

Aug. 27, 1963

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3,101,879

CONTAINER OF PAPER, CARDBOARD OR LIKE CARTON-FORMING MATERIAL

Filed Dec. 15, 1961

Fig. 1

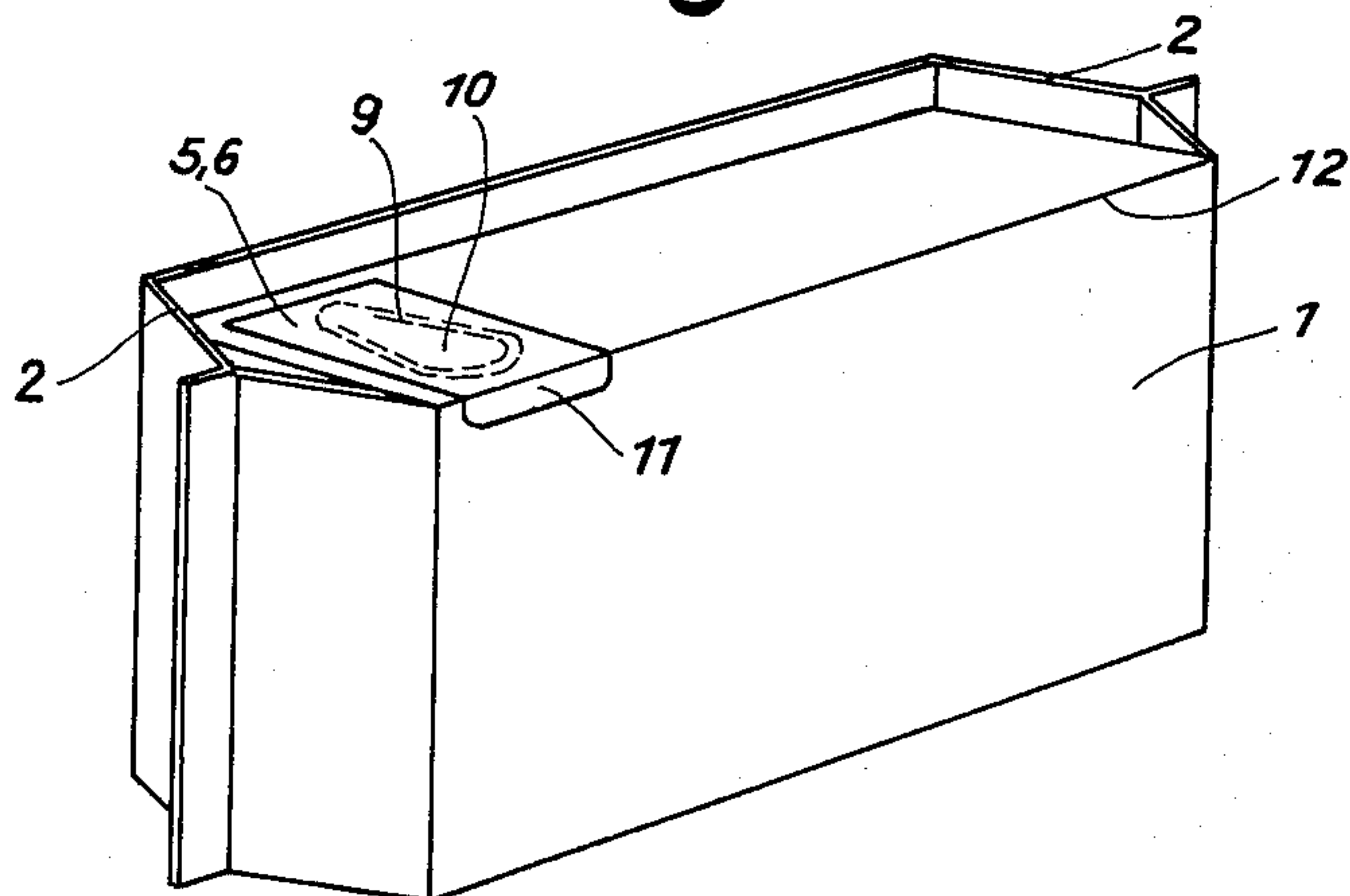


