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(54) Container having an integrated plug-in-lid.

(57) A tubular container made of a relatively soft and pliable material and of the type which is made from an even punched-out blank (7) which is fold into a tube (1) and which is closed at the top (2) and at the bottom (3) and is formed with a reclosing means (14) comprising an inner reclosing plug (5) which is initially fixedly connected to the uppermost part of the container sleeve, in which the container sleeve (1) is formed with an all around same extending weakening means (6) for making it possible to release the part (14) of the container sleeve located above said weakening means (6) together with the reclosing plug (5), thereby removing same, or rotating said part of the container about a hinge (18) which is formed by a non-perforated part (side) of the container sleeve (1), and in which the container sleeve (1), for stablizing the sides at the upper part of the container, has a sealing/closing means (4) in the form of a foil or a disc which is fixedly connected to the interior side of the container sleeve, and which has a means for providing a dispensing opening (17) therein.

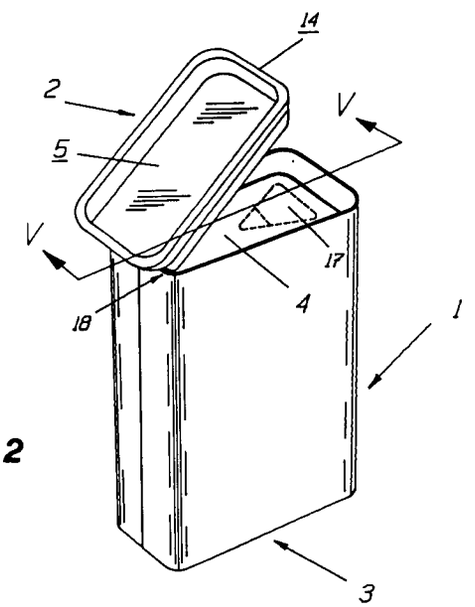

Fig. 2

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The present invention generally relates to a tubular container made of a relatively soft and pliable material like cardboard, a relatively soft plastic material, a cardboard-plastic laminate or another soft and pliable material and of the type which is made of a plain, even punched-out blank of such a material, which is fold to form a tube which is closed at the bottom thereof and which, after having been filled with intended goods, is also closed at the top thereof, and which is formed with some type of reclosing means, so that the container can be reclosed under at least a powder proof condition after it has been opened for the first time.

Containers of this type are commonly used as dispensing containers for all kinds of dry, semi-dry or paste formed products, like flower, powder, grains, flakes, pastes etc, which goods need not necessarily be reclosed under liquid and gas proof conditions, but for which goods it is sufficient that the reclosing of the goods is made "powder proof". Examples of such goods are coffee, tea, cocoa, suger, salt, grains, powder etc. In some cases such containers also have been used for liquid products.

The container is made so that the plain, punched-out blank, for instance the cardboard blank, is formed to a tube in that two side edges of the blank are fold together edge to edge, or are eventually placed slightly overlapping each other, and are secured in this position by being weld connected or glue connected, or still more preferably in that a weld or tape strip is placed over the interconnection joint; thereafter a cup-formed bottom piece is glued or welded to the bottom end of the container tube, in case the container tube is to be filled from the top; the filling alternatively can be made from the bottom, whereby the top is closed first; the container is filled with the intended goods; and it is finally formed with a top closure, which in this case should be of a type making the container reclosable, whereby is meant that is should be possible to repeatedly open the container for dispensing the goods thereof and thereafter to reclose the container under at least powder proof conditions.

Heretofore the container top generally has been formed as a separate unit, as for instance the reclosing top of the type shown in applicant's US patent 5.050,763, and which comprises en edge frame which can be secured on the upper edge of an open container tube, and a reclosing lid which is hinge connectd to said edge frame. This type of reclosing lids generally have been made of relatively hard plastic materials which both give the upper edge of the container a good stability and also makes it possible to reclose the container a large number of times by means of the hinge connected lid part.

