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CA 2262761 C 2004/08/10

(11)(21) 2 262 761

(12) BREVET CANADIEN
CANADIAN PATENT

(13) C

(86) Date de dépôt PCT/PCT Filing Date: 1997/05/29
(87) Date publication PCT/PCT Publication Date: 1997/12/11
(45) Date de délivrance/Issue Date: 2004/08/10
(85) Entrée phase nationale/National Entry: 1998/11/30
(86) N° demande PCT/PCT Application No.: EP 1997/002801
(87) N° publication PCT/PCT Publication No.: 1997/046455
(30) Priorité/Priority: 1996/06/01 (196 22 144.7) DE

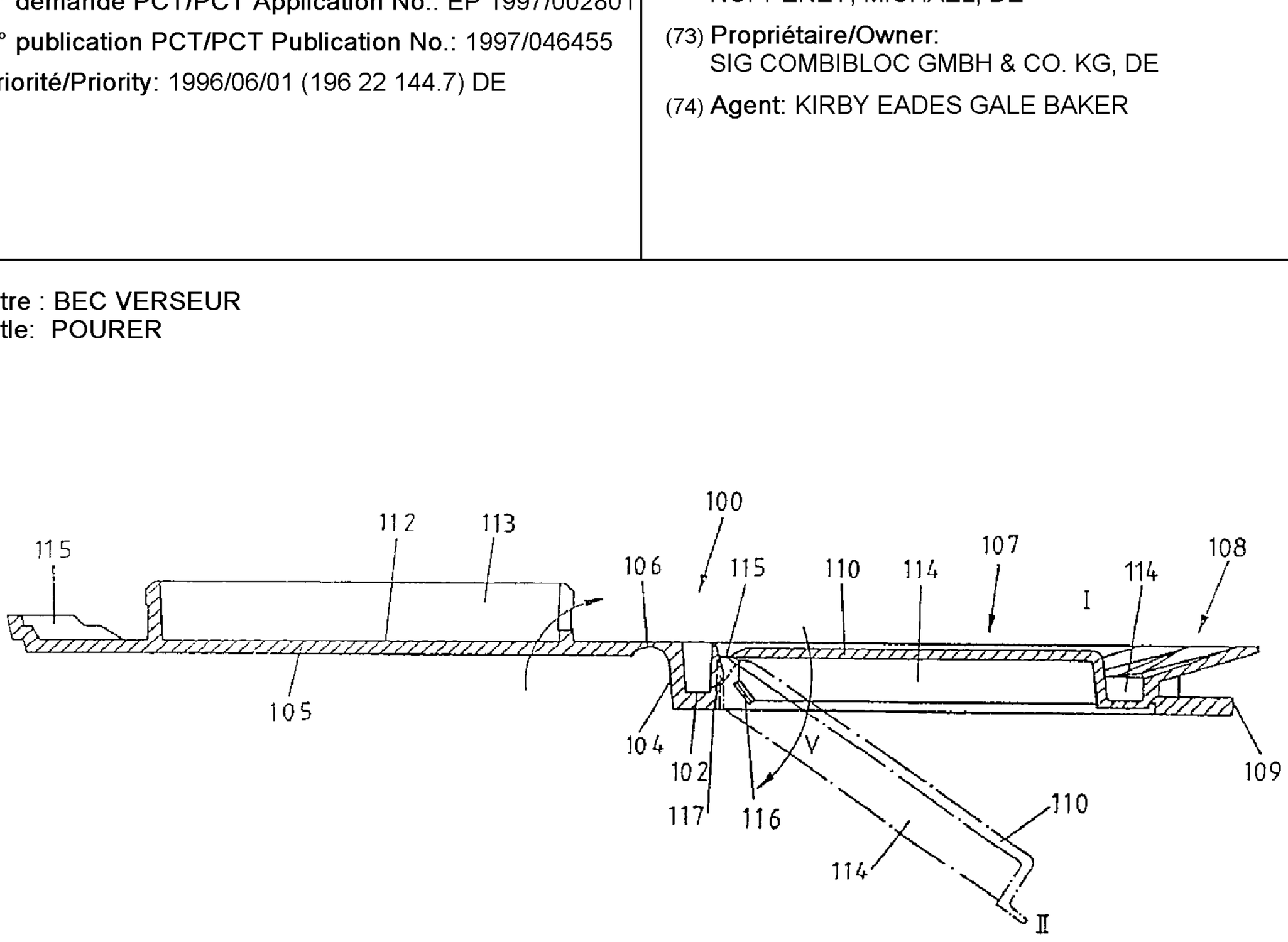
(51) Cl.Int.^{6}/Int.Cl.^{6} B65D 5/74, B65D 25/40

(72) Inventeurs/Inventors:
GABRIELLI, MARIO, DE;
MEHLER, CHRISTOPH, DE;
DAMMERS, MATTHIAS, DE;
NOPPENEY, MICHAEL, DE

(73) Propriétaire/Owner:
SIG COMBIBLOC GMBH & CO. KG, DE

(74) Agent: KIRBY EADES GALE BAKER

(54) Titre : BEC VERSEUR
(54) Title: POURER



(57) Abrégé/Abstract:
The invention relates to a pourer secured to a package, with a basic body (2) having a pouring aperture (7) covering a separable aperture area of the package forming a pouring hole after its separation, with a cover (7) pivoted on the basic body (2) by means of which the pouring aperture (7) can be closed, and with an opening means (10) by which the aperture area can be separated, when the opening means (10) can be pressed into the package by actuating the cover (5) via a component fitted on the cover (5), and where the support (16) is held in a position substantially parallel to the aperture area with the latter unseparated, in which the aperture area of the package can be hygienically separated while retaining simple handling and construction. This is achieved in that the component for operating the opening means (10) takes the form of a support (16), which is automatically raised into the pivoting path of the cover (5) after a securing means has been removed.

ABSTRACT

The invention relates to a pourer secured to a package, with a basic body (2) having a pouring aperture (7) covering a separable aperture area of the package forming a pouring hole after its separation, with a cover (7) pivoted on the basic body (2) by means of which the pouring aperture (7) can be closed, and with an opening means (10) by which the aperture area can be separated, when the opening means (10) can be pressed into the package by actuating the cover (5) via a component fitted on the cover (5), and where the support (16) is held in a position substantially parallel to the aperture area with the latter unseparated, in which the aperture area of the package can be hygienically separated while retaining simple handling and construction. This is achieved in that the component for operating the opening means (10) takes the form of a support (16), which is automatically raised into the pivoting path of the cover (5) after a securing means has been removed.

TH/pl 96173WO
15 June 1998

POURING ELEMENT

The invention relates to a pouring element which is attached to a packing, with a base-plate, which has a pouring aperture essentially congruent with a tearable opening surface of the packing which, once torn open, forms a pouring hole; with a lid, hingedly connected to the base-plate, with which the pouring aperture can be closed and with an opening-means - which in case of an untorn opening surface extends essentially above the pouring aperture - by which the opening surface can be torn, whereby the opening-means, by working the lid can be pushed into the packing by way of an element which props onto the lid, and whereby the opening means, with the opening surface untorn, is held in a position essentially aligned parallel to the opening surface.

