

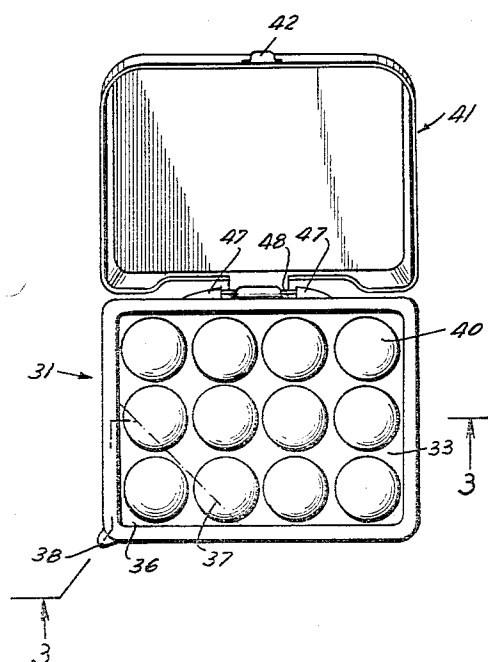
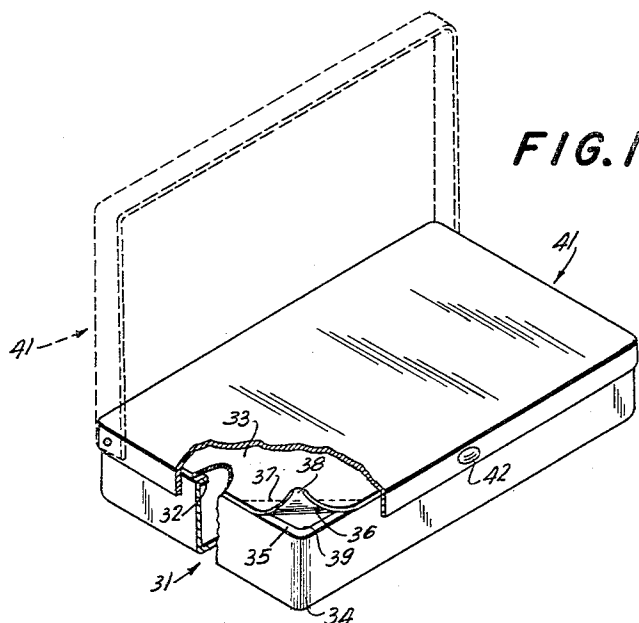
May 3, 1960

R. H. THOMAS
DISPENSING PACKAGES

2,935,188

Filed Aug. 23, 1957

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

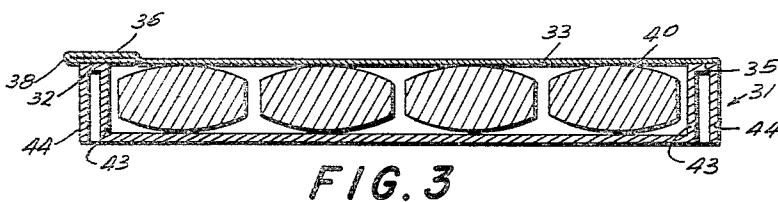


FIG. 3

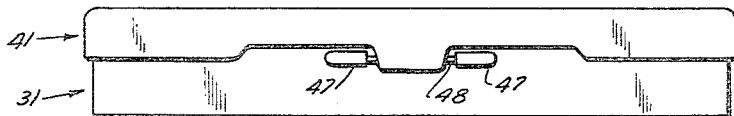


FIG. 4

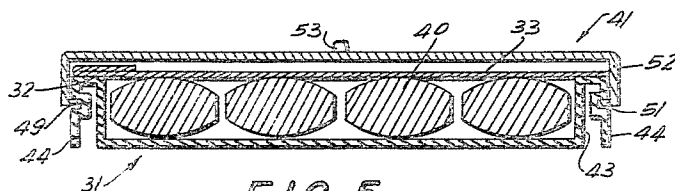


FIG. 5

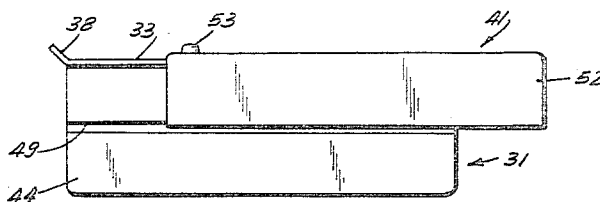


FIG. 6

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2,935,188

DISPENSING PACKAGES

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Application August 23, 1957, Serial No. 679,832

2 Claims. (Cl. 206—42)

This invention pertains to dispensing packages, and more particularly to a hermetically sealable package having a flexible sealing member capable of being partially unsealed to form an aperture through which the package contents, in the form of articles, powders or liquids, may be dispensed.

