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PLASTIC MATERIAL WRAPPERS  
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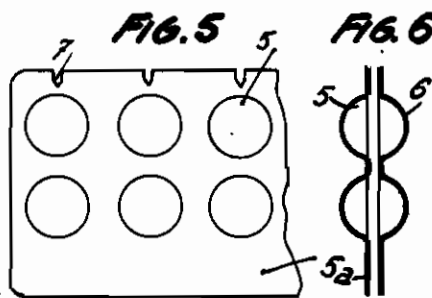
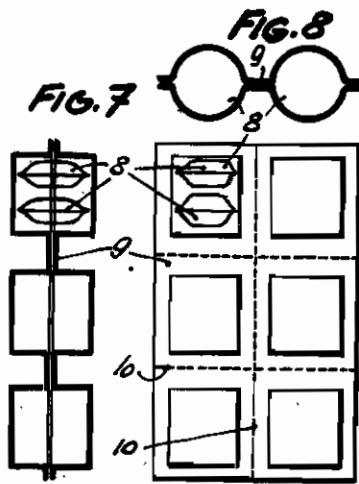
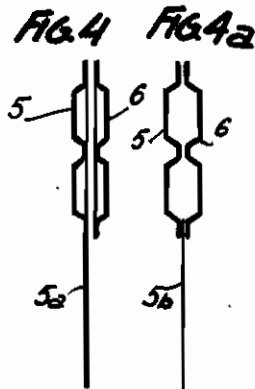
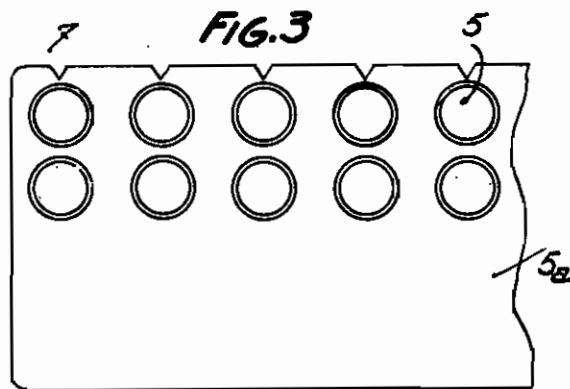
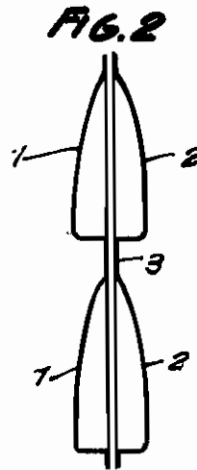
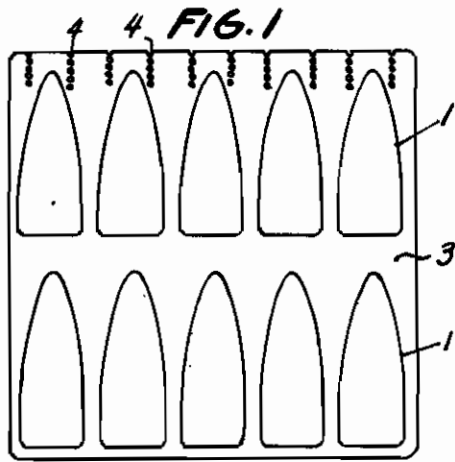