Pouring elements of this type are used in packings for free-flowing materials, especially for packings for liquids in connection with cold, cold-sterile, hot and aseptic fillings. Such packings are frequently cuboid flat-gabled packings made from a composite material comprising a carrier layer of paper or cardboard, a bonding agent layer, a barrier layer, in particular made of aluminium, and a plastic layer on both sides.

A known pouring element described in the German published application DE 44 09 947 A1 comprises a base-plate able to be glued onto the packing to which base-plate a lid is hingedly arranged. On the side of the lid facing the top of the packing, there is a cutting device which during the first opening movement of the lid is hinged in the direction of the packing and tears open the opening surface. This known pouring element has the advantage of ease of use. One of its disadvantages is however that the known pouring element makes available only a relatively small pouring aperture. A further significant disadvantage results from the cutting device, which is

part of the lid, being swivelled anew into the packing with each opening of the pouring element. This is accompanied by the danger of the contents of the packing becoming contaminated with contaminants collecting at the free upper side of the lid.

A further pouring element of the type mentioned in the introduction is known from the British patent application GB 2 267 896 A. In this known pouring element, the opening-means is designed as a plate element hingedly connected with the rim of the pouring element. With the opening surface untorn, the plate element is arranged in the pouring aperture and rests on the opening surface. During storage of the unopened packing, the lid covers the pouring aperture, so that contamination of the pouring aperture, the opening element and the opening surface is safely avoided. In order to tear open the opening surface it is however necessary for the opening element to be pushed into the packing, with a finger of the hand applying pressure, in such a way that the opening element takes with it the respectively perforated opening surface. The pushing-in of the opening-means taking place in this way by direct skin contact, is accompanied by the danger that contamination adhering to the skin may enter the packing or may be lodged in the area of the pouring aperture and thus contaminate the contents of the packing during pouring.

From WO 90/14280 a further pouring element is known in which the opening-means can be pushed into the packing by working the lid by way of an element rigidly arranged on the lid. This known pouring element is disadvantageous in regard to its function and its hygiene. Because the element for pushing in the opening aperture, which is rigidly hinged to the lid, is unprotected during transport and storage, contamination results, in particular due to the complicated geometric shape, so that contamination of the contents of the packing during

the opening process cannot be ruled out. While direct contact by a finger of the person opening the packing with the content of the packing is avoided, nevertheless, contamination of the contents of the packing cannot be ruled out. In addition, this known pouring element has the disadvantage that during the opening process the element rigidly connected to the lid is hinged through almost 180°. This means that the composite part of the packing at the opening surface must also be bent by 180°. This results in restoring forces which can lead to separation of the pouring element glued onto the packing.

It is the object of the invention to improve the pouring element of the type mentioned in the introduction and described in more detail above in such a way that a simple handling and the construction of a hygienically impeccable tearing of the opening surface of the packing is enabled.

According to the invention, this object is achieved in that the element for working the opening-means is a support element which, after the first opening of the lid, automatically raises itself into the hinge-path of the lid.

The invention provides for the opening-means to be moved by a support element which after removal of the retaining-means raises itself automatically. In this, coupling with the lid only occurs when the lid is moved to its closed position. To this effect neither the opening-means nor the support element need to be touched, so that with a simple construction and by simple handling, hygienically impeccable opening of the packing is possible.

According to a first advantageous embodiment of the invention, the opening-means, with the opening surface untorn, is arranged in the pouring aperture and hingedly

connected to the base-plate. As a supplement, it is advantageous if the support element is attached to the opening-means and is retained in a pre-tensioned position by the lid. In a pouring element designed in such a way, during storage of the unopened packing, the pouring aperture is closed by the lid. At the same time this lid keeps the support element in a position almost parallel to the surface of the packing between the opening-means and the lid. As soon as the lid is hinged into its open position, the support element raises itself automatically. Subsequently the lid is hinged in direction of its closed position and, during this process, meets the support element which stands off from the opening element, so that with continued hinging movement, the opening element is taken along and tears open the opening surface of the packing. After tearing, the opening element remains in its **[terminal position]**, protruding into the packing.

Unhindered pouring of the medium contained in the packing can be ensured by the support element comprising at least one retaining device which, during insertion of the support element into the pouring hole opened by the opening-means, automatically hinges to the support element and which, once the opening-means is completely pushed into the pouring hole, automatically spreads apart in such a way that its free end is supported at the interior of the packing, and the support element and with it the opening-means, are retained in the position completely pushed into the packing.

Alternatively or in addition, any obstruction to pouring by the opening-means after the packing has been opened

can also be avoided by providing the opening-means with a catch element, by means of which it can be held in a position completely pushed into the packing.

The operation of a pouring element according to the invention can easily be simplified in that the surface of the lid facing the opening-means comprises a limit stop for the support element. This limit stop can for example be formed by a rim circumferential to the edge of the lid, which seals the pouring aperture in its closed position.

From the point of view of production it is favourable if the support element is connected to the opening-means in one piece.

According to a second embodiment of the invention, the support element is attached to the lid. In this case, the support element is carried by the lid and with unopened packing and closed lid until the first opening occurs, it is arranged between the lid and the opening-means or the packing respectively. When the lid is opened, the support element raises itself until it stands off from the lid and with renewed hinging of the lid in the direction of its closed position, is guided into the pouring aperture. In case the opening-means, as explained above in respect of the first embodiment, is arranged in the pouring aperture, the support element, in the course of this hinging movement, meets the opening-means so that with continuing closing movement, the opening-means is moved into the packing thus tearing the opening surface. It remains in this position while the support element is moved out of the packing again when the lid is opened.

In an advantageous development of the second embodiment option, the opening-means is formed onto the free end of the support element. A pouring element designed in this way ensures, even under unfavourable conditions, that

during a closing movement of the lid, the opening-means for tearing the opening surface is guided into the pouring aperture by way of the support element. This is the case in particular if the opening-means is designed in the shape of an arrowhead. With a view to low production costs it is favourable in this context too, to link the support element with the lid in one part.

After tearing the opening surface, any interference by the support means during pouring of the contents of the packing can be avoided by the support element being able to be snapped onto the lid. In this embodiment of the pouring element, the support element, having been used for tearing open the opening surface, can be hinged into the lower side of the lid, facing the pouring aperture, and in this non-interfering position it can be snapped on. Alternatively or additionally, the connection between the lid and the support element can also be designed in such a way that the support element is detachable from the lid. Both measures additionally avoid the possibility of dirt collecting at the support element and entering the packing.

Preferably the support element is bar-shaped. By means of such a support element, the pressure forces, applied to the lid, required for tearing open the packing, can be safely transmitted to the opening-means.

Below, the invention is shown in more detail by means of a drawing showing one exemplary embodiment. The following are shown:

Fig. 1 a pouring element in the open position, in lateral view;

Fig. 2 the pouring element according to Fig. 1, in top view;

Fig. 3 a further pouring element in the open position, in lateral view;

Fig. 4 the pouring element according to Fig. 3, in top view;

Fig. 5 a support element used with the pouring element according to Figs. 3 and 4, in frontal view;

Fig. 6 a third embodiment of a pouring element, in lateral view;

Fig. 7 an unopened packing provided with a fourth embodiment of a pouring element, in a partial longitudinal section;

Fig. 8 the unopened packing according to Fig. 7 with the pouring element open, in a view corresponding to that of Fig. 7;

Fig. 9 the packing according to Figs. 7, 8 with opened pouring hole but closed pouring element in a view corresponding to that of Figs. 8, 9;

Fig. 10 the packing according to Fig. 9 in a partial sectional view.