Fig. 2

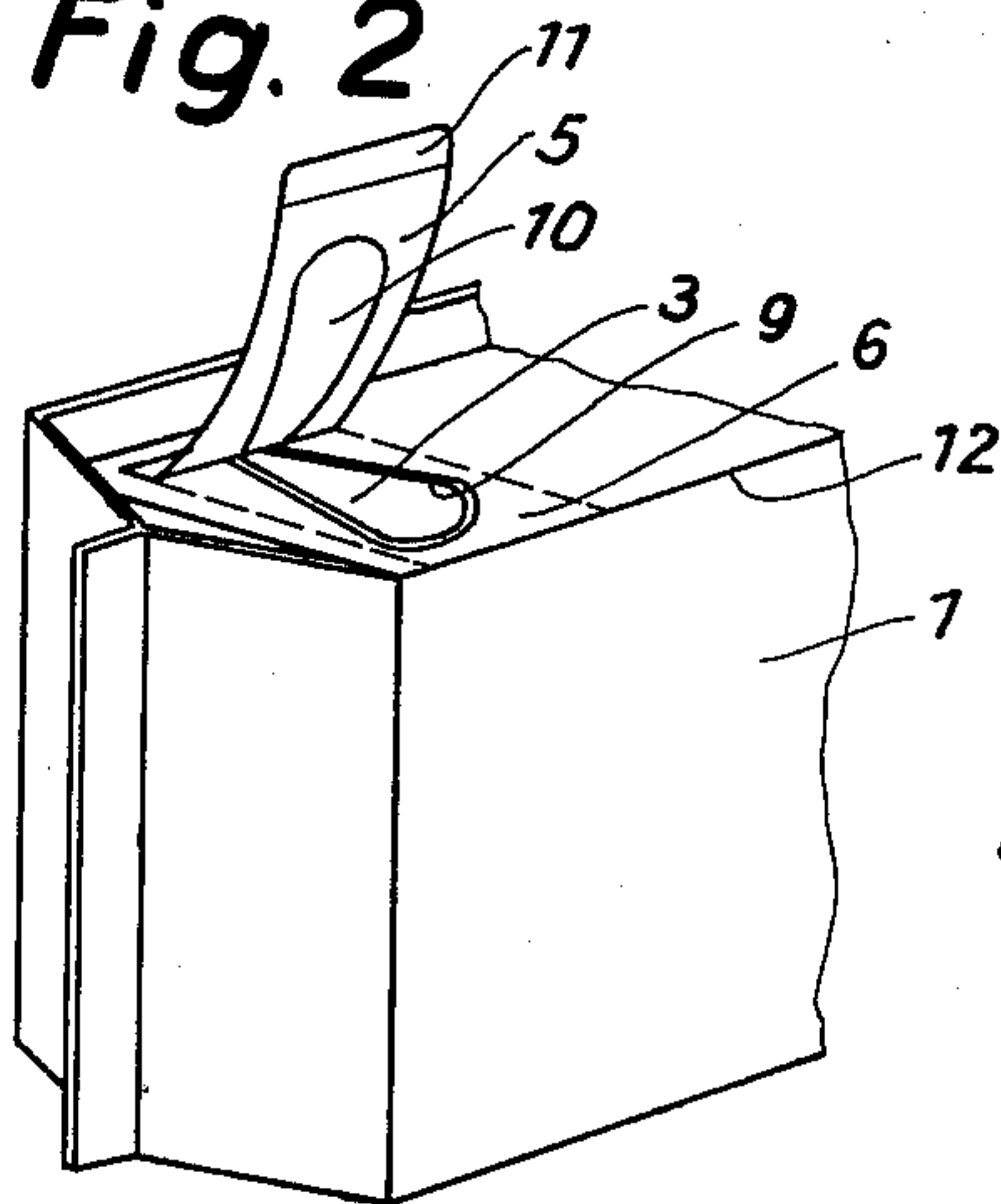


Fig. 3

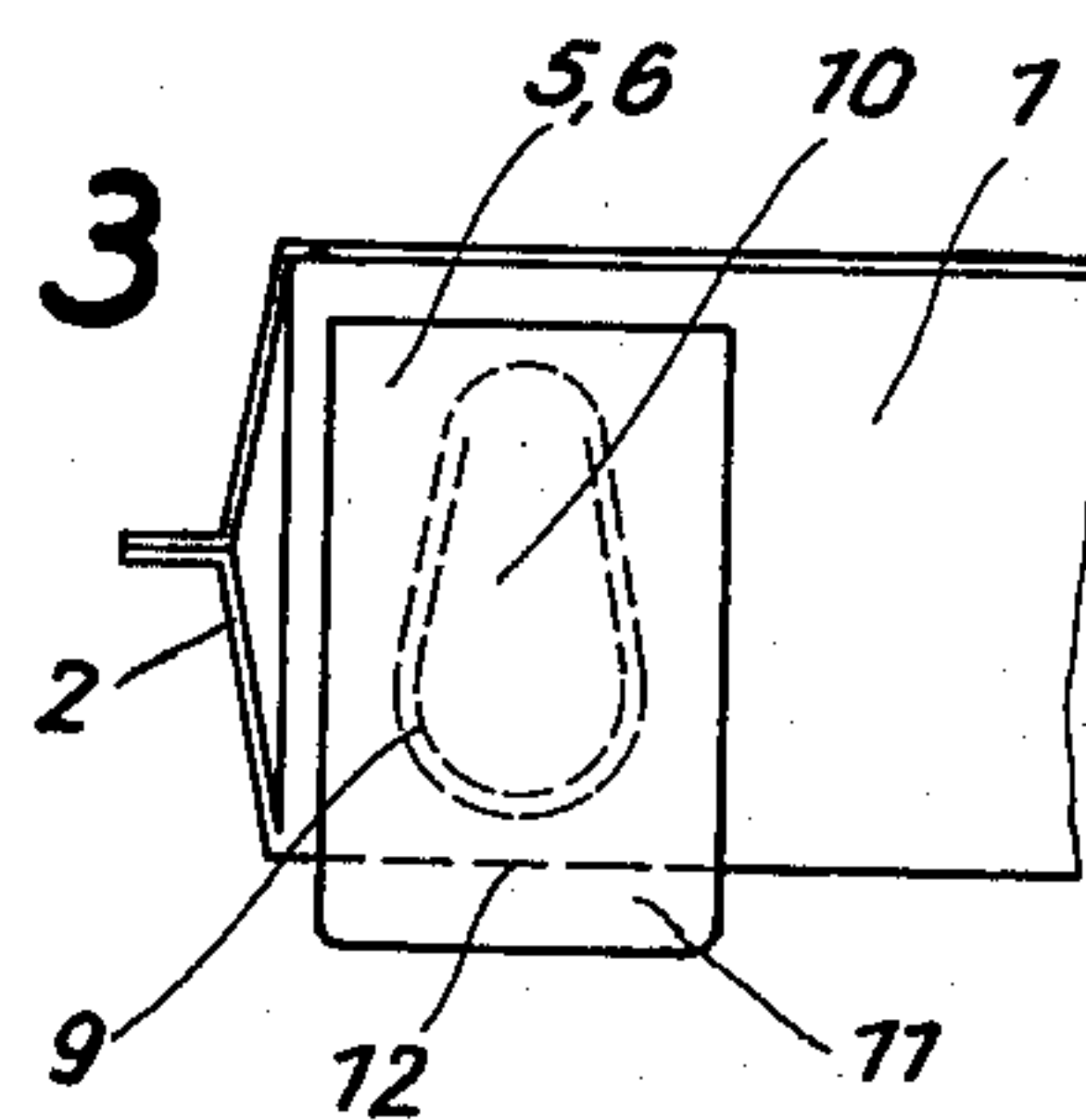


