J. VONS.

BOTTLE STOPPER.

APPLICATION FILED NOV. 25, 1921.

1,437,572. Patented Dec. 5, 1922.

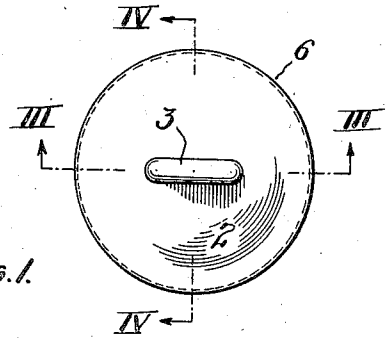


FIG. 1.

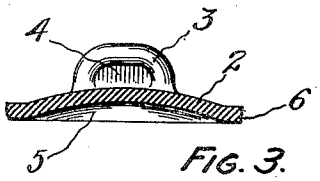


FIG. 3.

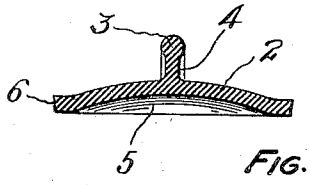


FIG. 4.

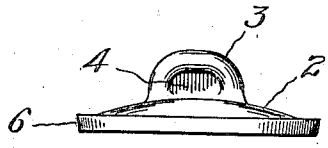


FIG. 2.

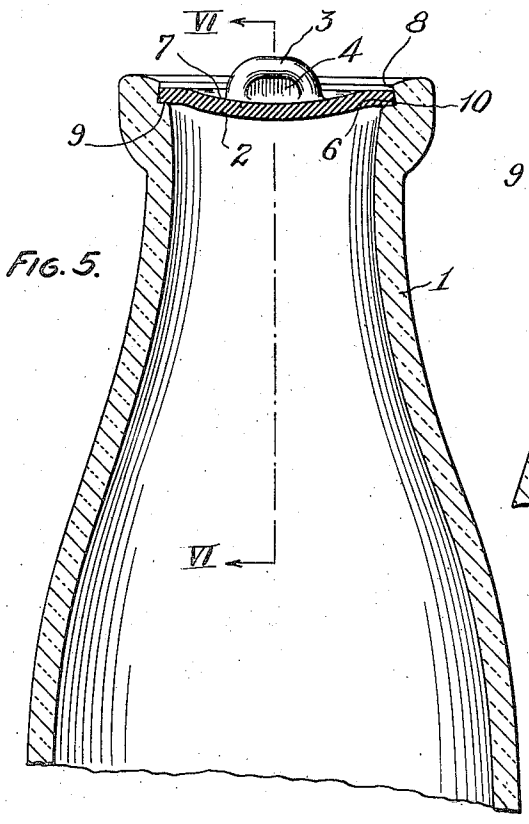


FIG. 5.

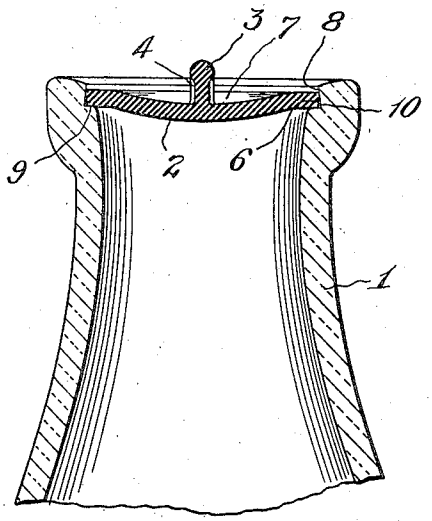


FIG. 6.

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UNITED STATES PATENT OFFICE.

JOHN VONS, OF LAKEWOOD, OHIO, ASSIGNOR OF ONE-HALF TO GOTTFRID JOHNSON, OF CLEVELAND, OHIO.

BOTTLE STOPPER.

Application filed November 25, 1921. Serial No. 517,423.

To all whom it may concern:

Be it known that I, JOHN VONS, a citizen of the United States, resident of Lakewood, county of Cuyahoga, and State of Ohio, have invented new and useful Improvements in Bottle Stoppers, of which the following is a specification; the principle of the invention being herein explained, and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to stoppers or caps for bottles and particularly to devices of this nature for milk bottles. The design of the invention is to provide a milk bottle stopper which can be manufactured very economically in quantities; which can be repeatedly utilized for an indefinite period; which may be readily and thoroughly cleansed so as to satisfy the necessary sanitary requirements for an article of this nature; which can be easily placed and removed; and which shall serve as an effective stopper.

The annexed drawing and the following description set forth in detail certain means embodying my invention, such disclosed means, however, constituting but one of the various embodiments in which the principles of my invention may be used.

