Nov. 10, 1925. 1,561,298

F. E. BALDWIN

CLOSURE FOR COLLAPSIBLE TUBES

Filed June 6, 1925

Fig. 3.

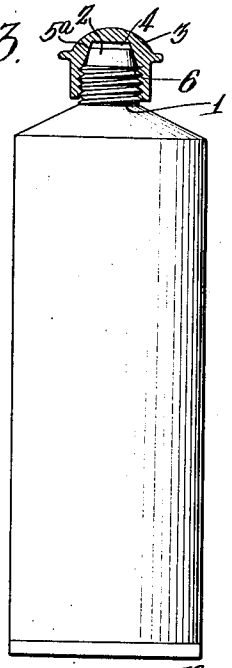


Fig. 4.

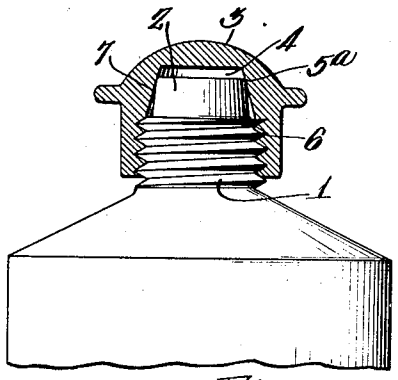


Fig. 1.

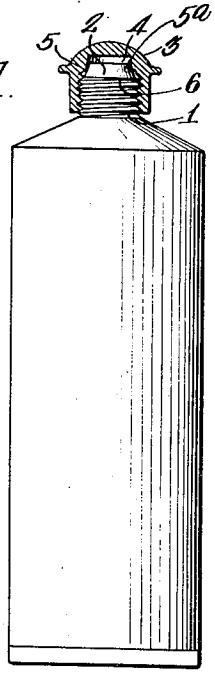


Fig. 5

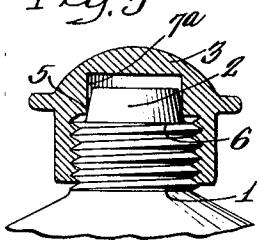


Fig. 6.

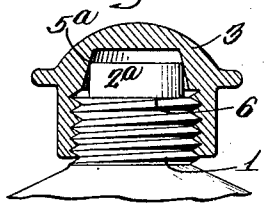
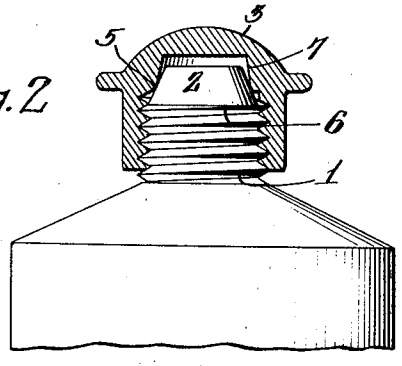


Fig. 2



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UNITED STATES PATENT OFFICE.

FREDERIC E. BALDWIN, OF PHILADELPHIA, PENNSYLVANIA.

CLOSURE FOR COLLAPSIBLE TUBES.

Application filed June 6, 1925. Serial No. 35,353.

To all whom it may concern:

Be it known that I, FREDERIC E. BALDWIN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Closures for Collapsible Tubes, of which the following is a specification.

One object of the present invention is to provide a metal to metal closure for collapsible tubes which shall be sufficiently tight for preventing leakage and evaporation of the contents of the tubes.

Other objects of the invention will appear from the following description and the invention will be claimed at the end hereof but will be first described in connection with the embodiment of it chosen from among other embodiments of it for the sake of illustration in the accompanying drawing forming part hereof and in which

Figure 1 is a view, partly in elevation and partly in central section, of a collapsible tube having a closure embodying features of the invention.

Fig. 2 is a view drawn to an enlarged scale in order to illustrate features of construction shown in Figure 1.

Figs. 3 and 4 are views similar to Figs. 1 and 2 and illustrating a modification, and

Figs. 5 and 6 are views similar to Figs. 2 and 4 illustrating other modifications in which the bevel or taper is omitted from one of the co-operating elements.

Referring to Figs. 1 and 2, above the screw threaded neck 1 I form or provide a nozzle 2 slightly tapered from the parallel or, in other words, of the form of a frustum of a cone. In the cap 3 I form a tapered recess 4 of such diameter that the corner portion 5, which should be as sharp as convenient, will engage the surface of the tapered nozzle 2 above its base 6, the taper of the curved wall 7 of the recess being less than the taper of the curved wall of the nozzle 2. Otherwise stated, the curved wall of the nozzle 2 is tapered as is also the curved wall of the recess 4, and the taper of each of those walls is in the same direction but differs in degree.

The operation may be described as follows:

When the cap 3 is in place with its internal thread in engagement with the external thread of the neck 1 and is screwed down, the corner or edge 5 engages the wall of the nozzle 2 at some distance above its base 6, and the metal being soft and the taper slight the action of the screw thread forces the cap 3 down the tapered nozzle 2, thus expanding the corner 5 of the cap 3 and also perhaps compressing the nozzle 2 with the result that there is formed a tapered ground metal to metal joint which is tight against leakage. As the joint wears from usage the cap descends further and further down the nozzle 2 and thus the joint continues to be tight. The construction and mode of operation of the modification illustrated in Figs. 3 and 4 are the same as above described except that the taper of the curved wall of the cap is greater than the taper of the curved wall of the nozzle and the corner 5^a may be regarded as on the nozzle instead of on the cap. Generally stated, the construction of Figs. 3 and 4 is a reversal of the construction of Figs. 1 and 2.

The construction and mode of operation of the modifications illustrated in Figs. 5 and 6 are as above described except the taper or bevel is omitted from one of the co-operating joint forming elements. In Fig. 5 the wall 7^a of the cavity in the cap is cylindrical and in Fig. 6 the external curved wall of the nozzle 2^a is cylindrical.

It will be obvious to those skilled in the art that modifications may be made in details of construction and arrangement without departing from the spirit of the invention which is not limited to such matters or to matters of mere form or otherwise than the prior art and the appended claims may require.

I claim:

1. A closure for collapsible tubes having a threaded neck and a nozzle above the neck, and a cap adapted to engage the threaded neck, the cap being provided with a cavity adapted to encircle the nozzle and to engage the same with a rotary sliding motion, and the contacting parts between said nozzle and cap being tapered at different angles.

2. A closure for collapsible tubes having a threaded neck and a tapered nozzle above the neck, and a cap adapted to engage the threaded neck, the cap being provided with a cavity, the taper of the cavity being less than that of the nozzle, the bottom edge of

the cavity being formed to engage the nozzle at a distance above the threaded neck, and the closure being formed by lateral pressure between the nozzle and the wall of the cavity in the cap.

3. A closure for collapsible tubes having a threaded neck and a nozzle above the neck provided with a tapered wall, and a cap adapted to engage the threaded neck, the cap being provided with a cavity having a tapered wall, the taper of the cavity being less than that of the nozzle, the bottom edge of the cavity being formed to engage the nozzle at a distance above the threaded neck, and the closure being formed by lateral pressure between the nozzle and the wall of the cavity in the cap.

4. A closure for collapsible tubes having a threaded neck and a nozzle above the neck, and a cap adapted to engage the threaded neck, the cap being provided with a cavity of which the internal wall is adapted to receive the nozzle and to engage the external wall of the same with a rotary sliding motion, at least one of the co-acting walls being tapered to provide contact surfaces disposed at an inclination in respect to each other.

FREDERIC E. BALDWIN.