

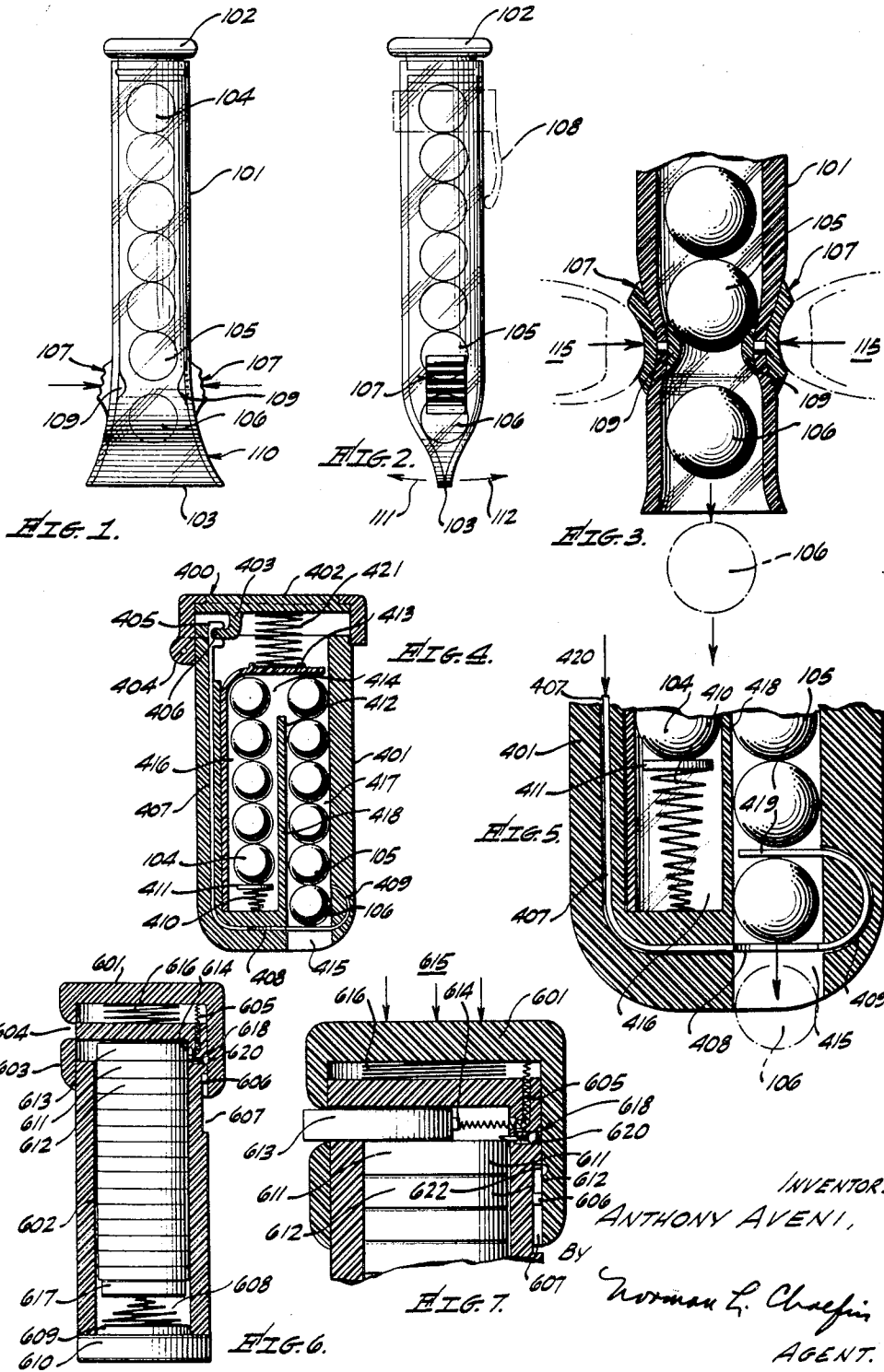
Nov. 15, 1960

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2,960,259

DISPENSER FOR PILLS OR PELLETS AND THE LIKE

Filed June 25, 1956



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DISPENSER FOR PILLS OR PELLETS AND THE LIKE

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Filed June 25, 1956, Ser. No. 593,660

2 Claims. (Cl. 221-279)

This invention relates to dispensing devices and more particularly to novel pocket size dispensers of pills, tablets or the like.