A reclosing means of the above mentioned type, which is manufactured separately and is thereafter mounted on the container tube is, however, both expensive as concerns the manufacture and the mounting thereof on the container tube, and it also can causes certain problems in case the container is to be made completely recycleable, since the container top must is such cases be removed from the container before the container be recycled or destructed.

In some cases separate lids have been used, which lids are removed and are put back on the container respectively each time the packed goods of the container is to be dispensed. Such separate lids can easily get lost, they generally only fit on one single type of container, and for using same it is necessary that the container, in particular the upper edge of the container, is so stable that it can stand the pressure which is needed for pressing said lid down onto the container.

It is considered a great advantage if the container is formed with an integral lid which always accompanies the contaienr and which is made of the same type of material as the remaining parts of the container, in the present case of a relatively soft cardboard material or a plastic-cardboard laminate. This is advantageous in that the lid is always at hand, and that the container as a complete is recycleable or can be destructed without the need of removing any parts of the container.

A container of this type having an integrated reclosing lid is known from the US patent 2,152,400 (D Da Rold). Said container comprises a container tube which can be made of, for instance, a cardboard material and which has an integrated reclosing top formed as a type of plug which is in part introduced into the upper end of the container. The reclosing top is formed as a part which is separated from the container tube, separated therefrom by a weakening line which can be torn open, and which extends round only a part of the container tube, thereby leaving a little part which is integral with the container tube and which acts as a hinge for the reclosing top.

The container shown in the said patent may seem to be a good container for certain types of goods, but the container has not gained any success on the market. The reason therefore may be that the container, if made of a soft cardboard material, is so soft that it may be difficult to press the reclosing plug into the upper end of the opened container tube, and that the upper edge of the container tube by time becomes damaged so that it is no longer possible to close the container by means of the reclosing top. For making such handling of the container possible it is necessary either that the material from which the container tube is made is very stable, and this can hardly be pro-

vided by means of a cardboard material, or the tube must be formed so as to become stabilized in one way or another.

In the case illustrated in said US patent the container tube is formed with a concave peripheral groove at a place corresponding to the bottom of the reclosing plug, but it is not stated in the patnet that said groove is intended to stabilize the tube but is only attended to form a shoulder against which the bottom edge of the reclosing top engages in its closed position. If the container is seized at the vertical sides thereof the container will irrevocably be pressed together and this may make it more difficult, or even impossible, to press the reclosing plug into the open mouth of the container.

In containers having a polygonal cross section form, e.g. a mainly square or rectangular cross section form, the problem of lack of stiffness in said types of containers is still more significant.

For many types of goods the said known container also has an insufficient storing tightness, whereby is meant the tightness before the container is opened for the first time ever.

The object of the present invention therefore has been to provide a container of a cardboard material of the initially mentioned type having an integrated reclosing part in the form of a re-useable reclosing plug, which is hinge connected or otherwise connected to the container,

in particular a container having a circular or mainly square or rectangular cross section form with sharp or rounded corners,

which container is formed so that it has a relatively good "storing tightness", even a gas proof tightness before the container has once been opened,

which container, after it has been opened for the first time, can be reclosed many times under at least powder proof conditions,

which has such a stable upper part that the reclosing part (the reclosing plug) can be pressed down into the open upper rim of the container without any problems, even if the container is seized from the sides thereof at a central part of the container, and is theeby perhaps partly compressed,

which is easy to open and to reclose,

which is formed so that the reclosing part thereof also provides a tamper evidence safety means which directly indicates if the container has ever been opened,

and which is recycleable as a whole.

All of said objects are fulfilled by such a container in which the container top is formed with an inner reclosing plug which is fixed connected to the upper part of the container tube or sleeve, in which the container sleeve all around same or mainly along three, out of four sides, is formed with a weakening means, for instance a perforation, for making it possible to release the part of the container sleeve located above the perforation line, together with the reclosing plug, whereby this is made either in that the entire top together with the reclosing plug is removed, or in that said part is rotated up about a hinge which is formed by the non-perforated part (side) of the container sleeve, and in which the container sleeve, for stabilizing the upper part of the container, has a sealing foil or a sealing disc of cardboard or a cardboard-plastic-laminate adjacent the bottom surface of the reclosing plug when in closed position, which foil or disc is fixedly connected to the inner surface of the container sleeve, and which has a dispensing opening which can be torn open.

