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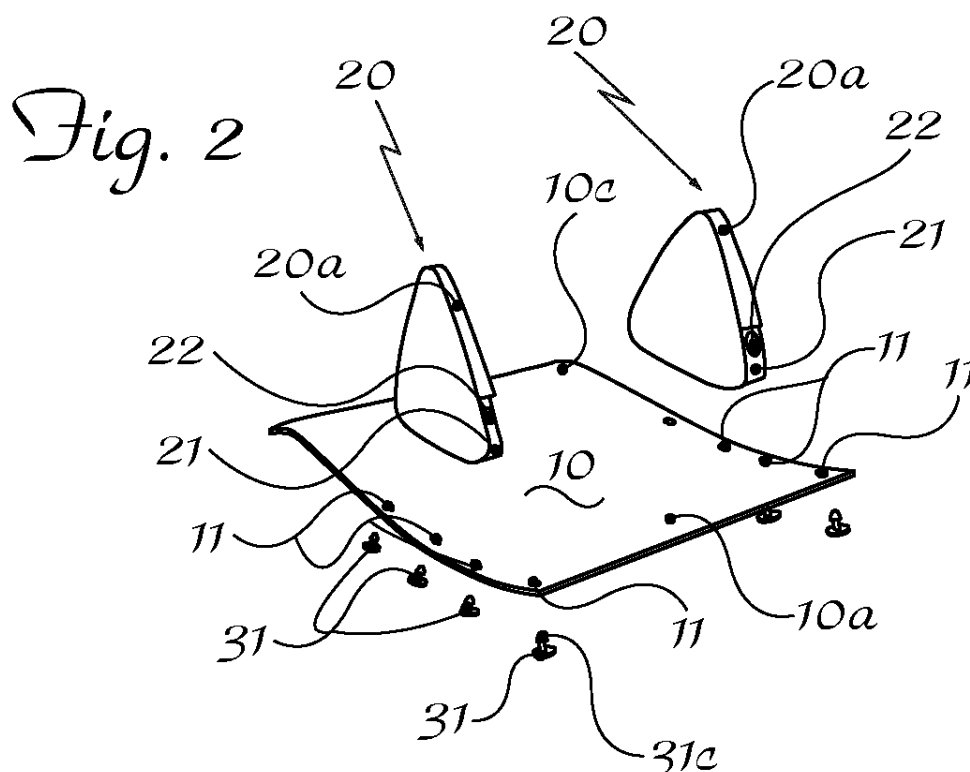
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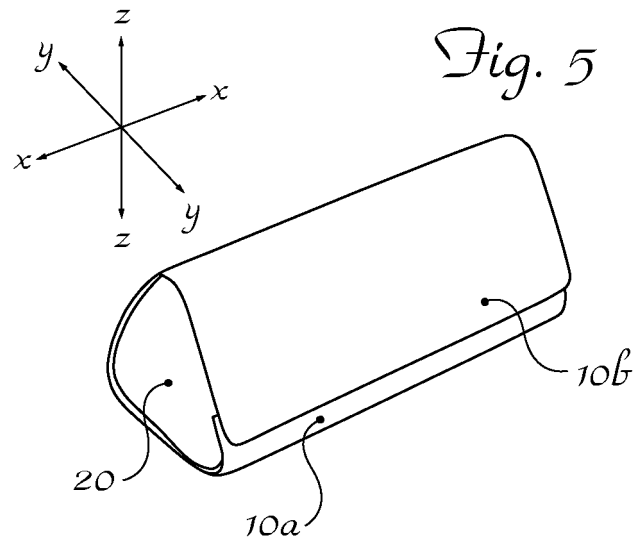
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(54) **ASSEMBLABLE CASE FOR CONTAINING OBJECTS**

(57) Assemblable case for containing objects, comprising at least one continuous, flexible, flat element (10;110) suitable for forming a base (10), a rear wall (10b) and a front flap for closing/opening the assembled case, which are situated opposite each other in a transverse widthwise direction of the assembled case, the case comprising at least one pair of rigid elements (20;120;220;320) which are independent of the flat element (10;110), are suitably shaped and are designed to form the opposite flanks in the longitudinal lengthwise direction (X-X) of the formed case, and relative joining means (30;130) for ensuring a stable, but reversible connection between the flexible flat element (10;110) and the rigid elements (120;220;320) for assembly/disassembly of the case, and the flat element forming moreover a front contact rim for the closing/opening flap of the assembled case.





