C. WINTER.

BOTTLE SEAL.

APPLICATION FILED APR. 23, 1908.

904,825. Patented Nov. 24, 1908.

Fig. 1

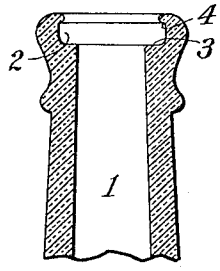


Fig. 2

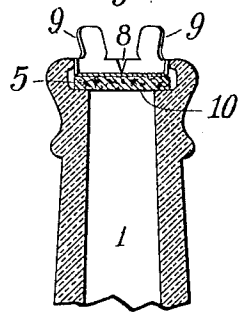


Fig. 3

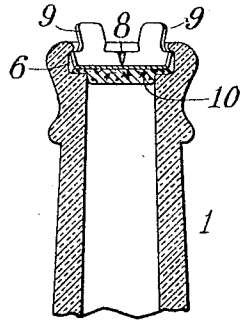


Fig. 4

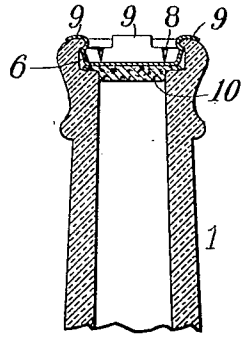


Fig. 5

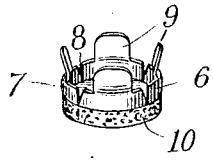
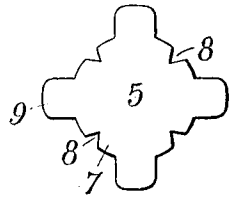


Fig. 6



Witnesses:
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UNITED STATES PATENT OFFICE.

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BOTTLE-SEAL

No. 904,825. Specification of Letters Patent. Patented Nov. 24, 1908.

Application filed April 23, 1908. Serial No. 428,831.

To all whom it may concern:

Be it known that I, CHARLES WINTER, a citizen of the United States, residing in the borough of Brooklyn, city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Bottle-Seals, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

My invention relates to bottle seals of that special variety known as "inside seals," and the object of my invention is to provide a seal which will be perfectly tight against both outside air and inside pressure, but at the same time readily removable without the use of a special implement or opener.

Many attempts have been made to produce a commercial inside seal by providing a groove of some sort in the inside of the neck of the bottle and expanding a piece of metal into this groove, either by the spring and elasticity of the metal or by pressure applied to it. The objection to all of these, however, has been that if the grip of the metal in the groove is sufficient to make the seal perfectly tight, then the force required to extract the seal is such as to necessitate the aid of a special tool or implement to overcome the grip. To overcome this objection, I so arrange the gripping portion of my metal piece that it is divided into a number of sections which unite in holding in the groove, and to some or all of these sections I attach means whereby the gripping power of each of these particular sections may be destroyed or overcome independently and without materially affecting the grip of the other sections. As the independent gripping power of each section is small, it may be overcome without the aid of any special tool, and in practice I find that it can be done with the fingers alone. When a sufficient number of the sections have been released, the seal may be readily removed by hand. Broadly considered, therefore, my invention consists in dividing the gripping portion of the seal into a number of practically independent sections and providing some or all of these sections with means by which the gripping power of one or more sections may be independently overcome.

In the drawings, Figure 1 is a central vertical section of the neck of a bottle having a groove of the preferred shape; Fig. 2 is a similar view with the seal seated therein, but before pressure has been applied; Fig. 3 is a similar view with the seal pressed into its sealing position, but before the opening tongues are folded into their preferred position; Fig. 4 is a similar view with the seal in its final position; Fig. 5 is a perspective view of the preferred form of seal; and Fig. 6 is a plan of the blank from which the seal is made.

In these drawings, 1 is the neck of a bottle having an annular groove 2 therein. In the preferred form of this groove its lower surface 3 constitutes a sealing seat, and upper surface 4 constitutes a locking shoulder, the opening below the sealing seat being somewhat smaller than the opening in the mouth of the bottle above the locking shoulder.

The seal consists primarily of a circular disk of metal 5, having an upturned flange 6 divided into a number of sections 7, 7, by cuts, slits or openings 8, 8. In practice I have obtained the best results by dividing the flange into four sections as shown, but any number of sections may be used without departing from the spirit of my invention. From some or all of these sections I project tongues or tabs 9, 9, which for convenience and economy may be somewhat narrower than the section itself. To the bottom of the metal disk I prefer to affix a plate or disk 10 of compressible material such as cork, rubber or composition, which serves to insure a more perfect seal and to prevent the contents of the bottle from coming into contact with the metal. This cork disk is of substantially the same diameter as the metal disk, and both are slightly smaller in diameter than the opening in the mouth of the bottle, but larger than the opening in the sealing seat.

