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(54) Container with improved opening system.

(57) A container for containing miscellaneous products, of the type in which a base (11) and a lid (13) are hinged together and provided, at a point opposite the hinging point, with a snap-closure system consisting of a retention tooth (22) provided on the lid (13) for snap-engaging in a seat (23) provided in the base (11). According to the invention, with said base (11) there is associated an elastically yieldable intermediate element (12) in which said seat (23) for the retention tooth (22) is provided, said element (12) being movable relative to the base (11) along a first axis a-a joining the hinging system to the snap-closure system, by applying two opposing forces to the element (12) along a second axis b-b intersecting the first axis a-a, resulting in release of the retention tooth (22) from its engagement with the seat (23).

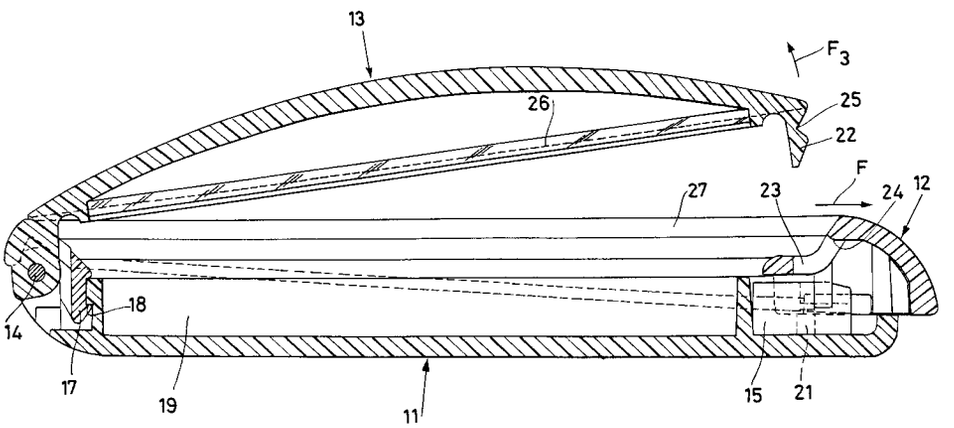

Fig.5

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This invention relates to a plastics container for containing miscellaneous products, such as cosmetics, beauty and parapharmaceutical products, of the type comprising a base and a lid hinged together and provided with a snap-closure system at a point diametrically opposite the hinging point.

Containers of this type can be opened by a presser element which, when pressed, disengages a tooth provided on the lid from a suitable seat provided in the base, so as to be able to open the lid and gain access to the contents.

The construction of closure systems of the aforesaid type is relatively costly in that to form the base presser element which cooperates with the lid retention tooth, complicated moulds are required together with additional components such as the presser element itself, which in addition is visible from the outside, sometimes to the detriment of overall appearance.

Alternatively, it is also known to open the container simply by disengaging the retention tooth from its seat by exerting sufficient separation force between the base and lid.

However such closure systems are uncertain in that the snap-engagement of the tooth in its seat must be such as to enable the container to be closed and then opened utilizing the elasticity of the material, without the application of excessive force by the user.

In addition such arrangements are not always aesthetic, requiring the presence of recesses and/or projections on the base and lid at which to apply the opening force by the fingers of the hand.

The general object of the present invention is to obviate the drawbacks of the known art by means of a container provided with a closure system which combines the operational reliability of those comprising a presser element for positively disengaging the retention tooth from its seat, with the structural simplicity of those provided simply with a retention tooth on the lid, to be snap-engaged in an undercut seat provided in the base.

A further object of the invention is to provide an invisible closure system, so as not to negatively influence the overall appearance of the container.

Said objects are attained by a container incorporating the characteristics defined in the accompanying claims. In the drawings, which are to an enlarged scale:

Figure 1 is a side elevation showing a container according to the invention in its closed state;

Figure 2 is an exploded view in longitudinal section showing the three constituent elements (base, intermediate ring, lid) of the container of the invention;

Figure 3 is a longitudinal section on the plane III-III of Figure 4, showing the container with the lid closed;

Figure 4 is a cross-section on the plane IV-IV of Figure 3;

Figure 5 is a longitudinal section similar to Figure 3, but showing the container with the lid open;

Figure 6 is a plan view of the inside of the base of the container (without its lid) in which the dashed and dotted line represents the intermediate ring coupled to the base, and shown in the rest state (lid closed);

Figure 7 is a view similar to Figure 6, but with the intermediate ring shown in the stressed state for opening the lid;

Figure 8 is a section on the plane VIII-VIII of Figure 6;

Figure 9 is a plan view of the inner side of the intermediate ring, which is in contact with the inside of the base; and

Figure 10 is a plan view of the outer side of the intermediate ring, on which the container lid closes.

With reference to the figures, the container of the invention is indicated overall by the reference numeral 10 and is formed structurally from a base 11, an elastically yieldable intermediate ring 12, and a lid 13 (Figure 2), all of plastics construction. In the illustrated embodiment the container 10 is of generally flat circular shape.

As can be clearly seen from Figures 3 and 4 of the drawings, the base 11 and ring 12 are stably coupled together by a snap connection but with the facility for mutual relative movement, as explained hereinafter, whereas the lid 13 is pivoted to the base 11 at 14.

