the panel. The hook member is adapted to bear against a front surface of the panel for securing the anchoring system to the panel.

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This Application claims priority on U.S. Provisional Application No. 61/193,331 filed on November 18, 2008, which is herein incorporated by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to hangers for supporting objects on a wall and, more particularly, to a hanger having a hook portion and an anchor portion, for attachment to hollow walls, such as wallboards which typically comprise a relatively thick layer of gypsum sandwiched between paper layers.

BACKGROUND OF THE INVENTION

[0003] There are various wall anchors available on the market, including plastic inserts which are hammered in a hole previously defined in a wall, wherein a fastener, such as a screw, is then

engaged in the plastic insert, causing it to expand such that the assembly of the insert and the fastener is set firmly in the wall.

[0004] Toggle bolts also exist, wherein rotation of a bolt causes wings to deploy behind the wall and to ultimately about the inside of the wall thereby firmly anchoring the bolt to the wall.

[0005] Both these types of anchors necessitate that a hole be previously drilled in the wall. On the other hand, there exists wall anchors defining a pointed cutting end and large threads, which are adapted to, in a single step, be rotatively driven in the wall thereby drilling their own hole in the wall with the large threads of the anchor compacting the gypsum and becoming firmly set therein. These types of anchors must be installed by way of a screwdriver and typically by a power driven screwdriver bit.

[0006] U.S Patent No. 6,641,344 issued on November 4, 2003 to Weiss discloses an anchoring device for hollow walls such that a hook member can be hung from the wall. The anchoring device has an elongated body including a curvilinear portion and a pointed distal end. The device includes a hook member portion coupled to and extending from the elongated body and adapted to remain on the visible side of the wall for allowing the hook member to be hung therefrom.

[0007] In spite of these various devices, there remains a need for a wall-mounted hanger of the type described hereinafter.

## SUMMARY OF THE INVENTION

[0008] It is therefore an aim of the present invention to provide a novel hanger for hollow structures, such as hollow walls.

[0009] It is also an aim of the present invention to provide a novel hanger for hollow walls, which can be installed by hand.

[0010] Therefore, in accordance with the present invention, there is provided an anchoring system for use with hollow panels, comprising an anchor member and a separate hook member, which are adapted to be mounted together, the anchor member including an elongated element adapted to be inserted into and partly through a hollow panel and to bear against a rear surface of the panel, the hook member being adapted to bear against a front surface of the panel thereby securing the anchoring system to the panel.

[0011] Also in accordance with the present invention, there is provided an anchoring system for use with hollow panels, comprising an anchor member and a hook member, the anchor member including upper and lower elongated elements adapted to be inserted into a hollow panel, the

upper elongated element being adapted to extend past the panel and to bear against a rear surface of the panel, the hook member being adapted to bear against a front surface of tile panel thereby securing the anchoring system to the panel.

[0012] Other objects, advantages and features of the present invention will become more apparent upon reading of the following non-restrictive description of embodiments thereof, given by way of example only with reference to the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0013] Reference will now be made to the accompanying drawings, showing by way of illustration an illustrative embodiment of the present invention, and in which:

[0014] Fig. 1 is a left side elevational view of a hanger for hollow walls in accordance with a first embodiment of the present invention, wherein the hanger is shown mounted to a hollow wall that is shown in phantom lines;

[0015] Fig. 2 is a front elevational view of the hanger of Fig. 1, shown in isolation;

[0016] Fig. 3 is a top plan view of the hanger of Fig. 1;

[0017] Fig. 4 is a left side elevational view of the hanger, which is similar to Fig. 1, but wherein the hanger is shown in isolation;

[0018] Fig. 5 is a rear perspective view of the hanger of Fig. 1 shown in isolation;

[0019] Fig. 6 is a front perspective view of a hanger for hollow walls in accordance with a second embodiment of the present invention;

[0020] Fig. 7 is a rear perspective view of the hanger of Fig. 6;

[0021] Fig. 8 is a vertical cross-sectional view of the hanger of Fig. 6;

[0022] Figs. 9 to 11 are successive partly cross-sectional side elevation views showing the installation of the wall anchor assembly of Fig. 6 into a wall;

[0023] Fig. 12 is a front perspective view of a hanger for hollow walls in accordance with a third embodiment of the present invention;

[0024] Fig. 13 is a vertical cross-sectional view of the hanger of Fig. 12; and

[0025] Figs. 14 to 16 are successive rear perspective views of the hanger of Fig. 12, showing the assembly of an anchor member thereof to a hook member thereof.

DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS OF THE INVENTION

[0026] Turning to the figures of the appended drawings, there are shown a number of anchoring systems or hangers, each comprising an anchor member adapted to be secured to a hollow structure, and a fixture (such as a hook member) adapted to be mounted to the anchor member. Such anchoring systems or hangers can be used on hollow walls, hollow doors, etc.

[0027] First, there is disclosed herein a hanger **H** for installation to hollow structures, in accordance with an embodiment of the present invention will be described. The hanger **H** is made of two components that are assembled together, namely an anchor member **10** and a hook member **12**. The anchor member **10** comprises a formed wire having an upper portion with a curved portion **16** and a pointed distal end **14**, a medial, hook member-engaging portion **18**, and a lower portion with an end pin or spike **20** adapted to engage the wall **W**. The hook member **12** can be over-moulded onto the medial portion of the anchor member **10** so that the hook member **12** does not move in relation to the anchor member **10** as it is being installed in the wall **W**. In a preferred embodiment, the stability of the anchor system is provided by the medial portion of the anchor member **10** being snap fitted into a groove **26** that closely follows the contour of the hook member **12,** as shown in Figs. 5-8. The snap-fit embodiment still maintains the stability of the hanger **H** as it is being installed in the wall **W**, but further advantageously allows for the provision of an anchoring system assembly kit including a variety of anchor members **10** of different sizes and shapes, in order to accommodate various wall configurations and load requirements, the medial portion of the anchor members **10** being of the same size and adapted for snap-fit connection with the groove of the hook members **12**.

[0028] The hook member **12**, which is herein made of a plastics material, although other materials are suitable, defines a rear plane surface **22** and a front hook **24** for suspending an item therefrom. In the snap-fit embodiment, the groove **26** follows the contour of the hook member **12** generally forwardly of the rear surface **22** and between upper and lower ends **28** and **30**, respectively, of the hook member **12**. The moulded profiled hook member **12** provides stability and a large flat contact surface **22** with the mounting surface, i.e. the visible surface of the hollow wall **W**.

[0029] The end spike **20** of the anchor member **10** extends rearwardly behind the rear surface **22** of the hook member **12** generally opposite the lower end **30**, as seen in Figs. 1, 4 and 5.

[0030] The hook member **12** also defines an upper spike **32** that extends rearwardly from the plane surface **22** generally opposite the upper end **28**, as again best seen in Figs. 1, 4 and 5. The upper spike **32**, which is positioned herein slightly below the curved portion **16** of the anchor member **10**, is adapted to penetrate the wall **W**.

[0031] To install the hanger **H** to the wall **W**, the hanger **H** is substantially positioned upside-down with respect to its position illustrated in Fig. 4, and the pointed distal end **14** is then inserted through the wall **W** while the hanger **H** is rotated along an upwards arcuate path dictated by the shape of the curved portion **16**, generally as per arrow **34** in Fig. 1. Once the hook member **12** nears the wall **W**, the upper spike **32** of the hook member **12** and the lower spike **20** of the anchor member **10** penetrate the wall **W**, until the hanger **H** has reached its installed position illustrated in Fig. 1. Furthermore, the pointed distal end **14** of the anchor member **10** will penetrate the hidden surface of the wall **W**.

[0032] Indeed, at the end of the rotation movement of the hanger **H**, during the insertion of the curved portion **16** of the anchor member **10**, the lower pin or spike **20** of the anchor member **10** will bite into the drywall, thus rotationally stabilising the assembly of the hanger **H** in the wall **W** and providing additional holding power as the load will now be distributed on the lower spike **20**, and not only on the curved portion **16** of the anchor member **10**, which is lodged in the wall **W**.

[0033] The additional support provided by the spike **32** of the hook member **12** increases the supporting surface resting on the wall **W** and reinforces the wire anchor member **10** at the stress concentration point.

[0034] Figs. 4 and 5 are further views of the hanger **H** in isolation.

[0035] Now turning to a variant hanger **H'**, which is shown in isolation in Figs. 6 to 8 and in successive assembly stages in Figs. 9 to 11, it is noted that hanger **H'** has many similarities with hanger **H** of Figs. 1 to 5.

[0036] In this embodiment, the hanger **H'** of Figs. 6 to 8 does not include the upper spike **32** of hanger **H**; on the other hand, such a spike **32** could be embodied in hanger **H'**.

[0037] An additional difference lies in that the shape of the anchor member **10'** of hanger **H'**, which is located upwardly and rearwardly of the upper end **28** of the hook member **12** is different than the shape of the corresponding curved portion **16** defined on the anchor member **10** of the hanger **H** of Figs. 1 to 5. Indeed, in hanger **H'**, the wall-engaging upper portion **16'** of the anchor member **10'**, which extends between the distal end **14** and the hook-engaging portion **18** of the anchor member **10'**, defines as best seen in Fig. 8, a first substantially straight section **42'** that is close to being horizontal, a second curved section **44'**, and a third straight section **46'** that is close to being vertical and merges with the distal end **14**.

[0038] Once installed in the wall **W**, as seen in Fig. 11, the first section **42'** of the wall-engaging upper portion **16'** of the anchor member **10'** is lodged in the wall material and provides a bearing

surface that assists in the hanger **H'** supporting a load applied on the hook member **12**. Also when installed, the third section **46'** of the wall-engaging upper portion **16'** bears against a rear, i.e. non-visible, surface **R** of the wall **W**, whereby as opposed to the hanger **H** of Figs. 1 to 5, the distal end **14** of hanger **H'** of Figs. 6 to 11 does not penetrate the wall **W**. It is noted that when a sufficient load is applied onto the hanger **H'** (typically via the hook member **12** thereof), the third section **46'** is solicited forwardly, i.e. towards the wall **W**, thereby providing a further bearing surface of the hanger **H'** on the wall material.

[0039] Figs. 9 to 11 show the installation of the hanger **H'** in the wall **W**, wherein in a way similar to the installation of hanger **H** (although hanger **H'** does not have to be reversed as much as hanger **H**), the pointed distal end **14** is inserted substantially translationally through the wall **W** (see Fig. 9). The hanger **H'** is then pivoted so that the wall-engaging portion **16'** is rotated upwards, as seen in Fig. 10. Once the hook member **12** nears the wall **W**, the lower end spike **20** of the anchor member **10'** penetrates the wall **W**, until the hanger **H'** has reached its installed position illustrated in Fig. 11.

[0040] The hanger **H'**, once installed, bears against the wall material via inter alia the lower end spike **20** (lodged in the wall **W**), the first section **42'** of the wall-engaging upper portion **16'** of the anchor member **10'** (also lodged in the wall **W**), the third section **46'** of the wall-engaging upper portion **16'** (which is applied against the rear surface **R** of the wall **W**), and the rear surface **22** of the hook member **12** (which bears against the visible surface **V** of the wall **W**). This arrangement provides significant holding power as the load is distributed on various surfaces of the hanger **H'** interacting with the wall **W**.

[0041] In Figs. 12 to 16, there is shown a further hanger **100** that includes an anchoring wire **108** and a hook member. As best seen in Figs. 13 and 14, the hook member is made of two components, namely a support member or plate **106** (for instance made of a plastics material) and a hook cover portion **104**. The anchoring wire **108** is firmly secured to the support plate portion **106** of the hook member, and the hook cover portion **104** is slidably connected to the support plate **106**. The anchoring wire **108** and the support plate portion **106** can be secured by over-moulding or by a snap-fit connection, as previously described. The wire **108** has a wall-engaging portion **110**, a distal end **112** and a lower end spike **114** that are similar to the wall-engaging portion **16'**, the distal end **14** and the lower end spike **20** of the anchor member **10'** of the hanger **H'** of Figs. 6 to 11. The wall-engaging portion **110** extends more than the corresponding wall-engaging portion **16'**, but these shapes could be interchanged depending, for instance, on installation parameters.

[0042] The wall-engaging portion **110** includes, as in hanger **H'**, a first substantially straight section **116** that is substantially horizontal, a second curved section **118**, and a third straight

section **120** that is close to being vertical and merges with the distal end **112**. Once the installation has been completed on the wall, anchoring wire **108** of the hanger **100** is hidden.

[0043] Referring to Fig. 14, the support plate **106** includes a pair of vertical and parallel guide recesses **122**, which each define a support surface **124**. The wire **108** extends on a raised section **126** that borders the two recesses **122**. The hook cover portion **104** includes in its hollowed configuration a pair of vertically extending and parallel L-shaped male elements **128** and a pair of vertically extending and parallel guides **130**. A vertical rib **132** extends between the male elements **128** and the guides **130**.

[0044] As seen in Figs. 14 to 16, the hook cover portion **104** is engaged to the support plate **106** by first translationally bringing these two components together in an aligned way such that the plate **106** is brought under the male elements **128** (see Figs. 14 and 15). The plate **106** is then slid vertically relative to the hook cover portion **104** such that the L-shaped male elements **128** of the latter engage the recesses **122** of the former, until the L-shaped male elements **128** are supported by surfaces **124** of the support plate **106** (see Fig. 16). The raised rib **132** biases the support plate **106** in tight fit engagement with the hook cover portion **104**; indeed, in the assembled position of Fig. 16, the support plate **106** is imprisoned between the rib **132** and the L-shaped male elements **128**.

[0045] The anchoring wire **108** and support plate **106** can be installed on the wall prior to the hook cover portion **104** being slidably engaged to the support plate **106**. Alternatively, the anchoring wire **108**, the support plate **106** and the hook cover portion **104** can be engaged together before this assembly is mounted to the wall.

[0046] All of the hangers herein described can typically be installed by hand and do not produce much damage to the wall.

[0047] Although the present invention has been described hereinabove by way of embodiments thereof, it may be modified, without departing from the nature and teachings of the subject invention as described herein. For example, the hook member can be replaced with another fixture such as a door knocker or an ornamental figure, e.g. animal head design, or a small vase or the like.

Fig. 1

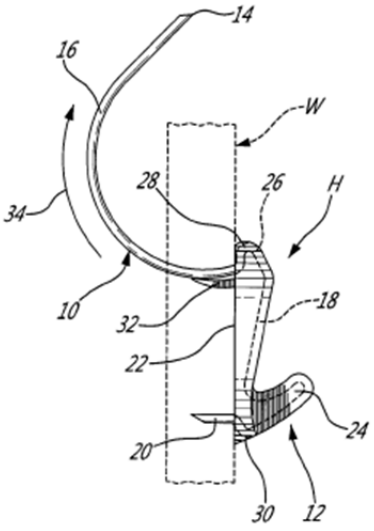



Fig. 2

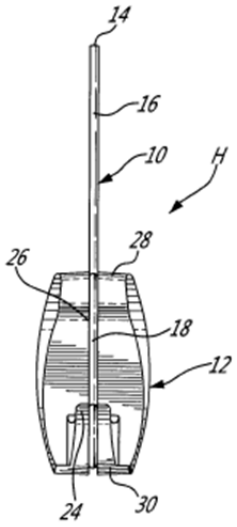



Fig. 3

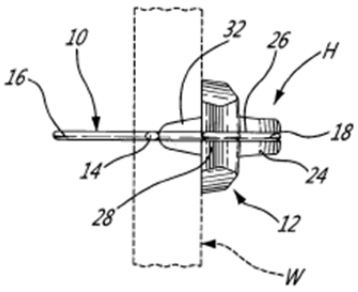



Fig. 4

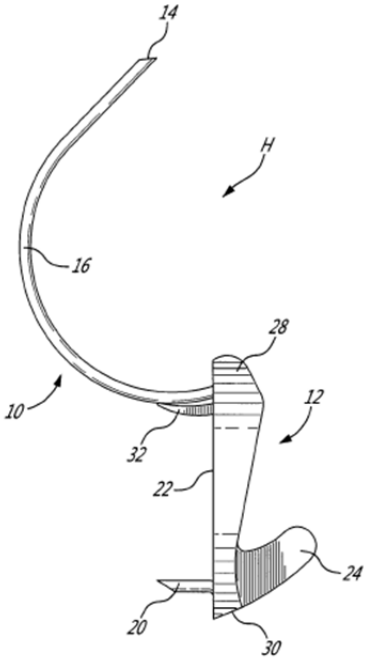



Fig. 5

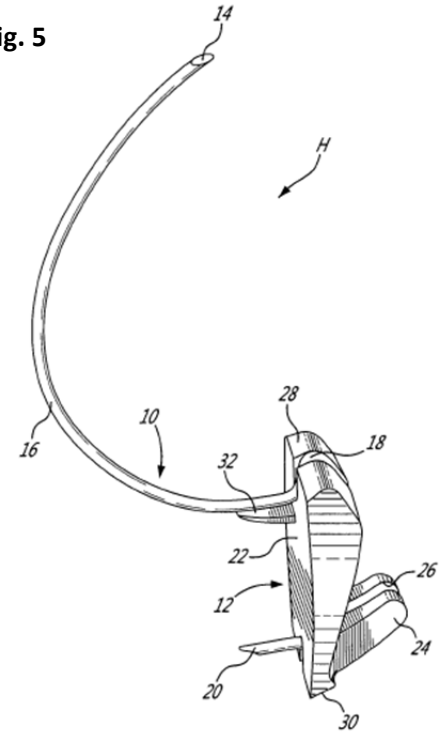


**Fig. 6**

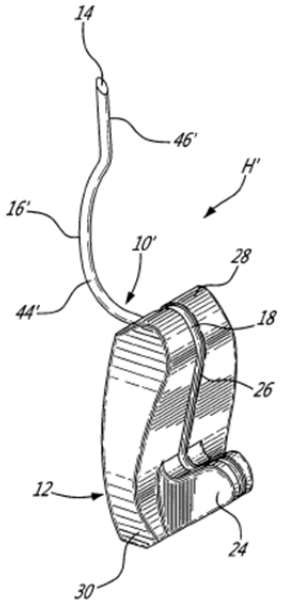



**Fig. 7**

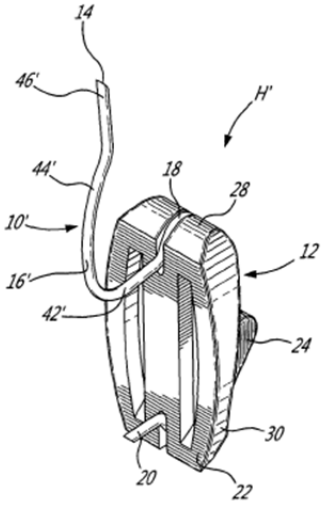



**Fig. 8**

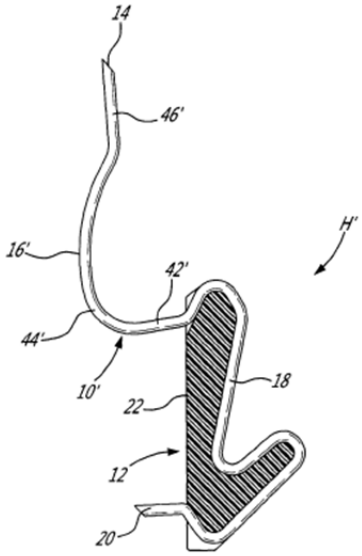



**Fig. 9**

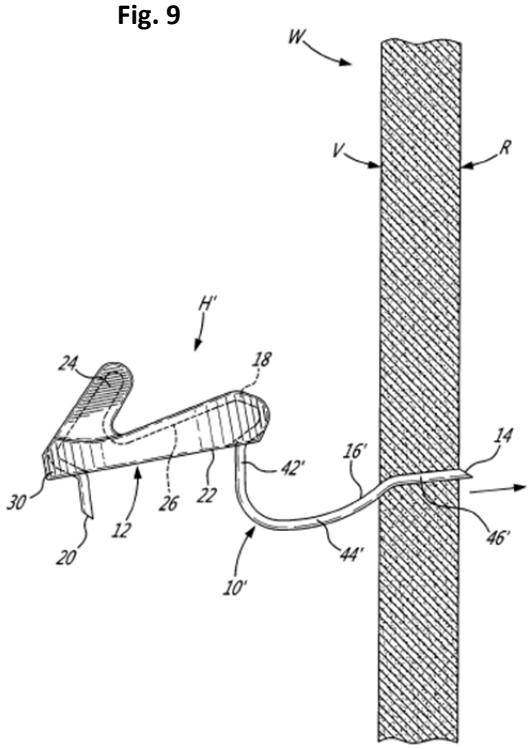



**Fig. 10**

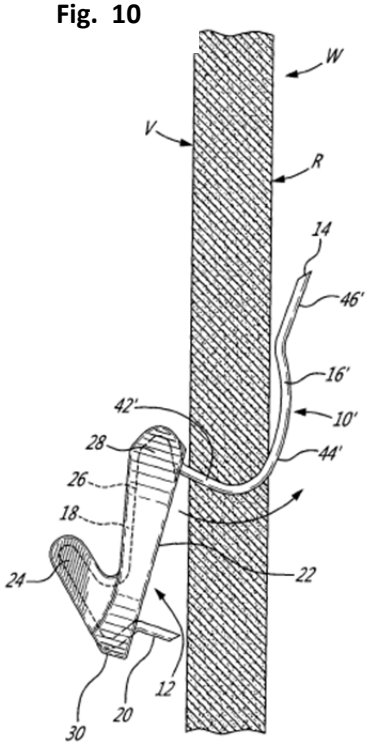


**Fig. 11**

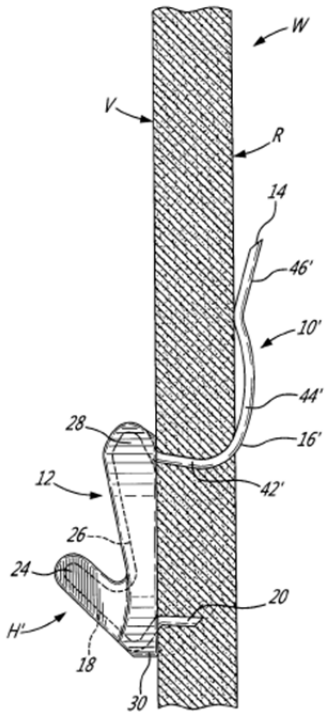



**Fig. 12**

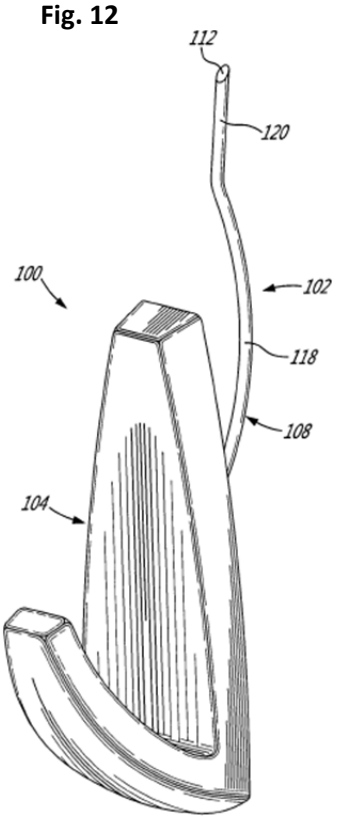



**Fig. 13**

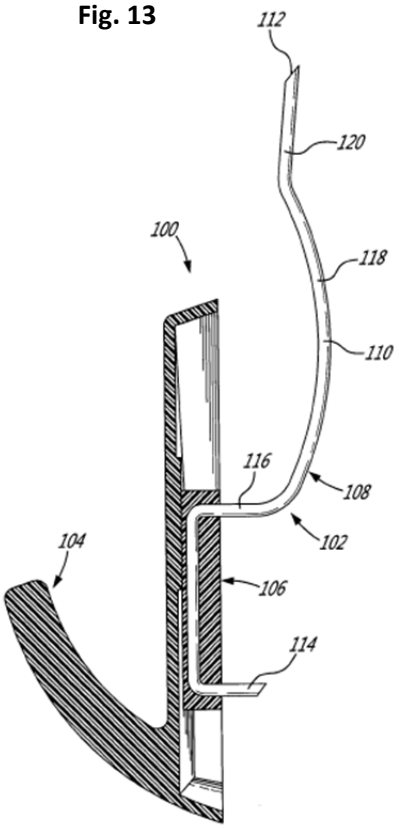


**Fig. 14**

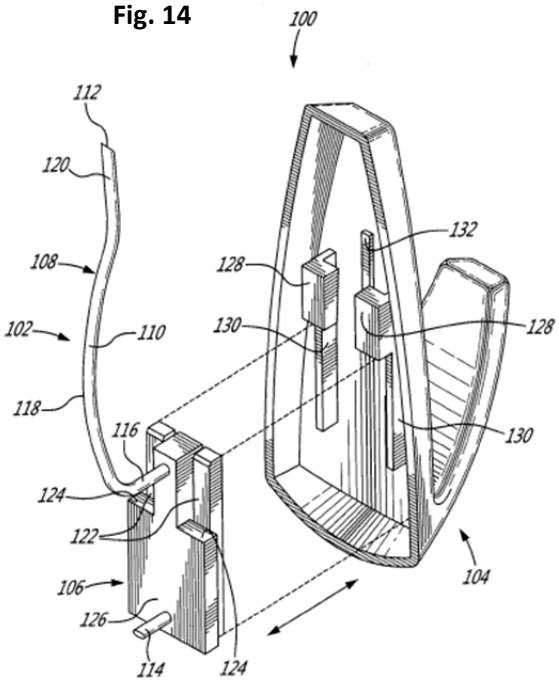



**Fig. 15**

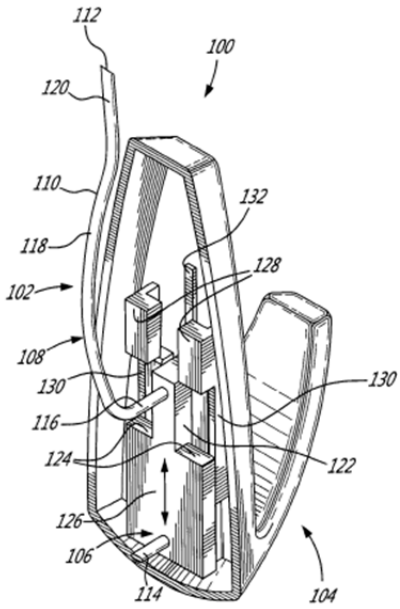
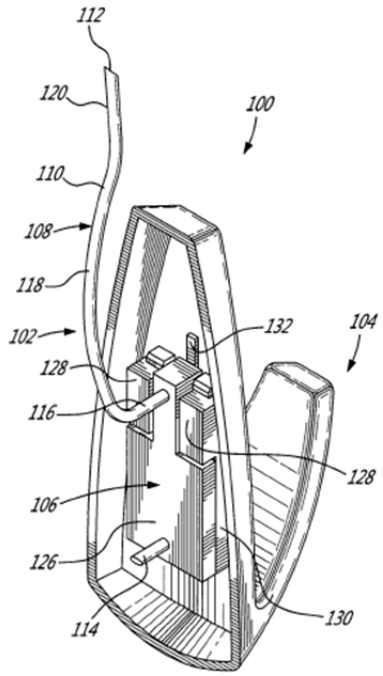



**Fig. 16**



**Claims (as originally filed)**

1. An anchoring system for use with hollow panels comprising an anchor member and a separate hook member, which are adapted to be mounted together, the anchor member consisting of an elongated element having an upper portion, the upper portion being adapted to be inserted into and through a hollow panel and to engage a rear surface of the panel, the hook member being adapted to bear against a front surface of the panel, thereby securing the anchoring system to the panel, the hook member being provided at an upper end thereof with a rearwardly extending spike for engaging the panel.

