United States Patent [19]

Kerr

[11] **3,762,539**

[45] **Oct. 2, 1973**

[54] **PILL DISPENSER**

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[22] Filed: **July 22, 1971**

[21] Appl. No.: **165,071**

[52] **U.S. Cl.** **206/42,** 220/8

[51] **Int. Cl.** **B65d 83/04**

[58] **Field of Search** ..... 206/1.5, 42, 46 P, 206/DIG. 11, DIG. 29, 56 AC; 215/44; 220/40, 8; 221/198, 292

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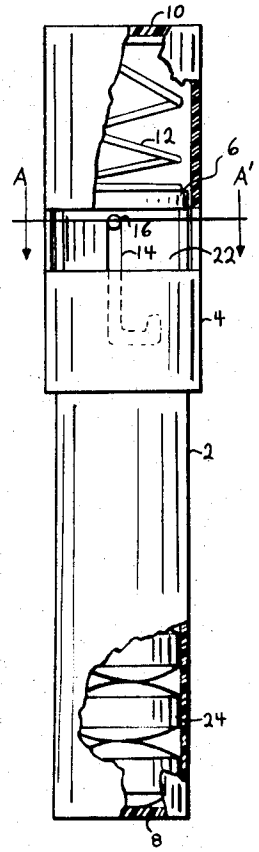
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Assistant Examiner—Steven E. Lipman
Attorney—David R. Murphy et al.

[57] **ABSTRACT**

A pill dispenser constructed of two plastic tubes and equipped with a spring-biased twist-and-lock mechanism. Openings in the tubes are superimposed to dispense pills in one twist-and-lock position and are separated to retain the pills in the other twist-and-lock position. A decal-type label allows easy counting of pills remaining in the dispenser against a scale.

