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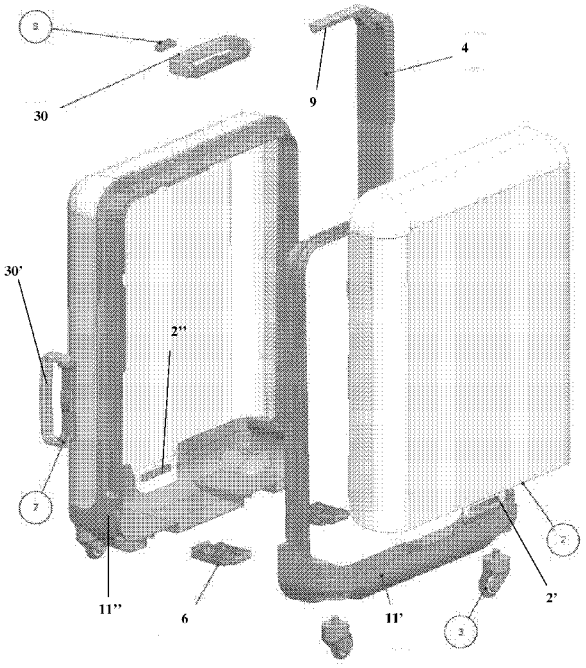
(54) Title: A SUITCASE, PREFERABLY OF THE RIGID TYPE, WITH AN INTERCHANGEABLE EXTERNAL CASE

FIG. 3



(57) Abstract: The present, invention concerns a container (1) for the transport of objects/clothing/accessories/books comprising a frame (11) and at least one shell (2, 10), connected to the frame and at least partly delimiting an inner containment volume, characterized in that said case is connected to the frame in interchangeable way.

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Title

A SUITCASE, PREFERABLY OF THE RIGID TYPE, WITH AN INTERCHANGEABLE EXTERNAL CASE

Technical field

The present invention refers to the technical field of the containers in general, for example travel suitcase or backpacks of any form or size.

In particular, the invention refers to a container which is structured in such a manner that results more long-lasting and it can be modified in its colors and/or decorations depending on necessities.

Background art

Travel suitcases have been known for a long time and they have various sizes.

The so-called trolleys suitcases are equipped with casters in order to simplify their transport and have restrained sizes. Their sizes are numerous and usually respect airport regulations. Some said suitcases have small sizes in order to be boarded as hand luggage, while in other cases they have bigger sizes.

Suitcases can be divided into rigid ones or not rigid ones. Rigid suitcases are formed by an external shell which can be opened as a book and closed again and formed by rigid material which can be made of plastic or carbon-fibers or similar materials.

The advantage of a rigid suitcase is that it can preserve better the contents in case of impacts or weights on it, since it maintains basically its original form even when it is squashed by the weight of other suitcases. Always more frequently said suitcases are spreading commercially.

Other types of suitcases may be made of normal textile but they distort themselves more frequently in case of overhead weights.

A technical problem related to rigid suitcases is that they prove to be more fragile than textile suitcases, if they are submitted to strong impacts or weights. Obviously, during a travel, for example while squashing suitcases into the airplane fuselage, suitcases are often stuffed and thrown away with few care. The result is the risk of picking up a damaged, scratched or even broken suitcase upon arrival.

Various solutions have been proposed to this kind of problem.

A solution is described in GB22533781, wherein the application of an external textile upholstery is provided.

This kind of solution, even it proves functional to protect from scratches, results less efficient in case of impacts, as it cannot guarantee an acceptable protection.

In fact, textile cannot guarantee any kind of protection against impacts, voluntary cuts, strikes but only a protection against scraping scratches.

Disclosure of the invention

It is therefore the aim of the present invention to provide a container, for the transport of objects/clothing/accessories/books which solves said technical inconveniences.

In particular, it is the aim of the present invention to provide a container for the transport of objects in general, which results to be efficaciously resistant to impacts, scratches and also changeable depending on tastes and needs.

These and other aims are thus obtained with the present container (1), for the transport of objects/

clothing/accessories/books comprising a frame (2, 10, 102) and at least a shell (2, 10), connected to the frame and delimiting at least partly an inner containment volume.

According to the invention, such shell is connected to the frame in interchangeable way.

The rigid container is thus formed by one or more shells made of rigid or semi-rigid material that form the body in its entirety.

According to the invention, the shell forming such body (one or more than one) can be detached from the frame in such a manner that it can be possible to connect a new shell on it, obviously compatible to that kind of frame.

In this manner, all said technical inconveniences are solved easily.

In particular, in case of breaking the shell, if for example the container is subject to an impact, it is possible to change it rapidly to bring back the container, for example a suitcase, to its condition as brand new object.

Furthermore, in this manner, it is possible to change design practically and rapidly if necessary.

For example, in case of suitcase, it is possible to buy not only the suitcase but also a set of compatible shells with color, material and also different design. Time after time said shells can be changed by modifying the overall aspect of the suitcase according to personal tastes.

For example, two shells with different colors or shells with different design can be attached to the suitcase, thus making it creative according to the tastes or wishes of the moment.

Brief description of drawings

Further features and advantages of the present

container, according to the invention, will result to be clearer with the description that follows of some embodiments, made to illustrate but not to limit, with reference to the attached drawings, wherein:

- Figure 1 shows schematically a suitcase to which a semi-shell 10 is applied in movable manner, once removed the original shell 2;
- Figure 2 shows in lateral view a suitcase according to the invention;
- Figure 3 shows an exploded view drawing of the suitcase, according to the present invention;
- Figure 4 and figure 5 show in axonometric view the suitcase in an opened configuration and in a closed configuration;
- Figure 6, 7, 8 show as an example a phase of inserting a shell;
- The sections of figure 9 and 10 show the phase of taking the flap which couples with the pivot to fix the shell;
- Figure 11 shows a completed coupling;
- Figure 12 is an axonometric view of the suitcase, showing the telescopic arm used to drag the suitcase;
- Figures from 13 to 15 show the handle applied to said telescopic arm;
- Figures 16 and 16A show the telescopic arm applied to the frame of the suitcase;
- Figure 17 shows the same luggage to which different shells are applied;
- Figure 18 shows in an axonometric view the solution related to a shoulder backpack;
- Figures from 19 to 21 show the solution of a fastening coupling for the shell of said backpack, solution that may be used also for the suitcase.

Description of some preferred embodiments

Figure 1 shows the axonometric view of a rigid suitcase according to the present invention.

It can comprise an extractable/retractable handle, very well known in the background art in itself, by which the suitcase can be easily dragged.

Moreover, the suitcase can be easily equipped with wheels 3 in such a manner that it can be easily dragged by the user by the handle.

Obviously, the wheels 3 are in themselves very well known in background art and they are not a specific object of the present invention.

Going further with the description of the invention, the suitcase is provided with a frame to which can be applied external shells forming the body of the suitcase in its entirety (generally two shells) and such shells defining the containment volume of the suitcase itself.

For example, figure 1 shows generically the shell 2, which is movable and interchangeable with a new shell 10. The same applies obviously to the counterposed shell.

Figure 2 shows a lateral view of the suitcase and underlines better a structure of the frame 11, wherein the left and right shells 2 are connected in interchangeable manner.

Both shells can be removed and changed with other compatible shells if necessary, for example of different colors or materials and different shapes.