2. The anchoring system according to claim 1, wherein the elongated element is an elongated wire**.**

3. The anchoring system according to claims 1 and 2, wherein the hook member includes a support plate and a hook cover portion, wherein the support plate is adapted to be joined to the hook cover portion in a hollowed portion thereof.

4. The anchoring system according to claim 3, wherein the upper portion of the elongated element extends from the support plate at an upper end thereof and penetrates the panel.

5. The anchoring system according to claim 4, wherein the elongated element has a lower portion, which extends from the support plate at a lower end thereof and penetrates the panel.

6. The anchoring system according to claims 4 and 5, wherein the upper portion of the elongated element includes an engaging portion adapted to biasedly bear against a rear surface of the panel.

7. The anchoring system according to claims 4 and 5, wherein the upper portion of the elongated element includes an engaging portion adapted to penetrate a rear surface of the panel.

8. The anchoring system according to claims 3 to 7, wherein the hook cover member is adapted to be slidably connected to the support plate.

9. The anchoring system according to claims 1 to 7, wherein the hook cover portion and support plate are provided with co-operating elements adapted to mate such that the hook cover portion is adapted to be suspended from the support plate.

10. The anchoring system according to claim 9, wherein the co-operating elements include guides and a male and female engagement such that the hook cover portion is secured to the support plate

11. The anchoring system according to claim 10, wherein the hook cover portion includes a rib adapted to bias the co-operating elements together in a tight engagement.

12. An anchoring system substantially as described and as illustrated.

**SUPPLEMENTAL COPY OF THE CLAIMS**

1. An anchoring system for use with hollow panels comprising an anchor member and a separate hook member, which are adapted to be mounted together, the anchor member consisting of an elongated element having an upper portion, the upper portion being adapted to be inserted into and through a hollow panel and to engage a rear surface of the panel, the hook member being adapted to bear against a front surface of the panel, thereby securing the anchoring system to the panel, the hook member being provided at an upper end thereof with a rearwardly extending spike for engaging the panel.

2. The anchoring system according to claim 1, wherein the elongated element is an elongated wire**.**

3. The anchoring system according to claims 1 and 2, wherein the hook member includes a support plate and a hook cover portion, wherein the support plate is adapted to be joined to the hook cover portion in a hollowed portion thereof.

4. The anchoring system according to claim 3, wherein the upper portion of the elongated element extends from the support plate at an upper end thereof and penetrates the panel.

5. The anchoring system according to claim 4, wherein the elongated element has a lower portion, which extends from the support plate at a lower end thereof and penetrates the panel.

6. The anchoring system according to claims 4 and 5, wherein the upper portion of the elongated element includes an engaging portion adapted to biasedly bear against a rear surface of the panel.

7. The anchoring system according to claims 4 and 5, wherein the upper portion of the elongated element includes an engaging portion adapted to penetrate a rear surface of the panel.

8. The anchoring system according to claims 3 to 7, wherein the hook cover member is adapted to be slidably connected to the support plate.

9. The anchoring system according to claims 1 to 7, wherein the hook cover portion and support plate are provided with co-operating elements adapted to mate such that the hook cover portion is adapted to be suspended from the support plate.

10. The anchoring system according to claim 9, wherein the co-operating elements include guides and a male and female engagement such that the hook cover portion is secured to the support plate

11. The anchoring system according to claim 10, wherein the hook cover portion includes a rib adapted to bias the co-operating elements together in a tight engagement.

12. An anchoring system substantially as described and as illustrated.

**D1**

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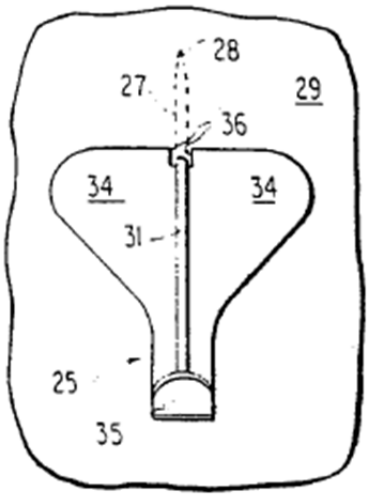
[**43**] Publication Date: 1 December 1984 (01-12-1984)
[**51**] Int. Cl.: E04G 5/06 (2006.01)
[**71**] Applicant: AMCHOR WIRE
[**72**] Inventor: Palmer
[**54**] Title: Spring-Biased Wall Hanger

## Abstract

A wall hanger which penetrates into wallboard, wood, or paneling has a pointed penetrating end formed of a resiliently deformable wire which is attached to a plate member having a hook integral therewith. A base of the wire is fixedly attached to the plate member near the hook. In an undeformed condition, the penetrating end is closer to the back of the support than the thickness of the wall, and a portion of the wire is spaced in front of the support member. Upon insertion into a wall, the penetrating end is biased against the back of the wall due to resiliency of the wire, since the portion of wire previously spaced from in front of the support member is deformed toward the support member to accommodate the wall thickness.



## Description

BACKGROUND OF THE INVENTION

[0001] This invention relates to a wall hanger for supporting articles such as pictures, or plaques, on a vertical panel, or wall, and more particularly to the type of hanger for use in connection with relatively thin panels of wallboard, gypsum or plywood panelling, the latter being frequently used in the construction of hollow wall doors, or interior panelling of rooms.

[0002] Hangers of this type usually include a wire rod, or fastener having an upwardly projecting end which terminates in a sharp point to allow the wire to be initially forced through a panel from the front side so as to penetrate the panel completely and thereby provide a generally horizontal passage. A succeeding portion of the wire, generally disposed at right angles to the initial penetrating portion is then pushed into the passage to provide support for the hanger to prevent vertical displacement while the penetrating portion thereafter projects upwardly behind the panel to assist in preventing said displacement and prevent the hanger from being pulled directly outwardly away from the panel.

[0003] While the penetrating tip may be smoothly tapered, the tip portion may have one, or more, flat sides, or may be threaded, to assist in the initial penetration. This general type of hanger is disclosed in U.S. Pat. No. 2,789,783. While the wire fastener is usually provided with a penetrating tip to allow it to be forcibly inserted into a panel, it is obvious that hangers of this type can be used where the passage in the wall already exists, as in the case of the hangers disclosed in U.S. Pat. Nos. 1,445,372 and 3,219,302.

SUMMARY OF THE INVENTION

[0004] It occasionally happens that because of an irregularity in the rear surface of a wall panel, such as a depression resulting from gouging during handling, that the penetrating end of the fastener does not lie in contact with the rear surface after the hanger has been inserted. The result will be that the hanger will not be held flush against the front of the panel and continual jarring, or vibration of the suspended object will ultimately enlarge the opening. These imperfections, obviously cannot be observed from the front of the panel but the result may be that another location must be chosen, while the initial opening in the panel remains.

[0005] A similar result, namely a loosely attached hanger, will result if the thickness of the panel is materially less than that standard thickness for which the hanger is designed, or if for some reason the fastener member has become distorted from its correct shape either before, or during, installation of the hanger.

[0006] At the other extreme, if the panel is of unexpected thickness, or some excess material has adhered to the back of the panel where the hanger is to be located, it may turn out that the length

of the horizontal section of the fastener is too short to allow the penetrating section to be properly seated against the back of the panel.

[0007] It is therefore an object of the present invention to overcome any difficulties due to variations in the thickness of a panel by making the load-supporting section of the fastener wire, or rod, with a length sufficient to accommodate reasonable variations in panel thickness and to attach the fastener wire to the front plate in such a way that, by flexure of a section of the wire, the penetrating section will always be in contact with the rear side of the panel and will exert sufficient pressure on the plate to maintain it flush against the panel's front surface.

[0008] Deleted

[0009] Deleted

[0010] Yet another object of the invention is to provide a wall hanger of the type wherein the portion of the fastener rod, or wire, may be flexed in use to press the plate member into close contact with the wall when in use but which permit the fastener wire, or rod, to be detached from the plate when not in use.

[0011] Other objects and advantages will be apparent to those skilled in the art after reading the following specification in connection with the annexed drawings.

## BRIEF DESCRIPTION OF THE DRAWING

[0012] FIG. 1 is a side elevation, from the right, of a preferred form of spring-biased wall hanger according to the present invention;

[0013] FIG. 2 is a front elevation of the hanger when positioned on a wall;

[0014] FIG. 3 is a side elevation taken through a section of a wall showing the hanger in place;

[0015] FIG. 4 is a view similar to that of FIG. 3, showing a step in insertion of the penetrating end of the wire rod member;

[0016] FIG. 5 is a front elevation of a modified form of spring-biased wall hanger;

[0017] FIG. 6 is a side elevation of the hanger of FIG. 5;

[0018] FIG. 7 is a view similar to FIG. 4 showing insertion of the wire rod of FIG. 6 into a wall;

[0019] FIGS. 8, 9, 10 and 11 are additional modified forms of the invention;

[0020] FIG. 12 is a front elevation of a modified form of supporting member for a wall hanger according to this invention;

[0021] FIGS. 13 and 14 are side elevations of two forms of fastener rod for use with the supporting member of FIG. 12;

[0022] FIG. 15 is a front elevation showing the manner in which a fastener rod is secured to the hanger member of FIG. 12;

[0023] FIG. 16 is a side elevation, from the right, of the combination shown in FIG. 15;

[0024] FIG. 17 is a side elevation, taken through a section of wall, showing the hanger of FIGS. 15 and 16 when installed;

[0025] FIG. 18 is a front elevation of the hanger of FIG. 17;

[0026] FIG. 19 is a side elevation taken through a section of wall, showing the fastener rod of FIG. 14 combined with the support member of FIG. 12;

[0027] FIG. 20 is a front elevation of another modification illustrating the attachment of a separate penetrating fastener to the wall plate;

[0028] FIG. 21 is a front elevation of the hanger of FIG. 20 when installed; and

[0029] FIG. 22 is a vertical cross section through the wall of the installed hanger.

## DETAILED DESCRIPTION OF THE INVENTION

[0030] Referring now to FIGS. 1-4, which illustrates a preferred form of wall hanger to be used on hollow wall doors and plywood panelling, in which there is shown a plate member, indicated generally by numeral **25**, and a wire fastening rod member, indicated generally by numeral **26**, made of a flexible material such as spring steel. One end section **27** of the rod terminates in a sharply pointed section **28** for use in initially penetrating a wall **29** to which the hanger is to be applied. The end section **28** may be smoothly tapered, may be provided with one or more lengthwise flat sides, or be provided with a threaded auger-type surface to aid in the penetration of the wall.

[0031] The upwardly directed penetrating end **27** is joined to a medial section **30** disposed at right angles so as to extend horizontally through the opening formed in the wall by insertion of the penetrating rod. The wire rod also includes an attaching section **31**, extending generally at right angles downwardly away from the medial section **30** and is secured at its lower end **32** to the front of the plate by suitable means, such as, soldering or welding **33**. The wire rod **26** should be attached to the plate **25** in such a way that initially the section **31** will extend upwardly and angularly away from the front face of plate **25**. This can be accomplished by either bending section **32** with respect to section **31**, or by providing the rear side of section **32** with a downwardly and forwardly angled flat surface.

[0032] Deleted

[0033] As can be seen in FIG. 1, the fastening rod **26** is secured to plate **25** in such a way that in its normal, unstressed condition the section **31** extends upwardly and outwardly away from the front of the plate **25**. When it is desired to attach the holder to a wall, which may be a plywood panel or hollow wall door panel approximately 1/4 inch thick, the pointed end **28** is forcibly pushed through or screwed into the panel **29** in a horizontal direction, as shown in FIG. 4. Although an adhesive layer may optionally be included as shown in FIG. 1, no adhesive layer is shown in any of the remaining figures.

[0034] After the pointed end has penetrated completely through the movement is continued in the same direction until the junction between sections **27** and **30** abuts against the front surface of the wall, at which point the holder, as a whole including the plate **25** and rod **26**, are turned downwardly while pressure is applied at the point where section **30** meets the springy section **31** to force the medial section **30** into the horizontal passage created by the penetration of the initial section **27**. Finally, when the plate **25** lies flush against the wall, as seen in FIG. 3, the spring section **31** will lie close to the plate while the section **27** will lie against the back surface of the wall in a vertical position. Thus, as long as the holder remains in this position the portion **31** of the rod will be locked in a flexed condition to hold the plate **25** against the wall and also resist downward displacement while the medial section **30** will additionally prevent any vertical displacement of the hook **35**, attached to plate **25**. While the fixed connection **33** between rod section **31** and plate **25** limits the possibility of twisting of the plate with respect to the rod, the fact that the medial section **30** passes through slot **36** positively prevents any such twisting.

[0035] The form of the invention shown in FIGS. 5-7 is similar to the form already described except the means is also provided to supply additional vertical load-carrying capacity to the holder while, at the same time eliminating the possibility of the plate swinging about the fulcrum defined by the opening in the wall through which the horizontal rod portion **30** passes. This restricting means comprises a generally U-shaped transverse arm **37**, made of stiff metal wire, or stiff metal strip material, the two legs **38** of which are sharply pointed at their respective ends. The arm **37** is attached to the springy portion **31** of the fastening rod by soldering, or welding, so as to line in a horizontal plane with the legs **38** in alignment with a pair of apertures **39** provided in plate **25**.

[0036] As with the previously described form, the holder is installed by first forcing the penetrating portion **27** of the rod through a wall panel **29** in a horizontal direction, as shown in FIG. 7 and, while turning the assembly downwardly while applying force on the portion **31**, the end portions **38** of the transverse arm will enter the wall, so that in its final position, as shown in FIG. 6, the plate will be vertically supported by the projecting ends **38** of the arm as well as the rod portion and portion **27** pressing against the back of the wall while, in addition, the entrance of the ends **38** will prevent any swinging movement of the plate **25** about the pivot provided by section **30**.

[0037] In the form shown in FIG. 8 the plate **25** does not include the upturned hook portion **35**, as in the previous designs. Instead, the lower end of the springy portion **31** of the fastener rod is extended beyond the location **32** where it is joined to the plate and is turned upwardly in a reentrantly curved path to form the hook **40** which serves to support a load. In all other respects this form of hanger is similar to those previously described.

[0038] In FIG. 9 there is shown another way in which downward displacement and swinging movement of the plate **25** may be avoided. In this case the plate has firmly attached to its back side a short length of stiff wire having a pointed end which serves as a wall-penetrating spike **41** extending backwardly perpendicular to the plate **25**. While maximum load-bearing capacity is obtained when the spike extends entirely through the wall it need not be long enough to pass completely through a wall; it is only necessary that it enter a sufficient distance to anchor plate **25** against swinging movement and furnish the desired amount of additional resistance to vertical displacement. It may be noted that even though the presence of the penetrating arms **38** in the modification shown in FIGS. 5-7 limits swinging movement, the addition of spike **41** would not be precluded.

[0039] Deleted

[0040] The hanger shown in FIG. 10 is applied to a thick wall **46** by first holding it in an upside-down position with the pointed end **44** placed on the front of the wall at the desired location, after which force is applied against the curved portion **43**, and possible rotational motion, to cause the end **44** to pass completely through the wall, after which the application of force may be transferred to the juncture between portions **45** and **47** to cause the end **44** to move upwardly and backwardly until it again contacts the rear side of the wall and may become slightly embedded therein, as at **49**. It should be noted that the curvature and length of penetrating portion **43** should be such that when the plate **25** is flat against the front surface of wall **46**, the pointed end **44** will, when in contact with the back side of wall **46**, hold the springy portion **47** in a flexed condition to continue to exert pressure urging plate **25** in close contact with the wall. As the load increases the point **49** is forced deeper into the wall, resisting vertical displacement. It should also be noted that the fastening rod **42** can also be used in conjunction with any of the previously described embodiments when they are to be used to support an object, or article, on a relatively thick wall panel. For example, the vertical portion **66** in FIG. 13 can be substituted for pointed end **77** of the curved penetrating portion **76** in FIG. 14 in order to provide an embodiment in which, when the plate **55** lies flush against the wall, the third section **69** will lie close to the plate while section **66** lies against the back surface of the wall in a vertical position that is biased against the wall by the curved penetrating portion **76**.

[0041] An arrangement for augmenting the load-supporting capacity of any of the hangers disclosed herein, but preferably for wallboard or gypsum, is illustrated in FIG. 11, in which the plate **25** is provided with a pair of slots **50** disposed on opposite sides of the vertical centerline of the plate **25**, and generally at right angles to a line connecting the center of a respective slot and

load-supporting hook **35**. After the plate **25** has been firmly attached to a wall, by means of any of the fastener rods described, a flat metal prong **51**, having an enlarged flat head **52**, is forcibly thumb-pushed into the wall through each of the slots **50**. As a result of the angular disposition of the slots **50**, the prongs **51** will thus be able to more effectively resist possible displacement of plate **25** even if a downward force is being exerted on hook **25** in an angular direction with respect to the vertical. In a further version of this improvement, instead of being received in the upper marginal slot **36**, the horizontal portion of the fastener rod may pass through an opening **53** placed near the upper margin.

[0042] The support plate, indicated generally by numeral **55** is designed to be primarily attached to a wall by means of a separate fastener wire, or rod, typical examples of which are indicated generally by numerals **56** and **57** in FIGS. 13 and 14, the first being suitable for thin panels, while the latter is for use with thicker wall panels such as wallboard and gypsum board.

[0043] The fastening rod **56**, in FIG. 13 is made preferably from a resilient material, such as spring steel, shaped to provide, in succession, a first penetrating portion **66**, terminating in a sharp point **67** to be used to pierce a wall panel, a second portion **68** to be disposed generally horizontally in an opening in a wall panel and generally at right angles to the upwardly directed first portion; a third portion **69**, lying generally at right angles to the second portion and extending downwardly across the front of the supporting plate **55**, a fourth portion **70** extending further downwardly at a slight angle to portion **69**. This fourth portion is to be held firmly against the face of plate **55** by the clip **65** so that portion **69** may be pushed toward the wall to press the plate against the wall. A fifth portion **71**, extending backwardly, generally at right angles to the fourth portion, is intended to be received in the opening **61** in the plate to permit pivotal swinging of rod **56** as a whole. If desired this last portion may have a length sufficient to project at least a short distance backwardly from the plate, in which case it will also be provided with a sharply pointed end **72** to be embedded partially into, or entirely through, a wall to prevent swinging movement of the hanger and to add to its load-carrying capacity.

(**Claims omitted**)

FIG. 1

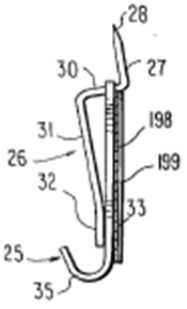
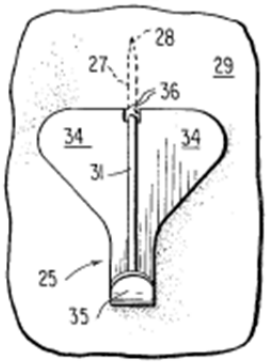



FIG. 2



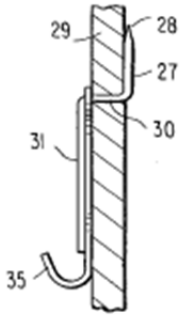




FIG. 3

FIG. 4

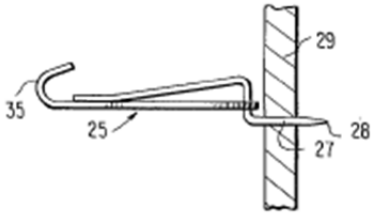



FIG. 5

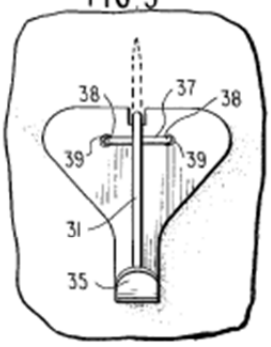



FIG. 6

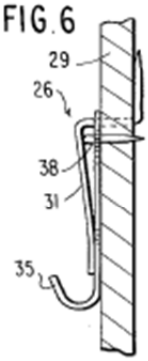



FIG. 7

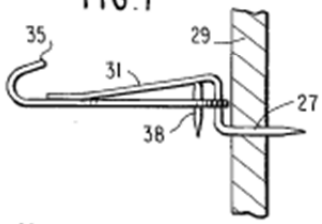
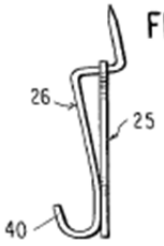



FIG. 8



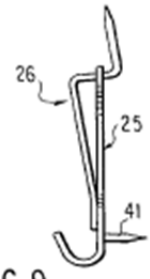




FIG. 9

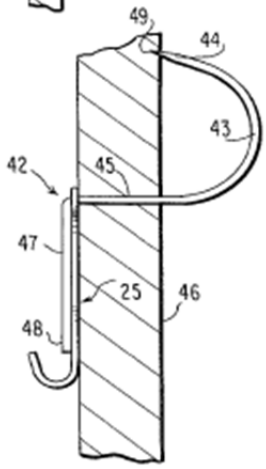
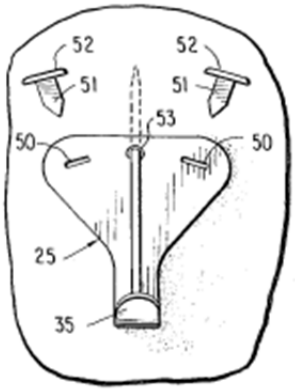



FIG. 10

FIG. 11



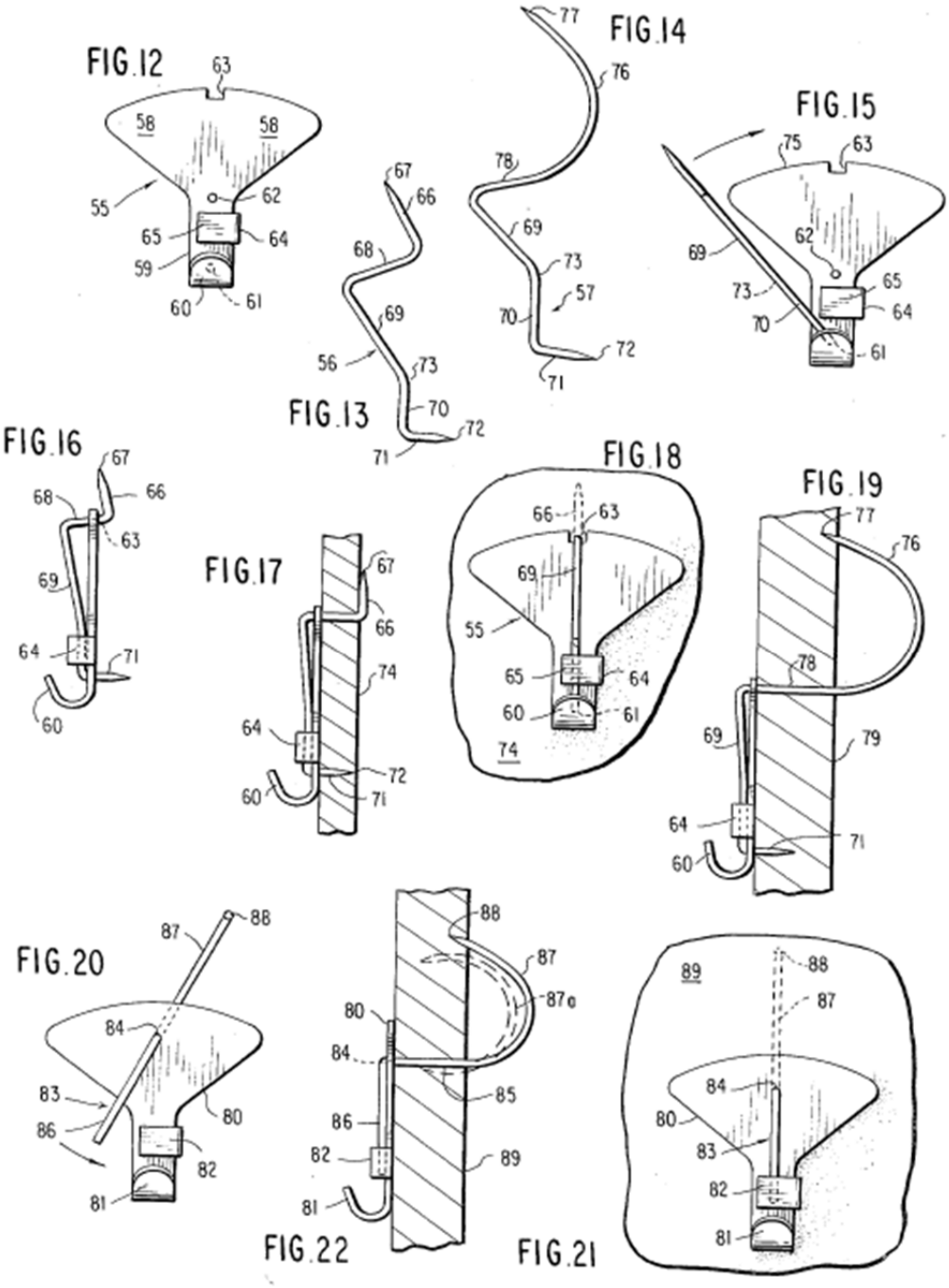


FIG.12
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FIG.13
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FIG.14
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FIG.16
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FIG.17
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FIG.18
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FIG.19
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FIG.21
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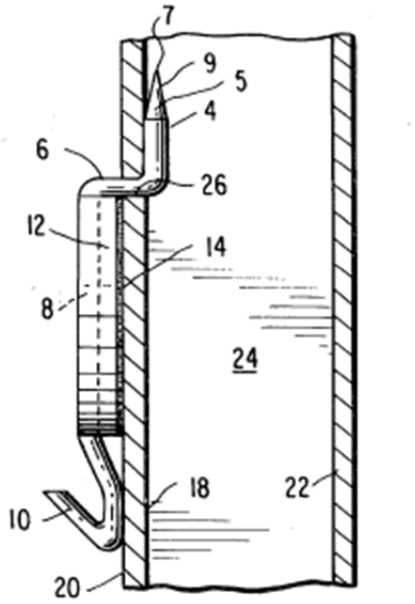
**D2**

[**19**] UNITED STATES PATENT DOCUMENT
[**11**] **US 4,422,222**
[**22**] Filing Date: 19 May 1981 (19-05-1981)
[**43**] Publication Date: 2 December 1983 (02-12-1983)
[**51**] Int. Cl.: A47F 5/00 (2006.01)
[**71**] Applicant: AMCHOR WIRE
[**72**] Inventor: Leblanc
[**54**] Title: Panel Hanger

## Abstract

A vertical panel hanger comprising a needle point penetrator positioned to engage the rear surface of a panel to prevent removal of the hanger, a foot portion adapted to extend between the front and rear surface of the panel to prevent vertical movement, a shank connected at a right angle to the foot portion at the shank's upper end, a hook being defined at the shank's lower end, the shank being attached to a disc whose rear surface is covered with pressure sensitive adhesive that engages the front surface of the panel to prevent lateral movement.