Description

[0001] The present invention relates to an assemblable case for containing objects.

[0002] It is known in the technical sector of packaging that there exists the need to provide cases for containing objects of various kinds such as spectacles, watches, pens, cosmetic articles, household articles or electronic articles.

[0003] It is also known that the cases currently available for this purpose must be designed in accordance with the object to be contained and, in particular as regards rigid cases, they must be constructed initially in their final form specific for the use for which they are intended.

[0004] Examples of the prior art are shown and described in the following publications:

EP 1 462 377 discloses a foldable box made of a flexible sheet forming the sides of the box, and a pair of flaps forming an integral part and extending towards opposite sides of two sides of the flexible sheet so as to form the top and the bottom covers (not the flanks) of the box; the result is a foldable box of fixed shape not assemblable/disassemblable nor adaptable to different shapes required by the different shapes of objects to be contained in the box itself. US 3 913 774 discloses a container having a tubular central section forming sides of the container and rigid end caps. The caps are positively linked to the tubular flanks of the container, whose shape (cylindrical/parallelepiped) is predefined and not modifiable.

[0005] The description cites that the prior art does not lend itself to single-step assembly by either hand for providing a positive engagement between flexible sides and rigid end caps; in fact the permanent package is disassemblable only by means of special tools or by destruction of the container material.

[0006] EP 2 200 135 discloses a rigid metal box for containing electrical material such as switchboards and the like; different rigid elements of the box are joined together by means of bolts or nuts engaged on the pins by screwing.

[0007] Although performing their intended function, these known cases however give rise to not insignificant drawbacks including the limited versatility as regards the possibility of varying their form, the large dimensions of the finished product which is normally assembled by means of glues, with a consequent increase in the warehouse management costs of the finished products and/or spare parts, as well as the packaging and therefore consignments to the end user.

[0008] The technical problem which is posed, therefore, is that of providing a case for containing objects which has small dimensions until the moment of its final use and which allows a large degree of variability of shape depending on the object to be contained and/or

the aesthetic preferences of the end user.

[0009] In connection with this problem it is also required that the case should be easy and inexpensive to produce and assemble and be able to be easily used by any user, including non-expert users.

[0010] These results are obtained according to the present invention by an assemblable case for containing objects according to the characteristic features of Claim 1.

[0011] Further details may be obtained from the following description of a non-limiting example of embodiment of the subject of the present invention, provided with reference to the accompanying drawings, in which:

Figure 1: shows an exploded view of a first example of embodiment of an assemblable case according to the present invention;

Figs. 2 and 3: show perspective views of the steps for assembly of the case according to Fig. 1;

Figure 4: shows a perspective view of the case in the assembled and open condition;

Figure 5: shows a perspective view of the case assembled and closed;

Figure 6: shows a schematic cross-sectional view of the case according to Fig. 5;

Figure 7: shows a perspective view of the detail of a variation of embodiment of the means for joining together the parts to be assembled;

Figure 8: shows a perspective view of the detail of joining together of the parts of the case by means of the joining means shown in Fig. 7;

Figure 9: shows a cross-sectional view of a first example of a variation of embodiment of a case according to the invention;

Figure 10: shows a cross-sectional view of a second example of a variation of embodiment of a case according to the invention; and

Figure 11: shows a perspective view of a plurality of component parts for cases assembled in the form of a single body.

