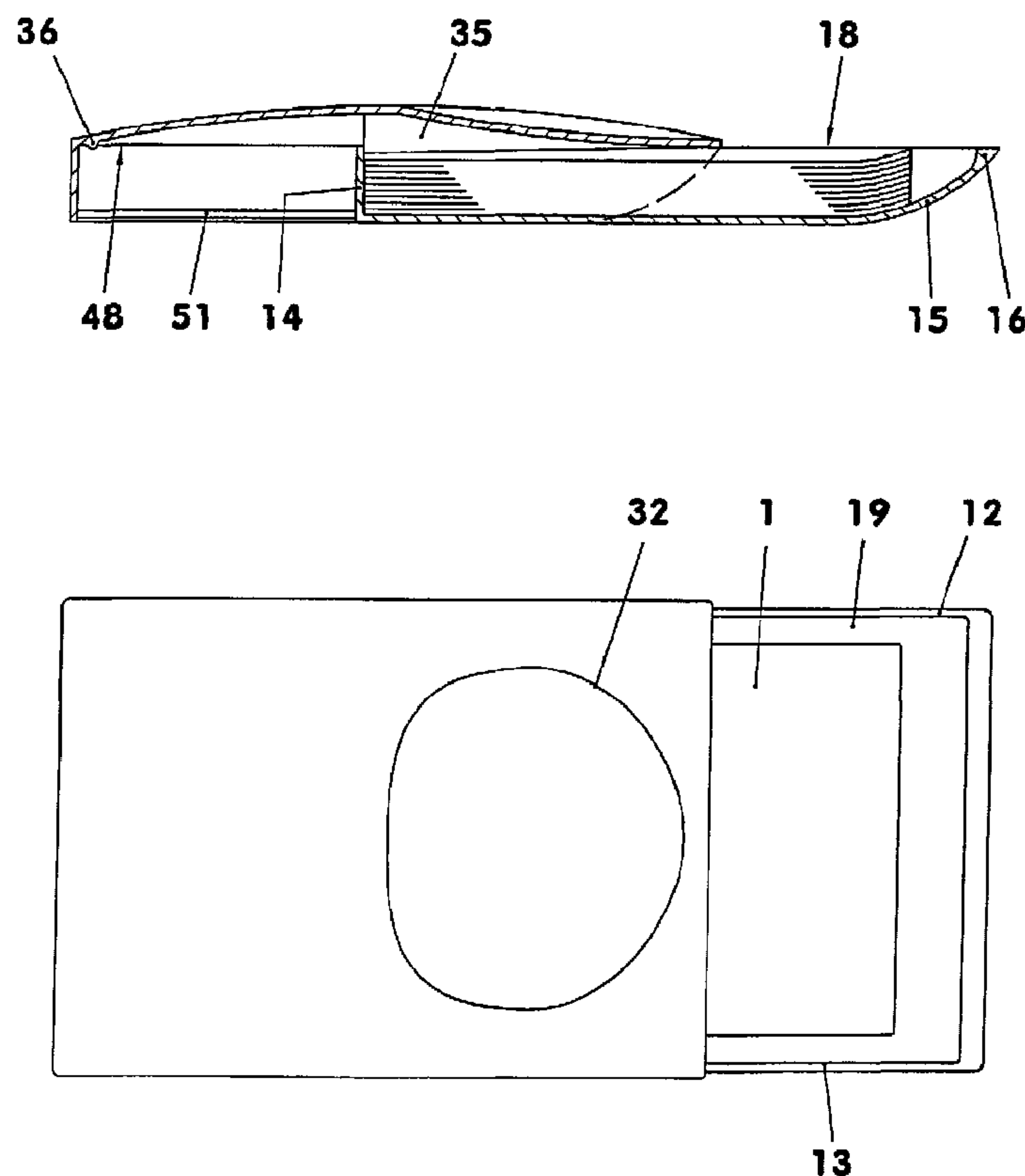




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(54) Titre : CONTENANT A COUVERCLE COULISSANT
(54) Title: CONTAINER COMPRISING A SLIDE COVER



(57) Abrégé/Abstract:

The invention relates to a container for storing and providing stacked film-like or sheet-like materials. The container is comprised of a pan, which accommodates the stacked materials and has a bottom and closed lateral walls joined thereto, and of a tightly sealing cover that at least partially encloses said pan. To this end, the cover is provided in the form of a slide cover. Both sides of the pan and of the slide cover are provided, parallel to their longitudinal direction, with parallel guide elements. All lateral walls of the pan have, up to the slide cover, a closed pan sealing surface that encircles the pan opening. The slide cover encompasses, at least in

(57) **Abrégé(suite)/Abstract(continued):**

part or in areas, three lateral walls and the bottom or corresponding guide elements of the pan, whereby two of these lateral walls are oriented parallel to the longitudinal direction. A cover sealing surface is provided in the slide cover and rests upon the pan sealing surface when the container is closed. The invention provides a container for film-like or sheet-like materials, which can be repeatedly opened and ensures a high sealing function with regard to gases, moisture and aromas while having a simple design.

ABSTRACT

The invention relates to a container for storing and providing stacked film-like or sheet-like materials. The container is comprised of a pan, which accommodates the stacked materials and has a bottom and closed lateral walls joined thereto, and of a tightly sealing cover that at least partially encloses said pan. To this end, the cover is provided in the form of a slide cover. Both sides of the pan and of the slide cover are provided, parallel to their longitudinal direction, with parallel guide elements. All lateral walls of the pan have, up to the slide cover, a closed pan sealing surface that encircles the pan opening. The slide cover encompasses, at least in part or in areas, three lateral walls and the bottom or corresponding guide elements of the pan, whereby two of these lateral walls are oriented parallel to the longitudinal direction. A cover sealing surface is provided in the slide cover and rests upon the pan sealing surface when the container is closed. The invention provides a container for film-like or sheet-like materials, which can be repeatedly opened and ensures a high sealing function with regard to gases, moisture and aromas while having a simple design.

LTS 2001/114 WO

Container comprising a slide cover

5

Description

The invention relates to a container for storing and making available stacked foil-like or sheet-like materials consisting of a tray receiving the stacked materials with a bottom and closed side walls adjoining the bottom and a cover which surrounds this tray at least partly and closes it tightly.

15 Such a container is known from Japanese Utility Model Application 5-22380. The cover, which grips firmly around the tray, has a flap attached to it by means of a film hinge for the individual removal of the foil-like or sheet-like materials. The flap, which extends
20 over an entire side edge of the container and tapers toward the container center, lies on the cover and on the tray via a complicated sealing surface which is curved several times. The sealing contour requires complex mold-making and is moreover prone to leakage.

25

Comparable containers are also known from US 3,888,350, US 3,987,891 and DE 71 25 676 U. However, these containers each have a parallelepipedal construction with a front tray wall oriented perpendicularly to the
30 container bottom. This renders the making available of stacked foil-like or sheet-like materials considerably more difficult.

The present invention is therefore based on the problem
35 of providing a repeatedly openable container for foil-like or sheet-like materials which, while having a simple construction, guarantees a highly effective sealing function with regard to gases, moisture and

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aromas and supports the making available of the foil-like or sheet-like material.

According to an aspect of the invention, there is provided a container for storing and making available
5 stacked foil-like or sheet-like materials consisting of a tray receiving the stacked materials with a bottom and closed side walls adjoining the bottom and a cover which surrounds this tray at least partly and closes it tightly, the cover being designed as a slide cover, the tray and the
10 slide cover each having on both sides, parallel to their longitudinal direction, mutually parallel guide elements, all side walls of the tray having, facing the slide cover, a closed tray sealing surface surrounding the tray opening, a fourth side wall - lying at a front in the sliding direction
15 - being designed in a curved shape as a removal lip, the slide cover gripping around at least partly or in regions of three side walls and the bottom or corresponding guide elements and two of these side walls being oriented parallel to the longitudinal direction, the slide cover being arched
20 upward away from the tray and bearing on its inner side a stop web, the lower edge of which, from a front edge of the slide cover as far as a cover center, descends - forming a stop - to below the tray sealing surface, and a cover sealing surface, which lies on the tray sealing surface when
25 the container is closed, being designed in the slide cover.