## Description

Brief Description of the Prior Art

[0001] A very popular type of door used in homes, offices and other buildings is the hollow wooden door comprising thin front and rear spaced apart wooden panels, for example, about 1/8" thick, which are joined to a wooden frame, for example, having a thickness of about 1 5/8", so that the front and rear panels are spaced apart by the thickness of the frame. Doors of this type are widely used, are of excellent quality but have the drawback that it is very difficult if not impossible to reliably attach a hook or other hanging fixture to the door, mainly because of the thinness of the panels and all work must be done from the exterior surface of the panel since there is no access to the inner surface. Straight nail types of fixtures quickly pull down and out because the 1/8" or so thickness is incapable of holding the nail securely. The same applies to screw type hangers.

[0002] Similar problems arise when trying to secure nail or screw type hangers to wall panels which are attached to the walls of a room by nailing or adhesives. Usually a network of firring strips are first applied to the existing wall and then the wall panels are fixed to the firring strips by nails or adhesives. Thus, the panels for the most part are spaced away from the existing wall by the thickness of the firring strips which usually is about 1/2" or so. Nails or screws driven into the panels for attaching hanging devices soon work loose permitting the hanging device and object hung on it to fall.

[0003] This has been a continuing problem and much time, thought and effort has been expended to develop a reliable hanger for hollow wooden doors and wall panels with little or no success.

[0004] A common fault and disadvantage inherent in hangers of the conventional type resides in the tendency of the hanger to periodically move laterally when weight is put upon it. This lateral movement causes the supporting hole in the door panel to become enlarged thereby reducing the anchoring capacity of the hanger. As a result, the hanger is often so loose that it is unreliable and cannot be depended upon to properly support the weight which is put upon it. Another fault and disadvantage inherent in hangers of the conventional type resides in the tendency of the hanger to pivot in the supporting hole when weight is put upon it, causing the supporting hole in the door or panel to become enlarged thereby reducing the anchoring capacity of the hanger.

[0005] U.S. Pat. Nos. 2,723,815 and 3,300,173 disclose picture hangers anchored by conventional nails co-operating with disc shaped body portions whose rear surfaces are

covered with pressure sensitive adhesive. These hangers utilize a conventional nail, and do not have the capacity to support as much weight as the subject hanger utilizing a needle point penetrator co-operating with a foot portion to provide for added support. The hangers of these patents are subject to failure by reason of the nail pulling out of the panel or cutting vertically into the panel until the nail is in suitable position for pulling out by action of gravity.

[0006] U.S. Pat. Nos. 241,991; 1,445,372; 2,789,783 and 3,219,302 variously teach hangers which utilize a face plate or ferrule abutting the wall adjacent the hanger end, but do not provide for pressure sensitive adhesives or any other reliable means to hold the hanger against pivotal or lateral movement on the wall, nor do they provide increased bearing surface for the foot portion. The first three named patents utilize oversized holes. U.S. Pat. No. 1,445,372 is especially unreliable because an upward force can easily pivot the hook out of position and result in unpositioning the ferrule. The ferrules of the other two patents simply serve to cover up the hole in the wall and provide no substantial bearing support for the hook.

[0007] Other types of hooks are of the peg board type which require predrilled holes. Such hooks are disclosed in U.S. Pat. Nos. 3,094,892; 3,392,949; 3,718,101; 3,954,243 and 4,103,854. None of these hooks are suitable for use on hollow doors or wall panels because they are temporary in nature and designed for easy removal. Hooks requiring access to both sides of the panel are described in U.S. Pat. Nos. 947,489 and 1,665,785.

## SUMMARY OF THE INVENTION

[0008] The instant invention relates generally to hangers and, more specifically, is concerned with hangers that are arranged to be secured to a hollow door or wall panel, preferably a hollow wooden door having spaced apart front and rear panels joined along the top, bottom and sides of the panels to a wooden frame. The hangers of this invention comprise a single length of metal, e.g. a wire, formed to provide a needle point penetrator at one end adapted to be inserted into and through a door's panel or a wall panel and engage the inner surface of said first panel or wall panel to prevent the hanger from being pulled outwardly. The penetrator is connected to the inner end of a horizontal foot portion which extends between the inner and outer surfaces of the door's first panel to provide against vertical movement. A shank portion is attached to and extends downwardly from the outer end of the foot portion, the lower end of said shank defining a hook portion. The shank, along a substantial portion of its length, is shaped into the form of a disc, or is attached to a disc, whose rear surface is

flat and is covered with pressure sensitive adhesive that engages the outer surface of the door's first panel or wall panel to resist lateral swinging movement of the hanger.

[0009] An object of the invention is to provide a hanger of such construction that the supporting hole in the door or wall panel will not be enlarged because the hanger resists periodic lateral swinging movement.

[0010] Another object of the invention is to provide a hanger of such construction that the supporting hole in the door or wall panel will not be enlarged because pivoting motion of the foot portion is avoided.

[0011] A further object of the invention is to provide a hanger that can support far more weight than the conventional slanted nail or screw hanger of equivalent size.

[0012] Another object of the invention is to increase the horizontal bearing surface for the foot member by lengthening the foot member and supporting the lengthened portion with the disc and/or by increasing the thickness of the disc. The increased bearing surface supplied to the foot member by the disc considerably increases the weight capacity of the hanger.

[0013] A still further object of the invention is to provide a hanger which is so arranged as to present a pressure distributing contacting surface uniformly around the supporting foot member.

[0014] Further objects of the invention will be brought out in the following specification, wherein a detailed description is given for the purpose of fully disclosing the invention without placing limitations thereon.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0015] FIG. 1 is a side view of a preferred hanger embodying the features of the present invention.

[0016] FIG. 2 is a front elevational view of the hanger shown in FIG. 1.

[0017] FIG. 3 is a sectional view of the hanger of FIG. 1 shown secured to a panel of a hollow door.

[0018] FIG. 4 is a front view in partial section of the hanger shown in FIG. 3 as applied to a hollow door.

[0019] FIG. 5 is a side elevational view in partial section showing another embodiment of a hanger showing features of the present invention as secured to a panel.

[0020] FIG. 6 is a front elevational view in partial section of the hanger shown in FIG. 5.

[0021] – [0026] Deleted

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0027] Referring to FIG. 1, there is shown a preferred hanger of the invention comprising a wire **2** of suitable thickness for example, 0.0625" or 0.125" in diameter, formed with a needle point penetrator portion **4** at one end thereof, a foot portion **6** connected at right angles to the needle point penetrator portion, and a shank **8** connected at right angles to the foot portion **6** and terminating in a hook **10**. The shank **8** is embedded in and secured to a disc **12** which in this case is of an oblong shape but can be of any desired shape for decoration or any other suitable purpose. The rear surface of disc **12**, i.e. the surface closest to the needle point penetrator portion **4**, is the surface which is intended to contact the outer surface of the panel to which the hanger is to be attached, is coated with a layer of a suitable adhesive **14**, in this case a pressure sensitive adhesive which is covered with a release sheet **16** such as wax paper. Any suitable adhesive can be used, for example, water activated adhesives are suitable. The disc **12** itself can be made of any suitable material such as plastic, wood or metal. The wire **2** can be made of any suitable material, preferably metal, although strong break resistant plastics can also be used. It is convenient to use a relatively rigid metallic wire for the wire **2** and those skilled in the art would have no difficulty selecting a suitable material.

[0028] FIGS. 3 and 4 illustrate the hanger of FIGS. 1 and 2 as secured to one panel **18** of a hollow wooden door **20**, the other panel of which is designated as **22**. The two panels are secured in a spaced apart relationship by means of framing **24** which usually is wooden. The needle point penetrator portion of the hanger shown in FIGS. 1-4 is pushed through the panel **18** to form a hole **26** in panel **18** or the hole **26** can be predrilled with any suitable tool such as a hand drill or power drill. After insertion of the penetrator portion through hole **26** in panel **18**, the wire **2** is moved downwardly to bring penetrator portion **4** adjacent to and in contact with the inner surface of the panel **18**. At the same time the pressure sensitive adhesive coated surface **14** is moved adjacent to and into contact with the outer surface of panel **18**, that is, the hanger takes the position shown in FIG. 3. Prior to pressing the disc **12** up against the outer surface of panel **18**, the release paper **16** is removed so that the pressure

sensitive adhesive layer **14** is in a position to contact the outer surface of panel **18** and thus secure the disc **12** to the outer surface.

[0029] As best seen in FIG. 3, the disc **12** being secured to the panel **18** by means of pressure sensitive adhesive **14** increases the bearing support surface for the foot portion **6**. Thus, the bearing support surface of the lower surface of the hole **26** in panel **18** is approximately doubled if the portion of the disc **12** under foot portion **6** is of the same thickness as panel **18**. Thus, the downward force exerted by the foot portion **6** on the lower surface of hole **26** by the weight of the object hanging from hook portion **10** is spread over a greater surface and the pressure, in terms of pounds per square inch, operating on the lower surface of hole **26** is reduced and effectually transferred to the disc **12**, adhesive **14** and the outer face of the panel **18** covered by the disc **12**. As a consequence, greater weights can be supported on the hook portion **10** before reaching the rupture point of the panel **18** adjacent hole **26**. Furthermore, the right angular positions of penetrator portion **4** to the foot portion **6** and of the foot portion **6** to the shank **8** and disc **12** tends to cause the weight of the object on hook portion **10** to force the disc **12** and adhesive **14** into closer contact with the outer surface of panel **18**. This increases the frictional and adhesive force between the disc **12** and the outer surface of panel **18** thus increasing the restriction of movement, e.g., downwardly and/or sidewardly, of the disc **12** relative to the panel **18** and thereby increasing the vertical load supporting contribution of disc **12** for foot portion **6**. The disc **12** of course can be made with any desired thickness and the foot portion can be lengthened or shortened to accommodate greater or lesser thicknesses of the disc portion below the foot portion **6**. As a practical matter, the thickness of disc **12** preferably can be one-half to four times, most preferably one to two times or less of, the thickness of panel **18**.

[0030] It is also best noted in FIG. 3 that the hook portion **10** is angled back towards the panel so that the weight of the object to be supported by the hook is concentrated as close to the panel **18** as possible, thereby reducing the moment arm acting on penetrator portion **4** to pivot it outwardly against the inner surface of panel **18**. This considerably reduces the pressures brought to bear on the surfaces of hole **26** as well as reduces the tendency for hole **26** to open up because of such pressures. This enables the support of heavier objects by a hanger of substantially the same size as a hanger in which the hook portion is spaced from the panel **18** so as to create an increased moment arm.

[0031] Additionally, the pressure sensitive adhesive **14** prevents lateral or swinging movement of the hanger which further reduces the danger of the hole **26** opening up which ultimately would result in the hanger becoming unsecured and possibly allowing the object supported by the hanger to fall with the hanger pulling out.

[0032] Referring to FIG. 5, a further embodiment is shown in which the hanger comprises a wire **28** having a foot portion **30**, a needle point penetrator portion **32**, a shank **34** and a hook portion **36**. In this embodiment the hook portion **36** is spaced from panel **38** which can be a wall panel or one of the panels of a wooden hollow door by means of a portion of the thickness of a disc **40** which is secured to the outer face of panel **38** by means of pressure sensitive adhesive **42**. In this case as in the case described above, the shank **34** is embedded in the disc **40**. In this embodiment the foot portion **30** passes through a hole **44** in the panel **38**; the hole **44** having been formed by pushing the penetrator portion **32** through the panel **38** or having been formed by a separate drilling operation. The foot portion in this embodiment is supported not only by the lower surface of hole **44** but also by the thickness of the disc **40** lying under the foot portion **30**. In this embodiment, however, the load on the hook, when an article is suspended thereon, is at the end of a greater moment arm than that presented by the embodiment shown in FIGS. 1-4. Thus, while the embodiment of FIGS. 5 and 6 would be less capable of supporting heavier loads than the embodiment of FIGS. 1-4, it still provides a very substantial improvement in load carrying capacity as compared to the prior art hangers which have been described hereinabove. In this embodiment the pressure sensitive adhesive **42** prevents swinging of the hanger in the hole **44** or any other movement which would tend to enlarge the hole **44** and lead to the ultimate failure of the hanger to remain secured to the panel **38**.

(**Claims omitted**)

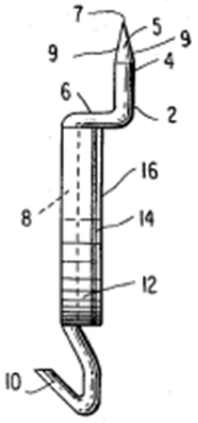



FIG. 1

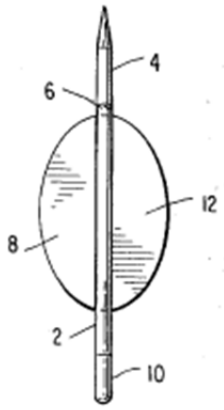



FIG. 2

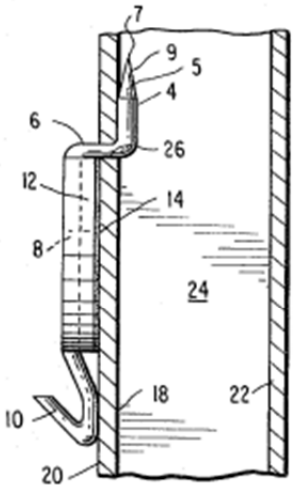



FIG. 3

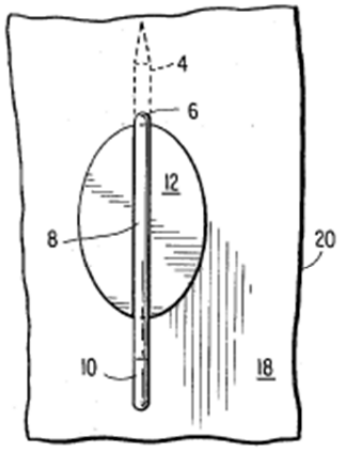



FIG. 4

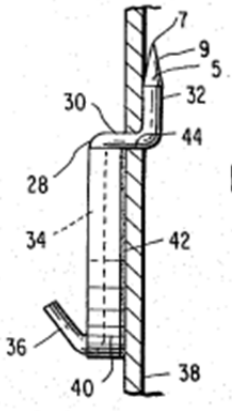



FIG. 5

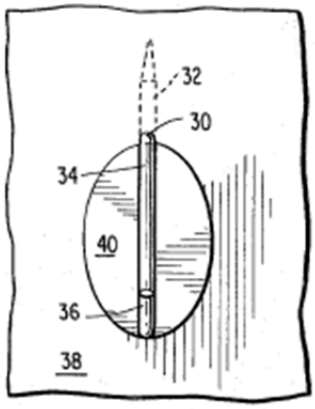


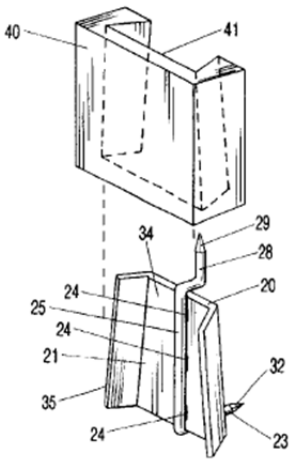

FIG. 6

**D3**

[**19**] UNITED STATES PATENT DOCUMENT
[**11**] **US 6,431,333**
[**22**] Filing Date: 2 September 1999 (02-09-1999)
[**43**] Publication Date: 3 August 2002 (03-08-2002)
[**51**] Int. Cl.: A47B 96/06 (2006.01)
[**71**] Applicant: BAERBEL PURITZ
[**72**] Inventor: Decker
[**54**] Title: Hanging Device and Method of Making Same

## Abstract

A hanging device for mounting directly on a hollow member, and a method of mounting such device, are provided. The hanging device has a mounting member with a first surface for resting flush against an outer surface of the hollow member. A first piercing component has a first leg that projects from the mounting member substantially perpendicular to the first surface thereof, and a second leg that extends at substantially right angles to the first leg. A free end of the second leg has a sharp tip that is insertable in a self-piercing manner through the hollow member. A second piercing component projects from the mounting member substantially perpendicular to the first surface thereof and essentially parallel to the first leg of the first piercing component. A free end of the second piercing component has a sharp tip that is also insertable in a self-piercing manner through the hollow member. A hanging component is also provided on the mounting member.



**Description**

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a hanging device, in other words a device for hanging and supporting objects, including, by way of example only, hangers, clothes, pictures, or any other suitable object that is to be suspended. The hanging device is intended for mounting directly on a hollow member, such as a hollow-core door, drywall, paneling, and the like that has at least one thin sheet or panel. The present invention also relates to a method of mounting such a hanging device on a hollow member.

[0002] Devices are known for providing hanging means on surfaces. For example, U.S. Pat. No. 5,149,037, Smith, discloses a wall hanger whereby a curved arm is inserted through an already prepared hole in a wall; this requires preparation of a wall and is not appropriate for use on a thin panel, hollow-core door, or wall. This known wall hanger also has a lower cleat that keeps the hanger from twisting. Other devices for mounting on prepared walls, such as peg boards and wall brackets, are also known. For example, see U.S. Pat. No. 3,191,777, Willits, U.S. Pat. No. 4,917,337, Gridley and German application OS 1 404 689. In addition, U.S. Pat. No. 4,619,430, Hogg, shows a single pointed member that is adapted to penetrate through wall material.

[0003] None of the heretoforeknown devices successfully fills the present day need for a device that can be used to hang or support objects where the device is to be mounted on a hollow member, such as a hollow-core door having thin sheets or panels of plywood, masonite, etc.

[0004] It is therefore an object of the present invention to provide an improved hanging device that can easily be mounted on a hollow member without having to make holes or otherwise prepare a surface of the hollow member, yet is securely held in a fixed position on the hollow member.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] This object, and other objects and advantages of the present invention, will appear more clearly from the following specification in conjunction with the accompanying schematic drawings, in which;

[0006] FIG. 1 is a top view of the mounting member of one exemplary embodiment of the inventive device;

[0007] FIG. 2 is a view of the back of the mounting member of FIG. 1;

[0008] FIG. 3 is a side view of the mounting member of FIG. 1;

[0009] FIG. 4 is a front view of the mounting member of FIG. 1;

[0010] FIG. 5 is a bottom view of the mounting member of FIG. 1;

[0011] FIG. 6 is a cross-sectional view showing one exemplary embodiment of the inventive hanging device mounted on a hollow member;

[0012] FIGS. 7 and 8 show how the hanging means and the mounting member of the inventive hanging device fit together;

[0013] FIGS. 9-12 are cross-sectional views showing various embodiments of the hanging means of the inventive hanging device; and

[0013a] FIGS. 13 and 14 show an integral or one-piece hanging device of the present invention.

SUMMARY OF THE INVENTION

[0014] The hanging device of the present invention is characterized primarily by a mounting member that has a surface that rests flush against an outer surface of a hollow member; a first piercing means having a first leg that projects from the mounting member substantially perpendicular to the flush surface thereof, and a second leg that extends at substantially right angles to the first leg in a direction away from the mounting member and essentially parallel to the flush surface thereof, wherein a free end of the second leg has a sharp tip that is insertable in a self-piercing manner through a panel of the hollow member; a second piercing means that projects form the mounting members substantially perpendicular to the flush surface thereof and essentially parallel to the first leg of the first piercing means, wherein a free end of the second piercing means has a tip that is insertable in a self-piercing manner through the panel of the hollow member; and hanging means disposed on the mounting member on the side thereof remote from the flush surface thereof.

[0015] By means of the unique features of the inventive hanging device, such a hanging device can be mounted on a hollow member such as a door, paneling or wall without any special preparation of the hollow member, requiring at most a hammer to tap the piercing means through the hollow member. No device known to applicant is adapted to be mounted in such a fashion to a hollow member. At the same time due to the unique features of the hanging device, such a device is securely supported on the hollow member.

[0016] Further specific features of the present invention will be described in detail subsequently.

## DESCRIPTION OF PREFERRED EMBODIMENTS

[0017] Referring now to the drawings in detail, the inventive hanging device comprises a mounting member **20** that is adapted to be mounted on a hollow member. For example, FIG. 6 shows how the mounting member **20** is mounted on the hollow member **10**, such as paneling, a wall or a door, in particular a so-called hollow-core door, or any other hollow member. In particular, in the illustrated embodiment the hollow member **10** comprises the thin panels **11** and **12**, with the mounting member **20** to be mounted to one of these panels.

[0018] As can be seen from the drawings, pursuant to one preferred embodiment of the present invention the mounting member **20** comprises a flat section **21** from which project a first piercing means **22** and a second piercing means **23**. In the illustrated embodiment, and as can be seen particularly clearly from FIGS. 2 and 8, the piercing means **22**, **23** can be formed from a continuous piece of metal that has been appropriately bent and then attached to the flat section **21**, for example by being soldered thereto as indicated by the solder points **24**. Thus, in this embodiment the piercing means are interconnected by a straight section **25** that rests flushly against the flat section **21**, to which it is attached. It is to be understood that the piercing means **22**, **23** need not be one continuous piece, and that they can be attached to the flat section **21** in any appropriate manner. Although in the present preferred embodiment the flat section is made of metal, it could also be made of polymeric material, in which case the piercing means **22**, **23** could be embedded therein (see FIGS. 13 and 14).

[0019] The first piercing means **22** comprises two legs that are disposed at substantially right angles to one another. In particular, the first piercing means **22** comprises a first leg **26** that projects from the flat section **21** substantially perpendicular to the plane thereof and in a direction away from a first surface **27** of the flat section **21**. A second leg **28** of the first piercing means **22** extends at substantially right angles to the first leg **26** in a direction away from the flat section **21**. The free end **29** of the second leg **28** is embodied as a sharp tip. The second piercing means **23** is in the form of a single straight piece **31** that similarly projects from the flat section **21** substantially perpendicular to the first surface **27** thereof. The free end **32** of the second piercing means **23** is also embodied as a sharp tip.

[0020] The mounting member **20** is attached to the hollow member **10** as follows. The mounting member **20** is first aligned with the hollow member **10** such that the second leg **28** of the first piercing means **22** is essentially perpendicular to the outer surface **14** of the thin

panel **11** of the hollow member **10**. The sharp tip or free end **29** of the second leg **28** of the first piercing means **22** is then caused to be inserted through the thin panel **11**, either by manually pushing the sharp tip **29** and second leg through or by tapping the mounting member **20** with a hammer or similar tool until the sharp tip **29** and second leg **28** have been inserted through the thin panel **11**. In particular, the first piercing means **22** is inserted through the thin panel **11** to such an extent that the first leg **26** of the piercing means **22** comes to rest against the outer surface **14** of the thin panel **11**. The mounting member **20** is then rotated or pivoted until the second piercing means **23** is disposed vertically below the first piercing means **22**, with the sharp tip or free end **32** of the second piercing means **23** resting against the outer surface **14** of the thin panel **11**. In this position, the second leg **28** of the first piercing means **22** is directed upwardly within the hollow space formed between the two thin panels **11**, **12** of the hollow member **10**. To complete the mounting process, the sharp tip **32** of the lower piercing means **23** is either pushed through the thin panel **11** or the mounting member **20** is again tapped with a hammer to cause the sharp tip **32** and straight piece **31** of the second piercing means **23** to be inserted through the thin panel **11** until the first surface **27** of the flat section **21** of the mounting member **20** comes to rest against the outer surface **14** of the thin panel. In this position, the second leg **28** of the first piercing means **22** will at least nearly rest against the inner surface **15** of the thin panel **11**, whereby the mounting member **20** is securely supported on the hollow member **10**, as clearly shown in FIG. 6.