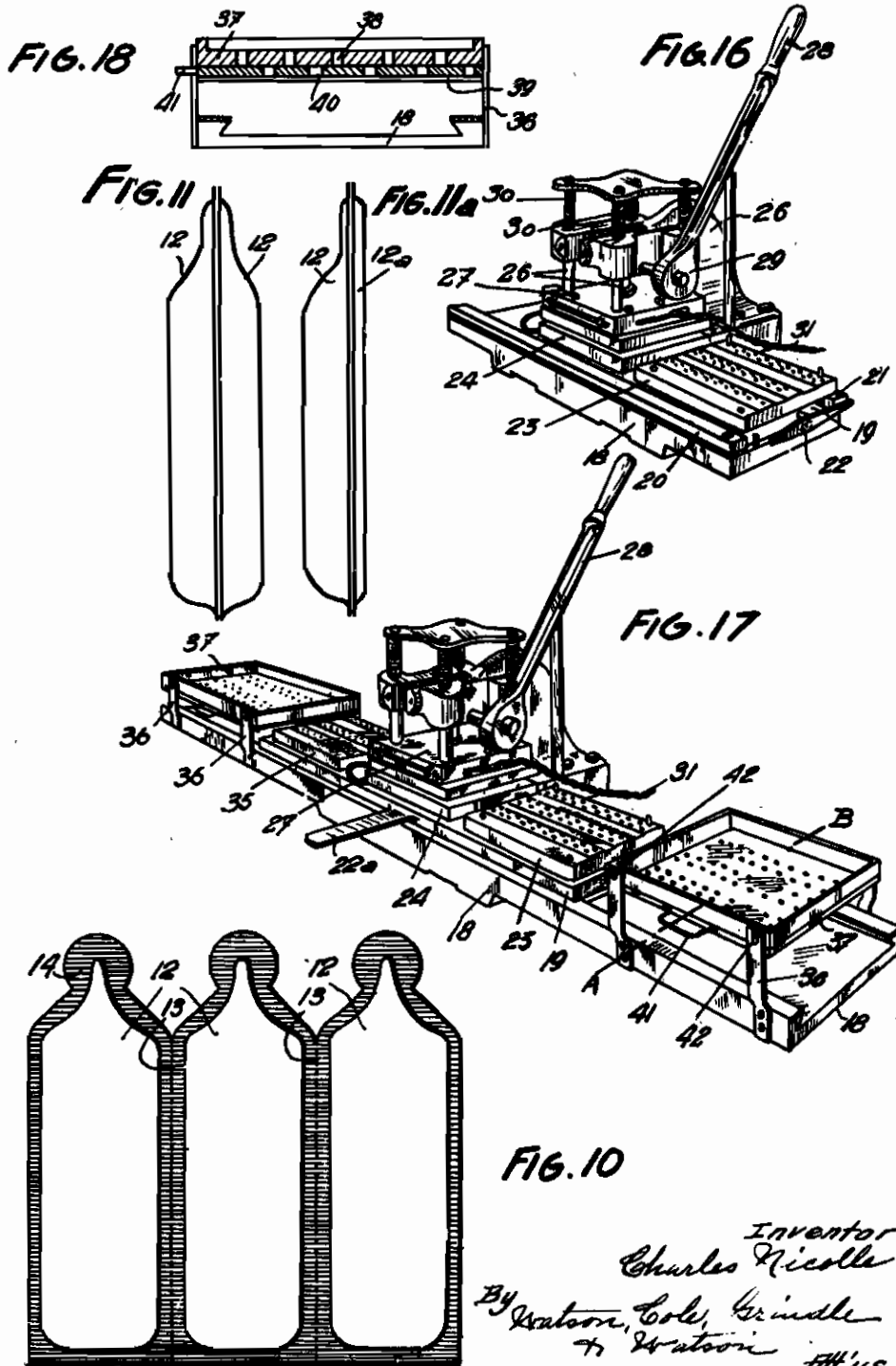
FIG. 9

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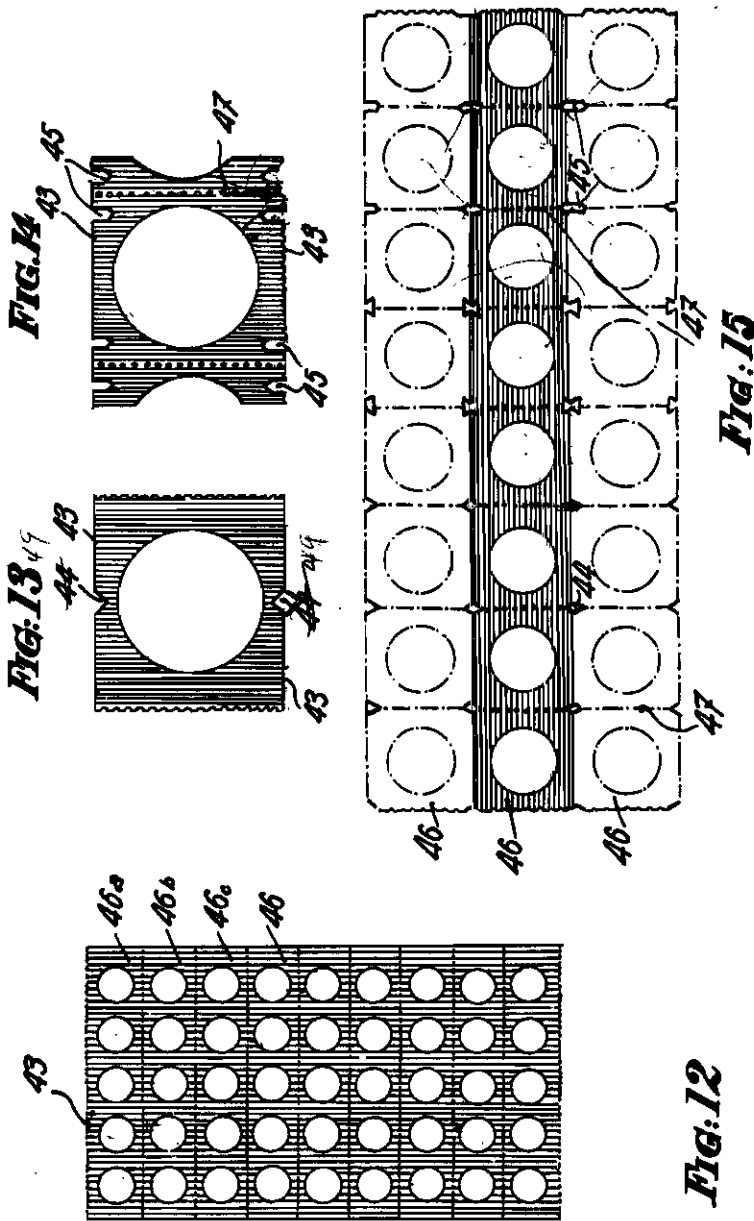


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# ALIEN PROPERTY CUSTODIAN

## PLASTIC MATERIAL WRAPPERS

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Application filed May 6, 1938

The object of the present invention is improvements in plastic material wrappers constituted by two layers or two sheets of plastic material both of which or one or the other of which are embossed, which are placed one against the other so as to constitute within the empty spaces provided in the embossed portions cells intended to receive the articles that are to be packed.

It particularly applies to the packing of articles similar to one another, such as compressed tablets, suppositories, powders and the like, and its purpose is, while constituting a multiple wrapping, complete in itself, which is at the same time, hermetical, tamper-proof, damp-proof, dust-proof, proof against microbes and the variations in hygrometrical conditions, to permit the rapid and convenient division and separation by the user, and as he wishes, of said multiple wrapping in portions consisting of one or more units, said result being obtained without the help of scissors, pins or instruments of any sort.

The invention is moreover characterized by means which make it possible:

(A) To ensure that the whole wrapping, as well as each of the individual members constituting it, will be sufficiently rigid and strong notwithstanding the very slight thickness of the plastic material ( $\frac{3}{100}$  of a millimetre and over) that will be used.

