

M. L. & F. C. ORR.
BOTTLE STOPPER.
APPLICATION FILED JULY 25, 1908.

946,559.

Patented Jan. 18, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

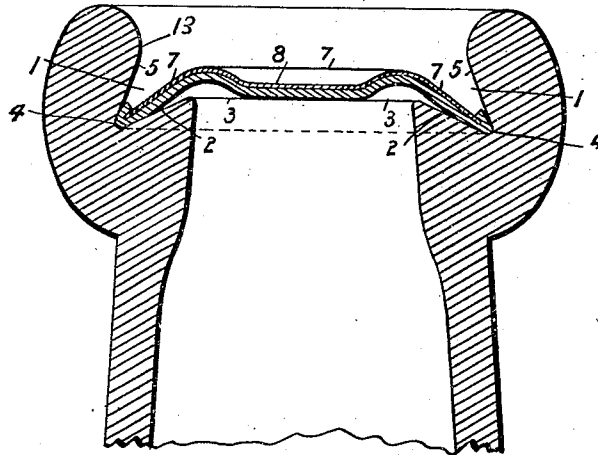


Fig. 2.

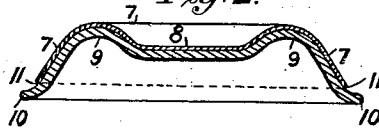


Fig. 3.

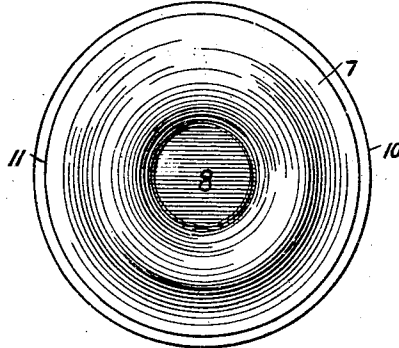
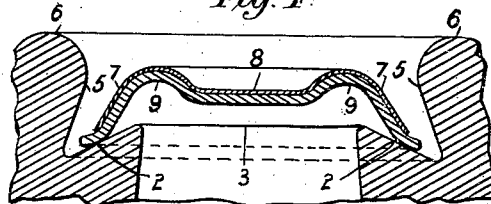


Fig. 4.



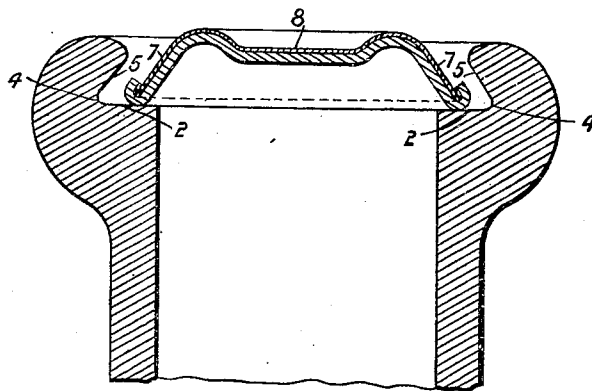
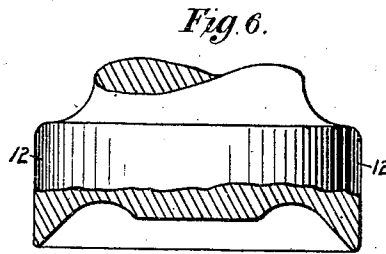
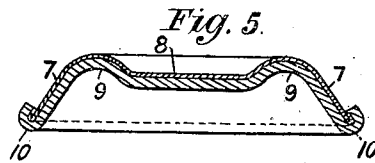
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UNITED STATES PATENT OFFICE.

MARK LOUIS ORR AND FINGAL CECIL ORR, OF STILLORGAN, IRELAND.

BOTTLE-STOPPER.

946,559.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed July 25, 1908. Serial No. 445,378.

To all whom it may concern:

Be it known that we, MARK LOUIS ORR and FINGAL CECIL ORR, both subjects of His Majesty the King of Great Britain and Ireland, residing at Amana, Stillorgan, in the county of Dublin, Ireland, have invented new and useful Improvements in Bottle-Stoppers, of which the following is a specification.

This invention has reference to stoppering bottles of that class in which the mouth of the bottle is made with an internal annular groove and the stopper is made in the form of a disk like cap or domed or truncated conical shape in cross section with a wad of cork or other suitable substance underneath so arranged that when these are placed in the bottle neck with the wad resting on a shoulder therein forming the bottom side of said groove and the said cap is by a suitably formed tool pressed into a flatter form it is thereby expanded in diameter and engages in the groove in the bottle neck and thus with the wad is secured therein so as to stopper the bottle but often very imperfectly.

Our invention consists of the improvements herein described in the construction and arrangement of the metal cap and its wad or lining whereby the stoppering is rendered perfectly tight no matter what pressure of gas there may be in the bottle.