[0021] A hanging or suspension means for hangers, clothes, pictures, or any other item that is to be suspended, is provided on a side of the mounting member **20** opposite the first surface **27** of the flat section **21** thereof. In the presently preferred and illustrated embodiment of such a hanging means, this is accomplished by a separate hanging or suspension member **40** that is carried by the mounting member **20**. As shown in particular in FIGS. 7 and 8 the hanging member **40** is slid over, and held by, flange means **35** of the mounting member **20**. In particular, the flange means **35** are monolithically provided on the flat section **21**. In this connection, the flat section **21** is tapered in such a way that the wider base thereof is provided at the lower end of the mounting member **20** where the second piercing means **23** are also provided. The upper, narrower end of the flat section **21** is provided in the vicinity of the first piercing means **22**. In view of the tapered configuration of the flat section **21**, the identical rectangular flange means **35**, which project at an obtuse angle from the second surface **34** of the flat section **21** in a direction away from the piercing means **22** and **23**, are closer together in the vicinity of the first piercing means **22** and are spaced further apart in the vicinity of the second piercing means **23**. The hanging member **40** is provided with a recess **41** that provides a co-operating means for receiving the flange means **35** of the mounting member **20**. In particular, the hanging member **40** is provided with two legs **42**, **43** that project in the same direction from a flat connecting element **44**.

[0022] The inner sides of the legs **42**, **43** are tapered in such a way that inner surfaces of the legs are closer together at the top of the hanging member **40** than at the bottom thereof. The flange means **35** of the mounting member **20**, and the recess **41** of the hanging member **40**, co-operate in such a way that when the hanging member **40** is placed over the mounting member **20** as shown in FIGS. 7 and 8, the hanging member **40** will come to rest securely on the mounting member, as shown in FIGS. 6 and 9-12.

[0023] Although not illustrated in FIGS. 7 and 8, the hanging member **40** is provided with a hook **45** (as indicated in dashed lines in FIG. 6 and also shown in FIG. 11), one or more rods or dowels **46** or **47** (as shown in FIGS. 9, 10, and 12), or any other suitable means for hanging or suspending articles thereon.

[0024] Although the hanging or suspension member has been described as being a separate component **40**, it is also possible for the hanging means to be monolithically or integrally formed on the mounting member **20**, as shown in FIGS. 13 and 14. The hanging means could either be molded onto or into the mounting member, or the mounting member and hanging means could be a monolithic component.

[0025] It is to be understood that the hanging or suspension member can have any desired shape. For example, where the hanging or suspension member is a separate component **40**, not only can the recess **41** have a shape that is compatible with the flange means **35** or any other co-operating attachment means of the mounting member **20**, the remainder of the component **40** can also have any desired shape in order to provide any number of pleasing shapes that might be desired by a customer, or any other co-operating attachment means such as male and female connections. Although not shown in the figures, the flange means **35** or the hanging member **40** may include a raised portion for biasing the flange means **35** towards the hanging member **40**. Similarly, where the hanging or suspension member is a single or integral piece with the mounting member, the shape thereof need not be in the block shape shown by way of example only in FIGS. 13 and 14, but could again be of any desired shape.

[0026] It is also to be understood that although the leg **26** of the first piercing means **22** has been shown to have a particular distance between the straight section **25** and the second leg **28**, the length of the first leg **26** could be varied to conform to varying thicknesses of paneling, doors, walls, etc. for which the inventive device is to be used.

[0027] Although in the illustrated embodiments of the mounting member **20**, the piercing means **22** and **23** are shown as extending over the upper and lower edges of the flat section **21**, it would also be possible for the piercing means **22** and **23**, and in particular the leg **26** and the straight piece **31** thereof, to extend through holes in the flat section **21**, so that from

the side the mounting member **20** would have an appearance similar to that of the embodiment illustrated in FIG. 14. In such a case, the straight interconnecting section **25** that is disposed flush against the side of the flat section **21** would not extend over the entire length of the flat section **21**.

[0028] The present invention is, of course, in no way restricted to the specific disclosure of the specification and drawings, but also encompasses any modifications within the scope of the appended claims.

(**Claims omitted**)

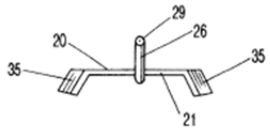



FIG-1

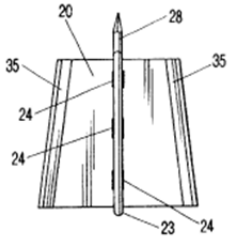



FIG-2

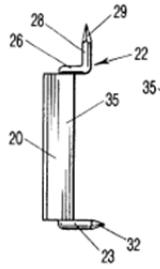



FIG-3

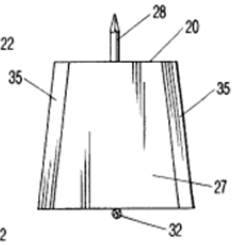



FIG-4

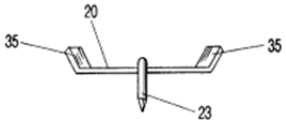



FIG-5

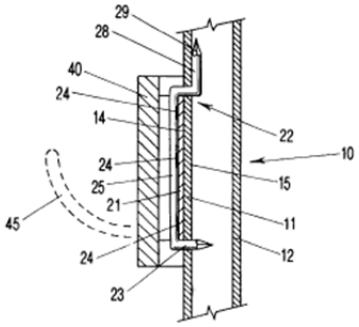



FIG-6

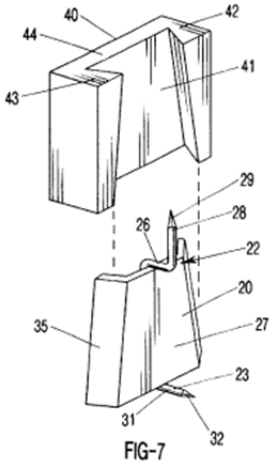



FIG-7

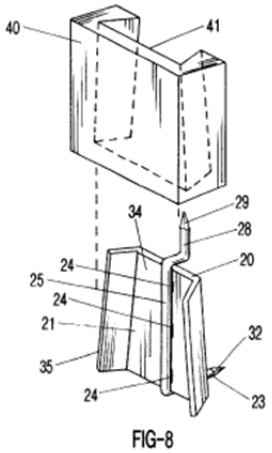



FIG-8

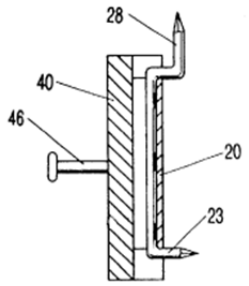



FIG-9

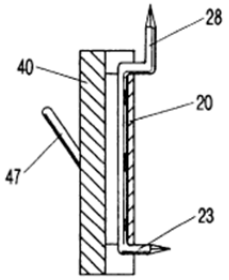



FIG-10

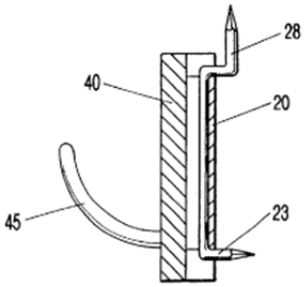



FIG-11

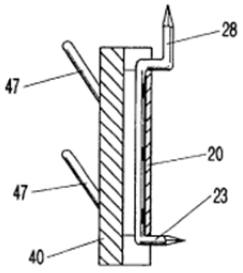



FIG-12

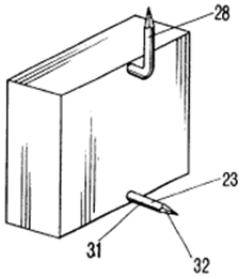



FIG-13

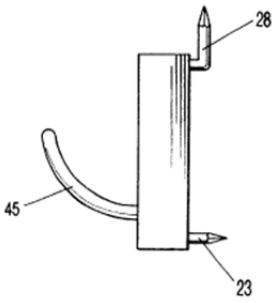



FIG-14

**Part B: Questions C2 to C10 (Total of 30 marks)**

**C2.** An applicant has decided to file a divisional application of a pending application (the parent) in response to a unity of invention defect identified by an examiner. The pending application has gone abandoned on June 7, 2017 due to non-payment of a maintenance fee.

(a) Assuming that no other actions are taken on the parent, what is the deadline to file the divisional application? **[1 pt]**

(b) Identify the relevant section of the *Patent Act* or *Rules*. **[1 pt]**

**C3.** Your client is the owner of Patent no. 2,XXX,789. They have become aware of a piece of prior art which in their view anticipates certain claims of their patent.

Name **two (2)** possible remedies before the Patent Office and identify the relevant section(s) of the *Patent Act* or *Rules*. **[2 pts]**

**C4.** Who may request an interview with an examiner in respect of a patent application? **[3 pts]**

**C5.** List **five (5)** requirements for receiving a filing date for a patent application submitted on May 4, 2018. **[5 pts]**

**C6.** A patent application has become abandoned on two grounds:

- the applicant failed to respond to an examiner's requisition within the six month time limit (the response was due on July 11, 2017); and
- the applicant failed to pay a maintenance fee that was due on August 9, 2017.

What steps must be taken in order to reinstate the application? **[5pts]**

**C7.** Define the following PCT terms: **[3 pts]**

(a) Receiving Office
(b) Designated Office
(c) Elected Office

**C8.** Name two types of double patenting. **[2 pts]**

**C9.** The applicant has filed a patent application on May 12, 2015, with a valid priority date of May 28, 2014.

With reference to specific subsections of the *Patent Act*, state whether the following pieces of prior art would, or would not, be citable with regard to (i) anticipation and (ii) obviousness:

(a) An application filed on August 14, 2013 in the USPTO by the same applicant, with a valid priority date of November 27, 2012, and published on May 27, 2014. **[2 marks]**

(b) A Canadian application from a different applicant filed on February 17, 2015, with a valid priority date of March 18, 2014. **[2 marks]**

**C10.** True or False? **[4 pts]**

(a) Subject-matter may be introduced into a patent application after the filing date if it was contained in an earlier filed application upon which the later application claims priority.

(b) Any protest against the granting of a patent which does not clearly identify the patent application to which it is directed will be rejected by the Patent Office.

(c) When requesting advanced examination of a patent application which is related to green technology, no additional fee for advanced examination is required.

(d) Mathematical and chemical formulae must be placed in the drawings section of an application rather than in the description.

**Paper C 2018, Part A - Marking Guide [70 pts]**

| C1 | Total pts | Pts awarded |
|---|---|---|
| **Claims – 50 pts** | | |
| Independent claim 1 amendments - 32 pts<br><br>Note: if an essential feature is instead introduced in a new dependent claim, part marks will be given (50%) | 32 | |
| "hook member" broadened to "fixture member" | 4 | |
| "the fixture member including a groove that closely follows the contour of the fixture member from an upper end to a lower end thereof" added | 8 | |
| "the groove being adapted to receive the medial portion of the elongated element in a snap-fit connection" added | 8 | |
| "the lower portion of the elongated element being adapted to penetrate the panel" (from original claim 5) added | 4 | |
| "the hook member being provided at an upper end thereof with a rearwardly extending spike for engaging the panel" deleted | 4 | |
| Remaining features of original claim retained | 4 | |
| New independent claim – 3 pts | 3 | |
| Independent claim to kit of fixture members, anchor members added | 3 | |
| Other claim amendments – 15 pts | 15 | |
| All significant features of original dependent claims retained | 2 | |
| "the fixture member being provided at an upper end thereof with a rearwardly extending spike for engaging the panel" (from original claim 1) added to new dependent claim | 2 | |
| "the fixture member comprising a hook member, a door knocker, an ornamental figure or a small vase" added to new dependent claim<br>[half marks for "the fixture member comprising a hook member" only] | 2 | |
| "hook cover portion" broadened to "fixture cover portion" in original claim 3 | 2 | |
| Clarified that the groove is located on the support plate in original claim 3 | 1 | |
| Original claim 5 deleted | 1 | |
| Original independent claim 12 (omnibus claim) deleted | 1 | |
| Corrected indefiniteness in original claims 3 and 6 to 9 | 1 | |
| Corrected ambiguity in original claim 8 | 1 | |
| Corrected lack of antecedent in original claim 9 | 1 | |
| Period added at end of original claim 10 | 1 | |
| *deductions for introducing new formality defects (-1 per defect; max -3) | | |
| **Total points for claims:** | **50** | |

| Response to report – 20 pts | Total pts | Pts awarded |
|---|---|---|
| Statement indicating support for features added to claim 1 | 2 | |
| Explain how novelty defect wrt D1 (regarding features in original claims 1 and 2) is overcome * | 4 | |
| Explain how obviousness defect wrt D1 and D2 or D3 (regarding features in original claims 3 to 7) is overcome * | 4 | |
| Explain how obviousness defect wrt D1 and D3 (regarding features in original claims 8 to 11) is overcome * | 4 | |
| * Marking based on clarity, logic, internal consistency | | |
| Discussion wrt other claim defects identified in report | 5 | |
| Incorporation-by-reference in description addressed | 1 | |
| **Total pts for response:** | **20** | |

**Example claims**

1. An anchoring system for use with hollow panels comprising an anchor member and a separate fixture member, which are adapted to be mounted together, the anchor member consisting of an elongated element having an upper portion, a lower portion and a medial portion, the upper portion being adapted to be inserted into and through a hollow panel and to engage a rear surface of the panel, the fixture member including a groove that closely follows the contour of the fixture member from an upper end to a lower end thereof, the groove being adapted to receive the medial portion of the elongated element in a snap-fit connection, the lower portion of the elongated element being adapted to penetrate the panel, the fixture member being adapted to bear against a front surface of the panel, thereby securing the anchoring system to the panel.

2. The anchoring system according to claim 1, wherein the elongated element is an elongated wire**.**

3. The anchoring system according to any one of claims 1 to 2, wherein the fixture member includes a support plate and a fixture cover portion, wherein the groove is located on the support plate, and the support plate is adapted to be joined to the fixture cover portion in a hollowed portion thereof.

4. The anchoring system according to claim 3, wherein the upper portion of the elongated element extends from the support plate at an upper end thereof and penetrates the panel.

5. The anchoring system according to claim 4, wherein the fixture member is provided at an upper end thereof with a rearwardly extending spike for engaging the panel.

6. The anchoring system according to any one of claims 4 to 5, wherein the upper portion of the elongated element includes an engaging portion adapted to biasedly bear against a rear surface of the panel.

7. The anchoring system according to any one of claims 4 to 5, wherein the upper portion of the elongated element includes an engaging portion adapted to penetrate a rear surface of the panel.

8. The anchoring system according to any one of claims 3 to 7, wherein the fixture cover portion is adapted to be slidably connected to the support plate.

9. The anchoring system according to any one of claims 3 to 7, wherein the fixture cover portion and support plate are provided with cooperating elements adapted to mate such that the fixture cover portion is adapted to be suspended from the support plate.

10. The anchoring system according to claim 9, wherein the cooperating elements include guides and a male and female engagement such that the fixture cover portion is secured to the support plate.

11. The anchoring system according to claim 10, wherein the fixture cover portion includes a rib adapted to bias the cooperating elements together in a tight engagement.

12. The anchoring system according to any one of claims 1 to 11, wherein the fixture member comprises a hook member, a door knocker, an ornamental figure or a small vase.

13. A kit of parts for assembly of the anchoring system defined in any one of claims 1 to 12, the parts comprising one or more of the fixture members, all of the fixture members having a groove of identical size and shape, and a plurality of the anchor members, the anchor members being of various sizes and shapes to accommodate different wall configurations and load requirements, the medial portion of the anchor members being adapted for snap-fit connection with the groove of the fixture members.

**Paper C 2018, Part B - Marking Guide [30 pts]**

| Question | Answer | Pts | |
|---|---|---|---|
| **C2** | An applicant has decided to file a divisional application of a pending application (the parent) in response to a unity of invention defect identified by an examiner. The pending application has gone abandoned on June 7, 2017 due to non-payment of a maintenance fee.<br>(a) Assuming that no other actions are taken on the parent, what is the deadline to file the divisional application? [1 pt]<br>(b) Identify the relevant section of the *Patent Act* or Rules. [1 pt]<br><br>*Answer*:<br>(a) June 7, 2018 or before the expiration of the time for reinstatement.<br>(b) ss. 36(3) of the *Patent Act*. | **2** | |
| **C3** | Your client is the owner of Patent no. 2,XXX,789. They have become aware of a piece of prior art which in their view anticipates certain claims of their patent. Name two (2) possible remedies before the Patent Office and identify the relevant section(s) of the *Patent Act* or Rules. [2 pts]<br><br>*Answer*:<br>Disclaimer, s. 48 of the *Patent Act*<br>Re-examination by filing prior art, s. 48.1 to 48.4 of the *Patent Act*<br><br>Reissue is **not** an acceptable answer. Per MOPOP 23.03.02a, a patentee seeking reissue must show that due to "inadvertence, accident or mistake" a result that was other than what was intended by the applicant occurred. A patentee could not have intended to draft claims to avoid prior art of which he was unaware when the patent issued. | **2** | |
| **C4** | Who may request an interview with an examiner in respect of an application? [3 pts]<br><br>*Answer*: [ss. 6(3) of the *Patent Rules*]<br>Interviews with members of the Patent Office staff in respect of an application may be requested by<br>(a) the authorized correspondent;<br>(b) the applicant, with the permission of the authorized correspondent; &<br>(c) an appointed non-resident patent agent, with the permission of the associate patent agent. | **3** | |
| **C5** | List five (5) requirements for receiving a filing date for an application submitted on May 4, 2018. [5 pts]<br><br>*Answer*: [ss. 27.1(1) of the *Patent Rules*]<br>The application must include:<br>- an indication, in English or French, that the granting of a Canadian patent is sought,<br>- the applicant's name,<br>- the applicant's address or that of their patent agent,<br>- a document, in English or French, that on its face appears to describe an invention, and<br>- either | **5** | |

| | | | |
|---|---|---|---|
| | (A) a small entity declaration in accordance with section 3.01 of the *Patent Rules* and the small entity fee set out in item 1 of Schedule II as it read at the time of receipt, or<br>(B) the standard fee set out in that item. | | |
| **C6** | An application has become abandoned on two grounds:<br>- the applicant failed to respond to an examiner's requisition within the six month time limit (the response was due on July 11, 2017); and<br>- the applicant failed to pay a maintenance fee that was due on August 9, 2017.<br>What steps must be taken in order to reinstate the application? [5pts]<br><br>*Answer*: [ss. 73(3) of the *Patent Act*]<br>The applicant must:<br>- request reinstatement;<br>- respond to the examiner's requisition;<br>- pay a reinstatement fee as outlined in item 7 of Schedule II of the *Patent Rules* by July 11, 2018;<br>- submit the maintenance fee; and<br>- pay a separate reinstatement fee as outlined in item 7 of Schedule II of the *Patent Rules* by August 9, 2018. | **5** | |
| **C7** | Define the following PCT terms: [3 pts]<br>(a) Receiving Office<br>(b) Designated Office<br>(c) Elected Office<br><br>*Answer*: [MOPOP ch. 22]<br>(a) The national Office, intergovernmental or international organization with which the international application is filed and which checks and processes it according to the PCT and its Regulations.<br>(b) The national office of, or acting for, a State designated in an international application under Chapter I of the PCT.<br>(c) The national office of, or acting for, a State elected by the applicant under Chapter II, in which the applicant intends to use the results of the international preliminary examination. | **3** | |
| **C8** | Name two types of double patenting. [2 pts]<br><br>*Answer*: [MOPOP 15.06]<br>- "same invention" double patenting; and<br>- "obviousness" double-patenting | **2** | |
| **C9** | The applicant has filed an application on May 12, 2015, with a valid priority date of May 28, 2014. With reference to specific subsections of the *Patent Act*, state whether the following pieces of prior art would, or would not, be citable with regard to (i) anticipation and (ii) obviousness.<br><br>(a) An application filed on August 14, 2013 in the USPTO by the same applicant, with a valid priority date of November 27, 2012, and published on May 27, 2014. [2 marks]<br><br>(b) A Canadian application from a different applicant filed on February 17, 2015, with a valid priority date of March 18, 2014. [2 marks] | **4** | |

| | | | |
|---|---|---|---|
| | *Answer*:<br>(a) (i) not citable for anticipation, 28.2(1)(a) (within grace period)<br>(a) (ii) not citable for obviousness, 28.3 (within grace period)<br><br>(b) (i) citable for anticipation, 28.2(1)(d)<br>(b) (ii) not citable for obviousness, 28.3 | | |
| **C10** | True or False: [4 pts]<br><br>(a) Subject-matter may be introduced into an application after the filing date if it was contained in an earlier filed application upon which the later application claims priority.<br><br>(b) Any protest that does not clearly identify the patent application to which it is directed will be rejected by the Patent Office.<br><br>(c) When requesting advanced examination of a patent application which is related to green technology, no additional fee for advanced examination is required.<br><br>(d) Mathematical and chemical formulae must be placed in the drawings section of an application rather than in the description.<br><br>*Answer*:<br>(a) False [MOPOP 19.03: the specification may not be amended to describe subject-matter not reasonably to be inferred from the specification and drawings as originally filed]<br><br>(b) False [MOPOP 18.02]<br><br>(c) True [MOPOP 13.03.02]<br><br>(d) False [MOPOP 9.07.02] | **4** | |

# PATENT AGENT EXAMINATION

## INSTRUCTIONS TO CANDIDATES

1. The only aids permitted are the copies of the *Patent Act* and *Patent Rules* provided by CIPO and an unmarked English, French or bilingual (English/French) dictionary.

2. Cell phones, smart phones, and any device that allows for wireless communication or the retrieval of information from memory may not be used during the examination.

3. You must place your assigned number on each examination paper, answer book and envelope. No other identification is permitted on any material submitted.

4. You have four (4) hours to complete the examination. At the conclusion of the examination period, place the examination paper and answer book(s) in the envelope and give the sealed envelope to the invigilator.

5. Failure to respect instructions 1, 2, 3 or 4 may result in a candidate being given a mark of zero (0).

6. You must provide your own pen with which to write the paper.

7. For each question, marks will be provided for an answer (or a part of an answer) that:
   - clearly identifies the question being answered, BY NUMBER;
   - is written LEGIBLY, IN INK, double-spaced in THE ANSWER BOOK; and
   - is provided on the right-hand pages of the book ONLY.

   Marks will NOT be given for:
   - anything written on a left-hand page of the answer book or on the examination itself unless pages from the examination itself are incorporated in the answer book; and
   - anything that cannot be deciphered with a reasonable degree of certainty.

8. Salutations, signatures and other formalities of correspondence are not required in your answers; substance is important. Read each question carefully and ensure that your answer responds to the question posed. Answers given in point form are acceptable except where the question specifically asks you to draft or write your answer.

9. The marks referred to throughout the paper have been provided to show the relative weight attributed to each question. Marks are awarded for analytical and problem solving skills, communication skills, drafting skills, prioritizing and judgment skills in addition to knowledge demonstrated in your answers.

10. There are 100 marks available in this paper. The pass mark is 50.

**PATENT AGENT EXAMINATION**

**PAPER D – PATENT INFRINGEMENT**

**Friday, May 4, 2018 9:00 am to 1:00 pm**

This examination comprises **Part A** (long answer) and **Part B** (short questions).
**Part A** comprises Questions A1 to A5 and also includes documents D1 and D2.
**Part B** comprises Questions B1 to B4.

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**Instructions**

Provide the best answer to the following questions.

Unless expressly indicated otherwise, every answer must include a discussion and/or reasoning appropriate to the mark allocation. Do not provide irrelevant or extraneous commentary. Answer only what is asked and do not assume any facts that are not expressly stated. Do not import your own knowledge of the technology into your answer.

Citations to legal authority (case law, statutory provisions, and/or regulatory provisions) are only required when explicitly requested and should be clear and precise in order to provide a clear indication of the citation being referenced. No marks will be awarded for boilerplate language.

Unless otherwise stated, point form answers are acceptable provided that such answers are sufficiently clear and convey the required information.

Your infringement analyses must address all elements of the claims on their own merits. Do not simply conclude that a claim is not infringed by virtue of its dependency on a non-infringed claim. However, when a claim refers to a previous claim by number, you may incorporate your earlier analysis of the previous claim by reference rather than repeat your analysis. Any incorporation must be specific and relevant to the question at hand, and the location of the incorporated matter in the answer booklet(s) must be clearly and unambiguously identified.

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**PART A – TOTAL 78.0**
**Documents**

The following two documents are included in this examination:

D1: Canadian Patent No. ‘360

D2: Description of the Green Co. turf.

**Two duplicate sets of ‘360 Patent claims are provided at the end of this paper for your use to assist you in presenting your answers in the answer booklet. Use of these duplicate claim sets is optional.**

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**Background**

Many recreation centres and other outdoor spaces have begun making the switch from natural grass to artificial turf. The advantages are almost self-evident, requiring significantly less maintenance and a high tolerance to environmental effects. Historically, artificial turf systems have had several problems including difficulty of installation, movement of the turf once installed and having insufficient resiliency such that the surface was simply too hard to mimic real grass.

Green Co. is in the business of manufacturing artificial turf, and has developed an efficient manufacturing process. The owners are happy with the business model, and aside from manufacturing, has never provided installation services. Green Co. prefers to sell to only a handful of suppliers who bid on contracts to procure and install the artificial turf on large area outdoor surfaces. Green Co. has been manufacturing and selling the artificial turf since January 1, 2010, when the business was founded by its owners on the belief that the owners had invented the artificial turf that was intended to be sold.