(B) To detach, as desired by the user, one or more tablets, without having either the cells or the parts stuck to one another damaged and to preserve, for each of said members, considered separately, a strength equal to or comparable with that of the whole wrapping.

(C) To facilitate the opening, by tearing, of each of the wrapping members, so as to obtain the rapid release of the enclosed products as well as the separation of two adjoining members.

(D) To provide the wrapping with printed matter such as advertising, way of using, either on one or on both sides, indifferently on the embossed parts, or between same, or else on the prolongation of the plastic matter out of the cellulose portion, or on slips of paper gripped between the alveolate sheets, and that will not prevent the user from seeing the content of the wrapping.

For this purpose, the wrappers made according to the invention are characterized by sheets embossed so as to form cells which are:

1. On the one hand grooved, ribbed, or fluted everywhere but in the embossed portions ensuring thus at the same time both the sticking and

the rigidity, said fluting or grooving being arranged in a given direction.

2. On the other hand, printed in the desired parts.

3. At last, perforated with small holes either round ones, or shaped ones, as particularly wanted so as to permit the detaching of the members composing the wrapping. When it is merely desired to detach strips of tablets, said holes are positioned in a direction perpendicular to that of the grooving or fluting. On the other hand, when it is desired to detach members of the wrapping containing each a tablet, said holes are arranged both in the direction of the grooving or fluting and in a direction perpendicular to the latter between each of the cells.

