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DISPLAY CAPSULE

Filed July 11, 1960

Fig. 1.

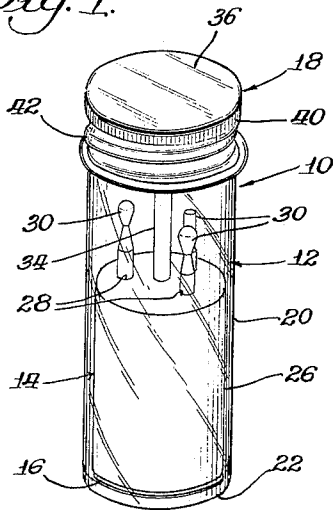


Fig. 2.

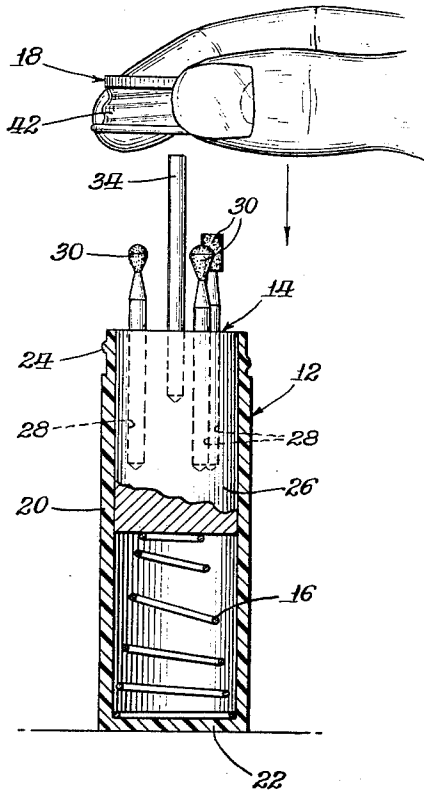
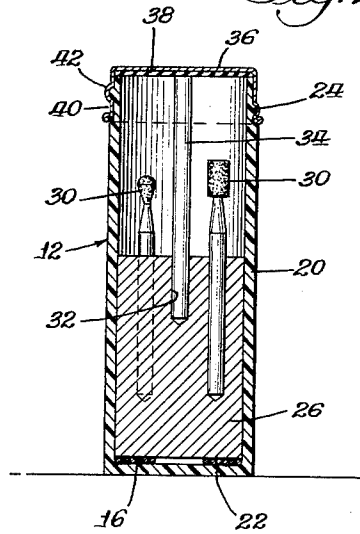


Fig. 3.

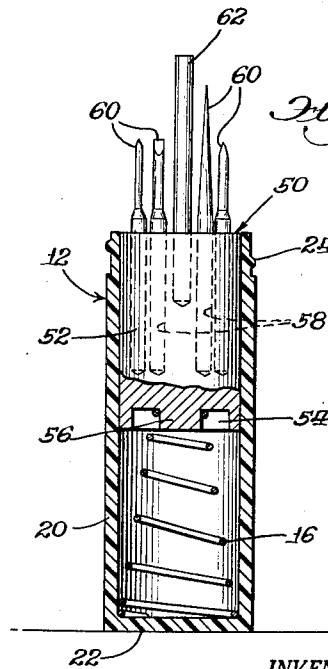


Fig. 4.

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DISPLAY CAPSULE

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1 Claim. (Cl. 206-17)

This invention relates to that type of display and service container wherein a tool holder depressed in the container when closed, upon removal of the cap rises to the top rim to provide ready access to the tools. More particularly it relates to a transparent vertical cylindrical capsule, closed at the bottom and closed by a threaded cap, wherein a cylindrical tool holder moves axially of the capsule.

The object of this invention is to provide a simplified structure for depressing the tool holder toward the bottom of the case upon applying the cap. In present designs, this assembly is sufficiently complicated to make these display capsules too costly. A feature of the invention is a depression pin or rod fixedly mounted in the vertical axis of the rod holder in the latter's top, and having a length such that pressing the top of the rod downwardly by the cap will seat the tool holder and tools within the case.

