

Jan. 27, 1931.

J. H. FEDELER

1,789,959

STOPPER

Filed Aug. 29, 1928

Fig. 1.

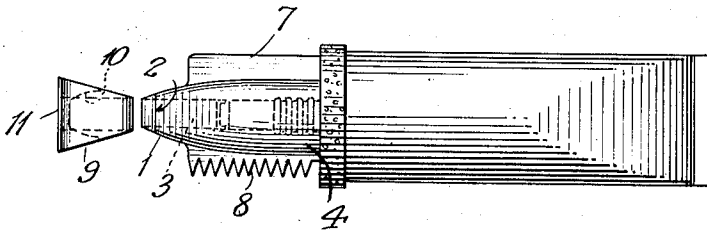
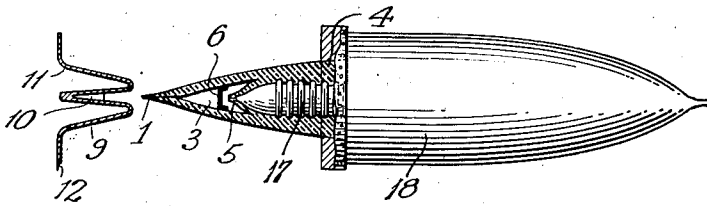


Fig. 2.

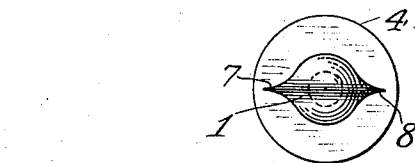
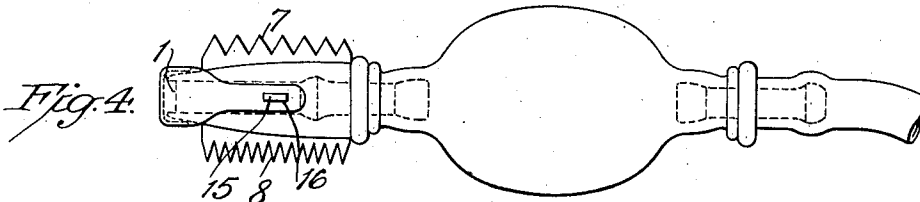
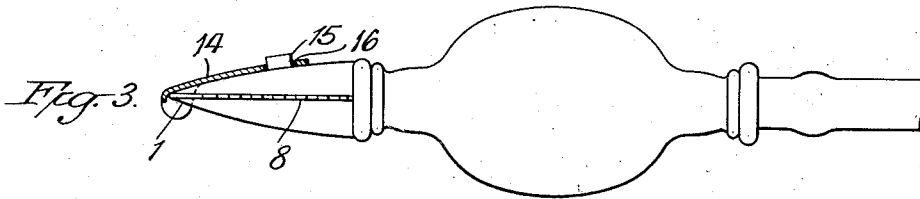


Fig. 5.

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STOPPER

Application filed August 29, 1928. Serial No. 302,805.

The invention relates to a means of sealing containers to make them non-refillable and to a construction which renders said means adaptable for cleaning purposes and for spreading liquid or emulsions, and has for one of its objects to provide a stopper or nozzle which is self-closing and which requires the application of pressure on the container to force the contents thereof through the stopper.

Another object of this invention is to provide a stopper which may be sealed on the outside by a metal clip to counteract any pressure of the contents which would tend to cause it to escape from the container through the orifice of the stopper.

A further object of the invention is to provide an instrument having a tip which can be inserted into crevices and which is provided with an orifice to eject the contents of the container into places which ordinarily cannot be reached otherwise and in which the flow can be made continuous.

A still further object is to provide the stopper with flexible projections to be used like a brush and a round projection like a plug for sealing a container hermetically.

In the accompanying drawing, Figure 1 is a sectional side view of the stopper attached to a container with the clip detached therefrom and shown in front of stopper. Figure 2 is a top plan view of the stopper of Figure 1, with the clip in a corresponding position. Figure 3 illustrates a modification of my invention in which the stopper is shown in side elevation attached to a bulb. Figure 4 is a top plan view of the device shown in Figure 3. Figure 5 is a front end view of the stopper shown in Figure 2, the clip being omitted. Similar numerals refer to similar parts in all the views.