The frame, as per background art, is necessary for the overall support for fixing the wheels, the handles, the closing of the suitcase itself which can be opened into two halves and obviously it is necessary for supporting the fixing of the body, in this case a movable or whatever interchangeable fastening indeed.

In this manner, if for example the shell 2 results

damaged (only one or both), it is possible to change it thus making the suitcase practically new and functional.

Moreover, it is possible to change easily design of the suitcase, by choosing shells made of different colors/materials or even forms, thus making the suitcase always new.

The exploded view drawing of figure 3 shows structurally in details such solution.

Number 30 and 30' show two common handles fixed on the two sides of the suitcase, in order to allow the user to lift the suitcase in two different ways.

The handles are rotatable in respect with an anchoring body to which are fixed rotationally, for example the component 7 in figure 3.

Such handles are well known in themselves in background art and they will not be examined further.

Going further with the structural description of the invention, always referring to figure 3, a shell 2 is shown detached from the frame to be clearer. Such shell, as well the counterposed one, is connected to the frame in such a manner that it can be detached from the frame and be reapplied, or can be changed with another equivalent one.

Therefore, according to the invention, the two traditional shells connecting to the frame of a traditional suitcase are now fully removable and replaceable by equivalent ones.

The frame is formed by a sort of rectangular framework 11 which obviously traces the outside form of the luggage and to which the shell applies more or less as background art but it has the characteristic to allow the movable coupling with said shells.

In particular, the frame is divided into two preferably symmetric coupling parts (11', 11''). Each part

of the frame forms such framework (11', 11') on which the shell is fixed. The framework, according to the invention, forms a side guide in respect to which the edge of the shell is made moving from top to bottom.

The sequence of figures from 6 to 11 shows very well such solution both structurally and functionally.

In particular, as shown in figure 6, the shell has at its basis an appendix, for example a flap 2', in flexible material (for example it can be also the same material of the shell but with such a thickness that it results flexible and has a spring back).

Said appendix, while inserting and sliding the shell in respect with the guide formed by the frame 11, climbs over a pivot 2'' in-build to the frame and results insertable into the receiving hole, obtained in said appendix.

Figure 7 and 8 show in axonometric view an inserting phase.

The sections in figure 9 and 10 show such inserting phase wherein the flap climbs over the pivot in such a manner that the hole obtained in the flap can insert itself inside the pivot (see figure 10).

For the detachment the user can act on the flap manually by flexing it in order to cause the discharge of the pivot from the hole and thus proceeding with the removal of the shell.

Such solution is used for both shells on the two halves of the frame.

Obviously other locking systems of the shell may be used.

For example a lock of the appendix in a seat via mechanical interference.

Obviously the appendix-pivot solution guarantees a perfect gripping of the shell, which is removed only if

the user acts on purpose on the flap. Therefore, there is no risk of accidental detachments and such solution results easy to realize.

As shown in figure 3 as well, the component 6 represents a hinge which connects rotatably the two symmetrical halves of the frame each other (11', 11').

In this way, as shown also in figure 4, a part results openable in respect with the other so that the two halves of the luggage result opened as a book and then closable again.

Contrary to the background art, the hinges are at the basis of the suitcase and not on its side, exactly at the basis where the wheels are placed and so the way of opening is that of figure 4 in which the couples of wheels are one towards the other in opened position.

Such way of opening is therefore an alternative to the common solution.

Preferably, at least two hinges 6 placed side by side are provided.

Going further with the structural description of the invention, referring to figure 3 as well, the component 9 shows the dragging handle which is connected to the extractable/retractable arm 4 (that is a telescopic arm).

Although extractable/retractable arms are usable as background art, as for example the arm shown in figure 1, such arm 4, contrary to background art is placed laterally and moves along a seat obtained along the side of the frame 11.

Figure 12 shows the arm in the extracted configuration and moving slidingly in respect with a sort of track obtained by the external perimeter of the frame.

The two halves of the frame (11', 11') form said sliding duct along their perimeter and said handle 9 disappears inside the area delimited by such two halves of

the frame, as shown in figure 5, moving substantially to the same level of the body when fully retracted. In this manner, it is possible to have a remarkable saving of encumbrance, as the handle 9 and the arm itself to which the handle is connected are de facto hidden inside the frame itself, without any obstruction.

Figure 16 shows well the compartment of the telescopic arm in respect with one half of the frame and in respect of which results sliding between extracted and retracted position. Figure 16A shows with number 40 the sliding track.

Obviously, well known locks as per background art can be used to limit the extraction stroke of the arm.

The handle 9, as shown in the sequence of figure from 13 to 15, can be hinged to a point in such a manner that it can rotate depending on the needs in convenient positions for the user. It has preferably a L shape.

Figure 17 shows an explaining example wherein, according to the invention, the external shell is substituted on said luggage with different models.

In this case of example, only for clarity and not in a restrictive way, is shown a suitcase with extractable handle of the traditional type.

The above-mentioned description is valid for every container and indeed the same solution can be applied also to a backpack.

More in detail, figure 18 shows an exploded view drawing of a backpack according to the present invention.

Such backpack comprises a frame 102, in the form of an annular element as well, which, like the suitcase, traces the outline form of the backpack.

Such annular element is necessary to hold and lock, in removable manner, the rigid or semi-rigid shell of the backpack, like the solution of the suitcase.

For this purpose, figure 18 shows with the number 101 the shell which inserts itself inside said annular frame, until the border of the shell contacts the annular frame in its whole lengths. Contrary to the solution of the suitcase, in this case the insertion occurs by pushing the shell against the frame and not by sliding, in such a manner that the mobile pivot 105, fixed to the frame, results insertable inside a receiving hole 106 of the shell.

Such solution is explained more in detail on the enlarged view of figures from 19 to 21.

Figure 19 shows the pivot 105 when the shell has to be coupled with the annular element which forms the frame. Figure 20 shows the occurred coupling. The pivot is shaped in form of a triangle or arrow and then has a sloping side which allows its lateral translation while the shell is moving and so during the insertion of the pivot inside the hole, until, while fully inserted, the pivot springs another time moving to the opposite side and locking itself. In fact, it is provided a spring maintaining such pivot in the position of figure 19, that is fully translated on the right. While the progressive insertion inside the hole 106, thanks to the sloping side, the pivot translates on the left, once trespassed the hole, thus returning to the position of figure 19, thanks to the action of the spring (or another elastic element in general) and so locking itself definitively.

The user has to move manually the pivot on the left in order to remove the shell, thus overcoming the force of the spring (or of the elastic element in general).

Figure 21 shows a solution with two symmetric pivots and two receiving holes.

On request, such solution could be also adaptable to the suitcase, preferably to small sizes suitcases.

In all described configurations, both the suitcase either the backpack or even other containers in general, the shell or semi-shell is preferably made of rigid material, such as plastic, carbon-fibers, PVC, polypropylene, ABS, polycarbonate and similar ones and so it can be casted in a mould or shaped.

Furthermore, such size of the shell delimits generally a more or less symmetric half of an overall containment volume (as for example the two shells of the suitcase or the shell of the backpack).

Furthermore, such shell might also be realized with semi-rigid materials, such as rubber. So it would result both very flexible either impacts absorbing.

Instead the textile is excluded, as it is not capable to protect from the impacts.

