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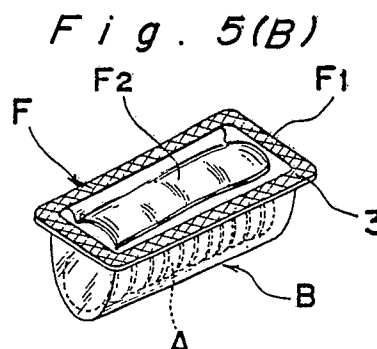
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54 **Packaging set for solid articles.**

57 A packaging set for solid articles (A) comprising a receptacle including a container (1) for accommodating the solid articles therein, and a film cover (F) made of breakable thin film fixedly secured on the opening edge of the container so as to seal hermetically the opening of the container (1), and a casing (C) including a case (5) having a mouth (6) corresponding to and slightly smaller than that of the opening of the container, and the lid (7) detachably set onto the case (5) so as to be able to move to close or open the mouth (6) of the case (5), whereby, when the side edges (8) of the mouth (6) of the case (3) upon taking off, the lid (7) is applied to press onto the film (F) of the cover of the receptacle to break off the film of portions corresponding to at least three sides of the opening (2) of the container (1), all the solid articles (A) in the container (1) is rendered to be able to change into the case (5) at one time with leaving the broken film (F) behind the container (1).



Description

PACKAGING SET FOR SOLID ARTICLES

BACKGROUND OF THE INVENTION

The present invention generally relates to a packaging set for solid articles which is comprised of a blister package for accommodating hermetically solid articles such as medicines or drugs having shapes of tablets, pills, troches, capsulated materials or the like therein, and a carrier casing or a tablet dispenser of portable type for use in refilling the solid articles from the blister package thereinto, which allows the changing operation for the solid articles to be easily carried out without at one time causing any problems.

Generally, medical products or drugs are not only value-added expensive ones, but are given a long term of quality guarantee, and accordingly it is highly required for the medical products or drugs to prevent the deterioration of quality during the distribution or storage thereof. For the reason, a packaging container or receptacle for the medical products functions on the one hand as a hermetic sealer to protect the quality of the products. On the other hand, the packaging container is required to have such function that can allow easy take-out of the medical products when necessary. The above-mentioned two functions contrary to each other, namely, the sealing function and easy take-out function cannot be actually achieved by one packaging container alone from the practical view point because of large restrictions in design and high manufacturing cost.

Accordingly, conventionally, a carrier dispenser is attached to an original container when solid medicines such as tablets, capsulated materials etc. which are relatively often carried outside among the medical products are concerned. In this case, when the solid medicines are carried outside, the solid medicines should be repacked from the original container to the carrier dispenser, so that the solid medicines can be easily taken out when necessary. Therefore, a large plastic bottle or a large plastic box is employed for the original container for many cases. And, a long columnar plastic container or an aluminum tube is used as the carrier dispenser. Besides, the solid medicines are generally formed as disklike tablets and therefore are packed in compact within the carrier dispenser if they are piled up in a thickness direction.

In the conventional arrangement as described above, however, it is really inconvenient to take time for repacking the solid medicines from the original container to the carrier dispenser.

For instance, the solid medicines are changed from the original container to the carrier dispenser generally in the following complicated procedure.

(1) In each of the original container and carrier dispenser a space for the changing operation is necessary to provide of itself in addition to a capacity for the accommodation, respectively.

(2) A temporary container for temporarily

containing tablets and a pincette for the operation of changing are prepared separately from the original container.

(3) A mouth of the original container is opened.

(4) Tablets the number of which is selected on the supposition that it approximately corresponds to the capacity of the carrier dispenser are changed from the original container into the temporary container.

(5) The tablets changed into the temporary container are changed to the carrier dispenser by the use of the pincette.

(6) The tablets are aligned in a row within the carrier dispenser.

(7) If the tablets in the temporary container are less or more than the capacity of the carrier dispenser, the corresponding amount of the tablets are additionally taken out from the original container or returned back to the original container.

(8) The case cover of the carrier dispenser is closed.

(9) The mouth of the original container is closed.

(10) The temporary container and the pincette are put away to the initial positions.

In addition, in a special case, the above-described operations (5) and (6) may sometimes be necessary to be repeated. Also, if the tablets are changed and moved by fingers of an operator without use of the pincette, the fingers should be cleaned before and after the changing operation.

As described hereinabove, according to the conventional manner, many operations including the above ten steps are needed to be performed for changing tablets from the original container to the carrier dispenser. In addition, considerably careful attention should be taken so that the tablets do not scatter outside or do not get wet during the changing operation, and therefore the conventional changing operation is regarded as troublesome or tiresome for an operator.

Moreover, in the changing operation, every time the mouth of the original container is opened, the interior of the original container is exposed to the air, which invites the quality deterioration of the tablets contained in the original container as a result of the moisture absorption or the like.

In order to eliminate the above-described disadvantages, one solution can be proposed in such a manner that the original container is formed compact in size so as to be carried with as it is, whereby the changing operation can be omitted.

In general, the medical products are wrapped in a package mostly by a PTP (Press Through Pack) method on the employment of a sealing film, for example, an aluminum foil, etc., to close the opening of package in air-tight. In the case of the PTP method, when the solid medicines such as tablets or capsulated medicines are taken out of the package,

the packed solid medicines are pressed from above by a finger or fingers of an operator thereby to break the sealing film of the package. Also, based on the above-described PTP method, a blister package which is used for packing various kinds of miscellaneous goods like a stick of rouge, a tube of adhesive agent, etc. can be employed to pack the solid medicines. For instance, as seen from Figs. 11 and 12, a blister package B' is constructed by sealing tablets A into a container 1' by a film cover F' bonded on the flange of opening of the container 1'. When the tablets A are desired to be taken out from the package B', the bottom of the container 1' is pushed on by a finger or fingers of an operator to break the film cover F', as shown in Fig. 11, or the film cover F' is peeled off from the container 1 to open the opening of the container 1' as shown in Fig. 12.

The above-described blister package is advantageous in that the conventional manufacturing equipment can be used and small amount of materials are enough to manufacture, and the function in the form of the container is good for the carrying purpose. On the other hand, however, the blister package has such drawbacks that once the film cover is broken or opened, the tablets remaining within the container are rendered to go out free at random from the opening of container, while foreign items easily invade into the package, with deteriorating the quality of the tablets, causing poor appearance of the package and, subsequently the blister package is inconvenient in practical use.

SUMMARY OF THE INVENTION

Accordingly, an essential object of the present invention is to provide an improved packaging set for solid articles comprised of a blister package and a carrier casing which is designed in simple to prevent the quality deterioration of solid articles, while maintaining good-looking appearance of compact during carrying and convenience for use, and to allow easy changing of all the solid articles from the blister package to the carrier casing at one time or at a shot breaking the film cover of container.

In accomplishing the above-described object, according to the present invention, a blister package for packing in sealing the solid articles therein is in accompanying with a carrier casing for changing and storing the articles therein in the state of being able to take out the articles therefrom in free, and the carrier casing is so constructed that, when a film cover of the blister package is pressed and broken by the carrier casing, all the articles contained in the blister package are changed into the carrier casing at one time.

