

Nov. 15, 1932.

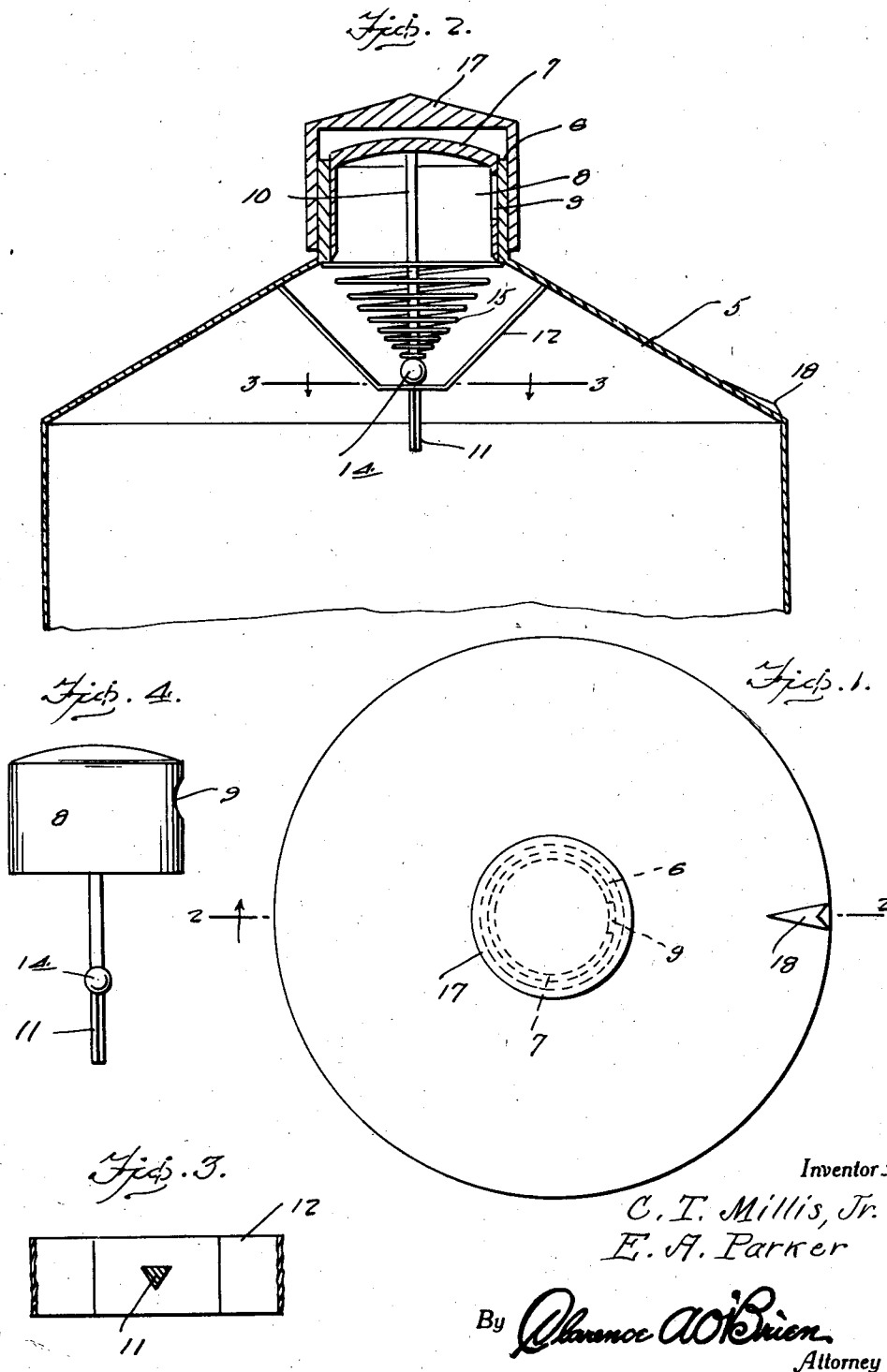
C. T. MILLIS, JR., ET AL

1,888,007

SANITARY SELF CLOSING CAP

Filed April 4, 1932

2 Sheets-Sheet 1



Nov. 15, 1932.