A great many persons are required to take pills, tablets, or similar medicaments. When these medicinal tablets or pills, and so forth, are prepared by the druggist they are generally packaged in a small box or bottle which must be opened each time the medicine is to be taken. The pills are handled in the process of removing one. This is not the most sanitary arrangement. Pills are frequently dropped and lost in getting them out of the box or other prior art container in which they are dispensed.

I have devised a new type of dispenser for pills, tablets or capsules that may be fabricated out of plastics or other materials and that with its resilient dispensing means provides simple, fast and sanitary dispensation of the tablets, etc. The device of my invention is also useful for dispensing candies and condiments of all shapes. To accommodate any particular shape of article requires that dispensers according to this invention be manufactured in a form having a cross-section to accommodate that shape of product.

The dispenser is arranged in the form of a container of cylindrical cross-section of strong, resilient flexible material. Any convenient cross-section to fit the product to be dispensed may be provided. A cap on one end and dispensing opening in the other end are also provided. In one embodiment, resilient means are provided to close the opening. When the resilient means is operated a free opening is created to dispense one of the pills, tablets, or candies. In another embodiment, near the end having an opening, the cylinder is crimped on opposite sides of, or around the inner cylinder wall. The opening in this case is narrow and elongated. When pressure is applied to the crimped area the restricted opening is distended into a shape to accommodate passage therethrough of a predetermined number of units of the product to be dispensed such as pills, tablets, candies or the like. The crimped points at which the pressure is applied move into the center of the cylinder thereby holding all remaining units of the product in the upper area of the cylinder until the units are dispensed from the opening. When the pressure is released the narrow opening returns to its normal condition and the remaining units fall to the bottom.

Accordingly, it is an object of this invention to provide a dispenser for pills, tablets, capsules or the like which dispenses a predetermined number of these products upon a simple pressure on some part of the dispenser.

It is another object of this invention to provide a dispenser for pills, tablets, capsules, or candy which dispenses one or more units, as desired, upon pressure of the sides of the dispenser.

It is still another object of this invention to provide a dispenser for small objects such as foods, candies or

drug products with operable resilient means for holding back all of the contents of the dispenser while only a predetermined number of units is dispensed.

It is a further object of this invention to provide a dispenser comprising a flexible tube or cylinder of some predetermined cross-section having a cap at the top and a narrow slotted opening at the bottom, whereby the pressure of the sides of the tube or cylinder above the narrow slotted opening distends the opening at the bottom while closing off the tube between the point of pressure and the top to permit dispensing a predetermined number of tablets, pills, capsules, or the like from the opening while holding the remainder of the units in the tube.

These and other objects of this invention will be more fully understood from the specification and claims which follow when taken together with the accompanying drawings in which a preferred embodiment of my invention is shown. It is to be clearly understood that the embodiment shown is illustrative of, but not to be construed as limiting, the invention to that embodiment because other forms of the dispenser according to this invention are possible within the scope of the specification and claims without departing from the spirit and intent thereof.

In the figures:

Fig. 1 is an over-all external view of a dispenser according to this invention;

Fig. 2 is a view of the dispenser of Fig. 1 in quiescent position shown 90° rotated from the view of Fig. 1;

Fig. 3 is a longitudinal cross-sectional view of a part of the dispenser of Fig. 1 in dispensing position;

Fig. 4 is a longitudinal cross-sectional view of another form of dispenser according to this invention;

Fig. 5 is a cross-sectional detail of the dispensing end of the dispenser of Fig. 4 in its dispensing position;

Fig. 6 is a cross-sectional view of another form of dispenser according to this invention; and

Fig. 7 is a cross-sectional detail of the dispensing end of the dispenser shown in Fig. 6 in its dispensing position.

