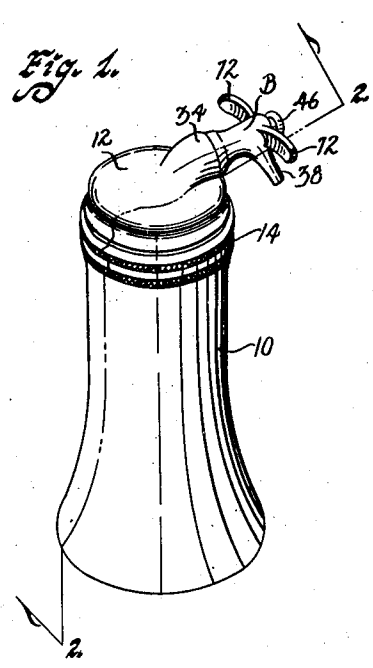
March 18, 1930. H. J. COCKS 1,751,129

DISPENSER

Filed May 5, 1928 2 Sheets-Sheet 1



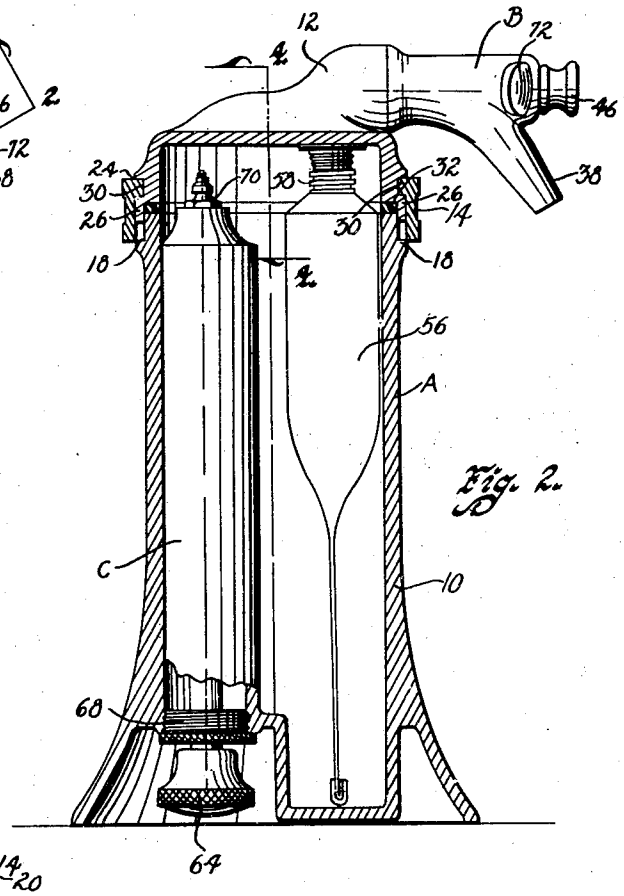


Fig. 2.

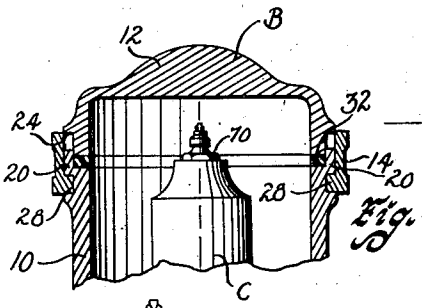


Fig. 4.

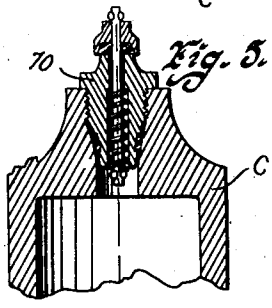


Fig. 5.

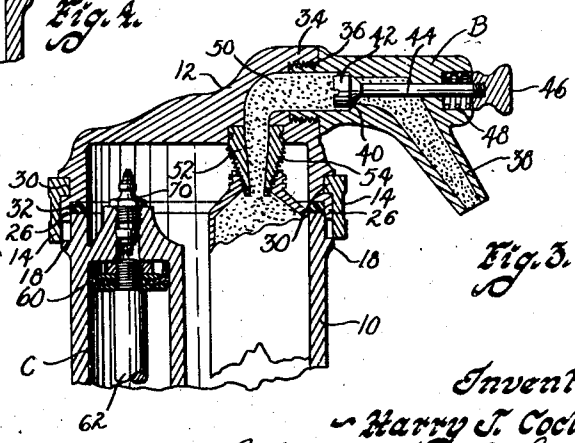


Fig. 3.