The pouring elements 1, 50, 100, 150 shown in the Figs. and made from plastic material all comprise a base-plate 2, 52, 102, 152 with an essentially rectangular base-plate surface. On one of the shorter sides 4, 54, 104, 154 of the base-plate 2, 52, 102, 152, in each instance a lid 5, 55, 105, 155 formed in one piece, is connected. In this, in the connecting zone between the base-plate 2, 52, 102, 152 and the lid 5, 55, 105, 155 there is a film-hinge 6, 56, 106, 156 which enables hinging of the lid 5, 55, 105, 155 from the open position shown in Figs. 1, 2,

6, 8, to a closed position in which the lid 5, 55, 105, 155 rests against the base-plate 2, 52, 102, 152.

A pouring aperture 7, 57, 107, 157 comprising a pouring spout 8, 58, 108, 158 is formed into the base-plate 2, 52, 102, 152. The mouth of the pouring spout 8, 58, 108, 158 is located at the short side 9, 59, 109 of the base-plate 2, 52, 102, 152 opposite the film-hinge 6, 56, 106, 156.

The lid 5, 55, 105, 155, at its lower side 12, 62, 112, 162, facing the pouring aperture 7, 57, 107, 157, comprises a rim 13, 63, 113, 163 whose layout and dimensions are selected in such a way that with the lid 5, 55, 105, 155 closed, it rests flush against the edge 14, 64, 164 of the pouring aperture 7, 57, 107, 157. In addition a catch 15, 65, 115, 165 is formed to the free short side of the lid 5, 55, 105. With the lid 5, 55, 105, 155 closed, the said catch 15, 65, 115, 165 encompasses the pouring spout 8, 58, 108, 158 and in this way prevents any unintentional opening of the pouring element 1, 50, 100, 150.

Figs. 1 to 5 show the state of the pouring elements 1, 50, 105 after the first opening of the lid 5, 55, 105 with the opening surface (not shown) still untorn.

With the pouring element 1 shown in Figs. 1, 2 in this state, an opening-means 10, connected in one piece by way of a further film-hinge 11 to the base-plate 2, extends within the pouring aperture 7. In this, the opening-means 10, designed in the way of a pressure plate, comprises a cutting device 18 facing the opening surface (not shown). In the area of the frontal edge of the opening-means 10, facing the pouring spout 8, a bar-shaped support element 16 formed in one piece is connected to the opening-means 10. In this, the connecting zone between the support

element 16 and the opening-means 10 is also shaped in the way of a film-hinge 17.

In the stored condition in which the lid 5 closes the pouring aperture 7 with the pouring spout 8, the support element 16 is hinged in a position resting against the top of the opening-means 10 facing the lid 5. In this position it is essentially aligned parallel to the opening surface (not shown). In this, the forces created by deforming the film-hinge 17 apply a restoring force R, acting around its axis, on the support element 16. This restoring force R results in the support element 16 moving automatically into the raised position shown in Figs. 1, 2, once the lid 5 for opening the pouring aperture 7 has been hinged away. In this position it is aligned almost perpendicularly to the upper side of the opening-means 10.

During subsequent hinging towards a closed position of the lid 5, the free end 19 of the support element 16 reaches into the space delineated by the rim 13 and glides along the lower side 12 of the lid 5 until it comes to rest against the interior side 20 of the rim 13. With continued closing movement of the lid 5, subsequently the opening-means 10, by tearing the opening surface (not shown), is moved into the packing (also not shown), until the lid 5 rests tightly against the base-plate 2. If subsequently the lid 5 is opened again, the opening-means 10, and with it the support element 16, remain in their last-assumed positions, protruding into the packing, whereby the support element 16, due to the elastic forces in the area of the film-hinge 17 springs further into the packing, so that it does not impede pouring of the liquid contained in the packing.

With the pouring element 50 shown in Figs. 3, 4, 5, in contrast to the previously described pouring element 1 as shown in Figs. 1, 2, the support element 66 is shaped as

a whole in the manner of an arrowhead. With its widened section, it is connected, formed in one piece, to the lower side 62 of the lid 55 in a section of the surface facing the free, short side of the surface, which is delineated by the rim 63. In this, the connecting zone again comprises a film-hinge 67, so that the support element 66 can be hinged into the space delineated by the rim 63.

At the free end of the support element 66, by way of a thickening, an opening-means 60 is formed which comprises a cutting device 70 extending along the length of the lid 55. In the storage-state of the packing, with the opening surface of the packing untorn, in which state the pouring element 50 is closed off by the lid 55, the support element 66 with the opening-means 60 are in a position hinged to the lid 55, between the lid 55 and the opening surface (not shown). As soon as the lid 55 is opened for the first time, the support element 66 and with it the opening-means 60 automatically hinge away from the lower side 62 of the lid 55 until they reach a position, as shown in Figs. 3, 4, where it is positioned at an angle of nearly 90° to the lid 55. Subsequently, the lid 55 is moved again in the direction of its closed position, whereby the opening-means 60 is guided into the pouring aperture 57 of the pouring element 55. As soon as the opening surface (not shown) of the packing is reached, it is torn by the opening-means 60, whereby the arrow-shaped design of the support means 66 and the opening-means 60 ensure the greatest possible widening of the opening surface. After renewed opening of the lid 55, the support means 66 with the opening-means 60 can be hinged to the lower side of the lid 55 and snapped into place in that position, so that during further use, pouring of the contents of the packing, for example a liquid, is not impeded.

For reasons of simplification, the support element is not shown in the exemplary embodiment represented in Fig. 6. Instead, Fig. 6 shows two hinged positions, I and II, of an opening-means 110. The opening-means 110 is shaped as a lid element, with a cutting ridge 114 being formed to its lower side. In hinging position I, in which the pouring aperture of the packing is still unopened, the upper side of the opening-means 110 is aligned almost flush to the upper edge of the pouring aperture 107.

The opening-means 110 is hingedly connected to the base-plate 102 of the pouring element 100 by way of a film-hinge 115 in such a way that during hinging movement V it hinges into the packing (not shown) by tearing the pouring aperture (not shown). In its terminal position II hinged into the packing, the opening-means 110 is held by catches 116 formed at the end of the cutting ridge 114 facing the short side 104; with the catches 116 in this state being retained by catching protrusions 117 provided accordingly at the interior edge of the pouring aperture 107.

With the exemplary embodiment shown in Figs. 7 - 10, the pouring aperture 170 of the packing 171, in the unopened storage state, is closed by a perforated section of the composite packing material. At the same time the lid 155 rests against the base-plate 152 and closes off the pouring aperture 157 of the pouring element 150.