Further characteristics and advantages of the invention will be evident from the following detailed specification in which reference will be made to the accompanying drawings, in which figure 1 is a perspective view of a container according to the invention in its not yet opened condition and seen obliquely from above. Figure 2 shows the same container with a half opened reclosing part. Figure 3 shows a cross section along line III-III of figure 1. Figure 4 shows a cross section in part along line IV-IV of figure 1, and figure 5 is a cross section view, in part, along line V-V of figure 2. Figure 6, finally, shows a sequency comprising six sketches, a-f, of a method of making and filling a container according to the invention.

The container shown in the drawings is formed as an integral unit made from a plain, evenblank of a relatively soft andpliable material and comprising a container tube or sleeve 1 having a top 2 and a bottom 3, and further comprising a sealing inner closure foil 4 and a reclosing plug 5 provided at the top of the container. A perforation 6 is provided a slight distance below the top 2 of the container sleeve 1, which perforation extends round the container sleeve or round the greatest part of the container sleeve. In the latter case the perforation leaves a part of the container sleeve un-perforated, whereby it forms a hinge about which the lid part, formed above said perforation 6, can be rotatated together with the reclosing plug.

The container, as a complete unit, is intended to mainly be made of a recycleable material like cardboard, or an internally plastic laminated or wax treated cardboard material which gives the container at least a powder tightness or eventually a liquid tightness or even a gas proof sealing before the container has been opened for the first time. The container can be made with any cross section shape, for instance a circular or oval cross section shape, or with a polygonal cross section shape with sharp corners. In the drawings, however, there is

shown a preferred container having a square or rectangular cross section shape with rounded corners.

As best shown in the sequency of sketches of figure 6 the container sleeve is manufactured, as known, from an even cardboard blank 7 which is formed with a perforation 6 on a slight distance below the upper edge 8 of the container sleeve and extending along the entire width, or along the greatest part adjacent the upper edge 8, see figure 6a. The blank 7 is fold round a (not illustrated) mandrel, so that the two side edges 9 and 10 meet edge to edge, and the blank is sealed to a tube or sleeve by means of an inner and/or outer sealing strip 11 which is welded or glued over the joint between the edges 9 and 10, see figure 6b.

The container sleeve is thereafter closed at one end, optionally at the bottom or at the top, before it is filled from and closed at the opposite end. The filling can be made from the top, but since the top is generally more complicated than the bottom it is ofter preferred to firstly close the container at the top and thereafter to turn the container upside down and fill same from the bottom and to close the container as shown in figures 6e and 6f.

The top closing is made as conventional, for instance by means of a mandrel which presses a piece of material through a formation ring, forms same to a closing blank having fold up rims and presses the sealing foil or the sealing disc 4 thereby formed down into the open top of the container sleeve. The fold up rims of the foil or cardboard disc 4 are glued or welded, for instance high frequency welded, to the inner sides of the container sleeve 1 some distance below the upper edge 8 and a slight distance below the perforation 6, see figure 6c.

Thereafter an end closure plug 5 is formed, for instance by a suitable cardboard material, which plug comprises a bottom 12 having fold up rims. The plug 5 should be so high that it can easily and effectively be pressed down as a reclosing means in an opened container, whereby the bottom 12 of the plug should reach as far down as to just above the fold up rims of upper edges of the sealing foil 4. The plug also should be located, with the upper edge 13 thereof a slight distance below the upper edge 8 of the container sleeve 1. The upwardly projecting part of the sleeve is fold down over the upper edge 13 of the plug 5 and is fixed thereto by being weld connected and/or by means of glue, hot-melt or a similar means. The closure plug 5 thereby provides a fixed connected unit which is integral with the lid part 14 of the ready container appearing above the perforation 6, see figure 6d. The container now is turned upside down and is filled with a material 15, figure 6e, and it is thereafter closed at the bottom by means of a closing foil or disc 16 in the form of a bottom disc having fold up rims (fold down in the upright position of the container). As known in the art the bottom edge of the container sleeve is fold or rolled inwards over the outwardly facing edges of the bottom closing means 16.

