B. E. D. STAFFORD.

COLLAPSIBLE TUBE AND CONTAINER FOR THE SAME.

APPLICATION FILED AUG. 6, 1919. RENEWED MAY 3, 1921.

1,382,139.

Patented June 21, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

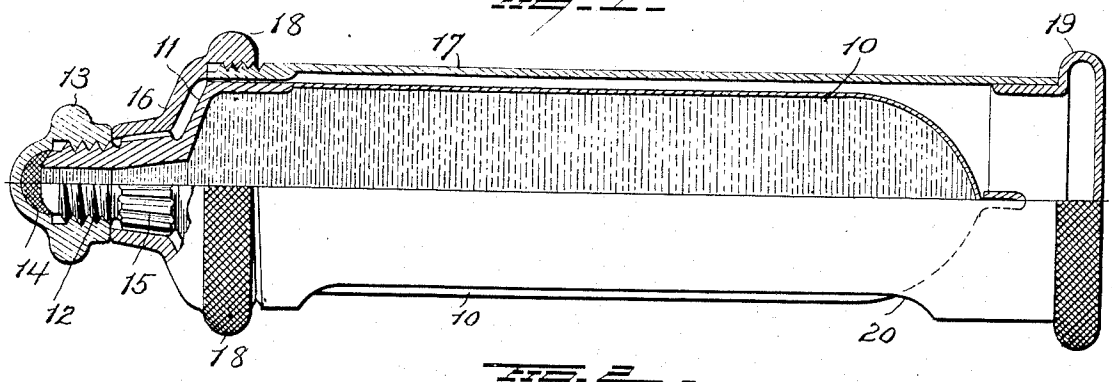


Fig. 2.

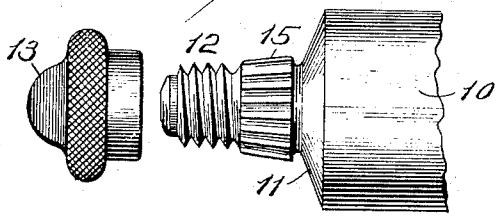


Fig. 3.

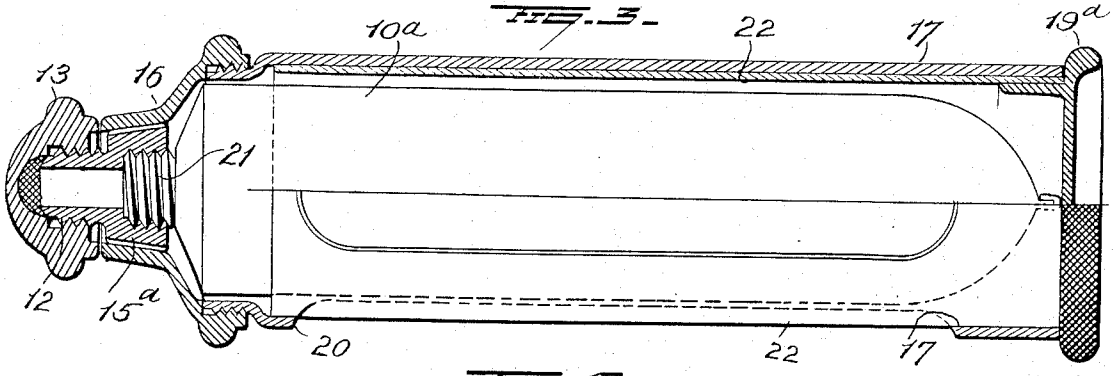
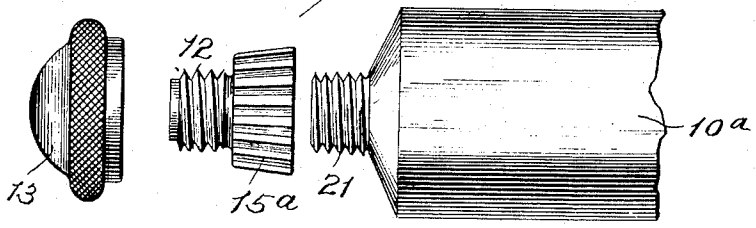


Fig. 4.



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COLLAPSIBLE TUBE AND CONTAINER FOR THE SAME.