In a particular form of embodiment of the invention, at the time of making the holes intended to permit the separation of individual members or of strips of members, special holes, for instance in the form of lozenges or longitudinal slits or similar, which will constitute the starting point for tearing, and the axis of which is preferably in the same direction as the fluting, are provided in alignment with each of the cells; they thus make it possible either to open each member of the packing by tearing or to separate two adjoining members without any effort.

The invention also relates to the machine for filling and sticking the wrappers, preferably as a continuous operation. Said machine is constituted by a plate fitted with two dies having alveolate members positioned one against the other, and in which are disposed the cellulose tablet to be filled and closed. The plate bearing said elements is itself supported by a carriage moving to and fro under the heating plate of a press, which heating plate is also fitted with a die having alveolated members, corresponding to the dies of the inferior plate, so that the emptying and filling of any one of the inferior dies can be effected whilst the other is exposed to cementing by heat.

This machine, when applied for wrappings intended to be filled with powder, is moreover characterised by two dosimeter distributors of the products to be placed in the alveoli, each placed at one end of the machine so as to incorporate into its method of operation an additional stage of the filling of the packages according to predetermined doses.

In the attached drawings, some wrappers according to the invention, intended to receive

articles of various shapes, have been shown as examples, as well as the machines for sticking and feeding.

Figure 1 shows a series of wrappers for suppositories grouped on a sheet;

Figure 2 is a cross section of Figure 1;

Figures 3 and 4 are respectively a front view and a transverse view of wrappers for compressed products arranged in parallel rows on a sheet or a strip;

Figure 4a is a variant of Figure 4;

Figures 5 and 6 are a partial front view and a cross section of an arrangement similar to that of Figures 3 and 4, with the difference that the wrappers are shaped to accommodate ovules;

Figures 7, 8 and 9 show a front view, an elevation view, and a cross section view of a wrapper with members constituting several capsules or compressed tablets;

Figures 10, 11 and 11a, show oblong alveoli shaped as bottles.

Figure 12 is a schematical plate showing strips of alveoli and alveoli detachable from one another.

Figure 13 is a view of a wrapping member such as represented in 12, separated from the others with its starting points for tearing.

Figure 14 is a variant of the wrapping member shown Figure 13, also with its starting points for tearing.

Figure 15 is a strip constituted by a series of packing members and cut off from a sheet such as that shown in Figure 1.

Figure 16 is a view in perspective of the double acting press for filling and sticking the wrappers;

Figure 17 shows the press according to Figure 16 but modified so as to incorporate into its method of operation a stage of filling of the wrappers;

Figure 18 shows a cross section through line A—B of Figure 16 of one of the two dosimeter distributors with which the machine is provided.

The wrappers are formed of two halves, 1 and 2, identical or not, stuck together by any usual means, a portion which is not stuck being preferably left along the contour line of each individual wrapper so as to facilitate the opening thereof.

In the case of a wrapper for suppositories, (Figures 1 and 2), the flat portion 3 of the half 1 which frames the individual wrappers will for preference be fluted lengthwise (Figure 1) and the notch for initiating the tear is constituted by lines of perforations 4 commencing from the upper edge of the sheet. In this way, once a tear has been commenced along perforations 4 it can continue in a straight line as far as the non stuck edge, the flutings serving as guides.

Figures 3 and 4 show a variant in which the wrappers, shaped to accommodate compressed tablets are arranged in rows along a strip. The wrapping is always constituted by two halves, 5 and 6, identical or not, half 5 being made, if so desired, of an opaque substance, whereas half 6 is made of a transparent substance for the reasons, indicated. The opaque sheet 5 which forms one of the halves of the wrapper is provided with an extension 5a intended to bear printed matter of any sort, mainly instructions regarding the method of employing the contents of the wrapper, in case of a medicine. For reasons of economy the portion 5a made of plastic material may also be suppressed and replaced

by a paper tab 5b (Figure 4a) gripped between the two sheets provided with alveoli, and on which the inscriptions will be made. The portions in relief of the wrappers themselves and the intervals can also accommodate printed matter. A peculiarity in the manufacture of said wrappers consists in the fact that the printing on portions 5 and 5a is applied while the sheet is still flat, immediately prior to, or simultaneously with, the embossing process. The upper edge of the sheet will be provided with notches 7 serving as a start for tearing and opening.

The arrangement according to Figures 5 and 6 differs from that in Figures 3 and 4 solely by the shape of the wrappers intended to receive ovules or similar bodies. Portion 5a can likewise accommodate printed matter on one or both of its surfaces.