A bar-shaped support element 173 is connected, by way of a film-hinge 175, to the frontal, free end of the opening-means 174 facing the pouring spout 158. The opening-means 174 is shaped in the manner of a cover element and at its lower side facing the packing 171 is provided with a cutting ridge 177. The opening-means 174 is hingedly connected to the base-plate 152 by way of a further film-hinge 178. The support element 173 comprises laterally-protruding, flexible branches 180, which, in

the manner of barbs radiating from the centre of the support element 173, point towards the free end of the support element 173.

In the closed state as shown in Fig. 7, the lid 155 closing the pouring aperture 157 serves as a holding-down device for the support element 173 which rests against the upper side of the opening-means 174. When the lid 155 is opened, the support element 173, as a result of the elastic restoring force effective in the film-hinge 175, automatically hinges into the position as shown in Fig. 8 whereby the edge 163 of the lid 155 forms a limit stop against which the free end of the support element 173 rests.

Subsequently, the lid 155 is moved back into its closed position again. In this, by way of the support element 173 the lid takes along the opening-means 174 and pushes it into the packing 171 by tearing the composite material section which closes off the pouring aperture 170. Because the lateral edges of the pouring aperture 170 facing each other are spaced apart a lesser distance than the distance of the free ends of the branches 180 in their non-spread-out stage, when the support element 173 is hinged into the pouring aperture 170, the branches 180 are automatically hinged to the support element 173 through the edge of the pouring aperture 170. As soon as the free ends of the branches 180 have passed the edge of the pouring aperture 170, they automatically spread apart due to their intrinsic elasticity, so that the branches 180 lock the support element 173 in its position hinged into the packing (Fig. 10).

CLAIMS

1. A pouring element attached to a packing, with a base-plate, which has a pouring aperture essentially congruent with a tearable opening surface of the packing which, once torn open, forms a pouring hole; with a lid, hingedly connected to the base-plate, with which the pouring aperture can be closed and with an opening-means by which the opening surface can be torn, whereby the opening-means, by operating the lid can be pushed into the packing by way of an element which props onto the lid and whereby the opening-means, with the opening surface untorn, is held in a position essentially aligned parallel to the opening surface, characterised in that the element for operating the opening-means, comprises a support element which, after the first opening of the lid automatically raises itself into the hinging path of the lid, and wherein the opening-means with the opening surface untorn, is arranged in the pouring aperture and hingedly connected to the base-plate.

2. A pouring element according to claim 1, characterised in that the support element is attached to the opening-means and held by the lid in a pre-tensioned position when the lid is closing the pouring aperture.

3. A pouring element according to claim 2, characterised in that the support element comprises at least one retaining device which, during insertion of the support element into the pouring hole opened by the opening-means, automatically hinges to the support element and which, once the opening-means is completely pushed into the pouring hole, automatically spreads apart in such a

way that its free end is supported at the interior of the packing, and the support element and with it the opening-means are retained in the position completely pushed into the packing.

4. A pouring element according to any one of claims 1 to 3, characterised in that the opening-means is provided with a catch element by means of which it can be held in its position, completely pushed into the packing.

5. A pouring element according to any one of claims 1 to 4, characterised in that the surface of the lid facing the opening-means comprises a limit stop for the support element.

6. A pouring element according to claim 5, characterised in that the limit stop is formed by a rim which seals the pouring aperture in its closed position.

7. A pouring element according to any one of claims 1 to 6, characterised in that the support element is connected to the opening-means in one piece.

8. A pouring element attached to a packing, with a base-plate, which has a pouring aperture essentially congruent with a tearable opening surface of the packing which, once torn open, forms a pouring hole; with a lid, hingedly connected to the base-plate, with which the pouring aperture can be closed and with an opening-means by which the opening surface can be torn, whereby the opening-means, by operating the lid can be pushed into the packing by way of an element which props onto the lid and whereby the opening-means, with the opening

surface untorn, is held in a position essentially aligned parallel to the opening surface, characterised in that the element for operating the opening-means comprises a support element that is attached to the lid.

9. A pouring element according to claim 8, characterised in that the opening-means is formed onto the free end of the support element.

10. A pouring element according to claim 8 or 9, characterised in that the support element is connected to the lid in one piece.

11. A pouring element according to any one of claims 8 to 10, characterised in that the support element is able to be snapped onto the lid.

12. A pouring element according to any one of claims 1 to 11, characterised in that the opening-means is shaped in the manner of an arrowhead.

13. A pouring element according to any one of claims 1 to 12, characterised in that the support element is bar-shaped.

14. A pouring element according to any one of claims 1 to 13, characterised in that the packing is a cuboid flat-gabled packing made from a composite material comprising a carrier layer of paper or cardboard, a bonding agent layer, a barrier layer, in particular made of aluminium, and a plastic layer on both sides.

