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3,241,712

PILL DISPENSING BOTTLE CLOSURE

Filed June 17, 1964

FIG. 1

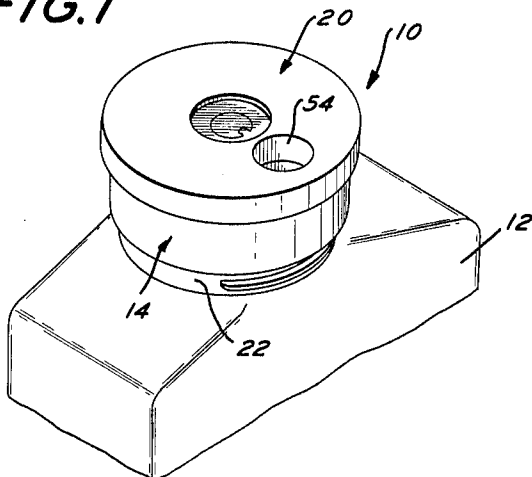
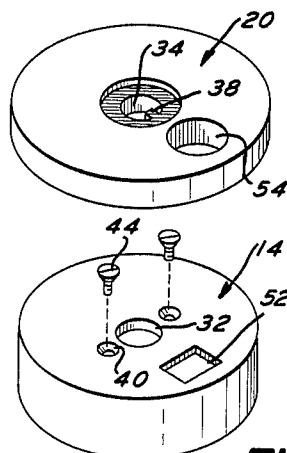


FIG. 2

FIG. 3

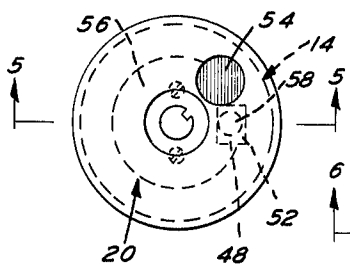


FIG. 4

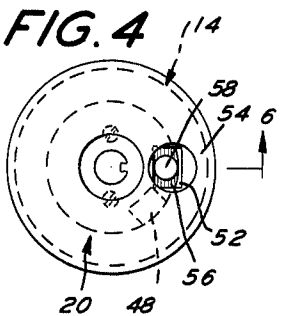
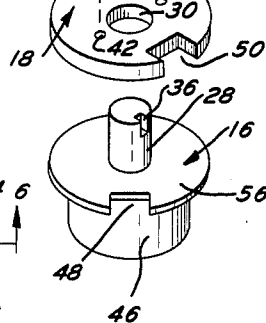
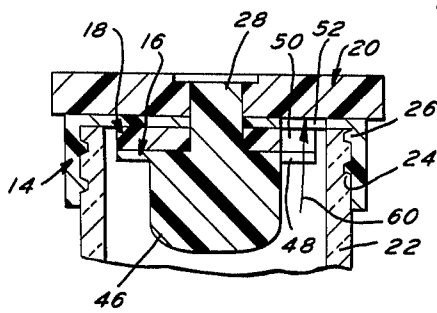


FIG. 5

FIG. 6

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PILL DISPENSING BOTTLE CLOSURE

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2 Claims. (Cl. 221-265)

This invention relates to a closure element and more particularly to a closure element adapted to be seated on the neck of a bottle or the like for dispensing pills from the bottle one at a time.

It is an object of this invention to provide a closure element for a bottle or the like adapted to dispense pills from the bottle one at a time.

It is another object of this invention to provide a bottle closure for dispensing pills one at a time which is simple and reliable in construction.

Yet another object of this invention is to provide a closure element of the aforementioned description which includes a minimum number of components.

A still further object of this invention is to provide a bottle closure of the aforementioned description which is simple to operate.

A still further object of this invention is to provide a closure element of the aforementioned description which is interchangeable with standard size bottles.

Other objects will appear from the disclosure which follows hereinafter.

For the purpose of illustrating the invention, there is shown in the drawings a form which is presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

FIGURE 1 is a perspective view of the closure element of the present invention mounted upon a standard pill container such as a bottle.

FIGURE 2 is an exploded perspective view of the closure element illustrated in FIGURE 1.

FIGURE 3 is a top plan view of the closure element shown in FIGURE 1 and illustrating the position of the components of the closure in non-dispensing relationship.

FIGURE 4 is a view similar to FIGURE 3 but illustrating the components of the closure element in their pill dispensing relationship.

FIGURE 5 is a cross sectional view taken substantially along the plane indicated by the line 5-5 of FIGURE 3.

FIGURE 6 is a cross sectional view taken substantially along the plane indicated by the line 6-6 of FIGURE 4.

The closure element of the present invention is generally designated by the numeral 10. The closure element 10 is adapted to be placed on the neck of a bottle 12 or the like. The bottle 12 includes a plurality of pills to be dispensed one at a time through the closure element 10.

The closure element 10 includes a cap 14. The cap 14 includes internal threads 26 which are adapted to be placed in threaded engagement with the threads 24 on a bottle neck 22 or the like. A rotor element is adapted to be placed above and beneath the cap 14. The rotor element includes a bottom part 16 and a top part 20. A spacer element 18 is adapted to be placed between the rotor bottom 16 and the bottom of the cap 14.

For assembling the parts illustrated in FIGURE 2, the rotor bottom 16 includes a circular disc 56 having an upstanding centrally located post 28. The post 28 is adapted to be placed through aligned apertures 30, 32 and 34 in the spacer 18, cap 14, and rotor top 20, respectively. The rotor top 20 includes a key 38. The post 28 on the rotor bottom 16 includes a keyway 36. The key 38 is adapted to be locked in the keyway 36 to main-

tain the rotor top and bottom in assembled relationship with respect to the cap 14 and the spacer element 18.