Referring now to the embodiment of this invention shown in Figs. 1, 2 and 3, a container 101 is shown. The container 101 may be generally cylindrical in form and of a resilient material but may have an ovaloid cross-section or any other which suits a particular shape of capsule or pill such as 104. A removable cap 102 is provided which may be arranged so as to be a tightly fitted member as shown or with threads (not shown) for screwing into matching threads (not shown) in the top of the dispenser cylinder container 101. The bottom of container 101 is flattened as shown at 110 so that a slit-like bottom end is formed as at 103. The flattened bottom end 110 of cylinder 101 is somewhat flared. On the opposite sides of the container 101 a pair of buttons 107 are provided. These are positioned a distance from the bottom end 110 of the container 101 so that a pill 106 is just below this position in the area 110 of the bottom of the container and the remainder of the pills to the top from 105 up to 104 are all above the buttons 107. Within container 101 exactly opposite each of buttons 107 inside the walls of the container 101 protrusions of buttons 107 as at 109 extend into the cylinder. In the quiescent or closed position of the dispenser as shown in Figs. 1 and 2, the innermost reach of inner wall protuberances 109 still permits the passage of a pill such as 105 to fall to the position of pill 106, but when one's fingers as at 115 in Fig. 3 are pressed against depression buttons 107, the movement of protuberances 109 into the cylinder cavity stops pill 105 from falling down further than the protuberances

109. The pressure of the fingers 115 against depression buttons 107 also forces the sides of the slit 103 open in the direction of arrows 111 and 112 shown in Fig. 2. When the sides of slit 103 open pill 106 drops out as shown in Fig. 3, while pill 105 is held back by protuberances 109. Upon the release of the pressure of fingers 115, against buttons 107, the resilience of container 101 results in the return of the sides of slit 103 to their normal position as shown in Fig. 2 and pill 105 drops down to the original position of pill 106 before it was dispensed.

While the dispenser shown in Figs. 1, 2 and 3 is illustrated as holding 7 pills it may be made for any convenient number by appropriate length or for any desired size of pill by appropriate cross-sectional dimensions.

A pocket clip as shown at 108 in Fig. 2 may be provided so that the dispenser may be carried in the pocket in the same manner as a pen or pencil.

When the dispenser of Figs. 1, 2 and 3 is empty it may be refilled by removing cap 102 and depositing a new supply of pills in the top of the container 101 whereupon the cap is replaced.

In Figs. 4 and 5 is shown another embodiment of this invention wherein a more rigid container 401 is provided. Container 401 has two compartments 416 and 417 separated by a wall 418 between them. The wall 418 does not extend the entire length of the dispenser as shown at 412 in Fig. 4 but is shorter than the capacity of a compartment by the size of one pill, pellet or capsule as 104, 105, 106 that may be used in the dispenser.

Compartment 416 is fitted at the closed bottom thereof with a helical spring 410 which may be flat when compressed. Spring 410 has a platform 411 on top of it. Spring 410 has a resilient urge upward so that if one pill is removed platform 411 will push the remaining pills upward under the urge of spring 410. This may be seen by comparing the positions of pill 104 relative to pill 105 as shown in Figs. 4 and 5. In Fig. 5 the action of spring 410 and platform 411 on pill 104 may be seen to have pushed pill 104 upward one unit.

Compartment 417 has an opening 415 at the bottom thereof through which (if the opening is uncovered) pills may fall.