The stable snap connection between the base 11 and the intermediate ring 12 is formed by pairs of elastically yieldable teeth 15, 16 provided on the facing inner sides of the base 11 and ring 12 respectively, in the region diametrically opposite the pin 14, and by a tooth 17 on the ring 12 which engages in an undercut 18 provided in a collar 19 of the base 11, in a position diametrically opposite the pairs of teeth 15, 16 (Figures 2 , 3 and 6-9).

With said pairs of teeth 15, 16 there cooperate retention and guide shoulders 20, 21 which ensure not only correct engagement between the teeth 15, 16 but also the facility for slight guided relative translational movement between them in the direction of the arrow F of Figures 5 and 6, as explained hereinafter.

The lid 13 is closed onto the ring 12 by snap-closure by means of a tooth 22 which is inserted into a seat or aperture 23 in the ring 12 to engage the profiled edge 24 of said seat 23 by means of a corresponding notch 25.

In the case, for example, of a container for cosmetics products, the lid 13 can be provided internally with a mirror 26.

According to the present invention, the lid 13 is opened by virtue of the elasticity and the facility for translational movement of the intermediate ring 12, by exerting a slight pressure with the fingers of one hand, preferably along the axis b-b in the opposite directions indicated by the arrows F2 in Figure 6, to cause the ring 12 to undergo a certain deformation (Figure 7) and hence a slight forward translational movement along the axis a-a in the direction of the arrow F in Figures 5 and 6. This releases the notch 25 of the tooth 22 from the profiled edge 24, to hence obtain an initial raising of the lid 13 by rotation about 14, in the direction of the arrow F3, due to the taper of the inner wall 27 of the ring 12, which for this purpose cooperates with the rounded perimetral edge 28 of the lid 13.

The completion of opening of the lid 13, for gaining access to the container interior, is effected manually by the user.

It should be noted that the container of the invention can be opened in an extremely simple and spontaneous manner by the user, who is able to grip and open the container with a single hand while retaining it in the palm, without having to change the grip on the container in order to use its contents when the lid is open.

The most favourable conditions for opening the lid 13 are those in which the user exerts a pressure in the opposing directions of the arrows F2 along an axis b-b perpendicular or substantially perpendicular to the axis a-a.

It should however be noted that, especially in the case of a container of generally circular shape, the lid 13 can also be automatically opened by exerting a pressure along an axis b-b oblique to the axis a-a.

The object stated in the introduction to the description is hence achieved, namely to provide a closure system which is extremely simple and economical, of reliable operation and of good appearance by being completely hidden from view.

The configuration and intended purpose of the container could obviously be different, without leaving the scope of protection of the invention.

Claims

1. A container for containing miscellaneous products, in which a base (11) and a lid (13) are hinged together and provided, at a point diametrically opposite the hinging point, with a snap-closure system consisting of a retention tooth (22) provided on the lid (13) for snap-engaging in a seat (23) provided in the base (11), characterised in that with said base (11) there is associated an elastically yieldable intermediate element (12) in which said seat (23) for the retention tooth (22) is provided, said element (12) being movable relative to the base (11) along a first axis a-a joining the hinging system to the snap-closure system, by applying two opposing forces to the element (12) along a second axis b-b intersecting the first axis a-a, resulting in release of the retention tooth (22) from its engagement with the seat (23).

2. A container as claimed in claim 1, characterised in that said element (12) comprises a conical inner wall (27) with which a rounded perimetral edge (28) of said lid (13) cooperates.

3. A container as claimed in claim 1, characterised in that between said base (11) and said element (12) there are provided snap-engagement means (17, 18) in correspondence with the hinging system, and snap-engagement means (15, 16) in correspondence with the seat (23), with said means (15, 16) there cooperating respective retention and guide shoulders (20, 21).

4. A container as claimed in claim 1, characterised in that said base (11), said intermediate element (12) and said lid (13) are generally of flat circular shape.