This container is a flat sliding box, the slide cover of which is moved relative to the tray, for example captively, to open the container. The slide cover and the tray lie on one another via a simply yet accurately
30 manufacturable sealing join for maximum possible aroma protection.

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Further details of the invention emerge from the subclaims and the description below of some diagrammatically represented illustrative embodiments.

Figure 1: closed container in longitudinal section;

5 Figure 2: open container in longitudinal section;

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- Figure 3: open container in the top view;
- Figure 4: central container cross section looking toward the rear;
- Figure 5: lateral partial cross section of the container;
- Figure 6: lateral partial cross section of the container with additional sealing lip;
- Figure 7: lateral partial cross section of the container with tray additionally closed by means of a foil seal;
- Figure 8: partial longitudinal section of the container with opening spring;
- Figure 9: open container with all-round slide cover in the view from underneath;
- Figure 10: open container with all-round slide cover in longitudinal section;
- Figure 11: closed container according to figure 10;
- Figure 12: closed container in longitudinal section with sealing join running at an angle in relation to the container;
- Figure 13: open container from figure 12;
- Figure 14: slide cover in longitudinal section with curved tray guide;
- Figure 15: open container from figure 14.

25

Figures 1 - 11 show a number of sections and views of in part different, small and light containers for storing and making available stacked foil-like or sheet-like materials (1). The latter - also referred to as wafers - are in each case illustrated only as a stack block in the figures. The stack block (1) has an area of roughly 1" * 1½", for example. The height is roughly 5 mm.

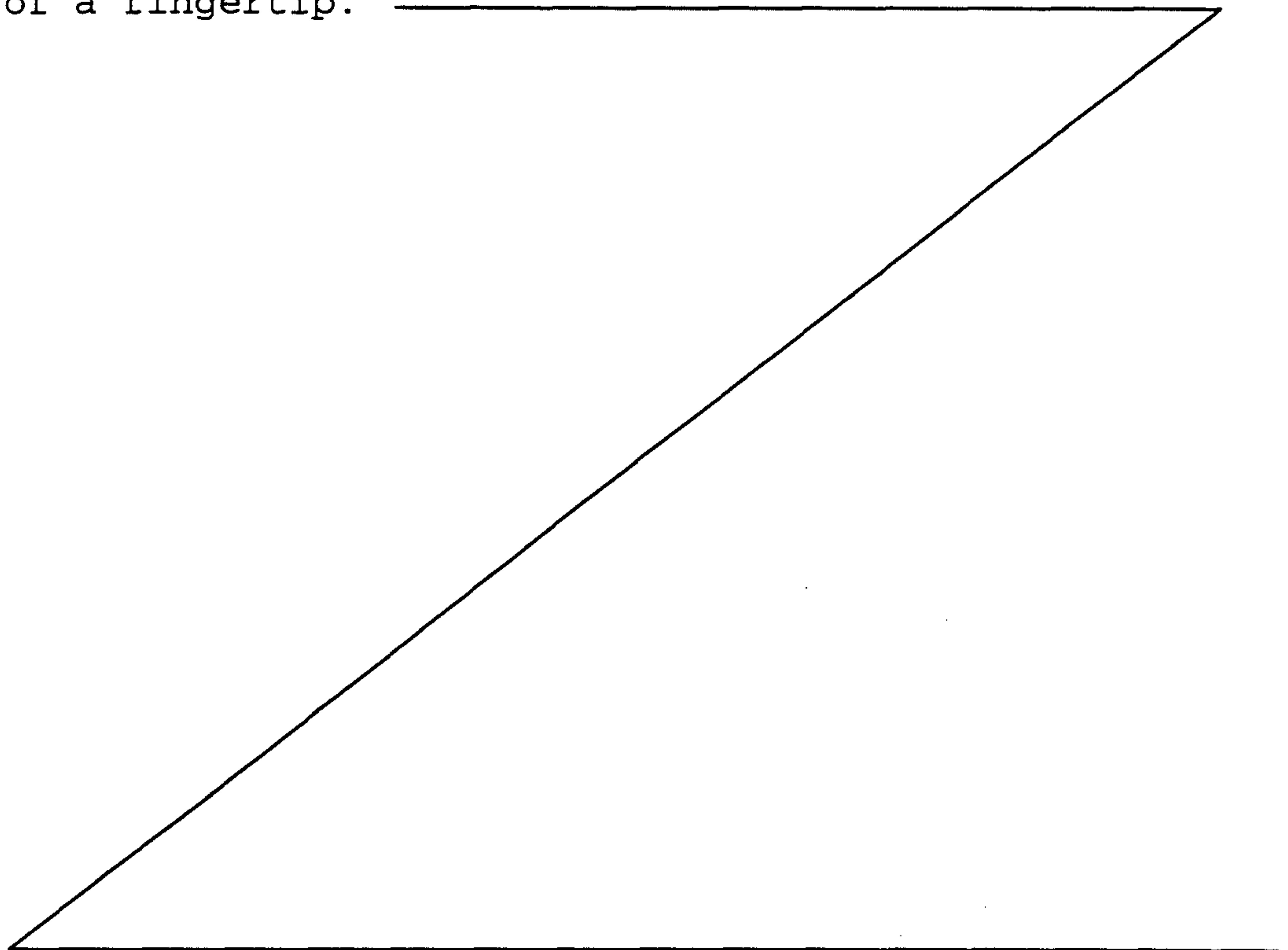
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The container width is roughly 73% of the container length, while the container height is roughly 18% of the container length.

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Figures 1-5 show a first container variant. The container consists of a tray (10) and a slide cover (30). In the closed state, the tray (10) and the slide cover (30) enclose the stack block (1) in a gastight, moisturetight and arotight way. The height of the tray (10) corresponds to roughly 12% of the container length.

The tray (10) has a bottom (11) and three side walls (12-14) adjoining the bottom at least approximately perpendicularly. A fourth side wall, what is known as the front wall (15), is designed in a curved shape as a removal lip, the curvature being, for example, part of a cylinder wall. In this connection, the front wall (15) originates tangentially from the bottom (11). The radius of curvature corresponds to roughly 30% of the container length. Owing to the flat rise of this side wall (15), the individual wafers can easily be pushed or pulled out of the tray (10), for example with the aid of a fingertip.



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Located on the inner side of the slide cover (30) is inter alia a stop web (35), cf. figures 1, 2 and 4. It prevents the tray (10) being removed completely from the slide cover (30) when the container is opened. In
5 longitudinal section, cf. figure 1, the stop web (35) has the shape of a triangle, the vertex of which lies in the region of the front edge of the slide cover (30). The lower edge of the stop web (35) descends so far toward the cover center that it projects below the
10 tray sealing surface (18) by, for example, the thickness of one tray wall. At maximum opening travel, the rear side wall (14) of the tray (10) comes into contact with the rear edge of the stop web (35), cf. figure 2, where an elevation of the stop web (35) is
15 shown.

In the prolongation of the stop web (35) backward, a stop projection (36) which can be passed over is located on the cover part (31) just in front of the
20 rear side wall (14). The projection is offset forward in relation to the side wall (14) by the thickness of the tray wall. Facing the tray (10), it has, for example, a hemispherical contour. According to figure 1, the rear tray side wall (14) is gripped between the
25 rear cover side wall (44) and the stop projection (36) when the container is closed. In this way, unintentional opening of the container is prevented. On opening and closing, the tray (10) is pushed over the stop projection (36) with both container parts (10, 30)
30 undergoing elastic deformation.

The side walls (42, 43) of the slide cover (30) surround the side walls (12, 13) of the tray (10) in a c-shape, cf. figures 5-7. Above the tray sealing
35 surface (18), they are - forming a plane cover sealing surface (48) when the container is closed - widened inward so far, according to figure 5, that they cover the tray sealing surface (18). This widening is located at the rear side wall (44), cf. figures 1, 2, 10 and

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11. The front edge of the slide cover (30) is also shaped as part of the cover sealing surface (48) in the region of the tray front edge.

