No. 671,263. Patented Apr. 2, 1901.

J. & J. A. BUTKUS.

BOTTLE STOPPER.

Application filed Jan. 21, 1901.)

(No Model.)

Fig. 1.

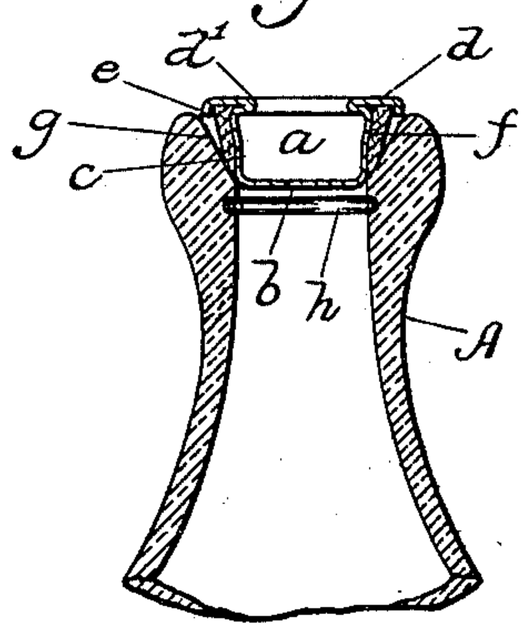


Fig. 2.

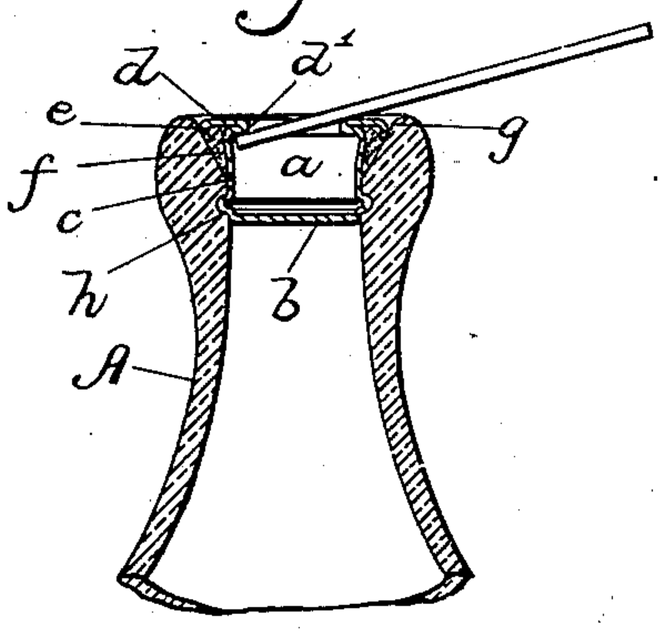


Fig. 7.

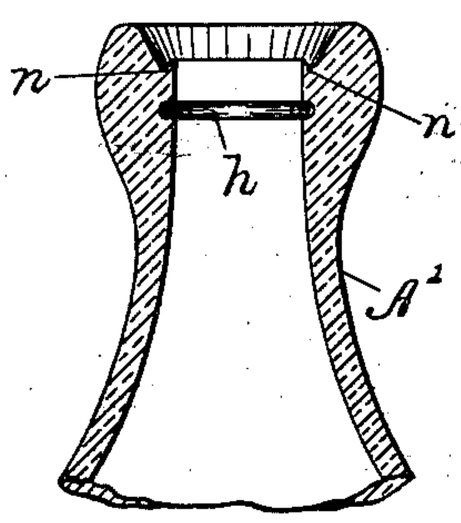


Fig. 4.

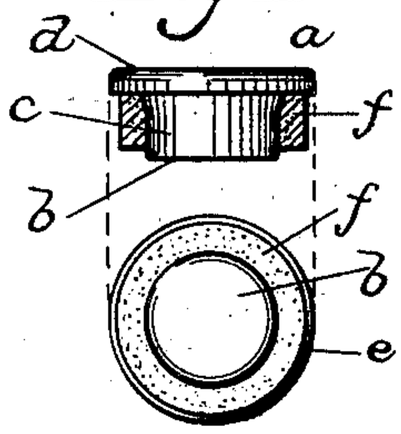


Fig. 6.