Fig.1

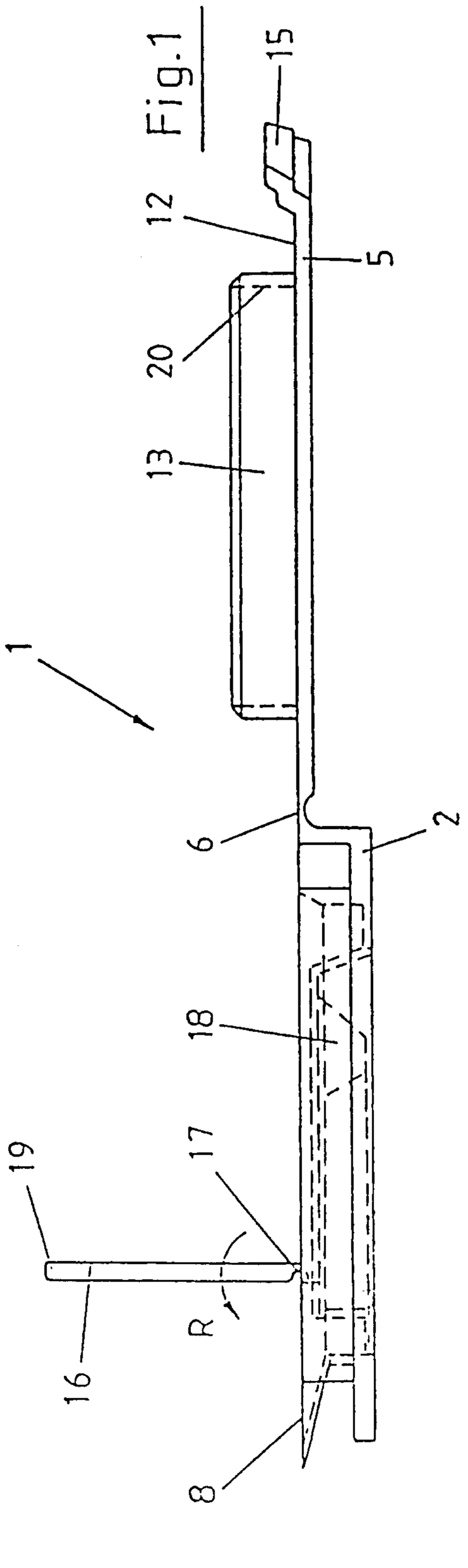
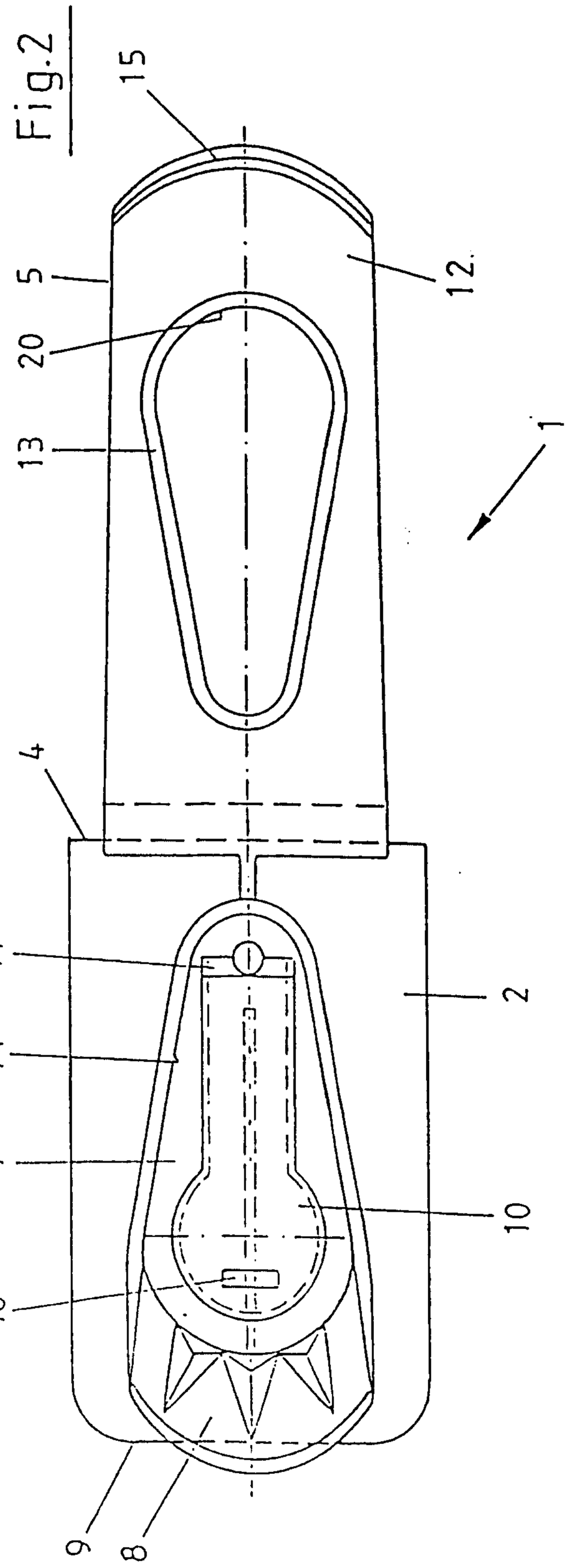


