

Jan. 31, 1967

M. FABER
PILL DISPENSER

3,301,437

Filed April 21, 1966

3 Sheets-Sheet 1

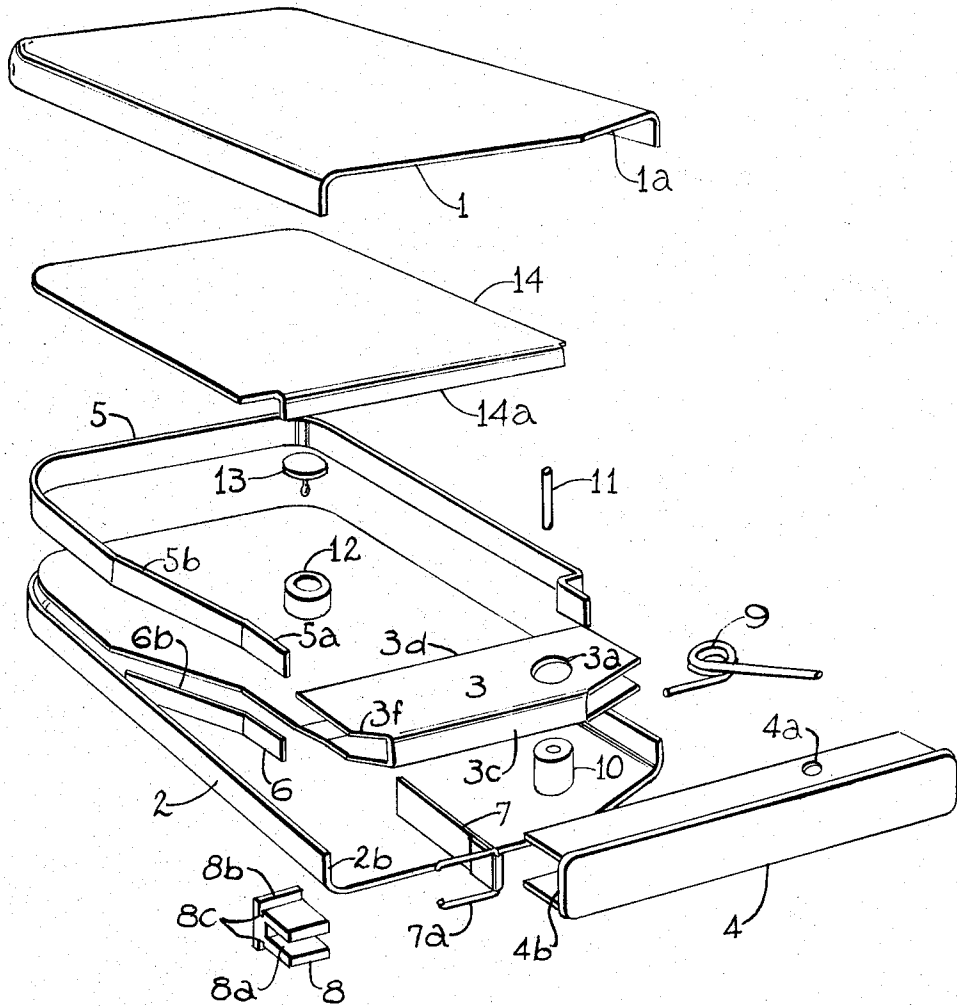


Fig. 1

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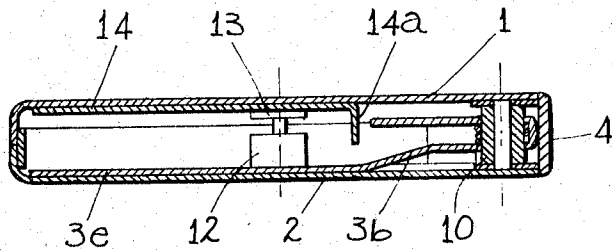