[0012] As shown and assuming solely for easier description and without a limiting meaning a set of three reference axes in a longitudinal lengthwise direction X-X, transverse depthwise direction Y-Y and vertical heightwise direction Z-Z, as well as a front part corresponding to the part intended, during use, for opening/closing of the case by the user, and a rear part opposite to the front part, an assemblable case according to a first embodiment of the invention comprises:

-) at least one, continuous, flexible, flat element 10 having, according to the layout of the figures, a front part 10a, a rear part 10b, opposite to the front part in the transverse direction Y-Y, and two transverse flanks 10c situated opposite each other in the longitudinal direction X-X; the flat element 10 has a predefined thickness selected depending on the final

use;

when the case is assembled, the flat element 10 is designed to form a bottom base in the vertical height-wise direction Z-Z of the case, a rear wall 10b and a front closing/opening flap, which are situated opposite each other in the transverse direction Y-Y,

-) at least one pair of rigid elements 20, which are independent of the flat element 10, are suitably shaped and which have, according to the layout of the figures, a front side 20a, a rear side 20b and a bottom side 20c;

said rigid elements are designed to form the transverse flanks situated opposite each other in the longitudinal lengthwise direction X-X of the formed case;

-) means 30 for joining together the flexible flat element 10 and the rigid elements 20.

[0013] In a first embodiment (Figs. 1-3):

- the flexible flat element 10 has a plurality of holes 11 arranged in the vicinity of the two opposite flanks 10c; preferably the holes are aligned parallel to the transverse direction Y-Y and at least one pair of holes 11 is arranged in the vicinity of the front edge 10a of the flat element;
- the two rigid elements 20 have a substantially polygonal form - triangular form in the example of Figs. 1-6 - the front side 20a thereof having an undercut 21 with a depth substantially corresponding to the thickness of the flat element 10; the front side 20a and bottom side 20b are provided with recesses 22 suitable for engagement with the said relative joining means 30;
- the relative joining means 30 comprise:
 - a first male button 31 having a head 31a and a pin 31b, preferably shaped with a conical tip 31c. According to preferred embodiments it is envisaged that when the case is assembled:
- the rigid flanks 20;120;220;320 are situated inside the flat element 10 and enclosed in the transverse direction by the said element; and/or
- a contact rim (10a) for the closing/opening flap is formed by a fold in the front part (10a) of the flat element (10).

[0014] With this configuration formation of the case is performed by means of the following steps:

- preparation of the flat element 10, a pair of rigid elements 20 and a plurality of joining means 30 consisting of a number corresponding to the number of recesses 22 present on the said front side 20a and bottom side 20b of the rigid elements 20;
- the pins 31b of the male buttons 31 are inserted inside the side holes 11 and in the holes 11 close to

the front edge 10a of the flat element;

- the rigid elements 20 are mounted on the flat element 10, engaging the male pin 31b of the buttons 31 inside the corresponding recesses 22 formed in the bottom side of the said rigid elements which thus form the flanks of the case;
- the front part 10a of the flat element 10 is folded in the transverse direction towards the front side 20a of the flanks 20, so that the front edge of the flat element rests inside the undercut 21 of the flanks, restoring the continuity of the front surface of the assembly and forming the said front contact rim for the closing flap;
- the pins 31b of the buttons 31 are inserted through the respective front holes 11 and 22 of the flat element 10 and the flanks 20;
- the rear part 10c of the flat element 10 is folded in the transverse direction, so that its inner surface rests on the rear sides 21c of the rigid elements 20 (Fig. 4);
- folding of the rear part 10a of the flat element 10 is continued (Fig. 5) until it is arranged on top of the front part 10a already fixed to the flanks 20, thus forming the front closing/opening flap of the case.

[0015] Figs. 7 and 8 show a further embodiment of the case according to the invention where the male pins 131b for performing joining together are directly inserted in the front side 120a and bottom side 120b of the rigid elements 120;

correspondingly the flexible flat element 110 has transverse incisions 111 which have a central hole 111b and are elastically deformable so as to allow the entry of the pin 131b and return into the rest condition for locking thereof.

[0016] Preferably the incisions 111 are aligned parallel to the transverse direction Y-Y; at least one pair of incisions is arranged in the vicinity of the front edge 110a of the flat element.

[0017] With this configuration assembly is performed in a way similar to that described above, but with direct engagement between the flanks 120 and the flat element 110.

[0018] For an attractive finish a visible female button 132 for connection to the pin 131b is provided.

[0019] In both solutions joining together of the rigid flanks 20,120 and the flexible flat element 10,110 is stable, but reversible, so as to allow disassembly/reassembly of the case.