The operation of my invention is as follows: The seal is placed in the neck of the bottle and rests on the sealing seat, as shown in Fig. 2, with its periphery overlapping

the edge of the seat. Vertical pressure is then applied (as by a plunger) until the cork disk is forced firmly down upon and slightly into the opening of the seat, as shown in Fig. 3. The flange is then forced or bent into the groove so that it engages with the locking shoulder thereof in order to firmly hold the seal down upon the sealing seat, in which position the seal will remain until the flange is forced or bent out of locking engagement with the groove. This bending of the flange may be accomplished in various ways, such as by a secondary plunger exerting lateral pressure, or in some cases the mere folding over of the opening tongues, as hereinafter described, bends the flange sufficiently for this purpose. While of course all of the sections of the flange are bent at the same moment of time, each one bends independently of all the others, so that if the groove is larger or deeper at one point than another, the corresponding section will bend further at that point than the other sections. For this reason irregularities in the size or shape of the groove do not prevent the flange from securing a tight hold, and for this reason there is a greater leeway in making the bottles than heretofore. The sealing of the bottle is now complete, but for convenience and safety the tongues are folded back in a position where they are out of danger of contact, yet can be easily reached and used to bend the sections out of their locking engagement with the groove. Fig. 4 shows a convenient position for the tongues. For the purpose of making the operation clear I have described these three steps as being taken in succession, but it will be understood that in practice they are practically simultaneous.

I prefer to use the cork disk for the reason that, being compressible, it accommodates itself to any irregularities in the surface or edge of the sealing seat and thus insures a perfect closure and seal. Furthermore, it will be apparent that when the cork disk is used it constitutes the seal while the metal disk and flange act simply as a holder to keep the seal firmly down in place.

When it is desired to remove the seal, any one of the tongues may be pressed inward with the fingers or any convenient instrument, until that particular section of the flange is forced or bent out of locking engagement with the groove and its grip broken or overcome. As already explained, this may be done with very little force, and after one or two of these sections have been thus forced or bent out, the seal is weakened so that it may be readily removed by hand.

I do not confine myself to the number, size, shape or location of these tongues, as I consider it within the spirit of my invention to use any means for separately forcing out or breaking the grip of these several sections of the flange.

By making the tongues or extensions of the sections narrow, the middle portion of each section is braced and the outer portions bend more readily. The result of this is to cause the ends of each section to extend well under the locking shoulder, while the middle portion of each section will not extend quite so far under the locking shoulder.

Having described my invention, what I claim is:

1. A closure comprising a disk provided with an upturned flange, said flange being divided into sections adapted to be independently bent into locking engagement with a groove in the neck of a bottle, and a plurality of said sections being provided with means for independently bending each section out of locking engagement with said groove.

2. A closure comprising a disk provided with an upturned flange, said flange being divided into sections adapted to be independently bent into locking engagement with a groove in the neck of a bottle, and a plurality of said sections being provided with extensions forming tabs for independently bending each section out of locking engagement with said groove.

3. A closure comprising a disk provided with an upturned flange, said flange being divided into sections adapted to be independently bent into locking engagement with a groove in the neck of a bottle, and a plurality of relatively narrow tongues, each integral with one of said sections and adapted for independently forcing the said section out of locking engagement with said groove.

4. A closure comprising a holding member consisting of a metal disk provided with an upturned flange, said flange being divided into sections adapted to be independently bent into locking engagement with a groove in the neck of a bottle, and a plurality of said sections being provided with means for independently bending each section out of locking engagement with said groove, and a sealing member consisting of a disk of compressible material.

5. The combination, with a bottle having a sealing surface and a locking surface in the neck thereof, of a bottle seal comprising a metal holding piece having an upturned flange divided into sections bent into locking engagement with the locking surface in the bottle, means for independently breaking the grip of said sections, and a sealing member held in sealing contact with the sealing surface.

6. The combination with a bottle having a sealing surface and a locking surface in the neck thereof, of a bottle seal comprising a metal holding piece having an upturned flange divided into sections bent into locking engagement with the locking surface in the bottle, each section being provided with an upper relatively narrow tongue adapted for forcing said sections out of engagement with the locking surface, and a compressible sealing member held in sealing contact with the sealing surface by said holding piece.

In testimony whereof I have hereunto set my hand this 20th day of April, 1908.

CHARLES WINTER.

Witnesses:

OLIVE B. KING,

GERTRUDE W. MARTLING.