Another feature of the invention is a cylindrical block having the same general cross section of the container and moveable axially thereof. The block's upper surface is spaced from the opening of the container by a distance sufficient to expose the working ends of the tools mounted in the blocks. The block or carriage has a sufficient length to hold the tools and to maintain the block in an axial position so that there is no binding between the interior walls of the container and the block. Thus, the block constitutes its own slide.

Another feature of the hereindisclosed invention is the use of a conical spring between the bottom of the carriage and the bottom of the container which spring, when compressed, takes up a minimum of space; that is, approximately the diameter of the wire used in the spring. In this manner, the closed container provides an attractive display by substantially eliminating an unsightly coiled spring and makes maximum use of the depth of the container so that there is substantial saving in the amount of material used in the container, thereby reducing the cost of the container.

These and other objects as may hereinafter appear are obtained in the two embodiments of the invention disclosed in the accompanying drawing, wherein:

FIGURE 1 is a perspective view of the first embodiment of the present invention;

FIGURE 2 is a cross-sectional view of the first embodiment shown in FIGURE 1;

FIGURE 3 is a partial cross-sectional view of the first embodiment shown in FIGURE 1 but with the cap removed; and

FIGURE 4 is a partial cross-sectional view of the second embodiment of the instant invention with the cap removed.

Continuing to refer to the drawing, more particularly to FIGURE 1, the numeral 10 identifies a display capsule embodying the present invention. The display capsule generally consists of a transparent container 12 with a carrier 14 slidably mounted therein, a conical spring 16 urging the carrier upward out of the container, and a cap 18 threadably connected to the container to hold the carrier within the container.

The transparent container is made of a transparent plastic material; however, it is apparent that glass or any other suitable transparent material may be used. The container 12 includes a right circular cylindrical wall 20

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which has a smooth interior surface. A bottom 22 is formed integral with the cylindrical wall to define a container which is open at one end. The container has an outer thread 24 formed on the outer surface of the cylindrical wall adjacent to the open end of the container for engagement with the cap.

As was mentioned above, the carrier 14 is slidably positioned in the container 12. The carrier 14 includes an elongated right circular cylindrical block 26 which block has an outside diameter slightly less than the inside diameter of the container for free sliding of the carrier within the container. The block length is greater than the diameter of the block, so that the combination of the fit of the block within the container and the length of the block, prevents the carrier from becoming skewed within the container, but rather the axis of the carrier is maintained substantially parallel to the axis of the container. The aforementioned combination of relative size of the parts affords free and easy movement of the carrier within the container. The block 26 has three holding apertures 28 in the end of the block adjacent to the open end of the container. These apertures 28 provide holding means for holding instruments such as drill bits, small grinders or other such tools. The tools are shown in the drawings as instruments 30. The block has a hole 32 in the center of the block along a portion of the axis of the block. A rod 34 is fixed in the hole, and the rod provides an upright column which extends toward the opening of the container. It should be noted that the length of the rod from the end of the block to the end of the rod is slightly less than the length of the conical spring 16. It is appreciated that the block and rod may be formed as a unit by casting or other such means to provide a simple and inexpensive device.

The conical spring 16 has a maximum diameter slightly less than the inside diameter of the container, so that the spring fits freely within the container. The pitch of the conical spring is such that when the spring is compressed completely the spring is substantially flat as may be seen in FIGURE 2. The apex of the conical spring engages the bottom of the block 26 at the center of the block so that the conical spring urges the block up toward the open end of the container. Since the spring engages the center of the block, there is a force from the spring substantially parallel to the axis of the block which does not tend to skew the carrier within the container. For this reason, the carrier is free to move easily within the container. The length of the conical spring plus the length of the block 26 is substantially equal to the length of the interior of the container 12, so that the surface of the block adjacent to the open end is substantially flush with the open end of the container and the tools 30 and the rod 34 extend out of the container, when the cap is removed.