The prior art discloses many devices for containing and dispensing either tablets, capsules, powders or liquids and a considerable number of such prior art devices are adapted for hermetic sealing to protect the contents against the deteriorating effect of atmospheric humidity and the intrusion of foreign contaminating matter. However, prior art devices are generally limited to the packaging and dispensing of only one physical form of contents and are so constructed that, when the hermetic seal of the device is broken, there remains no effective means of controlling the rate of discharge of the contents nor any means to reseal the device to protect the remainder of the contents against subsequent intrusion of foreign matter. Prior art devices are known by means of which friable articles, such as tablets formed of compressed powdered material, are protected from extensive mechanical injury during transportation of the package and throughout the dispensing life thereof, but such devices commonly possess the aforementioned disadvantages due primarily to the unadaptability of the sealing means for repeated resealing. The prior art is devoid of devices which may be used for the packaging and dispensing of articles, such as tablets, or capsules, liquids or powders, and which, while initially hermetically sealable, are also adapted to be manually resealed during the dispensing life thereof.

Therefore, it is an object of the present invention to provide an improved, hermetically sealable device for the packaging and dispensing of articles, powders or liquids.

It is a further object of the invention to provide a dispensing package which is initially hermetically sealable and which, after the hermetic seal is broken, may be easily resealed manually.

It is still another object of the invention to provide a resealable dispensing package wherein mechanical breakage of friable tablets contained therein is decreased or eliminated during transit of the package and also throughout a prolonged dispensing life thereof.

In accordance with the invention, these objects are achieved by providing a container having an open end, a flat sealing surface about the open end, and a sealing member comprising a sheet of flexible material overlying the open end of the container and secured to the sealing surface to close the open end and to hermetically seal the container. The sealing member is provided with a score or hinge line extending across the member and dividing the member into a major portion and a minor portion or flap. The minor portion of the sealing member is provided with a tab which projects beyond the sealing member and the container and which may be grasped to separate the sealing member from the sealing surface whereby the sealing member may be folded back upon the score line to expose an aperture in the open end of

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the container through which the contents of the container may be dispensed. The flap is adapted to be manually resealed to the sealing surface to protect the contents throughout the dispensing life of the package.

The invention will now be described in greater detail with reference to the appended drawings in which:

Fig. 1 is a partially cut-away perspective view of a dispenser constructed in accordance with the invention and having the minor portion of the sealing member partially separated from the sealing surface of the container;

Fig. 2 is a top view of a modified form of the invention wherein the container is shown in plan and a cover is shown in an open position at an angle to the container;

Fig. 3 is a cross-sectional elevational view taken along line 3—3 of Fig. 2;

Fig. 4 is a rear elevational view of the modification illustrated in Fig. 2;

Fig. 5 is a cross-sectional elevational view, corresponding to the view of Fig. 3, of another embodiment of the invention wherein the container is provided with a sliding cover;

Fig. 6 is a side elevational view of the embodiment illustrated in Fig. 5;

Fig. 7 is a top plan view of a further embodiment of the invention wherein a cover is shown in a partially retracted position;

Fig. 8 is a front cross-sectional elevational view taken along line 8—8 of Fig. 7;

Fig. 9 is a cross-sectional view of the cover illustrated in Fig. 7 and taken along line 9—9 of Fig. 7;

Fig. 10 is a rear elevational view, partially in cross-section, of a still further embodiment of the invention having a sliding cover;

In the drawings and throughout the specification, like reference numerals are employed to designate similar parts.