APPLICATION FILED AUG. 8, 1919. RENEWED MAY 3, 1921.

1,382,139. **Patented June 21, 1921.**

2 SHEETS—SHEET 2.

FIG. 5.

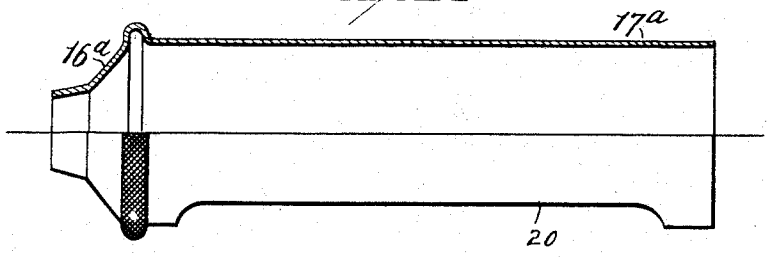


FIG. 6.

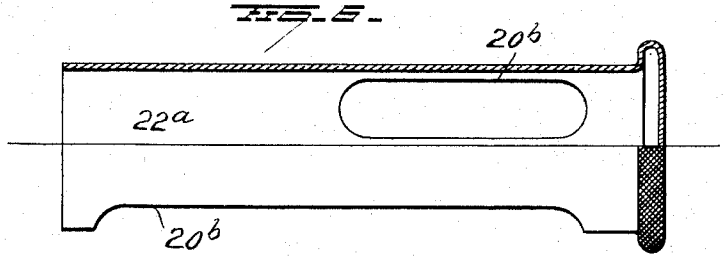


FIG. 7.

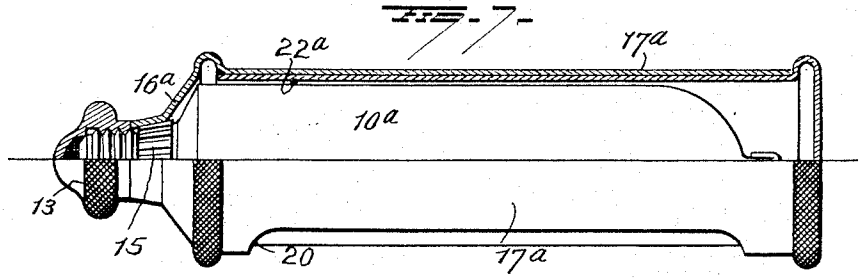
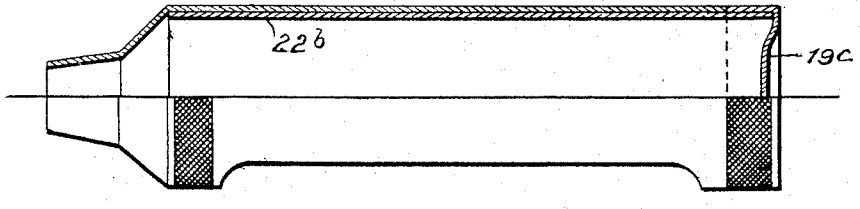


FIG. 8.



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UNITED STATES PATENT OFFICE.

BENJAMIN E. D. STAFFORD, OF PITTSBURGH, PENNSYLVANIA.

COLLAPSIBLE TUBE AND CONTAINER FOR THE SAME.

1,382,139. Specification of Letters Patent. Patented June 21, 1921.

Application filed August 8, 1919, Serial No. 316,145. Renewed May 3, 1921. Serial No. 466,539.

To all whom it may concern:

Be it known that I, BENJAMIN E. D. STAFFORD, a citizen of the United States, and a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Collapsible Tubes and Containers for the Same; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in collapsible tubes and containers for the same.

Many toilet and medical preparations are put up and sold in tubes which are made of flexible sheet material and are compressed to eject the contents from a nozzle at one end, and containers have been provided for holding the tube, the contents being ejected by turning a slotted key applied to the end of the collapsible or flexible tube.

In all instances however, of which I am aware, in which tubes of the character above referred to have been used with containers, the container has been adapted to receive the ordinary tube now in common use, the nozzle of the tube being screwed into the head of the container, or passed through a hole in the head and engaged by a clamp.