Fig.9

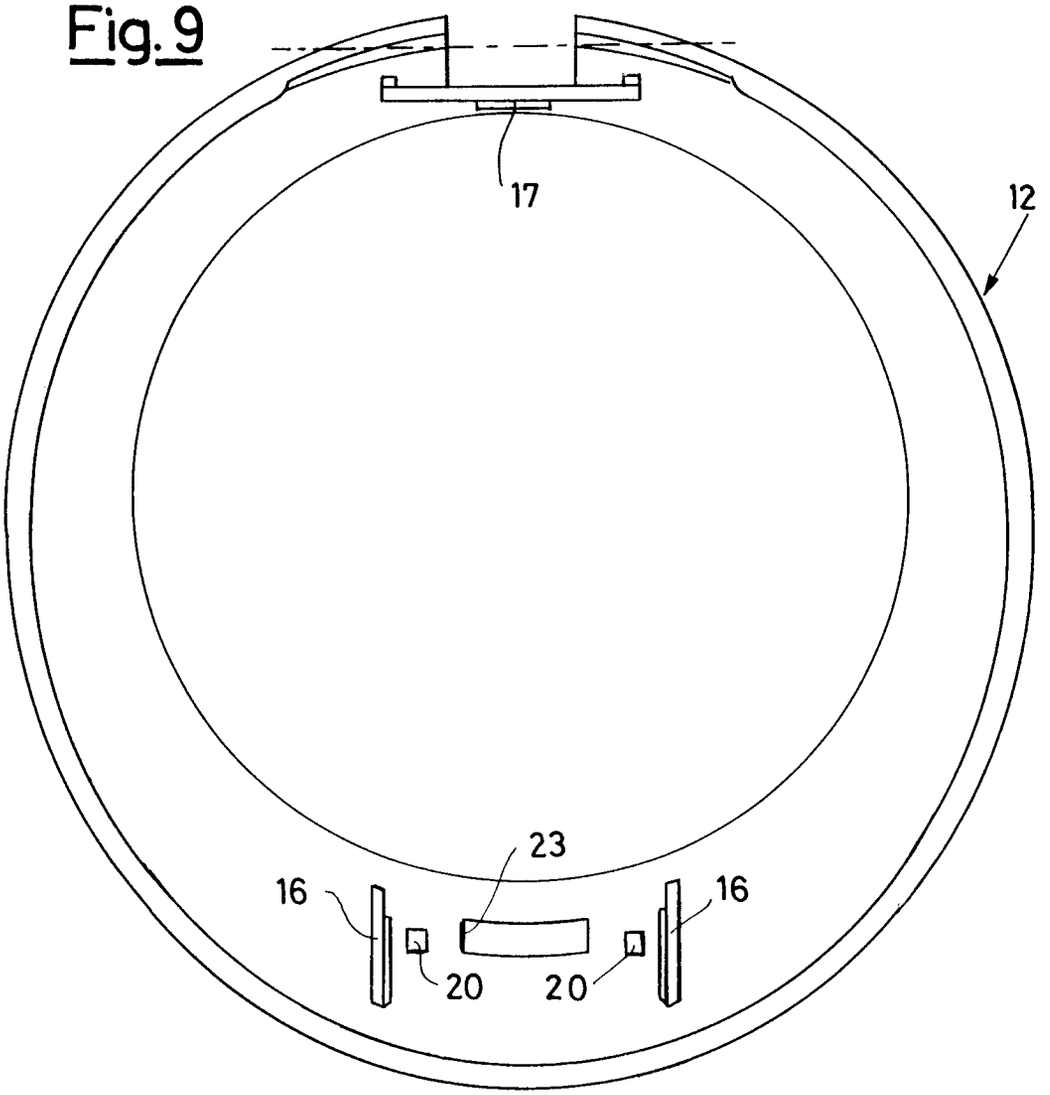
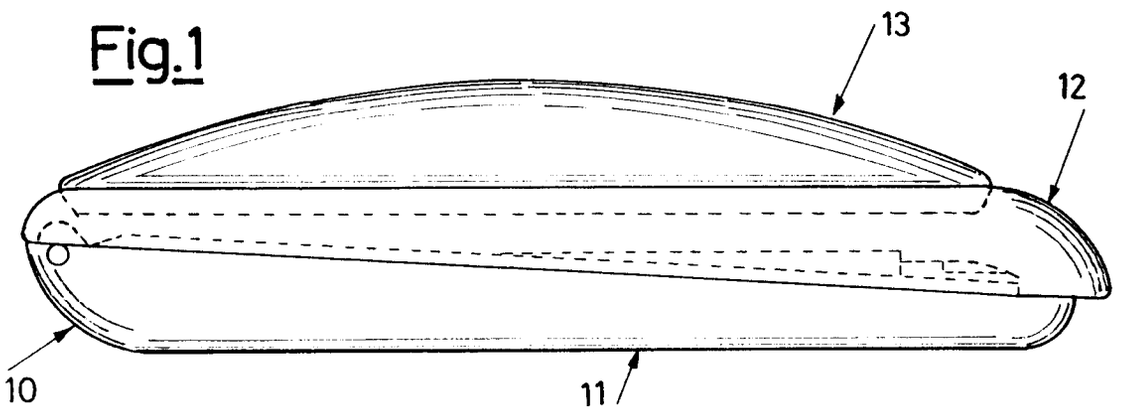