- 5 At their lower edges, the side walls (42, 43) have mirror-symmetrical guide webs (51) which in each case bear via a 45° incline (54) against the corresponding guide groove (21) of the tray (10).
- 10 The container parts (10, 30) are made of an elastic plastic, which is preshaped in such a way that the side walls (42, 43) of the slide cover (30) bear against the tray side walls (12, 13) with gripping force. The 45° inclines (24, 54) in mutual contact of the container
- 15 parts (10, 30) bring about a clamping force which presses the cover sealing surface (48) and the tray sealing surface (18) onto one another, forming a sealing join (8).
- 20 If appropriate, the plane of the sealing join (8) can form an acute angle with the longitudinal direction (9), cf. figures 12 and 13, the tray (10, 110) having a smaller sealing height at the rear than at the front. In this case, the sealing surfaces (18, 48) come up
- 25 against one another only over the final millimeters of the container closing movement, which reduces the frictional loading of the sealing surfaces (18, 48). This makes thin, friction-capable and sealing coatings of the sealing surfaces possible.
- 30 The front edge of the slide cover (30) is shaped in such a way that, when the container is open, it is arched downward slightly, transversely to the longitudinal direction (9). During closing of the
- 35 container, the slide cover front edge slides onto the tray front edge, bringing about a sealing force.

Figure 6 shows a sealing join (8) with lip seals. To this end, inwardly protruding projections forming

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sealing lips (57, 58) are arranged on the side walls (12-14; 42-44) of the container parts (10, 30). In the illustrative embodiment, the upper sealing lips (57) are rigid, while the lower sealing lips (58) are elastic and press against the upper lips.

Figures 9-11 show a container variant, the slide cover (130) of which grips around the tray (110) in parts and the container cross section completely - as in the case of a conventional matchbox - by means of a cover bottom (180). The cover bottom (180) extends from the rear side wall (144) forward to the front end of the tray bottom (11). By using the cover bottom (180), the functions of the separate guide elements (21, 51) of the container variant described previously are replaced by the side walls (12, 13; 42, 43) and the cover bottom (180).

Located in the cover bottom (180) are, for example, two cutouts (181, 182), which divide the cover bottom (180) into two bottom webs (183, 184). The rear cutout (182) continues a long way into the side wall (144), cf. figure 10. Both cutouts (181, 182) have a rectangular contour here. Other contours are likewise conceivable.

Formed on the tray bottom (11) are a rear stop projection (136) and a front stop web (135). The front stop web (135) prevents the tray (110) being removed completely from the slide cover (130). To this end, the stop web (137) [sic] comes up against the front bottom web (183) in a locking manner, cf. the locking function of the stop web (35). In longitudinal section, the stop web (135) has largely a triangular contour, cf. figures 10 and 11. The vertex of the triangle is oriented toward the rear. Consequently, when initial assembly takes place, the tray (110) can be pushed into the slide cover (130) with both container parts (110, 130) undergoing elastic deformation. The rear stop projection (136), which has the function of a stop for

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keeping the container closed, bears against the rear edge of the rear bottom web (184) when the container is closed. In longitudinal section, cf. figures 10 and 11, it is rounded at the front and the rear, being sloped toward the rear for easier initial assembly. The slope is shown in a drop contour in the view from underneath according to figure 9.

The containers from figures 1-5 and 9-11 make possible simple one-hand operation. To this end, the container is taken hold of between the index finger and the thumb. The rear side wall of the slide cover (30) faces the inside of the hand. The thumb rests on the gripping recess (32). The tray (10) rests on the slightly bent index finger. If then - with the container held firmly - the thumb is drawn backward away from the index finger, the slide cover (30) is moved back as far as the opening stop (35). Then, with the tip of the thumb - without changing the basic position of the hand - the top sheet of the stack block (1) can be pushed over the front edge of the tray (10) so as - after a corresponding arm movement - to be taken over with the tongue.

To close the container, the basic position of the hand is maintained, and the thumb is pushed forward over the bent index finger until the stop (36) for keeping the container closed catches. The container is closed in an airtight manner again.

The container with the slide cover (130) which has the cover bottom (180) is held between the thumb and the index fingertip or the index finger end. The index fingertip grips the tray (110) through the cutout (181).

The opening movement can be supported with the aid of a spring (71), cf. figure 8. To this end, a bending spring (71) folded several times is arranged in the

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rear region of the tray (10). When the container is closed, the bending spring (71) is surrounded by the backwardly extended side walls (12, 13) and the likewise extended bottom (11). It is, for example, glued to the outside of the rear side wall (14). Located in the cover part (31), in front of the rear side wall (14), is a catch stop (72) which, by an upward movement, allows the spring-supported opening travel. To this end, the lateral cover side walls (42, 43) are deformed elastically by manual force in such a way that the cover part (31) arches upward slightly.

Figure 7 shows a variant solution, with the aid of which what is known as a secondary packaging can be forgone. To this end, for arranging a foil seal (65) in the tray (10), a lower-lying shoulder (61) running all around is arranged in the region of the tray sealing surface (18). The maximum height of the shoulder (61) is a few tenths of a millimeter. The width of the shoulder corresponds to roughly half the wall thickness of the side walls (12-14).

The foil seal (65) is fastened, sealing the tray (10) completely, on a, for example, plane sealing surface (62) of the shoulder (61). In figure 9, the foil seal (65) is illustrated - from below - by dash/dot lines. It extends with a tear-off tab (66), asymmetrically for example, beyond the front edge of the tray (10, 110). The foil seal (65) additionally has a stamped tear-off impression (67). This is drawn in figure 9 with a dash/double dot line and lies directly in front of the front edge of the slide cover (30, 130) when the container is open. When the foil seal (65) held by the tear-off tab (66) is removed, the seal tears off completely at the tear-off impression (67).

In every case, at least the tray (10, 110) is made of an injection-moldable material which hardly absorbs aromas, for example of essential oils, for example

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polypropylene, polyethylene naphthalene, polyethylene terephthalate or comparable materials. If appropriate, the material can be coated with, for example, SiO_x , at least on the inside of the container, in order to
5 guarantee a high degree of airtightness. The foil seal (65) is made of, for example, aluminum-coated polyvinyl chloride, polyvinylidene dichloride or comparable materials.

10 Figures 14 and 15 show a slide cover (10) and a container in which curved or inclined guide elements (21, 51) are arranged in the side walls (12, 13; 42, 43). For example, the slide cover walls (42, 43) bear a projecting guide profile, while the tray side walls
15 (12, 13) have corresponding guide grooves. In this container, the cover sealing surface (48) is arranged parallel to the bottom (11), as it is in the container in figures 1-3 as well.

20 In the case of the straight guide elements aligned at an angle to the cover sealing surface (48), which are illustrated as dash/dot lines in figure 14, the sealing surfaces (18) and (48) move away from one another proportionally during opening travel. In this
25 connection, the sealing surfaces (18) and (48) move parallel to one another. The actuating force necessary for opening the containers according to figures 12-15 is, after overcoming the breakaway force of the initial millimeters of the opening travel, considerably smaller
30 than in the case of the containers according to figures 1-11 owing to the sealing surface friction ceasing.

In the case of the curved guide elements (21, 51), the
35 tray (10) moves on, for example, a circular path in relation to the slide cover (30). The center of the circular path lies in the prolongation of the internal contour of the side wall (44) below the slide cover (30). The radius of the circular path corresponds to,

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for example, roughly 250% of the container length, so that the front end of the guide elements (21, 51) - related to the tray (10) - ends at the transition between the bottom (11) and the front side wall (15).

5 The stops for the opening travel are arranged in the guide elements (21, 51).

The curvature of the guide elements (21, 51) affords convenient accessibility of the tray contents (1) after
10 the container has been opened.