In the present invention, rigid or semi-rigid materials comprise moulding materials, for example in a mould to obtain the shape of the half suitcase (or the full luggage) that will cover the suitcase and so maintaining the shape of half luggage (or full luggage) and covering also without being applied to the suitcase.

In that sense, the textile is not to be considered a rigid or semi-rigid material.

However, in order to change further the design of the luggage, it is possible to provide a shell in above mentioned rigid or semi-rigid materials but covered externally with textile, for example denim textile. Such solution is valid for all described configurations.

Obviously the sale of suitcases arranged in such a manner that they can couple with a semi-shell and also the separate sale of one or more replacement semi-shell for such suitcases can be decided, in order to inter-change them if necessary.

The whole above description is valid for any

personal container for the transport of objects/ clothing/accessories/books.

Therefore, in that sense, the invention is not only limited to the mere suitcase (meaning every type of suitcase including Trolleys), but also to bags, backpacks, pouches and so containers for personal use and transportable by the user.

CLAIMS

1. A container (1) for the transport of objects/clothing/accessories/books comprising a frame (11) and at least one shell (2, 10) connected to the frame and delimiting at least partly an inner containment volume, **characterized in that** said shell is connected to the frame in interchangeable way.

2. A container (1), as per claim 1, wherein fastening connection means are comprised, in order to connect said shell to the frame in interchangeable way.

3. A container (1), as per claim 2, wherein said fastening connection means comprise an appendix (2') of the shell, equipped with a receiving hole and a pivot (2'') belonging to the frame (11) in such a manner that the pivot results insertable inside said hole.

4. A container (1), as per claim 3, wherein said appendix (2') is flexible and in such a manner that it has a spring back.

5. A container (1), as per one or more previous claims from 2 to 4, wherein said appendix (2') is arranged at the basis of the shell.

6. A container (1), as per one or more previous claims from 2 to 5, wherein the frame is generally annular shaped and forms a sliding guide for the shell in such a manner that the shell can slide until the appendix is in proximity to the pivot (2'').

7. A container (1), as per claim 2, wherein said fastening connection means comprise at least a tooth (105) which inserts itself inside a receiving hole (106) belonging to the shell (101).

8. A container (1), as per claim 7, wherein the frame is generally in annular shaped and said shell inserts itself inside said annular element by pushing it until the tooth inserts itself inside the receiving hole.

9. A container (1), as per claim 7 or 8, wherein said tooth (105) is assembled in translatable manner and preferably shaped in form of arrow.

10. A container (1), as per one or more previous claims, wherein said container can be on choice:
- A suitcase;
- A backpack.

11. A container (1), as per one or more previous claims, wherein, if it is a suitcase, an extractable/retractable arm (4) is provided and it is slidingly positioned in respect with the frame along one side of the suitcase and arranged in such a manner that results sliding hidden inside said frame when it is in retracted position.

12. A container (1), as per claim 11, wherein said arm is equipped with a handle (9) hinged on a point at the end of the arm (4).

13. A container (1), as one or more previous claims from

10 to 12, wherein the suitcase is formed by two halves hinged each other on the base of the suitcase, in such a manner that they open or close like a book.

14. A container (1), as per one or more previous claims, wherein the shell is made of rigid or semi-rigid material.

15. A container (1), as per one or more previous claims, wherein the shell is made of plastic, carbon-fibers, PVC, polypropylene, ABS, polycarbonate, rubber.

16. A container (1), as per one or more previous claims, wherein the shell is made of casting in a mould materials.

17. A container (1), as per one or more previous claims, wherein two removable symmetrical shells are provided in case of suitcase.