[0020] Figures 9 and 10 show further examples of cases with a different form of the flanks, i.e. rounded, 220, and approximately trapezoidal and rounded, 320, so as to provide also different final forms for the case.

[0021] As shown in Fig. 6 the flanks 20;120;220;320 of the case may be internally hollow so as to increase the internal volume available.

[0022] The dimensions and shape of the flanks determine moreover the size of the container heightwise and

depthwise.

[0023] Although not shown, it is envisaged that the shape of the flanks may also be irregular.

[0024] Both the flexible flat element and the rigid flanks may be made of various materials, including (but not exclusively): plastic materials, real leather, imitation leather, regenerated leather, wood, metals, paper and cardboard, fabrics, combinations of these materials, which may be tailor-made in the desired colour and personalized with paste finishes or surface finishes, or may be used untreated.

[0025] Once assembled, the case may employ different means for locking the front closing flap, for example (but not exclusively): magnets, buttons (all kinds), pins, interlocking systems, buckle and tongue, ribbon, string with or without knot, and the like; in this case also they may be tailor-made in the desired form, size or colour and personalized with paste finishes or surface finishes, or may be used untreated.

[0026] It is therefore clear how the assemblable case according to the invention offers a very high degree of versatility of application, aimed at providing a large number of solutions for its appearance (shape and size), and allows the overall dimensions of the case to be reduced for storage and/or despatch, with a significant reduction in the amount of space occupied and consequent advantages from an economic and environmental point of view.

[0027] As shown in Fig. 11, it is in fact possible to group together several flexible flat elements and several rigid flanks in the form of a single assembly for management of several containers which can then be divided up into single units at the time of use.

[0028] At the same time the end user is able to combine rapidly, without using glues and by means of an easy-to-use system, which does not require any particular technical expertise, the flat element and the rigid flanks, thus creating independently the most suitable solution in terms of size and appearance.

[0029] Since the case may be easily and rapidly disassembled and reassembled, it allows the end user to adapt it to occupy less space when carried empty, for example inside a backpack or a bag.

[0030] When the container is disassembled, the flat element of the container may also be used for alternative applications, for example (but not exclusively) as a computer mouse mat, a non-slip pad, a cleaning cloth, a tabletop container for objects, an advertising panel, and the like.

[0031] Although described in connection with a number of embodiments and a number of preferred examples of embodiment of the invention, it is understood that the scope of protection of the present patent is determined solely by the claims below.

Claims

1. Assemblable case for containing objects, comprising at least one continuous, flexible, flat element (10;110) suitable for forming a base (10), a rear wall (10b) and a front flap for closing/opening the assembled case, which are situated opposite each other in a transverse widthwise direction of the assembled case, **characterized in that** it comprises at least one pair of rigid elements (20;120;220;320) which are independent of the flat element (10;110), are suitably shaped and are designed to form the opposite flanks in the longitudinal lengthwise direction (X-X) of the formed case, and relative joining means (30;130) for ensuring a stable, but reversible connection between the flexible flat element (10;110) and the rigid elements (120;220;320) for assembly/disassembly of the case, and **in that** the flat element forms moreover a front contact rim for the closing/opening flap of the assembled case.
2. Case according to Claim 1 **characterized in that**, when the case is assembled, the rigid flanks (20;120;220;320) are situated internally and are enclosed in the transverse direction by the flat element (10).
3. Case according to Claim 1 or 2 **characterized in that** the contact rim of the cover consists of a fold in the front part (10a) of the flat element (10).
4. Case according to any one of the preceding claims **characterized in that** the flexible flat element (10) has a plurality of holes (11) arranged in the vicinity of its two opposite transverse sides (10c).
5. Case according to any one of the preceding claims **characterized in that** said flexible flat element (110) has transverse incisions (111) which have a central hole (111b) and are elastically deformable so as to allow the insertion of a joining means (30) and return into the rest condition for locking thereof.
6. Case according to Claim 4 or 5 **characterized in that** at least one pair of holes (11) or incisions (111) is arranged in the vicinity of the front edge (10a) of the flat element (10;110).
7. Case according to Claim 5 or 6 **characterized in that** said holes (11) or incisions (111) are aligned parallel to the transverse direction (Y-Y).
8. Case according to any one of the preceding claims **characterized in that** said rigid elements (20;120;220;320) have a front side (20a) provided with an undercut (21) having a depth substantially corresponding to the thickness of the flat element (10;110).