When compressed tablets or capsules are positioned flat as in the preceding examples, the packing is comparatively costly on account of the surface of plastic material employed. In order to reduce said cost, the present invention provides for the positioning of the capsules or compressed tablets edgewise and their presentation in a manner somewhat similar to that of tubes made of glass, aluminum or plastics. An arrangement of this sort is shown in Figures 7, 8 and 9 in which alveoli 8 (compressed tablets or capsules) are seen positioned edgewise in relation to supporting surface 9.

But, in order to provide for the user a convenience which is not supplied by packing in tubes, the semi-cylindrical alveoli are short so as to contain only one, two, three or four compressed tablets or capsules corresponding, for instance, to one day's use. It follows that a sheet of 12 compressed tablets or capsules for instance, such as shown in Figure 9, may be formed of six alveoli each containing two compressed tablets, or of four alveoli of three compressed tablets, etc. These are separated by dotted lines 10. One alveole can then be detached at a time like a postage stamp, the others remaining intact and untouched. This method offers a great advantage when using products which are highly susceptible to damp. It is a well known fact that the mere opening of a tube, box or flask containing compressed tablets or capsules, the preservation of which is difficult, is sufficient to permit the penetration of a quantity of dampness which may involve the deterioration of the products not used immediately on opening.

Dotted lines 10 provided between the plaquettes constitute then so many starts of tears which will be made easy by following grooves or small ribs as provided in applicant's French patent No. 794,796 of the 21st November 1934.

A form which proves very advantageous in the case of powdered products is the one shown in Figures 10, 11 and 11a in which the plastic material wrappers are in the form of flasks or half flasks, the head of which is to be torn off to pour out their contents. Several of said wrappers 12 are preferably held together like those in the preceding forms of embodiment and separated from one another by lines of perforations 13 making it possible to detach them from the block as and when they are required. The head portion 14 of each of the wrappers is arranged so as to be readily torn off at the moment when it is desired to pour the contents out of any of them. The wrappers may assume the form of flasks composed of two identical halves 12 (Fig-

ure 11) or of half non-symmetrical flasks (Figure 11a) one portion of which, 12a, is flat.

When referring to Figures 13 to 15, it can be seen that the sheets forming the packing are provided with holes 43, and eventually with holes of a much larger size, and of a triangular shape 44 or an oblong shape 45, either on the right side of the alveoli, as seen in Figure 13, or on both sides of said alveoli as seen in Figure 14; thus, it is possible to detach at will whole strips such as 46a, 46b, 46c, shown in Figure 12, or if necessary, to detach one member at one time by tearing along the line of holes 43 in a direction perpendicular to the fluting; then, if holes 47 parallel to the fluting have been further provided, by tearing in the direction of the fluting, following the tearing starting points 44 or 45.

At last, so as to facilitate the tearing of each packing member proper such as 48, tearing starting points 49 can be used.

Therefore, it can easily be seen that it is possible, when using the device subject matter of the present invention, to constitute whole sheets such as seen in Figures 1 or 3, or partially Figure 15, and which are fluted when embossing the alveoli and when sticking sheet on sheet 2, and to constitute, with the help of holes 43, strips such as 46, that the user may put in his pocket or that may be arranged in long and narrow boxes.

It can also well be seen that, owing to tearing starting points 45, it is easy to detach from strips 46 one or several members and take away exactly the number of compressed tablets wanted, arranged in the alveoli.

Figure 16 is a view in perspective of a double action wrapping press making it possible to fill, stick and otherwise handle wrappers as a continuous process without any loss of time.

On a cast-iron bed 18 is guided a carriage 19 which moves between two guide strips 20 and 21 and which is provided with an operating handle 22. On this carriage are mounted two plates 23, 24 designed to receive wrappers such as those in Figures 1, 3 or 5. Said plates are fixed to the carriage by plain studs so as to be readily removable and replaceable by others designed for wrappers of different shape. The bed is provided, at the rear, with a swan-neck 25 terminating in a head in which are guided rods 26 supporting press-plate 27 which moves vertically. The lowering of the plate is controlled by a lever 28 terminating in a gradual pressure cam 29. The lifting of plate 27 is assisted by the action of return springs 30. Plate 27 constitutes a hot plate the heating of which is obtained by electric resistances, the current lead is shown at 31.