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March 18, 1930. H. J. COCKS 1,751,129

DISPENSER

Filed May 5, 1928 2 Sheets-Sheet 2

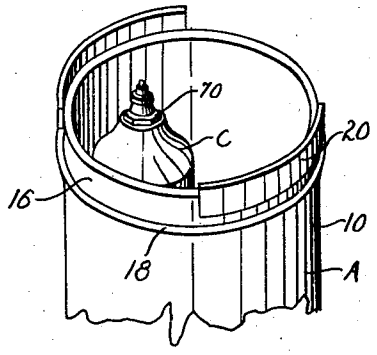


Fig. 7.

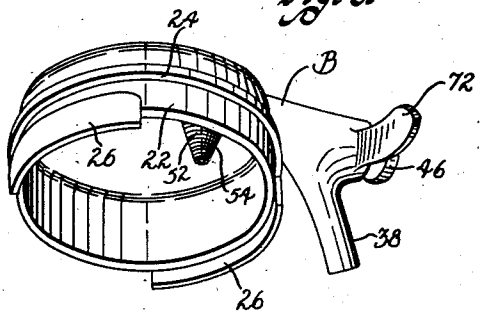


Fig. 6.

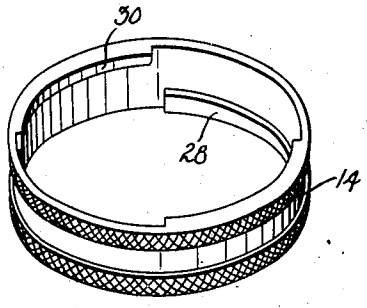


Fig. 8.

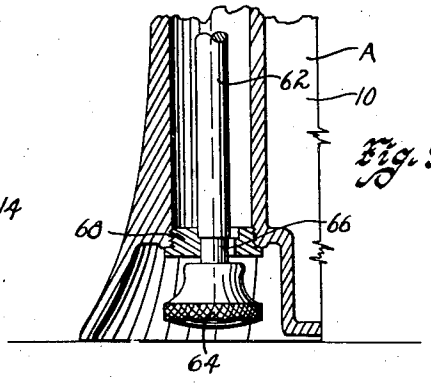


Fig. 9.

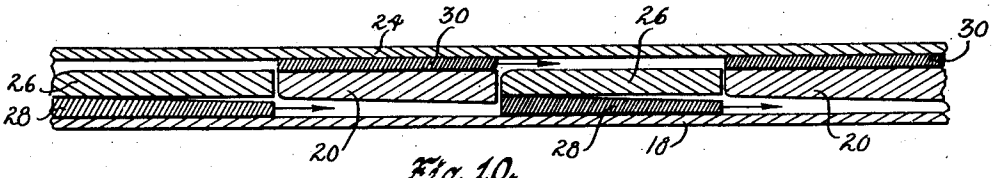


Fig. 10.

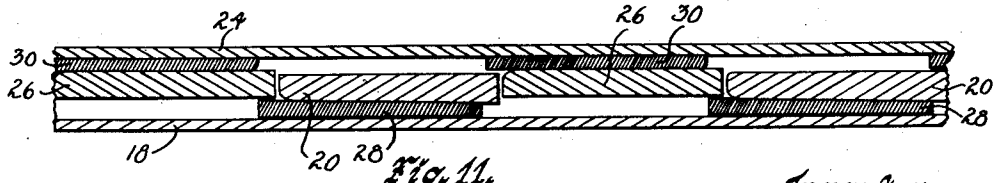


Fig. 11.

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Patented Mar. 18, 1930 1,751,129

UNITED STATES PATENT OFFICE

HARRY J. COCKS, OF DES MOINES, IOWA, ASSIGNOR OF ONE-HALF TO NATHANIEL C. BARNES, OF DES MOINES, IOWA

DISPENSER

Application filed May 5, 1928. Serial No. 275,488.

The object of my invention is to provide a dispensing apparatus for the dispensing of semi-hard substances such as soap, vanishing cream, tooth paste and the like, which ordinarily are packed in tube like containers commonly known as collapsible tubes.

Still a further object is to provide an air tight chamber in which the collapsible tube with its contents is mounted and thereafter to maintain within the chamber or compartment, air under pressure so that the contents within the tube will be held under a constant pressure.

