

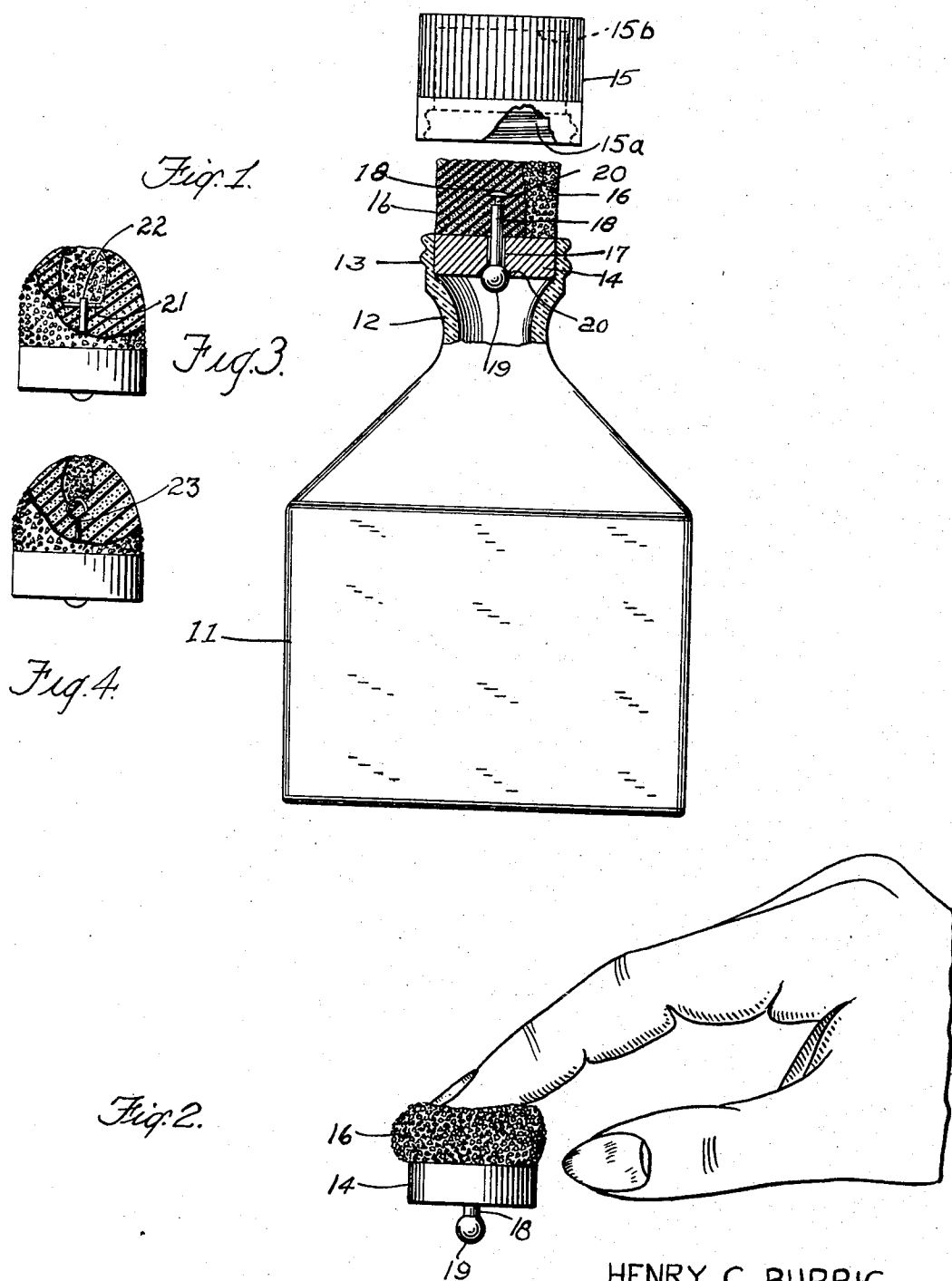
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FLUID CONTROL FOR APPLICATORS

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FLUID CONTROL FOR APPLICATORS

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5 Claims. (Cl. 91—67.2)

The invention relates to applicators for dispensing liquids from a container through a resilient applying medium, and more particularly to means for producing a flow of liquid when the applying medium is compressed, and for discontinuing the flow when the pressure is removed.

A primary object of my invention consists in providing an applying medium that is resilient and the resiliency of which is utilized to actuate a valve for preventing the liquid from flowing.

A further object consists in providing a closure for covering the applying medium when not in use to prevent accidental contact therewith.

A still further object consists in providing a device that possesses the foregoing features, yet is simple in construction, inexpensive to manufacture and contains a minimum of parts.

These and other objects are achieved, and the novel results obtained, as will be evident from a consideration of the following description and claims, and from the illustration of the invention in the drawing annexed hereto, in which:

Fig. 1 is a side elevation partially in section of the container and dispensing apparatus together with a cap for enclosing the applying medium.

Fig. 2 is a side view of the device being operated by applying pressure to the medium.

Fig. 3 illustrates an alternative method of connecting the applying medium to the fluid controlling means.

Fig. 4 illustrates an additional method.

Referring more in detail to the drawing, reference numeral 11 designates a receptacle or container for the liquid, having a neck 12, with a threaded section 13 into the mouth of which a section 14 may be mounted, as will be hereinafter explained.

A closure 15 is provided with an internally threaded section 15a for attachment to the threaded section 13, and a recess 15b for containing, without depressing, the applying medium 16 made preferably of resilient porous material, such as sponge rubber.