More specifically, according to the first aspect of the present invention, the packaging set is so constructed in combination of a blister package including a container for accommodating a given amount of solid articles therein, and a film cover made of breakable thin film fixedly secured on a flange which is provided around the opening edge of the container, so as to seal hermetically the opening of the container, said opening having a shape of approximate rectangular of four sides, and a carrier casing including a case having a mouth of a

rectangular shape corresponding to and slightly smaller than that of the opening of the container, and a lid detachably set onto the case so as to be able to move to close or open the mouth of the case, at least one side edge of the mouth of the case being formed to be able to break the film of the cover by pressing onto the cover, that, when the side edges of the mouth of the case upon taking off the lid is applied to press onto the film of the cover of the receptacle to break off the film of portions corresponding to at least three sides of the opening of the container, all the solid articles in the container is rendered to be able to change into the case at one time with leaving the broken film behind the container.

Namely, the packaging set is comprised of a long columnar blister package accommodating many solid tablets therein and a carrier casing having approximately the same size as the package for receiving the tablets from the package therein. The carrier casing has a case provided with a mouth opened at one side of the case. The mouth of the case is covered by a lid in a manner to be freely openable or closable. The lid is slidably mounted on the case and is easily disassembled from the case to leave the case alone for the purpose of engaging the case with the package. A peripheral portion of the mouth of the case is so shaped as to be able to be fitted into an opening of the container. Solid articles in the package are taken out through the container opening. It is so arranged that the peripheral portion of the mouth of the case can break a film cover sealing the container along the inner periphery of a brimmed portion of the film cover facing to the container opening.

According to a preferred embodiment of the present invention, the packaging set is partially modified as described hereinbelow.

To facilitate to handle the solid articles, all of the solid articles each formed of disk shape are piled up in succession in a direction of along the center axes of the solid articles so as to form a one unit of approximate cylindrical shape within the package.

The container of the package is formed of including approximately a lower portion of a half cylinder and an upper portion of a reversed cone frustum expanding outwardly from all the upper sides of the lower portion to the opening of the upper portion, with a flange provided along the periphery of the opening of the upper portion and formed of a kind of brim having a shape of certain width in rigid condition so as to facilitate to recognize the location of the opening of the container from the outside of the film cover.

For the purpose of engaging the case with the package, at least one of sides of the mouth of the case is so extended outwardly higher than the other sides of the mouth, that it is rendered for the one side to contact with the film of the cover easily at first more than the other sides which are lower enough to remain easily the film being unbroken, in such a manner that the two short sides of the mouth of the case are extending outwardly higher than the remaining two long sides of the mouth, one of the short sides of the mouth is extending outwardly higher than the other of the short sides of the mouth,

and one of the long sides of the mouth is extending outwardly higher than the other of the long sides of the mouth, with providing a sharp edge at the end of the one of the long sides of the mouth so as to facilitate to bump against the film of the cover at the side of the one, while the film is easily remained unbroken at the side of the other.

Also, the case is provided with a groove for engaging with the lid to move slidably the lid in the axial direction of the casing so as to open or close the mouth of the case, and a stopper in the groove to hold the lid at the position for opening the mouth of the case just enough to taking out the solid articles one by one therefrom.

The mouth of the case is formed to extend in a lengthwise direction of the case, and at the same time the lid is slidably fitted in a lengthwise direction in the case. In the package, the film of the cover is made of aluminum film or a paper of glassine.

Accordingly, the present invention provides a packaging set for accommodating solid articles therein which is comprised of a blister package and a carrier casing, and all of the solid articles can be easily and readily changed from the blister package into the carrier casing in one successive step of the changing operation without exposing the solid articles to the air for long hours and to the fingers of an operator. Moreover, since a film cover which seals the blister package is arranged to be positively cut out when the solid articles are changed into the carrier casing, while some part of the film cover is remained attached to the blister package, the changing operation is made much easier and less trouble-taking. Further, when the solid articles in the carrier casing are needed, they can be taken out one by one through slight sliding movement of the lid covering of the case.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other objects and features of the present invention will become clear from the following description taken in conjunction with the preferred embodiments thereof with reference to the accompanying drawings, in which:

Figs. 1(A) to (C), are views of a blister package; in accordance with a preferred embodiment of the present invention, Fig. 1(A) showing a perspective view, taken from below, of the package, Fig. 1(B) a perspective view, taken from above, of the package, Fig. 1(C) a side view, on an enlarged scale, of the package;

Fig. 2 is a perspective view of a carrier casing mating with the blister package of Fig. 1 in accordance with the preferred embodiment of the present invention;

Figs. 3(A) and (B), are views, on an enlarged scale, of a case consisting of the carrier casing of Fig. 2, Fig. 3(A) showing a front view of the case, and Fig. 3(B) a side view of the case;

Figs. 4(A) and (B), are views, on an enlarged scale, of a lid consisting of the carrier casing of Fig. 2, Fig. 4(A) showing a cross-sectional view of the lid, and Fig. 4(B) a side view of the lid;

Figs. 5(A) to (E) and (B), are views presented for the purpose of explaining in order the

operation of changing the solid articles from the blister package of Fig. 1 to the carrier casing of Fig. 2, Fig. 5(A) showing a perspective view of the blister package and case, Fig. 5(B) a perspective view of the blister package, Fig. 5(B'), Fig. 5(C) and Fig. 5(D), respectively, perspective views of the blister package and case, and Fig. 5(E) a perspective view of the carrier casing;

Fig. 6 is a perspective view showing the state of taking out one solid article from the carrier casing of Fig. 2;

Figs. 7(A) to (C) are views showing a modification of the blister package according to the present invention, Fig. 7(A) showing a perspective view of the modification, Fig. 7(B) a side view thereof, and Fig. 7(C) a bottom view thereof;

Figs. 8 to 10 are views each showing other modifications of the blister packages according to the present invention, Figs. 8, 9 and 10 showing, respectively, perspective views, taken from below, of the blister packages; and

Figs. 11 and 12 are views of conventional blister packages, respectively, as already referred above, Fig. 11 showing a cross-sectional view of the blister package, and Fig. 12 a perspective view of the blister package.

DETAILED DESCRIPTION OF THE INVENTION

Before the description of the present invention proceeds, it is to be noted that like parts are designated by like reference numerals throughout the accompanying drawings.