Referring now to the drawings and more particularly to Fig. 1, a container, denoted generally by the numeral 31, is provided having a closed end and an open end. The container 31 is provided, adjacent the open end thereof and extending peripherally thereabout, with an inwardly projecting flange 32 having an upper surface defining a sealing surface 35. A flexible sealing member 33 is provided to overlie the open end of the container and has a configuration conforming substantially to that of the periphery of the open end of the container. The illustrated container is generally rectangular in configuration and has a corner 34. The sealing member 33 is provided with a minor portion or flap 36 defined by a score line 37 extending across a corner of the sealing member corresponding to corner 34 of the container. The material of the sealing member 33 is weakened along the score line 37 but is not perforated and therefore maintains its imperforate sealing characteristics. The sealing member 33 is hermetically sealable, about the periphery thereof, to the upper or sealing surface 35 of the flange 32 as by coating the periphery of the under surface of the member 33 or the sealing surface 35 with an adhesive of a suitable nature, such as a heat- or pressure-sensitive adhesive. After the container 31 is filled, as with tablets, capsules, powders or liquids, the sealing member 33 is placed in position overlying the open end of the container and secured thereto. The flap 36 is provided with a tab 38 adjacent and projecting beyond the corner 34 of the container.

In operation, the tab 38 is grasped by the user and the flap 36 is folded back upon the score line 37 thereby exposing an aperture 39 in the open end of the container corresponding in shape to that of the flap and through which the contents of the container may be dispensed. With the exception of the flap 36, the sealing member

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33 remains secured to the flange 32 thereby preventing discharge of the contents of the container except through the aperture 39 and preventing the intrusion into the container of excessive amounts of foreign matter. The adhesive used to secure the sealing member 33 to the sealing surface 35 is preferably of a pressure-sensitive type, at least in the area of the flap 36, whereby, after the dispensing of a desired quantity of the contents, the flap 36 may be re-engaged with the sealing surface 35 thereby to reseal the interior of the container. In instances when it is desired to remove all of the contents at once, or where the contents consist of large articles, the dimensions of which approach in magnitude those of the container, the sealing member may be completely removed from the container. In such cases, the adhesive is preferably of a pressure-sensitive nature throughout the entire area of contact between the sealing member and the sealing surface.

The container of Fig. 1 is preferably provided with a cover 41. In order to avoid destruction of the hermetic integrity of the container, the container and cover 41 may be provided with an imperforate bayonet-socket type of hinge, consisting of complementary raised and depressed portions held in rotatable engagement with each other. The cover 41 be provided with a concavoconvex member 42 having the concave side thereof directed inwardly adjacent a complementary protrusion (not shown) on the container 31. Such an arrangement serves to hold the cover 41 in tight engagement with the container and the outwardly directed convex side of the member 42 presents a raised portion exteriorly of the cover to afford a leverage surface for the fingernail of the user. Of course, any other suitable locking means may be utilized to retain the cover and the container in engagement. The configuration and dimensions of the cover 41 are preferably selected to insure that, in the closed position of the cover, the periphery of the under surface of the top part of the cover is forcefully brought into contact with the periphery of the sealing member 33, thereby pressing or squeezing the sealing member against the sealing surface 35. This pressure, in the area of the previously separated flap 36, serves to automatically re-establish and maintain a tight seal between the flap and the sealing member. This squeezing effect may be enhanced, insuring a more uniform resealing, by affixing to the portion of the under surface of the cover 41 adjacent the flap 36, a shoe (not shown) which may consist, for example, of a triangular or L-shaped piece of thin, flat stock, as cardboard or the like. Such a shoe serves to press the periphery of the flap 36 more firmly against the adjacent sealing surface, even though the cover 41 be of a relatively loose fit.

A dispensing package as illustrated in Fig. 1 possesses in a single structure a multitude of advantages unknown in the prior art. Thus, the sealing member 33, which may be formed of any suitable flexible material such as cardboard, paper, metal foil, cellulose derivatives, synthetic plastics or the like, serves to close the container and to hermetically seal the same against intrusion of atmospheric humidity and contaminating foreign matter. Where the contents comprise friable tablets, the sealing member 33 serves the added purpose of retaining the tablets relatively immobile within the unopened container and, during handling of the package, greatly diminishes breakage of the tablets. The provision of the minor portion or flap 36, which may be separated from the container while the remainder of the sealing member remains in position, affords the means of forming an aperture of predetermined size for the metered dispensing of the contents of the package, for example, at a predetermined rate of flow in the case of liquid or powder contents, or one at a time in the case of tablet or capsule contents. The flap 36, being foldable upon the score line or hinge line 37, is returnable to its original position in sealing

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contact with the sealing surface 35 thereby assuring against deterioration or contamination of the contents while the dispenser is not in use.