Fig. 3

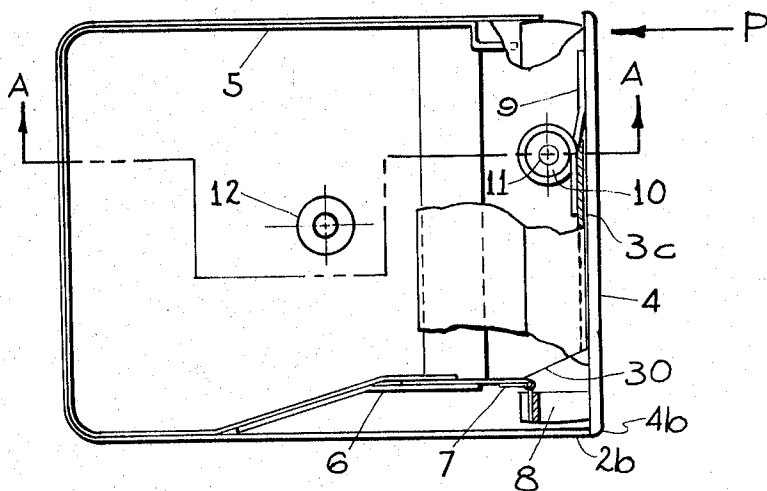


Fig. 2

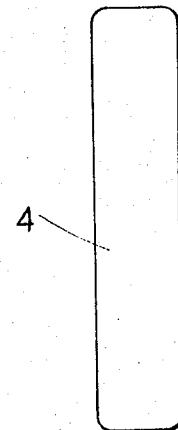


Fig. 4

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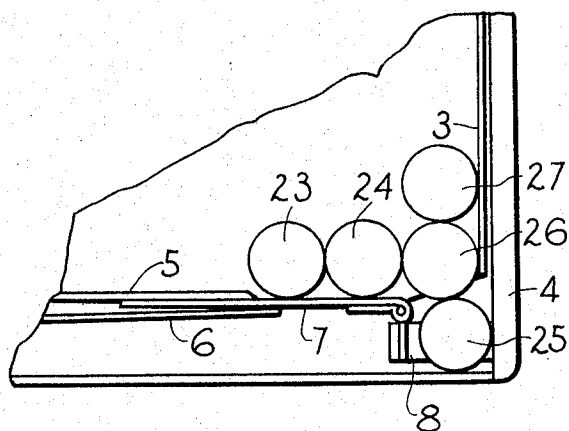


Fig. 5

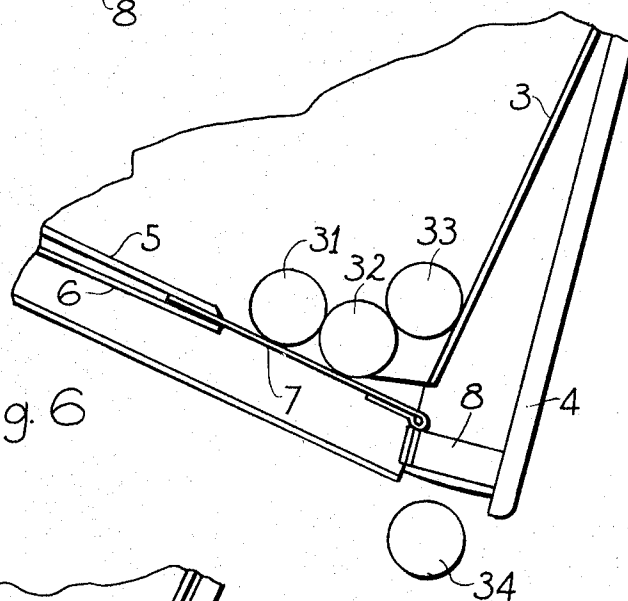


Fig. 6

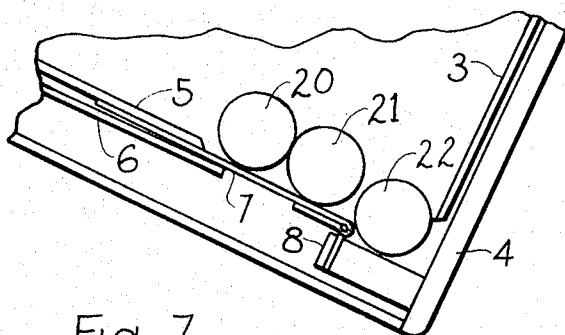


Fig. 7

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PILL DISPENSER

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 9 Claims. (Cl. 221-202)

The present invention relates to a pill dispenser.

Priests in prehistoric times, for example in ancient Egypt, kept their magic potients in specially decorated boxes. Throughout history the decoration of pill boxes with enamels and miniature paintings and precious jewels has been one of the recognized minor arts. Perhaps the most famous decorated boxes are those of Faberge and Schlumberger of Tiffany.

Inventors, designers and engineers have likewise been intrigued with the dispensing of pills. They have proposed numerous devices for the mechanical depositing of one pill from a pill container upon the user's demand. But these mechanisms, some seemingly ingenious at first glance, have not replaced the simple pill box, which is only a box with a hinged cover.

The disadvantages of a pill box are that the user must reach into the container and pick out a pill. This is often unsanitary and difficult, especially for the smaller sized pills such as one-half grain saccharine tables (a sugar substitute). When a pill box is jarred, the pills often spill out.

The mechanical dispensers previously proposed, while curing the problems of the pill box, have had inherent disadvantages of their own. Some have been complex, so that they are costly or too bulky to carry. Others are difficult to load, or can only carry a few pills, or require special packaging of the pills themselves. Many of the previous mechanical dispensers jam because the pills in the container form an interlocking physical contact which blocks the exit port.