In said annexed drawing:

Figures 1 and 2 represent, respectively, a plan view and a side elevation of my improved bottle stopper;

Figures 3 and 4 represent vertical sections taken in the planes indicated by the respective lines III—III and IV—IV, Figure 1;

Figure 5 represents a fragmentary vertical section of a milk bottle with my improved stopper locked in position therein; and

Figure 6 represents a fragmentary section in the plane indicated by the line VI—VI, Figure 5.

Referring to the annexed drawing in which the same parts are indicated by the same respective ordinals in the several views, a milk bottle is suggested by the ordinal 1 to which my improved stopper is intended to be applied, the body of which is indicated by the ordinal 2. This body 2 is in the form of a disc of vulcanized or suitably cured rubber or similar material, this disc being of any suitable thickness, preferably of about one-eighth ($\frac{1}{8}$) inch. This body 2 is formed with any suitable finger grip and I have herein illustrated as preferable an integral upwardly extending ear 3 having a concave face surface 4 to insure a reliable grip, two of such faces 4 being herein shown, one upon each side of the plate-like ear 3. The body 2 is not a plane disc but is concavo-convex, the concave portion, in the form of stopper illustrated, being the under-surface of the body 2, as plainly shown in the accompanying drawing. Also, preferably, for a reason hereinafter given the plane containing the peripheral edge 6 of the body 2 is not at right angles to the plane containing the diameter of the body 2 but is inclined outwardly from the bottom to the top of said peripheral edge 6. The diameter of the body 2 in the plane containing the upper edge of the surface 6 is substantially the same as the diameter of the surface 8 of the neck of the bottle 1 with which the cap is designed to co-operate. The cap 2 is placed in the neck of the bottle 1 so as to rest upon the shoulder 9 usual to such bottles and then sufficient stress exerted upon the body 2 through the medium of the plate-like ear 3 to reverse the concavity of the stopper, i. e., in the form illustrated, to press the central portion of the body 2 through the central horizontal plane of said body so that the concave portion of the body then lies in its upper surface, as plainly indicated by ordinal 7, Figures 5 and 6. This action increases the diameter of the body 2. The tendency of the stopper to return to its normal concavity results in a gripping action between the periphery of the stopper and the neck of the bottle, and, of course, results in a decrease in the depth of the concave surface 7, as compared with the concave surface 5, as plainly shown in Figures 6 and 3. By reason of the provision of the beveled edge 6, it is possible to press the central portion of the cap 2 through its central horizontal plane, from the position shown in Figure 3, to the position shown in Figure 6, with the least difficulty, the open space 10 allowing for a part of the increased rubber material which is pressed into the area 8 when the diameter of the cap tends to be enlarged. The tendency of the cap 2, when in the position shown in Figures 5 and 6, to regain its normal form, tends to create

a vacuum beneath the cap which in turn creates a suction thus holding the cap even more tightly to the neck of the bottle.

What I claim is:—

1. A bottle stopper of vulcanized rubber or its equivalent, consisting of a concavo-convex disc, said stopper being adapted to be locked within the mouth of a bottle by reversing its concavity, the tendency of the stopper to return to its normal concavity producing a gripping action between the periphery of the stopper and the neck of the bottle.

2. A bottle stopper of vulcanized rubber or its equivalent, consisting of an upwardly bulged disc, said stopper being adapted to be locked within the mouth of a bottle by pressure, thereby reversing its concavity, the tendency of the stopper to return to its normal concavity producing a gripping action between the periphery of the stopper and the neck of the bottle.

3. A bottle stopper of vulcanized rubber or its equivalent, consisting of a concavo-convex disc, having a beveled peripheral edge, said stopper being adapted to be locked within the mouth of a bottle by reversing its concavity, the tendency of the stopper to return to its normal concavity producing a gripping action between the periphery of the stopper and the neck of the bottle.

4. A bottle stopper of vulcanized rubber or its equivalent, consisting of an upwardly bulged disc, having its peripheral edge beveled outwardly from bottom to top, said stopper being adapted to be locked within the mouth of a bottle by pressure, thereby reversing its concavity, the tendency of the stopper to return to its normal concavity producing a gripping action between the periphery of the stopper and the neck of the bottle.

5. A bottle stopper of vulcanized rubber or its equivalent, consisting of an upwardly bulged disc formed with an integral finger grip, said stopper being adapted to be locked within the mouth of a bottle by pressure, thereby reversing its concavity, the tendency of the stopper to return to its normal concavity producing a gripping action between the periphery of the stopper and the neck of the bottle.

Signed by me this 18th day of November, 1921.

JOHN VONS.