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List of reference numbers

	1	foil-like or sheet-like material, wafers, stack block, tray contents
5		
	8	sealing join
	9	longitudinal direction, sliding direction
	10, 110	tray, container part
10	11	bottom, tray bottom
	12, 13	side walls, right, left
	14	side wall, rear
	15	side wall, front; front wall
	16	front edge of the tray, removal lip
15		
	18	tray sealing surface
	19	tray opening
	21	guide elements, guide grooves
20		
	24	45° incline
	25	vertical surface
	30, 130	lid, slide cover, container part
25	31	lid part
	32	gripping recess
	35, 135	stop web, opening stop
	36, 136	stop projection, stop for keeping container closed
30	42, 43	side walls, lateral
	44, 144	side wall, rear
	48	lid sealing surface
35	51	guide elements, guide webs
	54	45° incline
	57, 58	sealing lips; top, bottom

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	61	shoulder
	62	sealing surface
	65	foil seal
	66	tear-off tab
5	67	tear-off impression
	71	bending spring
	72	catch stop
10	180	lid bottom
	181, 182	cutouts, front, rear
	183, 184	bottom web, front, rear

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CLAIMS:

1. A container for storing and making available stacked foil-like or sheet-like materials consisting of a tray receiving the stacked materials with a bottom and
5 closed side walls adjoining the bottom and a cover which surrounds this tray at least partly and closes it tightly,
- the cover being designed as a slide cover,
 - the tray and the slide cover each having on both sides, parallel to their longitudinal direction, mutually
10 parallel guide elements,
 - all side walls of the tray having, facing the slide cover, a closed tray sealing surface surrounding the tray opening, a fourth side wall - lying at a front in the sliding direction - being designed in a curved shape as a
15 removal lip,
 - the slide cover gripping around at least partly or in regions of three side walls and the bottom or corresponding guide elements and two of these side walls being oriented parallel to the longitudinal direction,
 - 20 - the slide cover being arched upward away from the tray and bearing on its inner side a stop web, the lower edge of which, from a front edge of the slide cover as far as a cover center, descends - forming a stop - to below the tray sealing surface, and
 - 25 - a cover sealing surface, which lies on the tray sealing surface when the container is closed, being designed in the slide cover.

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2. The container as claimed in claim 1, wherein at least two fifths of the tray opening are exposed when the container is open.

3. The container as claimed in claim 1, wherein for
5 receiving the stacked foil-like or sheet-like materials, the internal region of the tray has a rectangular shape at least in the sheet plane of the materials.

4. The container as claimed in claim 1, wherein a
sealing join formed by the tray sealing surface and the
10 cover sealing surface lies in a plane.

5. The container as claimed in claim 1, wherein a
sealing join is arranged parallel to the bottom of the tray.

6. The container as claimed in claim 1, wherein the
arching of the slide cover constitutes a lateral portion of
15 a cylinder, the center line of which lies transversely to the longitudinal direction and parallel to the bottom below the tray.

7. The container as claimed in claim 1 or 6, wherein
a gripping recess is integrated in the arching of the slide
20 cover.