The spacer element 18 includes a pair of threaded apertures 42. The apertures 42 are adapted to be aligned with a pair of spaced apertures 40 in the cap 14. Threaded fasteners 44 extend through the apertures 40 and are threadably connected to the apertures 42. Therefore, the spacer element 18 is maintained integral with the cap 14 adjacent its bottom surface.

It should now be understood that since the rotor top and rotor bottom are made integral by means of the key 38 and keyway 36, they may rotate in unison with respect to the cap 14 and spacer element 18 about the post 28.

Projecting downwardly from the circular disc on the rotor bottom 16 is a pill guide 46. A notch 48 is cut in the periphery of the disc 56 and is in communication with the pills within the bottle 12.

The spacer element 18 also includes a notch 50 cut in its periphery. The notch 50 is maintained at all times in direct communication with a rectangular aperture 52 through the cap 14 by means of the fasteners 44. The notch 50 and the rectangular aperture 52 form a pill trap chamber.

The rotor top 20 includes a circular aperture 54 through which pills will be dispensed from the trap chamber formed by the aperture 52 and notch 50. The key 38 and keyway 36 maintained the circular aperture 54 in the rotor top 20 out of alignment at all times with the notch 48 cut in the periphery of the disc 56 of the rotor bottom 16.

With specific reference now to FIGURES 3-6, the operation of the closure element to dispense pills one at a time from the bottle 12 will become apparent. With the components of the closure 10 in assembled relationship, the cap 14 is first threaded onto the neck 22 of the bottle 12. The bottle 12 is then turned upside down to bring pills within the bottle into juxtaposition to the rotor bottom 16. The rotor top 20 is then rotated which in turn will rotate the rotor bottom 16 with it because of the connection between keyway 36 and key 38. Rotation of the rotor bottom will cause the pill guide 46 projecting downwardly from the disc 56 and prevents any pill clusters adjacent the rotor bottom and serves to guide individual pills toward the disc 56 of the rotor bottom 16.

The notch 48 is then aligned with the notch 50 in the spacer plate 18 and the rectangular slot 52 in the cap 14. A pill 58 will follow the path indicated by the arrow 60 in FIGURE 5. The pill 58 will fall through the notch 48 and into the trap chamber formed by the rectangular slot 52 and notch 50. An adequate chamber size for accommodation of a pill is provided by the spacer element 18, which provides sufficient clearance to avoid contact between the pill and the disc 56 of the rotor bottom 16. Additionally, the spacer element 18 provides reinforcement for the pivotable support of post 28. Thus, in the interest of economy, the cap 14 may be manufactured with a very thin top wall. Since the keyway 36 and key 38 maintain the aperture 54 in the rotor top 20 out of alignment with the notch 48 in the rotor bottom 16, the pill 58 in the notch 50 and slot 52 will abut the underneath surface of the rotor top 20. Further rotation of the rotor top 20 will bring the aperture 54 into alignment with the notch 50 and rectangular aperture 52. This is shown in FIGURES 4 and 6. The pill 58 can then leave the trap chamber formed by the notch 50 and rectangular aperture 52 and be dispensed through the aperture 54 and the rotor top 20. When this occurs, the rotor bottom 16 has been rotated so that its notch 48 is out of alignment with the notch 50 and rectangular aperture 52. Hence, pills within the bottle 12 cannot enter the trap chamber formed by the notch 50 and

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aperture 52. Therefore, the closure will dispense only one pill at a time from the interior of the bottle 12.

If desired, the closure 10 may be removed from the bottle 12 and threadably connected to another bottle. Hence, the closure 10 is interchangeable.

The cap 14, rotor top 20, rotor bottom 16, and spacer 18 are all formed from plastic, non-corrosive material. This renders the closure long lasting, easy to clean, and inexpensive to manufacture.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claims, rather than to the foregoing specification as indicating the scope of the invention.

We claim:

1. A closure adapted to be seated on a container for dispensing pills therein, one at a time, said closure comprising a cap for enclosing said container, said cap including a relatively thin wall with an axial aperture and a dispenser aperture therethrough; a solid spacer element affixed against said closure wall of said cap at the inside thereof, said spacer having an axial aperture and a notch at the periphery thereof, both in register, respectively, with said axial and dispenser apertures of said cap; an outer rotor element juxtaposed over the outside of said wall, said outer rotor element having a dispenser aperture therethrough; an inner rotor element juxtaposed to said spacer element, said inner rotor element including a notch at the periphery thereof, said notch of said spacer element together with said dispenser aperture of said cap providing a chamber sufficient to contain a pill between said inner and outer rotor elements; a projection at the inside of said inner rotor, said projection having a curved

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smooth surface for guiding pills to said notch of said inner rotor; and an axle post extending through said axial apertures, said post affixed to said inner and outer rotor elements to maintain said outer rotor dispenser aperture and said inner rotor notch in a non-aligned relationship at all times and allowing rotation of said rotor elements for alternate alignment of said outer rotor dispenser aperture and said inner rotor notch with said chamber therebetween whereby a pill may be first positioned in said chamber through said notch of said inner rotor when aligned therewith and thereafter being dispensed from said chamber upon alignment of said aperture of said outer rotor therewith, said inner rotor then closing said chamber at the inside thereof.

2. A closure in accordance with claim 1, including removable connector elements for affixing said cap and spacer element together, said connector elements being covered and hidden from view by said outer rotor element and said post being affixed to said outer rotor by a keyway.

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