Referring to Figs. 1 and 2, in a preferred embodiment of the present invention, there provides a packaging set for solid articles A comprising, in combination, a long-cylindrical blister package B for containing accommodating hermetically a given amount of tablets A therein, as shown in Figs. 1(A) to (C) and a carrier casing C of shape in dimensions almost similar to said blister package for receiving therein all the tablets A from said blister package B, as shown in Fig. 2. The blister package B is consisted of a container 1 made of semi rigid sheet for accommodating a given number of tablets A therein, and a film cover F made of breakable thin film and fixedly provided on the flange of an opening of the container 1 so as to close hermetically the opening of the container 1. The container 1 is a kind of receptacle having a shape suitable for receiving a unit of the tablets A each having a shape of disk and piling up on the other in succession along the axial direction thereof. The carrier casing C is consisted of a case 5 having a mouth 6 opened at one side of the case 5, and a case cover or lid 7 detachably and movably provided on the case 5 so as to make freely opening or closing said case mouth 6. The peripheral side or sides 8 of the case mouth 6 are formed as to be fittable into the container opening 2 through which the tablets A are taken out to change into the case 5 from the case mouth 6. The film or film member of the cover F sealing the container opening 2 is able to be press-cut along the inner periphery of a brimmed portion of the opening 2 by

the peripheral edge of side or edges of sides 8 of the case mouth 6. The mouth 6 is opened in the case 5 extending in a lengthwise direction, and the lid 7 is slidably fitted in a lengthwise direction of the case 5. At least one side edge of the case mouth 6 is formed to be able to break the film of the cover F by pressing onto the cover F.

In Figs. 1(A) and (B), the tablets A accommodated in the blister package B are formed of disk shape, and contained integrating with each other in the thickness direction within the long cylindrical container 1. Each of the tablets A is formed of disk shape, and all the tablets A are piled up in succession in a direction along the center axes of the tablets A so as to form a one unit of approximate columnar shape to accommodate within the container 1. The blister package B has, as shown in Fig. 1(B), a rectangular opening 2 for taking out the tablets A therethrough formed at the upper side of the container 1 and sealed with the film cover F. The container 1 is transparent and made by heat-molding of a thermoplastic resin such as polyvinyl chloride, polypropylene, and the like. The container 1 is formed, as shown in Fig. 1(C), including approximately a lower portion of half cylinder and an upper portion of reversed cone frustum expanding outwardly from all the upper sides of the lower portion to the opening of the upper portion. The flange 3 of the container 1 is formed of a kind of brim having a shape of certain width in rigid condition so as to facilitate to recognize the location of the film cover F from the outside. The film cover F is made of an aluminum foil or glassine paper, and the like subjected to heat-seal coating, the peripheral portion of which is heat-sealed to the upper surface of a flange 3 or a brimmed portion of the opening 2 after accommodating the tablets A in the container 1. As the container 1 is formed expanding outwardly toward the opening 2, there is some space 20 between the tablets and the inner surface of the container 1 upon sealing of the container 1 by the cover F. Also, for the purpose of facilitating the recognition of locations between the central portion of the film F closing the opening 2 and the peripheral portion of the film F bonded on the flange 3, there provides a pattern of net shape on the flange 3 fixing the film F thereon, as shown in Fig. 1(B).

Fig. 3 shows the carrier casing C to be used when the tablets A contained in the blister package are changed therein for carrying purpose. The carrier casing C is consisted of the case 5 and the lid 7, and is made of a plastic mold in the cylindrical shape having approximately the same length as the blister package, the case 5 and lid 7 being formed of almost a half of the cylindrical shape divided along the axial direction of the casing C. In other words, the upper half of the peripheral wall of the case 5 is removed, and the lid 7 is provided to cover approximately the same area as the removed portion of the peripheral wall 5a of the case 5. The tablets A are accommodated within the inner space of the casing C assembled with the case 5 and lid 7.

In the state that the carrier casing C is turned sideways, the lid 7 freely, openably covers the mouth 6 formed at the upper side of a peripheral wall

5a of the case 5. The lid 7 is slidably engaged on the case 5 to move in the axial direction of the casing to open or close the mouth 6 of the case 5. The case 5 is provided with a pair of grooves 10,10 for engaging with the lid 7 to move slidably the lid in the axial direction of the casing 5, and a pair of stoppers 11,11 in the groove 10,10 to hold the lid 7 at the position for opening the mouth 6 of the case 5 just enough to taking out the tablets A one by one. More specifically, the container 1 has a shape of almost a half of cylinder, as shown in Figs. 3(A) and 3(B), providing a receptacle for accommodating the tablets A therein which is formed with a peripheral wall 5a of a half arc shape and a pair of side walls 5b,5b and provides the mouth 6 of a rectangular shape opened and surrounded by the four upper sides of the all walls 5a,5b,5b. As the upper half of the peripheral wall of the case 5 is removed, and the lower half of the peripheral walls 5a and 5b are left as they are, the short sides 8a and 8a of the peripheral wall 5 are higher than the long sides 8b and 8b.

The four upper sides of the case mouth 6 is consisted of two long sides 8b-1 and 8b-2 corresponding to the both upper ends of the peripheral wall 5a, and two short sides 8a-1 and 8a-2 corresponding to the upper ends of side walls 5b,5b, and is so designed in dimensions slightly smaller than the inner size of the container opening 2 that the upper sides of the case mouth 6 are able to insert into the container opening 2 along the inner edge of the flange of the container 1. In the embodiment of Figs. 3(A) and (B), each of the upper sides of the case mouth 6 is different in height with the other sides so as to break easily the film F of the package B by the highest one of the upper sides.

In other words, the two short sides 8a,8a of the case mouth 6 are extending outwardly higher than the remaining two long sides 8b, 8b. One of the short sides 8a, 8a of the mouth 6 is so extended, outwardly higher than the other of the short sides of the mouth 6 that it is rendered for the one side to contact with the film of the cover F easily at first more than the other sides which are lower enough to remain easily the film F being unbroken. The side wall 5b including the highest side 8a-1 has a shape of almost oval constituting one side plane of the carrier casing C assembled with the lid 7 so as to be able to receive the tablets A. Each of the short sides 8a-1, 8a-2 of the mouth 6 is formed of a shape being thinner from the stem to the end to form a shape edge suitable to thrust into the film F of the package B.

One of the long sides 8b, 8b of the mouth 6 is extending outwardly higher than the other of the long sides of the mouth 6, with providing a sharp edge at the end of the one of the long sides 8b, 8b of the mouth 6 so as to facilitate to bump against the film of the cover F at the side of the one, while the film F is easily remained unbroken at the side of the other. Along the outer ends of the long sides 8b-1, 8b-2 there provide the pair of the grooves 10,10 into which the corresponding outer ends of the lid 7 are respectively fitted slidably to move the lid 7 in the axial direction of the casing to open or close the mouth 6 of the case 5. Within the grooves 10,10

there provides the pair of stoppers 11,11 at positions close to the highest 8a-1 of the short sides 8a,8a to hold tentatively the lid 7 at a position for opening the mouth 6 just enough to take out one of the tablets A from the case 5.

The lid 7 is detachably, slidably mounted on the case 6 in engagement of the grooves 10,10 of the case 6 with the corresponding grooves 13,13 provided on the inner ends of the lid 7, so that the lid 7 can be easily removed from the case 5 alone to open the mouth 6 fully to receive the tablets A from the package B into the case 5, and can be smoothly slid on the case 5 to close the mouth fully for carrying or partially for taking out the tablets A from the case 5 in engagement of the stopper 11,11 of the case with the corresponding stoppers 15,15 provided in the grooves 13,13 of the lid 7.

