April 12, 1932. H. C. BELL 1,853,493

DISPENSING DEVICE

Filed July 7, 1930

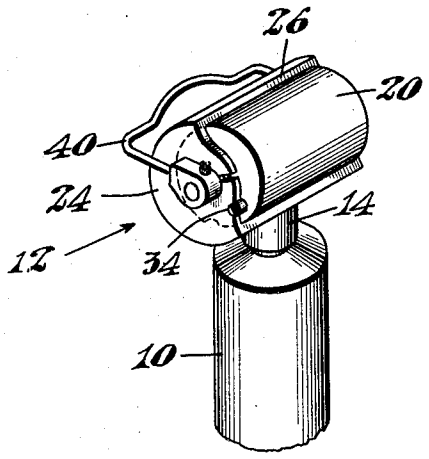

Fig.1.

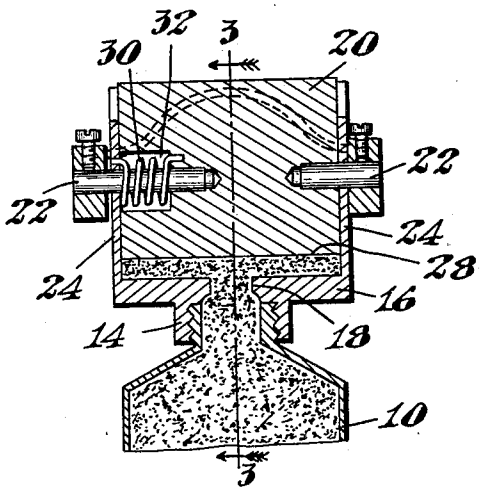

Fig.2.

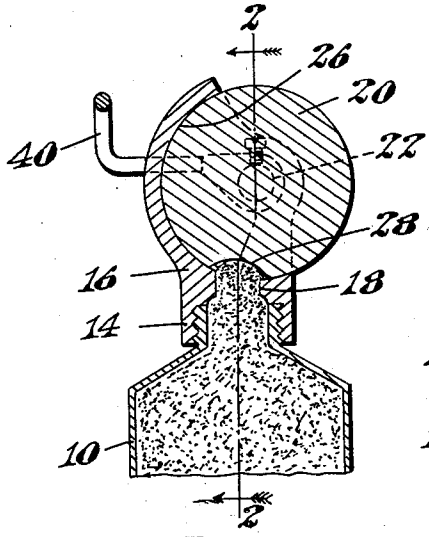

Fig.3.

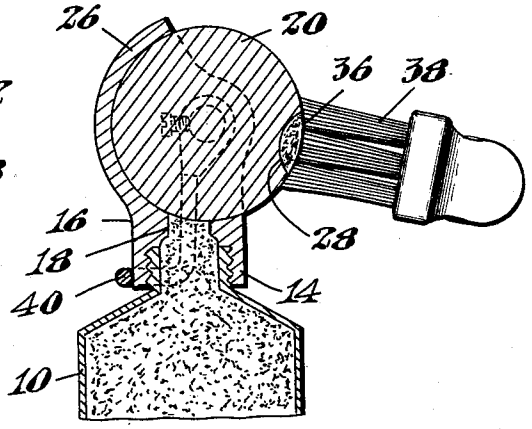

Fig.4.

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UNITED STATES PATENT OFFICE

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DISPENSING DEVICE

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This invention relates to dispensing devices, and more especially to a dispensing cap for tubular containers of the collapsible type commonly used for holding plastic material, such as toothpaste, shaving cream, pigments, ointments, etc. Such containers as purchased are ordinarily closed by a threaded cap and it is proposed, according to my invention, to provide a dispensing cap which may be substituted for this closure cap and which, when so used, will serve the double purpose of keeping the tube closed and dispensing in a controlled manner material therefrom. I am aware that attempts have been made heretofore to provide devices of this general nature and I am familiar with such devices and with their limitations in practical use. The primary object of my invention is to provide an improved device for use in this field which will be of practical value and will avoid the shortcomings of dispensing caps heretofore available.