Fig.1



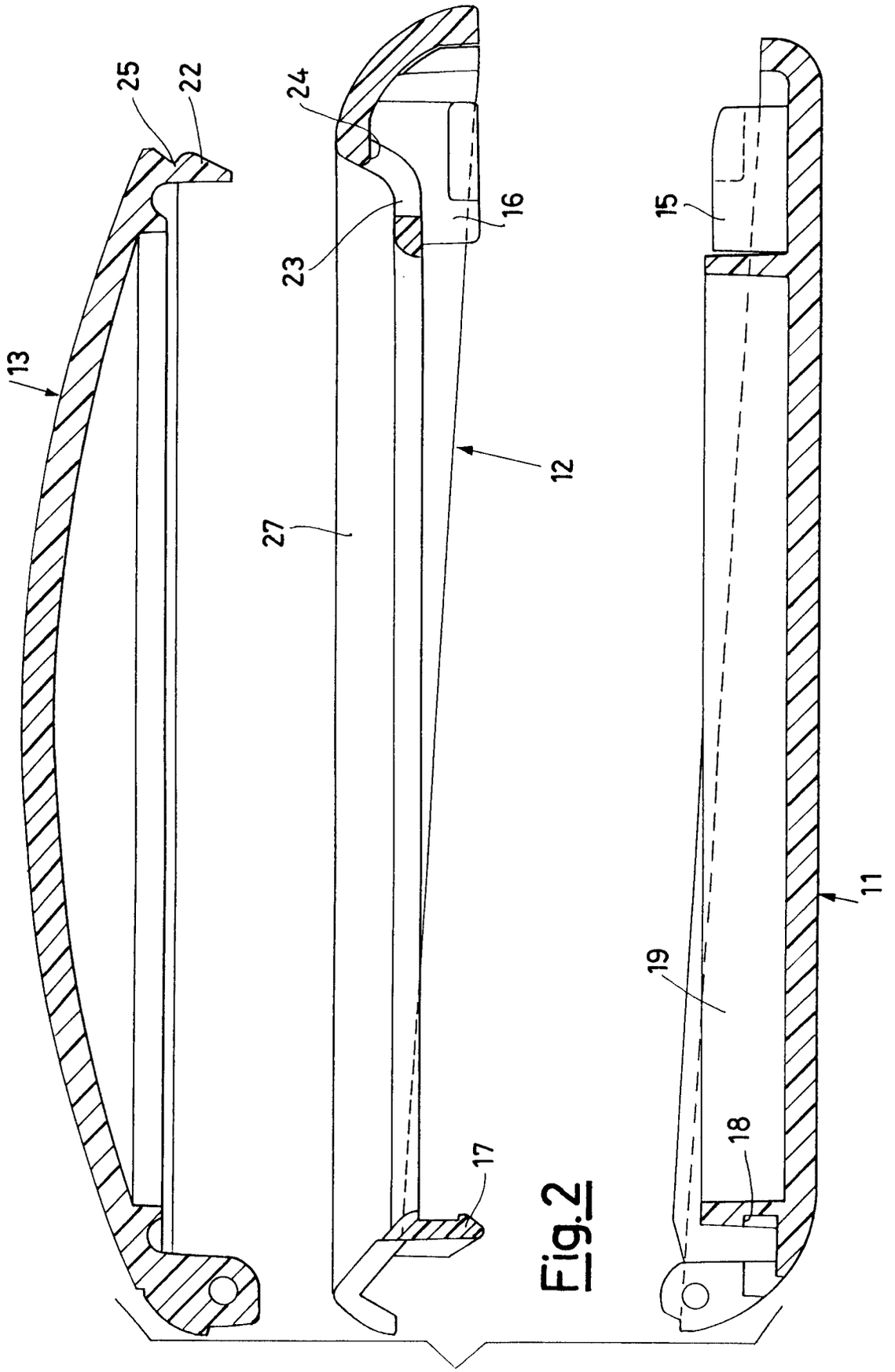


Fig.2

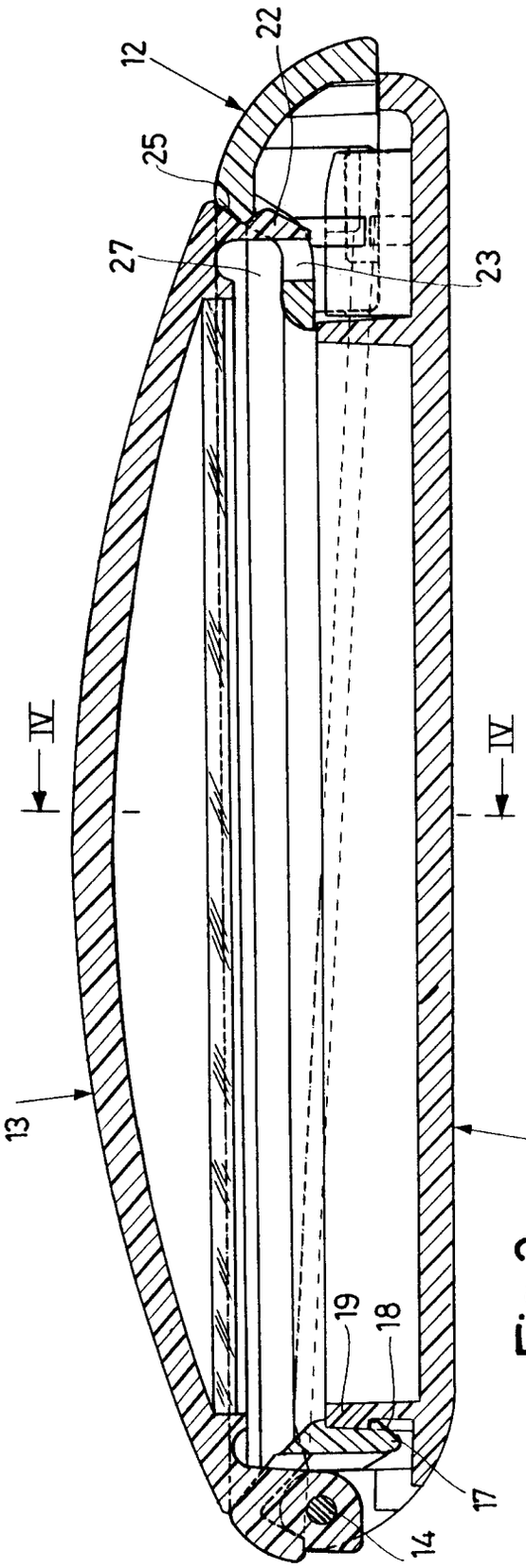