Fig.2



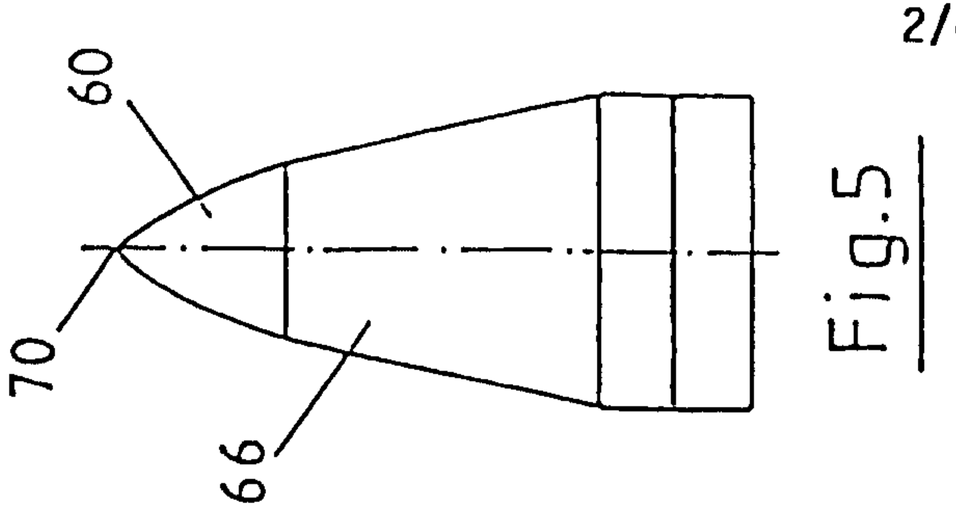


Fig.5

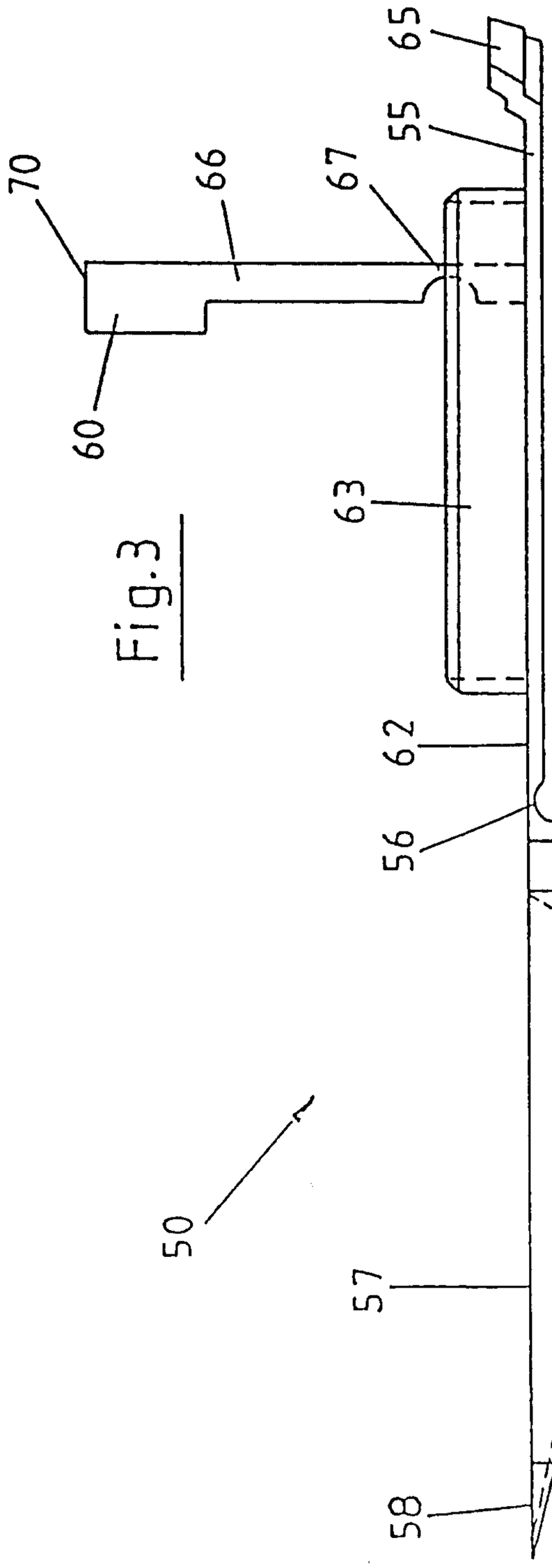


Fig.3

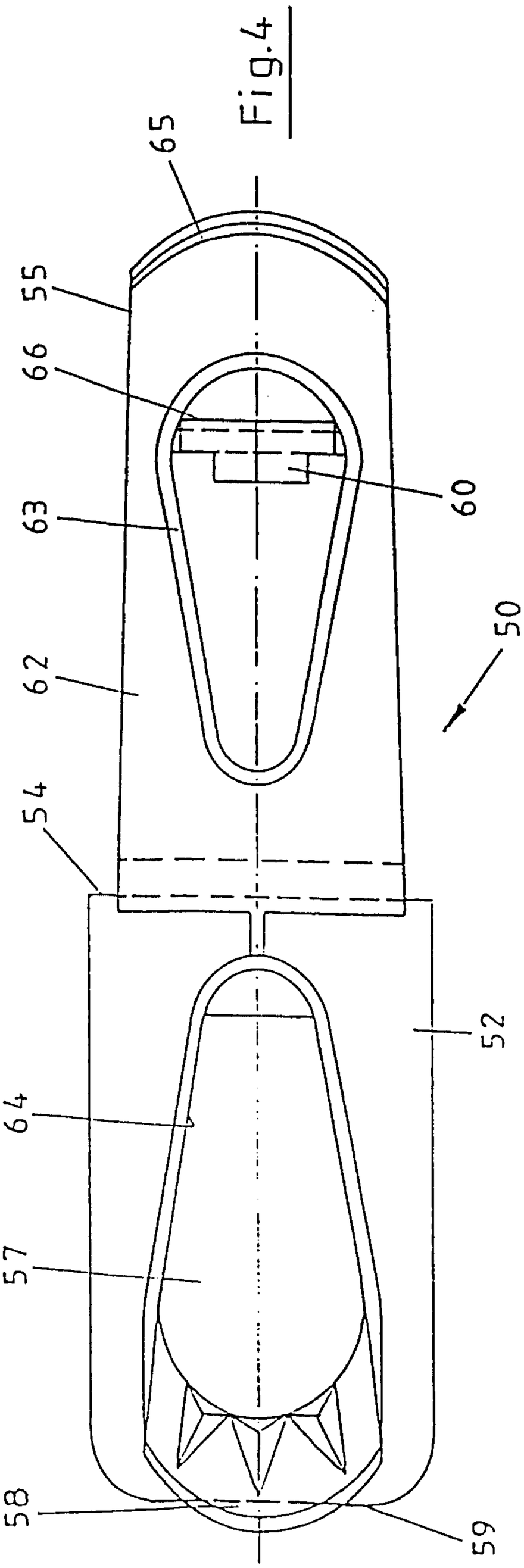
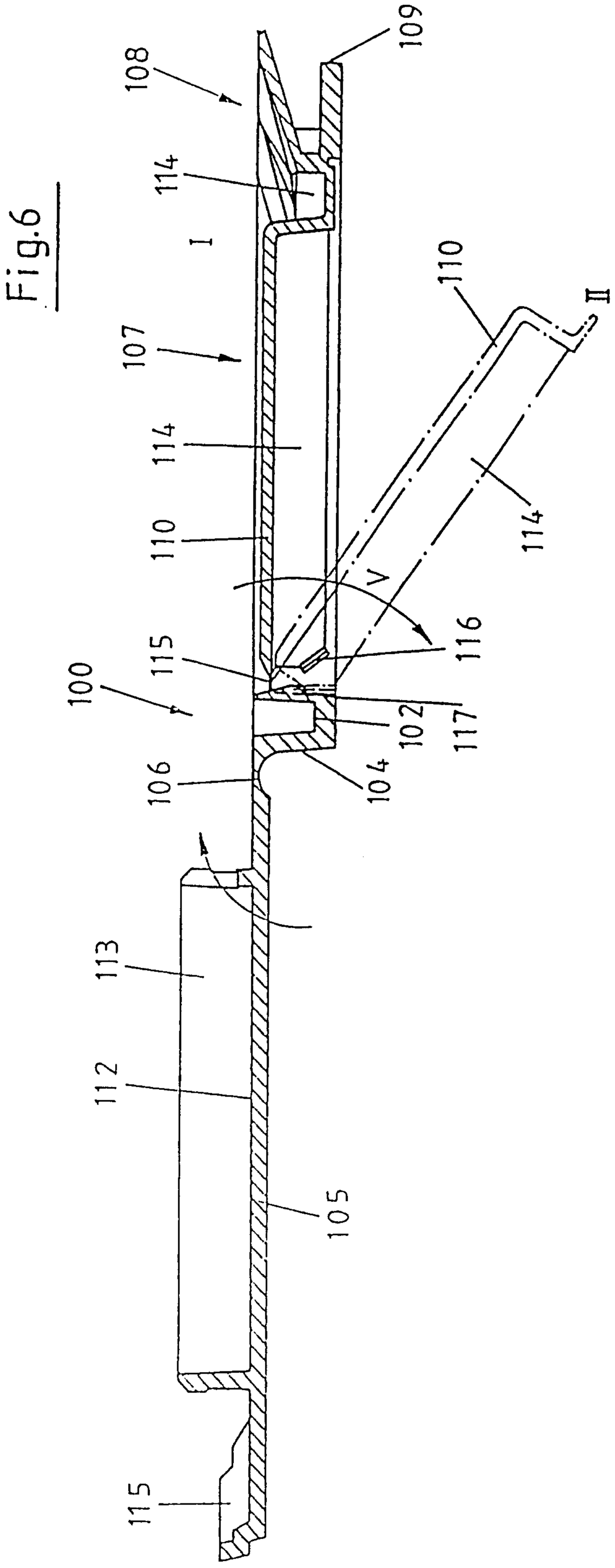