Toothpastes and like plastic materials are ordinarily dispensed onto a brush and it is desirable to dispense the same in definite quantities or charges. It is, furthermore, desirable securely to protect the contents of the tube or container from exposure to the air at all times in order to avoid drying and oxidation. The dispensing cap of my invention is adapted to serve these several functions with great facility. It provides a tight and efficient closure for the tube at all times and acts automatically to close the tube between dispensing operations. Moreover, it controls the discharge of the contents of the tube so that it is impossible to waste the same or to dispense at one time more than a measured charge. Further, it acts to confine the contents to interior surfaces so that the assembled tube and cap are always clean and convenient to handle.

In the accompanying drawings I have illustrated one specific embodiment of my invention but it will be understood that the invention can be otherwise embodied and that the drawings are not to be construed as defining or limiting the scope of the invention, the claims appended hereto being relied upon for that purpose.

Referring to the figures of the drawings,

Fig. 1 is a perspective view of my improved dispensing cap mounted on a collapsible tube;

Fig. 2 is an enlarged vertical sectional view thereof taken on line 2—2 of Fig. 3;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2; and

Fig. 4 is a view like Fig. 3 but showing the device in the dispensing position.

In the drawings, 10 indicates a collapsible tube with my improved dispensing cap 12 screw threaded thereonto in place of the usual closure cap, the cap 12 being provided with a threaded boss 14 for this purpose. The boss 14 projects downwardly from the body 16 of the device and has a passage 18 therein in communication with the tube outlet when mounted on the tube.

As illustrated in the drawings, I provide a cylindrical valve member 20 for closing the passage 18 and dispensing the paste from the tube. This member is mounted on trunnions 22 between parallel walls 24 of a recess formed within the body 16. The trunnions extend through openings in such walls and hold the peripheral surface of the member in close sliding contact with the arcuate wall 26 of the recess. A recess or depression 28 is formed in the member 20 from side to side thereof, the ends of the recess being open, and this recess is adapted to receive and dispense the material from the tube.

In Figs. 2 and 3 the member 20 is shown in the closed and non-dispensing position. I prefer that the device shall normally remain in this position and I may secure this action by providing a spring for the purpose. As illustrated, a helical spring 30 is mounted on one of the trunnions 22 within a recess 32 in one end of the member 20. One end of the spring is secured to the member 20 and the other end to a wall 24, so that the normal action of the spring holds the device in the position shown in Figs. 2 and 3, a stop pin 34 being provided on the member 20 for limiting its rotary movement under the action of the spring. In this position the depression 28 is directly over and in communication with

the passage 18, whereby it is filled with paste when the tube is compressed.

In Fig. 4 the member 20 is shown in the dispensing position, wherein the paste 36 can be directly removed by and to a brush 38. Any convenient means can be provided for moving the device to this position. In the drawings I have illustrated a yoke 40 connected to the outer ends of the trunnions 22. The free end of the yoke can be engaged against any convenient member and moved to and held in the stopped position, shown in Fig. 4, while the paste 36 is being removed.

It is believed that the simple construction and operation of my device will be readily apparent. In use, it is threaded onto a tube 10 in lieu of the usual closure cap and it at all times protects the contents of the tube from exposure to the air as securely as does the closure cap. To dispense the paste the tube is squeezed to fill the recess 28 and the member 20 is thereafter rotated to the position shown in Fig. 4. In this position the recess 28 is freely exposed and the open ends thereof render the removal of the paste 36 onto the brush 38 an easy operation. It should, furthermore, be noted that the peripheral portion of the member 20 completely closes the passage 18 when the member is in the dispensing position. After the paste 36 is removed, the spring 38 automatically returns the member 20 to its normal position, in which position the ends of the depression 28 are closed by the walls 24.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A dispensing cap for a tube or like container, comprising a body part with a passage and a semi-cylindrical casing having parallel end walls, a cylindrical valve member fitting within the casing and having a longitudinal groove in its periphery and a chamber in one end, trunnion members upon which the valve member is journalled, one extending through said chamber, and a spring located in said chamber, and arranged to hold the valve member normally in closed position, one of the end walls serving to close the chamber and thus enclose the spring.

2. A dispensing cap for a tube or like container, comprising a body part with a passage and a semi-cylindrical casing having parallel end walls, a cylindrical valve member movably fitting within the casing and having a longitudinal groove in its periphery and a chamber in one end, and a spring enclosed in said chamber and acting to hold the valve member at one limit of its movement, said end walls serving to close both ends of the groove and the spring-containing chamber.

HOLTON C. BELL.