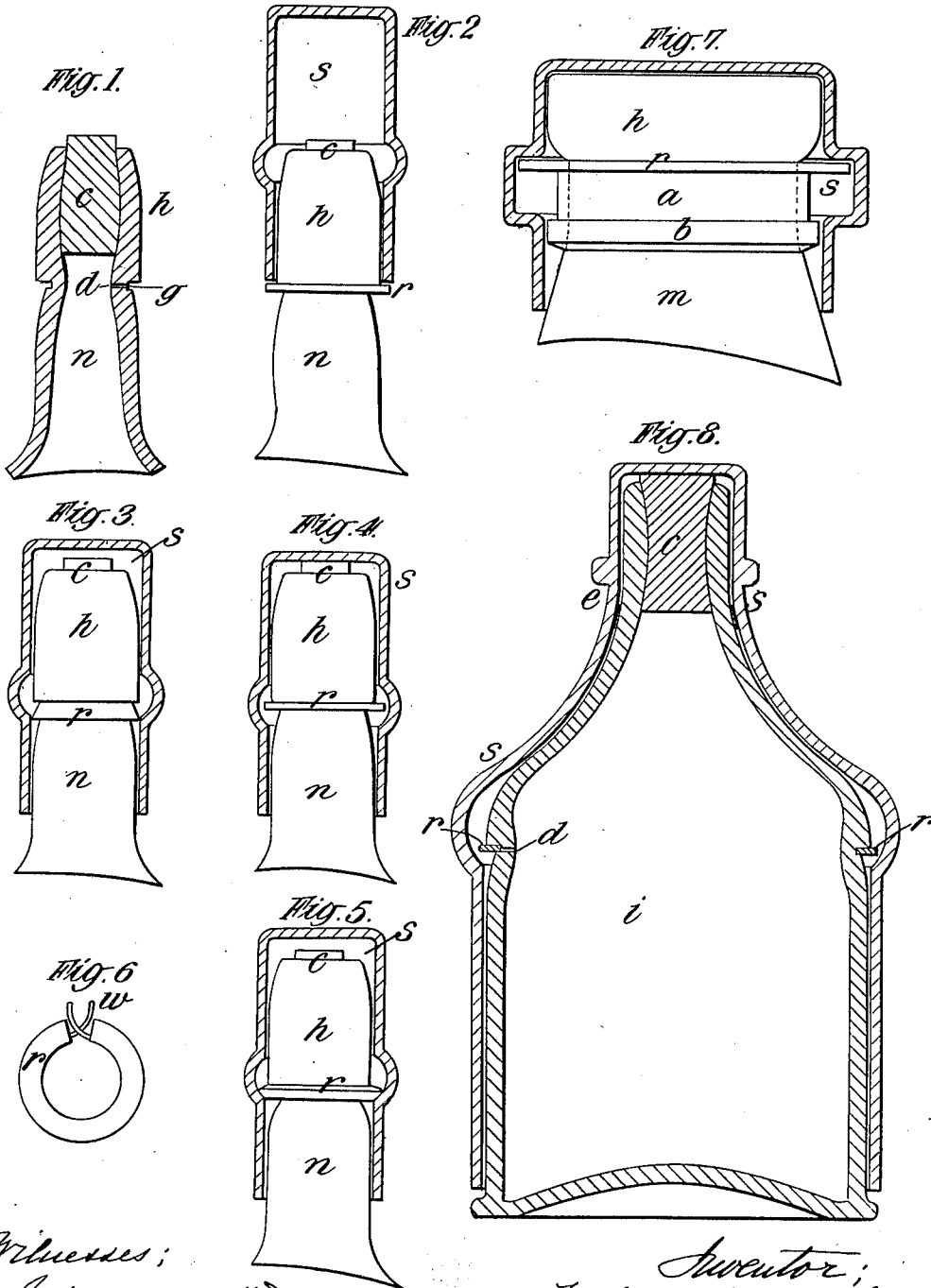


F. W. DUFWA.
BOTTLE AND STOPPER.
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1,020,808.

Patented Mar. 19, 1912.



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UNITED STATES PATENT OFFICE.

FREDERICK WILLIAM DUFWA, OF MEXICO, MEXICO.

BOTTLE AND STOPPER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK WILLIAM DUFWA, a subject of the King of Sweden, residing at 2^a Rinconada de San Diego 17, Mexico, Federal District, Republic of Mexico, have invented certain new and useful Improvements in Bottles and Stoppers, of which the following is a specification.

The object of my invention is to prevent any person tampering with the contents of bottles. To this end I use a special cap of glass which covers either the neck or a larger part of the bottle, which is in addition corked or stoppered in the usual way. The cap is so attached to the bottle that when once applied, it cannot be removed without being broken, that is, so that it cannot be removed in one piece. In the event of attempts being made to remove this cap by means of chemicals such as dissolving liquids, introduced between the cap and the bottle then owing to the composition of the device which locks the bottle and the cap together the said device will be dissolved and will admit the liquid employed thus spoiling the contents of the bottle.

Several embodiments of my invention are illustrated in the accompanying drawings, in which—

Figure 1 is a central section of the neck of the bottle showing the cork in position; Figs. 2, 3, 4 and 5 show the neck of the bottle with the cap in section in several positions as it is being put in place; Fig. 6 is a top view of the locking ring with its fastening wire; Fig. 7 is an elevation, with the cap in section, showing the device applied to an ordinary milk bottle; and Fig. 8 is a central section of a bottle having a cap which covers almost the full length of the bottle.