Fig.4

Fig.6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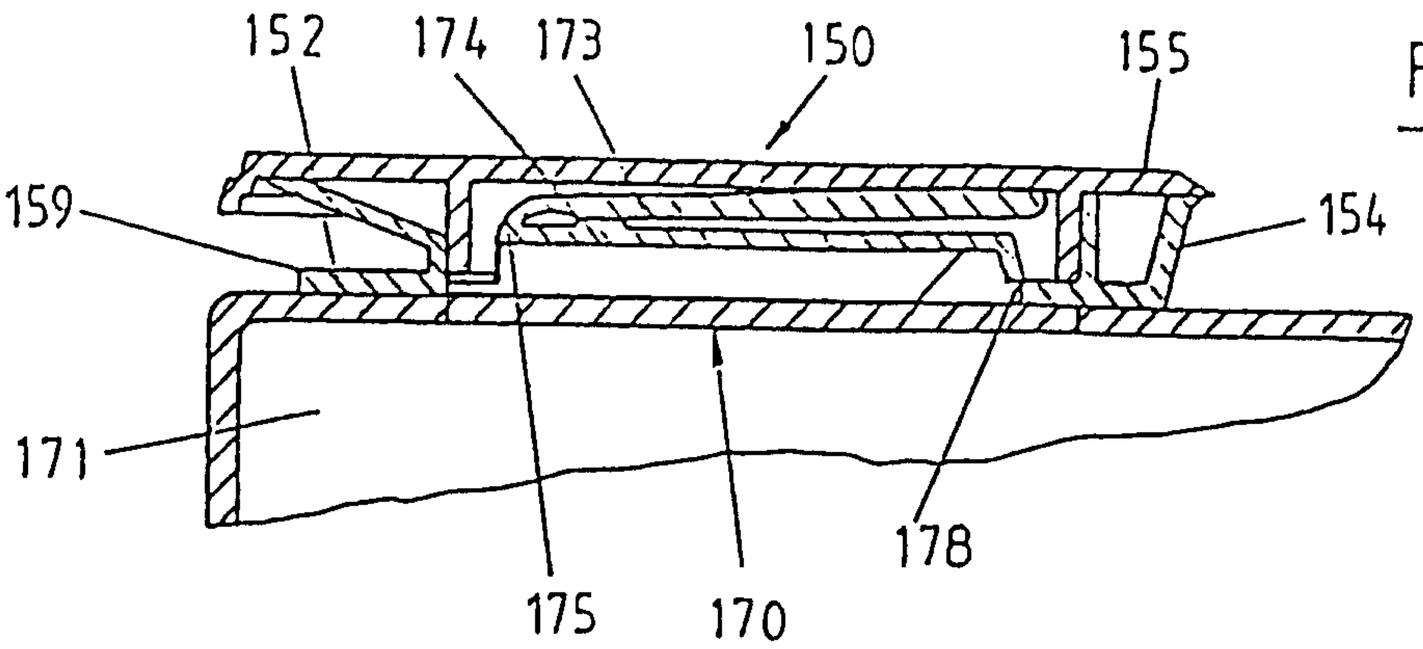