Fig. 4

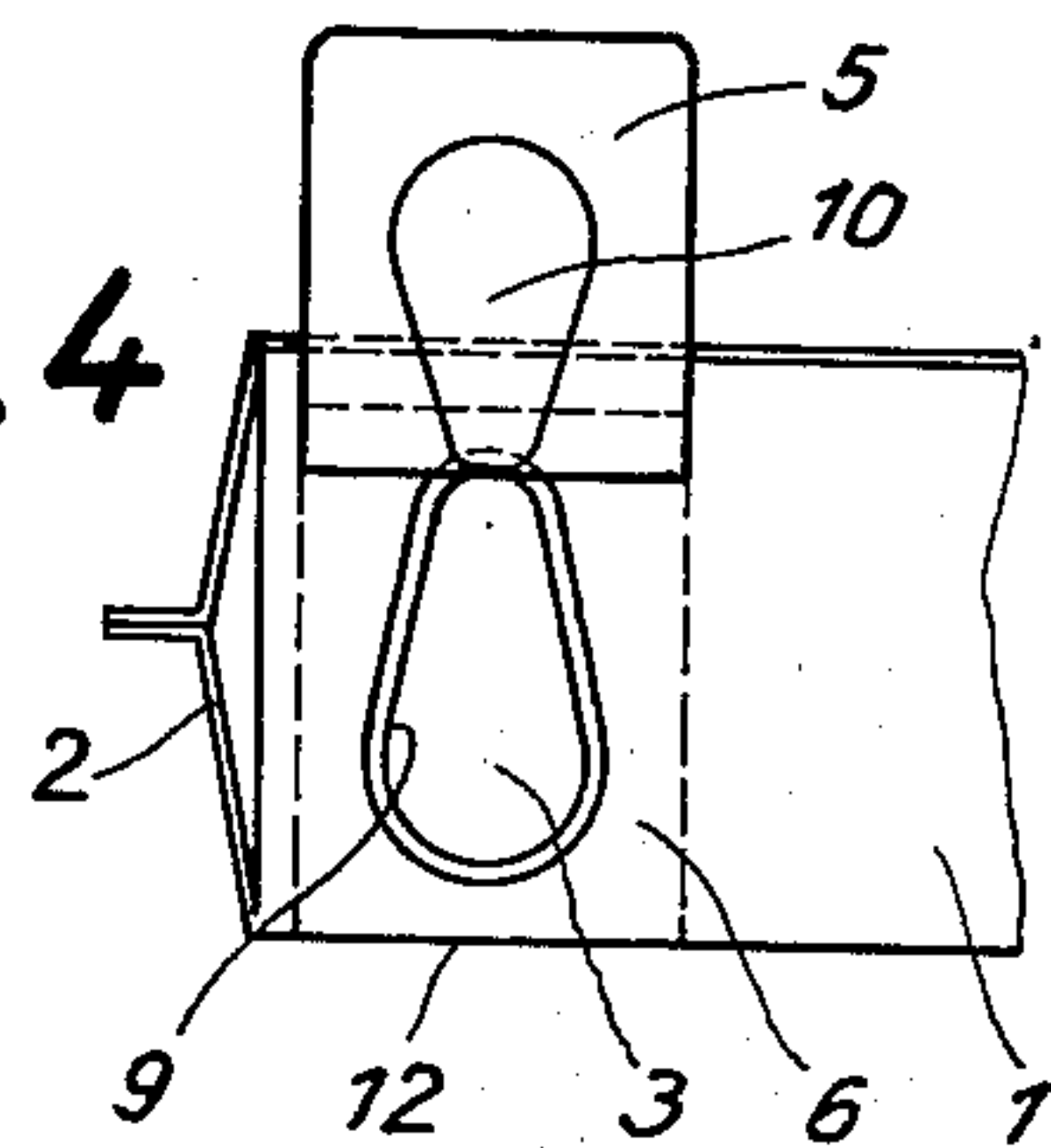
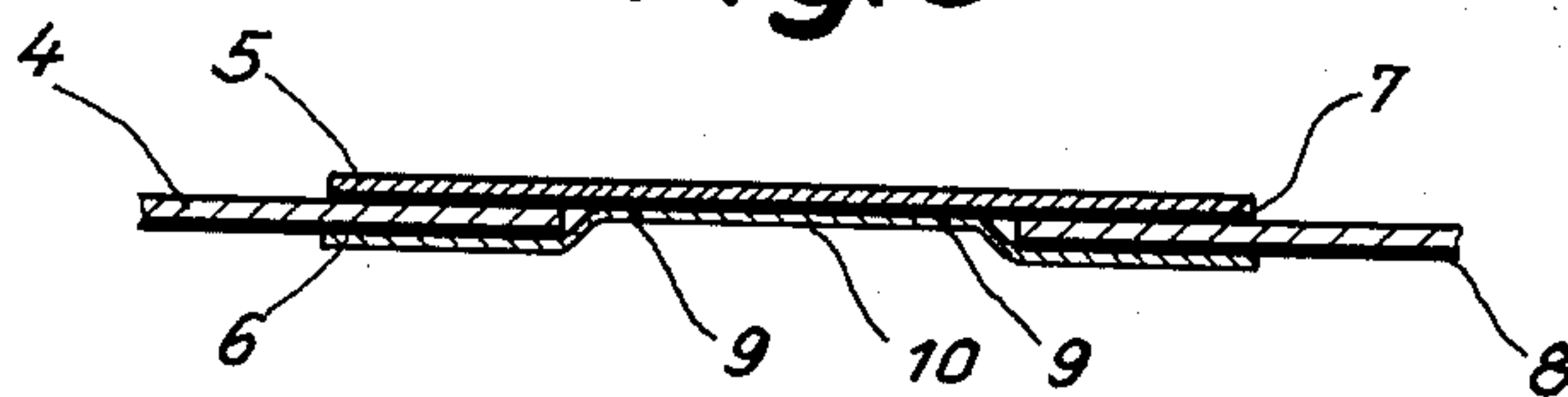