On January 1, 2014 InTheDirt Inc. was awarded a contract to purchase and install the Green Co. turf at a new sports stadium in Winnipeg owned and operated by StadCo. InTheDirt Inc. was awarded the contract primarily based on its prior experience installing turfs for StadCo. in

several other sports stadiums. InTheDirt Inc. has always selected the Green Co. turf as the artificial turf to be used for these projects. While StadCo stipulates certain numeric parameters of the desired turf, it leaves the specific turf selection and sourcing to InTheDirt Inc. The numeric parameters specified by StadCo are the expected lifespan of the turf, turf softness/resiliency and colour.

During the process of reviewing bids prior to January 1, 2014, StadCo is informed by The Weed Killer Company of its '360 Patent (enclosed with the bid) as a selling point as to why The Weed Killer Company should be awarded the contract. However, the bid proposal of The Weed Killer Company was higher than the bids of other prospective suppliers and as a result StadCo did not consider the Weed Killer Company's proposal in much detail.

As part of the bid process, the terms of the contract required payment for all turf and materials on May 1, 2014 and all labour costs paid after installation. InTheDirt Inc. is expected to complete installation by June 15, 2014, two weeks before the start of the summer sports season.

On May 15, 2014 InTheDirt Inc. ordered the required turf from Green Co., making payment in full with an expected delivery date of June 2, 2014.

On June 2, 2014 The Weed Killer Company sends cease and desist letters to Green Co., InTheDirt Inc. and StadCo. threatening an infringement action based on its Canadian Patent No. '360. Simultaneously on June 2, 2014, The Weed Killer Company launches an infrigement action against Green Co. alone for past manufacture and sale of its artificial turf dating back to January 1, 2010 alleging infringement of the '360 Patent.

**Question A1 (4.5 Marks)**

The following statements relate to the use of the specification in construction of the claims. 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 incorrect answer results in a reduction of 0.5 marks (to a minimum of 0 on the A1 question) – ie. if you do not know the answer to a question, it may be best to leave the answer blank. Supporting explanations are not required.

i. In a patent infringement action, claim construction takes place before infringement is considered.
ii. A mind willing to understand necessarily pays close attention to the purpose, intent and knowlege of the author.
iii. In the event that purposive construction shows that an element that is literally within the scope of the claim was not intended to be covered by the inventor, this may result in a finding of non-infringemnt.
iv. The specification of a patent describes the invention and its operation and use as contemplated by the inventor in such a way that a person skilled in the art can make it or use it.
v. In construing the claims of a patent, the knowledge of a person skilled in the art is relevant for both (a) understanding the background in the art and (b) understanding the meaning of technical terms in the specification.
vi. A dictionary definition of a term in the claims should never trump the meaning of the word to a person skilled in the art.
vii. One may use one independent claim to aid in the construction of another independent claim by applying claim differentiation.
viii. The order of method steps is deemed to be non-essential if a person skilled in the art would recognize, at the filing date, that the steps could be done in a different order to achieve the same exact result.
ix. The description and/or claims in a divisional patent can be used to construe the claims of its parent.

**Question A2 (29 Marks Total)**

Construe the following terms as they are used in the claims of the ‘360 Patent. Your construction must include identification and analysis of purpose or function, as well as any essential features represented by these terms, supported by appropriate reasoning and citations to the ‘360 Patent.

Marks are awarded for appropriately mapping claim terms to components in the ‘360 Patent, adequately identifying the purpose or function of the element represented by the term, identifying any essential features of each claim term, and adequately supporting your construction with appropriate reasoning and citations to the ‘360 Patent.

The extent of analysis expected to construe each claim term is commensurate with the marks allocated for that claim term. A mere mapping of terms to components in the ‘360 Patent is not sufficient and will receive no marks if you conduct no further analysis.

You may consider additional claim wording to provide a complete construction of a given term or phrase. If you do so, you must identify the specific additional claim wording and explain how it formed part of the analysis.

Identical terms and their plurals are assumed to have the same meaning in each claim in which they are explicitly recited, unless your answer explicitly states otherwise.

i) “**at least one grid consisting of a plurality of interconnected cells”** in claim 1 **[5.0 marks]**

ii) “**tubular member**” in claim 1 **[2.0 marks]**

iii) “**support layer**” in claim 1 **[3.0 marks]**

iv) “**lower portion**” in claim 1 or 2 **[3.0 marks]**

v) “**vertical flexibility**” in claim 2 **[2.0 marks]**

vi) “**resilient securing members**” in claim 3 and in claim 4 **[7.5 marks]**

vii) "**G-max of between 105-114**" in claim 6 **[3.0 marks]**

viii) "**bead filler**" in claim 7 **[3.5 marks]**

**Question A3 (19.5 Marks Total)**

Assume you are retained by The Weed Killer Co. to provide an opinion on whether each of claims 1-3, 5 and 6-8 would be infringed by the manufacture, use or sale in Canada of Green Co. turf (Described in D2), regardless of who carries out the infringing act.

A response in a table format is suggested.

The following marks are awarded for each claim:

| | |
|---|---|
| Claim 1 | 5.0 |
| Claim 2 | 1.5 |
| Claim 3 | 3.0 |
| Claim 5 | 2.5 |
| Claim 6 | 2.5 |
| Claim 7 | 2.5 |
| Claim 8 | 2.5 |

Provide an analysis and conclusion on whether each of the above-identified claims are infringed. You may assume the construction completed above is used in the infringement analysis.

In the event that there is information missing from the description of D2 for you to reach a conclusion for a specific claim, provide an explanation of (1) what information is missing, (2) how the missing information may be determined and (3) what the missing information would have to be in order for there to be infringement

No further comment or exposition on claim construction needs to be provided, although your analysis must clearly show how each element is or is not present. **Please pay attention to refer to the terms of D1 and D2 respectively**. For full marks, your analysis must address each element of the claim. In the event you wish to identify a feature in D2 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.

**Question A4 (16.5 Marks Total)**

Assuming the facts stated in the Background at page 3, continue as follows:

Having received the letter the morning of June 1, 2014, InTheDirt Inc. refuses to accept delivery/installation of the artificial turf from Green Co. and immediately responds to The Weed Killer Company indicating it has no liability for having never had the artificial turf system in its posession, and thus having never completed the sale.

(a) Assuming Green Co. changes its business model and manufactures the base layer B only, selling it to suppliers as a kit with base layer B, installation instructions and pre-filled order form for obtaining the outer layer A and sand/particle fillers for the support layer C from a list of preferred suppliers, answer the following:

i. Could Green Co. be held liable for infringement in Canada of claim 1 of the '360 Patent and how so, or why not? Explain your answer, citing legal authority. **[2.5 marks]**

ii. Could Green Co be held liable for infringement of claim 1 if it exported the kit for assembly and use in the United States? Explain your answer, citing legal authority. **[1.0 marks]**

(b) How would you advise the Weed Killer Company on the refusal by InTheDirt Inc. to accept delivery and with respect to its response? **[2.5 marks]**

(c) The Weed Killer Company asks for your advice on whether StadCo should be sued for patent infringement. Advise whether StadCo could be liable for patent infringement based only on the facts presented and provide a recommendation to The Weed Killer Company. (note for greater clarify: do not import the stated assumptions or your answers in part (a) into your analysis here). **[5.5 marks]**

(d) Assuming that the legal action brought by The Weed Killer Co. against Green Co. for the manufacture of the artificial turf system proceeds to trial,

- Green Co pleads the existence of non-infringing alternatives which provide virtually the same advantages of the turf system of the '360 Patent and is successful on that topic;
- the '360 Patent is eventually determined to be infringed by Green Co. when the trial concludes on May 1, 2018.

Answer the following sub-questions.

(i) Identify two possible remedies available to The Weed Killer Co., and cite the legal authority giving rise to each remedy. **[2.0 marks]**

(ii) Identify the remedy most likely available to The Weed Killer Co., based on the assumptions above and supported by the facts presented that would likely maximize its monetary award. Explain your answer. State the dates, the burden Green Co. must meet and the authority which would be used in calculating the monetary award. **[3.0 marks]**

**Question A5 (8.5 marks)**

Assume that Green Co. begun manufacturing the artificial turf on January 1, 2003 in anticipation of InTheDirt being granted a contract to install the turf in June, 2005.

The Weed Killer Company had been aware of the potential contract for several years, and intended on bidding themselves. Accordingly, and in order to have the Canadian '360 Patent issue on an expedited basis, their patent agent amends the originally filed claims to match those that issued in the United States equivalent patent. The originally filed Canadian claims included 5 independent claims of different scope, and 45 claims in total. The patent is issued on June 18, 2014 with no divisional filed.

On July 15, 2004, The Weed Killer Company sends a cease and desist letter to Green Co., who responds on July 16, 2004 that they are not directly infringing as they do not produce the support layer of Claim 1 of the ‘360 Patent, and they are not inducing infringement since no sales have yet occurred.

The Weed Killer Company, being very litigious, does not respond further and immediately launches an action asserting direct and induced infringement. Prior to commencing the action, The Weed Killer Company sought your advice on July 4, 2004 and you rendered your opinion on July 18, 2004. What would your opinion have indicated:

(a) Assuming a Canadian court found inducement, discuss whether any remedy may be available. Explain your answer, citing legal authority. **[3.0 marks]**

(b) Regarding direct infringement, you advise The Weed Killer Company that you agree with Green Co.’s assessment in view of the granted claims. The Weed Killer Company is however undeterred and wants to pursue an action for direct infringement. Suggest a course of action and argument. Explain your answer in detail, citing legal authority where appropriate. **[5.5 marks]**

**END OF QUESTIONS IN PART A**

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**PART B – TOTAL 22.0 MARKS**

**Question B1 (2.5 Marks)**

Thomas Jones has obtained Canadian patent '777 on a blockchain technology to use the cryptocurrency Smartcoin®. The government of Canada wants to adopt the Smartcoin® as an alternative currency of the Bank of Canada. Licensing negotiations between Mr. Jones and the Canadian government have broken down as Mr. Jones' requests are commercially unreasonable. What does the government of Canada have to do in order to use this patented invention and avoid a patent infringement action? Explain your answer and cite appropriate authority as part of your response.

**Question B2 (5.0 Marks)**

Are the following statements true or false (0.5 marks each)? For each answer, please provide a supporting authority or explanation (0.5 marks each). No marks will be awarded for an answer without an explanation.

(a) In circumstances in which the utility of the subject matter defined by a claim has not been demonstrated at the time of filing, the utility can be assessed in light of the promise of the patent.

(b) Even if one step of a method claim of a Canadian patent is performed in Hawaii, there will still be infringement of the method claim in Canada.

(c) An exclusive licence to a patent does not prevent its patentee from practising the claimed invention.

(d) An inventor can be a person skilled in the art.

(e) In respect of a patent that issues in respect of a Canadian national phase application, eligibility to claim reasonable compensation starts to run on the PCT publication date.

**Question B3 (10 Marks)**

Canadian patent '345 was filed on January 2, 1996, published on July 2, 1997, issued on July 27, 2000 and expired on January 2, 2016. The patent is involved in a patent infringement action which concluded on May 1, 2018. The infringement commenced on February 2, 1996 and continued through the conclusion of the action.

a. List 5 monetary remedies (other than costs and interest) that may be sought by a successful patentee? (2.5 marks)
b. For each remedy, provide the applicable time period when such remedy would be available (from start date to end date). (2.5 marks)
c. For each remedy, provide the condition upon which it can be awarded. (2.5 marks)
d. For each condition, provide an appropriate authority supporting the remedy. (2.5 marks).

Answer in a table format is suggested.

**Question B4 (4.5 Marks)**

Your colleague brags that she was able to obtain, for Canadian patent '226, an additional term of patent protection beyond the typical 20 year term.

(a) Explain the circumstances under which this could be achieved by citing the appropriate authority (2 marks)
(b) Indicate how the additional term is calculated and reference the appropriate authority for doing so. (1 mark)
(c) Does the additional protection confer the same rights as the rights granted by the patent? Support your answer with an authority? (1.5 marks)

**END OF QUESTIONS IN PART B**

CA 2XXX360 C 2004/06/02
(11)(21) **2 XXX 360**
(12) **BREVET CANADIEN**
**CANADIAN PATENT**
(13) **C**

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**[REMAINDER OF COVER PAGE AND ABSTRACT OMITTED]**

# ARTIFICAL TURF SYSTEM

## BACKGROUND OF THE INVENTION

[0001] Artificial turf systems are old and well known. The original systems had the problem of losing their resiliency over a substantially short period of time, after which they became unsatisfactory for certain uses. Another factor which creates problems is that certain fillers are not fire proof, and in fact, could burn which creates a fire hazard. Finally, certain fillers contain dust and when used indoors, tend to pollute the atmosphere.

## SUMMARY OF THE INVENTION

[0002] Omitted

## DESCRIPTION OF THE DRAWINGS

[0003] The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings forming a part thereof, wherein an example of the invention is shown and in which:

FIG. 1 is an exploded cutaway side view of one embodiment of the artificial turf system of the invention.

FIG. 2 is similar to FIG. 1, showing a second embodiment of the turf system of the invention.

FIG. 3 *a* is a top view of a cell.

FIG. 3 *b* is a cutaway side view of a cell.

FIG. 3 *c* is a cutaway side view of a cell.

FIG. 4 is a cutaway side view of a cell compressed.

FIG. 5 is a cutaway top view of a grid.

FIG. 6 is a cutaway top view of cells of adjacent grids interconnecting.

FIG. 7 is a cutaway side view of a securing member of the system.

FIG. 8 is a cutaway side view of the finger of the securing members.

FIG. 9 is a perspective view of a grid having an alternative grid.

FIG. 10 is a cutaway perspective view of the transition layer.

FIG. 11 is a diagrammatic view of the filler of the invention illustrating its non-mounding qualities.

FIG. 12 is a perspective view of the shape of the filler particles.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0004] The artificial turf system is designed to be usable for many different purposes such as sports surfaces, landscaping, equine facilities and the like. The sports surfaces include playgrounds, ball fields and track facilities. In order to function in these areas the artificial turf system must be of proper firmness, be durable, have proper drainage capability, and be easily installed. In the case of sport and equine facilities, it is also necessary that the turf system have proper abrasiveness, traction, flame retardance and not present fungicidal problems. It is also most necessary that the surface not pack or mound unnecessarily.

[0005] Turning now to FIGS. 1 and 2, the artificial turf system of the invention **10** is shown broken into three components i.e. outer layer A, base layer B and support layer C. Installation of these layers generally includes providing support layer C on a generally flat ground surface, that may have been compacted mechanically prior to installation. The ground should be flat enough such that the support layer C can be made generally flat at its top layer to a degree expected of the function of the surface where the turf system is installed. Base layer B is positioned atop the support layer. Base layer B is described in more detail further below. Finally, an outer layer A completes the turf system. Outer layer A is the layer that a user interacts with and is visible. It is ideally green and comprises a fabric sufficiently soft to mimic that of real grass.

[0006] Support layer C may be no more than compacted soil or it may be comprised of crushed stone, a combination of crushed stone and sand, asphalt, concrete or a combination thereof. This layer is identified as support base **12**. Support base **12** is generally known in the art and no new accomodations are made to the base in this invention. It is accordingly not described in more detail. In practice, the support base **12** is similar to a base for other surfaces that an installer would be well aware of how to install. It may also be pre-exisiing at an installation location. Typically, the base layer B, and optionally the outer layer A would be shipped together. It is also contemplated that outer layer A could be provided by a third party.

[0007] It may be desirable to place a stabilizer sheet **14** over layer **12**. Stabilizer sheet **14** is a flexible non-porous plastic sheet which assists with drainage and provides a stabilizing support for grid **16**.

[0008] Turning now to FIGS. 1–5 and 9, base layer B is positioned over and supported by support layer C. Base layer B includes mat **15** which is made up of a plurality of grids **16** connected together. Mat **15** is preferably formed to conform with the shape of support layer C. There could be a plurality of mats laid side by side over an extremely large support layer. In small applications, such as home decorative use, base

layer B may be made of only a single grid. However, for applications larger than 5 square meters, a plurality of grids would be necessary due to manufacturing and transport constraints of providing grids in large sizes.

[0009] Each grid **16** is formed of a plurality of interconnected cells **18** which comprise cylinders **5** or tubular members **5** formed of semi-rigid or semi-flexible plastic. The grids **16** are preferably formed rectangular or square, however, any polygonal shape is acceptable. The tubular members **5** extend upwardly from the base of the grid **16**. In the illustrated embodiment, each cell **18** includes a circular upper section **20** and lower section **22**.

[00010] As shown in FIGS 3 and 4, upper section **20** has an upper end **21** which is designed to engage with outer layer A. Vents **23** are formed about the periphery of the upper section to allow air to exit the cylinder. Lower section **22** is configured to engage with the support layer C.

[00011] In the preferred embodiment, lower section **22** extends radially downward and outward from the lower end of upper section **20** forming a cone shaped lower section. Lower section **22** extends from the vertical axis of the cell at an angle of about 75°. Lower section **22** may have a continuous radial surface or it may be in the form of a plurality of radially extending members. In either instance, lower section **22** provides resilience or movement in the vertical direction when the cell is impacted with weight. The degree of downward movement from its normal height x to a compressed height y or between 1/16 and ⅛ inch.

[00012] Cylinder **5** preferably extends vertically to about 1″ in height with the upper portion being about ¾″ and the lower portion about ¼″.

[00013] In one variation, the cylinder **5** is made from a resilient material that compresses in the vertical direction to provide the resiliency and movement in the

vertical direction when the cell 18 is impacted with weight. Such materials are at present cost prohibitive, but if the costs of these materials are reduced in the future or sufficient volume of the grid produced, there may be situations where such a construction is advantageous. In this variation the cells may still include lower section **22** discussed above, but lower section **22** may be generally flat and assist in supporting the cylinders on the support layer C only. One example of this arrangement is shown in FIG. 9.

[00014] Grids **16** comprise a plurality of cells **18** which are interconnected by securing members **24** (shown in FIG. 5). The securing members engage with adjacent cell peripheries, preferably the lower edge of lower section **22**. The cells forming a grid are arranged along opposed axes with each axis being separated by about 4″.

[00015] Securing members **24** are generally diamond shaped and comprise flexible synthetic filaments or rods interconnected into spaced positions. The filaments of the securing members where connected form an angle with the adjacent cells **18** as shown in FIG. 5. Securing members **24** are flexible and allow vertical, diagonal and horizontal movement between the adjacent cells. This flexibility allows the cells **18** forming the grids **16** to conform with the topography of the support layer C, ensuring even engagement between each cell **18** and the support layer C.

[00016] As shown in FIGS. 5–8, two outer sides of each cell **18** include securing members **24′** which are directed away from the grid **16**. Attached to the outer extremity of each securing member **24′** is an L-shaped finger **28**.

[00017] On the opposing two outer sides of grid **16**, each cell **18** is provided with a connector **26**.

[00018] Connectors **26** comprise a slot and a spaced aperture as shown best in FIGS. 7–8.

[00019] The horizontal extension of finger **28** is adapted to engage in the slot of connector **26** while the vertical portion **28′** of finger **28** extends through opening **26′** locking finger **28** in fixed position with lower portion **22** of the associated cell. The vertical portion **28′** of finger **28** may include a slot and a lip providing flexability and a shoulder which engages about opening **26′**.

[00020] In use, grids **16** are integrally formed, preferably by molding in the manner above described. A plurality of grids **16** are interconnected forming a mat **15** or a plurality of mats which then are placed over support layer C. The lower ends of lower portions **22** of the cells **18** are positioned in engagement with support layer **12** or with stabilizer sheet **14**.

[00021] In certain instances, base layer B includes a transition layer **30** as best shown in FIGS. 1 and 10. Transition layer **30** preferably consists of a screen or grate **31** which is formed of diagonally disposed synthetic rods or filaments **32**, **33**. Generally rods **32** are of larger diameter than filaments **33**, however, this is not necessarily so. It is preferred that screen **31** is preferably a unitary molded unit sized to match the grid size. They could be made in larger sheets and cut to size. Also they could be synthetic filaments bonded together. It is only necessary that screen **31** be sufficiently rigid to assist the cells in supporting the outer layer A and yet provide sufficient vertical give to improve the resilience against impact of the artificial turf system.

[00022] As shown in FIG. 10, the transition layer **30** can also comprise felts **34** and **35**. Preferably felts **34**, **35** are formed of synthetic yarns and are positioned over and secured with the top and bottom surfaces of screen **31**. Felts **34**, **35** are formed to be between 4 and 10 ounces per square yard. The felts must be sufficiently porous to provide drainage from the outer layer A through the base layer B. The transition layer primarily assists in providing uniform vertical support of the outer layer A while the felts provide padding which assists in reducing wear on the outer layer A.

[00023] Turning now to FIGS. 1, 2, 11 and 12, the outer layer A comprises a pile fabric **38** which consists of pile tufts **40** secured with base fabric **42** (not shown in FIGS 11 and 12).

[00024] Pile tufts **40** are preferably formed of polyethylene, polypropylene, nylon or a combination. The tuft forming synthetic filaments have a ribbon like cross-section of between about 1/32″ to ⅜″ in width. The pile tufts are formed to a height, which may be uniform or may vary, of between ¼″ to 4″. The pile tufts are secured with backing fabric **42**, **43** by tufting, weaving, braiding or bonding as desired.

[00025] The backing fabric may be a porous textile fabric as shown in FIG. 1 at **42**. A porous backing is applied to retain the tufts with backing fabric **42**. With this backing fabric it is desirable that transition layer **30** be positioned between the backing fabric and mat **15**. Alternatively, the backing fabric may comprise a ½″ composite of foam and fabric sheet as shown in FIG. 2 at **43**. Backing fabric **43** is preferably a polyurethane, polyethylene or latex sheet between 1/2 and 1" thick. In this instance, it is normally not necessary to provide transition layer **30** as backing fabric **43** provides sufficient vertical resilience. In both instances, it is desirable that the backing fabric be porous.

[00026] A bead filler **44** is distributed evenly over backing fabric **42**, **43** and about pile tufts **40**. The filler is applied to a depth of between 1/4 to 2″ depending upon the need.It has been found that a bead filler of silicone dioxide beads or particles, which may be coated as shown in FIGS. 11 and 12, are most desireable, and out of several materials tested provided the optimal G-max factor (described below). These beads **46** are substantially round with no sharp edges. They are sized and cleaned to be between 8 and 60 mesh and are substantially dust free. Due to the roundness of the particles of silicone dioxide this filler does not pill or mound, maintaining an angle of repose of about 30°. This feature assists tremendously in maintaining even porosity, maintaining a constant G-max factor (described below) and maintaining an even surface.

[00027] Silicone dioxide beads **46** are slightly porous and in certain instances it is desirable to coat the outer surfaces thereof with an acrylic sealer **48** as shown in FIG. 12. Other sealers may be used if desired. The coated silicone dioxide particles or beads are also referred to as STF.

[00028] It may also be desirable to color the silicone beads **46** to enhance the appearance of the artificial turf. Desirable colorants are iron oxide ($FeO_2$) for black and chrome (iii) oxide ($Cr_2O_3$) for green. Other natural colorants are available for other colors or shades.

[00029] Generally three pounds of colorant are mixed with one gallon of acrylic sealer to form the coating although this ratio is changed to alter the depth of the color as desired.It is noted that satisfactory results have been achieved when using mixtures of silicone dioxide beads mixed with ground rubber or with sand. Artificial turf systems when installed must be sufficiently stable so as to maintain a generally even outer surface. These systems must also be resilient within limits so that the stability of the surface is sufficiently hard so as to provide positive footing and yet is sufficiently resilient to provide sufficient resilience so as to not cause undue injury.

[00030] As it is known in the art, tests have been developed to determine the physical capabilities of artificial turf system. One such accepted test is the TSI test and it determines the resiliency or shock absorbing capability of an artificial turf and is referred to as the G-max test. TSI Testing Service conducts tests which reveal the G-max of an artificial turf system when installed and the G-max after extended time or use.

[00031] For an artificial turf system to be acceptable, the G-max must be and remain within the range of 90 to 120. A G-max of between 105 and 114 is most preferable. Above and below this preferred range, the risk of falling outside of the 90-120 range over extended use increases substantially.

[00032] The test conducted on the artificial turf system above described provided test results indicating that the system as installed possessed a G-max of about 100 and as such is at a very acceptable level of hardness. Continued testing over time, which equates with extended use, resulted in an initial increase in G-max of between 5 and 14%, and generally about 7%. The synthetic turf system of the invention retained this G-max through extended further testing.

[00033] Other artificial turf systems using sand or ground rubber have also been tested by TSI. The results of these tests indicated an initial G-Max of about 100. However, with continued testing over time, the G-Max of these products was shown to continuously increase up to between 25 and 40%. This increase in the G-Max indicates that these tested turf systems, in a short space in time, degraded to the point of becoming unsatisfactorily hard, requiring replacement.

[00034] While a preferred embodiment of the invention has been described using specific terms, such description is for illustrative purposes only, and it is to be understood that changes and variations may be made without departing from the spirit or scope of the following claims.

1. An artificial turf system for an athletic field comprising:

a **support layer**;

a base layer, said base layer comprising **at least one grid consisting of a plurality of interconnected cells** arranged over said support layer; and

an outer layer of pile tufts on a backing sheet;

wherein each cell of said interconnected cells comprises an upstanding **tubular member** having an upper portion supporting said outer layer and a **lower portion** configured to engage with said support layer.

2. The artificial turf system of claim 1, wherein said upper portion has a first diameter and said **lower portion** has a second and larger diameter; said lower portion providing each said cell with **vertical flexibility**.

3. The artificial turf system of claim 1 or claim 2 including **resilient securing members** interconnecting adjacent of said cells of said grid, said securing members allowing relative movement between said cells.

4. The artificial turf system of claim 1 including **resilient securing members** engaging outer edges of cells on a perimeter of each at least one grid, wherein selected outer ones of said securing members include outwardly directed fingers.