Fig.7

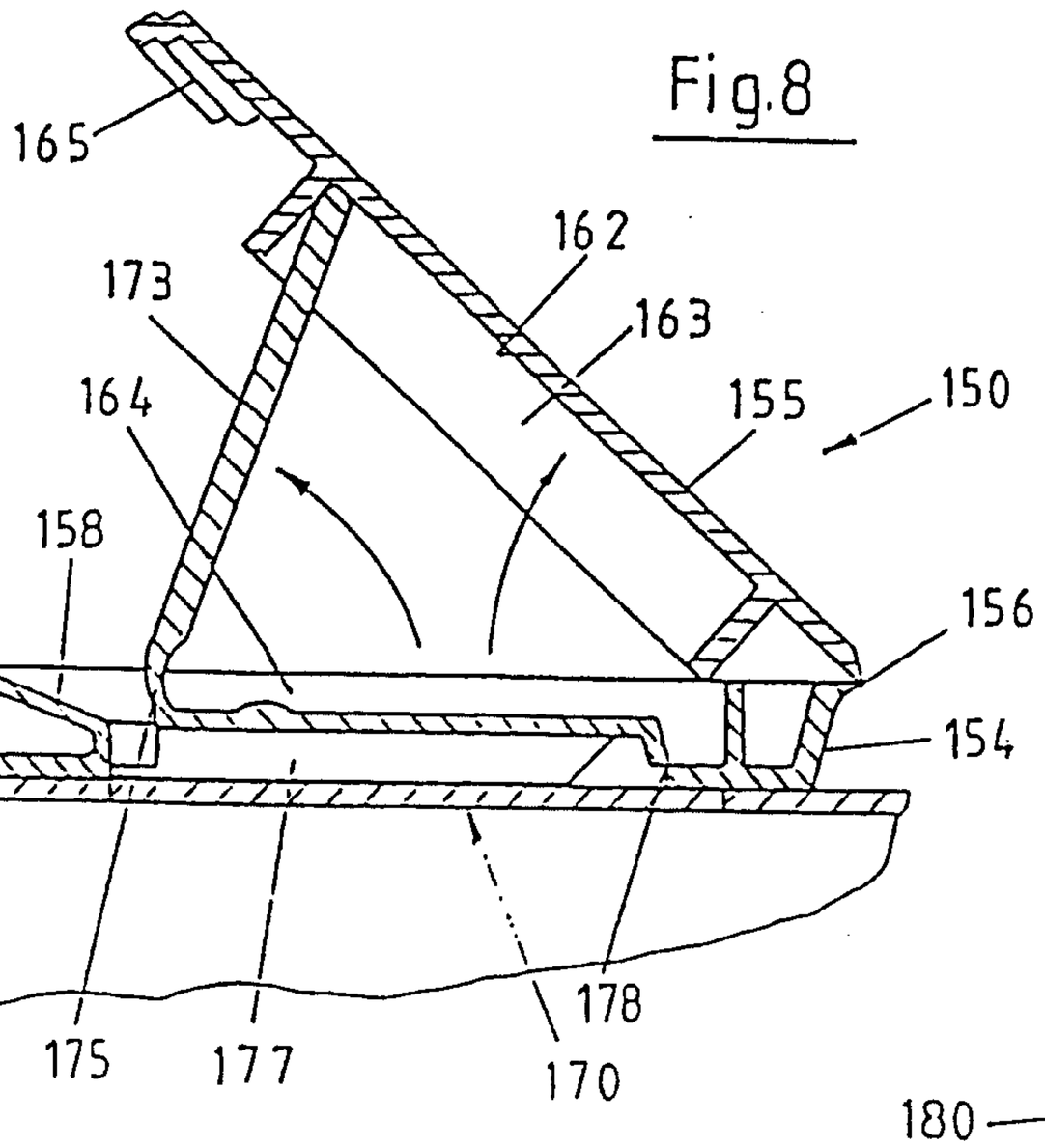


Fig.8

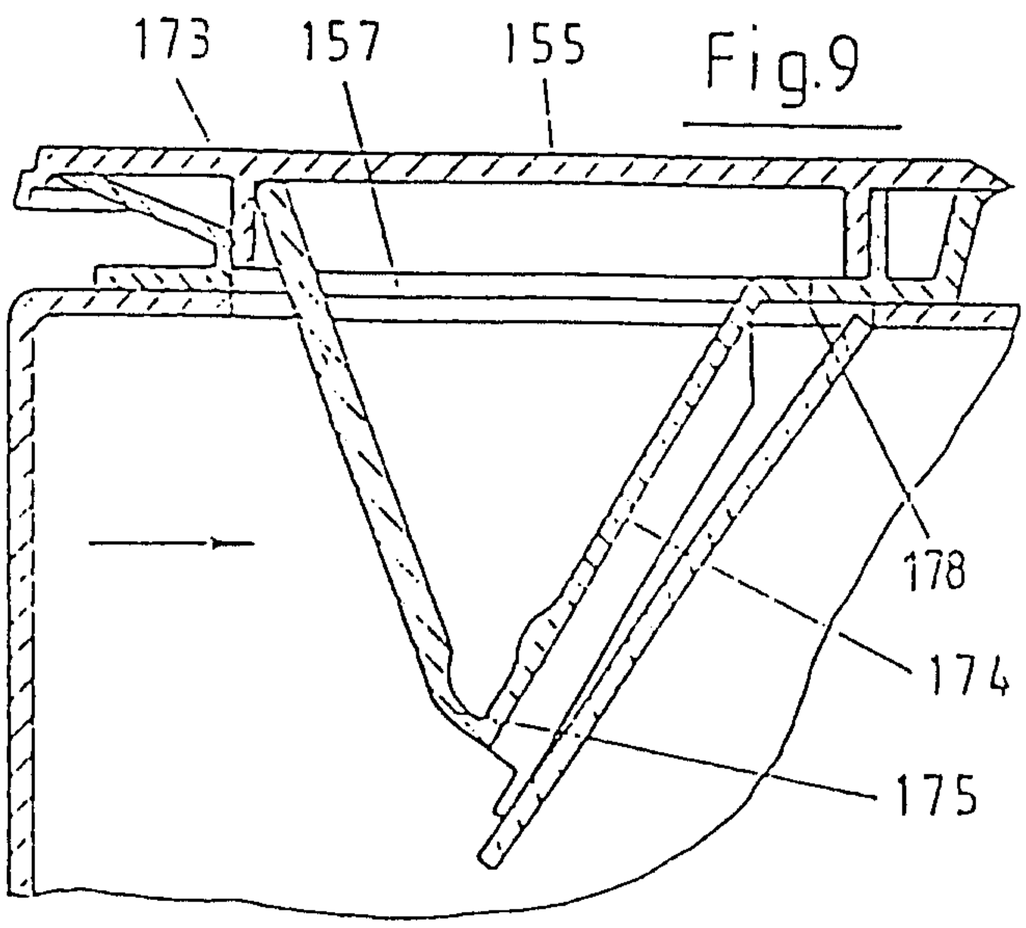


Fig.9

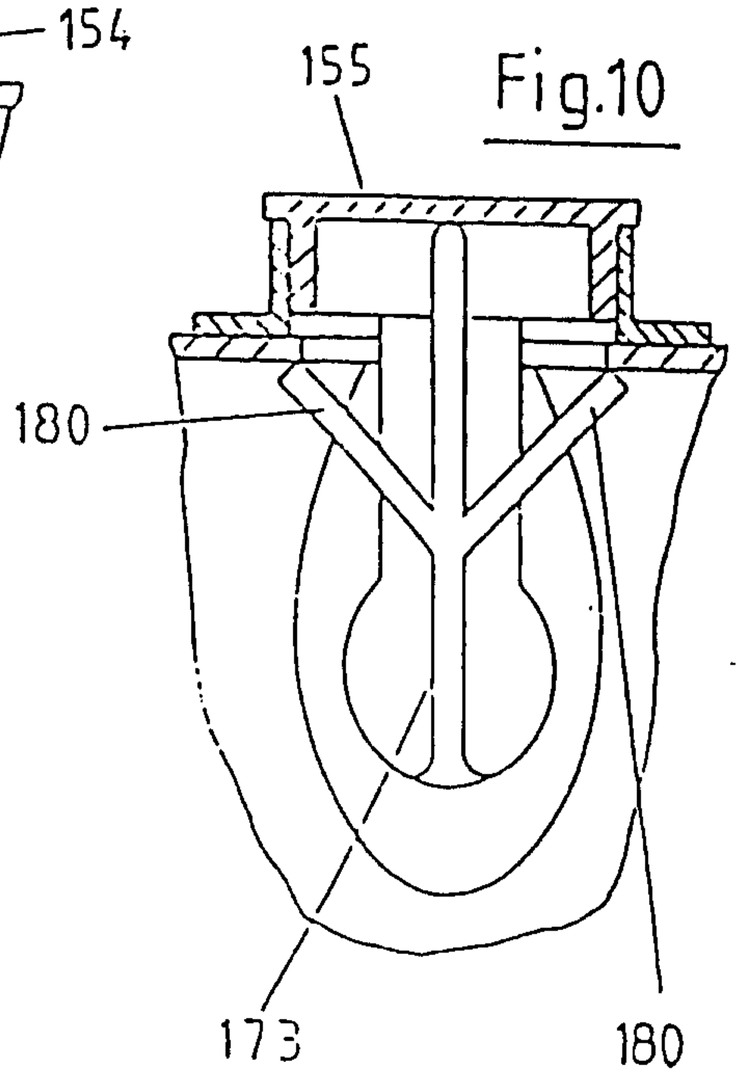
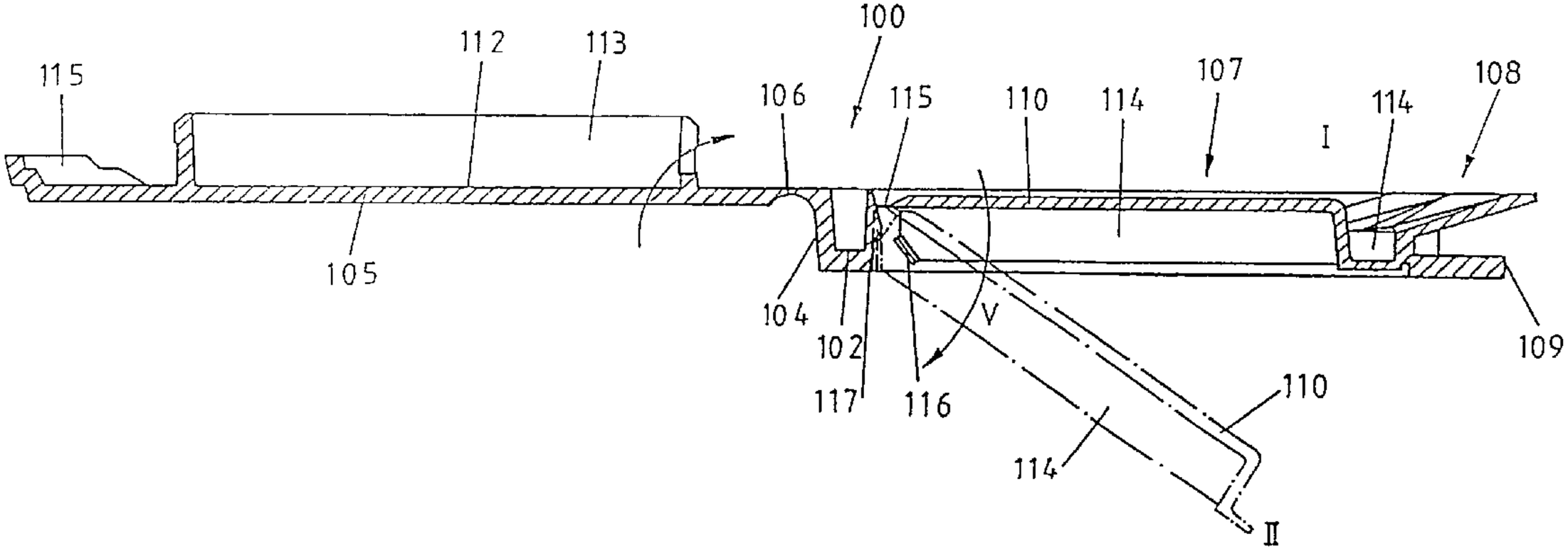


Fig.10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