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(71) Applicant: **Islas Mares, Octavio Augusto**
Toluca 50020 (MX)

(72) Inventor: **Islas Mares, Octavio Augusto**
Toluca 50020 (MX)

(74) Representative: **Cabinet Chaillot**
16/20, avenue de l'Agent Sarre
B.P. 74
92703 Colombes Cedex (FR)

(54) **SHOE CONVERTIBLE FROM A CONVENTIONAL SHOE INTO A SAFETY SHOE WITH A CASING**

(57) The invention relates to a system for protecting the toes, which comprises a pair of shoes with certain adaptations so that a removable portable element with a casing can be fitted thereto and removed therefrom easily and quickly, by means of three lower tabs - two side tabs and one front tab - which fit to the sole of the shoe, and two straps - an inner strap and an outer strap - which fasten to the shoe, converting said street shoes into safety shoes and vice versa. The characteristics of both the shoe and the removable element mean that when the removable element is fitted, it does not extend beyond the limits of the footprint, and therefore comfort is not compromised when the shoes are worn and the shoes remain aesthetic. The invention also has the flexibility of being able to have a wide range of standardized designs per model and size, which can then be interchanged with each other in order to increase the design options for the user. Said advantages cannot be found all at the same time in any of the current systems that exist today for the same purpose.

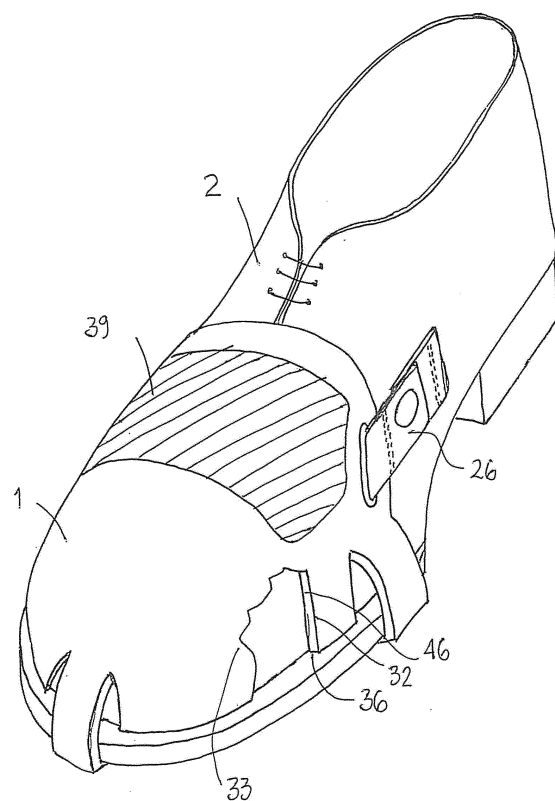


FIG. 1

Description

OBJECT OF THE INVENTION

[0001] Nowadays there are people who, due to their jobs, need to protect their toes to avoid or reduce the risk of any damage caused by heavy objects that could accidentally fall to their feet. The object of this invention is to offer a portable option; by adding an item that can be removed to transform a pair of conventional shoes into safety shoes and vice versa (with the adjustments that will see further on), offering benefits that cannot be found together in any of the devices that currently have for such purpose.

[0002] Due to their features, the current removable toe caps are ideal for occasional use, which means that visitors can wear them in an area that requires immediate protection and can be worn in case they do not have regular safety shoes. However, finding a quick solution was more important than comfort and aesthetic. The toe protection system of this invention is focused on having a portable solution, not only to wear occasionally - since it fulfills its primary function which is toe protection- but because it also provides comfort and aesthetics; moreover, has the flexibility of being able to have a wide range of standardized designs per model and size, which can then be interchanged with each other in order to increase the design options for the user.

BACKGROUND

[0003] There are currently safety shoes that have something referred to as a 'cap', and can be made out of steel, plastic or some other material and different settings. It is placed in the shoe on top of the toes to protect them in case any heavy object falls on them, reducing or avoiding the risk of injury.