The method of operation of said press is as follows:

In Figure 16, plate 24, having previously been filled, has been introduced below hot plate 27 which is shown in its raised position. When plate 27 is lowered by means of lever 28, sticking under heat commences. Advantage is taken of the time necessary for this operation to fill plate 23, which is at present positioned on the right, with new wrappers ready for sticking. When sticking at 24 is finished, lever 28 is raised and, by means of handle 22, carriage 19 is pushed towards the left to introduce the other plate 23 under the hot plate, after which lever 28 is again depressed. Plate 24 has then been driven out completely to the left of the bed. Advantage is again taken of the time necessary for the sticking of the wrappers at present on plate 23 to clear plate 24 and replenish it with new wrappers. After the wrappers

which are under the press at this moment have been stuck, carriage 19 is returned to the position shown in Figure 16 and plate 23 is cleared, while plate 24, which has just been replenished and introduced under the press is in position for the next cementing operation.

Figure 17 reproduces the press shown in Figure 16, but modified so as to constitute, at one and the same time, a machine for filling the wrappers and for measuring the quantity of powdered or granular product to be inserted into each of them. For this purpose, bed 18 of the machine and carriage 19 are made longer and the operating handle of the carriage is positioned on the side of the machine at point 22a. In addition to the two alveolar plates 23 and 24, carriage 19 also bears a third plate, 35, identical with the other two. In proximity to either end of the bed-plate are fixed four uprights 36 made of flat bar iron for instance serving as supports for the two dosimeter distributors the machine is provided with. Each of said dosimeter distributors is constituted by a tray 37 the bottom of which is perforated with a number of holes 38 equal to the number of the alveoles in plates 23, 24 and 35 and similarly arranged. The capacity of the hollow of tray 37 and of its holes 38 corresponds to the volume of powder which is to be distributed amongst the wrappers, with a definite quantity for each of them. Beneath tray 37 is supported and guided a distributor drawer 39 perforated with holes 40 identical in number and position with holes 38 in tray 37; a side handle 41 serves for the manipulation of the drawer. The dosimeter distributor thus constituted is supported on uprights 38 and, for this purpose, it bears studs 42 on its sides which seat within vertical notches 43 rounded at the bottom in supports 36. It will be readily understood that if the dosimeter distributor is charged and one of the plates of the machine positioned beneath one of the two distributors, it is sufficient to move drawer 39 until holes 40 and 38 register and that at that moment each of the wrappers positioned on the plate will receive the dose of powder assigned to it.

The operation of the machine is similar to that described with reference to Figure 16 with this additional peculiarity that a supplementary filling stage combined with measuring is incorporated into the operation this being obtained by a mere reciprocating movement of carriage 19 to bring plates 23, 24 or 25 under one of the distributors.

It will be seen from the foregoing that the two machines in Figures 16 and 17 work continuously, the operations succeeding one another without any loss of time. On the other hand the machines are very simple in construction and include no parts liable to get out of order.

The machine can be used just as easily for the distribution of compressed tablets, pills or any other solid products.

These are strewn in bulk on the distributor, the filling holes of which correspond to the shape of the product to be packed. By sweeping them with the hand or by any other means over the surface of the distributor, a certain number of them will drop into the holes of said distributor which is thus charged. It is sufficient to move the drawer and the compressed tablets or other articles drop and lodge in the wrapping plaquette positioned underneath.

In case two compressed tablets should happen to be placed exactly above one another, and to avoid their both falling together, the surface of

the distributor is swept and this can be done automatically by coupling the brush to the carriage for instance.

The brush is constituted by a small rod made of a suitable substance, metal, rubber or any other moving with light friction on the distributor.

When the intervals between the charging holes are of lesser size than the diameter, in the case of circular compressed tablets, or than the width of the article in the case of special shapes, the cross pieces which form the solid portions between the holes of the drawer are reduced to correspond only to the size of said intervals, and

the drawer is provided with a stop so that, in the closed position, the cross pieces may register with the centre of the charging holes.

In this position they close the charging holes sufficiently for the compressed tablets or other articles to be retained. When the drawer is in the open position, the cross pieces disappear completely under the intervals of the charging holes and the compressed tablets or other articles are released.

In a different embodiment the drawer is diagonally displaced.

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