The object of my invention is to provide a container and collapsible tube with contacting friction surfaces for holding and supporting the tube within the container, the improvement being adapted for use with specially designed collapsible tubes or with the collapsible tubes now on the market.

In the accompanying drawings; Figure 1 is a view partly in longitudinal section and partly in elevation showing the improvement applied to a specially designed collapsible tube; Fig. 2 is a view of the discharge end of the tube and cap for the nozzle; Fig. 3 is a view in section partly in elevation showing the improvement applied to the flexible tube now on the market and also showing a hood for closing the finger opening in the tube, and Fig. 4 is a view in elevation of the nozzle end of the tube, the friction collar and cap, and Figs. 5, 6, 7 and 8 are views of a modified form.

10 represents the collapsible tube cylindrical in shape, its rear end being originally open and closed after the tube has been filled by flattening and folding, as shown.

The front or head end 11 of the tube is considerably thicker than the body so that it will be stiff and rigid instead of pliable, as is the body of the tube, and is provided with a centrally located threaded nozzle 12 closed by a screw cap 13 carrying a rubber cork, compressed paper or other suitable gasket 14 for sealing the end of the nozzle.

Intermediate the head 11 and nozzle 12 is the friction collar 15 which in the construction in Fig. 1, is formed integral with the head and nozzle. This collar 15 is tapered, or in the form of a truncated cone, and its surface is preferably grooved, as shown or otherwise recessed, the surfaces between the grooves or recesses forming friction surfaces to engage the inner surface of the recessed head 16 of the container 17. The container 17 is preferably cylindrical in form and of a size to receive the collapsible tube 10. It is threaded externally at its upper open end to engage the internal threads on the head 16, and the latter is also provided with the milled or otherwise roughened head which is grasped when it is necessary to attach or detach the head 16 of the container, or attach or detach the cap 13 closing the nozzle 12.

The head 16 is recessed and provided with a central, opening the inner wall of the upper portion of which is tapering or conical to receive the tapering collar 15 on the head of the tube. The collar 15 on the tube is constructed to make a close fit within the inner tapering portion of the head, so that when said collar is pushed or drawn into the head, or inserted therein with a screw like motion, the collar will be held by friction which will be sufficient to prevent accidental separation of the parts and thus prevent the tube when full or partly full from falling away from the head of the container.

When the parts are thus assembled, the threaded nozzle 12 of the head 11 projects beyond the head 16 and receives the screw cap 13, which when in place positively locks the tube 10 to the container 17. The screw cap 13 is designed to bear against the outlet end of the head 16, hence it will be seen that by passing the nozzle of the tube through the opening in head 16 and screwing on the cap 13, the collar 15 will be drawn into contact with its coöperating surface in the head 16 and held there by friction alone.

The lower end of the container is closed by the base or closure 19, and the contents of the tube are ejected through the nozzle 12, when the cap of the latter is removed, by pressure of a finger or fingers on the flexible body of the tube which is exposed and accessible through the finger slot 20 in the container 17.

With this construction the container is grasped by a hand with the tips of the finger over the finger slot 20 and the contents of the tube ejected by the pressure of a finger or fingers against the tube.

The tube resembles the ordinary tube now in use except as to the conical collar, hence in the absence of a container the tube can be used without the latter.

In the construction shown in Figs. 3 and 4 I have shown the conical collar applied to the collapsible tube like those in common use. In this modification the container, except as to its bottom end closure, is substantially the same as illustrated in Fig. 1. The tube 10^a is the tube now in common use and the collar 15^a is made of a separate piece and threaded to receive the threaded nozzle 21 of the tube 10^a. When the collar is applied to the tube it resembles the construction illustrated in Fig. 1 and is applied to the container in the same manner.

In Fig. 3, the bottom end closure 19^a carries a cylindrical hood 22 which is provided with a finger slot 23 conforming in shape and size to the finger slot 20 in the container 17. This hood is secured to the inwardly projecting flange of the end closure and is approximately the length of the container and is within the latter, and by turning the end closure the hood will be turned to carry its finger slots into or out of alinement with the finger slot in the container. When the latter is closed by the hood, the tube 10^a will be concealed and protected. When the slots are in alinement the tube will be exposed, and pressure may then be exerted against the same as previously explained. The hood fits snugly within the container, the frictional contact between the parts being sufficient to prevent any accidental separation.