[0004] It has also been observed that most of the people think that safety shoes are uncomfortable because they are more rigid and heavier than conventional shoes. Because of this, they avoid wearing them as much as they can; and it is common practice that wear their safety shoes until they get to the area are required and then change to conventional shoes when they leave the place.

[0005] Besides the aforementioned safety shoes with toe cap, there are also two kinds of alternative devices that are used for the same purpose; which can be placed over regular shoes. One of them is called 'safety overshoe' and it is basically a cap that has some elements that allow it to be placed on the front part of the shoe; and the other one is a rubber cover that protects the shoes that the user is already wearing either in a partially or fully manner. (Spanish patent No. ES2230932 "Puntera de protección de los dedos del pie" and European patent EP 2425731 "Safety Overshoe"). Since this safety overshoe can be worn in any conventional shoe and can be found in different shapes and sizes, it is very wide so that it can fit most of the conventional shoes and as a result

it is bigger and protrudes the footwear. In addition to that, in order to fitted to the shoe, it has some components that are placed between the sole, the floor and the rear part of the shoe which makes walking a hard and uncomfortable task; not to mention that it can damage the shoe. It fulfills the protection role but it does not take comfort and aesthetics into account. The rubber cover with cap can be found in different sizes and it must fit the size of the shoe that would be worn in; and due to the fact that it has to cover the whole shoe, it is bigger and uncomfortable for walking. Aesthetics are not taken into consideration either. The current removable devices do not offer comfort and aesthetic, so they are considered ideal for temporary use and to be worn for visitors to the area where toe protection is needed and safety shoes are not available. In both cases not comfort nor aesthetics have been considered but only the idea to provide a quick fix for toe protection.

[0006] This convertible footwear has been created due to the lack of qualities of current toe protection devices, which means that this invention is able to turn conventional shoes into safety shoes by just adding a portable item in a relatively easy and fast way; that can also be removed when it is no longer necessary. What makes this removable element unique, is that it has a toe cap designed and it is shaped to fit perfectly where needed, so it remains still in the shoe after being placed and it does not extend beyond the limits of the footprint; making it feel like a regular safety shoe and that when removing the device, it feels and looks as a conventional shoe; meeting the protection needs as well as comfort and aesthetic features that the current protection systems do not provide. It is worth to mention that this invention has also the great advantage of having a large number of designs for all tastes, by changing materials, shapes, components, colors and textures, whether it is from the removable element or the shoe which can be interchanged depending on the model and size.

[0007] This request is being submitted to protect the shoes named for this invention "shoe convertible from a conventional shoe into a safety shoe with a casing"

[0008] A system that is provided with two components: a shoe with the necessary adjustments to hold another piece named a casing, that is a removable element that can be installed and removed depending on the way it needs to be used and having the benefits described above, that the current devices for the same purpose do not offer.

[0009] The pieces and details that make these convertible shoes unique are shown in the following description and drawings.

DESCRIPTION OF DRAWINGS

[0010]

Fig. 1 is a perspective view of the shoe with its removable part installed and positioned.

Fig. 2 is a lateral view that represents the internal or external side of the shoe with the removable part installed and positioned.

Fig. 3 is a top view of the shoe with the removable part installed and positioned, showing just the corresponding area of such part. In this view, the different sections are identified and further used to describe other figures mentioned below.

Fig. 4 is section A-A' (shown in fig.3), it is a longitudinal section that goes through the mid part of the shoe with its removable part installed and positioned.

Fig. 5 is section B-B' (shown in fig.3), it is a cross section of the shoe with its removable part installed and positioned, that goes through the side tab of the removable element.

Fig. 6 is section C-C' (shown in fig.3), it is a cross section of the shoe with its removable part installed and positioned.

Fig. 7 is part of the sole section of the shoe with its removable part installed and positioned, shown from the bottom part (the part that touches the floor when walking), showing just the area of the removable part.