The sponge rubber is suitably attached to the supporting section 14 as by gluing the same thereto. Section 14 is mounted within the mouth of the receptacle in any well known manner, as by wedging, or otherwise.

A longitudinal recess 17 is formed in section 14 for passage of the liquids. A valve stem 18 is mounted in the recess 17, one end of which is se-

cured to the rubber sponge material, the other end formed into a valve 19, positioned in the seat 20 located at the bottom of the recess, in section 14.

The valve is normally biased outwardly (in the closed position), as in Fig. 1, the resiliency of the sponge rubber being utilized to hold the valve 19 tightly against the seat 20, preventing the liquid from entering into the recess and sponge rubber, when the bottle is inverted.

Thus when pressure is applied to the sponge rubber 16, as by the fingers, shown in Fig. 2, the valve stem 18 is depressed, opening the valve 19, allowing the liquid 15 to pass into the recess 17 to the sponge rubber.

There are many methods of attaching the valve stem to the resilient applying medium. The method shown in Fig. 1 consists in providing a cut-out section 20 in one end of the stem, and allowing the sponge rubber to be caught therein. Another method consists in passing a pin 21 through the sponge rubber and into the end of the valve stem 22, as shown in Fig. 3, or the valve stem may be a wire 33 which is bent over to catch the sponge rubber, as shown in Fig. 4.

Similarly, any method of controlling the flow of liquid may be used, as for example by constricting the passage to any desired size, or by a stoppage, an example being the valve and valve seat. The essential thought is to provide means for blocking the flow of the liquid when the sponge rubber applicator is not depressed. It should be noted that when sponge rubber is used, the alternate pressure and release on the sponge rubber has the effect of a pumping action, aiding in the functioning of the valve action by the production of pressure and vacuum alternately.

The fundamental inventive concept consists in utilizing the resiliency of the applying medium for keeping the fluid controlling means in position to prevent the liquid from entering into the applying medium. Thus any material such as sponge rubber may be used, whether porous, absorbent or otherwise, as long as the necessary resiliency is present.

In the foregoing, I have described a novel and inexpensive method of controlling the flow of liquid into an applying medium, which medium provides the necessary spring-like means for positive fluid control.

Furthermore, I have provided a closure cap for covering the sponge rubber, when not in use to prevent accidental movement of the fluid controlling means.

While two sections are shown, one containing

the recess for conducting the liquid, and the other for the applicating medium, they may be made in one section as long as the recess is closed and the liquid prevented from escaping by the resiliency of the applicating medium, when the medium is not depressed during use. The device is especially adapted for dispensing liquids by means of the applicating medium for use with shoe polish, with water as a moistener, for deodorants, and for many other well known uses.

I have thus described my invention, but I desire it understood that it is not confined to the particular forms, or uses shown and described, the same being merely illustrative, and that the invention may be carried out in other ways without departing from the spirit of my invention, and, therefore, I claim broadly the right to employ all equivalent instrumentalities coming within the scope of the appended claims, and by means of which, objects of my invention are attained and new results accomplished, as it is obvious that the particular embodiments herein shown and described are only some of the many that can be employed to attain these objects and accomplish these results.

What I claim and desire to secure by Letters Patent, is as follows:

1. An applicator for dispensing liquids, adapted for use at the mouth of a liquid container, comprising a closure for the mouth of the container having a recess for passage of the liquid, a resilient applicating medium seated on said closure; means for controlling the flow of liquid through the recess, which means are supported by the resilient applicating medium in the liquid controlling position whereby the liquid is normally controlled by the resiliency of the applicating medium, and the means moved to the non-controlling position by applying pressure to the resilient applicating medium.

2. An applicator for dispensing liquids, adapted for use at the mouth of a liquid container, comprising a closure for the mouth of the container having a recess for passage of the liquid, a resilient applicating medium seated on said closure; and a valve positioned in said recess for controlling the flow of liquid through the recess, which

valve is supported by the resilient applicating medium in the liquid controlling position whereby the liquid is normally controlled by the resiliency of the applicating medium, and the valve moved to another position by applying pressure to the resilient applicating medium.

3. An applicator for dispensing liquids adapted for use at the mouth of a liquid container, comprising a closure for the mouth of the container having a recess for passage of the liquid with a valve seat adjacent the liquid entering end of said recess; a sponge rubber-applicating medium seated on said closure; and a valve stem and valve positioned in said recess with the valve positioned in the valve seat, and the valve stem protruding into the sponge rubber and attached thereto so as to force the valve into the seat preventing the flow of the liquid into the recess.

4. An applicator for use at the mouth of a bottle, comprising a stopper having a passage therethrough, a valve movable inwardly to open said passage and outwardly to close the same, a rubber sponge secured in position at the outer side of said stopper, and a stem connected with said valve and projecting into said rubber sponge, the stem being provided adjacent to its inner end with a rearwardly facing shoulder so that the rubber sponge will contract back of the same to prevent withdrawal of the rod and will normally hold the valve in closing position.

5. An applicator for dispensing liquids, adapted for use at the mouth of a liquid container, comprising a closure for the mouth of the container having a recess for passage of the liquid, a resilient applicating medium seated on said closure; means for controlling the flow of liquid through the recess, which means are supported by the resilient applicating medium in the liquid controlling position whereby the liquid is normally controlled by the resiliency of the applicating medium, and the means moved to the non-controlling position by applying pressure to the resilient applicating medium; and an internally threaded cap for enclosing said applicator for preventing accidental pressure thereon.

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