6 Claims, 6 Drawing Figures



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SHEET 1 OF 2

FIG. 1

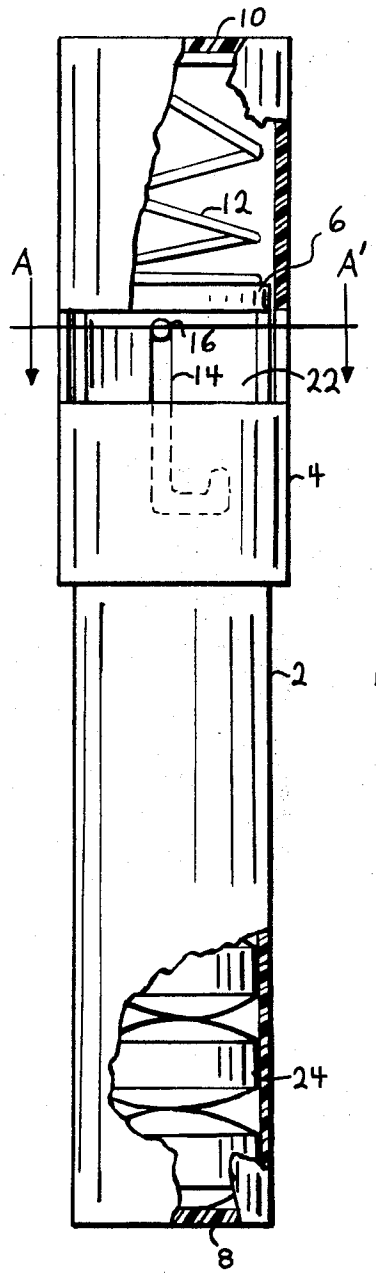


FIG. 3

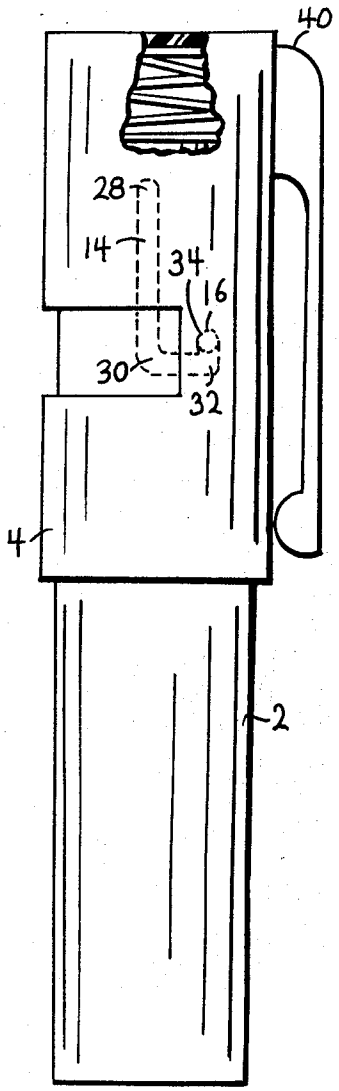
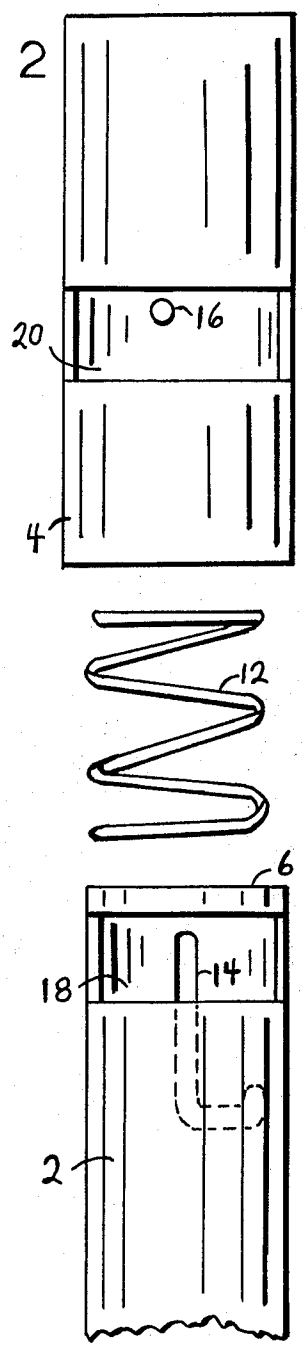


FIG. 2



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FIG. 4

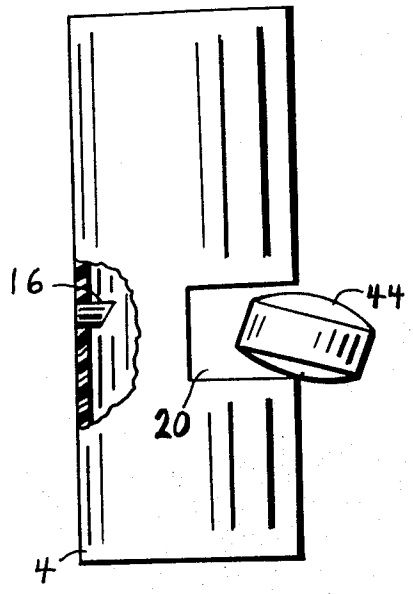


FIG. 5

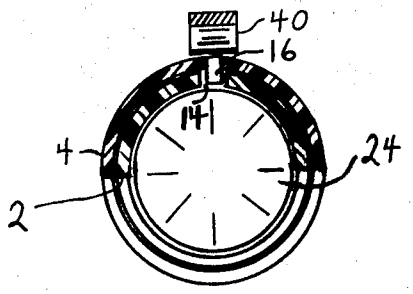
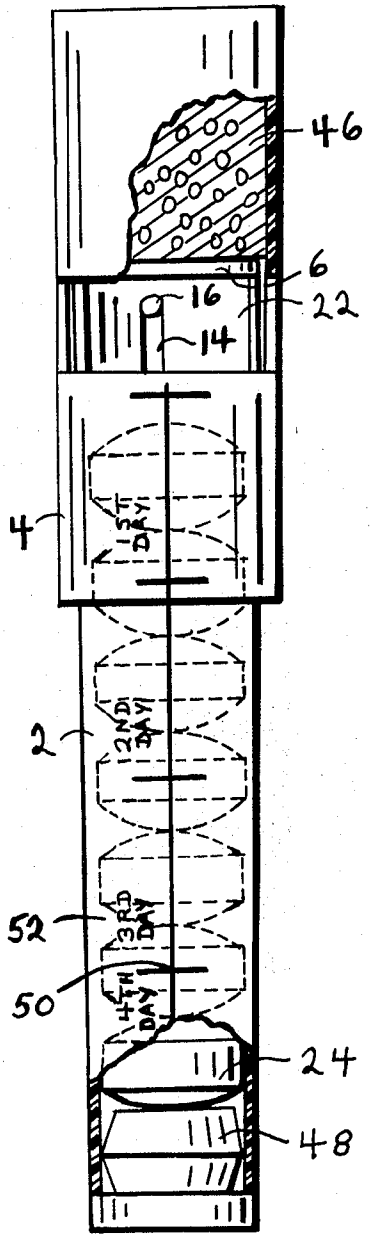


FIG. 6



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PILL DISPENSER

BACKGROUND OF THE INVENTION

This invention relates to a portable receptacle and dispenser for pellets, and more particularly to a pocket-sized dispenser for pills, such as, for example, medical tablets.

Certain characteristics are desirable in a pill dispenser.

