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J. J. HEARD

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AUTOMATIC PRESSURE VALVE SEAL CAP FOR COLLAPSIBLE TUBES

Filed June 29, 1932

Fig. 1.

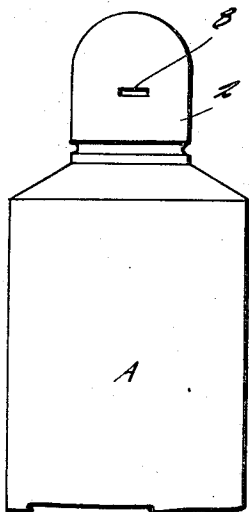


Fig. 2.

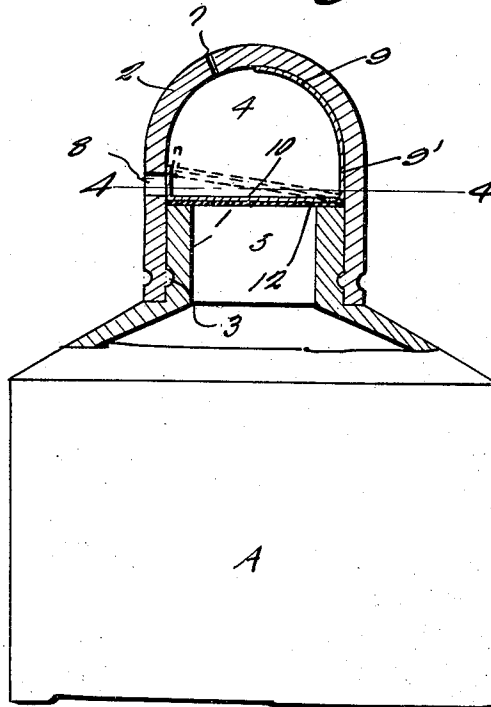


Fig. 6.

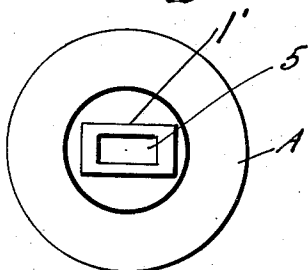


Fig. 4.

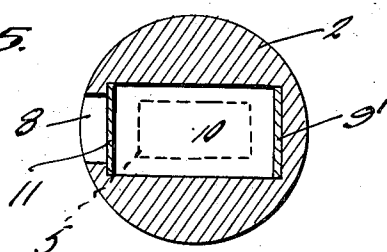


Fig. 5.

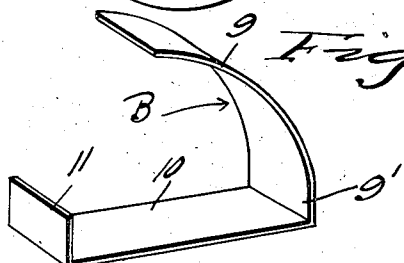
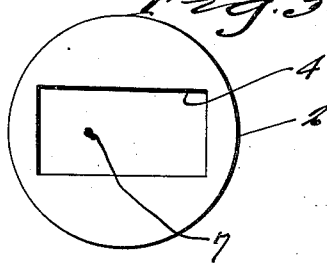


Fig. 3.



Inventor
James J. Heard.

By Clarence A. O'Brien
Attorney

UNITED STATES PATENT OFFICE

JAMES JEFFERSON HEARD, OF PHOENIX, ARIZONA

AUTOMATIC PRESSURE VALVE SEAL CAP FOR COLLAPSIBLE TUBES

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This invention relates to an automatic pressure valve seal cap for collapsible tubes and the like, the general object of the invention being to provide spring means for normally holding the discharge opening of the tube closed, but which will open to permit some of the contents of the tube to be discharged therefrom when pressure is exerted upon the tube, the member moving to closed position again when the pressure is removed.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts to be hereinafter fully described, illustrated in the accompanying drawing and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawing wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a view of the tube provided with the invention.

Fig. 2 is an enlarged view with parts in section at the upper end of the tube.

Fig. 3 is a view of the lower end of the cap.

Fig. 4 is a section on line 4—4 of Fig. 2.

Fig. 5 is a view of the valve member.

Fig. 6 is a view of the upper end of the tube.

In the drawing, the letter A indicates the tube which is formed with the usual neck 1 and the numeral 2 indicates a cap fitting over the neck and suitably secured thereto, said neck having portions pressed into a groove 3 formed in the neck, as shown in Figs. 1 and 2. This cap is shown as being provided with a hollow dome-shaped upper end which provides a chamber 4 which is in communication with the tube through the bore 5 of the neck when the cap is in place. A small vent opening 7 may communicate the chamber 4 with the atmosphere, if necessary or desired and a discharge opening 8 of any desired shape passes through a side of the cap and communicates with the lower part of the chamber 4.

A valve member B normally closes the bore 5 and as shown in Fig. 5, this member comprises an arcuate part 9, having a straight

lower end 9', a straight horizontal part 10, and a vertical end part 11. This member is formed of spring material and when placed in the chamber 4, the curved part 9 engaging portions of an inner wall of the chamber 4 will cause the straight part 10 to engage the upper end of the neck 1 and thus close the bore 5 with the part 11 closing the opening 8.

When the tube is pressed upon, the pressure of the material therein presses against the part 10 and lifts the same, so that some of the contents of the tube will pass through the bore 5 under the part 10 and through the opening 8, as this opening is uncovered by the lifting of the part 11 with part 10.

As soon as the pressure is removed, the spring action of the member B will cause the portion 10 to close the opening 5, and the part 11 will close the opening 8. Thus the contents of the tube are sealed against the atmosphere, so that the contents of the tube will remain in their original condition.

If desired, a gasket 12 of cork or the like may be attached to the under face of the part 10 to provide a practically airtight joint for the opening 5 when the valve member is in closed position.

From the foregoing, it will be seen that the valve member B seals both the openings 5 and 8 at one and the same time. The small vent 7 is used to allow air pressure to escape from the chamber 4 when the escape of this air is necessary. As the top remains in place at all times, there is no danger of losing the same and the content of the tube is kept out of contact with air so that it retains its original condition.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts provided that such changes fall within the scope of the appended claims.

Having thus described my invention, what I claim as new is:—

1. In combination with a collapsible tube having a neck, a substantially dome-shaped cap permanently attached to the neck, said

cap having a chamber therein in communication with the tube and having a discharge opening passing through one side of the cap and communicating with the lower part of the chamber, a valve member of spring material including an arcuate-shaped part contacting a portion of the internal curved wall of the chamber, a straight portion extending over the neck and a vertical portion closing the discharge opening, the latter two portions moving upwardly when pressure is exerted upon the contents of the tube to permit some of the contents to pass from the neck through the discharge opening, said portions moving back to closing position when the pressure ceases.

2. A device of the class described comprising a collapsible container having a neck, a cap on the neck having a chamber therein in communication with the interior of the container and having a discharge opening passing through a side thereof and communicating with the lower portion of the chamber, a valve member of spring material including a part contacting a portion of the interior of the chamber, a straight portion extending over the neck and a vertical portion closing the discharging opening, the latter two portions moving upwardly when pressure is exerted upon the contents of the tube to permit some of the contents to pass from the neck through the discharge opening, said portions moving back to closing position when the pressure ceases.

In testimony whereof I affix my signature.

JAMES JEFFERSON HEARD.