It is the objective of the present invention to provide a pill dispenser, particularly for smaller pills such as saccharine, which is convenient to carry and operate, relatively simple, and which will clear itself if it should become jammed in operation.

In accordance with the present invention, I provide a spring-loaded lever which, when depressed by the user, releases a single pill. An extension member is attached to the lever so that during the return of the lever to its original position the extension comes into contact with the pills near the exit port and breaks up any jamming of the pills. Preferably the container portion of the dispenser is at least two pills high. A guide ridge attached to the container's top ensures that only one layer of pills may enter the exit mechanism. The lever mechanism and exit port are proportioned and arranged that only one pill is dispensed for each operation of the lever.

Other objectives will be apparent from the detailed description of the preferred embodiment of my present invention set forth below, which should be taken in conjunction with the accompanying drawings. In the drawings:

FIG. 1 is an expanded perspective view showing the component parts constituting the pill dispenser of the present invention;

FIG. 2 is a top plan view, with portions broken away, and shows the assembled dispenser with its cover removed;

FIG. 3 is a sectional view taken along lines A—A of FIG. 2 in the direction of the arrows;

FIG. 4 is a side plan view;

FIGS. 5, 6 and 7 are enlarged views of a portion of the dispenser showing the operation of the device in preventing the jamming of pills at the exit port.

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The expanded view of the components of the dispenser of the present invention, FIG. 1, illustrates that most of the parts may be readily and inexpensively stamped out of sheet metal. It is preferred that the parts be of metal, rather than of inexpensive plastic materials, so that the device will remain clean and sturdy. However, the present invention may also be practiced in strong molded plastics such as "Delrin," a trademarked product of Du Pont, "Celcon," a trademarked product of The Celanese Corp., or metallized "ABS" resins.

The container body includes a top member 1 in the form of a box having three shallow side walls. The top member 1 has an indented portion 1a at its top surface to provide a finger nail hold for removal of the top when filling the dispenser and to limit lever movement. An inner liner 14 having a flange portion 14a, is attached to the top 1, for example, by glueing with an appropriate adhesive or by spot welding, see FIG. 3. A bottom member 2 is provided which is similar in shape to top member 1. A wall liner 5 is attached to the inner wall of bottom member 2 and provides an upraised wall over which the top member 1 is fitted. The wall liner 5 has an indented portion 5a, which portion 5a is not attached to the upraised walls of the bottom member 2.

A fastener snap is used to secure the top member 1 to the rest of the dispenser. The male snap member 13 is fixed to liner 14 and the female snap member 12 is attached to the bottom. Alternative temporary closure means may be used.

A guide plate 3 is provided having a bottom, a raised wall portion 3c and a top portion 3d. As shown in FIG. 3, the bottom has a flat portion 3e and a raised portion 3b. The guide plate 3 is attached, by its bottom flat portion 3e, to the bottom member 2. As shown in FIG. 1, the top portion 3d of the guide plate 3 is provided with a hole 3a in which is fitted a cylinder 10. A pin 11 fits within the bore of cylinder 10 and extends beyond the cylinder 10. The pin is fixed into holes 4a on both sides of lever 4. The cylinder acts as a guide for the torque spring 9. The ends of the cylinder provide bearing areas to keep pivot action of the lever square.

A lever 4 in the form of a U-shaped channel is provided for the movable element of the dispenser. It is closed at one end. The lever (arm) 4 has two holes 4a on opposite sides of its channel within which pin 11 is fitted. The lever uses pin 11 as its pivot and is urged clockwise (when viewed as in FIG. 2) by the spring 9. The lever is stopped in its clockwise motion by the action of the lip portion 2b of the bottom member 2 on lip 4b of the lever 4.

A centering member 8 is fastened within lever 4 at its lip 4b end. The member 8 has a channel 8a for centering the pills and also has two opposite flanges 8b with small grooves 8c. A spring (extension) 7 of flat flexible metal spring material is attached to a U-shaped pin member 7a. Preferably the portion of pin member 7a within the spring 7 is free, so that the spring 7 may pivot about that portion of the pin member 7a. The arms of the pin member 7a fit into the grooves 8c of centering member 8 and thereby attach the spring 7 to lever 4 in about a perpendicular relationship. A guide spring 6 is attached at its bottom portion 6b to the inner wall liner 5 about at the place 5b where the wall starts to diverge from the wall of bottom member 2. The friction spring 7 slides freely between guide spring 6 and indented portion 5a of the wall liner 5, see FIG. 2.

In operation, the top member 1 is removed and the bottom member 2 is filled with pills. The present invention is particularly well adapted for pills that are thin in comparison to their diameter. For larger pills it is necessary to have a differently sized opening and centering

member. After the filling with pills, the top member 1 is then snapped back on the bottom member by means of its snap member 13.

