June 17, 1930. G. S. TURNER 1,765,114

ATTACHMENT FOR COLLAPSIBLE TUBES

Filed Sept. 25, 1928

Fig. 1.

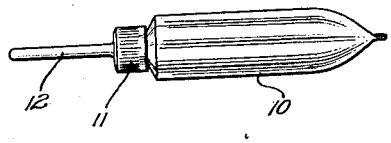


Fig. 2.

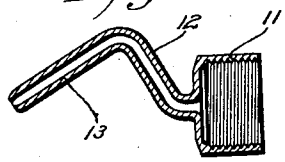


Fig. 3.

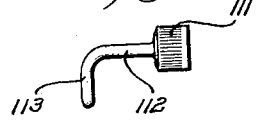


Fig. 4.

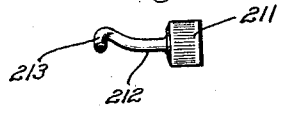
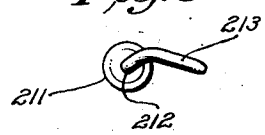


Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE

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ATTACHMENT FOR COLLAPSIBLE TUBES

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My invention, while capable of a wide range of usefulness, is especially useful as embodied in collapsible tubes for containing medicaments, and more particularly the invention relates to an elongated discharge nozzle adapted to be used as an eye dropper or as an applicator for directing a medicament to one's ear or like cavity.

The general object of my invention is to provide a container with a discharge nozzle and preferably mounted upon a separable cap affixed to the tube, said nozzle having such a character as to be bendable laterally so as to present a deflected terminal at an angle to the axis of the tube to promote convenience in using the device as an eye dropper or directing a medicament into the ear and without danger of injuring either the eye or the ear, or in using the nozzle for oiling and other purposes.

To carry out the stated object I provide a nozzle advantageously integral with a detachable tube cap and formed of soft bendable metal, the proportion of the bore or discharge passage and the walls of the tube being such that the nozzle is bendable to provide a terminal in a plane at an angle to the axis of the tube such that the tube at the bend of the discharge nozzle may be rested against the nose or against a part of the ear or adjacent head area to steady the device and provide for directing the discharge to the desired point without danger of injury to the eye, ear or other sensitive parts.

Reference is to be had to the accompanying drawing forming a part of this specification, it being understood that the drawing is merely illustrative of practical examples of the invention.

Figure 1 is a side elevation of a collapsible tube equipped with my nozzle attachment;

Figure 2 is a longitudinal sectional view of my improved nozzle and a detachable tube cap with which said nozzle is integral;

Figure 3 is a side elevation of the cap showing the nozzle bent into somewhat different form from that shown in Figure 2;

Figure 4 is a view similar to Figure 3, showing the cap with its integral nozzle bent in a different way from that shown in Figures 2 and 3;

Figure 5 is an end view of the cap and nozzle shown in Figure 4.

In carrying out my invention in practice in accordance with the illustrated example, the collapsible tube 10 is made in the usual manner of such tubes. Instead of having an integral nozzle on the body of the tube, I provide in practice, in the preferred form of my invention, a cap 11 adapted to have threaded connection with the usual neck of the tube body. The numeral 11 designates the cap of the discharge nozzle 12 which is made of soft bendable metal. I have shown it straight in Figure 1, which is the form in which it is usually put out in practice, except in special cases. The nozzle 12 is so proportioned with respect to the bore or discharge passage thereof and the thickness of the walls of the nozzle, coupled with the soft, pliable nature of the metal, the proper bend or bends may be produced in the nozzle without choking the discharge bore, which would be the case with ordinary tubular nozzles.

I have shown in Figure 2 two bends, the one adjacent the base and the other at approximately right angles so that the terminal 13 is in line with the axle of the cap 11 and therefore of the tube 10. The bend at the base of the angular terminal 13 constitutes a rest or bearing point which is placed against the nose at the bridge or other point of the face adjacent to the eye, in the case of using the device as an eye dropper. The result is that the device is steadied and there is no danger of injury to the eye by a wrong movement of the nozzle. In addition, the desired angle may be given to the terminal 13 for the application of the medicament with precision to the corner of the eye or to the ear or other cavity.

In Figure 3 the cap designated 111 has its discharge nozzle 112 produced with a single bend, as shown, at approximately right angles, the material at the juncture of the members being curved and the terminal 113 lies at right angles to the axis of the cap and therefore of the tube.

It will be noted in Figure 2 that the two bends given to the discharge nozzle 12 leave the nozzle in the same plane throughout. In

Figures 4 and 5, however, indicating the wide range of bends that may be made the tube 212 is bent adjacent its base to be directed laterally from the axial line of the cap 211, and a second bend is given so that the terminal 213 at the tip thereof is returned approximately in a plane with the axial line.

As will be understood, the discharge nozzle is capable of use for oiling and other purposes.

As is well known, substantially all pipes or tubular objects can be bent or shaped, but mechanically. In the present case, due to the construction and diameter of the particular pipe relatively to the thickness of the walls, the pipe forming the discharge nozzle can be bent or shaped with the fingers and without closing the passage.

I would state furthermore that while the illustrated examples constitute practical embodiments of my invention, I do not limit myself strictly to the exact details herein illustrated, since, manifestly, the same can be considerably varied without departure from the spirit of the invention as defined in the appended claims.

I claim:

1. As an article of manufacture, a collapsible tube to be employed as an applicator, and a discharge nozzle on the tube, said nozzle being formed of soft, pliable metal to be bendable, the thickness of the walls of said discharge nozzle being so proportioned relatively to the size of the bore of the nozzle that the said nozzle is bendable to provide a terminal at an angle to the axis of the tube, without choking the bore.

2. A device of the class described, including a container and a discharge nozzle thereon of soft, pliable metal, said nozzle having a lateral bend and having a terminal at an angle to the plane of the axis of the tube, said bend at the base of said terminal constituting a steady rest to facilitate maintaining the terminal of said discharge nozzle at the desired angle for precise application of the contents of the container.

3. As an article of manufacture, a cap for collapsible tubes, said cap having means to detachably engage the neck of the tube, and having a discharge nozzle of soft, pliable material, the bore of the discharge nozzle being so proportioned relatively to the thickness of the walls of the nozzle that the nozzle is bendable without choking the bore.

GEORGE S. TURNER.