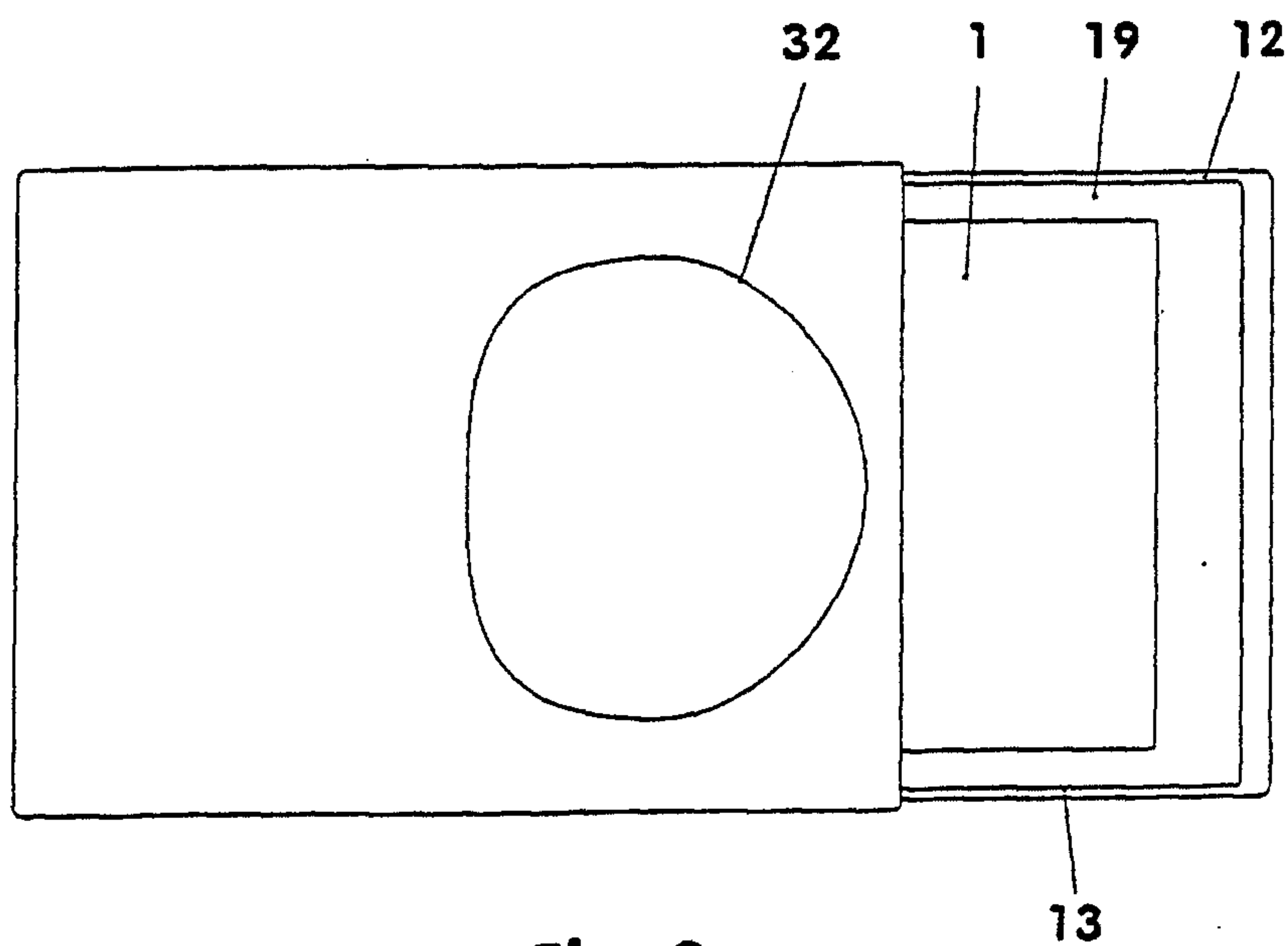
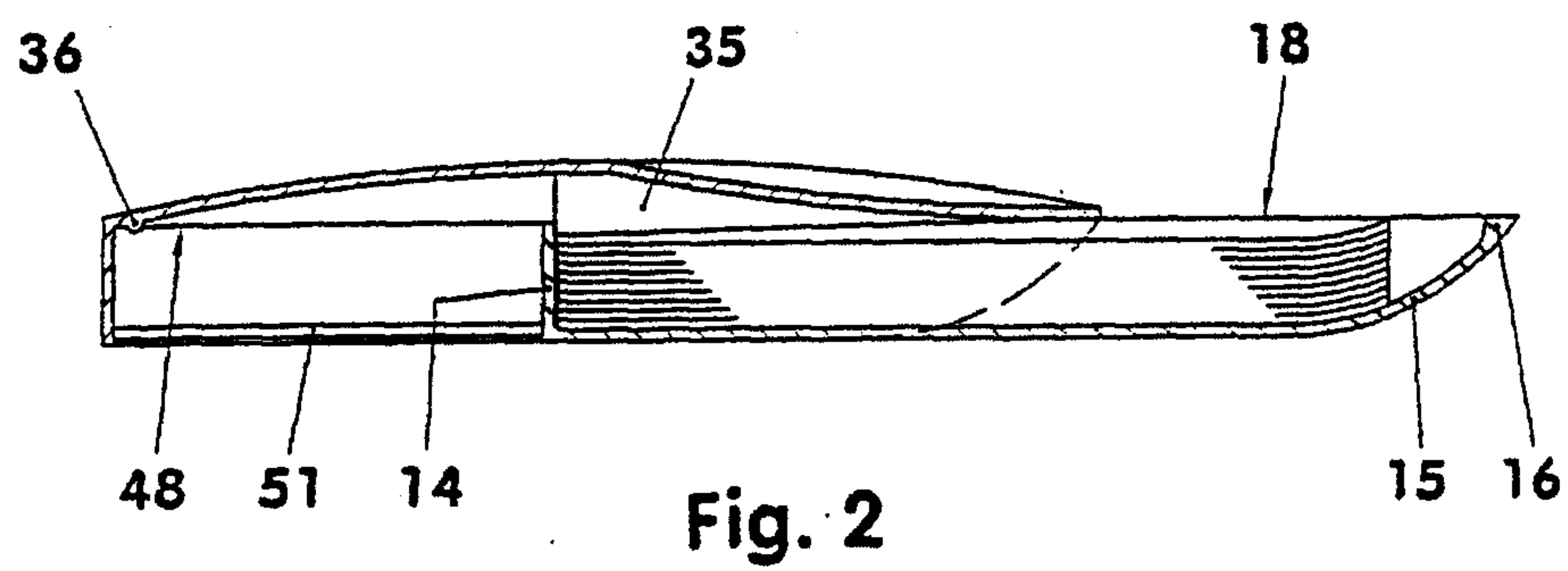
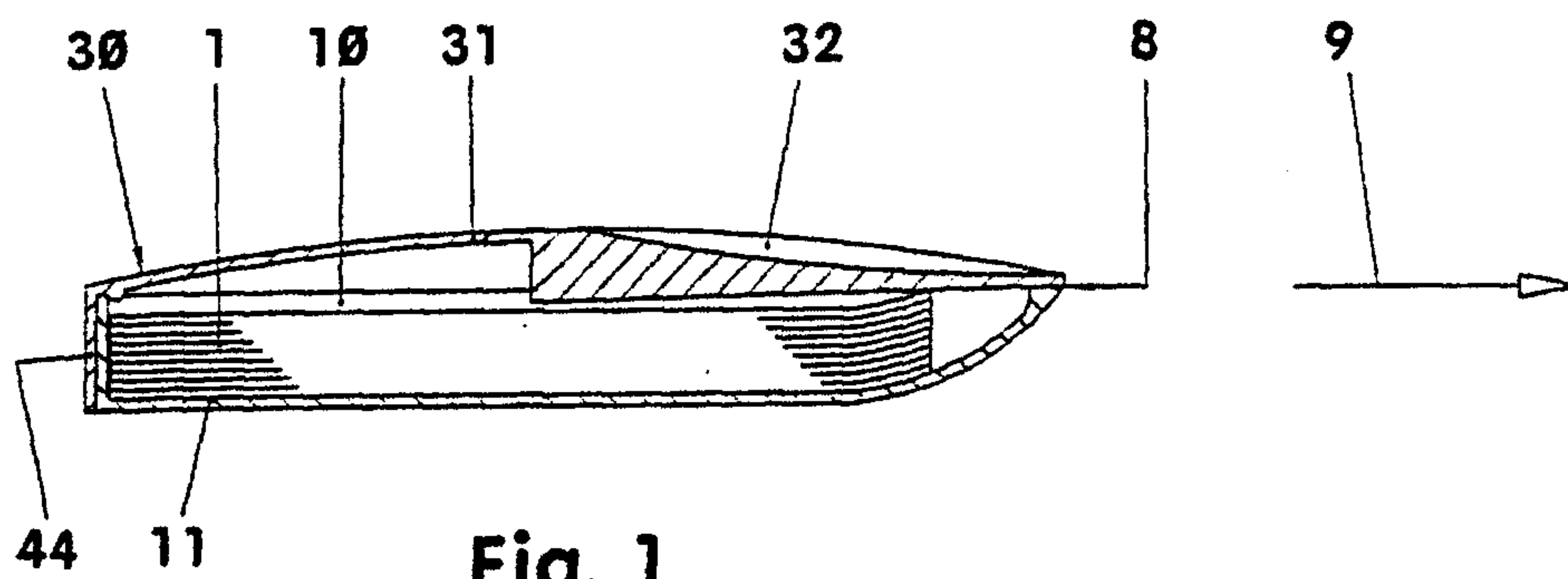
8. The container as claimed in claim 1, wherein a
lower-lying shoulder running all around is designed between
the tray opening and the tray sealing surface, on which
shoulder a foil seal which closes the tray once is fixed.

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OTTAWA, CANADA

PATENT AGENTS

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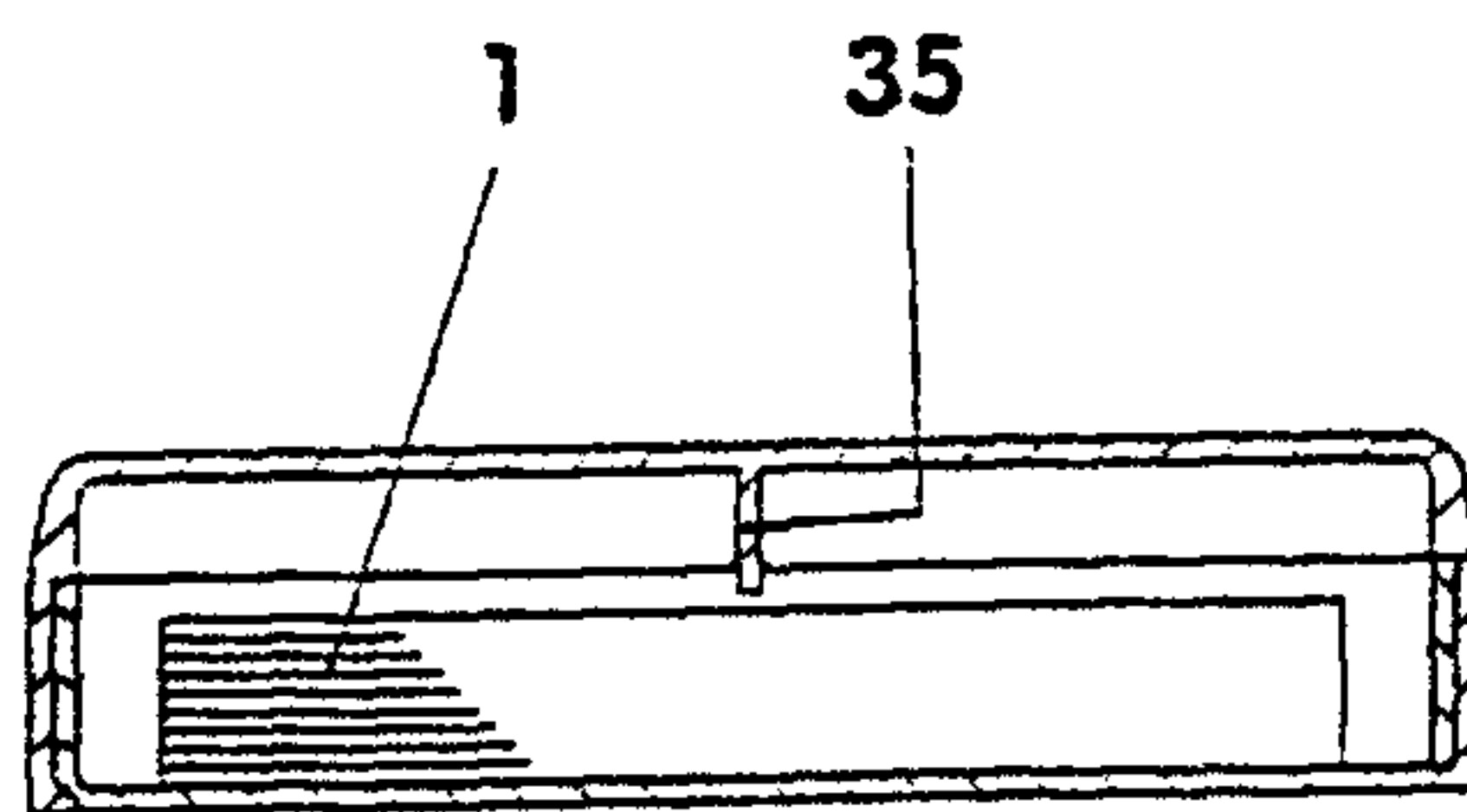