The interconnection of the side edges 9 and 10 of the container sleeve 1 preferably is made centrally of a straight side, either centrally of a short side as shown in the drawings, or optionally centrally of a long side of the container. The hinge, about which the lid part 14 can be rotated, preferably is provided on the side where the sleeve edges 9 and 10 have been joined. Upon need the hinge can be reinforced by means of an inner and/or outer strip of tape, so that the lid part 14 can be opened and reclosed a great many times without breaking the hinge.

The container thus formed, filled and closed is opened in that the weakening line or perforation 6 extending round, or along three of the sides of the container is broken open. For a suitably formed perforation this can be done easily and simply.

A special feature of the invention is that the container, adjacent the upper edge and just under the bottom 12 of the reclosing plug 5 and directly under the perforation 6, is formed with a closure foil or a carboard disc 4 which fulfills three different purposes, namely

to provide a powder proof, or possibly a liquid proof, or even a gas proof enclosing of the packed goods,

to provide a tamper evidence safety means which directly shows if the container has unduly bee opened,

and - in front of all - to provide such side stabilization of the upper part of the container that the lid part 14 with the reclosing plug 5 can be pressed or rotated down into the container end a great many times without deforming or damaging the container sleeve as may otherwise have happened to containers of such soft material as in the described container.

The closing or sealing foil can be made of a cardboard material, for instance of the same type of material as in the container sleeeve, but is has shown, in practice, that it is quite sufficient to form the closing foil of a thinner material, such as a paper foil, a foil of paper-plastic-laminate or as a plastic foil. The best effect, however, is obtained by a cardboard-plastic laminate which both gives the container a very good stability adjacent the upper edge, and also makes it possible to close the container under gas proof condition before the container has been opened for the first time.

For facilitating a dispensing of the packed goods the closing foil or disc 4 is formed with an opening means 17 which can be torn open, and

which is formed as a tear opening means adjacent the edge which is opposed the edge having the hinge 18. The opening should be so much smaller than the cross section area of the container as to leave an all around the opening extending frame of at least one tenth of the width of the closing foil, for instance 3-5 mm för a container having a width/length of about 7/12 cm. Said frame guarantees a maintained stability of the container even after the openingmeans 17 has been torn open. In figure 2 the opening is shows as a triangular tearing opening 17 which can be formed with, or without, a tear open strip for facilitating the opening thereof.

Reference numerals

1	container sleeve
2	container top
3	container bottom
4	closing foil
5	reclosing plug
6	perforation
7	sleeve blank
8	upper edge (of 7)
9	side edge (of 7)
10	side edge (of 7)
11	sealing strip
12	bottom (of 5)
13	upper edge (of 5)
14	lid part
15	container goods
16	bottom closing foil
17	opening (of 4
18	hinge

Claims

1. A tubular container made of a relatively soft and pliable material like cardboard, a relatively soft plastic material, a cardboard-plastic-laminate or another soft and pliable material and of the type which is made of an even punched-out blank (7) of such material, which blank is fold into a tube or sleeve (1) and which is closed at the top (2) and at the bottom (3) and is formed with some type of reclosing means (14), so that the container, after it has been opened for the first time, can be reclosed under at least powder proof conditions, **characterized** in that the container top (2) is formed with an inner reclosing plug (5) which is fixed connected to the uppermost part (14) of the container sleeve (1), where the container sleeve (1), all around same or along the greatest part of its periphery, is formed with a weakening means, for instance a perforation (6) for making it possible to release the part (14) of the container sleeve (1) located above the perforation (6) together with the reclosing plug (5) and to remove same or to rotate said part (14) about a hinge (18) provided by a non-perforated part of the container sleeve (1), and in that the container sleeve (1) for stabilizing the sides at the upper part of the container has a sealing means in the form of a foil or a disc (4) which is fixed connected to the inner sides of the container sleeve, and which foil or disc has a dispensing opening means (17) which can be opened.