5. The artificial turf system of claim 1, wherein said base layer includes a transition layer arranged over said grid; said transition layer comprises a grate formed of at least two arrays of substantially diagonally arranged synthetic filaments.

6. The artificial turf system of claim 1 having a **G-max of between 105-114**.

7. The artificial turf system of claim 6, further comprising a **bead filler** distributed on said backing sheet between said pile tufts.

8. A method for installing an artificial turf system comprising:

providing a support layer on a generally flat ground surface;

positioning a base layer atop said support layer; said base layer including at least one grid consisting of a plurality of interconnected cells, each cell of said interconnected cells comprises an upstanding tubular member; and

installing an outer layer consisting of a pile fabric supported by said upper portion of said base layer.

9. The method of claim 8, wherein each cell includes an upper portion and a lower portion; said upper portion having a first diameter and is adapted to support said outer layer, said lower portion having a second and larger diameter and is adapted to engage with said support layer; said lower portion providing each said cell with vertical flexibility; whereby, said at least one grid is capable of selected vertical movement due to impact.

10. The method of claim 8, further comprising, installing a semi-flexible transition layer; said transition layer being arranged on upper edges of said at least one grid.

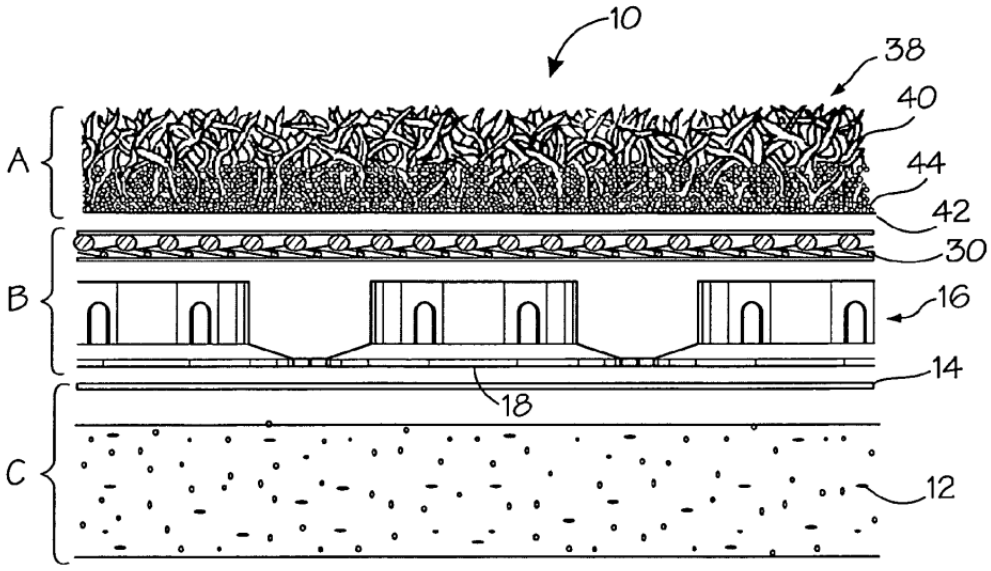

10
38
40
44
42
30
16
14
18
12
A
B
C

*Fig. 1*

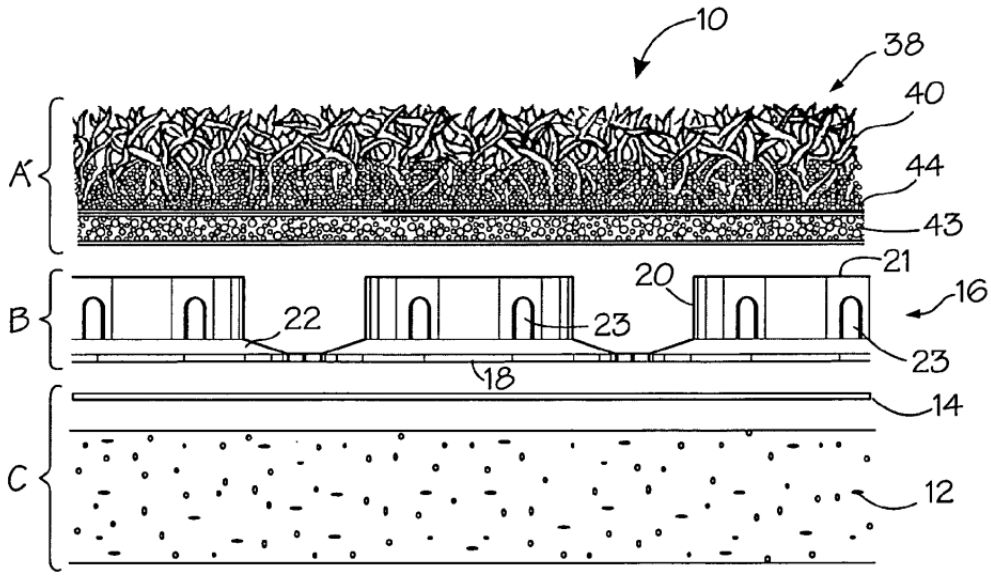

10
38
40
44
43
21
20
16
22
23
23
18
14
12
A
B
C

*Fig. 2*

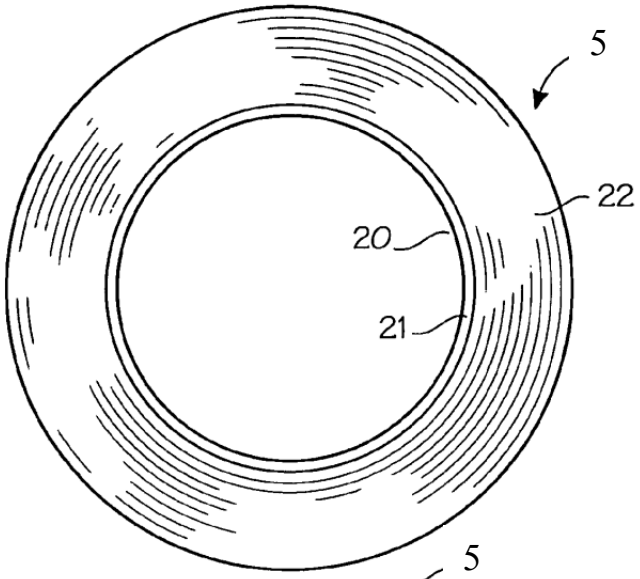



*Fig. 3a*

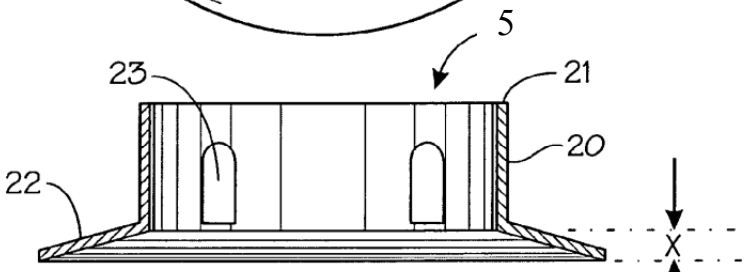



*Fig. 3b*

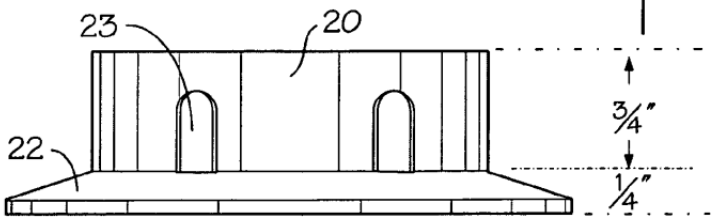



*Fig. 3c*

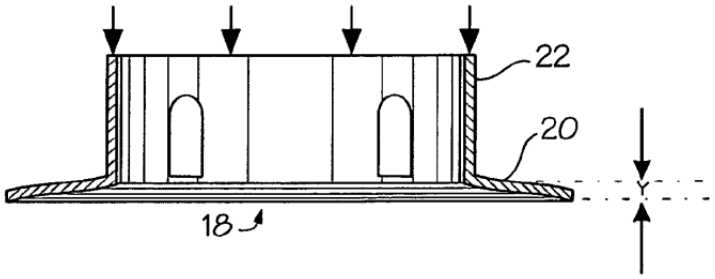



*Fig. 4*

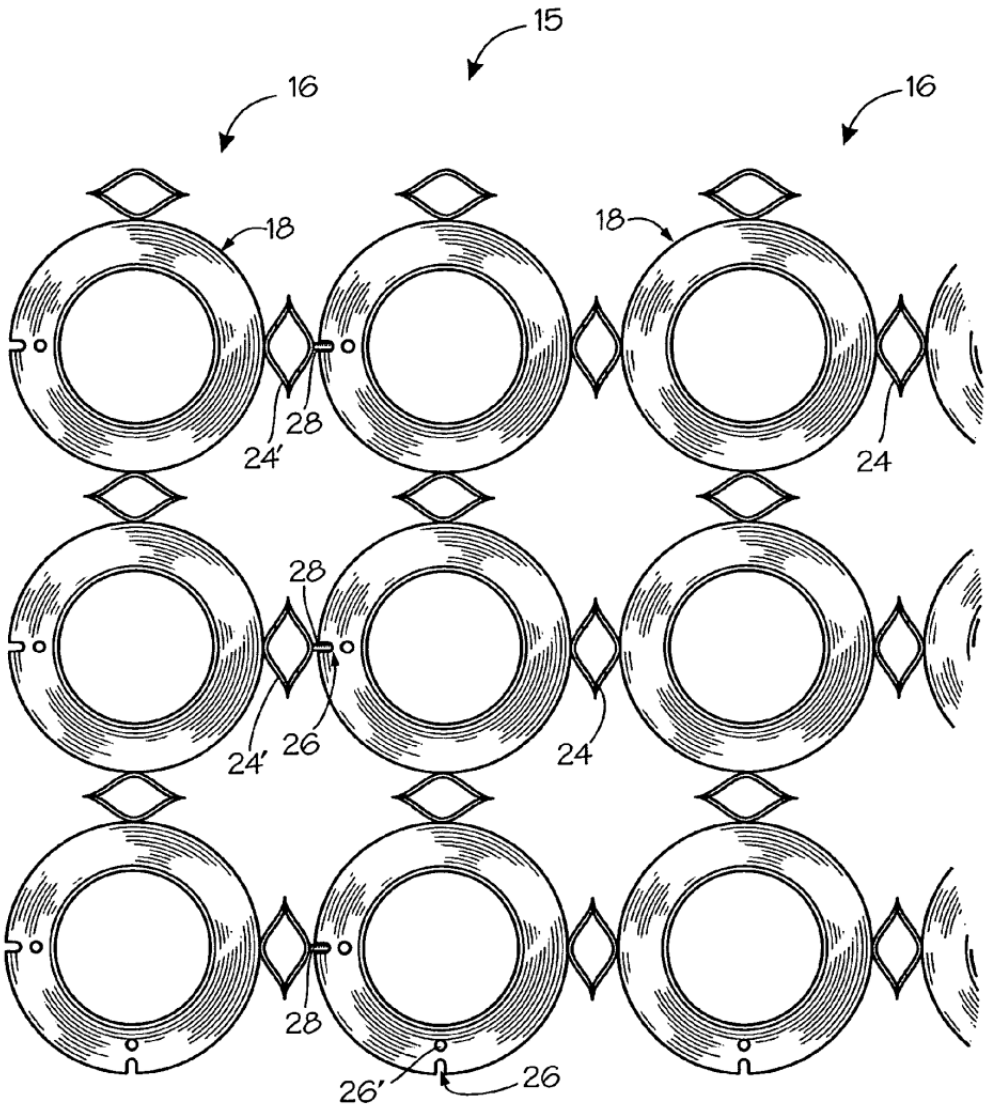



*Fig. 5*

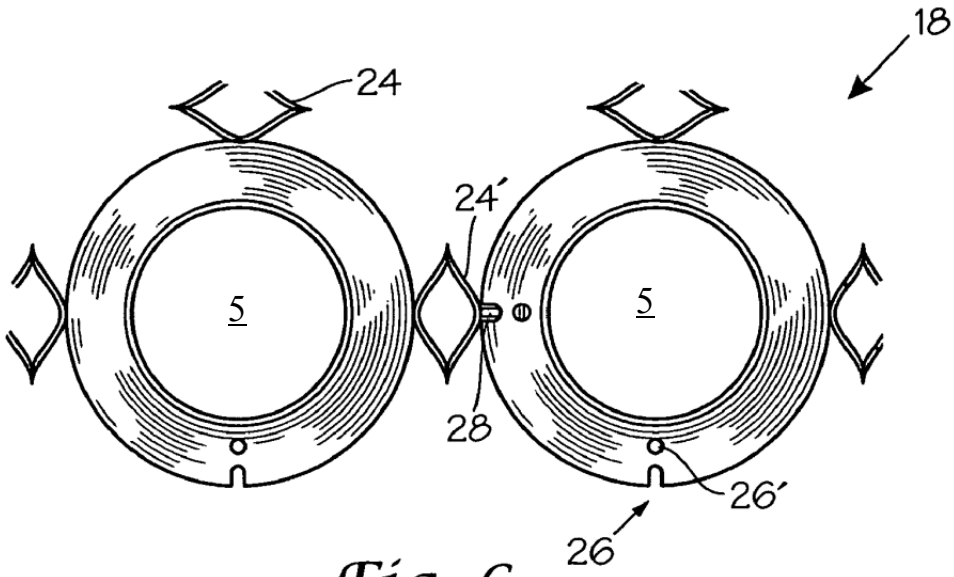



*Fig. 6*

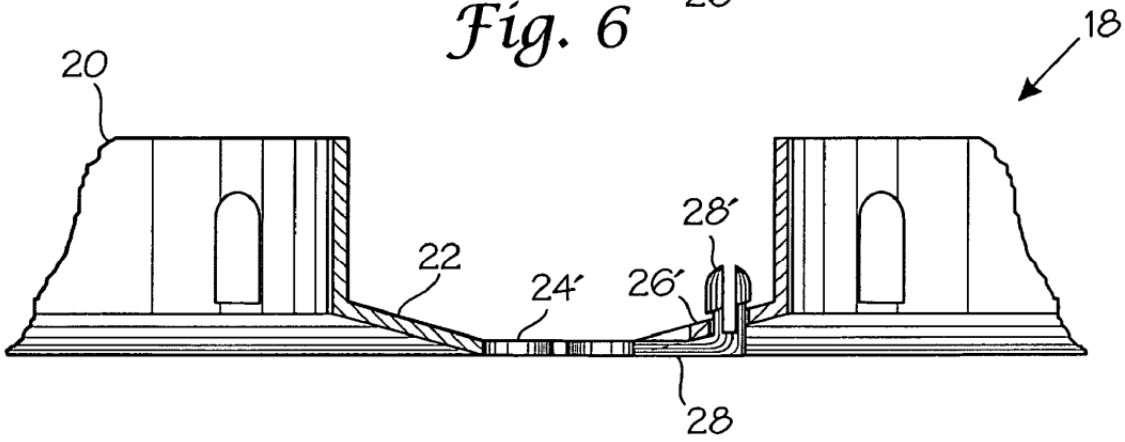



*Fig. 7*

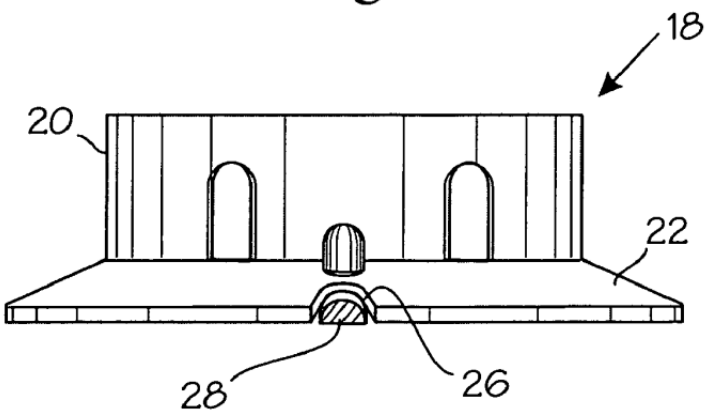



*Fig. 8*

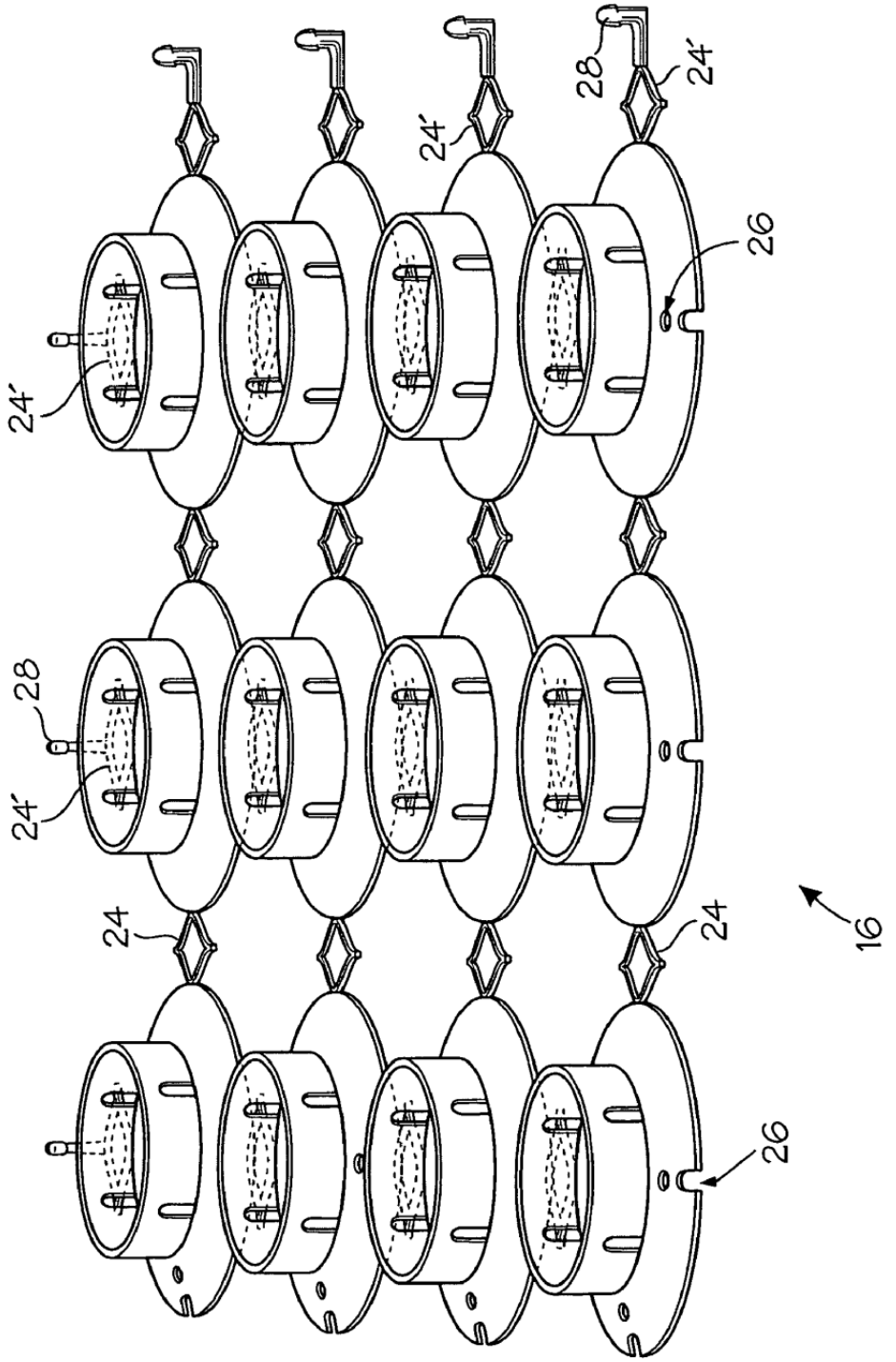



*Fig. 9*

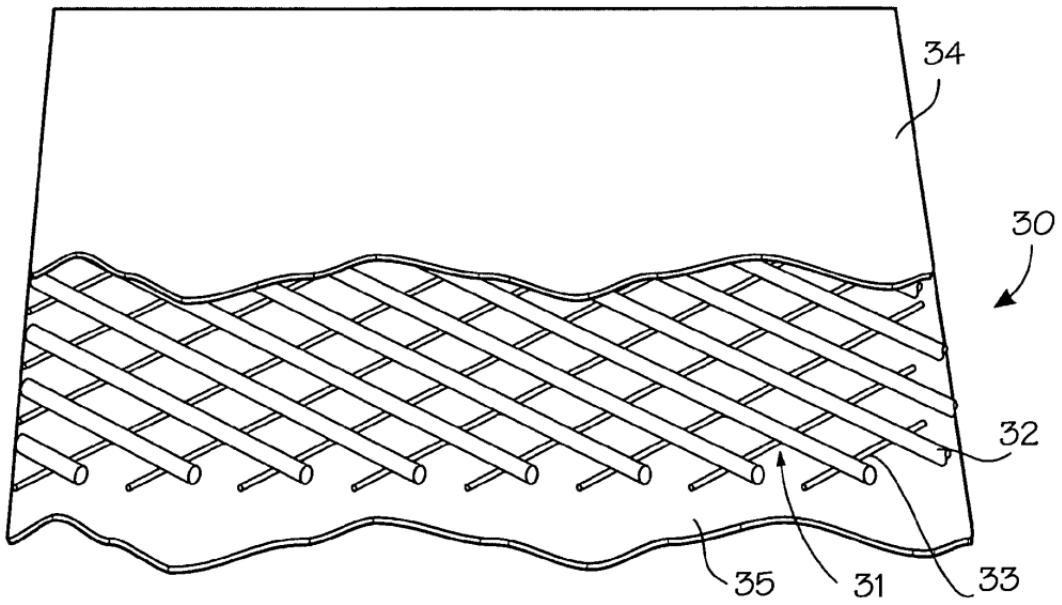



*Fig. 10*

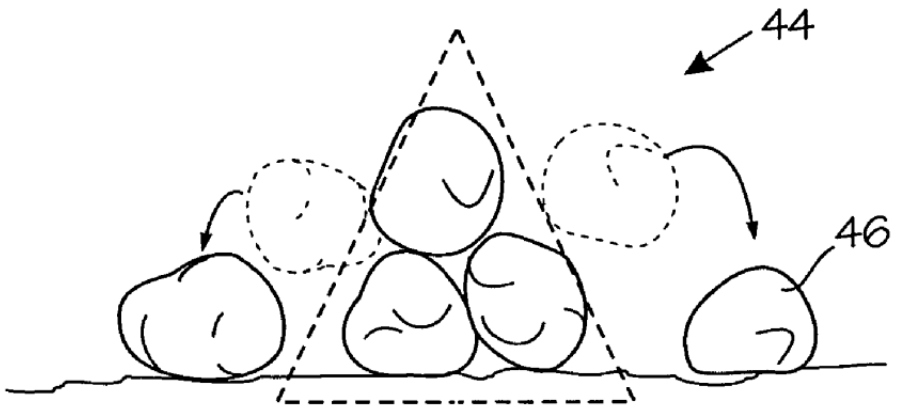



*Fig. 11*

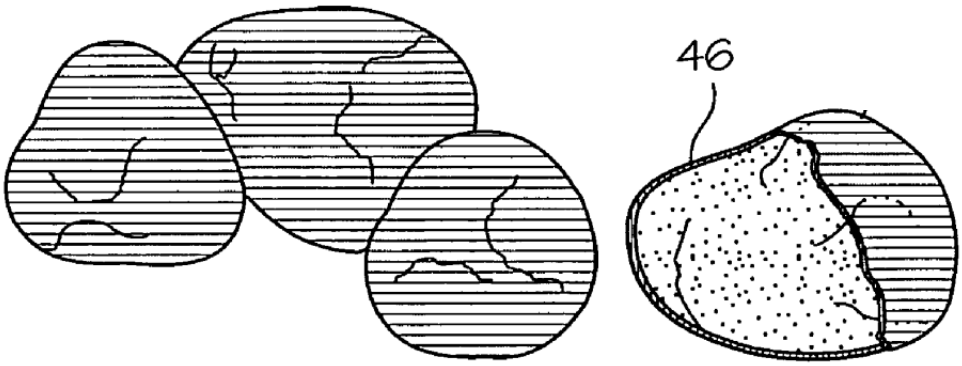



*Fig. 12*

**THE GREEN CO. TURF**

The Green Co. artificial turf I is illustrated generally in FIGS. 1-7 below. FIG. 1 shows a representative turf, with FIG. 2 showing a sectional view of a given portion of the artificial turf I having a composite construction, which includes an outer layer II of artificial grass material. The artificial grass material may be any conventional artificial grass, having a fiber pile height of approximately 3/4". The turf itself is filled with sand S, approximately at 3.5 $lb/ft^2$, to fill the turf up to 1/8" to 3/16" of the fiber pile height. This stabilizes the fibers 11, which themselves hold the sand S in place.

Next, there is a deflection layer III, which provides a drainage, cushioning for softness and eliminates excessive deflection of the artificial turf. The deflection layer is a non-woven layer of synthetic fibrous material which is open for containing sand and sufficient water drainage yet has enough resiliency to provide cushioning while maintaining the desired height.

Fibrous upstanding yarns 24 of the deflection layer possess sufficient resiliency to maintain the height and loft of the woven fabric to absorb shock from foot traffic or play.

As can best be seen in FIGS. 4 and 5, deflection layer III includes a side 26 of mutually entangled heat set plastic yarns 24a and an outer side 28 of mutually entangled plastic yarns 28 arranged in intersecting diagonal rows 30, 32. Upstanding yarns 24 extend between lower and upper sides 26, 28, and are mutually entangled and heat set therewith. In particular, yarns 24 are spot welded at 24 to lower side 26 and are mutually entangled or looped with the upper side yarns. The entire layer is heat set for resiliency. The fibrous yarns are entangled or woven together so as to prevent the disbursement and lateral movement of loose particles when applied within the layer. It has been found that a fibrous strand material with a pile height of about 1″ filled with sand during installation, advantageously stabilizes the construction, i.e. the strands stabilize and anchor the sand particles in place, and provides the needed shock absorption. Preferably, the pile of the deflection layer is filled to the top, 1″. So constructed, the deflection layer is resilient to rebound and assists in preventing permanent deformities and irregularities in the playing surface.