Fig. 4

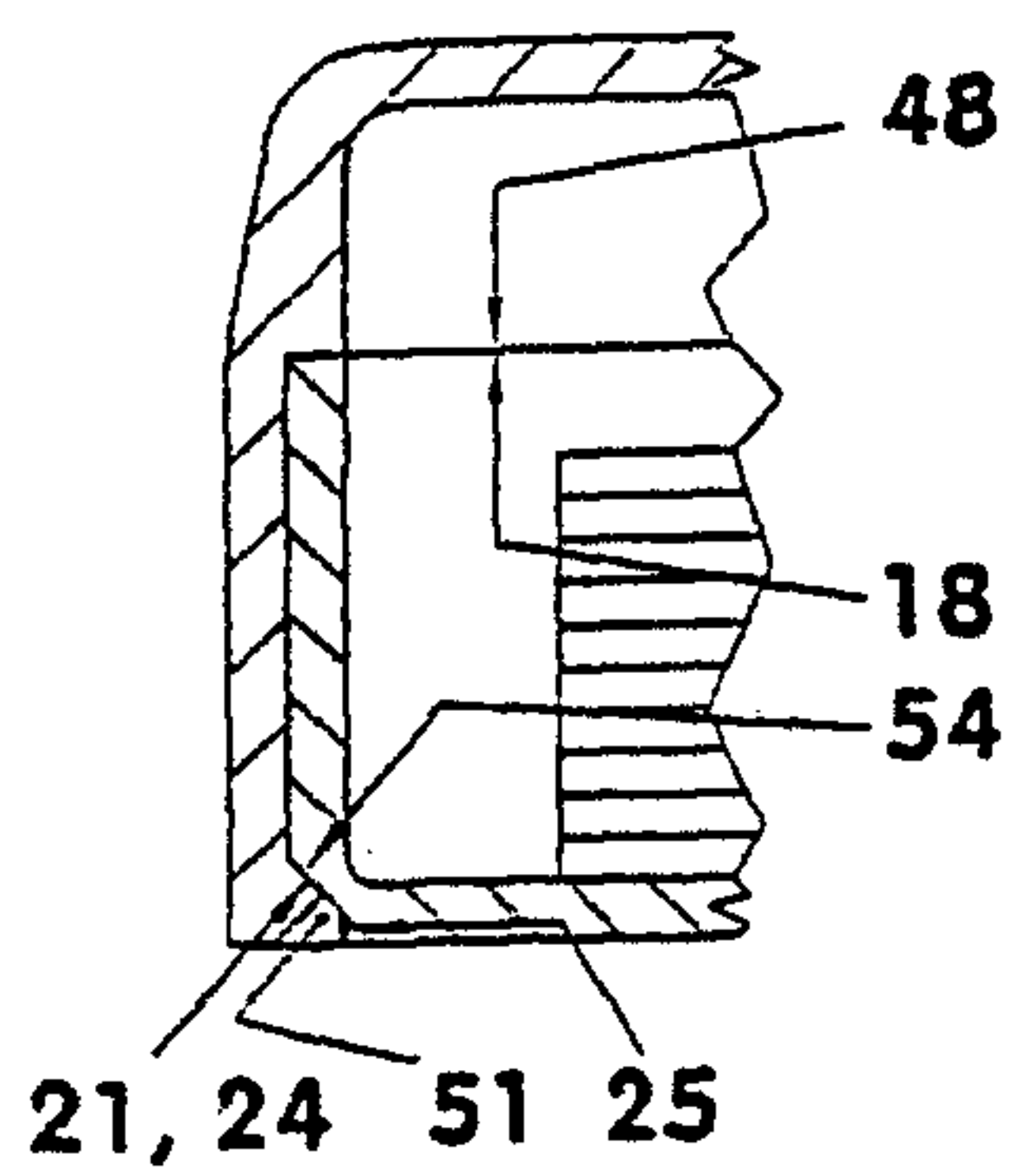


Fig. 5

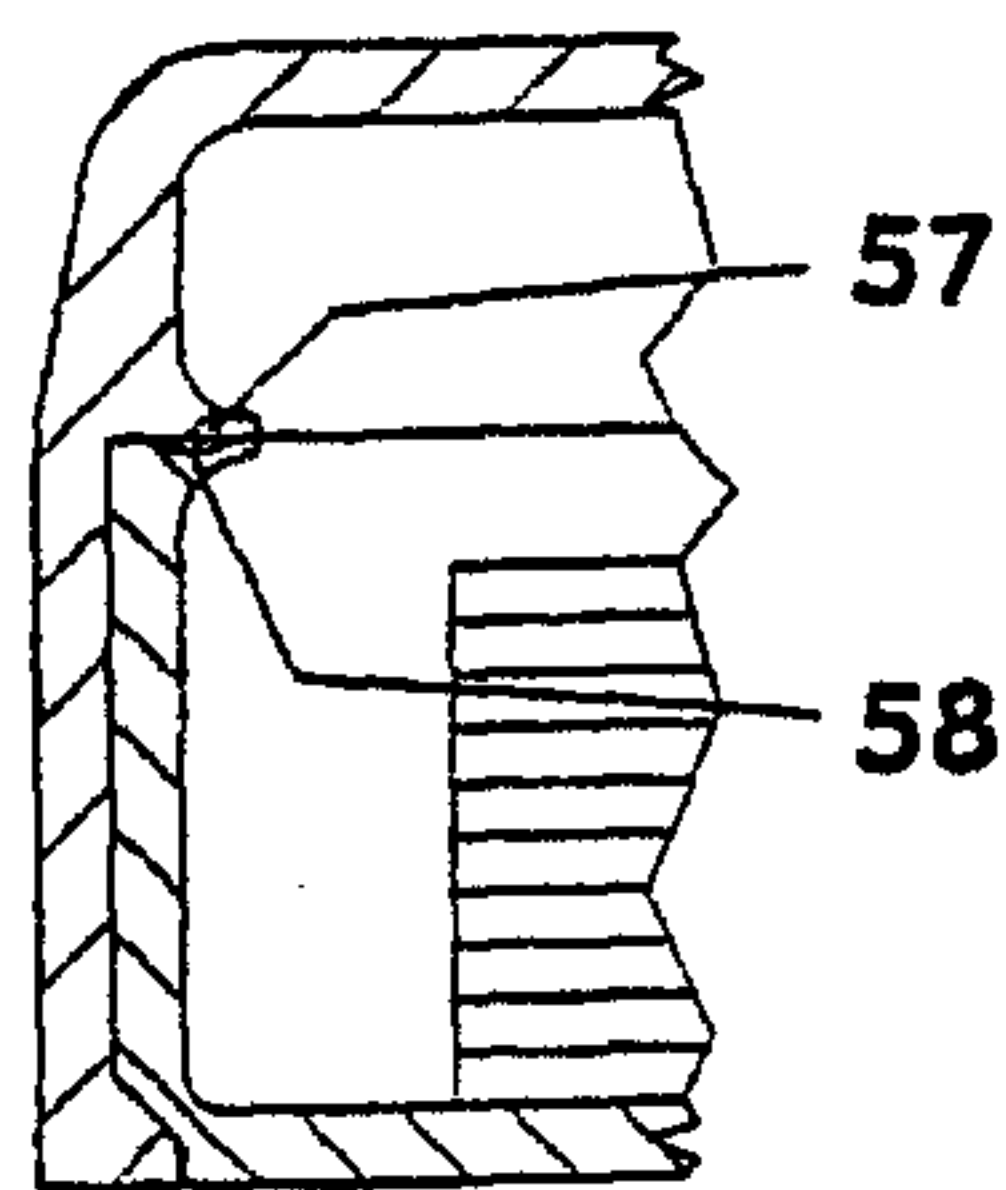


Fig. 6

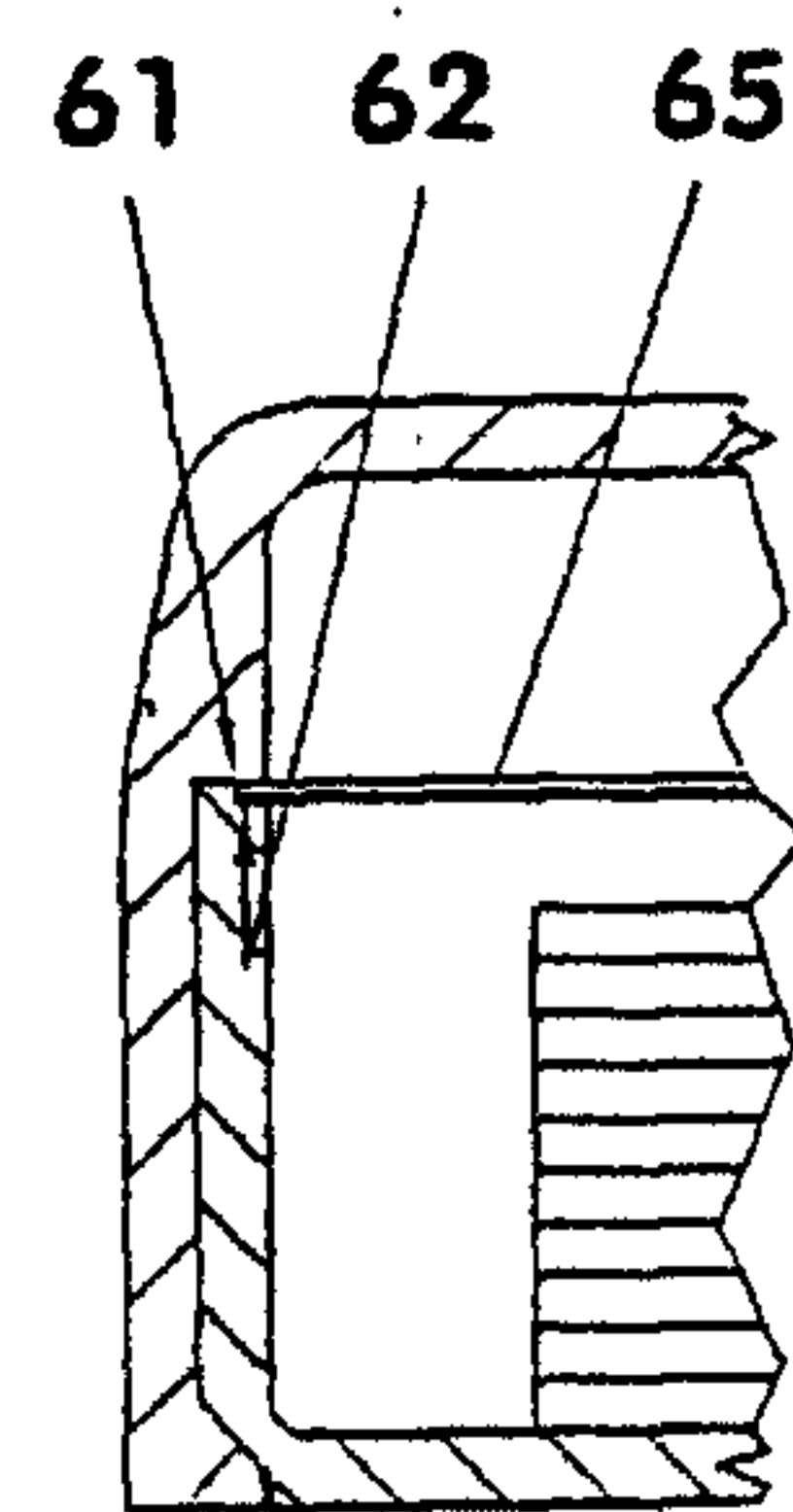


Fig. 7

