

R. BEHRENS.
BOTTLE STOPPER.
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1,188,031.

Patented June 20, 1916.

Fig. 1.

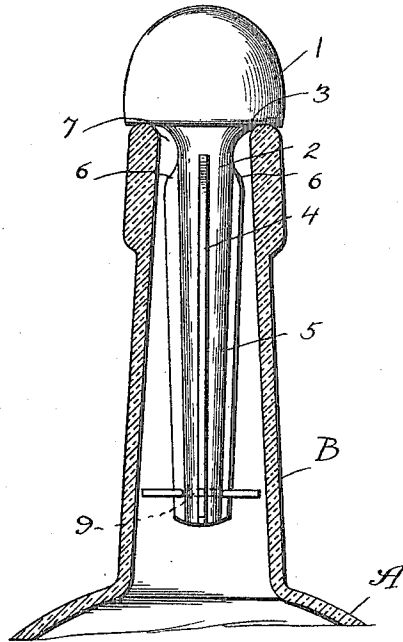
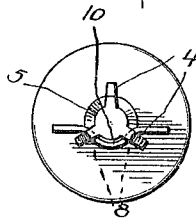


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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BOTTLE-STOPPER.

1,188,031.

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To all whom it may concern:

Be it known that I, RUDOLF BEHRENS, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Bottle-Stoppers; 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.

The primary object of this invention is to provide a bottle stopper, that will accommodate the usual construction of bottle necks, and which will automatically open when the bottle is inverted, so that the contents can be poured therefrom and will automatically return to closing position, when the bottle is again placed in upright position.

Another object of the invention is to provide a stopper for carrying out the above object, and which will be of simple construction, can be cheaply manufactured, will be durable, and efficient in operation.

Other objects will appear and be better understood that embodiment of my invention, of which the following is a specification, reference being had to the accompanying drawings forming a part thereof, in which:—

Figure 1 is a vertical sectional view taken through a bottle neck, showing the improved stopper applied thereto, Fig. 2 is a horizontal section taken through the bottle neck and the stopper.

Referring to the drawings, the letter A designates the upper end of a bottle, having the usual bottle neck B secured thereto.

The bottle stopper comprises a substantially semi-spherical head 1, the diameter of which exceeds the internal diameter of the bottle neck, and has its lower side normally resting on the upper edge of the bottle neck, and provided with a depending substantially conical shaped projection 2, which fits within the bottle neck, and which has a diameter which is considerably smaller than the internal diameter of the bottle neck. The upper end of the projection 2 gradually merges into the lower side of the head 1, as shown at 3, and engages the inner surface of the upper edge of the bottle neck, and serves to prevent lateral movement of the head, when the bottle is in up-

right position, so that the mouth of the bottle neck will be fully closed and foreign matter prevented from entering the bottle.

The projection 2 has associated therewith, a plurality of spaced and longitudinally extending ribs 4. These ribs are located at substantially obtuse angles to each other and provide therebetween channels 5. The upper ends of the ribs are beveled, so that they lie in spaced relation with the upper end 3 of the projection 2, and the lower side of the head 1, so as to provide an outlet 7. Certain of the ribs are provided, adjacent their lower ends, with transverse openings 8, shown in dotted lines in Fig. 2. Positioned at the lower end of the conical projection 2, is a retaining member 9, formed of a piece of spring wire having its opposite end extending through the openings 8 formed in the respective ribs, and has the terminals of the ends extending beyond the ribs, and positioned in spaced relation with the inner surface of the lower end of the bottle neck, the said retainer having the portion located between the ribs, curved, as shown at 10, so as to agree with the curvature of the projection 2.

In use, when the bottle is inverted, the liquid will cause the head 1 to move away from the upper end of the bottle neck, so as to cause the projection 2 to slide outwardly, so that the outlet 7 will be positioned beyond the edge of the bottle neck. When the projection 2 is moved far enough outwardly, to cause the opposite ends of the retainer to engage the inner surface of the bottle neck, further movement of the projection 2 will be prevented. The liquid then finds escape through the channels 5 and outlet 7, into the receptacle provided for the reception of the liquid. When the bottle is again placed in upright position, the head 1 will descend by gravity, thereby sliding the projection 2 downwardly in the neck B, causing the lower side of the head 1 to engage the upper edge of the bottle, and the opposite ends of the retaining member 9 to become disengaged from the inner surface of the bottle neck.

Having thus described my invention, what I claim as new is:—

The combination with a bottle neck having an upwardly tapered bore therein, of a stopper for normally closing the neck and adapted to move to open position when the

bottle is inverted, a cylindrical projection carried by the stopper and extending into the bore in the bottle neck, longitudinally spaced ribs formed on the projection, certain of the ribs having openings therein adjacent their lower ends, a retainer associated with the lower end of the projection and including a piece of spring wire extending through the openings in the ribs on the projection and having that portion located between the ribs curved, the opposite ends of the wire being extended horizon-

tally beyond the adjacent sides of the projection and at right angles thereto and normally spaced from the walls of the bore in the bottle neck, and adapted to engage the walls of the bore when the stopper is moved to open position.

In testimony whereof I affix my signature in presence of two witnesses.

RUDOLF BEHRENS.

Witnesses:

A. H. DAVIS,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."