The rectangular upper sides 8 of the case mouth 6 is formed in a similar shape to and slightly smaller than the opening 2 of the blister package B. As shown in Figs. 5(A) and 5(B'), when the short sides 8a of the case mouth 6 force the film cover F to fit into the depth halfway of the blister package B, the long sides 8b touch the film cover F thereby to break the film cover F by pressing, as shown in Fig. 5(B).

In the embodiment, for enhancing the ability or efficiency of cutting the film cover F, it is effective to make small the thickness of the upper sides 8 of the case mouth 6. Namely, in the case where the carrier casing C is constructed in slide-type as in the present embodiment, since it is easy to make small the thickness of the fitting part of the case 5 with the lid 7, it is advantageous from the view-point of enhancing the cutting efficiency.

In the meantime, as to press-cut the film cover F, it may happen that a cut-out part of the film cover F which is totally cut out along the overall periphery of the opening 2 of the package B is brought to put in at the bottom of the case 5 is accompanying with the tablets A being changed from the package B, into the carrier casing C. However, although a film or a sheet is generally, completely die-cut by a dyeing press in a conventional manner such that the film or the sheet is added strong force with a pressure supporter provided at the reverse side of the film or the sheet, the film cover F of the embodiment of the present invention is never cut out in fact completely along the whole periphery with remaining an unbroken portion thereof, contrary to the case of conventional die-cutting, since between the tablets A and the film cover F, there is formed a room, space or gap 20 for rendering to provide a portion of the film F which is not pressed by the side of the mouth 6 of the case 5 to be cut out.

The results of the experiments concretely showing the above-described fact will be described hereinbelow.

More specifically, an aluminum foil or a glassine paper is employed for the film cover F. Moreover, the opening 2 of the blister package B is formed circular, triangular and square. The mouth 6 of the carrier casing C is formed similarly as the opening 2 of the blister package B. When the edge of the mouth 6 of the case 5 is brought into touch with the film cover F of the blister package B, while applying force as

uniformly as possible upon pressing the case 5 onto the package B by fingers of an operator, it is confirmed that the film cover F always started to be broken somewhere, but some part of the film cover F is always remained unbroken. Particularly, in the case where the mouth 6 of the case 5 is triangular, square or rectangular, one side of the film cover F is not cut out, but remained attached to the blister package B. In addition, it is made clear that, so long as there is a space 20 between the film cover F and the tablets A accommodated in the package B, the film cover F is cut out by the case 5 in the above mentioned manner different from the conventional even when the sides 8 of the mouth 6 of the case 5 is the same height along the whole periphery thereof. Also, the film cover F can be more effectively cut out when the height is different along the periphery by inclinations or steps.

It is to be noted here that, according to the embodiment, the rectangular opening 2 and the rectangular mouth 6 are formed respectively at the upper sides of the container 1 of the blister package B and the upper sides of the peripheral wall 5a of the case 5, but, those opening 2 and mouth 6 may be formed in a circular shape at the lateral side of the container 1 and the case 5, respectively. In this case, the lid 7 is mounted in screw-type-construction or hinge-type-construction, instead of the slide-type-construction. Moreover, the carrier casing C may be formed in the shape of a square pillar.

In the packaging set of the present invention having the above-described construction, solid medicines such as tablets A contained in the blister package B are changed into the carrier casing C in the following steps, for instance, as shown in Figs. 5(A) to (E) and (B).

(1) At a first step, the lid 7 is removed from the case 5 of the carrier casing C. Then, the sides of the mouth 6 of the case 5 are placed onto the film cover F of the blister package B, as shown in Fig. 5(A), to be faced against the opening 2 of the package B.

(2) Thereafter, at a second step as shown in Fig. 5(B), the case 5 is pressed from above thereby to break the film of the cover F along the brimmed portion of the opening 2 of the package B. At this time, since there is some room 20 in the inner space of the blister package B between the tablets A and the film of the cover F, one side of the four sides of the film cover F is remained unbroken, contrary to the conventional case where a film is broken completely through dying out by a press machine. In the cutting situation of the film cover F, when the case 5 is going to press onto the film cover F under keeping the case 5 in the almost horizontal position, the highest 8a-1 of the short sides of the case mouth 6 is brought to pierce into the film cover F to cut-out by the sharp edge of the highest one of the short sides of the container opening 2 sealed by the film cover F. Continuously, the other 8a-2 of the short sides of the case mouth 6 is going to cut-out the other of the short sides of the container 1, and then, the higher one 8b-1 of the

long sides of the case mouth 6 is made in contact with the film cover F to cut-out the corresponding one of the long sides of the container opening 2 under remaining the other of the long sides of the container opening in the un-cut state, even though the film cover F is bending downwardly to insert into the container 1 by pressing by the other 8b-2 of the long sides of the case 5. Accordingly, the film cover F is cut at three sides 8a-1, 8a-2, 8b-1 thereof, but is not cut at the one side remaining within the container 1, as shown in Fig. 5(B).

(3) At a third step as shown in Fig. 5(C), under the condition as mentioned in the second step, by reversing the blister package B and the carrier casing C, the tablets A are changed from the blister package B into the carrier casing C at one time through the container opening 2 and the case mouth 6 while the tablets A are kept aligned in order. In this state, the film of the cover F is folded back at the unbroken portion thereof, and laid under the tablets A under extending from the package B into the casing 5.

(4) Then, at a fourth step as shown in Fig. 5(D), when the blister package B is raised to separate from the case 5, the film of the cover F can be slipped off from under the tablets A, and the blister package B together with the film cover F is separated from the carrier casing C. The empty blister package receptacle B is disposed.

(5) Finally, as a fifth step as shown in Fig. 5(E), the lid 7 is assembled with the case 5 under engaging the grooves 13, 13 of the lid 7 with the corresponding grooves 10, 10 of the case 5 to cover the case mouth 6 by the lid 7. The lid 7 is slidably mounted on the case 5 under the guide of grooves 10, 13 to close the case mouth 6 completely, or partially at the position to be held tentatively be engaging between the stoppers 11, 15 of the case 5 and lid 7.

With the above steps, it is easily done for an operator to change the tablets A from the blister package B to the carrier casing C at one time by the operation of removing the lid 7 from the case 5, pressing the case mouth 6 onto the container opening 2 to break the film cover F, changing the tablets A from the container 1 to the case 5 through the container opening 2 and the case mouth 6, and reassembling the lid 7 onto the case 5. The tablets A accommodated within the case 5 can be easily taken out upon the partial opening of the mouth 6 by sliding the lid 7 to the position of the stoppers 11, 15, as shown in Fig. 6.

In the above-described manner, the changing operation which has been divided into 10 steps according to the conventional method as described earlier can be completed by so much reduced number of proceedings as five in one successive flow, and accordingly the changing operation for the tablets can be made easy.

Moreover, since not only the blister package B which is the original container of the tablets A has the high sealing efficiency and protective function

during the storage of the tablets A, but the changing operation can be carried out with ease without exposing the tablets A to the air for a long time, and without touching the tablets by fingers of an operator directly, the packaging set of the present invention can avoid the quality deterioration of the tablets. Also, in the construction of the packaging set, since the short sides of the film cover F are positively press-cut by the short sides 8a and 8a' of the peripheral walls 8 of the case mouth 6, as shown in Figs. 5(A) to (E) and (B'), the film cover F can be readily slipped off from under the tablets A, thereby rendering much easier the changing operation of the tablets A. Besides, the tablets A can be taken out from the carrier casing C one by one by sliding the lid 7 in a lengthwise direction to open the mouth 6 of the case 5 partially, and therefore the carrier casing C is convenient in use.

