

Oct. 26, 1965

M. DIAMANT
DISPENSING PACK

3,214,013

Filed June 25, 1963

2 Sheets-Sheet 1

Fig.1

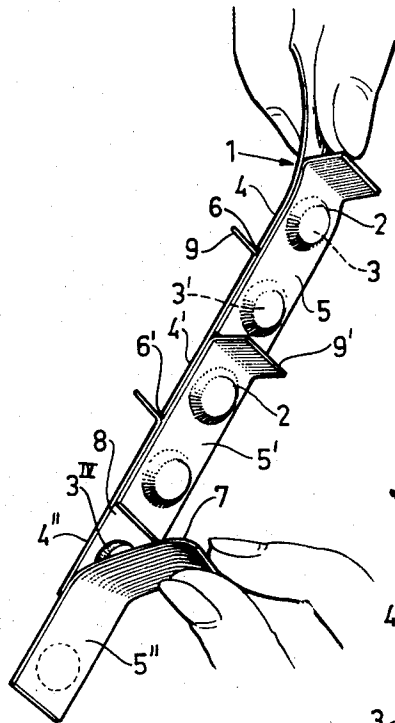
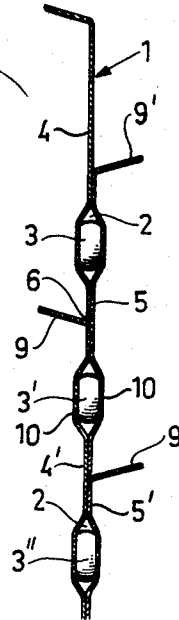


Fig.2



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2 Sheets-Sheet 2

Fig.3

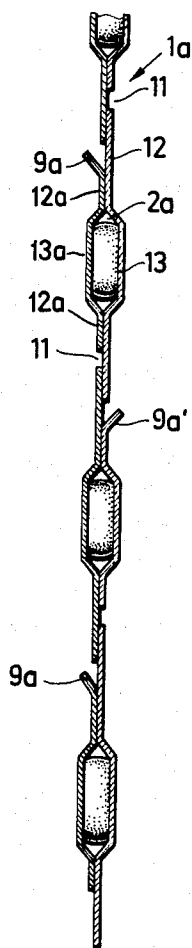
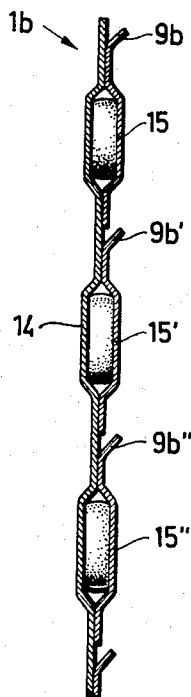


Fig.4



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3,214,013

DISPENSING PACK

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4 Claims. (Cl. 206—56)

This invention relates to a dispensing pack with the help of which material in solid, any comminuted, or liquid form can be packed so as to be readily dispensable in predetermined quantities. For instance, the dispensing pack of my invention is well suited for the dispensation of a medicinal preparation in prescribed doses.

The primary object of this invention is to provide a dispensing pack which holds material in form of units, but gives access, at any one time, just to a single unit or to a predetermined number of units. More specifically, the invention aims at a pack of individually packed predetermined quantities so as to be fully separated from each other, individually protected from external influences, and individually ready for dispensation.

One important object of my present invention is to provide a dispensing pack that has no purpose other than to hold material and will be used up, for all practical purposes, to the same degree as units of packed material are dispensed. The material of the container which holds, for instance, a medicine in form of individually packet doses is being spent as such doses are taken from the container one after the other until the container ceases to serve any further purpose when the last dose is taken, as is often the case with a wrapper of a product that is marketed as a single unit.

Another object of the present invention is to provide a dispensing pack which in many instances can more easily be handled than, for instance, a bottle of pills. The invention makes it easily possible for a person to take on a trip as many measured quantities of a medicine as he will need for the time of the planned trip.

Still another object of the invention is to provide a dispensing pack the container proper of which can most economically be produced and is inexpensive.

With these objects and such other objects as will appear hereinafter in view, the dispensing pack of the invention, in its general aspect, comprises a flexible, generally two-ply laminated structure composed of groups of smaller laminations. The laminae of each of the smaller laminations are formed to define between them at least a single capsulelike container, and are detachable from each other. A portion of one of the laminae of each lamination sticks out of the plane of the structure so that it can be grasped between fingers and used as a pulling means for the purpose of separating the laminae of the respective lamination. As the laminae of a lamination separate, the capsulelike container involved opens, and the material that has been packed into the particular container becomes accessible.