9. Case according to Claim 5 **characterized in that** the front side (20a) and bottom side (20b) of the rigid elements (120;220;320) are provided with holes (22) for engagement with the said relative joining means (30). 5
10. Case according to any one of the preceding claims **characterized in that** said relative joining means (30;130) comprise a first male button (31) provided with a head (31a) and a pin (31b), preferably shaped with a conical tip (31c). 10
11. Case according to any one of the preceding claims **characterized in that** said relative joining means (130,131b,131c) are directly inserted in the front side (120a) and bottom side (120b) of the rigid elements (120;220;320). 15
12. Case according to Claim 11, **characterized in that** said relative joining means (130) comprise a visible female finishing button (132) for engagement with the pin (131b) of the joining elements (130) for decorative purposes. 20
13. Case according to any one of the preceding claims **characterized in that** it comprises means for fastening the front closing flap to the rigid flanks to ensure closing of the case. 25

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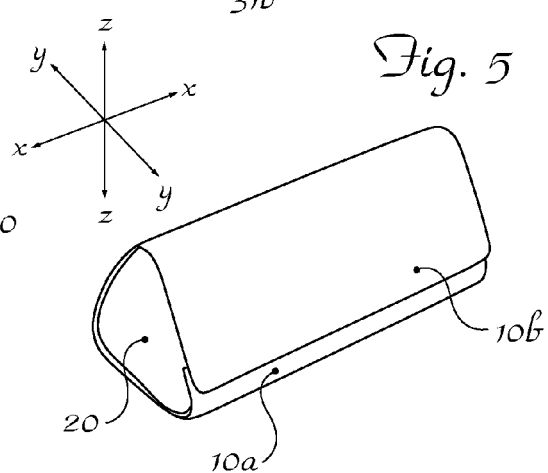
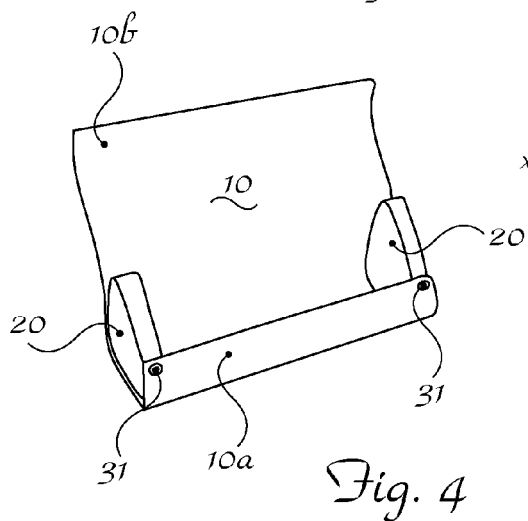