2. A container according to claim 1, **characterized** in that the sealing/closing foil (4) is arranged on such a distance below the perforation (6) that the bottom (12) of the reclosing plug (5), when closed, is located just above said sealing means (4).

3. A container according to claim 1 or 2, **characterized** in that the sealing/closing foil or disc (4) is formed with fold up rims, and in that the reclosing plug (5) is arranged to be located just above the fold up rims of the sealing/closing foil or disc (4) with the bottom (12) thereof when said reclosing plug (5) is in its closed position.

4. A container according to claim 1, 2 or 3, **characterized** in that sealing/closing foil or disc (4) is sealing the container before the container has once been opened, and in that said foil or disc (4) is formed with a means for tearing open a dispensing opening (17) which is of such size as to leave, after it has been torn open, an all around extending frame margin against the container sleeve (1) of at least 1/10th of the width of said foil.

5. A container according to any of the preceding claims, **characterized** in that the container as a whole is made of a recycleable material, for instance of cardboard, a soil plastic material or a cardboard-plastic-laminate.

6. A container according to any of the preceding claims, **characterized** in that the container sleeve (1) has a circular, oval, square or rectangular cross section shape.

7. A container according to any of claims 1-5, **characterized** in that the container sleeve (1) has a parallelepipedical cross section shape with rounded corners, and in that the container sleeve, in the last mentioned case, is joined (9, 10) at or close to the centre of a straight part of a side, and in that the hinge (18) about

which the reclosing plug (14) can be rotated in relation to the container sleeve (1) is arranged at the same side.

8. A container according to claim 6 or 7, **characterized** in that the container sleeve (1) is joined edge to edge (9, 10) by means of an inner and/or outer joining strip (11).

9. A container according to claim 7 or 8, **characterized** in that the hinge (18), about which the reclosing plug (14) can be rotated in relation to the container tube (1) is reinforced by an inner and/or outer reinforcing strip, e.g. a strip of tape.

10. A container according to any of claim 1-6, **characterized** in that the container sleeve (1) is perforated all around same, and in that the closure part (14) with the reclosing plug (5) is formed as a removable and re-insertable reclosing means.