Therefore, in the embodiment of the present invention, the packaging set has many advantages such that the tablets can be changed by reduced number of operations in a successive flow, thereby realizing easy and ready changing of tablets from the blister package to the carrier casing.

Moreover, since the original container of the tablets, namely, the blister package can tightly seal the tablets, and protect the quality of the tablets perfectly during the storage. Further, since the changing of the tablets from the blister package to the carrier casing can be easily carried out, in other words, the tablets can be less exposed to the air and never touched by fingers directly, the tablets are hard to be deteriorated in quality. Also, when taking out the tablets from the carrier casing, the tablets can be taken out one by one by sliding the lid in the lengthwise direction of the case and slightly opening the mouth of the case, resulting in improvement of the using convenience. In addition, since the film cover of the blister package receptacle can be positively cut out simultaneously at the opposite short sides thereof by the short peripheral walls of the mouth of the case, the film cover can be slipped off by small movement to be removed from under the changed tablets, thus realizing easier changing operation.

Although the present invention has been fully described in connection with the preferred embodiments thereof with reference to the accompanying drawings, it is to be noted that various changes and modifications are apparent to those skilled in the art. For instance, Figs. 7(A) to 7(C) show a modification of the blister package B of the present invention, wherein there provides a pair of notches 21, 21 each having almost arc shape in the inner edges of the short sides of the container flange 3, with expanding outwardly the corresponding portions of the container 1 close to the notches 21, 21 in the axial direction of the package B, thereby to provide gaps 20', 20' between the notches 21, 21 and the expanded portions in association with the space 20 between the film cover F and the tablets A accommodated in the container 1. With this modification, the amount of the space is increased by the gaps 20', with an effect that the short sides of the film cover F is more easily cut out by the sides of the

case 5. Figs. 8 and 9 respectively show the other modification of the container 1 of the present invention, wherein the receptacle portion of container 1' or 1'' to be accommodated the tablets A is formed of a reversed cone frustum expanding outwardly from the bottom to the flange 3 as shown in Fig. 8, or is formed of a rectangular solid extending parallelly from the bottom of the flange 3 as shown in Fig. 9. Fig. 10 shows a modification of the tablets A to be accommodated within the blister package of the present invention, wherein the tablets A' have a shape of round tablets smaller in size in comparison with the height of the container 1, thereby to provide a large space 20 between the film cover F and the tablets A'. Such changes and modifications are to be understood as included within the scope of the present invention as defined by the appended claims.

Claims

1. A packaging set for solid articles being capable of refilling at one time all of a given amount of solid articles accommodated within a blister package into a case of a carrier casing of which a lid is taken away from the case, said set comprising, in combination, said package including a container for accommodating the solid articles therein, and a film cover made of breakable thin film fixedly secured on a flange which is provided around the opening edge of the container, so as to seal hermetically the opening of the container, said opening having a shape of approximate rectangular of four sides, and said casing including the case having a mouth of a reotangular shape corresponding to and slightly smaller than that of the opening of the container, and the lid detachably set onto the case so as to be able to move to close or open the mouth of the case, at least one side edge of the mouth of the case being formed to be able to break the film of the cover by pressing onto the cover, whereby, when the side edges of the mouth of the case upon taking off the lid is applied to press onto the film of the cover of the package to break off the film of portions corresponding to at least three sides of the opening of the container, all the solid articles in the container is rendered to be able to change into the case at one time with leaving the broken film behind the container.

2. A packaging set for solid articles being capable of changing at one time all of a given amount of solid articles accommodated within a blister package into a case of a carrier casing of which a lid is taken away from the case, said set comprising, in combination, said package including a container for accommodating the all solid articles therein, and provided at its one side with an opening for being able to take out the all solid articles from the container to the outside at one time, and a

film cover made of breakable thin film fixedly secured on a flange which is provided around the opening edge of the container, and said casing including the case provided with a receptacle portion capable of receiving the all articles to be changed from the container, and a mouth of a shape corresponding to and slightly smaller than that of the opening of the container, and the lid detachably set onto the case so as to be able to move to close or open the mouth of the case to take out the solid articles from the case to the outside, whereby, when the side edges of the mouth of the case upon taking off the lid is applied to press onto the film of the cover of the package to break off the film of portions corresponding to the opening of the container while one portion of the film is unbroken to be remained within the container, all the solid articles in the container is rendered to be able to change into the case at one time with leaving the broken film behind the container.

3. The set as defined in Claim 2, wherein all of the solid articles are formed of a disk shape, and are piled up in succession in a direction of along the center axes of the solid articles so as to form a one unit of approximate cylindrical shape to be accommodated within the package.

4. The set as defined in Claim 2, wherein said container of the receptacle is formed including approximately a lower portion of half cylinder and an upper portion of reversed cone frustum expanding outwardly from all the upper edges of the lower portion to the opening of upper portion.

5. The set as defined in Claim 2, wherein the flange of the container is formed of a kind of brim having a shape of certain width in rigid condition so as to facilitate to recognize the location of the opening of the container from the outside of the film cover.

6. The set as defined in Claim 2, wherein at least one of sides of the mouth of the case is so extended outwardly higher than the other sides of the mouth that it is rendered for the one side to contact with the film of the cover easily at first more than the other sides which are lower enough to remain easily the film being unbroken.

7. The set as defined in Claim 6, wherein the two short sides of the mouth of the case are extending outwardly higher than the remaining two long sides of the mouth.

8. The set as defined in Claim 7, wherein one of the short sides of the mouth is extending outwardly higher than the other of the short sides of the mouth.

9. The set as defined in Claim 8, wherein one of the long sides of the mouth is extending outwardly higher than the other of the long sides of the mouth, with providing a sharp edge at the end of the one of the long sides of the mouth so as to facilitate to bump against the film of the cover at the side of the one, while the film is easily remained unbroken at the side of

the other.

10. The set as defined in Claim 2, wherein the lid is slidably engaged on the case to move in the axial direction of the casing to open or close the mouth of the case.

11. The set as defined in Claim 3, wherein the case is provided with a groove for engaging with the lid to move slidably the lid in the axial direction of the casing, and a stopper in the groove to hold the lid at the position for opening the mouth of the case just enough to taking out the solid articles one by one.