Fig.3

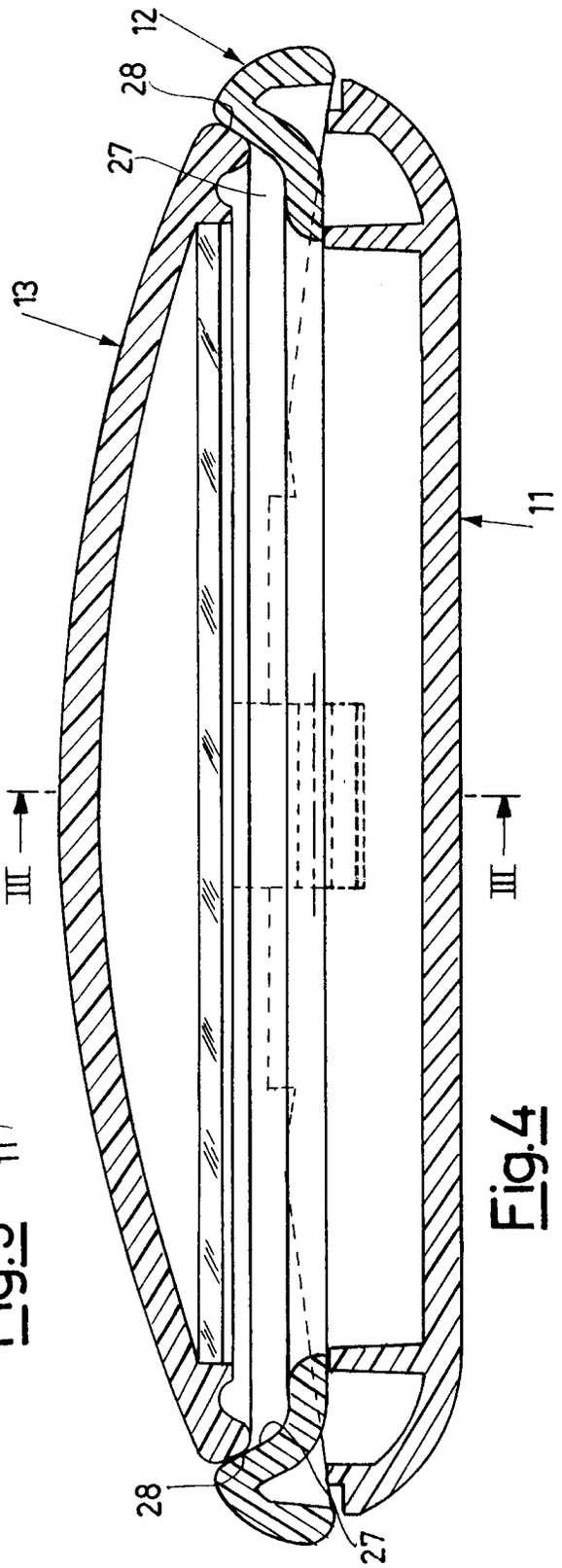


Fig.4

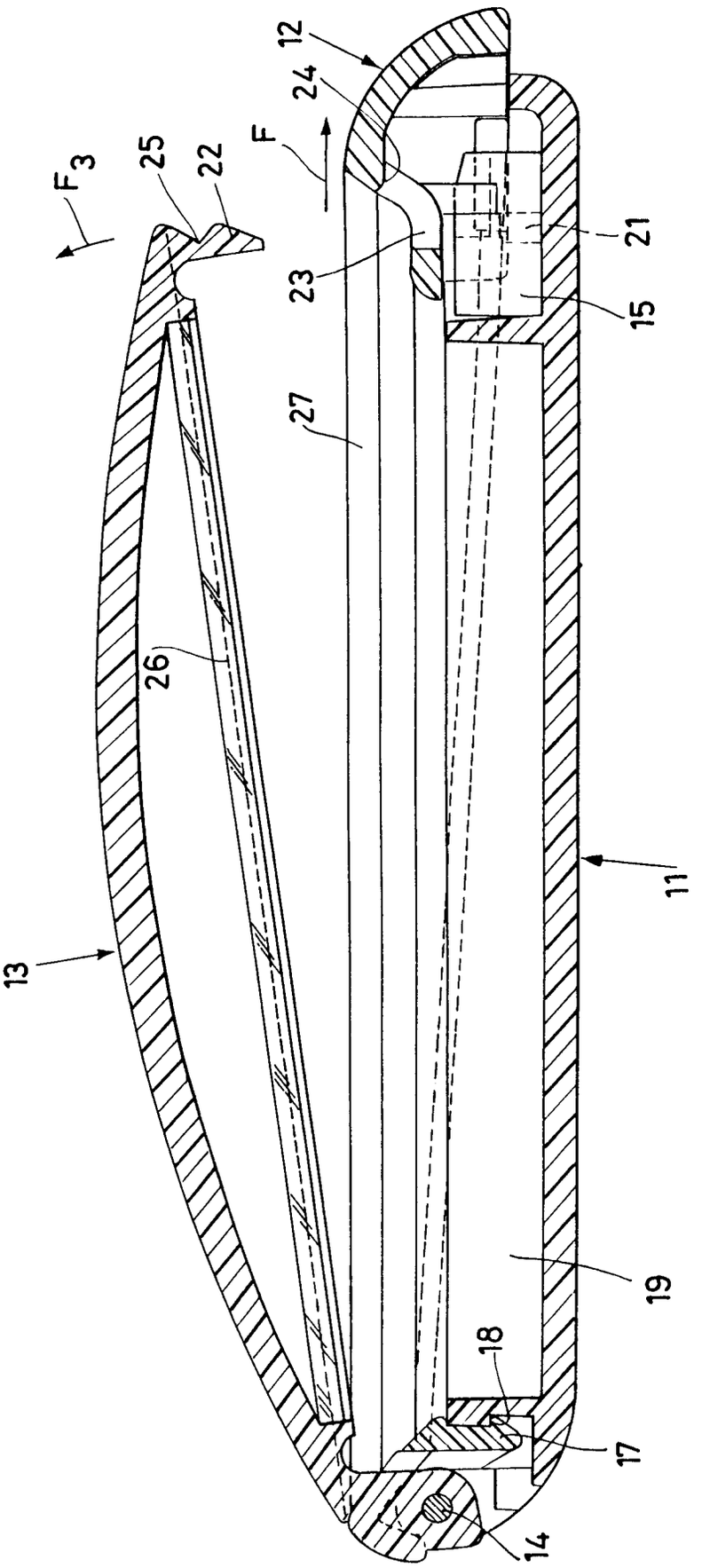