The exact nature of the invention as well as objects and advantages of the invention so far not specified will be readily apparent from consideration of the following specification and the accompanying drawing which shows by way of example a number of embodiments of the invention and in which:

FIG. 1 is a perspective view of a dispensing pack embodying features of the invention;

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FIG. 2 shows a portion of the pack of FIG. 1 in a longitudinal section;

FIG. 3 is a sectional view similar to that of FIG. 2 of another embodiment of the invention; and

FIG. 4 is a sectional view of still another embodiment of the invention.

Referring to the drawing in greater detail now, and initially to FIGS. 1 and 2, a generally two-ply laminated structure in strip form is designated 1. One of the two layers which form the laminated structure is constituted by rectangular laminae 4, 4', etc. The other layer is also a composite layer and is constituted by rectangular laminae 5, 5', etc. In each of the layers, the laminae follow each other consecutively or in an end-to-end fashion, whereby the laminae of one layer overlap two adjacent laminae of the other layer. Take, for instance, lamina 5. It overlaps or overlies a portion of the lamina 4 of the opposite layer, shown on top, as well as a portion of the lamina 4' next following in downward direction. Thus, it bridges the place 6 where the two adjacent laminae 4 and 4' meet. This place 6 is shown to be centrally located with respect to the referred to lamina 5. The laminae 4, 4', 4'' and 5, 5', 5'' are formed to define, when in laminated condition, capsulelike containers 2 to hold tablets 3, 3', etc. In the embodiment of FIGS. 1 and 2, each lamina is shown to form together with its two partly opposing laminae two containers 2. Except for tabs 9 and 9' which will be presently explained and portions of the laminae which form the containers 2, there are contiguous portions 7 and 8 of the laminae of opposed layers, which are made to detachably adhere to each other. Each of the laminae 4, 4', 4'' and 5, 5', 5'' is provided with a tab 9 and 9', respectively, which sticks out of the plane of the structure. The tabs are to be grasped between fingers so that the particular tab that is grasped and the associated lamina may be pulled from the two opposing laminae. It is the division of the laminated structure into smaller laminations which permits unitwise separation of laminae. In the embodiment of FIGS. 1 and 2, the tabs 9 and 9' are arranged in alternating positions. All the tabs 9 are pointing in one direction, while the tabs 9' point in the opposite direction. Where two consecutive laminae of one and the same layer meet, one of the two laminae is provided with a tab.

The dispensing pack of FIGS. 1 and 2 can easily be automatically manufactured in a continuous length. It will be appreciated that the dispensing pack consists of two identical strips, and the laminae of both strips are identical and are all formed with depressions designated 10. The laminae of each of the strips are made to detachably adhere to the laminae of the other strip, except, as has been indicated, for the tabs and capsule-forming portions of the laminae. When the depressions of one of the strips have been filled, and this strip and a complementary strip are brought in a superposed condition, with opposing depressions in registry, the two opposing strips are laminated, and spacedly arranged capsules form. The capsules are aligned. To expose the tablet 3, the upper end of the lamina 4 (see FIG. 1, that is, the lamina whose tab has been pulled before, is held with one hand, while tab 9' of lamina 5 will be pulled with the other hand. The pulling will cause a separation of a portion of the laminated structure and first expose the endmost tablet 3. When the

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separation continues, the next capsule will be opened for removal of the next tablet 3'. The next two tablets are freed by using the tab 9 of the lamina 4' to pull same off. It is the endmost tab that is always grasped for pulling purposes.

In the embodiment of FIGS. 1 and 2, the capsules are provided in a single lengthwise extending row. It will be apparent that capsules may be provided in any number of such rows, for instance, two rows. In the latter case, each capsule of one row will have a neighboring capsule in a crosswise alignment. The laminae will accordingly be broader.

The abutting edges of two consecutive laminae on one side of the structure are centrally arranged with respect to the two nearest capsules. Such arrangement, as has heretofore been indicated, requires that the opposite lamina bridges the line along which the two consecutive laminae meet, or the gap between the consecutive lamina, however small such gap may be, since it is this opposite lamina which, upon opening of an endmost capsule, remains a part of the next following laminations. The "opposite" lamina is held with one hand when the other hand does the pulling.

In the embodiment of FIG. 3, adjacent edges of two consecutive laminae do not meet centrally with respect to the opposite lamina. Instead, the meeting line 11 on one side of the laminated structure 1a and the tab 9a on the other side are spaced from each other so that one of the two edge portions 12 projecting beyond the depression in the lamina 13 may be held when the tab 9a is pulled. As further distinguished from the pack of FIGS. 1 and 2, each lamination of the pack of FIG. 3 forms a single capsule 2a only, when viewed in a longitudinal direction. It will, however, be understood, that more than a single capsule may be provided in crosswise directions. The tabs on different sides point again in different directions. The edge portions 12 are longer than the edge portions 12a of the lamina 13a. In each of the layers which form the structure 1a, the laminae having longer edge portions and the laminae having shorter edge portions alternate with each other.