Fig. 5



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CONTAINER OF PAPER, CARDBOARD OR LIKE CARTON-FORMING MATERIAL

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Filed Dec. 15, 1961, Ser. No. 159,670

Claims priority, application Germany Jan. 26, 1961

4 Claims. (Cl. 229-7)

The present invention relates to an improved container of paper, cardboard or like carton-forming material, and particularly to a method of providing an outlet opening for a liquid-tight container of paper, cardboard or like carton-forming material, and a container produced thereby.

The provision of the outlet opening involves special difficulty in the production of liquid-tight containers, especially containers which are used for receiving mass consumption products such as milk or the like. On the one hand, the simple, easy and disturbance-free opening and withdrawal of the contents represents a requirement which is not always easy to satisfy, and on the other hand, such an outlet opening should not substantially increase the production costs and the costs of material for such a container. Furthermore, in the production and construction of the outlet opening, care must be taken that neither the fluid-tightness nor the sensitivity to mechanical stresses shall be influenced adversely, particularly in the case of a container filled with liquid. A particular danger for the fluid-tightness of the container is represented by the lines of weakening resulting from the partial cutting through of the container walls which are intended to facilitate the release of a pre-prepared opening flap. In this case, the liquid penetrates edge-wise into the cut edges, and causes a lack of tightness to occur, due to softening of the container walls defining the opening.

In order to eliminate the aforesaid difficulty, it is now proposed that, for the provision of an outlet opening for a liquid-tight container of paper, cardboard, or like carton-forming material, initially the outlet opening is punched out or otherwise formed, and then the outlet opening is again closed by means of internal and external foil blanks. Starting from the use of a container body material preferably coated on the inside with synthetic resin and consisting of paper, cardboard, or like carton-forming material, there is obtained by using this method a container with a pre-prepared outlet opening, wherein this outlet opening, which is punched in the container wall, is closed by sticking over the same inner and outer foil blanks in such manner that the foil blanks overlapping the edge region of the outlet opening are joined together adhesively in the region of the outlet opening. The construction is such that the inner foil blank is provided with a cut or weakened line defining an opening flap, whereby the opening of the inner foil blank determined by this line is smaller than the outlet opening punched in the container wall.

The fact that the inner and outer foil blanks are joined together by adhesion in the region of the outlet opening, and that the opening cut in the inner foil blank is smaller than the opening punched in the container wall, provides the conditions which ensure that the cut edges defining the outlet opening are effectively covered by the inner foil blank, so that penetration of the liquid and thus lack of tightness of the container in the region of the outlet opening, is avoided.

To increase the mechanical strength of the outlet opening covered by the foil blanks, it is also proposed that the outer foil blank shall be produced from a thicker metal foil coated internally with synthetic resin, while

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the metal foil used for the inner foil blank shall be a thinner foil. The metal foil lying to the outside and consisting of thicker material thus receives a substantial strengthening by the internally applied synthetic resin coating, and this synthetic resin coating has the function, in addition to strengthening, of serving as a bonding medium on the application under heat and pressure to the outer wall of the container.

To facilitate the manipulation of the outlet opening, provision is also made that the outer foil blank is provided with an extension or flap adapted to be gripped on opening the outlet opening, and which is not joined to the container body wall by adhesion. This extension of the outer foil blank thus projects beyond the container edge in the region of the outlet opening so that gripping and separation of the outer foil blank from the container wall is substantially facilitated. With the separation of the outer foil blank from the container outer surface, the opening flap is simultaneously separated from the inner foil blank whereby the opening cross-section for the outlet opening is revealed.

The general arrangement and construction of the outlet opening furthermore has the advantage that the wall part of the container which is freed after the removal of the outer foil blank, and which comes into contact with the liquid to be poured, meets the highest requirements of cleanliness and hygiene.