Fig.5

Fig.6

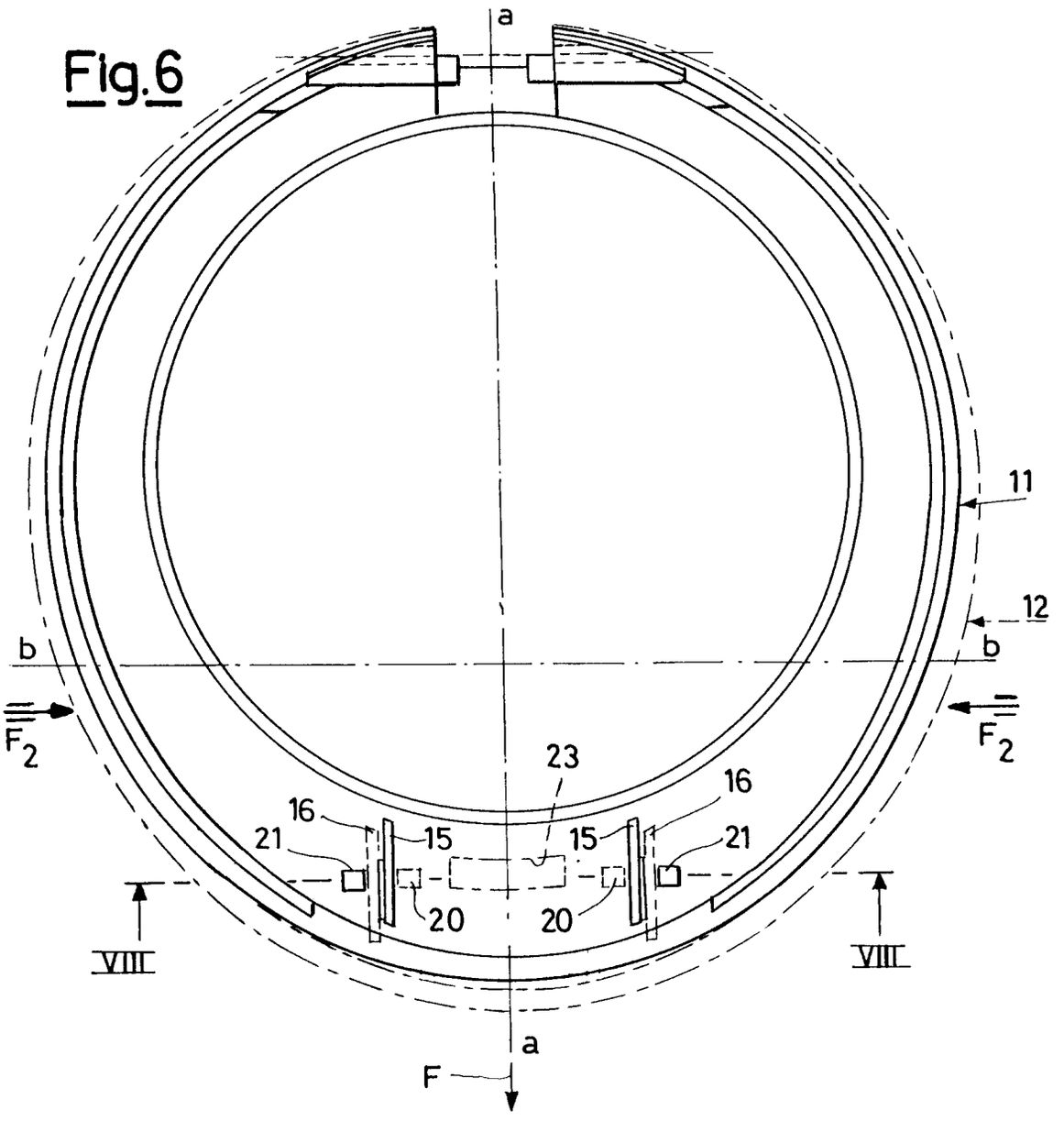
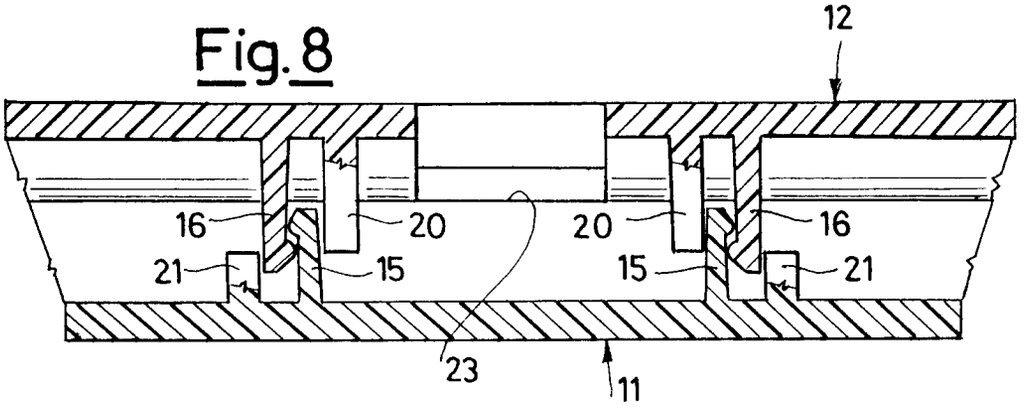