Fig. 8 is detailed M shown in fig. 2

DETAILED DESCRIPTION

[0011] The shoe convertible from a conventional shoe into a safety shoe with a casing, as referred to in this invention, is a system that has two components (1, 2), the first one is known as 'removable element' (1), that can be attached to a part known as 'safety toe cap' (3) and another one known as the strap for the removable element (26). The second one is the shoe (2) itself and it has the characteristics that will be described below to properly hold and host the first component. This removable element (1) can have a total or partial lining, on the outside and inside by fabric, leather, synthetic material or even a combination of these; and it can have any design, such as textures, colors, prints or a combination. This characteristic is known as 'outside lining' (32) for the visible part of the shoe and 'inside lining' (46) for the part that is not visible once the removable element (1) is installed to the shoe (2), the primary function of this inside lining (46) is to protect the shoe from getting in touch with the removable element when installing and uninstalling it; and it can also be found without outside lining (32) or inside lining (46).

[0012] The removable element (1) has three lower tabs (4, 5, 6); one on each side of the shoe, both internal and external, known as 'lateral lower inner tab' (4) and 'lateral lower outer tab' (5); and the third one in the front part

known as 'lower front tab' (6). Both, the lateral lower inner tab (4) and lateral lower outer tab (5), are folded to the inner part of the shoe, as shown in details (15 and 16), which have been named 'lower inner lateral folding' (15) and 'lower outer lateral folding' (16). These foldings can be fitted in a lower internal lateral groove (37) and lower external lateral groove (38) which can be found on the lower part of the sole (35). This groove goes along the outline of the sole (as shown in fig.7), on the points that connect the line (41, 42 and 43). Said foldings surround the outer side edge of the sole (18) and the inner side edge of the sole (19). It is the same as the front lower tab (6), it has a front lower fold (20) that can be fitted in the lower front groove of the sole (21) intended for this purpose; this fold surrounds the front edge of the sole (22) as shown in fig. 4.

[0013] This removable element (1) has a lower outer edge represented by an external line that goes through the points (7, 8, 9 and 10) and another internal line that goes to points (11, 12, 13 and 14) named 'lower inner edge of the removable element'. The surface of said edge will meet the upper sole edge, there for a couple of points (23 and 24) are shown in C-C' section on fig. 6. This fitting can also be seen in fig. 1 (36), in which an imaginary toe cap section (33) of the removable element (1) has been represented for a better visualization. The previously described settings allow the removable element (1) to stay in place, avoiding upward, downward and backward movement. In addition to that, the removable element (1) has a slot (25) which is used to set the strap of the removable element (26) that has already been assembled to the removable element (1) through the same slot (25), this is shown in fig. 2 and fig. 8. The strap of the removable element (26) has a strap stitching (27) to allow it to be able to connect by itself and it is also assembled with a male part of a snap (28), which will be connected to the corresponding female part of the snap (34); already attached to another strap called "shoe strap" (29), seamed to the shoe (2) using a shoe stitching (30). This previously described assembling of the strap to the removable element (26) and the assembling of the strap to the shoe (29) has the function of avoiding the movement of the removable element (1) towards the front part of the shoe (2). Said setting makes the removable element (1) remains in the functional position when used as a safety shoe as shown in fig. 1 and 2. There are other methods that could be used besides this fastening system described above, instead of using the female part of a snap (28) and the male part of the snap (34), including but not limited to: a Velcro hook and regular Velcro, buckle system, a zipper system that starts on the inner or outer part of the shoe (2) going through the upper part of the removable element (44). It could also be replaced by a strap with an elastic element stitched to the removable element (1) in the inner and outer part of the shoe (2) therefore in order to be assembled in position, has to pull it back and place it on the rear of the shoe (45) with some tension from this elastic part, to ensure that this remov-

able element (1) does not move to the front part of the shoe (2).

[0014] Fig. 2 shows that after installing the removable element (1), it is placed over the vamp of the shoe (31), using a dotted line to represent it that can also be seen in fig. 4, 5 and 6. This removable element (1) has the security toe cap (3) that will protect the toes. It is important to mention that, as part of the removable element (1), this toe cap (3) has been part of all the removable element (1) as shown in the drawings. However, settings can be adjusted so that the protection area covers from the smallest protection area of the toes according to the standards required for each place, to fully cover the removable element (1). The first scenario is drawn as an example using a dotted line called 'toe cap borderline' (40); and the removable part (1) could have a hole or holes as shown in fig. 1, identified as a non-toe cap area (39), to reduce weight or to be used as a setting for aesthetics. This removable element (1) can be available in variety of shapes and designs that are not shown in this method of claim, adapting completely or partially to the shoe shape, as long as it fits and can be adapted to the shoe (2) as it has been previously described. And even the removable element (1) can be standardized by shoe model and size; which make this removable element (1) can be available in different designs for each shoe (2) model and vice versa.