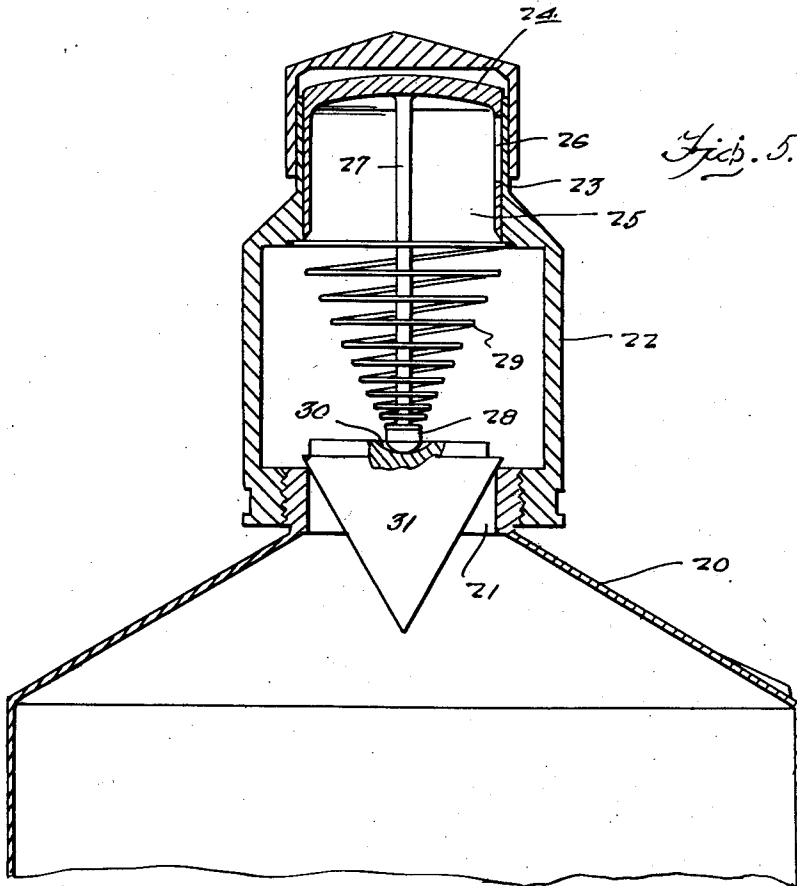
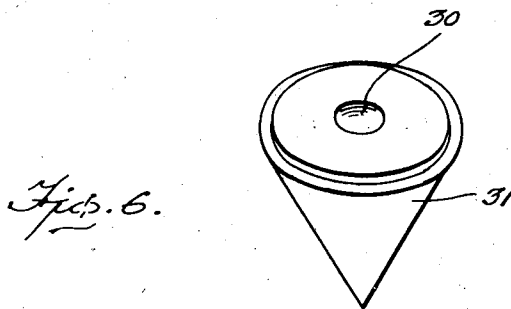
C. T. MILLIS, JR., ET AL

1,888,007

SANITARY SELF CLOSING CAP

Filed April 4, 1932

2 Sheets-Sheet 2



Inventors

C. T. Millis, Jr.
E. A. Parker

By *Almon O'Brien*
Attorney

UNITED STATES PATENT OFFICE

CHARLES T. MILLIS, JR., AND ELBERT A. PARKER, OF DALLAS, TEXAS

SANITARY SELF-CLOSING CAP

Application filed April 4, 1932. Serial No. 603,146.

The present invention relates to a cap for collapsible tubes and the like and has for its prime object to provide a structure of this nature whereby the cap automatically closes when the tube is relieved of pressure such as is applied thereto for dispensing the contents therefrom.

Another important object of the invention resides in the provision of a cap structure of this nature which is simple, inexpensive to manufacture, thoroughly efficient and reliable in operation, and otherwise well adapted to the purpose for which it is designed.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel details of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings:

Figure 1 is a top plan view of a cap structure embodying the features of my invention.