12. The set as defined in Claim 2, wherein the film of the cover is made of aluminum film or a paper of glassine.

13. A packaging set for solid articles being capable of refilling at one time all of a given amount of solid articles accommodated within a blister package into a case of a carrier casing of which a lid is taken away from the case, each of the solid articles being formed of disk shape and being piled up with the others in succession in a direction of along the center axes of the solid articles so as to form a one unit of approximate cylindrical shape to be accommodated within the package, said set comprising, in combination,

said package including a container for accommodating the solid articles therein, and a film cover made of breakable thin film fixedly secured on a flange which is provided around the opening edge of the container, so as to seal hermetically the opening of the container, said opening having a shape of approximate rectangular of four sides, the container of the package being formed including approximately a lower portion of half cylinder and an upper portion of reversed cone frustum expanding outwardly from all the upper edges of the lower portion to the opening of the upper portion, with providing the flange formed of a kind of brim having a shape of certain width in rigid condition so as to facilitate to recognize the location of the opening of the container from the outside of the film cover, and

said casing including the case having a mouth of a rectangular shape corresponding to and slightly smaller than that of the opening of the container, the two short sides of the mouth of the case being extending outwardly higher than the remaining two long sides of the mouth, and one of the short sides of the mouth being extending outwardly higher than the other of the short sides of the mouth so that it is rendered from the one side to contact with the film of the cover easily at first more than the other sides which are lower enough to remain easily the film being unbroken, while one of the long sides of the mouth is extending outwardly higher than the other of the long sides of the mouth, with providing a sharp edge at the end of the one of the long sides of the mouth so as to facilitate to bump against the film of the cover at the side of the one, while the film is easily remained unbroken at the side of the other, and

the lid detachably set onto the case so as to be able to move to close or open the mouth of the case, at least one side edge of the mouth of the case being formed to be able to break the film of the cover by pressing onto the cover, the lid being slidably engaged on the case to move in the axial direction of the casing to open or close the mouth of the case, while the case is provided with a groove for engaging with the lid to move slidably the lid in the axial direction of the casing, and a stopper in the groove to hold the lid at the position for opening the mouth of the case just enough to taking out the solid articles one by one, whereby, when the side edges of the mouth of the case upon taking off the lid is applied to press onto the film of the cover of the package to break off the film of portions corresponding to at least three sides of the opening of the container, all the solid articles in the container is rendered to be able to change into the case at one time with leaving the broken film behind the container.

Fig. 1(A)

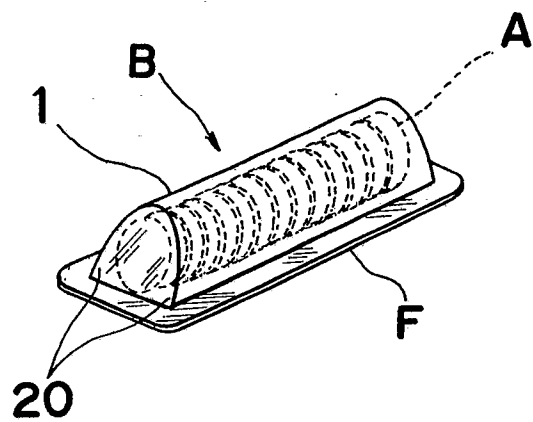


Fig. 1(B)

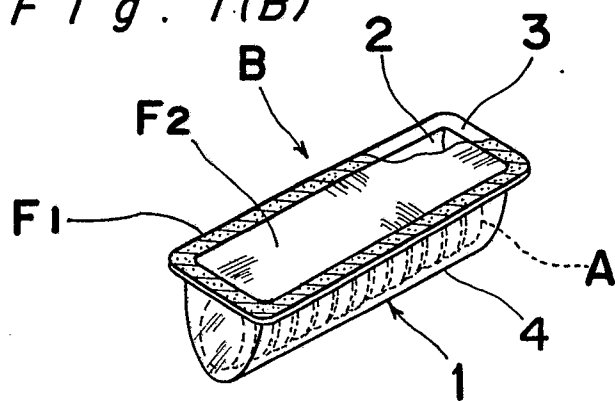
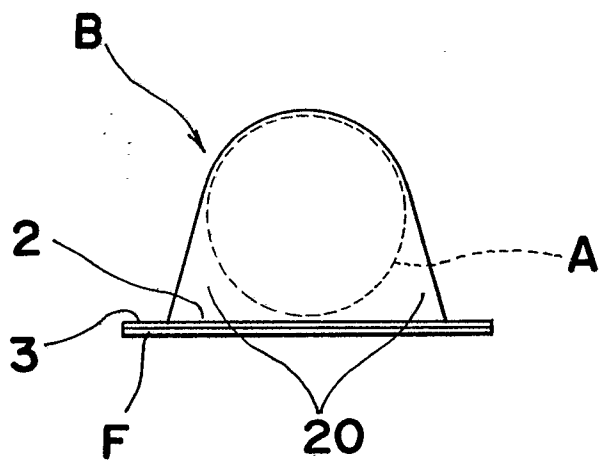


Fig. 1(C)



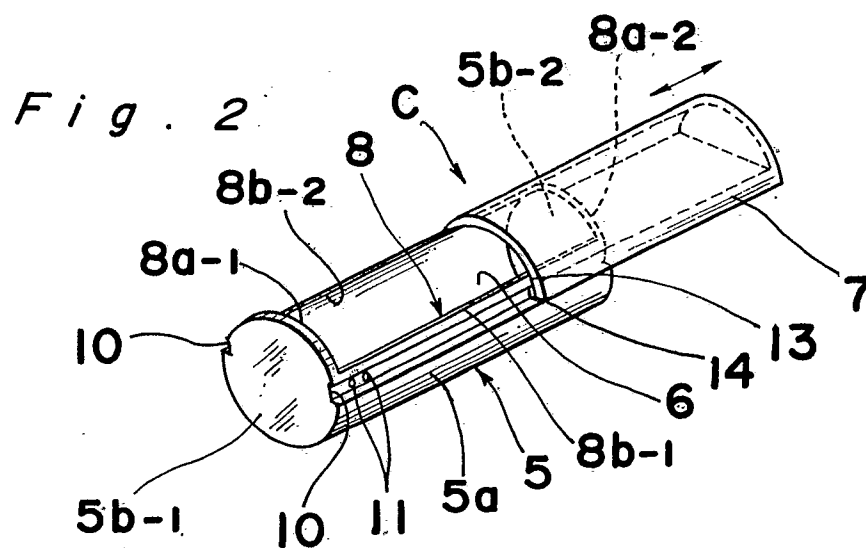


Fig. 3(A)