[0015] It has also been considered that the removable part (1) and the security toe cap (3) could be found in any material and design, such as color, texture or a combination of both. The security toe cap (3) can also be found in different developed settings as long as it meets the requirements of the safety footwear regulations for the corresponding area.

[0016] It is finally stated that the removable element (1) may or may not have the safety toe cap (3), and if it does not have it, the toe protection role would no longer be available; and the objective of the removable element (1) without the safety toe cap (3) would be to have a system that allows to have different shoe designs to adjust the standard removable element (1), by size and model, to the pair of shoes (2) and vice versa.

Claims

1. A shoe convertible from a conventional shoe into a safety shoe with a casing and vice versa, further comprising the two components system, the first one is a removable element and the other one is the shoe with the necessary adjustments to host the said first element; this removable element has three tabs on its lower part, two of them on both sides, that is, one on the lateral lower inner part, the other on the lateral lower outer part and a third one on the front lower part: the lateral tabs that are folded to the inner lower part of the shoe and can fitted in a lower groove of the sole that goes along the periphery of the sole and

has the purpose of hosting these flanges. The front tab is also folded to the lower inner part of the shoe that can fitted in the sole groove as planned for this purpose. Besides these tabs, the removable element has a lower outer edge, which after being installed in the shoe fits completely or partially to the upper sole edge of the shoe, so the removable portable element can fit in the shoe, meaning that it does not extend beyond the limits of the footprint. This combination of the lower edge of the removable element over the upper edge of the shoe sole along with the lateral and front tabs, are the settings that avoid the removable element from moving backwards, upwards or downwards after being installed as a safety shoe and under regular use circumstances. The removable part has also two slots, one on the inner side part and the other one on the outer side part, every slot is used to set a strap that has already been assembled to the removable element thought this slot, each of these straps contains a male snap, a female snap is installed to another strap assembled to the shoe, which will guarantee that the removable part remains in place once fasten both male & female snaps; this one is the last step to follow to install the removable element with toe cap to the shoe which converts the conventional shoe into a safety shoe, avoiding any type of movement in any direction under regular use circumstances and thus after uninstalling this removable element, returns to be a regular shoe.

2. A shoe convertible from a conventional shoe into a safety shoe with a casing according to the method of claim 1, further comprising the difference of connecting settings that fits best the removable element (not mentioned on claim 1), whether it is a zipper, a buckle, Velcro, an elastic rubber strip or any other which can change the design by using different settings, positions or connections.

3. A shoe convertible from a conventional shoe into a safety shoe with a casing, according to the method of claim 1, further comprising that the removable element that contains this toe cap can be fully or partially lined on the outside or inside and it can be found in any material or combination of materials; such as leather, fabric or synthetic material and at the same time a variety of material designs such as textures, color, print, or a combination of them or without lining.

4. A shoe convertible from a conventional shoe into a safety shoe with a casing, according to method of claim 1, further comprising that the removable element, including the safety toe cap, can be made out of any material, color, texture, a combination of these or even any set up of existing designs or yet to develop; as long as it complies the current standards for toe protection, based on the standards of the

place where these shoes will be made.