In FIG. 4, a laminated structure 1b of a dispensing pack is shown, which consists of a single lamina or web 14 on one side and a plurality of laminae 15, 15', etc. on the other side. Each of the laminae 15, 15', etc. together with the opposite portion of the lamina 14 is considered what has been referred to hereinbefore and will be referred to in the appended claims as laminations. Each of the laminae 15, 15', etc. is provided with a tab designated 9b, 9b', etc., respectively. Thus, all the tabs appear on one side only of the structure. As in the case of FIG. 3, each lamination forms a single capsule only, again when considered in a longitudinal direction. Pulling off one of the laminae 15, 15', etc. provides access to the contents of one capsule only, provided there is no more than a single capsule in transverse directions.

It is believed that the structure and use of my dispensing pack, as well as the many advantages thereof, will be fully understood from the foregoing detailed description. Some of the features of the invention are reviewed hereinafter.

Many materials may be used for my dispensing pack, for instance, cardboard, paper, plastics, metal foils. When plastic materials are used in form of laminates, rather than in a single-layer form, such laminates are to be considered, according to the terminology used in this specification and the following claims, as single-layer sheeting, so that a "two-ply laminated structure" is meant also to cover a structure which consists of two plastic laminates. The manufacture of my laminated structure will partly depend on the material used. In the case of metal, or even plastics, a nondrying glue may be used for the lamination of contiguous surface portions. Such glue

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will not dry even during a long time of storage, always permitting easy separation of the parts forming the laminated structure. In the case of plastics, heat-sealing may advantageously be used. Heat-sealing along lines may be sufficient to form the laminated structure, doing away with laminating contiguous opposite surface portions. Being unattached, such contiguous portion may be used as tabs. When metal foils are used, foldings, welding, or other steps may be taken to form my two-ply structure.

The use of plastics films serves a wide range of purposes, especially by combining films of different plastics and using the combinations in form of laminates. Plastics films may also be combined with sheet material other than plastic films, for instance, aluminum foil, paper, cloth, etc. Such combinations may be used for packaging liquid and viscous products, to prevent moisture and vapor transmission, as gas barriers, for protection against oxydation, etc.

At the same time, it should be appreciated that the terms "laminated structure" and "lamination," both as used in the present specification and claims, are not intended to cover true laminations only but also formations in which layers are only sparingly attached to each other, for instance, across a portion of contiguous surfaces, along lines, or even merely in points.

The form and arrangement of the tabs may vary in many ways. For instance, a tablike formation may be folded upon the lamina of which it forms a part. This is being done when the tab, due to the method of making the dispensing pack, is provided on one side with an adhesive coating. It is true, such folded-over tab is no longer a tab that protrudes from the plane of the structure in the real meaning of the word, as shown in FIGS. 1 to 4, but forms nevertheless a thickened portion that can be grasped by the fingers of a hand.

In FIG. 2, the lamina 4 is shown in a drawn-out condition, with the previous capsule-forming depression having been smoothed, but it will be clear that depressions molded in a lamina of a material not too soft may even after separation of a lamination retain their shape.

It has been found particularly useful to form the pack of the invention in strip form rather than in relatively broad sheet form. When in strip form, the pack can easily be rolled into a compact package.

It will be apparent that while I have shown and described my invention in a few forms only, many changes and modifications may be made without departing from the spirit of the invention defined in the following claims.

I claim:

1. A dispensing pack comprising a generally two-layered laminated structure composed of smaller laminations, the laminae of each of said two layers being set up in at least a single row and in an end-to-end fashion, the two rows being opposite each other, each lamina of each of said two layers overlying, and being at least partly detachably secured to, portions of two adjacent laminae of the other layer, each lamina being formed with at least two depressions, each of said depressions being in registry with one depression in said portions of said two adjacent laminae of said other layer, each two registering depressions forming a capsulelike receptacle, each lamina being provided with a tab sticking out of the plane of said structure.

2. In the pack according to claim 1, said tabs sticking out on both sides of said structure, the tabs on one side alternating with the tabs on the other side.

3. A dispensing pack comprising a generally two-layered laminated structure composed of smaller laminations, the laminae of each of said layers being set up in at least a single row and in end-to-end fashion, the two rows being opposite each other, each lamina being formed with at least a single depression, each depression being in registry with a depression in a generally opposite lamina,

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each two registering depressions forming a capsulelike receptacle, said smaller laminations being formed by laminae of a first and a second group, the length of each lamina of said first group being greater than the length of each lamina of said second group, each lamina of said first group in one of said layers being at least partly detachably secured to a lamina of said second group in said other layer so that in each layer laminae of said first group and laminae of said second group alternate with each other, each lamina of said second group being provided with a tab sticking out of the plane of said structure.

4. In the pack according to claim 3, said tabs sticking out on both side of said structure, the tabs on one side alternating with the tabs on the other side.

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15 THERON E. CONDON, *Primary Examiner.*