As shown in FIG. 2, below the deflection layer III is a base IV in the form of a flexible grid system. The flexible base grid IV stabilizes the upper artificial turf, outer layer II and deflection layer III. Further, an underlayment 12 is provided in the form of a geotextile material to prevent the grid system from sinking into the subbase 14. Depending on the intended use, the geotextile material may be woven or non-woven polypropylene. The subbase is provided by compacted soil or crushed rock.

FIG. 3 shows the flexible grid system in more detail. The system includes a plurality of grid cells 16 which are filled with sand S (labelled in FIG. 1) for individual grid support and shock absorption. The cells 16 are generally flexible, but maintain their shape by being filled with sand S.

As best shown in FIGS. 6 and 7, adjacent grid cells are interlocked together by flexible universal joints 18 which include a male connector 18a received in a socket 18b formed in the sidewall 18c of the grid cells. The universal joint provide flexibility in all directions. Furthermore, the universal joints allow adjoining cells to be locked and released as needed.

The grid cells may be joined together to provide a flexible base grid system IV which readily conforms to the compacted base or subbase surface 14. A sidewall 17 to which outer cells are attached is provided around the completed grid system.

The grid cell interiors 16a, and openings 20 between cells 16, are filled with sand, and other loose particles.

In order to install the artificial turf system, the ground must first be made generally flat by digging down to a sufficient depth at which the ground may be sufficiently compacted. Next, the underlayment is laid down, if provided separately from the grid, after which the base grid is installed ensuring that each section of grid is interconnected with each adjacent piece. The deflection layer III is then rolled atop the assembled base grid. The artificial grass layer II is unrolled above the deflection layer and adhered thereto with the adhesive provided on an underside of the artificial grass layer II.

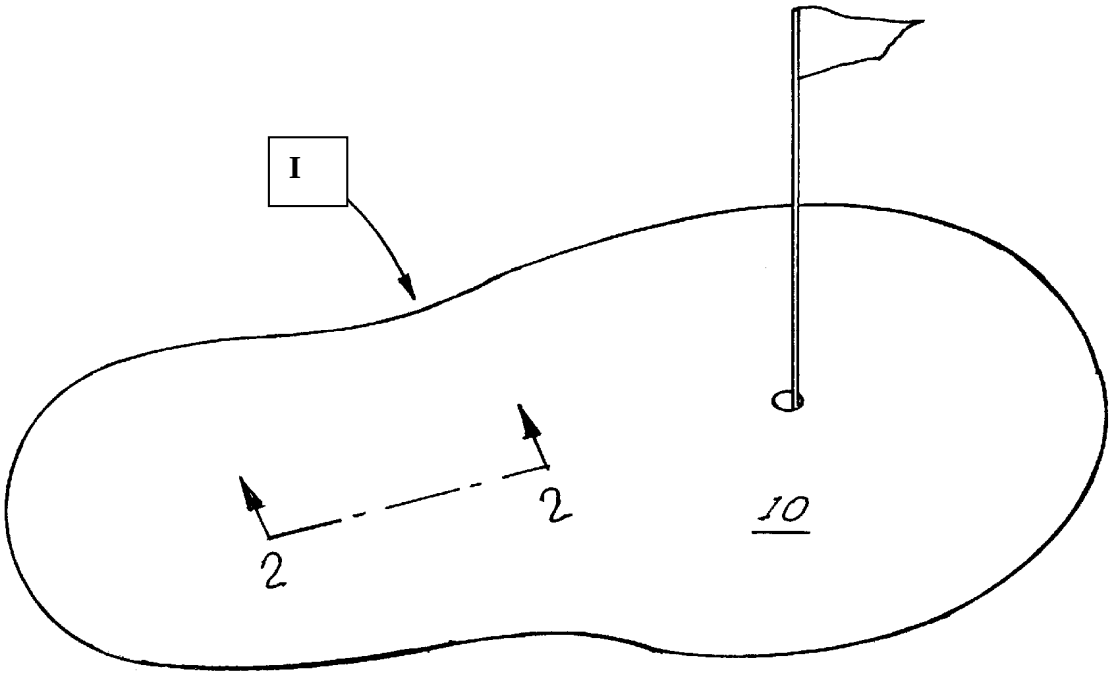



Fig. 1.

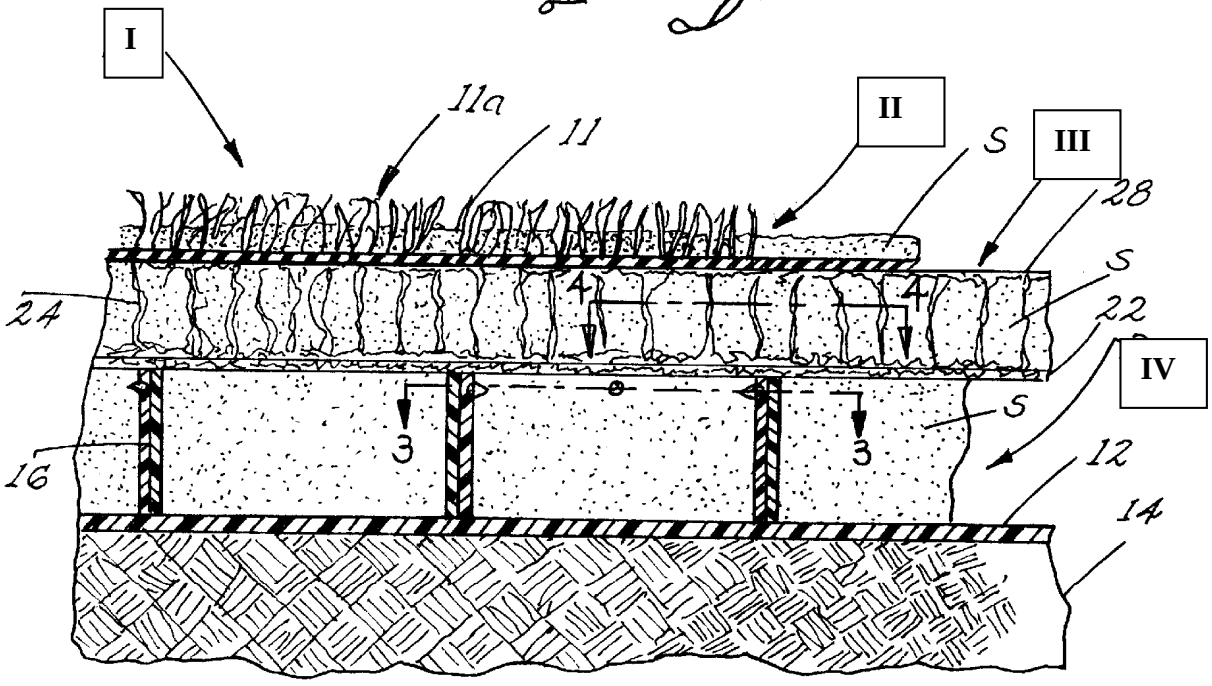



Fig. 2.

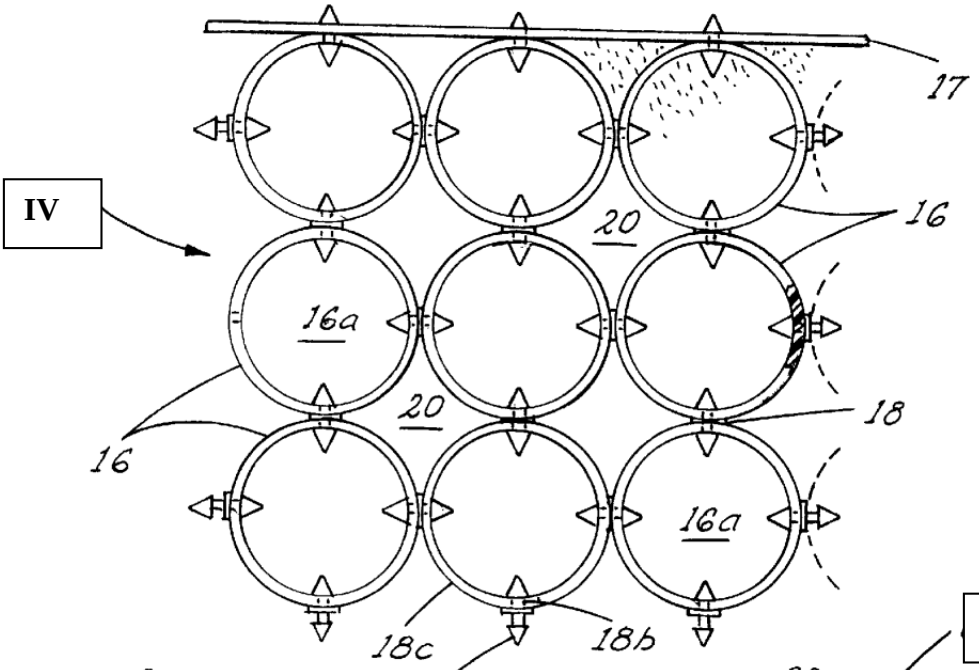



Fig. 3.

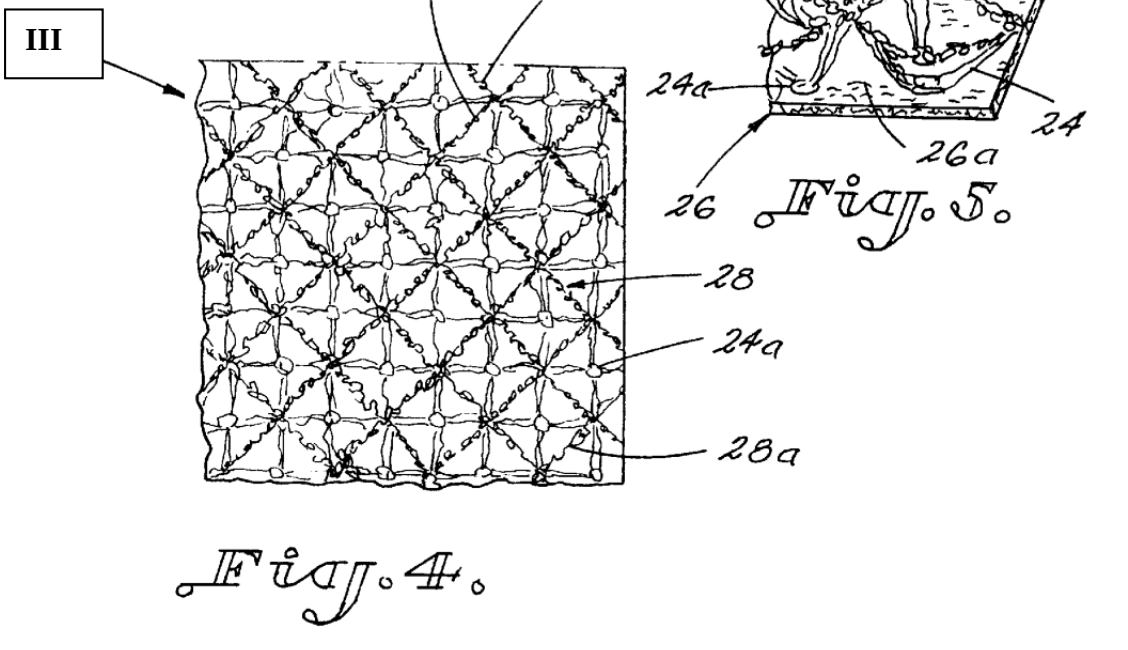



Fig. 4.

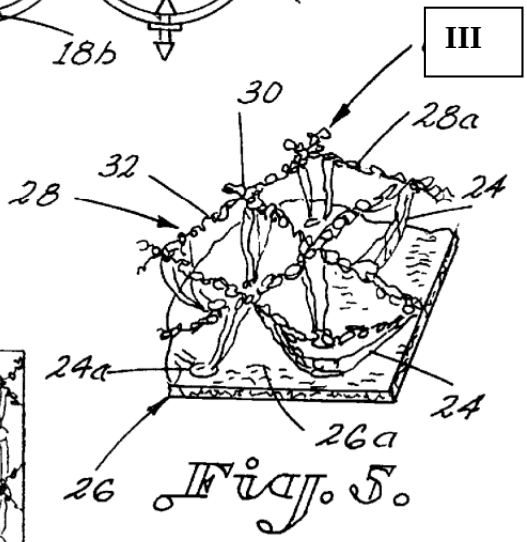
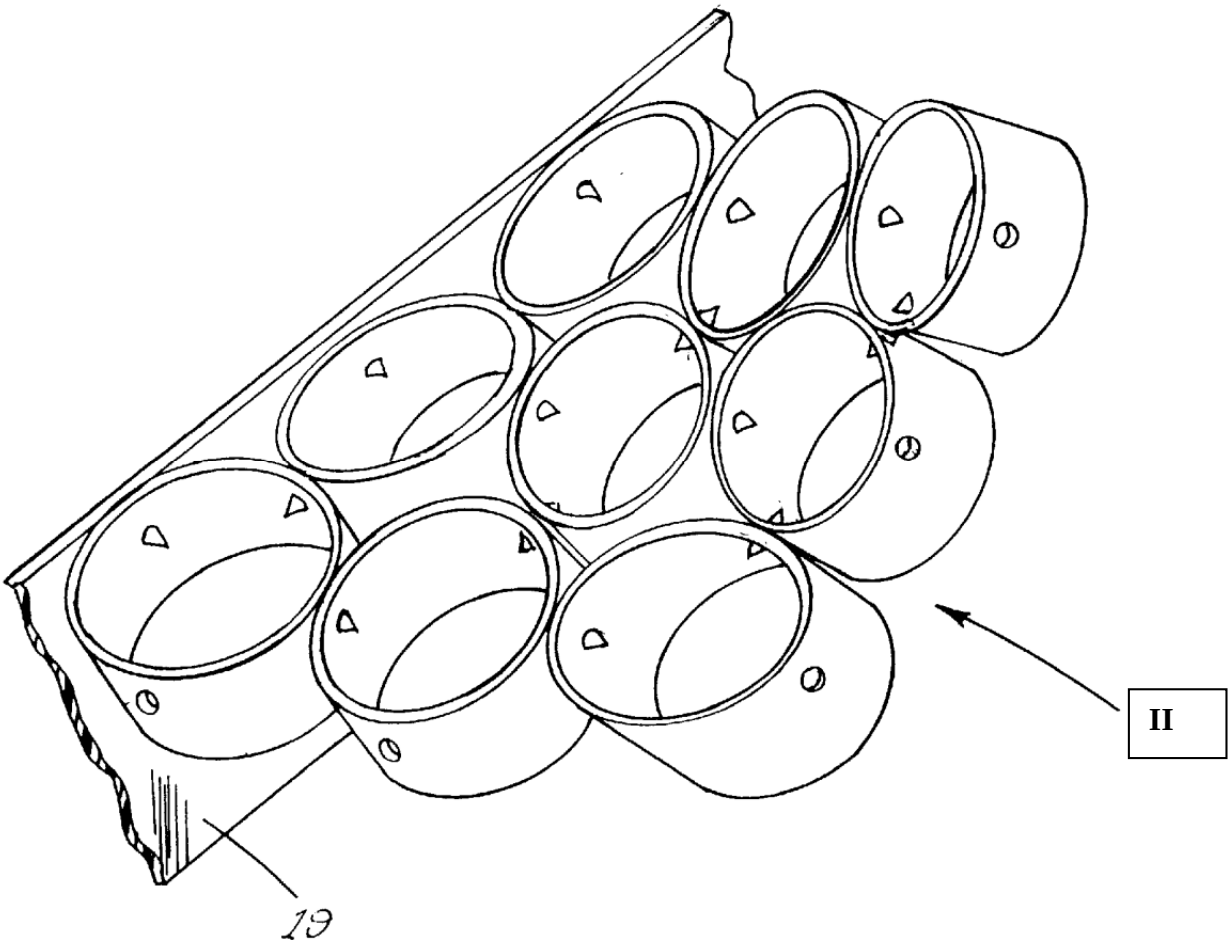



Fig. 5.

Fig. 6.



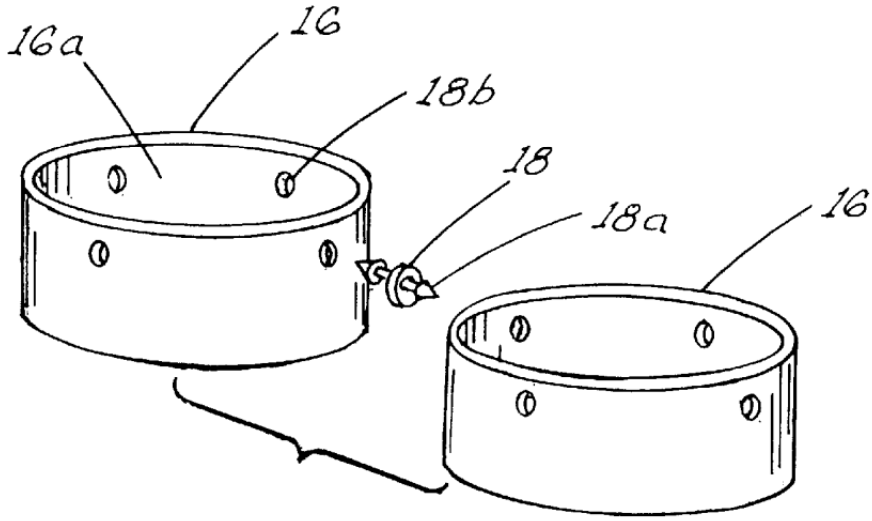




Fig. 7.

‘360 Patent – Duplicate Claims First Copy

1. An artificial turf system for an athletic field comprising:

a **support layer**;

a base layer, said base layer comprising **at least one grid consisting of a plurality of interconnected cells** arranged over said support layer; and

an outer layer of pile tufts on a backing sheet;

wherein each cell of said interconnected cells comprises an upstanding **tubular member** having an upper portion supporting said outer layer and a **lower portion** configured to engage with said support layer.

2. The artificial turf system of claim 1, wherein said upper portion has a first diameter and said **lower portion** has a second and larger diameter; said lower portion providing each said cell with **vertical flexibility**.

3. The artificial turf system of claim 1 or claim 2 including **resilient securing members** interconnecting adjacent of said cells of said grid, said securing members allowing relative movement between said cells.

4. The artificial turf system of claim 1 including **resilient securing members** engaging outer edges of cells on a perimeter of each at least one grid, wherein selected outer ones of said securing members include outwardly directed fingers.

5. The artificial turf system of claim 1, wherein said base layer includes a transition layer arranged over said grid; said transition layer comprises a grate formed of at least two arrays of substantially diagonally arranged synthetic filaments.

6. The artificial turf system of claim 1 having a **G-max of between 105-114**.

7. The artificial turf system of claim 6, further comprising a **bead filler** distributed on said backing sheet between said pile tufts.

8. A method for installing an artificial turf system comprising:

providing a support layer on a generally flat ground surface;

positioning a base layer atop said support layer; said base layer including at least one grid consisting of a plurality of interconnected cells, each cell of said interconnected cells comprises an upstanding tubular member; and

installing an outer layer consisting of a pile fabric supported by said upper portion of said base layer.

9. The method of claim 8, wherein each cell includes an upper portion and a lower portion; said upper portion having a first diameter and is adapted to support said outer layer, said lower portion having a second and larger diameter and is adapted to engage with said support layer; said lower portion providing each said cell with vertical flexibility; whereby, said at least one grid is capable of selected vertical movement due to impact.

10. The method of claim 8, further comprising, installing a semi-flexible transition layer; said transition layer being arranged on upper edges of said at least one grid.

‘360 Patent – Duplicate Claims Second Copy

1. An artificial turf system for an athletic field comprising:

a **support layer**;

a base layer, said base layer comprising **at least one grid consisting of a plurality of interconnected cells** arranged over said support layer; and

an outer layer of pile tufts on a backing sheet;

wherein each cell of said interconnected cells comprises an upstanding **tubular member** having an upper portion supporting said outer layer and a **lower portion** configured to engage with said support layer.

2. The artificial turf system of claim 1, wherein said upper portion has a first diameter and said **lower portion** has a second and larger diameter; said lower portion providing each said cell with **vertical flexibility**.

3. The artificial turf system of claim 1 or claim 2 including **resilient securing members** interconnecting adjacent of said cells of said grid, said securing members allowing relative movement between said cells.

4. The artificial turf system of claim 1 including resilient securing members engaging outer edges of cells on a perimeter of each at least one grid, wherein selected outer ones of said securing members include outwardly directed fingers.

5. The artificial turf system of claim 1, wherein said base layer includes a transition layer arranged over said grid; said transition layer comprises a grate formed of at least two arrays of substantially diagonally arranged synthetic filaments.

6. The artificial turf system of claim 1 having a **G-max of between 105-114**.

7. The artificial turf system of claim 6, further comprising a **bead filler** distributed on said backing sheet between said pile tufts.

8. A method for installing an artificial turf system comprising:

providing a support layer on a generally flat ground surface;

positioning a base layer atop said support layer; said base layer including at least one grid consisting of a plurality of interconnected cells, each cell of said interconnected cells comprises an upstanding tubular member; and

installing an outer layer consisting of a pile fabric supported by said upper portion of said base layer.

9. The method of claim 8, wherein each cell includes an upper portion and a lower portion; said upper portion having a first diameter and is adapted to support said outer layer, said lower portion having a second and larger diameter and is adapted to engage with said support layer; said lower portion providing each said cell with vertical flexibility; whereby, said at least one grid is capable of selected vertical movement due to impact.

10. The method of claim 8, further comprising, installing a semi-flexible transition layer; said transition layer being arranged on upper edges of said at least one grid.

**END OF PAPER D**

**MARKING GUIDE – PAPER D 2018**

**In order for full marks to be awarded, in the markers' assessment it must be determined that:**

- The candidate has dealt correctly with all relevant issues in accordance with the Answer Guide; and
- Supporting legal authority was cited with sufficient precision to be identifiable (see guidelines at end of this document).

## PART A

### Question A1 Effect of Description on Construction — 4.5 Marks

- **0.5 marks** for each correct answer; **-0.5 marks** for each incorrect answer; **0 marks** if left blank

i. True
ii. False
iii. True
iv. True
v. True
vi. True
vii. False
viii. False
ix. False

### Question A2 Claim Construction — 29 Marks

Each construed term must include at a minimum a citation to the patent and an explanation of the element's function or purpose. The citation to the patent should preferably be to a specific element, e.g. blade 14, where this exists. Citations to a figure without explanation in the candidate's own words of the significance of the figure will not be awarded marks. Citations to passages of the specification may be acceptable if it is made clear in the candidate's own words why the passage is being cited, but only if the passage cited clearly relates only to the specific element referenced.

Marks may not be awarded where a claim term is construed to be narrower than the construction given below, unjustifiably broad, or contradictory, or where a candidate appears to simply be

citing multiple passages from the description with no effort made to construe the meaning of the claim language.

Answers are interpreted with the narrowest interpretation indicated. No marks are awarded for an analysis of essential features that includes non-essential features. All statements in the candidate's claim construction not expressly qualified as non-essential or non-limiting are considered to be essential features.

In the marker's discretion, where at least two half marks are available for explanation of one claim feature or related claim features and the candidate has given an answer that is insufficient for either half mark to be awarded according to this guide, but that collectively demonstrates a reasonable understanding of the construction of those claims feature(s), one half mark may be awarded. Such half mark may be allocated to the first half mark listed on the marking grid.

Candidates are expected to map claim terms to parts or features in the patent and marks are awarded for this, but if a construction contains only a mapping with no further commentary, **no marks are awarded** for merely mapping that term.

For example, if a claim feature must be located in a certain position when properly construed and the candidate's construction does not so limit the feature, the candidate cannot receive full marks.

If a candidate indicates that a particular feature of a claim term is essential when it is not, **deduct 0.5 marks** for each feature incorrectly indicated to be essential (down to a minimum of 0 for the sub-question).

If it appears that the candidate used information from an accused device to construe a claim term, deduct 1.0 marks per reference to an accused device to a limit of **3.0 marks** for all of A2.

No part marks are to be awarded for reasoning or supporting analysis if the candidate bases the inventor's intention on use of the term itself unless this is contrasted against different terminology in a different claim or in the specification. Similarly, citation to a portion of the specification must be accompanied by sufficient explanation to understand why the passage is being relied on for full marks to be obtained. Where the relevance of a candidate's reliance on claim language or a passage in the description to their claim construction is not clear (i.e. it is unclear whether the passage is cited for the purpose of mapping, explaining purpose or function, or supporting a conclusion that a feature is essential), marks may not be awarded.

---

**(i) "at least one grid consisting of a plurality of interconnected cells" 5.0 Marks**

- Mapping: grid 16 (or general reference to Fig. 5 or 9) (**0.5 marks**) and cells 18 **(0.5 marks)**. Candidate must show some recognition that the cells are not merely the tubular members (ie. no marks for mapping to tubular members only). Furthermore, candidate must map on to base layer B in some manner. **(0.5 marks)**

- Purpose/function: to provide resiliency to the turf system. **(0.5 marks)**

- Purpose/function: to compensate for uneven portions of the support layer and provide a flat surface onto which the turf material can be installed. **(0.5 marks)**

- Essential feature: Candidate must recognize that each of the plurality of cells, while interconnected, must be moveable with respect to each other. **(0.5 marks)**

    - Reasoning/support: **1.0 marks**:

        - Material Effect: If the cells are not moveable with respect to each other, the grid would not be able to compensate for uneven portions of the support layer. (0.5 marks)

        - Inventor's Intent: [0015]discusses the aforementioned material effect. (0.5 marks)

        - **(-0.5 marks)** for stating that cells being moveable with respect to each other is essential to provide resiliency. While this can provide resiliency, the description provides other ways of doing this (eg. material of the tubular members or depressing of the lower portion of the tubular member), and therefore this is not a reasonable justification for essentiality.