5. A shoe convertible from a conventional shoe into a safety shoe with a casing, according to method of claim 1, further comprising that the shape of the removable element that contains the safety toe cap can be found with different designs to partially or completely fit the shape of the shoe and it can be found with different settings so that the safety toe cap part covers just the minimum area of toe protection according to the regulations of the place of production. The area that is not protected may not be in the shoe or it may contain a hole or holes to decrease the weight or according to the aesthetics design. 5 10 15
6. A shoe convertible from a conventional shoe into a safety shoe with a casing, according to method of claim 1, further comprising that the removable elements with toe caps can be used with different designs as long as it follows the same shoe shape and feature to be able to connect and fit. Meaning that the removable parts could be standardized by the shoe model and size to be able to use different designs of removable elements for each shoe model and vice versa. 20 25
7. A shoe convertible from a conventional shoe into a safety shoe with a casing, according to method of claim 1, further comprising that the removable element can be found without the safety toe cap which eliminates the toe protection feature, maintaining the feature of having different removable elements for a pair of shoes and vice versa, as long as they are the same size and footwear model. 30 35

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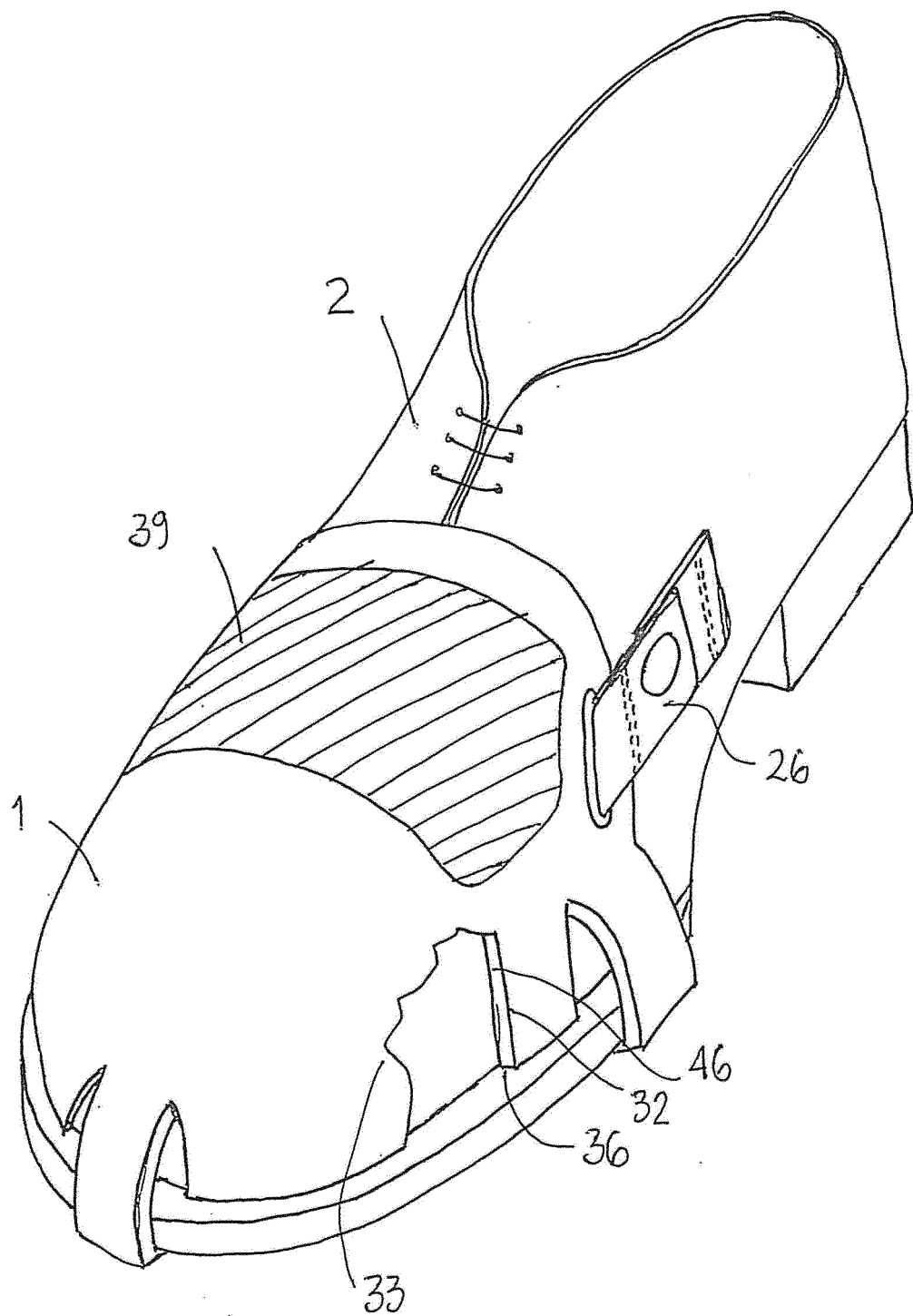