An alternative embodiment of the invention is illustrated in Figs. 2, 3 and 4 wherein a container 31, having an open end, is provided with an imperforate inner wall 43, forming a hermetically sealable reservoir, and an outer or false wall 44 (Fig. 3) interconnected to and spaced from the inner wall by means of a flange 32 extending outwardly of the inner wall adjacent the open end of the container. The upper surface of the flange forms a flat sealing surface 35 extending peripherally about the open end of the container. The provision of a double-walled container permits the attachment to the container of a cover 41 by means of an ordinary hinge and pintle arrangement as, for example, that illustrated in Figs. 2 and 4. In such arrangements, the outer or false wall 44 may be punched outwardly to form hinge sockets 47 for the reception of a hinge pintle 48 secured to the cover 41. By means of such a construction, perforation of the outer false wall 44 does not affect the hermetic integrity afforded by the imperforate inner wall 43. Additionally, such a construction provides a substantial sealing surface 35 adjacent the open end of the container without the necessity of an inwardly projecting flange, such as flange 32 of Fig. 1, with the concomitant possibility of undesirable entrapment of the contents of the container by such an inwardly projecting flange. Manifestly, other arrangements may be utilized to attach the cover 41 to the outer wall 44 of the container.

As in the embodiment of Fig. 1, a sealing member 33 is provided for hermetic engagement about the periphery thereof with the sealing surface 35 of the container. As illustrated in Fig. 3, a minor portion or flap 36 of the sealing member 33 may be reinforced to give it added strength by being formed of a double thickness of flexible material. As in the previously described embodiment, the major portion of the sealing member comprises a unitary layer of material forming a closure for the open end of the container other than that underlying the flap 36. The dispenser may suitably be used for the packaging and dispensing of tablets 40, as well as liquids or powders.

The concept of a double-walled construction is also useful in the manufacture of containers having covers attached thereto by means other than the hinge arrangement illustrated in Figs. 2 and 4. For example, Figs. 5 and 6 illustrate a double-walled container 31 wherein outer walls 44, at opposite sides of the container, are provided with longitudinal grooves 49 for slidable reception therein of tongues 51 extending inwardly from depending side walls 52 of cover 41. The cover is provided with an upwardly projecting lug 53 to facilitate manual operation of the sliding cover. When the cover is retracted, as illustrated in Fig. 6, tab 38 extends beyond the container thereby enabling the user to grasp flap 36 and fold the same back along score line 37 upon a major portion of a sealing member 33. In a closed position of the cover, the tab 38 may be folded back over the flap 36, as illustrated in Fig. 5, thereby avoiding interference by the tab with the movement of the cover.

Figs. 7, 8 and 9 illustrate a further embodiment of the dispensing package constructed in accordance with the invention wherein a container 31 has opposed vertical side walls 54 provided with inwardly offset portions 56 connected thereto by means of inwardly extending flanges 32, the outer surfaces of portions 56 constituting sealing surfaces 35 to which depending edges of a sealing member 33 may be secured. The other two edges of the sealing member may be folded downwardly over the corresponding side walls of the container 31 and secured thereto. A cover 41, similar to that provided in the embodiment of Figs. 5 and 6, is provided with depending opposed side walls 52 engageable with the container adjacent the offset portions 56 and frictionally slidable

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thereagainst. As illustrated in Fig. 8, the depending peripheral portions of the sealing member 33 may extend the full height of the offset portions 56, in which event the tab 38 may extend laterally of the container beneath the lower edge of one of the side walls 52. Alternatively, the depending peripheral portions of the sealing member 33 may extend only a portion of the height of the offset portions 56 and the tab 38 may constitute an unsealed part of such depending peripheral portion. Fig. 9 illustrates the construction of the sliding cover 41 of the embodiment of Fig. 7, the cover being provided with an open end 46 which, in the closed position of the cover, is positioned adjacent the tab 38, and a closed end formed by a depending end wall 45 which serves as a stop to limit the movement of the cover in the direction of closing. As in the embodiment of Fig. 6, the cover 41 may be provided with an upwardly extending lug 53 to facilitate operation of the cover by the user.

