Dec. 20, 1932. W. W. HAZLETT ET AL 1,891,280

CLOSURE FOR COLLAPSIBLE TUBES AND THE LIKE

Filed June 30, 1931

Fig. 1

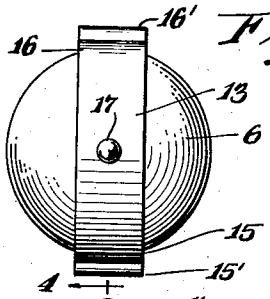


Fig. 2

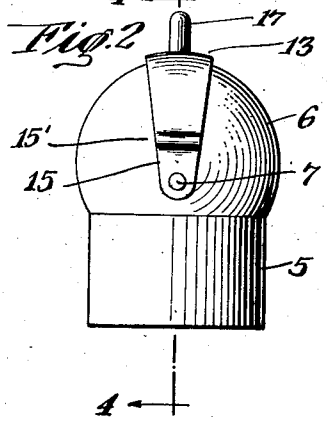


Fig. 3

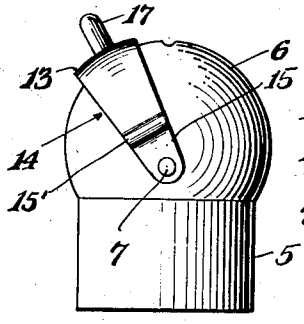


Fig. 4

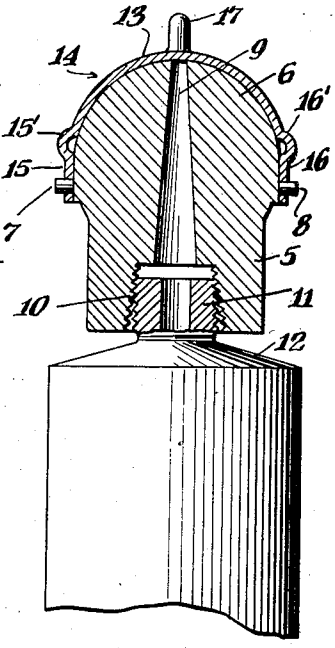


Fig. 6

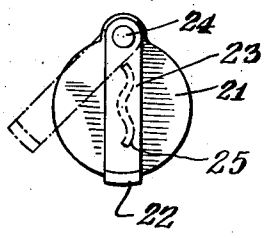
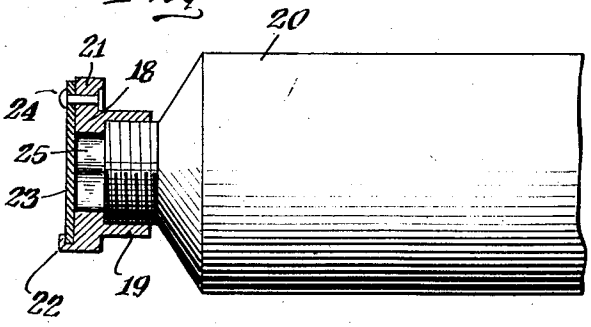


Fig. 5



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UNITED STATES PATENT OFFICE

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CLOSURE FOR COLLAPSIBLE TUBES AND THE LIKE

Application filed June 30, 1931. Serial No. 547,932.

This invention relates to an improved closure for containers, and more particularly for collapsible tubes such as those used for tooth paste, shaving cream, cold cream, mucilage, etc.

One of the objects of this invention is to provide a cap which may be used in place of the detachable screw caps now generally used upon collapsible tubes, which is formed with a discharge orifice of its own.

Another object of the invention is to provide a cap which may be used in place of the conventional type of screw caps generally used on collapsible tubes with a yoke pivoted to the cap and normally closing the discharge orifice, and capable of being swung laterally of the orifice, without being detached from the cap, while the cap remains in place on the container or collapsible tube.

A further object of the invention is the provision of spherical cap having a tapered screw threaded socket, capable of being coupled to various sized container necks, and also having a closure yoke pivoted to the sides of the cap by arms, each of which is formed with a spring loop, so that the yoke will be under tension against the orifice, and thus effectively seal the same.

A still further object of the invention is in the provision of a spherical cap for collapsible tubes, which is formed with a smooth rounded surface, free of any threaded portion or otherwise roughened parts, so that the contents discharged from the tube will not readily adhere or cling to the surface, especially that portion adjacent the orifice of the cap and through which the contents of the tube are discharged.

With the above and other objects in view the invention consists in certain new and useful combinations, constructions, and arrangements of parts, clearly described in the following specification, and fully illustrated in the accompanying drawing in which:—

Fig. 1 is a top plan view.

Fig. 2 is a view in elevation, showing the closure yoke in its normal closing position.

Fig. 3 is a similar view, showing the closure yoke in an open position.

Fig. 4 is a vertical sectional view, taken on line 4—4 of Fig. 2, looking in the direction of the arrows.

Fig. 5 is a longitudinal central sectional view of a modified form.

Fig. 6 is an end elevation thereof, showing the closure in full lines in closed position, and in dotted lines in open position.

Referring to the accompanying drawing illustrating the practical embodiment of the invention 5 designates the neck of the improved cap and 6 the spherical head thereof, the neck and head being preferably cast or otherwise formed of one piece of material.

The head 6 is formed or provided with trunnions 7 and 8, located on opposite sides thereof, and is further formed with an axial discharge opening 9, which is tapered from its inner end toward the outer end of the head, through which it extends to discharge the contents of the container outwardly of the head.