Still a further object is to provide a control valve in communication with the contents of the collapsible tube so that when the control valve is open, the pressure around the collapsible tube will tend to force the contents therefrom through the valve controlled outlet.

Still a further object is to provide an adaptor within the container which is arranged to project into the discharge opening of the collapsible tube and to thereby thread the interior of the discharge opening onto the adaptor for providing a tight connection between the adaptor and the collapsible tube, the adaptor being so arranged that discharge openings of various sizes may be connected thereto so that the device is uniform in its application.

Still another object is to provide within the container, a pump structure wherein the container may be filled with air under pressure.

Still a further object is to provide a sealing ring adapted to connect two parts of the container together for forming an air tight chamber or compartment.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view of my improved dispenser.

Figure 2 is a central vertical sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a central sectional view taken through the nozzle and valve structure.

Figure 4 is a sectional view taken on the line 4—4 of Figure 2.

Figure 5 is an enlarged detail sectional view of the valve forming a part of the pump device.

Figure 6 is a perspective view of the upper end or cap of the entire container.

Figure 7 is a perspective view of the upper end of the other half of the container.

Figure 8 is a perspective view of the sealing ring for connecting the parts shown in Figures 6 and 7 together.

Figure 9 is a detail sectional view through the lower end of the pump structure; and

Figures 10 and 11 are diagrammatic views of the sealing ring in plan elevation illustrating how it connects the parts shown in Figures 6 and 7 together.

In the accompanying drawings I have used the reference character A to indicate generally a dispensing container which is formed of a hollow base element 10 and an upper cap member 12. The cap member 12 is adapted to coact with the upper end of the base element 10 and to be detachably connected thereto by means of a sealing ring 14.

The upper end of the base element 10 is formed with a contracted portion 16 so as to provide a shoulder 18. The contracted portion 16 or neck as it may be properly termed, is provided with a pair of upstanding flanges 20 as clearly illustrated in Figure 7 of the drawings.

The cap or closure member 12 is formed with a contracted portion 22 thereby providing a shoulder 24. Downwardly extending flanges 26 are mounted upon the contracted portion 22 and extend partially below the lower edge thereof as clearly shown in Figure 6 of the drawings.

The sealing ring 14 is arranged with a pair of lower tapered inturned projections 28 and a pair of upper inturned projections 30. The lower projections 28 have their upper surface tapered or inclined so that when the sealing ring is brought into contact with

the members 10 and 12, and then rotated, it will cause the parts to be securely held together. The tapered extensions 28 fit in below the upstanding flanges 20 on the element 10.

A rubber gasket or ring 32 is interposed between the lower edge of the cap member 12 and the upper end of the element 10. The entire container A may be said to consist of the base element 10, the cover member 12 and the sealing ring 14. An air tight compartment or container is formed in the manner just described.

Formed upon the cover member 12 is a boss 34 having a screw threaded opening 36 therein arranged to receive a valve element B. The valve element B is provided with a screw threaded connection adapted to coact with the screw threads 36. The valve element B includes further, a downwardly extending support or nozzle 38.

A valve seat 40 is formed within the valve member B and is adapted to coact with a valve member 42 carried by a valve stem 44. A finger engaging piece 46 is secured to the free end of the valve stem 44 and is adapted to have a coil spring 48 rest thereagainst. The spring 48 has one end resting against the body of the valve member B and normally tends to hold the valve member 42 against its seat 40.

Inward movement of the valve member 42 against the action of the spring 44 will open the passageway 50 within the boss 34 so that it is in communication with the opening in the nozzle or spout 38. Within the cover member 12 on the underside thereof, I mount an adaptor 52. The adaptor 52 is tapered and is provided with sharp screw threads 54 so that when a collapsible tube or the like, is mounted upon the adaptor 52, the sharp threads will pierce the soft metal forming the discharge end of the collapsible tube and thus the collapsible tube will be securely held onto the adaptor 52.

An ordinary collapsible tube 56 is shown in Figure 2 of the drawings within the container A and its discharge end or neck 58 has the lower end of the adaptor 52 projected therein. The adaptor cuts its own threads within the neck 58 of the tube 56 and by rotating the tube 56 a few times when it is being installed in position, enables the tube to be properly connected or mounted within the container A.

In order to place the collapsible tube 56 within the air tight container under pressure sufficient to cause the contents to be discharged therefrom when the valve member 42 is unseated, I provide a pump structure C. The pump structure C has its casing or cylinder formed integral with the base element 10 and includes a piston 60 mounted upon the rod 62.