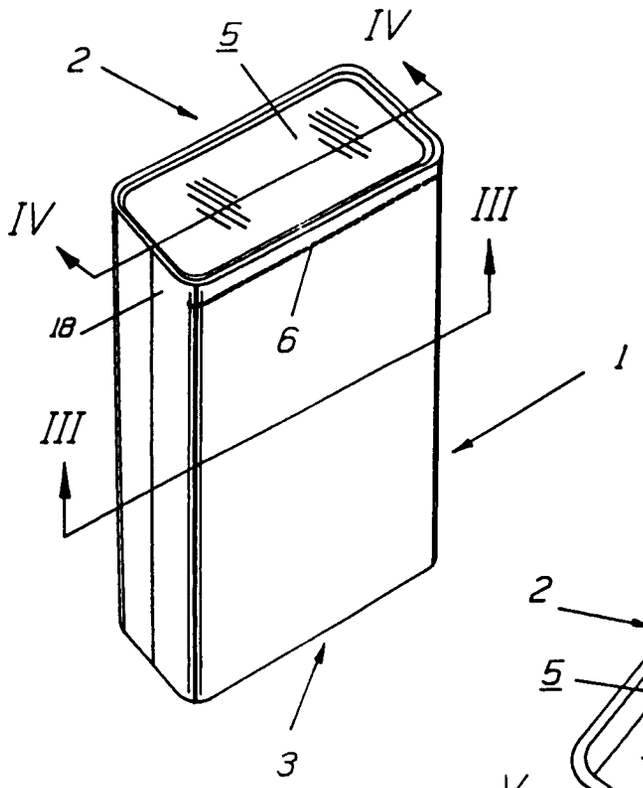

Fig. 1

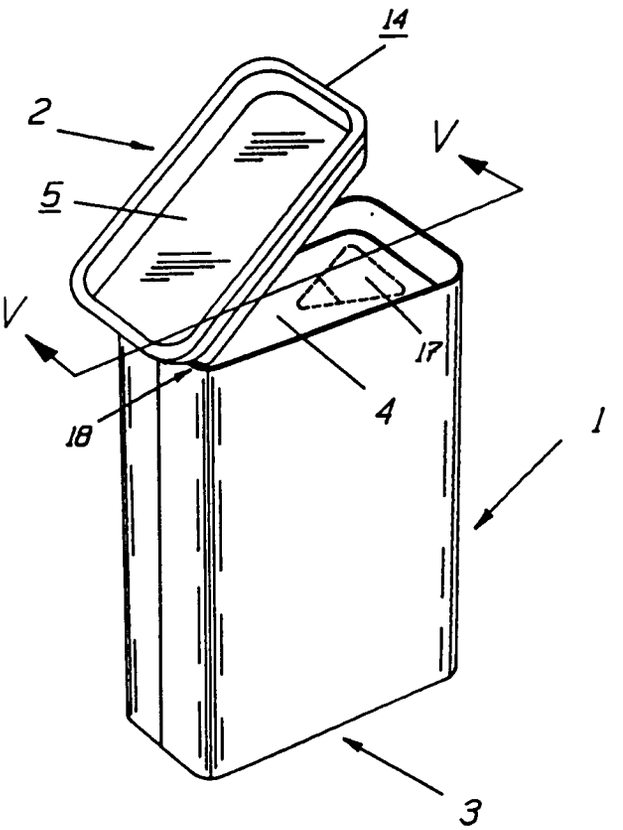

Fig. 2

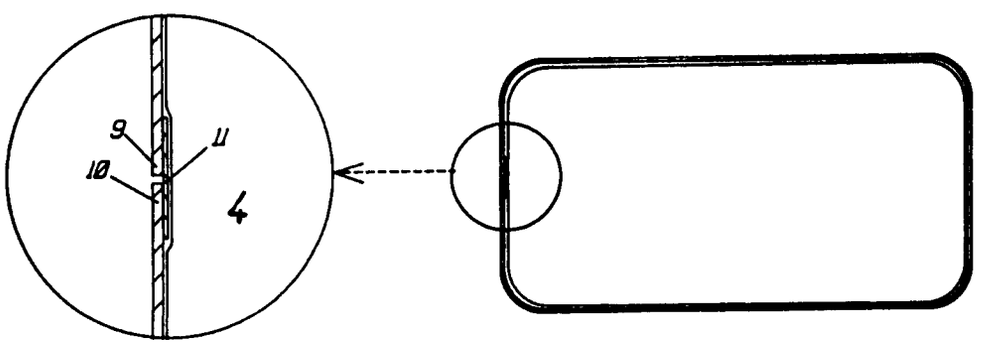

Fig. 3