When the user desires a pill, he simply tilts the dispenser to insure gravity feed of pills, see FIGS. 6 and 7, and pushes on lever 4 at its back end (away from lip 4b) in the direction and place shown by arrow P. A single layer of pills is provided to the lever 4 by virtue of the limited space between flange 14a and the guide plate 3, see FIG. 3. This permits a plurality of layers of pills to be placed in the dispenser while insuring that only one pill will be dispensed for every operation of the lever 4.

A single layer of pills is available when the dispenser is positioned as shown in FIGS. 6 and 7. This layer of pills rests against the inside of the wall portion 5a and extension 7. An indented cut-back 3f in the top portion 3d and raised portion 3b permits only one single pill at a time to reach the centering member 8. When the lever is operated, the pill within centering member 8 is moved beyond lip 2b within the centering channel 8a and falls out freely. The space within the centering channel is adapted so that it accommodates only one pill at a time.

When the lever is operated, it pulls up its attached friction spring 7. The spring 7, when pulled, closes off the gap formed by indentation 3f and the end of sidewall 5, preventing another pill from coming out as long as the lever is depressed.

The user then releases the lever 4 and spring 9 returns the lever 4 to its original position.

FIGS. 5, 6 and 7 illustrate the type of jamming prevented by the special construction of the present invention. The pills 23-27, shown in FIG. 5, are positioned to fall correctly into the centering member 8. There is no jamming or blockage of the pills.

However, as shown in FIG. 6, sometimes the pills jam so that they do not fall into the centering member 8. This type of jamming is caused by the shape of the pills, their external friction and their light weight. Often, when the pills are jammed, as shown in FIG. 6, it isn't possible to break up the blockage by shaking the dispenser because the pills are too light to loosen themselves and, if loosened, are as likely to resume their jammed position as not.

The function of the friction spring 7 is to clear this type of jamming. After the dispensing of the pills 34, the spring 9 returns the lever 4 to its starting position, shown in FIG. 7. During this return motion, the extension spring 7 contacts and acts against the pills 31 and 32 and moves them from their jammed position. The inner side of spring 7 may be knurled, extruded, coated, or otherwise treated, either physically or chemically, in order to improve the interaction between itself and the pills. As shown in FIG. 7, the spring 7 has broken the jam and permitted pill 22 to fall into the centering member 8. This clearing action is aided by the shock when lip 4b is being stopped by 2b.

Modifications may be made in the present invention within the scope of the sub-joined claims. For example, the dispenser may be only one layer of pills thick, and the flange 14a may thereby be eliminated.

I claim:

1. A pill dispenser comprising, a bottom member removably attached to the top member, the said top and bottom members

forming a container having side walls and exit port; a guide plate attached to said bottom member and having a plurality of support means therein;

a movable lever member mounted on the guide plate by means of the said support means in the guide plate, a spring mounted in the said guide plate and nominally holding the lever outward by acting against the lever;

wherein the lever normally closes the exit port and opens the said port when depressed against the spring, the said lever including a pill holding means which is adapted to be filled with a pill in the lever's closed position and retains said pill when depressed to move said pill to said exit port;

a flexible extension attached to the lever and protruding into the container, which extension is positioned so that it closes the exit port during operation of the lever and also slides along a wall of said container without affecting the volume of said container, said extension reorientating the pills in the container by sliding friction during the return of the lever to its original position, thus preventing or clearing a jamming of the pills which would keep one pill from entering said port.

2. A pill dispenser as in claim 1 wherein the lever is pivoted and the support means for the lever are holes in the guide plate a cylinder having an internal hole therethrough protrudes into said holes in the guide plate, said cylinder being mounted within said lever to form at its ends bearing surfaces for said lever, a shaft passing through said hole in said cylinder is mounted through holes in said lever to form the pivot for said lever, and the spring is a torque spring which is wound about said cylinder.

3. A pill dispenser as in claim 1 wherein the lever acts against a torque spring.

4. A pill dispenser as in claim 1 wherein the lever is a U-shaped channel member.

5. A pill dispenser as in claim 1 adapted for a plurality of layers of pills, and having a flange attached to the top which protrudes into the container near its exit to permit one layer of pills to pass to the exit port.

6. A pill dispenser as in claim 1 wherein the extension is a flat spring member.

7. A pill dispenser as in claim 6 wherein the spring member is guided at its free end by another flat spring member.

8. A pill dispenser as in claim 1 wherein the top and bottom members are shallow open three-sided boxes.

9. A pill dispenser as in claim 1 and including an internal guide plate having an indented portion which permits a single pill to enter the arm and an offset which aligns the pills with the said lever.

References Cited by the Examiner

UNITED STATES PATENTS

1,678,355	7/1928	Roberts	221—204
2,669,349	2/1954	Silver	221—248 X
2,683,554	7/1954	Mulhauser	221—264 X
3,119,520	1/1964	Christopher	221—202

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