Hereinafter the subject matter of the invention will be described on the basis of constructional example illustrating one embodiment thereof, and as shown on the accompanying drawing:

FIG. 1 is a view in perspective of a container with the outlet opening prepared and constructed according to the invention;

FIG. 2 is a fragmental view in perspective of the container with the outlet opening open;

FIGS. 3 and 4 are fragmental plan views of the outlet opening in closed and open condition, respectively; and,

FIG. 5 is a sectional view on a larger scale through the outlet opening and the adjacent container walls.

The present constructional example shown relates to an essentially prismatic container 1 of paper, cardboard, or like carton-forming material, which consists of a tubular container body, the ends of which are each closed by a V-shaped fold closure 2 with an inwardly folded tuck. If the container is intended for receiving milk, it is formed from a cardboard material provided internally with a synthetic resin coating which has the property not only of impregnating or sealing, but also permitting adhesion under the action of heat and pressure.

In the preparation of the outlet opening, it is now proposed, according to the invention, to proceed in such manner that an outlet opening 3 is punched in container wall 4 prior to the forming of a flat container body blank into a tubular container body. The outlet opening is then closed by sticking or sealing to the same an outer foil blank 5, and an inner foil blank 6. As shown, particularly in FIG. 5, the foil blanks 5 and 6 overlap the edge of the outlet opening 3, while inside in the zone of the outlet opening 3 the foil blanks 5 and 6 adhere one to the other. The connection between the foil blanks 5 and 6 and the container wall 4 on the one hand, and between the foil blanks 5 and 6 themselves on the other hand is effected by means of synthetic resin coatings 7 and 8, adapted to be made active under the influence of heat and pressure on the inner side of the foil blank 5 and on the inner side of the container wall 4.

As shown in particular in FIGS. 2 and 4, the inner foil blank 6 is provided with an incision line 9, or with a perforated or weakened line which defines an opening flap 10. The opening defined by the line 9 in the foil sheet is so selected as regards shape and size that this

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opening is smaller than the outlet opening 3 formed in the container wall 4, whereby the defining lines of the opening in the inner foil blank 6 and the defining lines of the outlet opening 3 formed in the container wall 4 are spaced equidistantly. Apart from the protection of the edge of the opening, referred to above, an advantage obtained as a result of this feature is that the partial withdrawal of the liquid contents permits an immediate and substantially drip-free interruption of the liquid stream as a result of the sharp defining edge of the outlet opening.

A further feature of the construction of the outlet opening is that the outer foil blank 5 is formed from a thicker synthetic resin coated metal foil, and the inner foil blank 6 is formed from a thinner uncoated metal foil. Since the inner foil blank 6 merely has to exert a sealing function, while the outer foil blank 5 has the function of withstanding the unavoidable mechanical stresses arising during transport and storage, this disposition of the foil thicknesses represents the optimum arrangement from the economical and technical standpoints.

As will be seen from FIG. 1, and particularly from FIG. 3, the outer foil blank 5 is provided with an extension or flap 11, which by reason of the fact that it projects beyond the adjacent container edge, is not joined by adhesion or the like to the container wall. The extension 11 permits or facilitates the gripping and release of the outer foil blank 5 whereby, simultaneously with the release of the outlet opening 3, a separation of the opening flap 10 from the lower foil blank 6 is obtained.

The invention is not to be confined to any strict conformity to the showings in the drawings, but changes or modifications may be made therein, so long as such changes or modifications mark no material departure from the spirit and scope of the appended claims.

I claim:

1. A closure for liquid-tight container of paper, card-

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board, and like carton-forming material, of the type embodying a container wall having an outlet opening therein and inner and outer foil blanks closing said outlet opening, said inner and outer blanks having dimensions greater than the dimensions of the outlet opening, means adhesively securing said blanks to each other in the region of the outlet opening and to the inner and outer surfaces of the wall around said outlet opening for closing said outlet opening, and said inner foil blank being provided with a weakened line located inwardly of the outlet opening for defining an opening flap of lesser dimensions than the dimensions of the outlet opening.

2. The closure as claimed in claim 1, in which said outer foil blank is provided with an extension projecting beyond the container wall and adapted to be gripped for opening said outlet opening.

3. The closure as claimed in claim 2, in which said blanks are of metal foil and said outer blank being of thicker cross section than the cross section of said inner blank.

4. The closure as claimed in claim 3, in which a synthetic resin is applied to the inner surface of said outer foil blank.

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