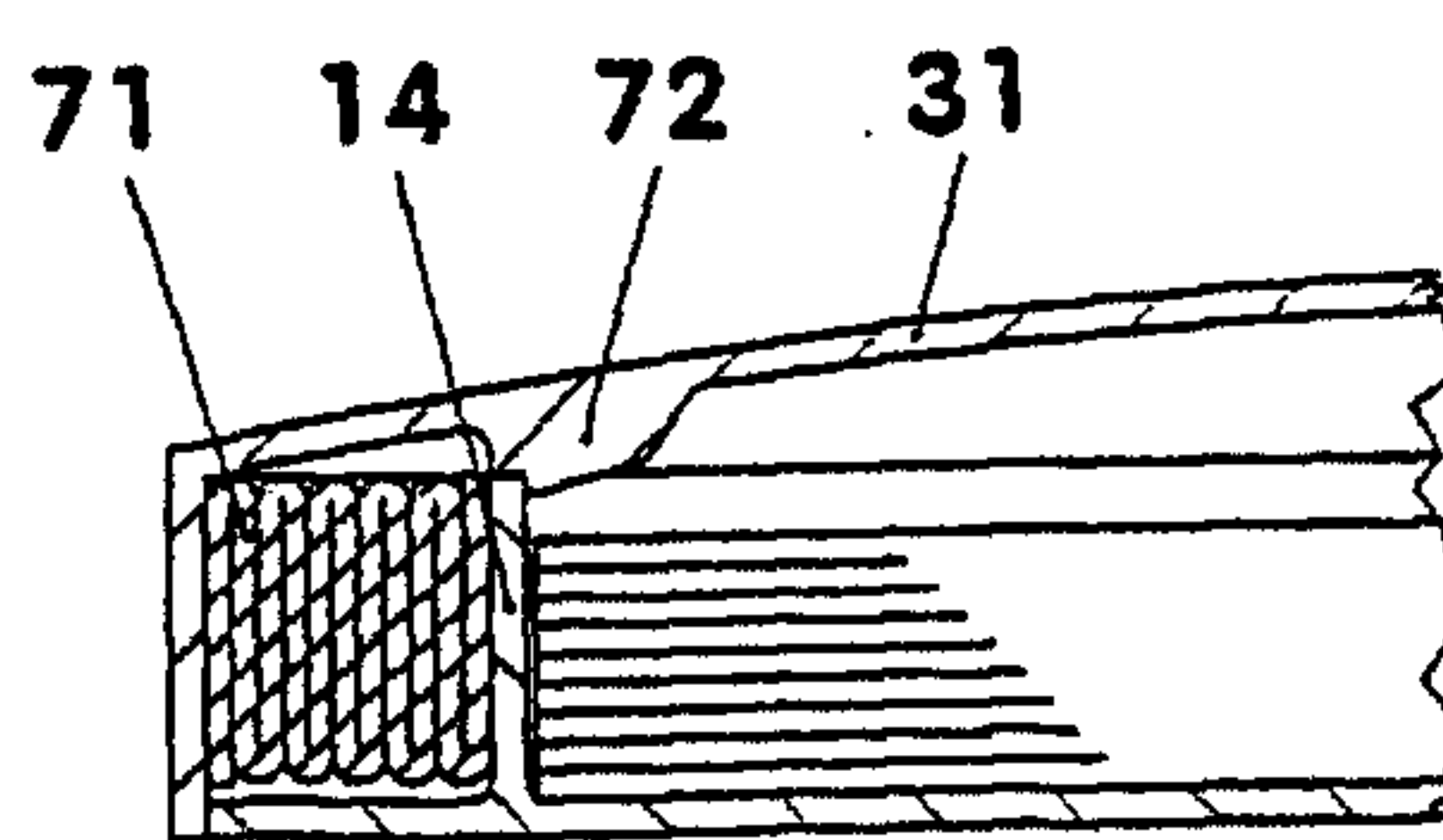


Fig. 8

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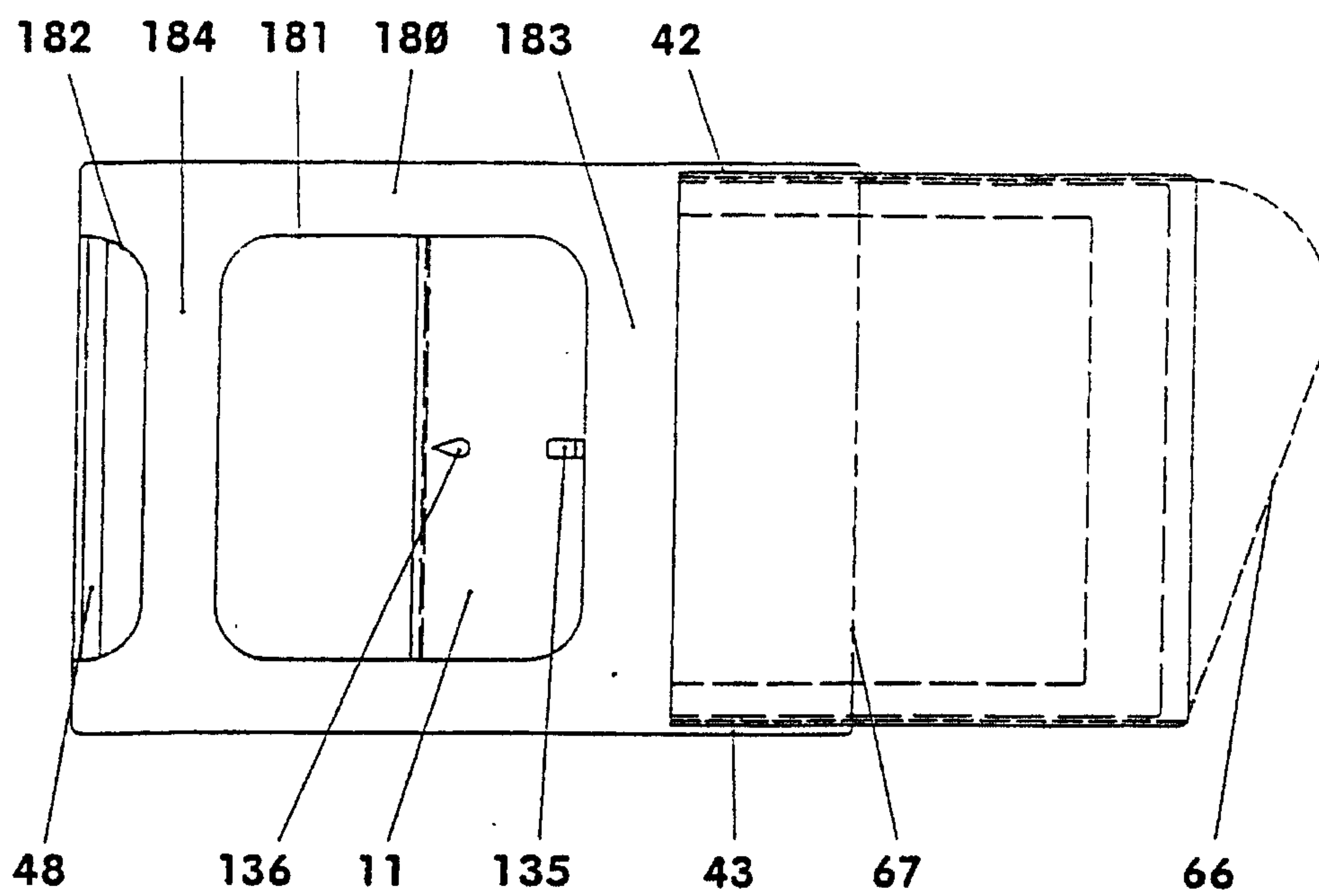


Fig. 9