We will describe this invention by referring to the accompanying drawings on which—

Figure 1 is a sectional elevation of the upper part of a bottle neck which is stoppered in accordance with this invention; Fig. 2 is a sectional elevation and Fig. 3 is a plan of the stopper shown in Fig. 1 before being inserted and pressed in the bottle; Fig. 4 is a sectional elevation of the stopper in the bottle neck ready to be flattened to close the bottle; Fig. 5 is a sectional elevation of a slightly modified form of stopper and Fig. 6 is a sectional elevation of the upper part of a bottle neck made with a modified form of groove and showing the stopper Fig. 5 in position ready to be compressed into the groove by the punch which is also shown partly in section.

For the purpose of this invention there is formed around the interior of the bottle mouth and near the top of the same a V-section annular groove 1 which has one side 2

of the V preferably although not necessarily sloping downwardly and outwardly (Figs. 1 and 4) from the entrance 3 into the bottle neck so that the apex 4 of the V is well below the bottle mouth or entrance 3, or as shown in Fig. 6 the side 2 of the V may be flat or square with the bottle mouth. The other side 5 of the V slopes upwardly from the apex of the V so that the diameter of the side 5 of the groove is gradually diminished toward the top 6 of the bottle.

In carrying out this invention the stopper cap 7 is stamped from a thin sheet aluminum blank or is made of other suitable metal and preferably of a domed shape as shown in Figs. 2, 4 and 5 with the upper part depressed at 8, the diameter of this stoppering cap being very slightly less than the smallest diameter of the portion 13 of the bottle neck which is formed by the side 5 of the V-shaped groove. This cap has underneath it a fixed or separate disk shaped lining 9 of any suitable soft waterproof material preferably what is known as vegetable parchment, or cork or card, or other suitable material faced with vegetable parchment, or the lining may be cork or india-rubber or other suitable substance without the vegetable parchment facing, but its diameter has to be somewhat larger than that of the metal cap as shown in Figs. 2, 3, 4, 5 and 6 so that the periphery 10 of this lining projects all around beyond the periphery 11 of the cap 7, and if desired, may, as in Figs. 5 and 6 be turned up over and around the periphery of the metal cap 7.

The disk like lining 9 with the cap 7 above it are placed in position in the bottle neck so that the periphery 10 of the disk like lining 9 rests on the lower side 2 of the V-shaped groove as shown in Fig. 4 and then when the disk like cap is pressed down and somewhat flattened by the pressure of a suitable punch like tool such as shown in Fig. 6 and marked 12, said disk like cap will be expanded in diameter and its rim or edge 11 will dig into the portion of the lining 7 which projects beyond the periphery of the same and force the lining down and jam it into the angle 4 of the V-shaped groove as in Fig. 1 so that the periphery of the disk will be embedded in the lining and a perfectly air and liquid tight joint will be formed, and owing to the side 5 of the V sloping upwardly toward the center line of the bottle and its diameter

gradually decreasing it will be impossible for the internal pressure in the bottle to raise the cap and lining out of the angle of the V-shaped groove and thus the bottle will remain tight under all pressures. The cap and lining can readily be withdrawn by first forcing a corkscrew through them and to facilitate this the metal disk 5 may if desired be made with a small central hole, although such hole is by no means necessary if the metal cap is, as we prefer, stamped out of thin sheet aluminum.

Our objects in making the groove in the bottle V-shaped and arranging it as above described are firstly so that while the cap and lining are being forced therinto in the flattening process above described, the farther they enter the groove the more tightly the cap and lining will be pinched by the inclined sides of the groove as they approach the angle 4 of the V, and secondly the V-shaped groove can be made deeper than would be expedient or possible if it were made with square sides and with the bottom side horizontal as in the known bottles and moreover the V-shaped groove when made with the side 2 inclined as in Figs. 1 and 4 affords a greater bearing surface for the cap and its lining and can be made deeper than the flat groove will allow without weakening the bottle neck.

If desired the periphery 11 of the cap may be rounded by being turned up as in Figs. 5 and 6 to prevent it from cutting the pe-

riphery 10 of the pad or lining when expanded by flattening as above described.

What we claim as our invention and desire to secure by Letters Patent is:—

1. The combination with a bottle made with a V-shaped internal annular groove of a domed sheet metal stoppering cap furnished with a lining of larger diameter adapted to be inserted in the bottle mouth and rest on one side of the V-shaped groove so that when said cap and lining are flattened they will be expanded in diameter and the lining will by the periphery of the cap be forced into the angle of the V-shaped groove in the bottle neck and thus effectually close the bottle, substantially as set forth.

2. Means for stoppering bottles made with a V-shaped internal annular groove, consisting of an imperforate domed sheet metal stoppering cap, an imperforate lining for said cap having its edge turned up around the periphery of the cap and adapted to be forced into the angle of the V-shaped groove in the bottle neck by the flattening of the cap when placed therein.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

MARK LOUIS ORR.
FINGAL CECIL ORR.

Witnesses:

GERALD MITCHELL ORR,
GERTRUDE DICK.