In the construction shown in Fig. 5, the head 16^a and body 17^a of the container are made in a single piece, and the hood 22^a and the closure 19^b for the container are made in one piece, and as shown is provided with two finger slots 20^a and 20^b, one long and the other short through which a finger or fingers may be passed for applying pressure to the collapsible tube. In Fig. 7 the hood is integral with the end closure and the latter is bulged or beaded as shown to abut against the open rear end of the body 17^a of the container. This hood fits within the container and is held there by frictional contact, and is as in the previous instance provided with one or more finger slots which may be brought into alinement with the finger slot in the container. In Fig. 8, I have shown the hood 22^b secured by any of the usual methods to the inner face of the end closure 19^c which latter as shown rests flush with the outer surface of the container the hood having a snug fit in the latter so as to be retained therein by frictional contact.

It is evident that many slight changes might be resorted to in the relative arrangement of parts shown and described without departing from the spirit and scope of my invention. Hence I would have it understood that I do not wish to confine myself to the exact construction and arrangement of parts shown and described, but

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

1. As a new article of manufacture, a collapsible tube having a head, a discharge nozzle communicating with the head, and a conical collar between the head and nozzle.

2. As a new article of manufacture, a collapsible tube having a head provided with a discharge nozzle and a tapering collar between said head and nozzle, the surface of the collar being grooved.

3. The combination of a container having a head the latter being provided with an internal tapering seat, a collapsible tube, a discharge nozzle at the end of the tube and a tapering collar between said tube and nozzle, the said collar adapted to engage the tapering seat in the head of the container.

4. The combination of a container having a head the latter being provided with an internal tapering seat, a collapsible tube, a discharge nozzle at the end of the tube and projecting through the head, a tapering collar between the tube and nozzle and a screw cap for the projecting end of the nozzle.

5. The combination of a container having a head the latter being provided internally with a tapering seat, a collapsible tube having an integral discharge nozzle and a tapering collar the latter conforming in size and shape to the tapering seat in the head, and the nozzle adapted to project through the latter, and a screw cap for closing the discharge nozzle.

6. The combination of a container having a finger slot in the body thereof, and a head at one end, the head being provided with a tapering seat, a collapsible tube having a discharge nozzle at one end thereof and a tapering collar between said tube and nozzle, the said collar adapted to engage the tapering seat in the head of the container.

7. The combination of a container having a finger slot in the body thereof and a head at one end, a hood carried by the container

and apated to be turned to close the finger slot in the latter, the head being provided with a tapering seat, a collapsible tube, a discharge nozzle at one end of the tube and a tapering collar between the said tube and nozzle, the said collar adapted to engage the tapering seat in the head of the container.

8. The combination of a container open at one end and having a finger slot in the body thereof and a head at the other end, the head being provided with a tapering seat, a collapsible tube having a discharge nozzle at one end thereof, and a tapering collar between the said tube and nozzle, the said collar adapted to engage the tapering seat in the head of the container, an end closure for the container and a hood secured to said end closure and adapted to be turned by the latter to open and close the finger slot in the container.

9. The combination of a container having a finger slot in its body and a head at one end with a nozzle opening therein, the head being provided with a tapering seat, a collapsible tube having a discharge nozzle adapted to enter the nozzle opening in the head of the container, and a tapering collar the latter being between the tube and the nozzle in the head of the latter, the said collar adapted to engage the tapering seat in the head of the container, a cylindrical hood having a finger slot therein, the said hood being carried by the container intermediate the ends of the latter and adapted to be turned so as to cause the finger slot therein to aline with the finger slot in the container.

10. The combination of a container having a finger slot in its body and a head at one end, the head having a nozzle opening therein and a tapering seat around said opening the other end of said container being open, a collapsible tube having a discharge nozzle adapted to enter the nozzle opening in the head of the container and a tapering collar between the nozzle and body of the tube, the said collar adapted to engage the tapering seat in the head of the container, an end closure for the other end of said container and a cylindrical hood attached to said end closure and adapted to be turned by the latter, the said hood having a finger slot adapted to be brought into alinement with the finger slot in the container.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

BENJAMIN E. D. STAFFORD.

Witnesses:

A. R. KELSO,

HARRY M. WILLIS.