FIG. 1

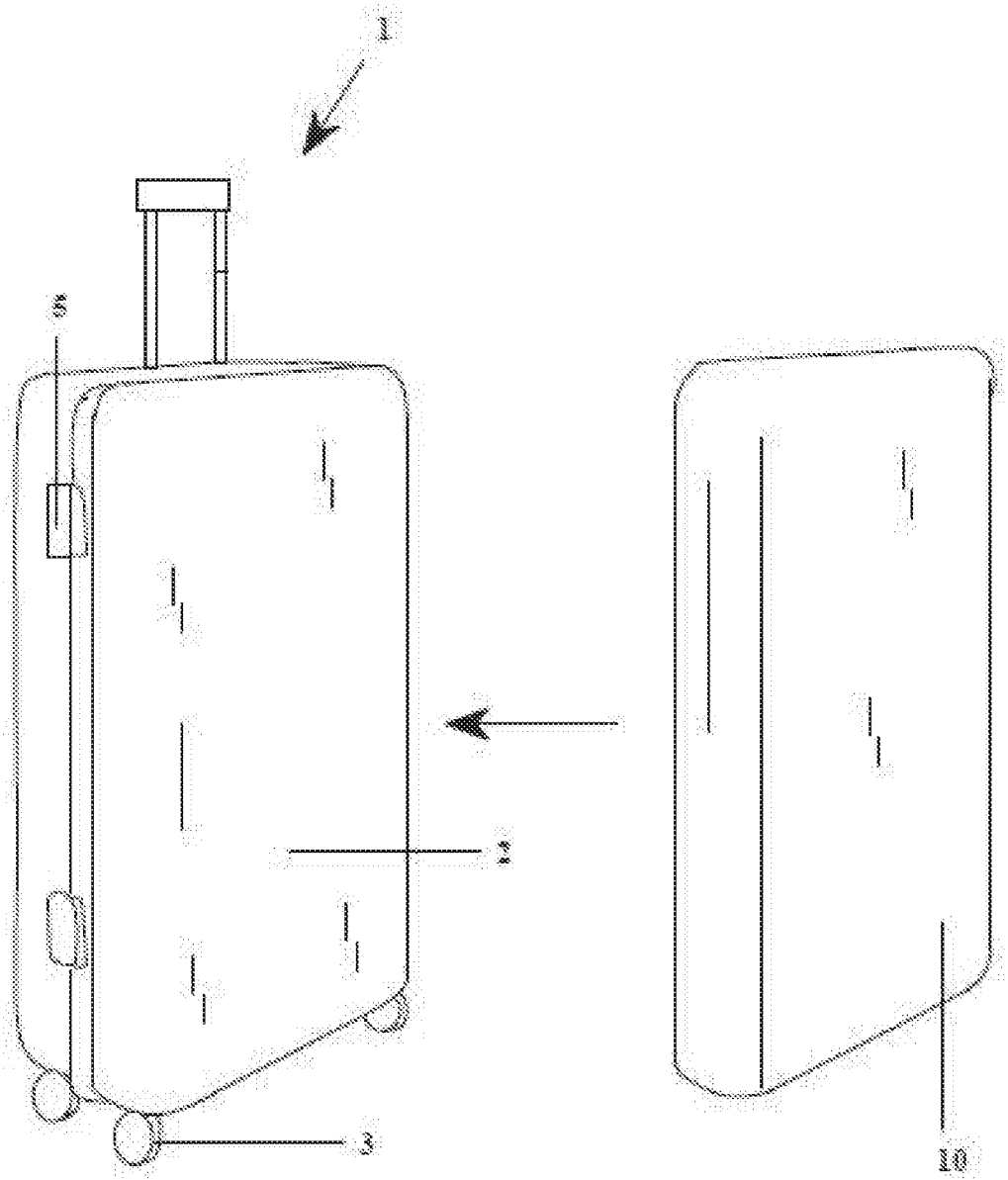


FIG. 2

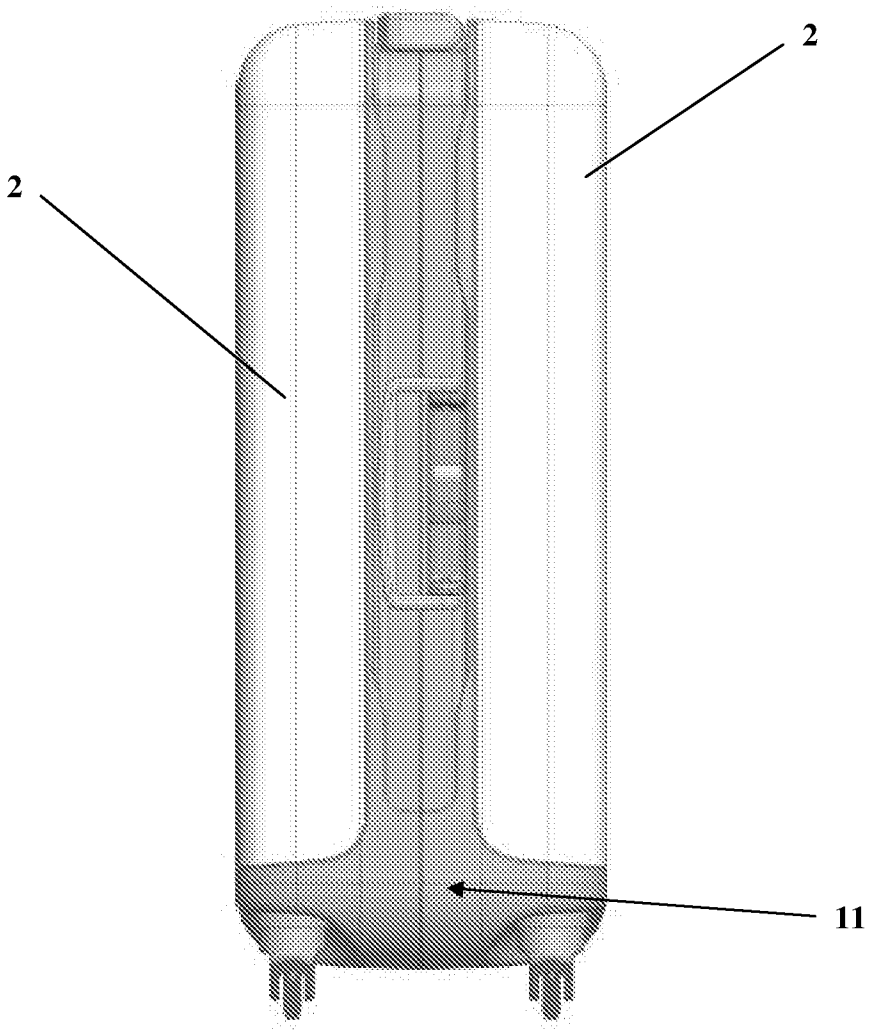


FIG. 3

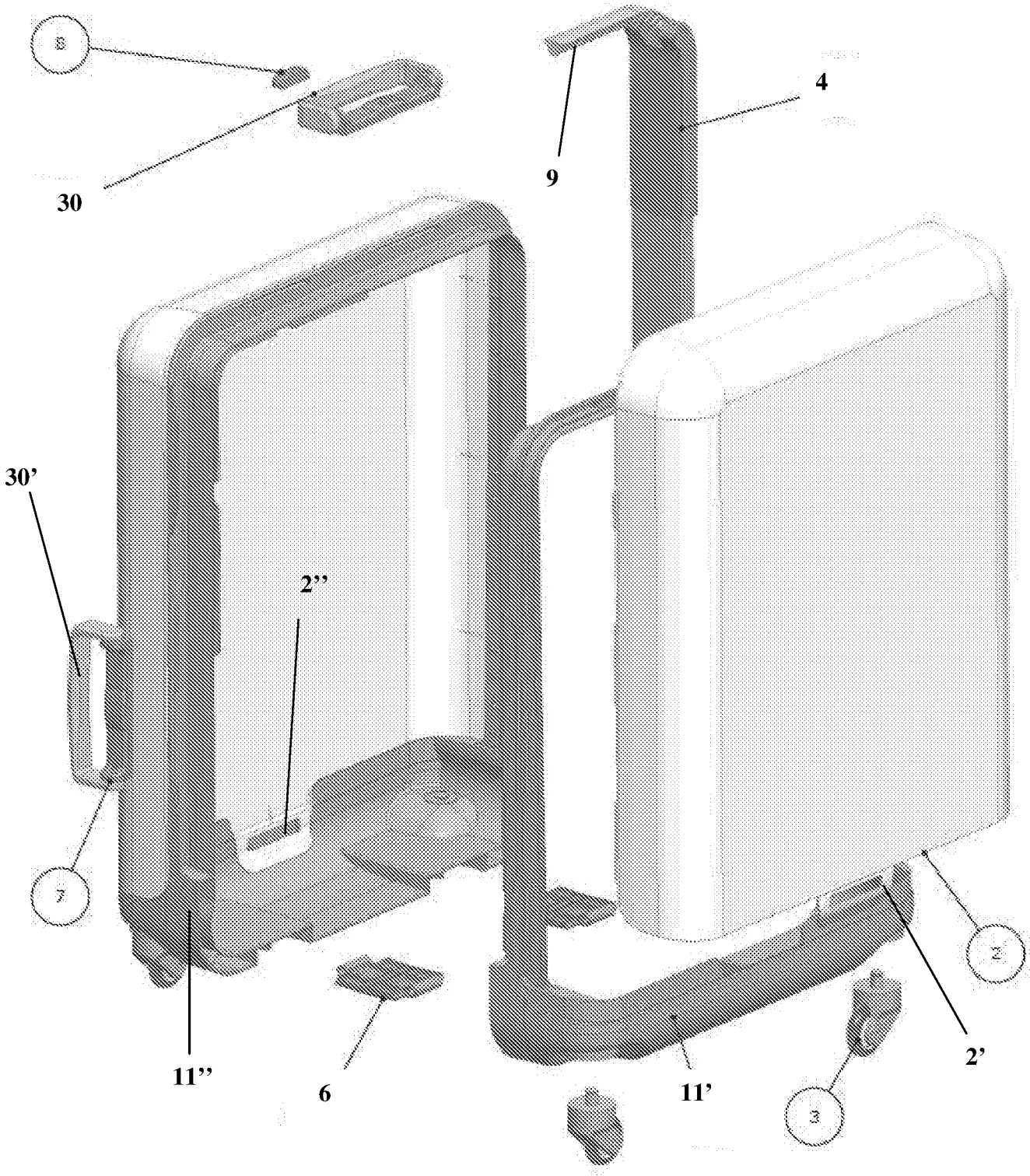


FIG. 4

FIG. 5

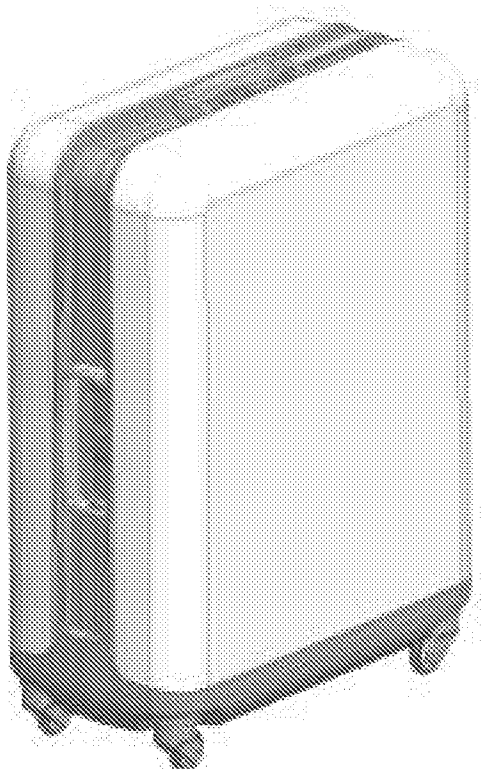


FIG. 6

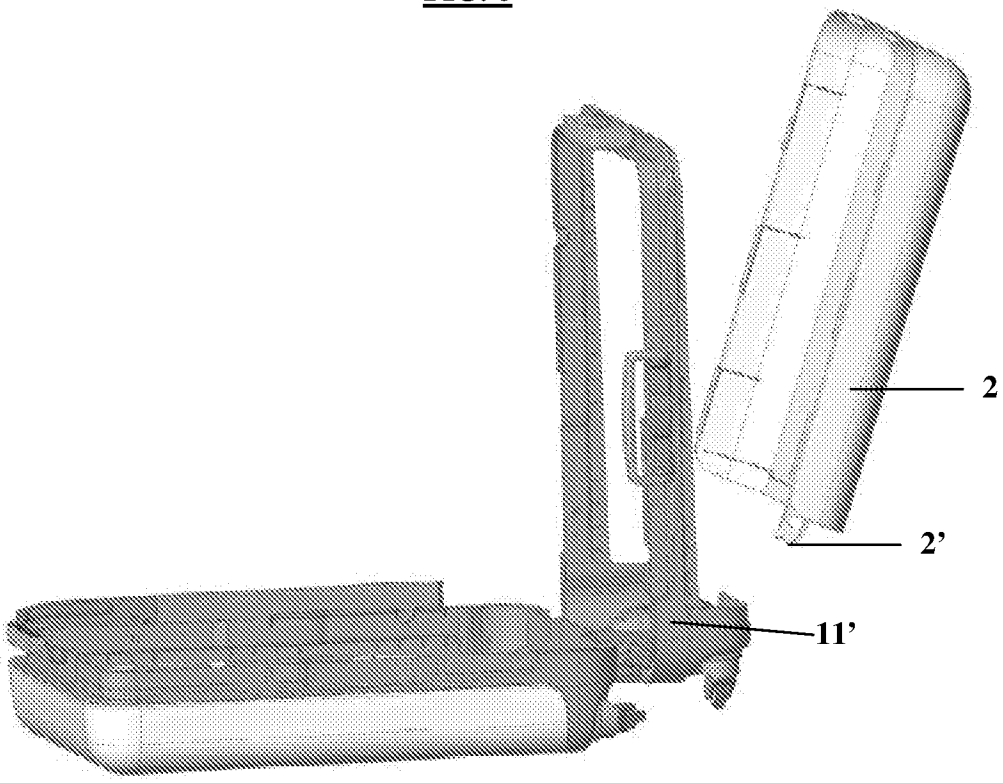


FIG. 7

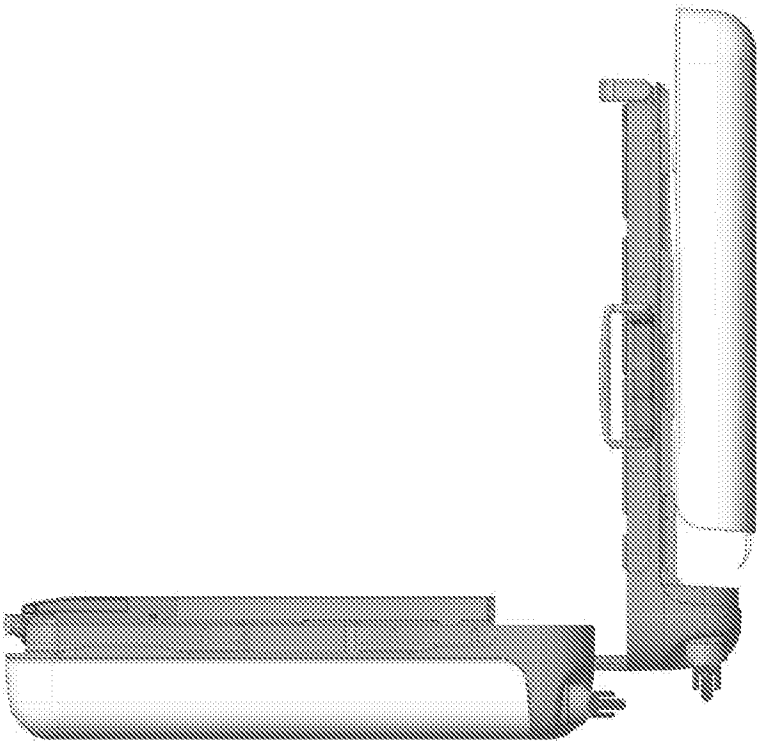


FIG. 8

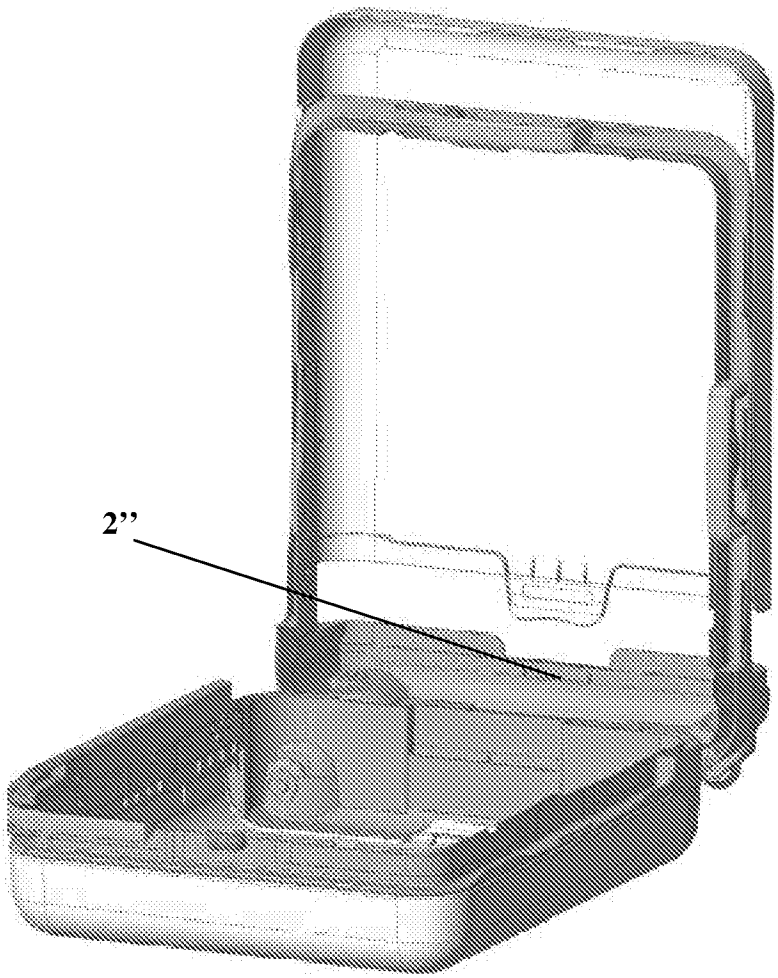


FIG. 9

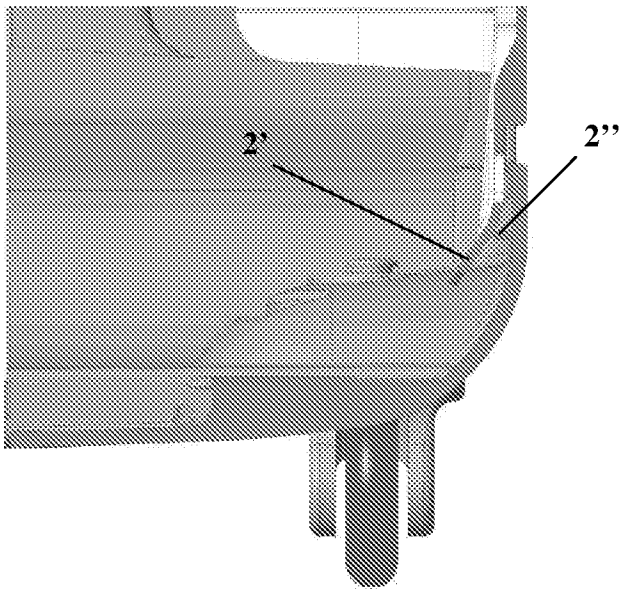


FIG. 10

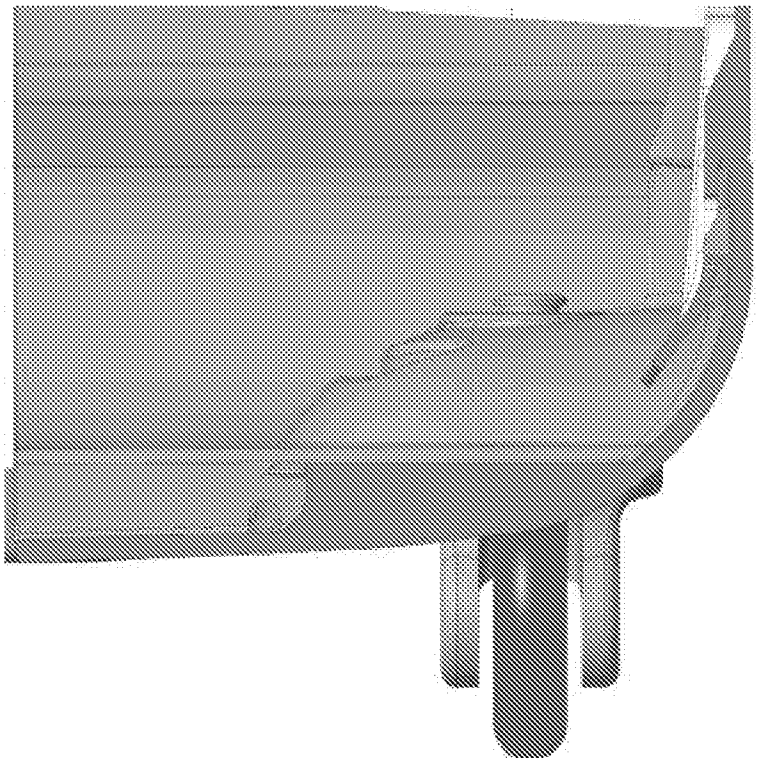


FIG. 11

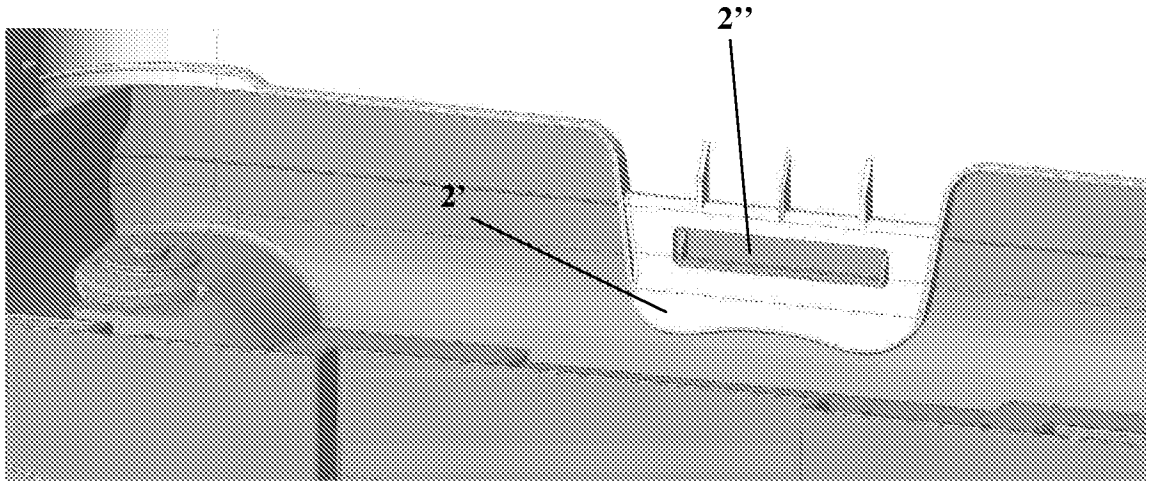