FIG. 1

FIG. 2

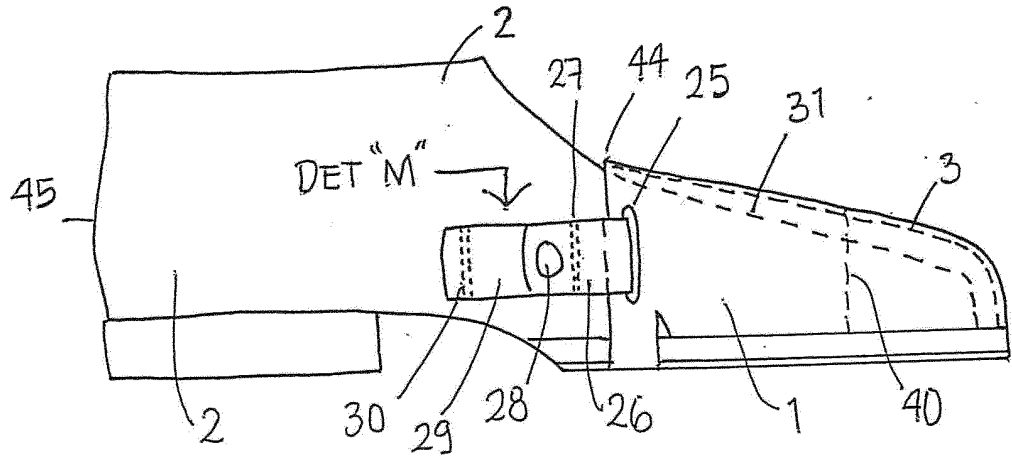


FIG. 3

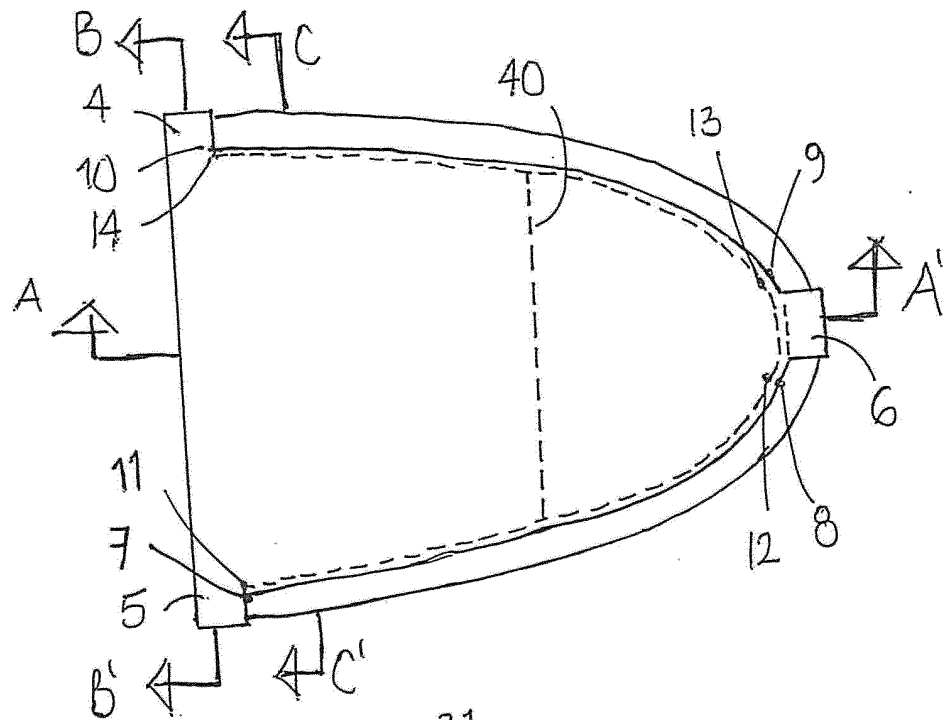


FIG. 4
(A-A')

