

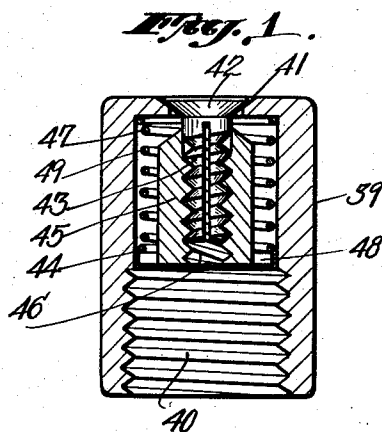
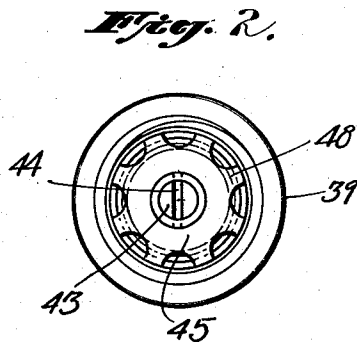
May 24, 1932.

H. C. KEEBLER

1,860,318

COLLAPSIBLE TUBE CLOSURE

Filed May 16, 1930



Inventor

HENRY C. KEEBLER.

By *Clarence A. O'Brien*
Attorney

UNITED STATES PATENT OFFICE

HENRY CHARLES KEEBLER, OF SECAUCUS, NEW JERSEY

COLLAPSIBLE TUBE CLOSURE

Application filed May 16, 1930. Serial No. 452,958.

This invention relates to improvements in collapsible tube closures.

The primary object of the invention resides in a valve means for closing and tightly sealing the discharge outlet of a collapsible tube, and which automatically opens when the tube is squeezed to dispense a quantity of its contents due to the pressure caused thereby, and which automatically closes when the pressure is released.

Another object of the invention is to provide a valve closure which may be wiped clean by the brush onto which the contents of the tube are dispensed in order that the discharge outlet may be kept in a clean and sanitary condition at all times.

A further object of the invention is the provision of a closure cap which may be threaded to the discharge nipple of a collapsible tube and when once attached, the same does not have to be removed or separated from the tube to facilitate the dispensing of the tube contents, which is an objection to the present removable cap which may easily become separated or lost, which subjects the contents of the tube to the atmosphere which tends to harden and spoil the contents thereof.

A still further object is to provide a collapsible tube closure which is simple and easy of construction, inexpensive of manufacture, and which may be attached and used on one tube until the contents are exhausted, and then thoroughly cleaned and applied to another tube for further use thereon.

With these and other objects in view, the invention resides in the certain novel construction, combination and arrangement of parts, the essential features of which are hereinafter fully described, are particularly pointed out in the appended claims, and are illustrated in the accompanying drawing, in which:

Figure 1 is a vertical longitudinal sectional view of my invention.

Figure 2 is an end elevational view of the form shown in Figure 1.

In the drawing I have illustrated a structure whereby a predetermined amount of the contents of a collapsible tube may be dis-

pensed in each squeezing operation of the tube, and includes cap-like casing designated by the numeral 39, which casing is open at one end and internally screw threaded as at 40, while the opposite end is closed and provided with a beveled valve seat 41. Coacting with the seat 41 is a beveled valve head 42 from which extends a threaded shank 43, the said shank being split inwardly from its free end as at 44 for a purpose presently to be explained. Associated with the valve head 42 and shank 43 is a valve member 45, the same being provided with a central threaded bore 46 for threading connection with the shank 43. The outer end of the valve member 45 is beveled as at 47, the direction of the bevel being opposite to the bevel on the valve head 42 and being spaced therefrom to facilitate the passage of a predetermined quantity of the contents of the tube during the interval of movement of the valve head 42 to an open position and the beveled face 47 to a closed position against the walls of the discharge opening. The inner end of the valve member 45 is provided with an annular scalloped flange 48, while interposed between the flange 48 and the closed end wall of the casing is an expansion spring 49, the said spring tending to normally seat the beveled valve head 42 upon the seat 41.

In the use of my invention, assume that the cap 39 is threadedly connected to the discharge nipple of a collapsible tube. Upon squeezing of the tube, the contents will pack against the end wall of the casing 39 and when the pressure built up by the squeezing of the tube reaches a point in excess of the tension of the spring 49, the pressure of the contents acting against the beveled head 42 will tend to unseat the said valve head, thus permitting such quantity of the contents to escape as may pass therethrough during the interval required for the beveled end of the valve member 45 to seat against the walls of the discharge opening. The valve head 42 and valve member 45 cooperate to act as a double acting valve and when the valve member 45 is in sealing engagement with the walls of the discharge opening, no matter how much pressure is applied to the tube,

only the proportionate amount of the contents may be discharged. When the pressure is released, the spring 49 acts to return the parts to normal position as shown in Figure 1 of the drawing.

Although I have illustrated my improved valve closure mechanism in connection with a closure cap, I wish it to be understood that the same may be built or installed within the discharge nipple of a collapsible tube if desired, but by embodying the same in a screw cap, the said cap may be taken from one tube after the contents have been fully dispensed and applied to another collapsible tube. In other words, the closure cap is not limited to use upon one individual tube.

While I have shown and described what I deem to be the most desirable embodiment of my invention, it will be understood that certain other changes in construction may be resorted to if desired, and I therefore do not restrict myself to the exact details of construction herein shown and set forth, nor to anything less than the whole of my invention limited only by the appended claims.

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

1. A closure device for collapsible tubes comprising a cap-like casing open at one end, the opposite closed end having a discharge opening therein, the walls of said discharge opening being beveled to provide a valve seat, a beveled valve head for seating engagement with said seat, a valve member within said casing and associated with said valve head and provided with a beveled end wall, the beveled portion being opposite to the bevel of said beveled valve head, and spaced therefrom, a flange at the inner end thereof, and spring means acting upon said valve member to maintain said valve head seated upon said seat, said spring means including an expansion spring surrounding said valve member with one end seated against said flange and its opposite edge abutting the end wall of said casing.

2. A closure device for collapsible tubes including a hollow body member having an end wall provided with a discharge opening therein, the wall of said discharge opening being bevelled to provide a valve seat, a bevelled valve head for seating engagement with said valve seat, a valve member within said body and connected with said valve head, a bevelled portion provided on said valve member and spaced from said bevelled valve head, the said bevelled portion being opposite to the bevel of said bevelled valve head, a flange at the inner end of said valve member, and a spring having one end seated against said flange and its other end abutting the said end wall of said body.

In testimony whereof I affix my signature.

HENRY CHARLES KEEBLER.