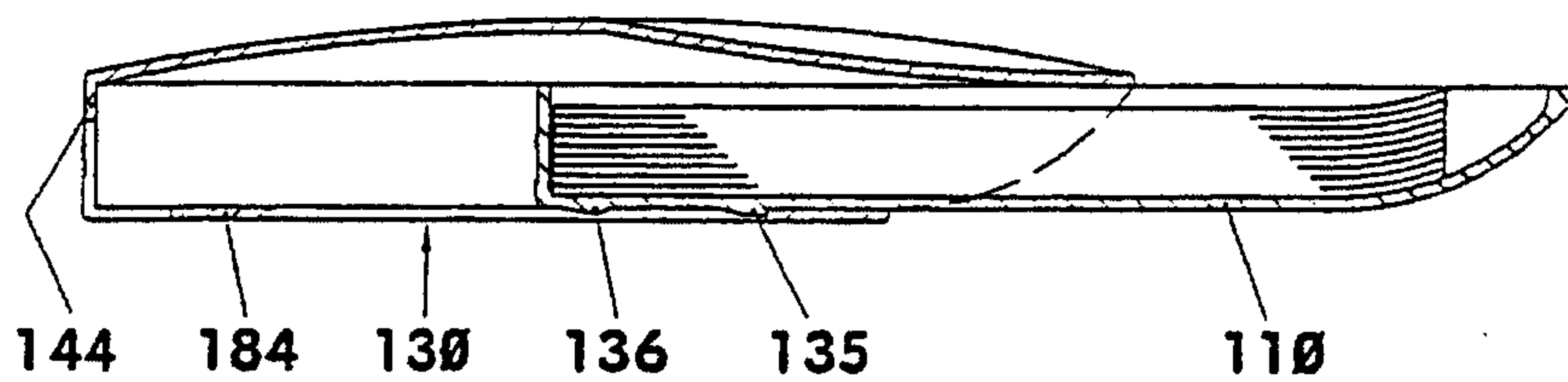


Fig. 10

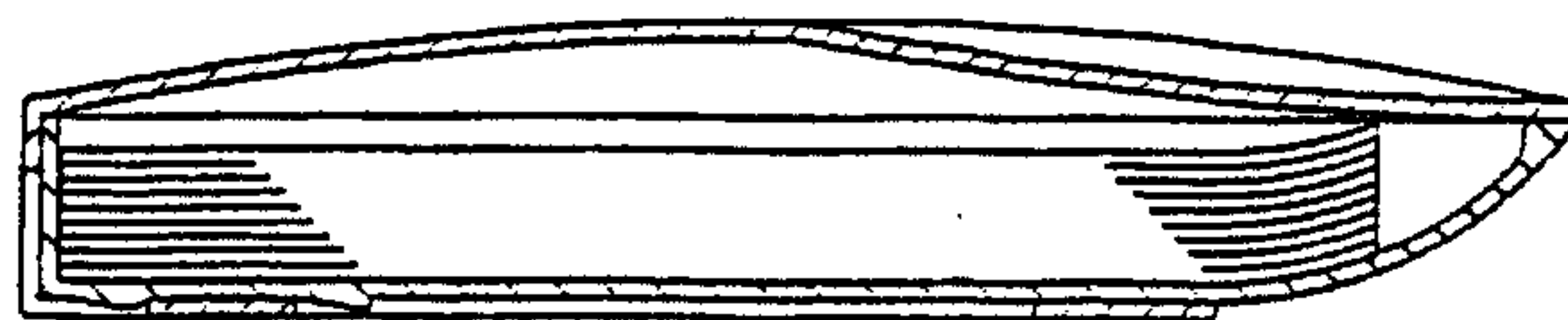


Fig. 11

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