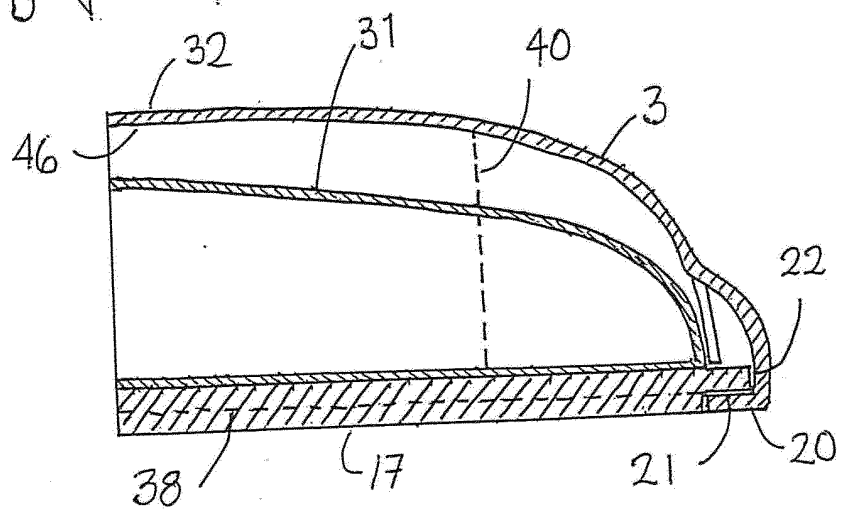


FIG. 5
(B-B')

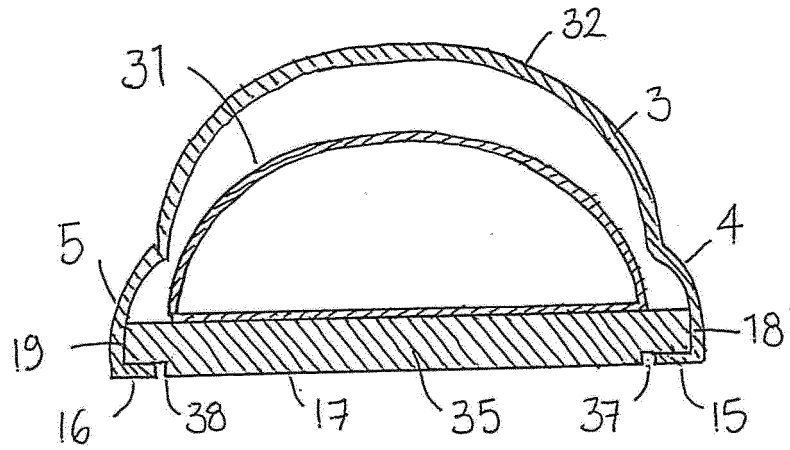


FIG. 6
(C-C')