The cap 18 includes a flat top 36 which has a gasket 38 on its interior surface. The top has side 40 formed integral therewith which has threads 42 defined therein. The threads 42 mate with the outer threads 24 so that the cap 18 may be screwed onto the container 12 and the cap is held on the container by the threads which provide a fastening means. The rod 34 engages the flat top of the cap and the carrier is pushed into the container by the cap against the force of the conical spring, and the cap may be tightened onto the container to hold the carrier adjacent to the bottom. It should be noted at this point that the compressed conical spring is substantially flat and takes up a minimum amount of space so that the display capsule provides an attractive display for the tools contained therein.

It should be further noted that inasmuch as the cap 18 has a flat top, the operator, who holds the cap as shown

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in FIGURE 3, need only press the cap downward and then rotate the cap when it comes in contact with the outer threads 24. Inasmuch as the cap has a flat top, the cap may slide relative to the free end of rod 34 to find its proper position. Naturally, when the cap is removed the conical spring forces the carrier upward to present the tools for use.

Looking now to FIGURE 4, which shows a second embodiment of the present invention, the transparent container 12, spring 16, and cap 18 (which is not shown with the second embodiment) are all the same as in the first embodiment described in detail above. The improvement lies in the carrier 50 which includes a cylindrical block 52. The block 52 as its counterpart block 26 has an outside diameter slightly smaller than the inside diameter of the container and the length of the block is greater than its diameter. However, the block 52 has an annular recess 54 on its bottom, so that there is a boss 56 in the center of the recess. The boss 56 provides a fixed place for the conical spring 16 to engage the cylindrical block 52.

The carrier 50 also has a plurality of holding apertures 58 which provide a holding means for tools 60 in much the same manner that block 26 has apertures 28. A rod 62 is fixed in the upper surface of the block, and the rod is engageable with cap 18 in the same manner that rod 34 engages the same cap.

It is readily appreciated that when the cap is applied to the container the cap holds the carrier 50 adjacent to the bottom of the container. However, the coil spring has an opportunity to be received into the recess 54 and the coil spring is securely held on the boss 56 so that the force of the spring is always directed toward the center of the block without any opportunity for the spring to slip relative to the bottom of the block.

Thus, having described applicant's invention, what he claims is:

A display capsule comprising, an elongated transparent container having a smooth right circular cylindrical interior wall and a flat bottom integral with one end of the wall to close said end, said container having its other end open, threads formed on the outer surface of the

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container adjacent to the open end thereof, an elongated cylindrical block having a diameter slightly less than the interior diameter of the container and a length greater than its diameter, said block being slidably positioned in the container, holding means associated with said block on the side adjacent to the open end of said container, a rod fixed to the block on the side adjacent to the open end of said container, said rod being coaxial with said block, said block and said rod having a combined length substantially equal to the interior length of the container, a conical spring having its apex engageable with the side of the block adjacent to the bottom of the container and having its base in engagement with the bottom of said container, said spring having a free length substantially equal to the length of said rod, and a cap having threads mating with the threads of the cylindrical wall removably secured to the container closing the open end of the container and cooperating with the column to hold the block proximate to the bottom of the container and the spring compressed in a substantially flat attitude, said cap having a flat surface engageable with the free end of the rod, whereby the flat surface of the cap is engageable with the free end of the rod to move the block toward the bottom of the container against the force of the spring and the cap is screwable onto the container to close the container, and removal of the cap from the container allows the spring to move the block toward the open end of the container to place the holding means substantially flush with the open end of the container.

References Cited in the file of this patent

UNITED STATES PATENTS

937,278	Barnard	Oct. 19, 1909
1,751,261	Wilson	Mar. 18, 1930
1,838,825	Goldstein	Dec. 29, 1931
2,413,858	Borgeat	Jan. 7, 1947
2,530,024	Moody	Nov. 14, 1950
2,558,742	Ericsson et al.	July 3, 1951

FOREIGN PATENTS

247,962	Great Britain	Sept. 23, 1926
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