Yet another embodiment of the invention is illustrated in Fig. 10, wherein each of two opposed side walls 54 of a container 31 is bent outwardly of the container to form a horizontal sealing surface 35 and a depending skirt 50 which defines, with adjacent vertical portions of the side walls 54, a generally U-shaped groove 55 for slidable reception therein of an upturned lip 60 formed on corresponding side walls of a cover 41. A sealing member 33 is secured, at two opposed sides thereof, to the sealing surfaces 35.

Although the containers of the embodiments illustrated and described hereinbefore have taken a rectangular form, the invention is not restricted to containers having such configuration. For example, the container may be circular or it may take any other desired curvilinear or polygonal form. Moreover, the invention is not limited to containers having only a single compartment for the contents, for containers having any desired number of compartments may be constructed within the scope of the invention.

Although a number of the embodiments have been illustrated as containing tablets, it is to be understood that the invention is not restricted to devices for packaging and dispensing discrete articles, such as tablets or capsules, but that the devices of the invention are equally useful for the packaging and dispensing of various powders and liquids. When packaging liquids, it is necessary, of course, to choose a liquid-imperious material for the construction of the sealing member. Various metallic foils and synthetic plastics are particularly useful for this purpose. The containers and their covers, in each and every embodiment illustrated and described herein, may also be constructed of any suitable material. Thus, depending upon the nature of contents, strength or appearance required, cost or availability of materials, or other factors, cardboard, paper, wood, metal, synthetic resins, and the like are useful.

In addition to the obvious advantages of the dispensing packages of the invention in preventing breakage of friable contents and in excluding deleterious or contaminating materials, the sealing member also serves to prevent pilfering of the contents and its broad, flat, upper surface may also be utilized, to commercial advantage, for advertising purposes.

It is to be understood that the foregoing description and illustrations are merely illustrative of the principles of the invention and that various modifications may be made by those skilled in the art without departing from the spirit and scope of the invention.

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What is claimed is:

1. An article of manufacture comprising a tablet dispenser comprising a substantially rectangular container having spaced apart, double walls and an open end, a supply of tablets within said dispenser, a continuous flange comprising a flat sealing surface interconnecting said walls in the plane of said open end, a flexible sealing member overlying said open end, said sealing member being detachably secured to said sealing surface by means of a pressure sensitive adhesive coating applied to an under, peripheral surface thereof, a tab on said sealing member projecting beyond the outer of said walls adjacent one corner of said container whereby said sealing member may be grasped and a triangular portion thereof adjacent said one corner separated from said sealing surface thereby forming a triangular aperture in said open end through which single tablets may be dispensed, a cover having a pair of depending side walls, flanges on said side walls extending inwardly of said cover and adapted to slidably receive said container therebetween, bearing means on said cover spaced from said sealing member over said open end and bearing on said sealing member over said sealing surface whereby when said cover is closed said bearing means passes over said triangular portion and presses the same against said sealing surface to reseat said container, and stop means to limit the extent of travel of said cover.

2. A hermetically sealable container comprising a container having an open end, an inner, imperforate wall and an outer, perforated wall surrounding said inner wall and spaced from and secured to said inner wall, a flat sealing surface on said container adjacent said open end and thereabout, a sealing member overlying said open end and secured to said sealing surface to hermetically seal said container, a tab on said sealing member extending laterally of said container and beyond said outer wall whereby a portion of said sealing member may be grasped, detached from said sealing surface and folded back to form an aperture in said open end through which contents of said container may be dispensed, a cover provided with hinge pintles engageable with the perforations in said outer wall whereby said cover may be pivotally secured to said container without destroying the hermetic integrity thereof and a shoe carried by an under surface of said cover, said shoe being adapted, in a closed position of said cover, to press the periphery of said detached portion against said sealing surface thereby resealing said container.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 2,935,188

May 3, 1960

Ralph H. Thomas

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 3, line 25, for "4l be" read -- 4l may be --;
column 5, line 9, for "portion" read -- portions --; line 26,
after "4l" insert a period.

Signed and sealed this 8th day of November 1960.

(SEAL)

Attest:

KARL H. AXLINE

Attesting Officer

ROBERT C. WATSON
Commissioner of Patents