A covering means for the opening is provided in the form of a flexible strip 407 which moves in a track provided for the strip 407 in the inner portions of the dispenser container 401. Flexible strip 407 is arranged to move down along the side of compartment 416 and along the bottom of compartment 416 crossing over to close off the opening 415 in the bottom of compartment 417 and continuing into the arcuate portion 409 of the slot provided for the flexible strip 407. An opening 408 is provided in flexible strip 407 which may be seen in Fig. 4 to be under the compartment 416. If the strip 407 should be pushed downward as shown by arrow 420 in Fig. 5 the opening 408 moves into alignment with the opening 415 of compartment 417, while the end 419 of strip 407 moves through the arcuate portion 409 of the track into compartment 417 between a pill 106 and a pill 105 just above it. In this way pill 106 falls through opening 408 in strip 407 to be dispensed, while pill 105 and all of those above it are held back until the strip end 409 is pulled back by spring cover 402 whereupon pill 105 will fall into place previously occupied by pill 106. Spring 410 and platform 411 now force the remaining pills in compartment 416 into a position to fill the space left in compartment 417 by the dispensed pill.

A mechanism for moving flexible strip 407 through the track provided for it is incorporated with the center section 402 of the cover 400 of the dispenser 401 shown in Fig. 4. Cover 400 is hinged as shown at 404. Within cover 400 a bent lip 403 part of center section 402 is provided at the end of flexible strip 407 nearest the cover 400. A channel 405 is formed to receive the bent over

end 406 of lip 403. When cover 402 is lifted on hinge 404, it can be seen that the end 406 of lip 403 can be disengaged from channel 405 of flexible strip 407. A platform and guide strip 413 is connected by means of a spring 421 with center section 402. The platform portion of the strip 413 supports spring 421. The straight portion of strip 413 fits along the side of compartment 416 parallel with and on the same side with the track which is provided for flexible strip 407. Spring 421 has a resilient urge upward to pull flexible strip 407 normally upward at all times to maintain the opening 408 of flexible strip 407 in such a position with respect to the dispenser that opening 415 of compartment 417 is closed off and so that when pressure is applied to center section 402 the bent over end 406 of lip 403 pushing on the channel 405 of flexible strip 407 forces the strip 407 downward as illustrated in Fig. 5 and previously described, to dispense one pill. When pressure is released from center section 402, spring 421 forces the center section 402 back into its normal position thereby resulting in the return of flexible strip 407 to its normal position shown in Fig. 4. The spring platform and guide strip 413, it may be seen, is bent so as to guide the top pill of compartment 416 over to compartment 417 after a pill has been dispensed.

It can be readily seen that the dispenser 401 of Fig. 4 can also be provided as a single compartment dispenser in which only compartment 417 would be present and no compartment 416, all other elements would be the same and the entire single compartment arrangement somewhat elongated as compared to the illustrated device of Fig. 4. No spring 410 and platform 411 would be necessary since the operation would be based on a gravity feed as in the case of the dispenser of Figs. 1, 2 and 3. In the single compartment dispenser above noted, the dispenser may be loaded from the opening 415 at the bottom while center section 402 is depressed. The center section 402 has to be released after each pill is dropped in to permit it to go "down" to the top of the dispenser. Also slot 409 for flexible strip 407 may be constructed whereby the curved portion partially surrounding the pill 106 as at Fig. 4 is made larger to accommodate 2 or more pills of the type shown or elongated capsules as desired. Also it is conceivable that the dispenser may be adapted to accommodate pills and capsules, for dispensing simultaneously a plurality of articles each one of the plurality being a different shape or size.

For such adaptation compartments such as 417 would be arranged in a parallel array and flexible strip 407 would be provided with the appropriate correspondently shaped and dimensioned openings as at 408.

Referring now to Figs. 6 and 7 a magazine 602 is shown which has a cap 601 resiliently and movably connected by means of a spring 616 to the top of the magazine 602. Spring 616 normally urges the cap upward. The cap has a slot 604. There is a matching slot in the top of the magazine which is covered by the lower portion 603 of cap 601. When magazine 601 is filled with articles to be dispensed such as 613, 611, 612, they are forced against the top of the magazine by the pressure of helical spring 609, a part of the base of the magazine 610 and a pressure member 617. Spring 609 is attached to base 610 so that when base 610 is removed spring 609 and pressure member 617 come out with base 610.