FIG. 12

FIG. 13

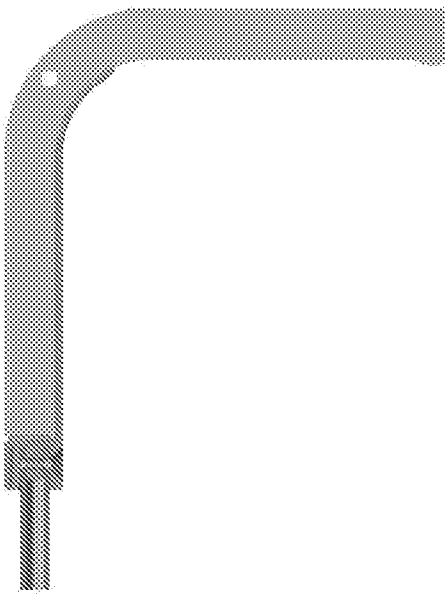


FIG. 14

FIG. 15

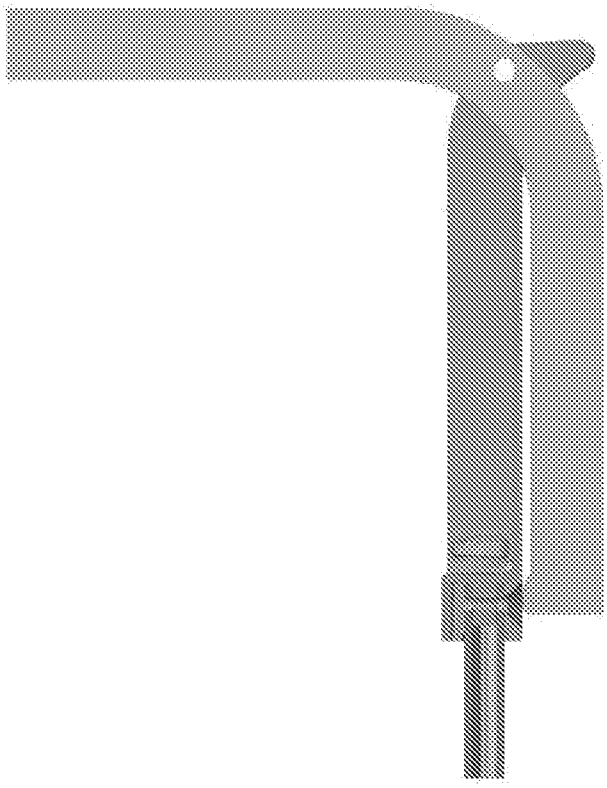


FIG. 16

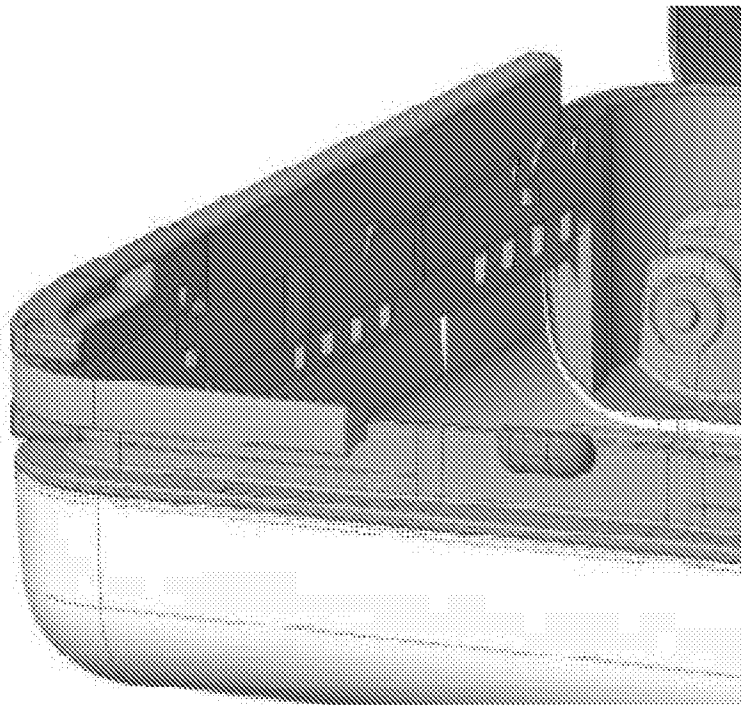


FIG. 16A

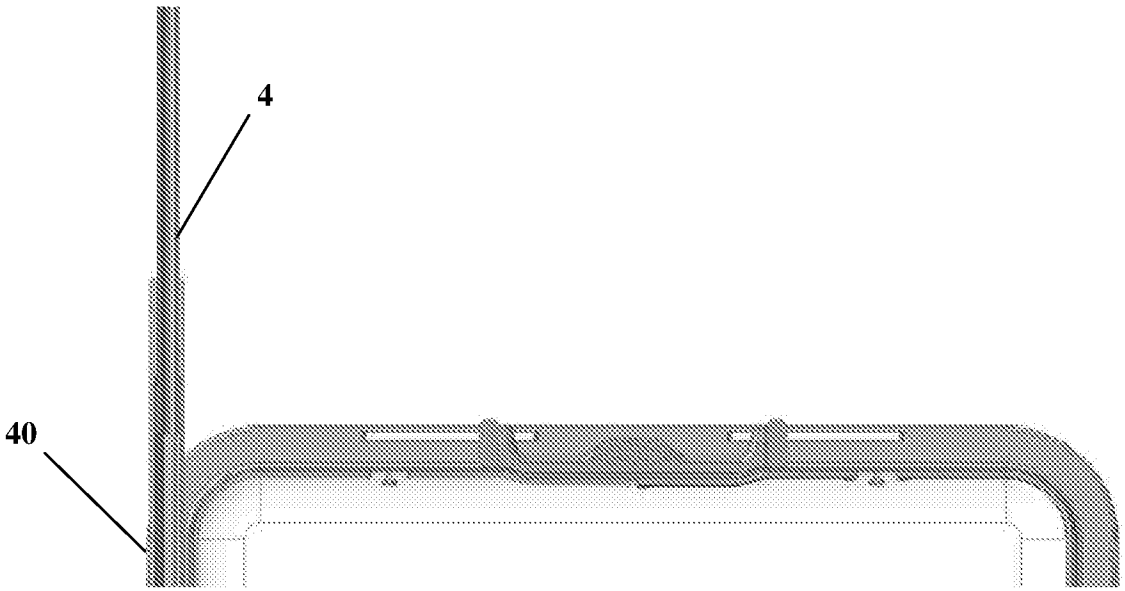


FIG. 17

FIG. 18

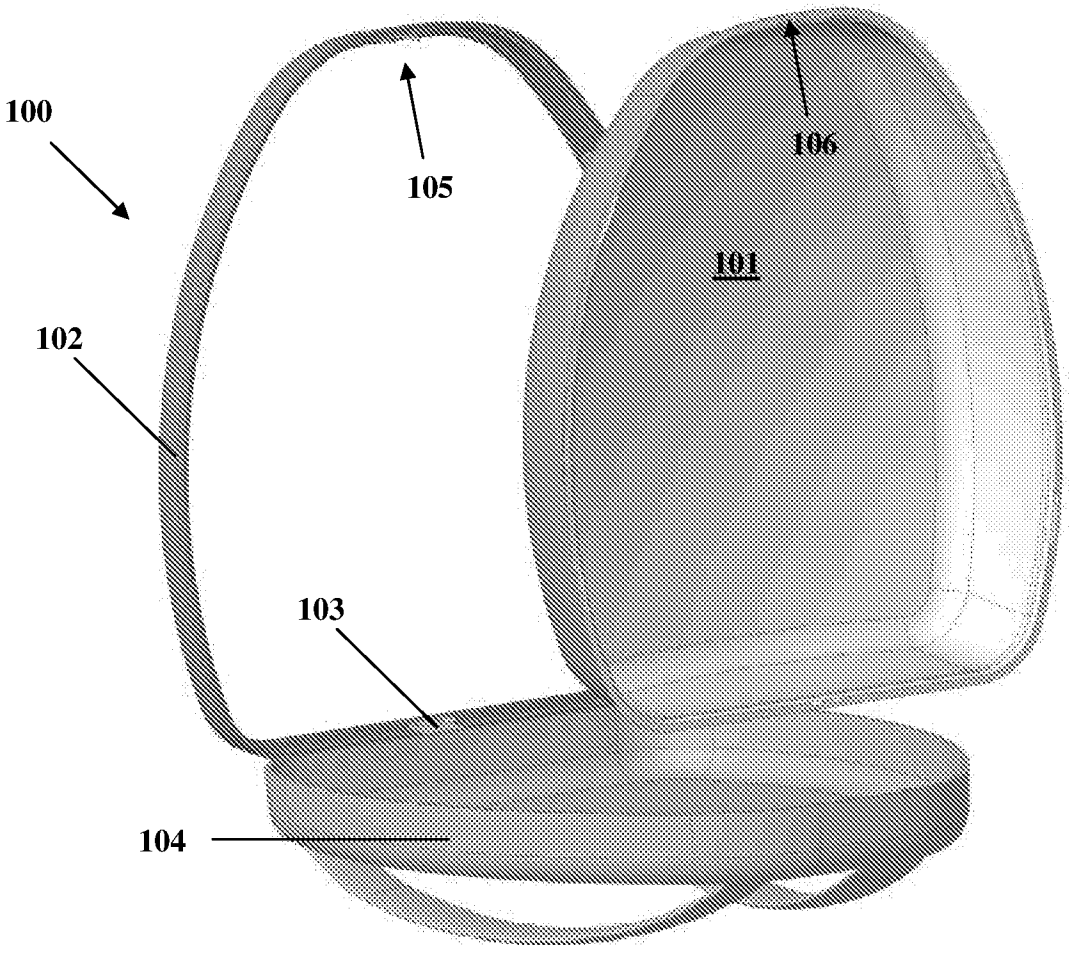


FIG. 19

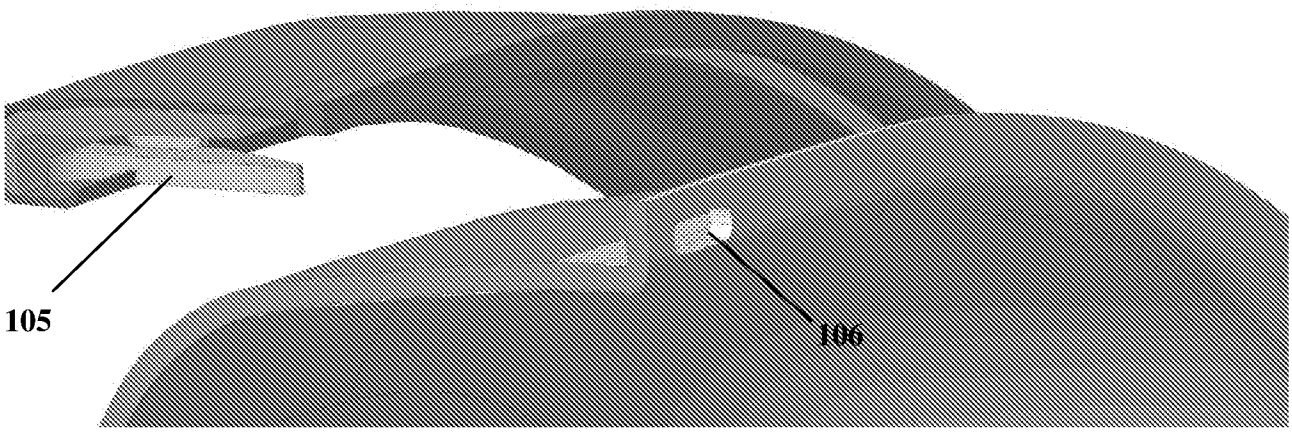


FIG. 20

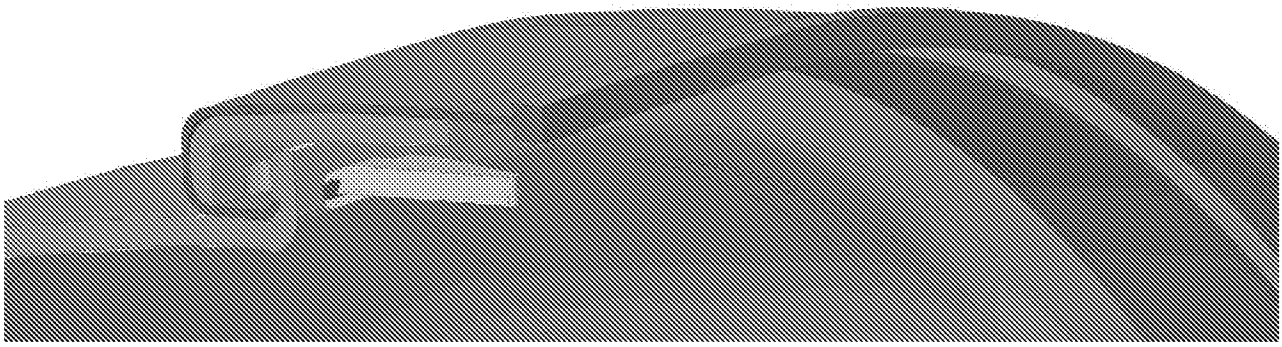
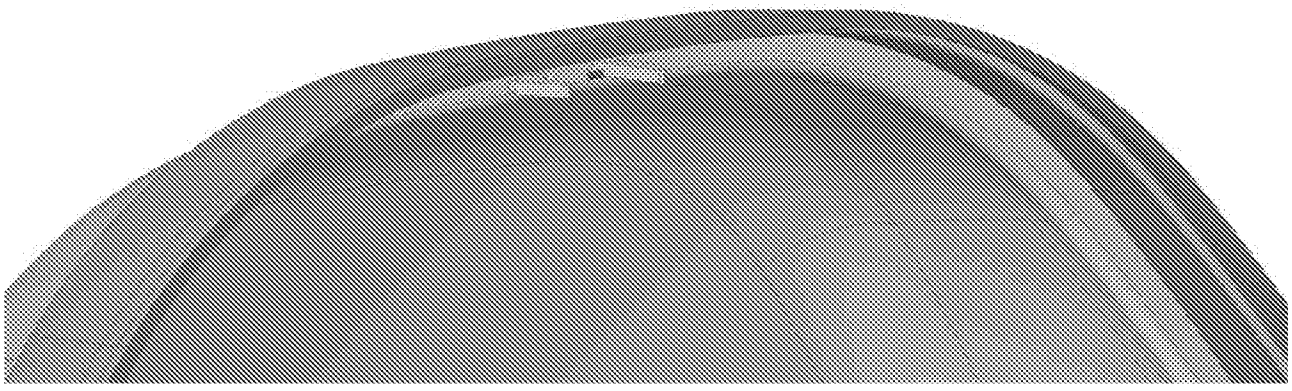


FIG. 21



INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2016/055435