- Essential feature: Adjacent grids must be connected to one another. Aside from at the outer perimeter, all grids must themselves be interconnected such that all cells in the system are interconnected. **(0.5 marks)**

    - Reasoning/support: **0.5 marks** selected from:

        - Material Effect: if adjacent grids are not interconnected, then those adjacent cells will not be interconnected. This type of discontinuity in the turf system prevents the base layer B from operating as intended. (0.5 marks), or

        - Inventor's Intent: [0020]; or any other reference to the description which describes adjacent grids being interconnected. (0.5 marks)

---

**(ii) "tubular member"** **2.0 Marks**

- Mapping: cylinder (20, 22) (Fig 1, 2, 3b, 3c or 4) **(0.5 marks)**

- Purpose/function: engages the layer above, and the layer below the grid. **or** provides resiliency to the turf system. **(0.5 marks)**

- Essential features: must provide movement in the vertical direction when impacted with weight. **(0.5 marks)**
    - Reasoning/support: to a maximum of **<u>0.5 marks</u>** selected from:
        - Material Effect: If there is no movement in the vertical direction, there can be no resiliency, or bounce in the artificial turf (0.5 marks), or
        - Inventor's Intent: [0011] (0.5 marks)

---

**(iii) "support layer"** **3.0 Marks**

- Mapping: layer C or support base 12 **(0.5 marks).**
- Purpose/function: provides a stabilizing support for the grid. **(0.5 marks)**.
- Purpose/function: provides drainage, preventing water buildup on the turf **(0.5 marks)**
- Essential feature: must not deform vertically when impacted with weight **(0.5 marks)**
    - Reasoning/support: **(0.5 marks)**
        - Material Effect: the layer would not provide support to the grid if it itself deformed; ie. the grid would lose its resiliency if not supported.
- Essential feature: must be sufficiently particulate to allow water to pass through **(0.5 marks)** selected from:
        - Material Effect: if water is not able to pass through, there can be no drainage below the grid (0.5 marks), or
        - Inventor's Intent: [0006] providing examples of what comprises the support layer, and all are particulate (0.5 marks)

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**(iv) "lower portion"** **3.0 marks**

- Mapping: lower portion 22 of the cell 18 **(0.5 marks)**
- Purpose/function: provides movement in the vertical direction when the cell is impacted with weight **(0.5 marks)**
- Purpose/function: engages with support layer C to ensure support layer C acts a support base for the grid **(0.5 marks)**

- Essential feature: must be generally cone-shaped and have a larger maximum diameter than the constant diameter of the upper section 20 **(0.5 marks)** such that the walls of the lower section collapse inward when impacted with weight. **(0.5 marks)**

    - Reasoning/support: **0.5 marks** selected from:

        - Material effect: if the maximum diameter of the lower portion is not sufficiently large enough, it will not compress downward to provide the intended resiliency. (0.5 marks)

        - Inventor's Intent: [0011] refers to the lower section extending at an angle of about 75 degrees; [0012] has the lower portion being ¼" of the 1" height of the entire cylinder. This defines an ideal diameter that is sufficiently large enough. (0.5 marks)

**Note: (-0.5 marks for incorporating the generally flat embodiment of the lower section in this construction, as it would not apply to this claim).**

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**(v) "vertical flexibility" 2.0 marks**

- Mapping: refers to the compression/decompression of the lower portion 22 of the tubular members/cells 18 as shown in Figs. 3a-3c. and 4 **(0.5 marks)**

- Purpose/function: provides spring-like vertical movement in the tubular members, which results in improved softness and shock absorption. **(0.5 marks)**

- Essential feature: flexibility refers to non-permanent vertical movement which is immediately responsive to a weight placed on the grid and removed from the grid. **(0.5 marks)**

    - Reasoning/support: **0.5 marks**

        - Material effect: permanent deformation would render the advantages of the turf null, as that particular spot will not have resiliency on its next impact.

---

**(vi) "resilient securing members" 7.5 Marks**

There is a different construction in claim 3 and in claim 4.

Claim 3:

- Mapping: securing members 24 **(0.5 marks)**

- Purpose/function: adjoins adjacent cells in the grid **(0.5 marks)**
- Purpose/function: allows relative movement between adjacent cells **(0.5 marks)**
- Essential feature: must provide a spacing between adjacent cells **(0.5 marks)**
    - Reasoning/support: to a maximum of **0.5 marks**
        - Material effect: If cells are in contact with each other, movement between them is constrained by the cells themselves, rather than by the resilient securing members. This would create a zone of non-resiliency.
- Essential feature: must be flexible and provide relative movement in all directions (no marks for repeating resilient) **(0.5 marks)**
    - Reasoning/support: to a maximum of **1.0 marks**
        - Material effect: If the securing members are not flexible, horizontal movement between cells would not be possible (**0.5 marks**), regardless of the finger construction described which would otherwise permit horizontal and possibly diagonal movement. (**0.5 marks**).

Claim 4. While the term "resilient securing members" is used in both claims, claim 4 refers to the element positioned on cells at extremities of each grid. Candidate must show some recognition of the different construction in each claims. **(0.5 marks)**

- Mapping: securing members 24' with finger 28 **(0.5 marks)**
- Purpose/function: adjoins adjacent grids together. **(0.5 marks)**
- Purpose/function: allows relative movement between outer cells in adjacent grids. **(0.5 marks)**
- Essential feature: must have some feature that permits adjacent grids to be connected to each other. **(0.5 marks)**
    - Reasoning/support: to a maximum of **1.0 marks**
        - Material effect: adjacent grids must be connected to each other such that cells from adjacent grids are also connected (**0.5 marks**), to provide the unconstrained movement between cells from adjacent grids (**0.5 marks**).

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**(vii) "G-max of between 105-114"** **3.0 Marks**

- Mapping: refers to a measure of resiliency or shock absorbing capability of artificial turf **(0.5 marks)**

- Purpose/function: provides an indication of the shock absorbing capability of artificial turf systems when installed and after extended time of use. **(0.5 marks).**

- Essential feature: The range is a hard one, and must be **(0.5 marks)** 105-114 between installation and after extended use. **(0.5 marks)**

- Reasoning/support: to a maximum of **1.0 marks**

    - Inventor's intent: [0031] describes acceptable turf systems have a G-max in the range of 90-120. Furthermore, the percent degradation discussed in the description is very specific. There is no indication that there is any room for variance (**0.5 marks**) Within the acceptable range of 90-120, and improvement to 105-114 is a very specific sub-range. (**0.5 marks**)

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**(viii) "bead filler"** **3.5 Marks**

- Mapping: bead filler 44 distributed evenly over backing fabric 42, 43 and about pile tufts 4d on the outer layer A **(0.5 marks)**

- Purpose/function: maintains even porosity in the turf. **(0.5 marks)**

- Purpose/function: maintains a constant G-max factor. **(0.5 marks)**

- Essential feature: must a material, like silicon dioxide, which provides the G-max factor of 105-114. **(0.5 marks)**

- Reasoning/support: **0.5 marks** selected from

    - Inventor's intent: claim 7 is dependent upon the claim 6 which specifies the G-max range of 105-114. [0026] seems to indicate that only silicone dioxide has been shown to provide this G-max factor**.** (**0.5 marks**), or

    - This can also be framed in terms of a material effect, but must reference the description and claim dependency to get the marks. (**0.5 marks**)

- Essential feature: must be substantially round with no sharp edges. **(0.5 marks)**

- Reasoning/support: **0.5 marks** selected from:

    - Inventor's intent: [0026] indicates that the roundness assists in providing the G-max factor (**0.5 marks**)

- Material effect: If the beads are not round, they will not be sufficiently porous, and may pill or mount causing unevenness in the surface. (0.5 marks)

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**Question A3** **19.5 Marks**

For an element that is present in the accused device, award:

- 0.5 marks for each component or feature in the element (claim passage) that is identified in the accused device/method, according to table below (identification must be accompanied with a citation to distinct components and/or passages of the description in order to obtain this mark)

- 0.5 marks for the accompanying explanation why the component or feature is present, when not apparent on its face or where additional explanation is warranted, as set out below.

For an element that is not present in the accused device, award:

- 0.5 marks for the explanation how a component or feature of the element is not present according to table below, which can include pointing out how the accused device differs (must be accompanied with a citation to distinct components and/or passages of the description supporting the difference in order to obtain this mark).

No marks awarded for merely stating that the element, component or feature is present or not with no further explanation or citation, or for merely restating the claim language in conducting the analysis. Reference to a figure or passage is generally insufficient to award marks, unless it is explained how the figure or passage shows or explains the relevant feature (e.g. "Figure 4 of the XXX patent shows the bending of the fin at substantially the midpoint of stiffening rib D."). **Reference to the specific terms of D1 and D2 is required for award of the marks**.

In an analysis of a given claim feature, any reference to an accused device component or feature is to be construed as an indication that the claim feature *is present* in the accused device unless the candidate indicates that the claim feature is not present.

No marks awarded for simply stating that the claim is infringed or not without any analysis. If an analysis is provided, as set out in the tables below, 0.5 marks are awarded for the correct conclusion of infringement or non-infringement (whether or not the analysis is correct).

**Claim 1** **5.0 Marks**

| Claim Element | Analysis |
|---|---|
| An artificial turf system for an athletic field having | Field (10), or any other indication of the entire system (not just the top layer) **(0.5 marks)** athletic or not |
| a support layer | Subbase (14) **(0.5 marks)** |
| a base layer | Base (IV) **(0.5 marks)** |
| said base layer comprising at least one grid consisting of a plurality of interconnected cells arranged over said support layer | Grid as shown in Fig. 3 having a plurality of cells (16) **(0.5 marks)** interconnected by universal joints 18. **(0.5 marks)** |
| an outer layer of pile tufts on a backing sheet | Outer layer (II) **(0.5 marks)** |
| each cell of said interconnected cells comprises an upstanding tubular member | Best shown in Fig. 7, cylinders (16) are tubular and extend vertically **(0.5 marks)** |
| having an upper portion supporting said outer layer | Top surface of cylinder (16), which interacts with the surface 22 to support the outer layer **(0.5 marks)** Must make reference to support as well as identify an upper portion in some manner |
| and a lower portion configured to | The portion of the cylinder (16) which |

| | |
|---|---|
| engage with said support layer | rests on underlayment (12). **(0.5 marks)** |
| Conclusion | Infringed, since all essential elements are present **(0.5 marks)** [award marks only if some analysis presented] |

**Claim 2** **1.5 Marks**

| Claim Element | Analysis |
|---|---|
| The artificial turf system of claim 1 | All features of claim 1 are present, as noted above in analysis of claim 1 **(0.5 marks)** [must recognize all features present, but award mark for stating not all features present if that was the candidate's analysis of claim 1; insufficient to just state claim depends from claim 1] |
| wherein said upper portion has a first diameter and said lower portion has a second and larger diameter; said lower portion providing each cell with vertical flexibility. | Not present – the lower portion of the cylinder (16) has the same diameter as the upper portion. Vertical flexibility is provided by the collapsing of the cylinder and internal beads. **(0.5 marks)** |
| Conclusion | Not infringed **(0.5 marks)** [award marks only if some analysis presented]. |

**Claim 3** **3.0 Marks**

| Claim Element | Analysis |
|---|---|

| | |
|---|---|
| The artificial turf system of claim 1 | All features of claim 1 are present, as noted above in analysis of claim 1 **(0.5 marks)** [must recognize all features present but award mark for stating not all features present if that was the candidate's analysis of claim 1; insufficient to just state claim depends from claim 1] |
| or claim 2 | Not present – the turf system of claim 2 is not present, as analyzed above. **(0.5 marks)** |
| including resilient securing members interconnecting adjacent of said cells of said grid | universal joint (18) is flexible as per page 31, line 11 **(0.5 marks)** |
| said securing members allowing relative movement between said cells | universal joints (18) allow relative movement in all directions as per page 32, lines 11-14. **(0.5 marks)** |
| Conclusion | Infringed when dependent on claim 1**(0.5 marks)** [award marks only if some analysis given]<br><br>Not Infringed when dependent on claim 2 **(0.5 marks)** [award marks only if some analysis given] |

**Claim 5** **2.5 Marks**

| Claim Element | Analysis |
|---|---|

| | |
|---|---|
| The artificial turf system of claim 1 | Present – all elements of claim 1 are present in the device, as set forth in the analysis of claim 1 above **(0.5 marks)** [must recognize all features present but award mark for stating not all features present if that was the candidate's analysis of claim 1; insufficient to just state claim depends from claim 1] |
| wherein said base layer includes a transition layer arranged over said grid | Generally denoted by 24/28 in Fig. 2 or shown in detail in Fig. 4 and Fig. 5 **(0.5 marks)** |
| said transition layer comprises a grate formed of at least two arrays of substantially diagonally arranged synthetic filaments | Intersection diagonal rows 30 and 32 form the grate **(0.5 marks)**; yarns 28 are plastic as per p. 31, line 16 **(0.5 marks)** |
| Conclusion | Infringed, since all essential elements are present **(0.5 marks)** [award marks only if some analysis presented] |

**Claim 6** **2.5 Marks**

| Claim Element | Analysis |
|---|---|
| The artificial turf system of claim 1, | Present – all elements of claim 1 are present in the device, as set forth in the analysis of claim 1 above **(0.5 marks)** [must recognize all features present but award mark for stating not all features present if that was the candidate's analysis of claim 1; insufficient to just state claim depends from claim 1] |

| | |
|---|---|
| having a G-max of between 105-114. | Cannot be determined based on the information provided **(0.5 marks)**. Would advise your client to hire to conduct the G-max test on installation **(0.5 marks)**, and then again after extended use **(0.5 marks)**. |
| Conclusion | Infringed, if tests show G-max in range; not infringe otherwise. **(0.5 marks)** [award marks only if some analysis presented] |

**Claim 7** **2.5 Marks**

| Claim Element | Analysis |
|---|---|
| The artificial turf system of claim 6 | Accept any analysis which incorporates the outcome of claim 6 **(0.5 marks)** |
| further comprising a filler | Not present as construed – filler must be silicone dioxide as construed. **(0.5 marks)**. The filler in D2 is sand. **(0.5 marks)** |
| distributed on said backing sheet between said pile tufts | Yes, Sand S sits on a sheet and is distributed between individual fibres (shown in Fig. 2 or described at p. 31, lines 6-8 **(0.5 marks)** |
| Conclusion | Not infringed, since not all essential elements are present **(0.5 marks)** [award marks only if some analysis presented] |

**Claim 8** **2.5 Marks**

| Claim Element | Analysis |
|---|---|
| A method for installing an artificial turf system | The turf system must be installed somehow; it cannot be manufactured somewhere since the claim incorporates a ground surface **(0.5 marks)**. Candidate must show an understanding that installation is necessary. |
| providing a support layer on a generally flat ground surface | Base grid, Page 32, lines 20-21 **(0.5 marks)** |
| positioning a base layer atop said support layer; said base layer included at least one grid consisting of a plurality of interconnected cells, each cell of said cells comprises an upstanding tubular member | Deflection layer II, Page 31, lines 23-24 **(0.5 marks)**; features of the base layer are as discussed above. |
| installing an outer layer consisting of a pile fabric supported by said upper portion of said base layer. | Artificial grass layer II, Page 31, lines 24-26 **(0.5 marks)** |
| Conclusion | Infringed **(0.5 marks)** [award marks only if some analysis presented]. |

**Question A4** **16.5 Marks**

*(a) Liability for infringement* ***[3.5 marks]***

(i) There is no infringement until the turf system is assembled or installed **(0.5 marks).** However, where the sole purpose of the kit is to assemble parts to use in the patented system (as evidenced by the instructions/order forms **(0.5 marks)**), there is patent infringement. *Windsurfing International Inc. v. Trilantic Corp.* (1986), 8 C.P.R. (3d) 241. **(0.5 marks)**.

In this case though, Green Co. is not a direct infringer, since it is never involved with the support layer **(0.5 marks)**, and accordingly only the possibility of induced infringement exists, which in this case does not exist since there was no influence of Green Co. for directing infringement (since the buyer can choose any suppliers for layer C) **(0.5 marks).**

(ii) No infringement, or inducement to infringe, since there will be no direct infringing act in Canada **(0.5 marks).** *Beloit Canada Ltd. v. Valmet-Dominion Inc.* (1997), 73 C.P.R. (3d) 321 **(0.5 marks)**

*(b) Refusing Delivery **[2.5 marks]***

Since InTheDirt Inc. had ordered the turf, fully paid for the turf **(0.5 marks)** and was entitled to accept delivery **(0.5 marks)**, the refusal of delivery does not avoid infringement. **(0.5 marks)** The patentee was already deprived of its rights when the sale was completed. **(0.5 marks**) *Lido Industrial Products Ltd. v. Teledyne Industries Inc. et al.* (1981), 57 C.P.R. (2d) 29 (F.C.A. per Thurlow, C.J.) **(0.5 marks)**.

*(c) Inducement **[5.5 marks]***

StadCo is not directly infringing the ‘360 Patent since it neither makes, uses, or sells the whole artificial turf system **(0.5 marks)**. There is a question of inducement, however.

Inducing infringement requires
(1) an act of direct infringement **(0.5 marks)**;
(2) that completion of the act of infringement was influenced by the acts of the seller **(0.5 marks)**; and
(3)that the seller knew his influence would result in completion of the act of infringement **(0.5 marks).**
*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.), *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.), *Dableh v. Ontario Hydro*, [1996] 3 FCR 751, or other suitable authority on inducing infringement **(0.5 marks)**.

Note: Award full marks for the test if it was stated in A4(a).

a. Regarding step 1 of the inducement test, there is direct infringement by InTheDirt **(0.5 marks)**
b. Regarding step 2 of the inducement test, it is not evident that there is influence since StadCo only provides numeric parameters for the turf it wants installed. **(0.5 marks)** On the other hand, StadCo. has had several installations performed by InTheDirt Inc., and all of them had used the Green Co. turf. **(0.5 marks)**. There is a reasonable argument to be made that this would constitute influence as StadCo knew which turf would be installed if the contract were awarded to InTheDirt Inc. **(0.5 marks)**
c. Regarding step 3, StadCo. had knowledge of the '360 Patent from the bidding process **(0.5 marks)**.

While it is not certain that a court would find inducement, there is a reasonable argument to be made, and accordingly you would advise The Weed Killer Co. to consider proceeding with an action against StadCo. **(0.5 marks)**

(d) *Remedies **[5.0 marks]***

i. Damages **(0.5 marks)**; s. 55(1) **(0.5 marks)** or Accounting of Profits **(0.5 marks)**; Consolboard Inc. v. Macmillan Bloedel (Saskatchewan) Ltd., [1981] 1 S.C.R. 504, Monsanto Canada Inc. v. Schmeiser, 2004 SCC 34, or other appropriate citation **(0.5 marks)**

Other damages are either not possible (reasonable compensation, injunction) or not likely or undeterminable given the facts (costs, interest).

ii. Damages are most likely (or accept accounting of profits with a reasonable explanation, or some comment on not enough information) **(0.5 marks)** in order to maximize the monetary award, given the presence of a non-infringing alternative. Non-infringing alternative is relevant to the determination of Accounting of Profits **(0.5 marks)** Merck & Co., Inc. v. Apotex Inc., 2015 FCA 171 **(0.5 marks)**. Burden would be on Green Co. to bring evidence that it could and would have used and sold the non-infringing alternative **(0.5 marks)**, which is unlikely in this case since Green Co. founded its business on its belief that it had invented the turf it were selling **(0.5 marks)**. Damages are calculated from January 1, 2010 to January 2, 2016. **(0.5 marks)**

**Question A5** **[8.5 marks]**

(a) Harm to The Weed Killer Co. has not yet occurred **(0.5 marks)**, however there appears to be a reasonable argument that harm may be imminent, by virtue of awarding the contract **(0.5 marks)**. The court may grant a *quia timet* interlocutory injunction **(0.5 marks)**, which is intended to prevent the harm from happening in the first place, rather than forcing The Weed Killer Co. to wait for the harm to occur before seeking damages **(0.5 marks)**. In this case, the court may be persuaded to award the injunction since Green Co. appears to be manufacturing for the specific intent of a contract being awarded, which would result in their sale of the turf to InTheDirt Inc. **(0.5 marks)** *Dableh v. Ontario Hydro*, [1996] F.C.J. No. 767 (C.A.) **(0.5 marks)**

**(3.0 marks)**

(b) The Weed Killer Co. could apply for a reissue **(0.5 marks)** on the basis of erroneously having claimed more or less than it had the right to claim as new **(0.5 marks)**. The error occurred from inadvertence, accident or mistake **(0.5 marks)**. Section 47 of the *Patent Act* **(0.5 marks).** The application for reissue must be made by June 18, 2008 or 4 years after issuance **(0.5 marks)**

Description contains a statement that the original patent failed to fulfil the applicant's intent at grant, which made it clear that the base layer is what has been invented by the patentee, hence the patentee could have claimed the base layer itself **(0.5 marks)** This is made clear by [0005]-[0006] of D1 **(0.5 marks)**.

The rushed amendment to limit the CA claims to the US granted claims is arguable an error arising from inadvertence, accident of mistake **(0.5 marks)** *Mobil Oil Corp. v. Hercules Canada Inc*. (1995), 63 C.P.R. (3d) 473 at p. 480 (F.C.A.). or any other case regarding reissue and error **(0.5 marks)**

One possible reissued claim could be:

1. A base layer for use in an artificial turf system for an athletic field comprising

at least one grid consisting of a plurality of interconnected cells;

wherein each cell of said cells comprises an upstanding tubular member having an upper portion supporting said outer layer and a lower portion configured to engage with said support layer.

**(1.0 marks – award as long as candidate removes reference to the support layer in some manner, and there are no other deficiencies with the claim, or in the absence of providing a claim, describing the subject matter to be removed in the reissue).**

Alternate Answer

The exam paper printed had a typo in the body of the question that contradicted the issue date on the patent itself. In most centres the invigilator made an announcement indicating the error, however, some candidates may not have heard this.

The typo indicated an issue year of 2014. If a candidate answers the question based on the issue date of 2014, the correct answer will address making an amendment during prosecution which results in something similar to the reissued claim. Full marks are awarded for this answer, provided it is fully explained as above (without the reissue-specific explanations).

**(5.5 Marks)**

## PART B

### Question B1 (2.5 marks)

The government has to show that it made efforts to obtain a licence from Thomas Jones (**0.5** marks) – section 19.1(1)a (**0.5** marks) and these efforts were unsuccessful within a reasonable period (**0.5** marks)

Seek an authorization from the Commissioner for the use of the patented invention (**0.5** marks). Section 19(1) (**0.5** marks).

### Question B2 (5.0 marks)

(a)

False (**0.5 marks**) – the promise doctrine no longer applies - Astra Zeneca vs Apotex 2017 SCC 36 (**0.5 marks**)

(b)

False (**0.5 marks**) – patents are territorial in nature. Question is specific to method claim (**0.5 marks**)

(c)

False (**0.5 marks**) – no rights are left to the Patentee when the exclusive licence is granted (0**.5 marks**)

(d)

False (**0.5 marks**) – a person skilled in the art is not capable of inventive ingenuity (**0.5 marks**)

(e)

True (**0.5 marks**) – the publication date of a Canadian patent application corresponds to the date of publication of the corresponding PCT application or Rule 59/66 (**0.5 marks**)

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**Question B3 (10 marks)**

| **Type (0.5 marks for each)** | **Period (0.5 marks for each)** | **Condition (0.5 marks each)** | **Citation (0.5 marks each)** |
|---|---|---|---|
| Reasonable compensation | From publication to issuance<br><br>July 2, 1997 to July 26, 2000 | The granted claims have to be the same as the claims of the published application | Section 55(2) |
| Accounting of profits | From issuance to expiry –<br><br>July 27, 2000 to January 2, 2016 | Only applies to net profits of the infringer | Consolboard Inc. v. Macmillan Bloedel (Saskatchewan) Ltd., [1981] 1 S.C.R. 504, Monsanto Canada Inc. v. Schmeiser, 2004 SCC 34 or any citation supporting accounting of profits |
| Damages | From issuance to | Only applies to damages proven by | Section 55(1) |

| | | | |
|---|---|---|---|
| | expiry<br><br>July 27, 2000 to January 2, 2016 | the patentee | |
| Punitive damages | Any dates after issuance will be accepted | Malicious infringement where damages or accounting of profits is insufficient for the purposes of retribution. | Bell Helicopter – *Airbus Helicopters, S.A.S.* c. *Bell Helicopter Texteron Canada Limitée*, 2017 CF 170 |
| Post-expiry springboard damages | After issuance - January 3, 2016 to May 1, 2018 | 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 marks). | Dow chemicals vs. Nova chemicals 2017 FC 350. |

**Question B4 (4.5 marks)**

(a) The patent must relate to pharmaceutical patents / be directed to medicinal ingredients (**0.5 marks**)

An application for a certificate of supplementary protection must be filed (**0.5 marks**) and

A prescribed fee must be paid (**0.5 marks**)

In order to qualify for a certificate of supplementary protection, the '226 Patent must meet the conditions set forth in Subsection 106(1) of the Patent Act (**0.5 marks**)

(b) The certificate's term is calculated by subtracting five years from the period beginning on the filing date of the application for the patent and ending on the day on which the

authorization for sale set out in the certificate is issued, but in any event is for a maximum of two years of additional protection (**0.5 marks**) – section 116(3) (**0.5 marks**)

(c) No – the rights of the certificate of supplementary protection are limited to the making, constructing, using or selling of any drug that contains the medicinal ingredients (**0.5 marks**) whereas the rights of the original term of the patent encompass those set forth by all the claims (**0.5 marks**) – subsection 115(1) (**0.5 marks**)