An indentation 607 in the side of magazine 602 is provided for a guide and stop pin 606 for cap 601. This is to limit vertical movement of cap 601. A flexible driving element 605 is attached to cap 601 and has a pressure pad 614. Driving element 605 goes through a slot in the top of magazine 602 to press against the topmost of the articles in the magazine so that, as shown in Fig. 7, when pressure as at 615 is applied to cap 601, spring 616 is compressed and opening 604 is aligned with the corresponding opening in the magazine as cap 601 slides downward permitting article 613 to be pushed through opening 604 to the outside. Meanwhile a resiliently mounted dog 620 is pushed into opening 618 in

the side of case 602 to hold article 611 down until article 613 is dispensed. Flexible drive member 605 and its pressure pad 614 are pulled back after article 613 is removed by the release of pressure on cap 601 which is urged upward to its normal position by spring 616. As cap 601 rises dog 620 falls back into the depression 622 provided in the side of cap 601 and article 611 is pushed into the place relinquished by article 613 as a result of the action of spring 609 and pressure pad 617. To fill the magazine 602 bottom cover 610 is removed. The articles are dropped in and cover 610 is replaced. Spring 609 urges the articles against the top of the magazine so that the topmost article is in dispensing relation to the opening provided therefor at the top of the magazine.

There have been described herein several embodiments of dispensing devices according to my invention involving a container with a receiving end and a dispensing end and resilient means activated by pressure for dispensing units of a quantity of articles inserted in the container from the receiving end.

What is claimed as new is:

1. A pocket storage and dispensing container for small articles of uniform size, said container comprising: a container body having a storage area with a dispensing opening at one end thereof; a capping means movably connected with said container body and having a first and a second position thereon, said capping means having an engaging element as part thereof and being slidably held in said first position over said container body by the urge of a resilient device connected therewith, said container body having a track therein; and a flexible dispensing control strip slidably inserted in said track, said strip being engaged at one end thereof by said engaging element, and being perforated a predetermined distance from the other end thereof to provide a dispensing opening, said strip, in the first position of said capping means, being disposed under said dispensing opening of said storage area so that the unperforated end of said strip closes off said dispensing opening of said storage area and when said capping means is moved to said second position against the resilient urge of said resilient device said strip is moved in said track so that that said unperforated end of said strip moves between the last and next to last article contained in said storage area and the predetermined position of said perforation is such that the perforation is in alignment with said dispensing opening of said storage area to permit said last article to drop out while holding said next to last article in place, relieving the urge of said resilient device and returning said capping means to said first position returning said strip to the position in which said storage area is closed off and said next to last article falls into the place of said last article now dispensed.

2. A pocket storage and dispensing container for a plurality of small uniformly sized articles, said container

comprising: a rigid magazine having a movable cap and having two adjacent compartments within said magazine, said compartments being separated by a common wall extending from the bottom of said adjacent compartment less than the full length of said adjacent compartments so that the remaining area at the top of said adjacent compartments forms a communicating passage approximately the same size as articles in said compartments from one to the other through which articles contained in said compartments may pass, said one of said compartments being closed at the end thereof opposite said communicating passage and having in the closed bottom thereof a helical spring with a platform thereon, said spring normally urging said platform to maintain pressure upward against the articles in said compartment, said other of said compartments having a dispensing opening in the bottom thereof through which the articles in said other compartment may fall to the outside; a track in the outer wall of said magazine alongside and under said one compartment and passing through said other compartment near the bottom thereof into the opposite wall of said magazine, curving back into said other compartment at a point equal in height above the point of entry into said opposite wall to the height of one of the articles; and a flexible strip inserted into said track and attached to said cap, said flexible strip passing through the entire length of said track and having near the far end thereof an opening which is normally in a position under said one compartment, the balance of said strip normally blocking said opening in said other compartment to prevent the discharge of articles therefrom, whereby when said cap is depressed, said strip is moved in said track so that said balance of said strip is inserted into said other compartment above the bottommost article in said other compartment, while said opening in said flexible strip moves under said other compartment to permit discharge of said bottommost article while the rest of the articles are held in said other compartment, by said balance of said strip.

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