For the sake of simplicity in drawings and description the bottles described and illustrated are of the usual round kind, stoppered with a cork, but the device can of course also be adapted to bottles and flasks of any other shape, and also to bottles provided with stoppers other than corks.

A horizontal groove *g* is in manufacture made around the neck *n* (Fig. 1) or around the body *i* (Fig. 8) of the bottle, which groove communicates with the interior of the bottle by means of one or more small holes *d*. The open ring *r* (Fig. 6) has an inner diameter, equal to that of the bottom of the groove *g*, and is around its inner edge

provided with a wire *w*, which serves for fixing it in the groove *g* by twisting its ends around one another and if considered necessary soldering them together. The ring *r* should preferably be a little thicker than the width of the groove *g* so that it will stop the small holes *d* tightly. The exterior diameter of the ring *r* should be greater than that of the head *h* (Figs. 2, 3, 4, 5 and 7) or of the body *i* (Fig. 8) of the bottle, respectively, so that the ring will serve as an efficient obstacle to the removal of the stopper. The neck and head of the bottle (Figs. 1, 2, 3, 4 and 5) or its body (Fig. 8) for some distance above and below the groove *g* should be cylindrical and substantially of the same exterior diameter, except for a narrow zone below the groove *g*, where room should be prepared for the ring *r* to fold down, when the cap *s* is put on (Fig. 3). The cap is formed like a cylindrical glass or cup (Figs. 2, 3, 4, 5 and 7) or like a bottle (Fig. 8) with an inner diameter slightly larger at all places than the corresponding outer diameter of the head, neck and body of the bottle. When the cap *s* is put on and resting against the cork of the bottle, there should be around its middle opposite the ring *r* a convex horizontal zone of sufficient size to give the ring *r* room to extend itself and project horizontally (Figs. 4, 7 and 8). It is evident that the cap, once put on, cannot be pulled off without being broken, that is, in one piece, on account of the ring *r* and that this ring *r* cannot be reached from the outside on account of the lower cylindrical part of the cap *s* except by chemicals, as dissolving liquids, which, if they dissolve the ring *r*, also open the holes *d* and enter the bottle, spoiling its contents, or let said contents escape and mix with the chemical with the same result. The groove *g* should therefore be below the lower end of the cork that stoppers the bottle. And this cork should be left with some part of it outside the upper edge of the head of the bottle to serve as a buffer. If a cork is not used to stop the bottle a disk of rubber or other elastic material should be put between. If the cork is held in place by wires, the head of the bottle should be specially grooved for these wires. Between the bottle and the cap elastic bands can be used as at *e* in Fig. 8 to prevent breakage. Almost any bottle of those now in use can be provided with this

cap and Fig. 7 shows as an example how it is applied to an ordinary milk bottle. The groove *g* is formed by putting around the neck of the bottle a ring *a* of metal, made in two half sections and soldered together, and below this another ring *b* made and put on in the same way and of such form that a cylindrical zone of substantially the same diameter as the head *h* of the bottle is formed below on the neck of the bottle. If considered necessary holes can be bored in the groove thus formed to communicate with the interior of the bottle. As far as possible all other parts are arranged as before described. The legitimate way of opening this bottle is to put a towel around its upper part and break the cap with a blow of a hammer, giving the blow on top of the cap, where it rests on the cork of the bottle. To facilitate the breaking of the cap, grooves should in manufacture be made in its top and walls along suitable lines.

It is evident that to get the most effective use from this bottle and cap, the bottle should be made as simple and inconspicuous as possible and all advertisements, etc., should be concentrated on the cap and on the ring *r*. These can be made of different colors and forms and stamped with the name of the firm, etc. If either is missing the buyer or consumer knows that the contents may not be legitimate.

Instead of the ring *r* spiral and other springs of metal can also be used to detain the cap *s* in its place, but these would be more difficult to fix in the holes *d*, that communicate with the interior of the bottle. Also the effect of the metal on the contents of the bottle may be deleterious.

What I claim and desire to secure by Letters Patent of the United States is:—

1. In combination, a bottle, a groove on said bottle having an opening to the interior thereof, a breakable cap arranged over said groove, and means fitted in the groove to prevent removal of the cap in one piece, whereby an attempt to destroy the retaining means by chemicals will result in destruction of the contents of the bottle.

2. In combination, a bottle, a groove on said bottle having an opening to the interior thereof, a stopper for said bottle, a breakable cap arranged over said stopper and said groove, and means fitted in said groove to prevent removal of said cap in one piece.

3. In combination, a bottle, a stopper therefor, a horizontal groove on said bottle, a horizontal concave zone on said bottle below said groove, an elastic ring retained in said groove, and a breakable cap positioned over said stopper and said groove, said elastic ring being adapted to be deflected downwardly in the concave zone to allow the positioning of the cap and also being adapted to prevent the removal of the cap in one piece after the cap is once in position.

4. In combination, a bottle, a stopper therefor, a horizontal groove on said bottle, a horizontal concave zone on said bottle below said groove, an elastic ring retained in said groove, a breakable cap arranged over said stopper and said groove, an enlarged internal zone in said cap arranged to inclose said groove, and a horizontal zone on said bottle below said concave zone and of substantially the same diameter as the internal diameter of the cap, said elastic ring being adapted to be deflected downwardly in the concave zone to allow the positioning of the cap and also being adapted to prevent the removal of the cap in one piece after the cap is once in position.

5. In combination, a bottle, a stopper therefor, a groove on said bottle having an opening to the interior thereof, a breakable cap arranged over said stopper, an enlarged internal zone in said cap arranged to inclose said groove, and means fitted in said groove to prevent removal of said cap in one piece.

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

FREDERICK WILLIAM DUFWA.

Witnesses:

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