a
11
12
b
b
F2
F2
23
16
16
21
15
15
21
20
20
VIII
VIII
a
F

Fig.8


12
16
20
20
16
21
15
15
21
23
11

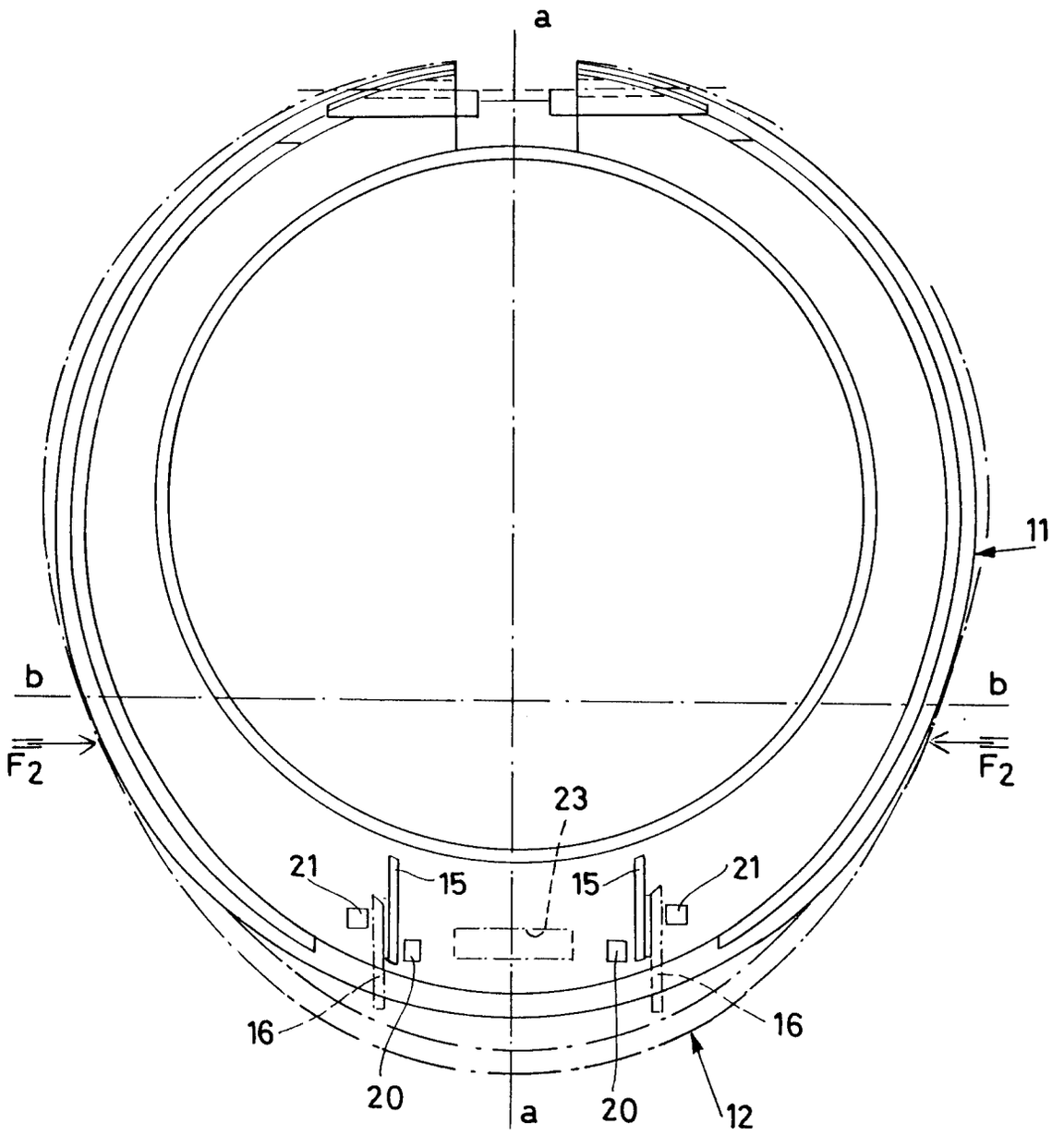


Fig.7

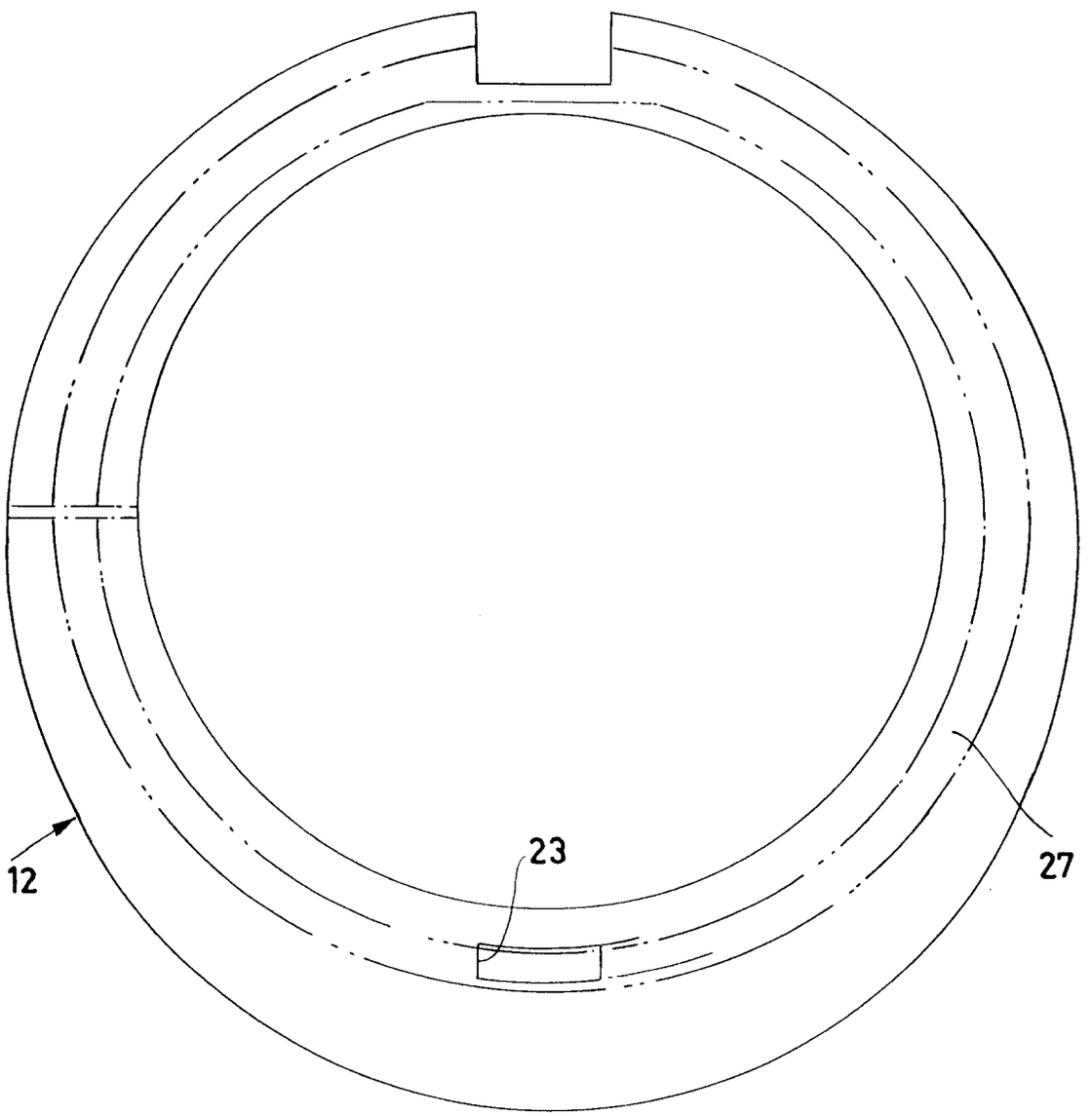


Fig.10

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 94 20 1782

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
X	GB-A-2 205 348 (TOLY PRODUCTS (UK)) * page 2, last paragraph - page 4, last paragraph; figures 1,2 *	1	A45D40/22 A45C13/10 B65D43/26 E05C19/06
A	DE-U-85 18 290 (SOCIETE DE MOULAGE DE TOURNUS) * page 4, line 27 - page 5, line 30; figures 1-9 *	1-4	E05B17/00
A	FR-A-2 279 634 (NOVA-HANDELS) * page 6, line 7 - page 8, line 3; figures 1-6 *	1	
A	EP-A-0 250 310 (MAYET) * figures 1-5 *	2,4	
A	US-A-4 483 355 (YUHARA)		

TECHNICAL FIELDS SEARCHED (Int.Cl.5)
A45D
A45C
B65D
E05C
E05B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	4 October 1994	Williams, M

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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