The inner end of the discharge passage 9 is located at the inner end of the coupling socket 10, the wall of which is formed with a tapered screw thread to engage the threaded neck 11 of the collapsible tube or container 12, shown in Fig. 4. By means of this tapered female screw thread the cap may be detachably fitted upon any collapsible tube, or similar container, to replace the conventional screw cap thereof.

The discharge opening or orifice 9 is closed by means of the central bow or arcuate bar 13 of the yoke 14, which includes the attaching or holding side bars 15 and 16. The side holding bar 15 is formed with an outset spring loop 15′, and the side holding bar 16 is formed with an outset spring loop 16′.

The holding bar 15 is formed with a small socket to receive the trunnion 7, and the holding bar 16 is formed with a small socket to receive the trunnion 8.

The yoke is placed in pivotal relation to the cap, by forcing the bars 15 and 16 on the trunnions 7 and 8, and then swinging the yoke over the spherical head, so that the bar 13 will engage the end face of the head and close the discharge orifice, the spring loops serving to hold the bowed bar 13 in close sealing en-

gagement with the edges of the discharge orifice.

In order to operate the closure yoke a projection or finger 17 is formed or attached to the bowed bar 13, so that by exerting a slight hand pressure upon the side of this projection or finger, the yoke may be swung on its trunnions laterally of the discharge orifice, when the contents of the collapsible tube may be discharged by squeezing the walls of the tube, or by rolling up the end of the tube.

The cap remains in place on the container or collapsible tube until its contents are discharged, when the cap may be removed and applied to another collapsible tube, after the conventional screw cap or closure originally supplied has been removed.

When the yoke swings to closing position it acts as a severing means to cut off the discharged stream of material, paste or other substance, thus aiding the user in applying a limited portion of the contents of the container or collapsible tube to a tooth brush or other applicator, or surface.

The trunnions 7 and 8 are located below the center of the head 6, so that the yoke 14 swings eccentrically thereof, and when the bowed bar 13 is in its open position, laterally of the discharge orifice, the outermost end of the bowed bar 13 will be slightly out of contact with the end of the spherical head, thus allowing the spring loops to react. When the yoke is swung into closing position, the bowed bar will be placed under tension, due to the trunnions 7 and 8 being located below the center of the head 6, and in which event the spring loops 15′ and 16′ will be slightly stretched.

In Figs. 5 and 6 a modified form of the invention is shown, consisting of a cap 18, which is formed with an internally threaded wall 19, to engage the externally threaded neck of the collapsible tube 20. This cap is formed with a flat end face and an annular flange 21, which extends outwardly of the holding tubular wall 19. On one side of this flange the keeper finger or lug 22 is attached or formed, and on the opposite side the end of the closure bar 23 is pivoted by the headed pin 24, which extends through the flange 21. The other end of the closure bar 23 is adapted to swing under the keeper finger or lug 22, so that the intermediate portion of the bar 23 will be held in sealing engagement with the end face of the cap 18.

The discharge orifice of the cap 18 is shown to be in the form of a sinuous curve, as indicated in cross section in Fig. 5 and in dotted lines in Fig. 6, so that when the contents of the collapsible tube or container are pasty or creamy, the expelled or discharged stream will be given a corrugated ribbon shape, calculated to interlock with the ends of the bristles of a tooth or other brush, and prevent loss or dropping off from the brush, with resulting soiling of floor coverings or personal garments.

The closure bar 23 acts as a cut-off means for severing the ribbon of the discharging material from the container, or collapsible tube.

This form of closure device is also used in place of the original screw cap, and may be employed by the user indefinitely to control the discharge of material from the container.

The preferred and modified forms as shown in Figs. 1 to 4 and Figs. 5 and 6, respectively, may both be designed and fitted to the containers or collapsible tubes, by the manufacturer of the containers or tubes, and originally supplied by him to the trade, either separately or as a cap with the container or tube instead of the conventional type now generally supplied and fitted to containers and collapsible tubes.

Either form dispenses with the present type of detachable screw caps, as discharge is obtained with either type, without completely detaching the cap from the container or collapsible tube. Also, as the cap in either form of the invention remains permanently attached to the container or collapsible tube, at least for the life of the container, or while its contents remain, it is impossible to lose the cap, and leave the discharge orifice of the container exposed to contamination and evaporation, as well as accidental discharge of its contents.

The improved closure, in either form, may be made of any suitable materials, as pure tin, bakelite, composition or any other material suitable for the purpose, the closure bar being made of suitable metal or other material capable of doing the service required.

It is to be understood that the invention is not limited to the embodiments and features specifically shown and described herein, but that such embodiments and features are subject to changes and modifications without any departure from the spirit of the invention.

Having thus described the invention, what is claimed as new and desired to secure by Letters Patent, is:—

A closure for containers consisting of a spherical head having a neck formed with an internal tapered screw thread capable of being coupled to the neck of an externally threaded collapsible tube, said neck also having a central discharge orifice opening through the outer end of the head, said head having trunnions on the opposite sides thereof, and a yoke including holding side bars and a bowed closure bar, said side bars having sockets engaged with the trunnions to hold the bowed closure bar in pivotal relation to the edges of the orifice, the holding side bars being formed with outset spring loops to maintain tension upon the bowed closure bar, whereby a sealing engagement

with the outer edges of the orifice is maintained when the closure bar is in normal closed position, said closure bar having an external operating finger thereon.

In testimony whereof we affix our signatures.

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