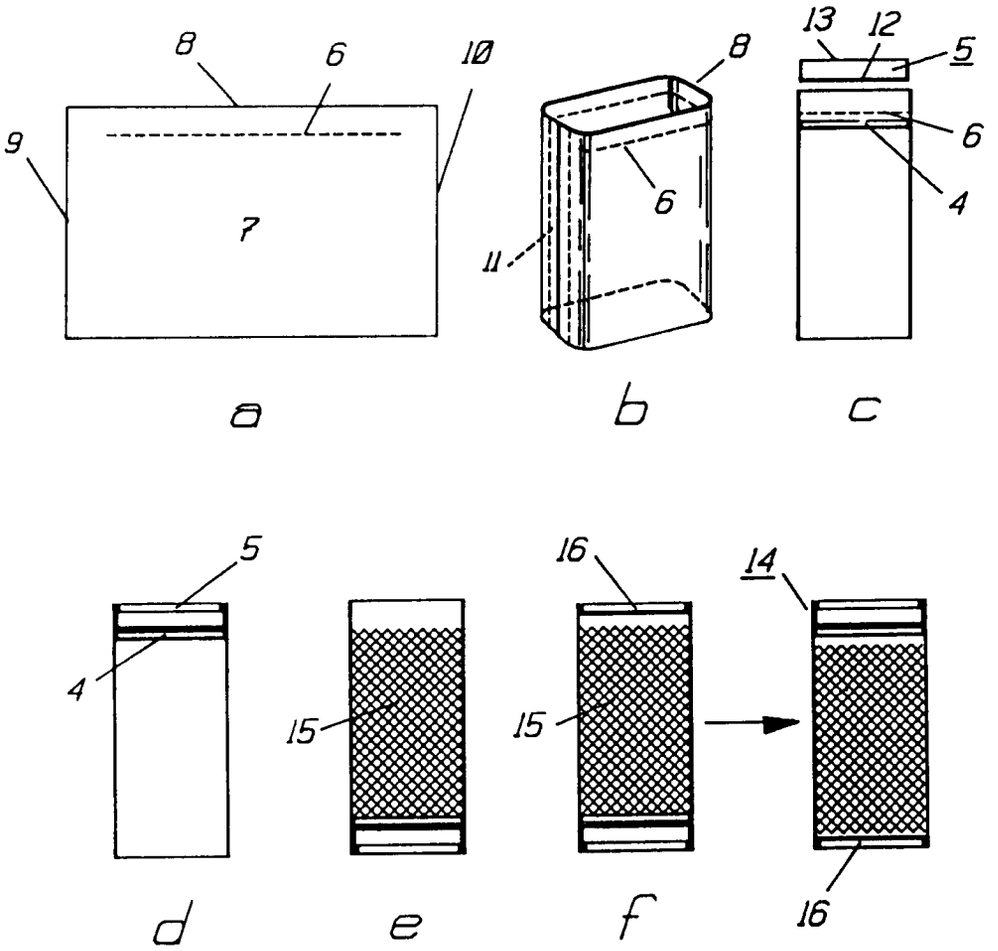

Fig. 6

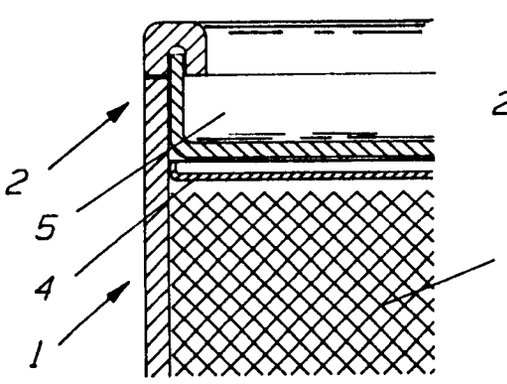

Fig. 4

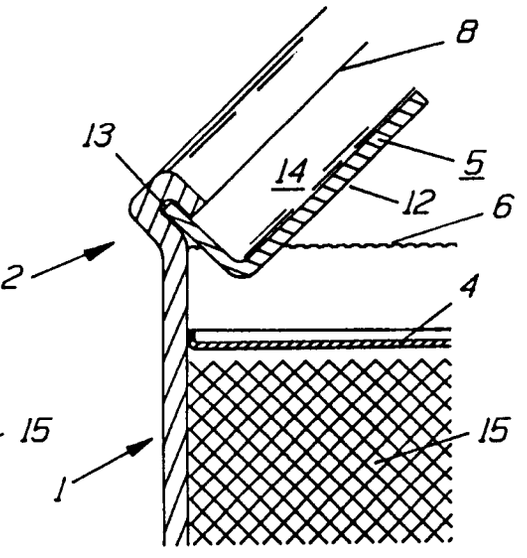

Fig. 5