Oct. 23, 1956 J. T. W. VAN LITSENBURG 2,767,864

STOPPER FOR TABLET CONTAINERS

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Fig. 1.

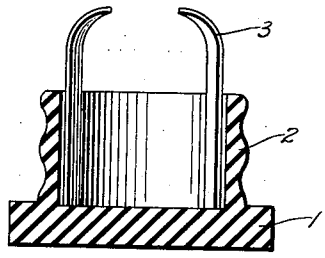


Fig. 1a.

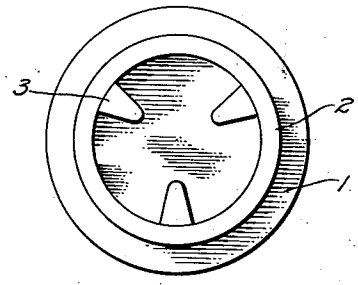


Fig. 2.

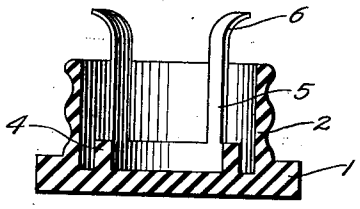


Fig. 2a.

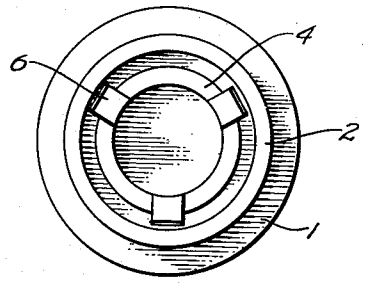


Fig. 3.

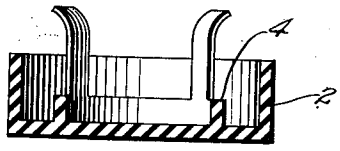
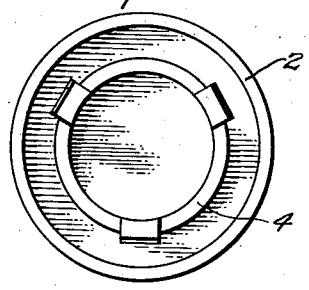


Fig. 3a.



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STOPPER FOR TABLET CONTAINERS

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4 Claims. (Cl. 215—37)

The invention relates to a stopper for tablet containers said stopper substantially consisting of artificial matter, such as plastic. Such stoppers are known. Medicines and the like are as a rule packed in the form of tablets. The containers are then closed with stoppers reaching partly in the container or over the outer wall of same. When manufacturing the containers, all of them do not turn out in the same size. Moreover the total thickness of the number of tablets to be packed in the containers is not always equal, owing to the fact, that the thickness of the separate tablets differs. Therefore it is usual, after a container being filled with the desired number of tablets, to bring a plug of wadding on the last tablet and to close the container with a stopper. The stopper presses the plug of wadding on the tablets, which can no longer displace with respect to each other and so it is not possible that the tablets break or pulverize partly.

Of course extra activity is necessary for the providing of the wadding. The invention relates to a stopper of such a nature, that the tablet-filling of the container is elastically held without a plug of wadding or the like being provided.

According to the invention the stopper has at least one member being suspended on and connected with the stopper and being flexible in longitudinal direction. If the stopper is made from artificial matter, it is rather simple to provide that a flexible member is suspended under the stopper, which may be a small spiral or a flexible leg, which member forms one whole with the stopper and generally with the upper surface of same. This member, e. g. the small leg, must of course be longer than the distance which remains between the upper surface of the tablets and the lower surface of the stopper, so that when providing the stopper, the flexible member is compressed and in consequence of which the tablets remain at their place.

According to a preferred embodiment of the stopper according to the invention a number of small legs, which are preferably placed at mutually equal distances with respect to each other and which bend under light pressure, the points of which legs are preferably bent somewhat inwardly, are provided at the cylindrical part of the stopper which reaches in the container. Such a construction can be made very simply. The legs can be connected with the cylindrical part of the stopper and suspend from same as projections. It is clear that the flexible projection will then be pressed to the axis of the container when the stopper is placed on the container. In consequence of the spring action of the legs it is impossible that the tablets are damaged, whereas the tablets are still pressed on each other with sufficient force to prevent displacement of the separate tablets.

However it can be that with such a construction the flexible legs, which of course must be thin, reach along the outer sides of the tablets. Just because also the diameters of the tablets differs mutually, this danger is not illusory in practice. In that case the legs should not press

on the tablets and the purpose of the legs should get lost. Therefore it is advisable to bend the legs somewhat inwardly, owing to which the chance become larger, that the legs really press on the upper surface of the last tablet in the container.