1. It should be easily portable
2. It should carry a reasonable number of pills
3. The pills should be easy to remove when needed
4. The pills should be dispensed one at a time
5. The pills should be safe from accidental removal
6. A positive lock should be provided to prevent young children, who lack the necessary coordination to open the lock, from removing possibly dangerous pills
7. It should be inexpensive to manufacture
8. From external appearance, it should not obviously be a pill dispenser.

SUMMARY OF THE INVENTION

Most embodiments of the present invention have all of the above characteristics, and all embodiments have most of the characteristics.

In the known prior art, positive locking features have been found only in dispensers which are either necessarily expensive to construct or which dump an indeterminate number of pills rather than dispensing individual pills.

The present invention, in its basic embodiment, is very economical to construct, requiring only two tubes, a peg and a spring. The second tube is fitted over the first tube and is sealed at one end. The first tube is sealed at both ends. There is a congruent opening in the wall of each tube. A compress-twist-and-lock mechanism in the wall of the tubes is used to hold the congruent openings alternately in a superimposed position or a separated position. The compress-twist-and-lock mechanism is biased by the spring which is located between adjacent end walls of the two tubes and is constructed with the peg attached to the wall of one tube riding in a track or recessed pathway in the wall of the other tube. The track is in the shape of a capital J or a capital L with a serif at the end of the lower leg. The peg rides the track and is normally lodged in one of two stable positions— either where the peg is in the upper end of the L or J or the upper part of the serif of the L or the corresponding part of the J.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an overall partial sectional view of a basic embodiment of a pill dispenser according to the invention, wherein the dispenser is open to dispense pills.

FIG. 2 is an exploded view of the device in FIG. 1.

FIG. 3 is an overall partial sectional view of the device in FIG. 1, wherein the dispenser is closed to retain pills.

FIG. 4 is a view of the upper section (as normally carried) of the dispenser of FIG. 1.

FIG. 5 is a cross-sectional view of the device in FIG. 1.

FIG. 6 is an alternate embodiment of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 is an overall view of a basic embodiment of the invention. A first, or inner tube 2 is fitted concentrically inside a second, or outer tube 4, both preferably of transparent plastic. The first tube is closed by members 6 and 8 at each end, and the second tube is closed at one end by a member 10. Between members 6 and 10, inside the second tube, is a compressible biasing means 12, which is a spring member such as a coiled metal spring or a compressible piece of material such as foam rubber.

A track or pathway 14, in the shape of a capital L with serif or a capital J with no crossbar, is shown as cut through the wall of the first tube. A pin or protrusion 16 is firmly connected to the wall of the second, outer tube, and extends into the track. The construction of the overall device is such that the two tubes can move relative to each other only over the range in which the pin remains in the track. In the position illustrated in FIG. 1, the pin is at the end of the long leg of the L-shaped track, and is held in this position by the expanding tendency of coil spring 12, thereby holding the tubes in an axially expanded relationship.

FIG. 2 is an exploded view of the embodiment shown in FIG. 1. Corresponding parts are correspondingly numbered. As is more clearly seen in the exploded view, there is an opening 18 in the wall of the first, inner tube 2, located adjacent to end 6 and extending around approximately half (180°) of the cylindrical wall of tube 2. There is an additional opening 20 located in the cylindrical wall of tube 4, located away from the end 10, and also extending around approximately half of the cylindrical wall of tube 4.

As is more clearly seen in FIG. 1, the openings 18 and 20 are substantially geometrically congruent, that is they can be superimposed by twisting and axially moving the tubes so that the edges of the openings coincide. FIG. 1 shows the tubes arranged so that the two openings coincide to form an outlet 22 for dispensing pellets. When the pin 16 is locked in the position of track 14 illustrated in FIG. 1, the openings 18 and 20 are locked in a superimposed position, thereby forming the illustrated outlet 22. Pellets, such as pellet 24, are held within the inner tube 2, which acts as a holder until the pellets are to be dispensed.

FIG. 3 is a view of the dispenser shown in FIG. 1 when the dispenser is closed. In both FIG. 1 and FIG. 3, the angle from which inner tube 2 is viewed remains unchanged. This fact can be observed by noting that the angular viewing position of track 14, which is part of tube 2, remains unchanged. Tube 4 has been axially compressed further onto tube 2, thereby compressing coil spring 12. This causes pin 16 to ride in the track from position 28 to position 30. Tube 4 has then been angularly twisted with respect to tube 2 to cause pin 16 to ride the track from position 30 to position 32. The compressive force on the tubes has then been released to allow pin 16 to ride up the track from point 32 to a new stable locked position 34. When pin 16 is in position 32, openings 18 and 20 are axially displaced from one another and are also angularly displaced. As a result, openings 18 and 20 are not superimposed, and outlet 22 is closed.