The lower end of the base element 10 adjacent the pump structure C, terminates above the bottom of the major portion of the element 10 so that the head 64 upon the piston rod 62 may be received within the portion formed by arranging the lower end of the pumping structure C above the bottom of the major portion of the element 10.

The piston rod 62 is formed with a contracted neck 66 which may be shifted to one side for allowing the plug 68 to be partially received therein, thus locking or holding the piston rod 62 against any undesired movement when the device is not in actual use, that is, during the pumping operation.

The upper end of the pump structure C includes an ordinary one way valve mechanism 70 which allows air from within the pump structure to be discharged into the interior of the container A.

It will be understood that any type of pump structure may be used and that I have shown one form which is convenient and practical for use in connection with a dispensing apparatus of the kind herein disclosed.

The pump structure is arranged to be operated and when operated places the collapsible tube within the container under pressure. The pressure may be built up sufficiently to practically insure all of the contents of the container to be discharged before the pump structure need be operated.

The valve member B may be provided with a pair of outturned finger engaging ears 72 which makes it convenient and easy for placing two of the four fingers over the ears 72 and then using the thumb to press against the finger 46 which controls the valve member 42 for moving it to open position. The collapsible tube being under constant air pressure will tend to have its contents forced therefrom and upon opening of the valve member 42, the contents will immediately flow from the nozzle or spout 38.

The valve member 42 is so arranged that the pressure of the contents in back thereof will tend to hold the valve member 42 in its seated position thus insuring the valve at all times to be properly seated. The spring 48 serves to quickly return the valve member after it has been manually operated to open position.

Practical operation

The practical operation of my device includes the disconnecting of the cover member from the body portion of the container and taking any suitable semi-hard substance and fitting the neck thereof onto the adaptor 52.

After this has been accomplished, the tube is mounted within the base element 10 and the sealing ring 14 is applied and given a quarter turn. This causes the collapsible tube 56 to be entirely surrounded and mounted within an air tight compartment.

It will be noted that by providing a tapered

screw threaded adaptor, that necks of collapsible tubes of various sizes may be used and sealed to the adaptor. It will be further understood that collapsible tubes of a commercial nature vary in size and that the discharge openings of the tubes also vary in diameter and by providing a tapered screw threaded adaptor, I am able to place the neck of the tube over the adaptor and form screw threads on the interior of the neck which screw threads will fit the screw threads on the adaptor.

The pump structure C is then operated a sufficient number of times to fill the container A with air under pressure. Thereafter manual operation of the valve member 42 will permit the contents from the collapsible tube 56 to be discharged for use.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. A dispenser of the character described, an air tight container, a tapered externally screw threaded adaptor mounted in said container, a tube having a neck of soft metal normally interiorly unthreaded but threaded by engagement with said adaptor for thereby retaining the tube in airtight connected relationship with said adaptor, means for placing the tube and its contents under pressure, and means to allow the contents of the tube to be discharged to atmosphere.

2. A dispenser of the character described comprising an air tight container, a tapered adaptor mounted in said container and having external screw threads, a collapsible tube having a neck of soft metal secured to said tapered adaptor by being screwed thereto, the threads of said adaptor cutting a thread in said neck, said adaptor having means of communication with atmosphere for the collapse of said tube, means for filling said container with compressed air for maintaining said tube under pressure and a valve for controlling the collapse of said tube.

3. In a dispenser of the character described, an air tight container, a tapered adaptor mounted therein and having external screw threads, a collapsible tube having its neck secured to said adaptor and having means of communication with atmosphere for the collapse of said tube, a pump for placing said tube under considerable pressure, said pump including a reciprocable stem, an end head through which said stem slides, said head having an opening the same size as the stem, said stem having a reduced portion, said reduced portion forming a shoulder adapted to coact with said head when the stem is moved sidewise for preventing reciprocation of the stem and means for subjecting the interior of said tube to atmosphere.

4. In a dispensing device of the character disclosed a tube having a neck of soft metal normally interiorly unthreaded, a member having a discharge passage for the contents of the tube to be dispensed therethrough, an air tight connecting means between said member and said tube comprising a tapered externally screw threaded adaptor, said neck being secured to said tapered adaptor by being screwed thereto.

Des Moines, Iowa, May 1, 1928.

HARRY J. COCKS.