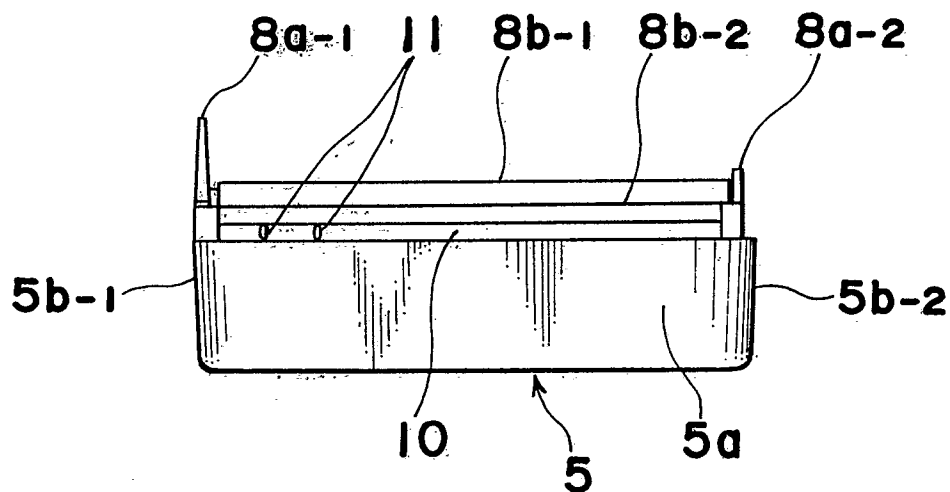
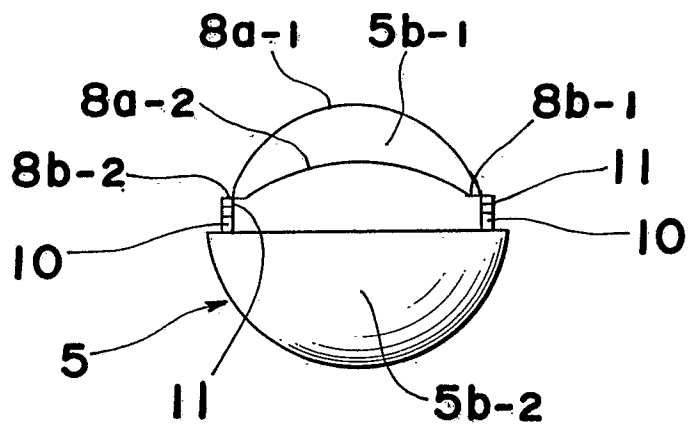


Fig. 3(B)



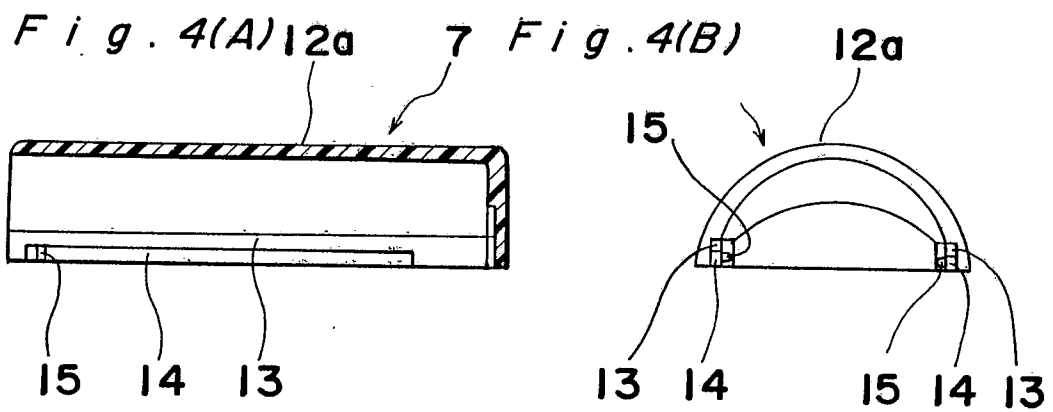


Fig. 6

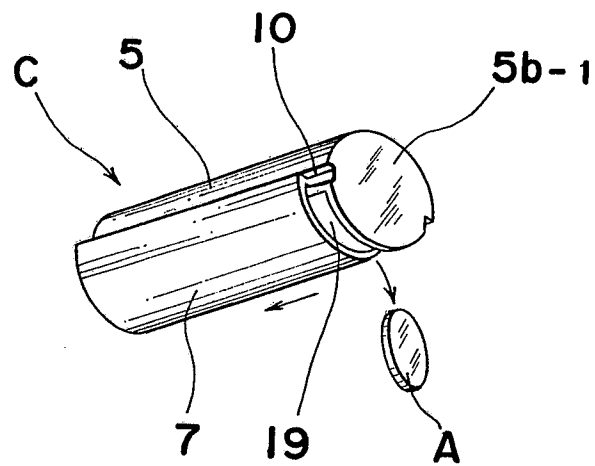


Fig. 7(A)

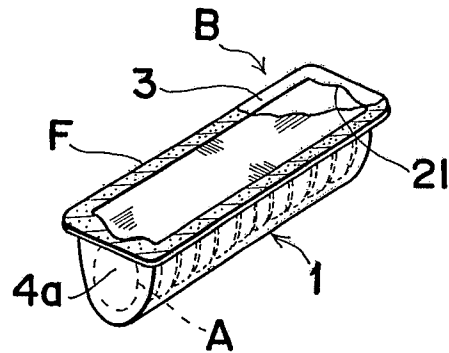


Fig. 7(B)

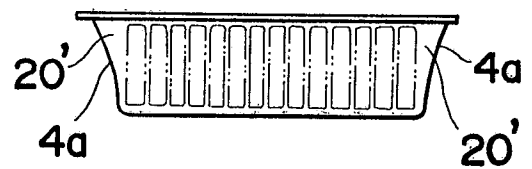
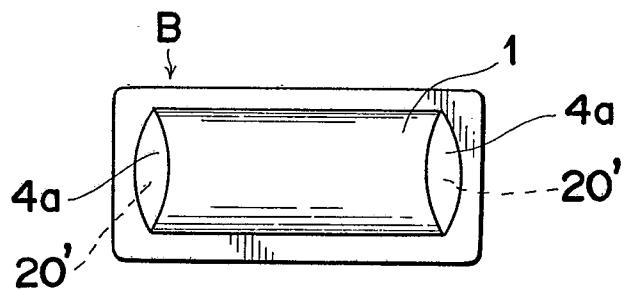
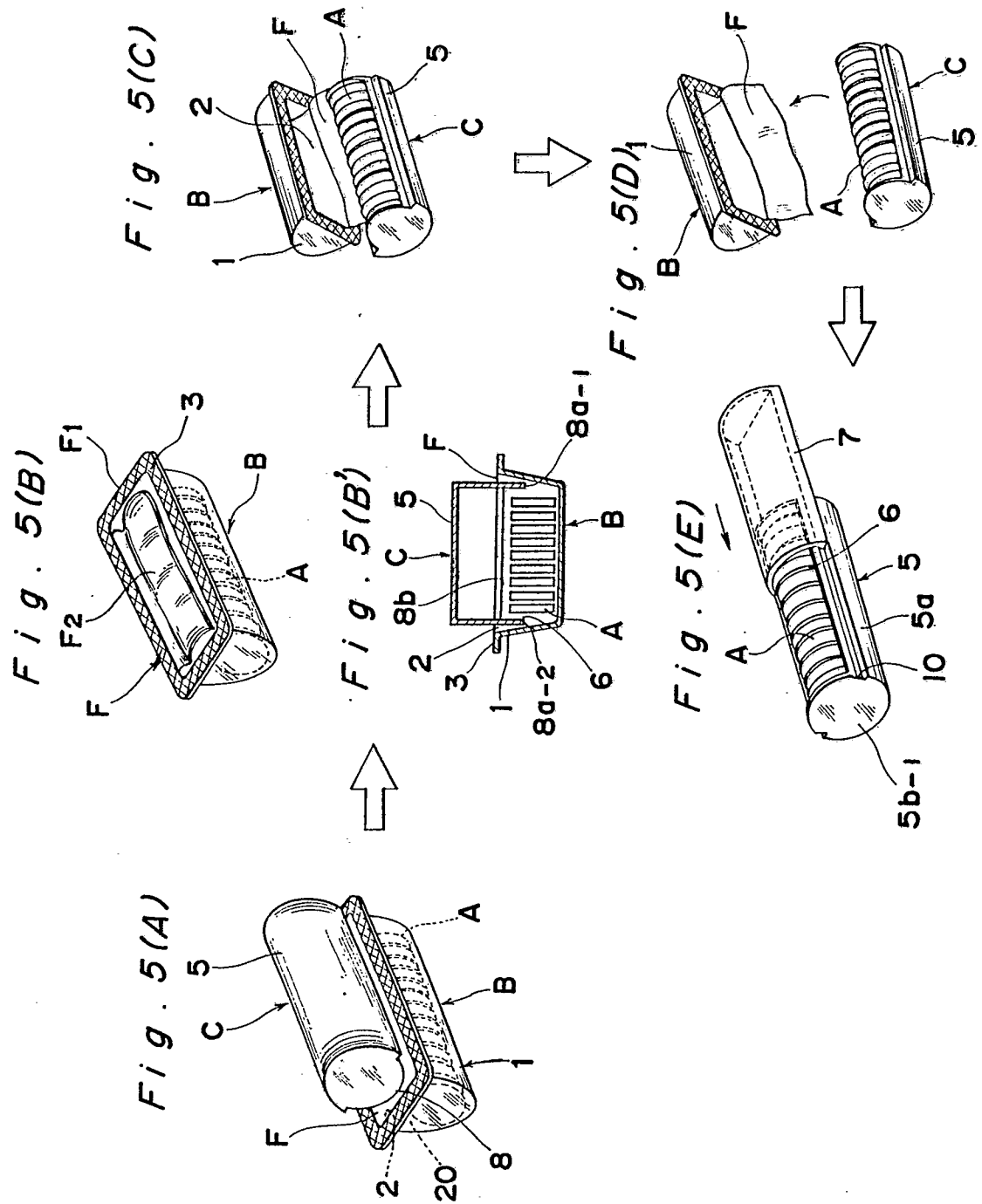