The nozzle is preferably constructed of flexible rubber in which 1 is the point which is moulded closed but marked with a line 2 across the flat side indicating where the nozzle should be cut or perforated with shears or tool, thus opening duct 3 therein. The tubular duct 3 is flat at its discharge end and round at the back where the rubber is

also much thicker and the nozzle enlarged as shown at 4 to fit a container as a plug.

The inside of duct 3 is further provided with an intermediate or inner nozzle 5 which is open, and through which a metal screen 6 is forced to occupy a position as shown, so that no liquid can be forced from the discharge end towards the back, as the inner nozzle forms a check. The object of screen 6 is to prevent the insertion of a tube from point 1 through intermediate nozzle 5. To illustrate the operation of the nozzle, I have shown it cemented to the discharge end 17 of a collapsible tube 18 such as is commonly used in the drug trade, but it may likewise be attached to any container or source of liquid semi-liquid paste or the like on which a pressure can be exerted at will to force it through the nozzle.

In order to insure the self-closing of the flat point of the nozzle, the rubber is moulded with lateral Fins 7 and 8 on each side of the nozzle, and to make these useful for cleaning purposes, they are notched out, forming a flat soft comb-like brush as shown.

The orifice at point 1 after it is cut is normally closed, but if the container is used for a substance such as paste, the material remaining in the orifice may be the action of the air solidify, and to avoid this a suitably shaped-clip 9 is provided which fits over the point of the nozzle and encloses the tip by pocket 10 formed in said clip. The clip may furthermore be provided with a knife edge 12 to provide a means of cutting the nozzle on line 2 as heretofore referred to. The clip is preferably wider at the base 11 on which it may stand and hold the stopper in an inverted position. The plug end 4 at the back of stopper hereinbefore referred to is preferably round and adapted to fit into a container which is intended to be a sterilizer for cleaning or dipping the point of the stopper. It is, however, understood that this plug end 4 may also be used as a stopper in the container from which the contents may be forced through duct 3 of stopper.

In Figs. 3 and 4 a celluloid or the like clip 14 is directly fastened to the stopper by a button or projection 15 formed on the stop-

per, the clip having an opening 16 therein which is adapted to engage over said button. The clip in this case serves as a shield as well as an outside protection to the discharge end of the nozzle and thus may also serve as a dropper for medicine or the like.

Having thus described my invention, what I claim as new and desire to cover by Letters Patent is:

- 10 1. A flexible rubber nozzle having in its interior a duct and on its exterior a plurality of longitudinally extending fin-like projections, at least one of said projections having a toothed edge.
- 15 2. A flexible rubber nozzle having in its interior a duct and on its exterior a pair of diametrically opposed longitudinally extending fin-like projections having toothed feathered edges.
- 20 3. A flexible rubber nozzle having a duct therein, one end of which is normally closed and adapted to open to provide an orifice of emission upon the application of internal pressure, and a check valve within said duct rearwardly of said normally closed end.
- 25 4. A flexible rubber nozzle having a duct therein, one end of which is normally closed and adapted to open to provide an orifice of emission upon the application of internal pressure, and a check valve within said duct rearwardly of said normally closed end, said check valve being formed integrally with the flexible rubber nozzle and being adapted to also open upon the application of internal pressure thereagainst.
- 35 5. A flexible rubber nozzle having a duct therein, one end of which is normally closed and adapted to open to provide an orifice of emission upon the application of internal pressure, and a secondary nozzle within the duct, said secondary nozzle having a slit in its end providing a check valve within said duct.
- 40 6. A flexible rubber nozzle having a duct therein, one end of which is normally closed and adapted to open to provide an orifice of emission upon the application of internal pressure, a check valve within said duct rearwardly of said normally closed end, and a diaphragm screen within said duct between the check valve and the normally closed end.

Signed at New York in the county of and State of New York this 27th day of August, A. D. 1928.

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JOHN H. FEDELER.

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