Figure 2 is a sectional view therethrough taken substantially on the line 2—2 of Figure 1.

Figure 3 is a sectional view taken substantially on the line 3—3 of Figure 2.

Figure 4 is an elevation of the valve cap.

Figure 5 is a sectional view through another embodiment of the invention, and

Figure 6 is a perspective view of the plug.

Referring to the drawings in detail and particularly Figures 1 to 4 inclusive it will be seen that numeral 5 denotes a collapsible tube having a cylindrical neck 6. Numeral 7 denotes the head of a valve cap formed with a cylindrical skirt 8 telescopically mounted in the neck 6 and on one side provided with an opening 9. A stem 10 projects from the head 7 through the skirt 8 and has an end 11 triangular in cross section to slide through a similar opening in a guide 12 mounted inside the top portion of the tube 5. A stop ball 14 is formed at the juncture of the end 11 with its stem 10 and a helical spring 15 has its smallest convolute bearing against the ball 14 and its largest convolute bearing against the inner end of the neck

6. When pressure is applied to the collapsible tube the contents thereof will force the valve cap outwardly of the neck 6 so that the contents may be ejected through the opening 9. When the pressure is relieved the spring 15 will be sufficiently strong to close the valve cap. An ordinary cap 17 may be slid over the neck 6 if so desired. An indicator 18 is formed on the top of the tube 5 pointing toward the opening 9.

In the embodiment shown in Figures 5 and 6 it will be seen that the collapsible tube 20 has a neck 21 externally threaded to receive the threaded opening in the lower end of a casing 22 the upper end of which is formed with a cylindrical neck 23. Numeral 24 denotes the head of a valve cap formed with a cylindrical skirt 25 telescopically mounted in the neck 23 and having on one side an opening 26. A stem 27 projects from the head 24 and terminates in a knob 28. A helical spring 29 has its smallest convolute bearing against knob 28 and its largest convolute bearing against the neck 23. The knob 28 rests in a recess 30 formed in the top of an inverted cone-shaped plug 31 seatable in the neck 21. When pressure is applied to the collapsible tube 20 the contents will unseat the plug opening the valve cap so as to be ejected through the opening 26.

It is thought that the construction, operation, utility and advantages of this invention will now be quite apparent to those skilled in this art without a more detailed description thereof.

The present embodiments of the invention have been described in considerable detail merely by way of example since in actual practice they attain the features of advantage enumerated as desirable in the statement of the invention and the above description.

It is apparent that changes in the details of construction may be resorted to without departing from the spirit of the invention as hereinafter claimed.

Having thus described our invention, what we claim as new is:

1. In a collapsible tube structure of the

class described, a neck, a valve cap including a head and a skirt, said skirt being telescopically mounted in the neck, said skirt having an opening in one side, and spring means normally holding the skirt inwardly of the neck so that the opening is closed, said spring means comprising a helical spring about a stem projecting from the head of the valve cap, the largest convolute of the spring bearing against the neck and the smallest convolute bearing against a member on the stem.

2. In a collapsible tube structure of the class described, a neck, a valve cap including a head and a skirt, said skirt being telescopically mounted in the neck, said skirt having an opening in one side, and spring means normally holding the skirt inwardly of the neck so that the opening is closed, said spring means comprising a helical spring about a stem projecting from the head of the valve cap, the largest convolute of the spring bearing against the neck and the smallest convolute bearing against a member on the stem, a guide in the tube for the inner end of the stem.

3. In a collapsible tube structure of the class described, a neck, a valve cap including a head and a skirt, said skirt being telescopically mounted in the neck, said skirt having an opening in one side and spring means normally holding the skirt inwardly of the neck so that the opening is closed, said spring means comprising a helical spring about a stem projecting from the head of the valve cap, the largest convolute of the spring bearing against the neck and the smallest convolute bearing against a member on the stem, a casing formed on said neck and threadedly engaged with a neck of the tube, a plug seatable in the last mentioned neck and having a recess to receive said member.

In testimony whereof we affix our signatures.

CHARLES T. MILLIS, JR.
ELBERT A. PARKER.