Fig. 7(C)





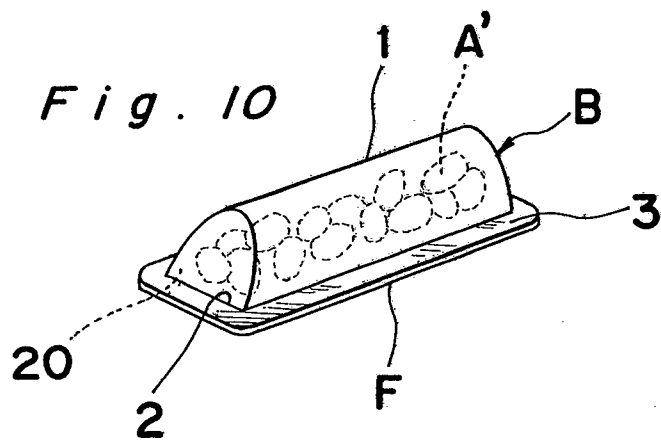
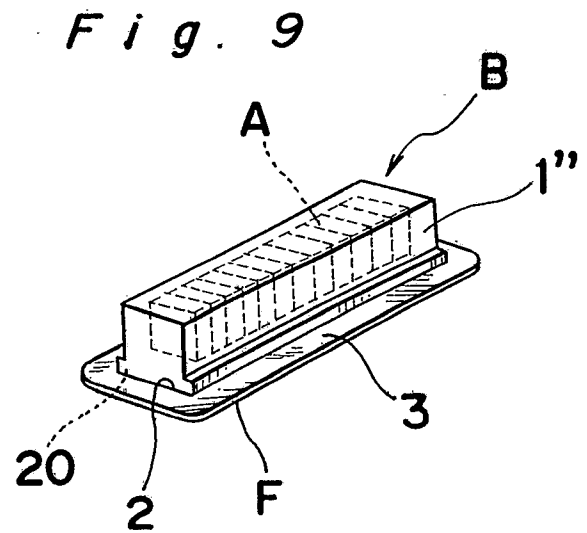
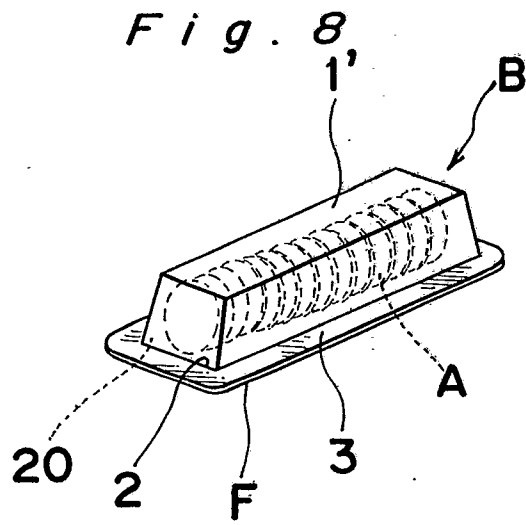


Fig. 11
PRIOR ART

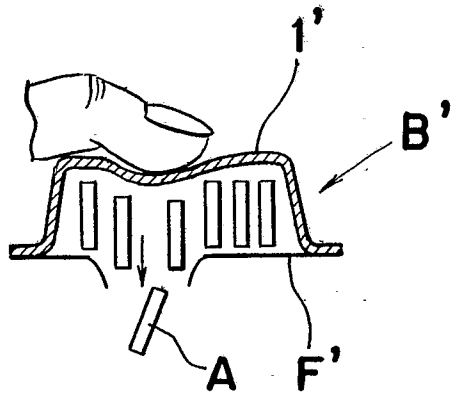
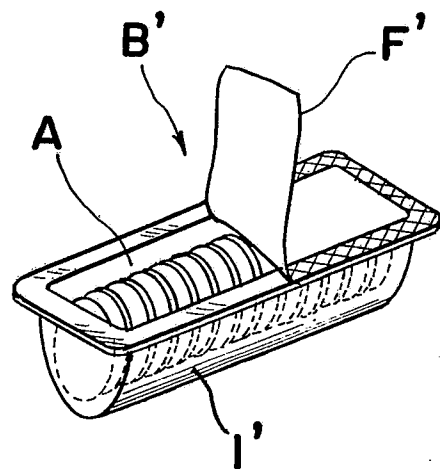


Fig. 12
PRIOR ART





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
A	EP-A-0 092 281 (KOPPELMANS) * Page 5, lines 22-37; page 1, claim 1; figures 3-6 *	1-3,13	B 65 D 83/04
A	DE-A-1 586 480 (BURGES) * Page 6, claim 1; figures 1,5 *	1-4,10, 11,13	
A	DE-C- 331 939 (GEIGER)		
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			B 65 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 30-06-1989	Examiner BESSY M.J.F.M.G.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			