A. CLASSIFICATION OF SUBJECT MATTER
INV. A45C13/00 A45C13/08 A45C5/03 A45C5/14
ADD.

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)
A45C B25H

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)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	DE 10 2007 017834 A1 (G T LINE SRL [IT]) 29 November 2007 (2007-11-29) paragraphs [0027] - [0056]; figures 1-12	1-10, 13-17 11,12
Y	WO 91/12744 A1 (AMERICAN TOURISTER INC [US]) 5 September 1991 (1991-09-05) page 9, line 17 - page 11, line 6	11,12
X	WO 2006/017464 A2 (UMAGINATION LABS LP [US]; DUNCANSON DAVID E [US]; PARK SUNG K [US]) 16 February 2006 (2006-02-16) page 1, line 14 - page 6, line 24; figures 1-13	1-10,13
X	DE 42 21 215 A1 (WEIDT KARL ADOLF [DE]) 5 January 1994 (1994-01-05) column 2, lines 14-41; figures 1-6	1-10,13

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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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

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
9 March 2017	16/03/2017

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Ionescu, C

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2016/055435

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 070 754 A (NEWBY SR JOHN PARKS [US]) 6 June 2000 (2000-06-06) column 2, line 44 - column 8, line 43; figures 1-16 -----	1-17

INTERNATIONAL SEARCH REPORT

Information on patent family members

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