With the turning of tube 4, a clip 40 has come into view. This clip is used in the preferred embodiment, but is not necessary for the device to operate as a dispenser. The clip allows the dispenser to be carried as one would carry a fountain pen, clipped to a shirt or coat pocket.

FIG. 4 is a partial sectional view of the outer tube 4, showing how a pill 44 can be fitted through opening 20. Also illustrated in pin 16, affixed to the cylindrical wall of tube 4.

FIG. 5 is a cross-sectional view of the dispenser, taken through plane A–A'. Tube 2 is shown to be concentrically within tube 4, and a pill 24 is within tube 2. Pin 16 extends into cutout track 14 far enough to ride the track, but shallow enough to avoid contact with the pill 24.

FIG. 6 is a partial sectional view of a dispenser, illustrating several alternate features. The biasing element 46 in this embodiment is made of foam rubber or other resilient bulk material. The lower end of tube 2 is completely removable to allow quick filling of the dispenser. It may be a force-fitting element 48 as illustrated, or it may be screwed on or attached by other appropriate means.

In the embodiment of FIG. 6, the tubes are at least partially transparent. They include a decal label or scale 50 along the wall of tube 2 for measuring or indicating the number of pills left inside and thereby visible through the tube wall. The scale should conform to the size of pills used. The scale may include indicia 52 to indicate whether more pills are to be taken at given times during the day, or the total number of pills remaining.

While the preferred embodiments of the invention have been illustrated and described in the foregoing specification and attached drawings, these are only exemplary of the invention defined by the appended claims. Other embodiments are within the scope of the invention. For example, it is possible to press the pin out of the wall of the outer tube, either after the tubes are concentric or before. If before, the tubes must be bent to put the outer tube over the inner tube. Or the track could be in the outer tube and the pin in the inner tube. The track can be either a groove or a cutout section.

I claim:

1. A holder and dispenser for pellets comprising:

A. a first cylindrical tube having two end walls and a first circumferential wall, said first circumferential wall having a first opening therein of sufficient size for one of said pellets to pass through, said first opening beginning near one of said two end walls and extending axially along said first tube a distance at least greater than the width of one of said pellets, said first opening extending circumferentially around approximately 180° of the first circumferential wall, said first tube having an inside diameter slightly greater than the diameter of the pellets to be dispersed and an axial length sufficient to hold within the first tube a plurality of the pellets,

B. a second cylindrical tube having one end wall and a further circumferential wall, the inside diameter of said further circumferential wall being slightly greater than the outside diameter of the first circumferential wall, said further circumferential wall being fitted over the first circumferential wall at the end corresponding to said one of said two end walls, the outside of said first circumferential wall and the inside of said further circumferential wall forming two adjacent cylindrical surfaces, said further circumferential wall having a second opening therethrough substantially geometrically congruent to the first opening, said second opening being located axially a distance away from said one end wall,

C. a protrusion extending from one of the two adjacent cylindrical surfaces toward the other adjacent cylindrical surface,

D. a recessed pathway in said other adjacent cylindrical surface holding and guiding said protrusion through a path, said pathway including two end segments extending axially along said other adjacent cylindrical surface, one end of each end segment being connected to the ends of a middle segment of the pathway which extends generally circumferentially around said other adjacent cylindrical surface, and the other end of each end segment respectively forming first and second ends of the pathway, said pathway being arranged such that, when the protrusion is located in said first end of the pathway, the two tubes are axially compressed and the two openings are not superimposed, and when the protrusion is located in said second end of the pathway, the two tubes are axially extended and the two openings are superimposed, and

E. bias means for positively biasing the tubes to cause the protrusion, in the absence of applied force, to remain in said second end of the pathway when there and to remain in the first end of the pathway when there, whereby a twist-and-lock motion and a twist-and-unlock motion are required respectively to open and close an outlet resulting from the superimposition of the first and second openings.

2. A holder and dispenser according to claim 1 wherein said bias means comprises a coil spring fitted inside said second tube.

3. A holder and dispenser according to claim 2 further comprising clip means attached to said second tube for attaching the tubes to a pocket.

4. A holder and dispenser according to claim 3 wherein at least a portion of said first tube is transparent and further comprising label means affixed to the first tube for providing indicia corresponding to the number of pellets within the first tube.

5. A holder and dispenser according to claim 4 wherein said label means is a decal applied to the outside of the first tube.

6. A holder and dispenser according to claim 5 wherein said protrusion extends from the outside of the first circumferential wall and the recessed pathway is cut through the further circumferential wall of the second cylindrical tube.

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