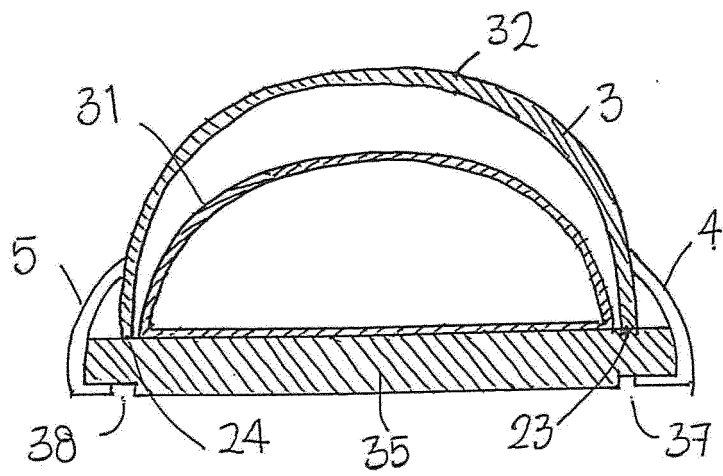


FIG. 7

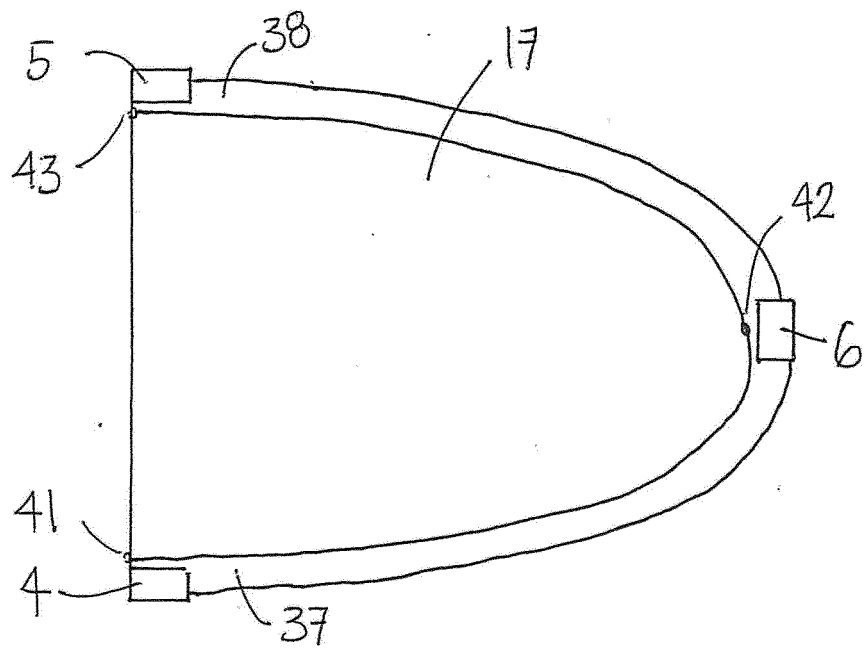
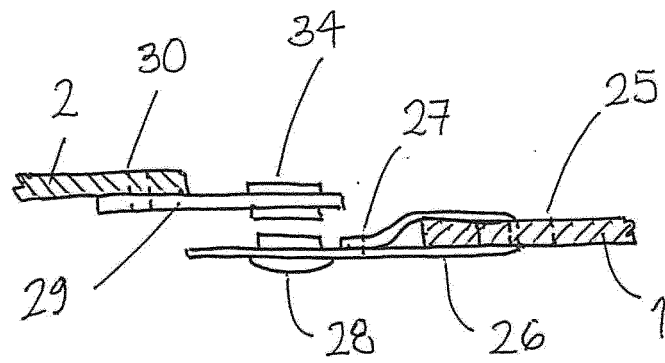


FIG. 8
(DET "M")



INTERNATIONAL SEARCH REPORT

International application No.
PCT/MX2016/050012

A. CLASSIFICATION OF SUBJECT MATTER

(CIP) A43B3/00, 3/24, 7/32, 23/26, 13/00, 13/41 (2016.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

(CIP) A43B3/00, 3/24, 7/32, 23/26, 13/00, 13/41 (CPC) A43B3/0047, 3/06

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

INAPI, ESP@ACENET, EPOQUE, THOMSON, GOOGLE PATENTS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US4005534(A) (THE RAYMOND LEE ORGANIZATION INC.) 01/02/1977, Description and Figure 1.	1-7
Y	US3126651 (A) (BOWN, Samuel) 31/03/1964 Description and Figures 1-5.	1-7
Y	US20140053432(A1) (DELANEY, Sean E. F.) 27/02/2014 Description and Figures 2, 3 and 5.	1-7
A	US3906646 (A) (MILOTIC, Milio) 23/09/1975 The whole document.	
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☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
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"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 15/11/2016 15/November/2016	Date of mailing of the international search report 04/01/2017 04/January/2017
Name and mailing address of the ISA/ INAPI, Av. Libertador Bernardo O'Higgins 194, Piso 17, Santiago, Chile Facsimile No.	Authorized officer REYES SILVA, Juan Telephone No.

EP 3 351 124 A1

INTERNATIONAL SEARCH REPORT Information on patent family members

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