According to another preferred embodiment of the invention one or more flexible legs, the free ends of which are also preferably bent, are attached to the upper surface of the stopper. When the legs are attached to the upper surface, some can easier be placed staggered with respect to the cylindrical part of the stopper. The chance, that the legs reach aside the tablets in the container, is then much smaller.

In order to provide that the legs are connected with the uppersurface of the stopper in a solid manner, an embodiment can be chosen, with which the legs form one whole with a ring, which forms one whole with or is at least connected with the upper surface of the stopper. Just because in this manner the legs, which can be bent inwardly or outwardly, lie completely free from the wall of the cylindrical part of the stopper, this principle can also be applied with those stoppers, reaching over the outer wall of the container. Up to now we supposed that the cylindrical part of the stoppers reaches in the container. However also stoppers can be made, whereby the cylindrical part reaches over the container. If the inner wall of the cylinder of the stopper, which must reach over the container, lies at a distance from the ring carrying the legs equal or larger than the thickness of the container, the cylindrical part can fall over the container, whereas the legs always come above the upper surface of the last tablet.

The invention is illustrated in the drawing and more precisely described underneath.

Fig. 1 shows a cross-section and top view of a stopper according to the invention.

Fig. 1*a* is a plan view of Fig. 1.

Fig. 2 shows a cross-section and top view of another embodiment.

Fig. 2*a* is a plan view of Fig. 2.

Fig. 3 shows a cross-section and top view of still another embodiment.

Fig. 3*a* is a plan view of Fig. 3.

The stopper according to the Figures 1–3 is preferably made of artificial matter, such as plastic. The stopper according to Fig. 1 has an usual surface **1** and a cylindrical part **2**. In order to make the stopper suited for containers with somewhat different inner-diameters, the stopper, at least the cylindrical part of same, has inwardly bent parts, in consequence of which the cylinder becomes somewhat resilient. Same does not belong to the scope of the invention. In the illustrated embodiment three flexible legs **3** are attached to the cylindrical part, which legs are somewhat inwardly bent. As these legs are very thin, they bend under light pressure and when placing the stoppers in the container the legs press the tablets on each other. The legs **3** can form one whole with the cylindrical part **2** or they can be attached to same by gluing or the like.

The stopper according to Fig. 2 has also an upper surface **1**, which has a larger diameter than the diameter of the container. The cylindrical part **2** is also connected with this upper surface. In the cylindrical part is a ring **4**, to which the legs **5** are fixed. The legs form one whole with the ring and the free ends of same are, according to this embodiment, bent outwardly at **6**.

The same principle can be found in the stopper according to Fig. 3. However this stopper differs from the described stopper in that the cylindrical part **2** is intended to fall over the container. Therefore the ring **4** is situated at such a distance from the inner wall of the cylin-

drical part 2, that in the space between both the wall of a container can be placed. For the rest of the construction of the last mentioned stopper is about the same.

I claim:

1. A closure device for closing an opening of a receptacle containing material in pellet form, the said closure device comprising a hollow cap shaped member having a generally cylindrical hollow neck portion for fitment in said receptacle opening with a frictional fit and a head portion engageable with the wall portion of the receptacle defining said opening, and a plurality of circumferentially spaced flexible fingers extending axially outwardly within said neck portion and protruding beyond the rim of the neck portion, said fingers having their free ends curved radially outwardly.

2. A closure device according to claim 1, wherein the outer ends of said fingers are inwardly bent.

3. A closure device for closing an opening of a receptacle containing material in pellet form, the said closure device comprising a hollow cap shaped member having a generally cylindrical hollow neck portion for fitment in said receptacle opening in frictional engagement therewith and a head portion engageable with the wall portion of the receptacle defining said opening, a ring portion rising from the base of said neck portion radially spaced apart from the side wall thereof, thereby forming a ring space between said ring portion and the side wall of the neck portion, and a plurality of circumferentially spaced

flexible fingers extending axially outwardly from the free edge of said ring portion and protruding beyond the rim of the neck portion, said fingers being integrally formed with the ring portion and having their free ends curved radially outwardly.

4. A closure device for closing the mouth of a receptacle containing material in pellet form, the said closure device comprising a hollow cap having an outer ring flange depending from the rim of the cap and an inner ring flange depending from the base of the cap radially spaced from said outer flange to form an annular space between the flanges for fitting the outer flange upon said receptacle and the inner flange in said mouth, and a plurality of flexible fingers extending in circumferentially spaced relationship from the inner base portion of the cap circumscribed by said inner flange and protruding beyond the rim of said outer flange.

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