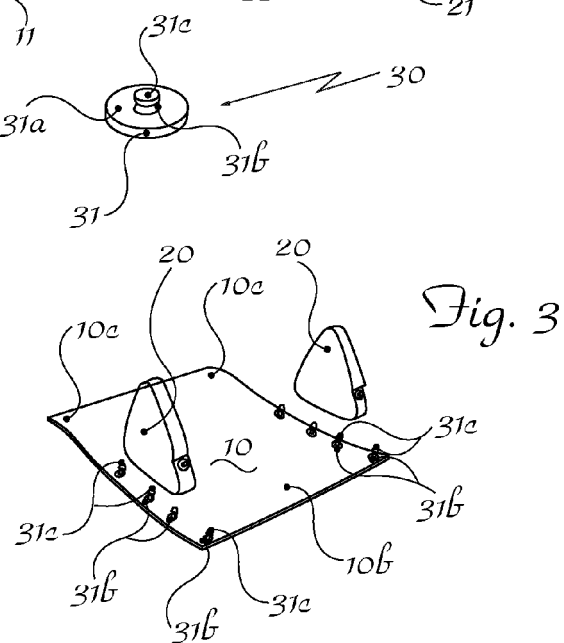
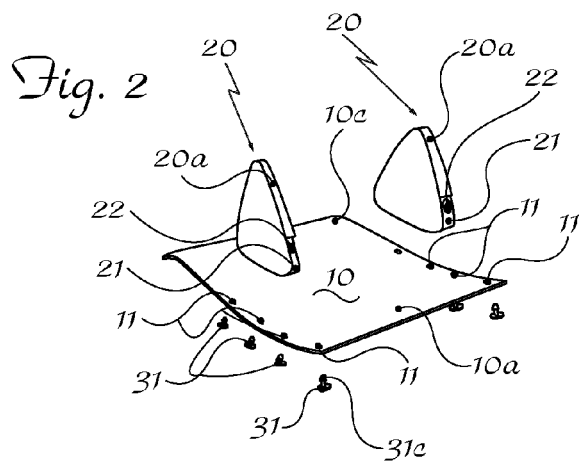
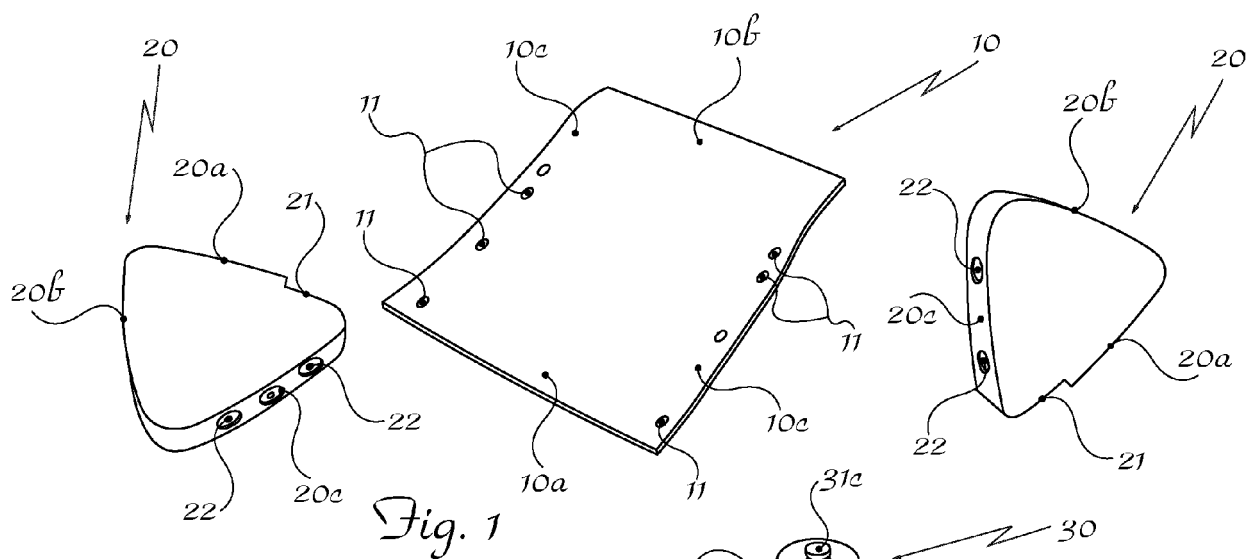
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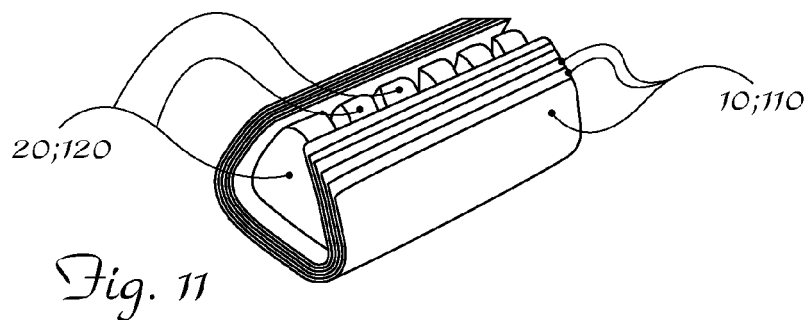
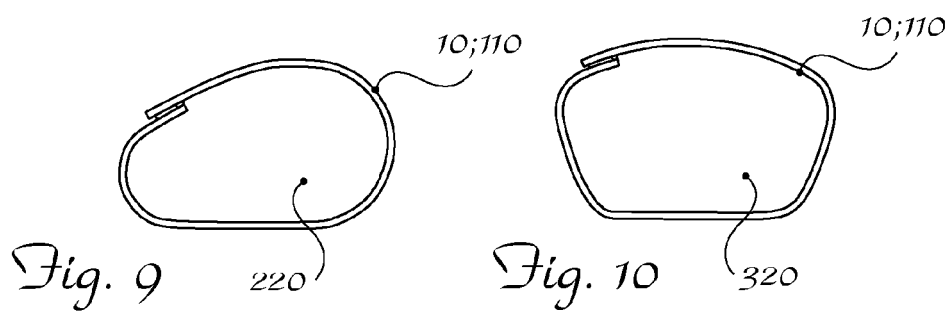
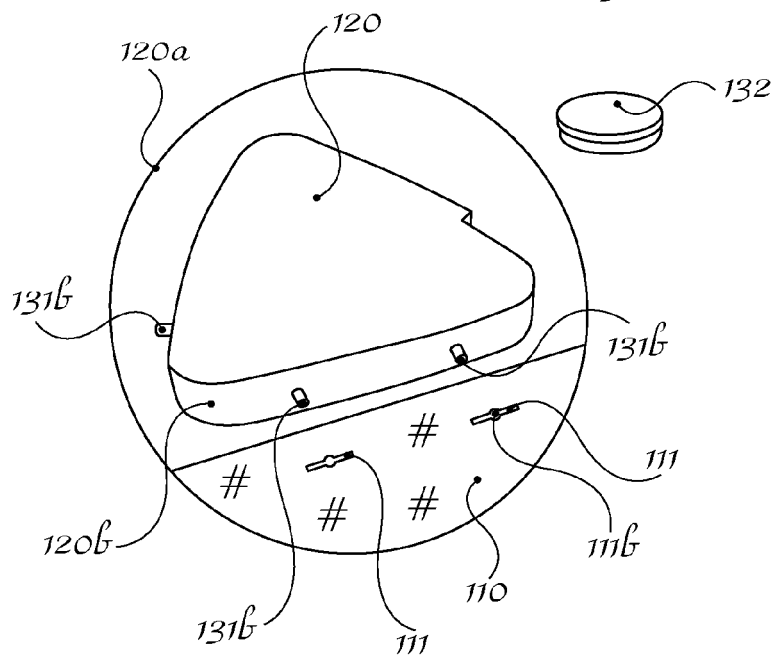
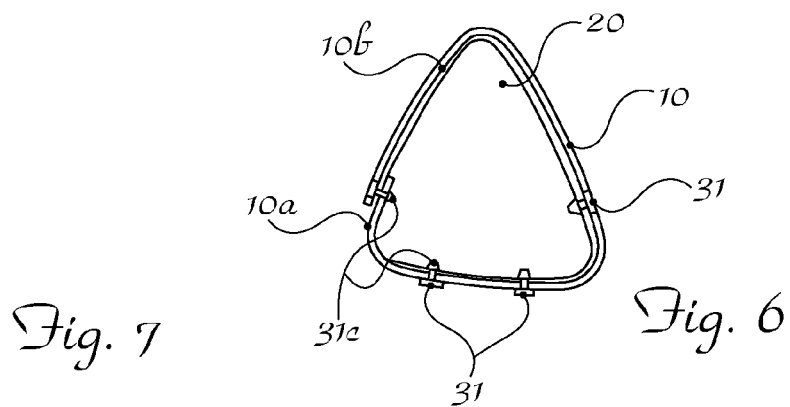
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EUROPEAN SEARCH REPORT

 Application Number
 EP 17 17 6909

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 27 September 2017	Examiner Oliveras, Mariana
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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