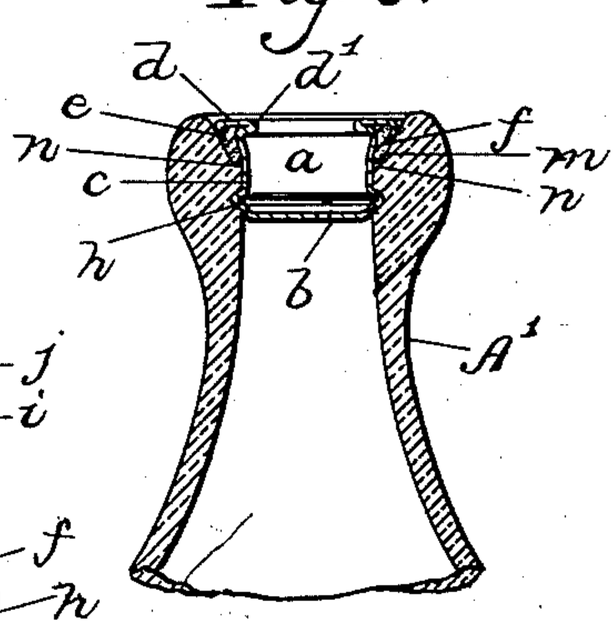


Fig. 3.

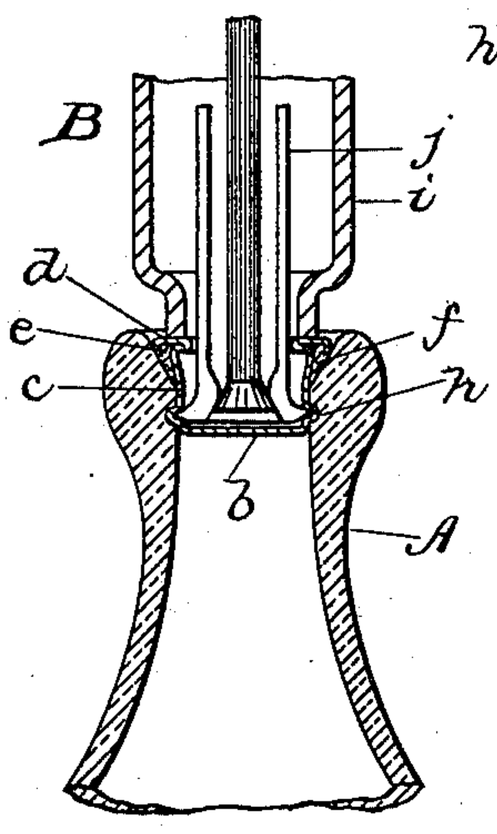
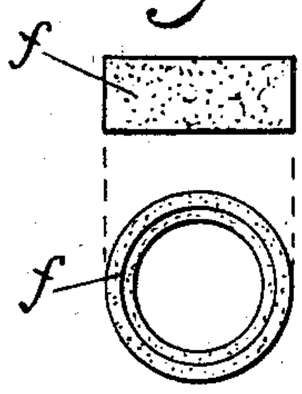


Fig. 5.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOSEPH BUTKUS AND JOHN A. BUTKUS, OF BALTIMORE, MARYLAND.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 671,263, dated April 2, 1901.

Application filed January 21, 1901. Serial No. 44,025. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH BUTKUS and JOHN A. BUTKUS, citizens of the United States, residing at Baltimore, State of Maryland, have invented certain new and useful Improvements in Bottle-Stoppers, of which the following is a specification.

This invention is an improvement in that class of metal bottle-stoppers which are expanded to fill an annular groove formed within the mouth of a bottle; and its object is to provide a construction of metal stopper provided with a cork sealing-collar so arranged with respect to the metallic body of the stopper that the said collar will be tightly wedged and compressed between the stopper and the interior wall of the bottle-mouth above said annular groove when the metallic body is expanded into the groove, thereby closing all the pores or small cracks in the sealing-collar and forming a perfect seal for the bottle.

The invention consists in certain constructions and arrangements of the parts, which will be hereinafter fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of a bottle-neck and a transverse section of our improved stopper inserted loosely in the mouth thereof in readiness to be forced to its position. Fig. 2 is a similar view of the same with the stopper expanded into the annular groove in the bottle-mouth and also showing a rod in position for the removal of the stopper. Fig. 3 is a vertical section of the bottle-neck and stopper expanded therein and includes a sectional side elevation of the lower portion of a tool used to compress the cork sealing-collar and to expand the metal of the stopper into the annular groove. Fig. 4 is a detail side view of the metallic stopper-body with its sealing-collar thereon in section and also a bottom plan view of the entire stopper. Fig. 5 is a detail side view and also a top plan view of the cork sealing-collar shown detached from the stopper-body. Fig. 6 is a vertical section of a bottle-neck with a slightly-modified form of mouth and shows our improved stopper expanded therein. Fig. 7 is a sectional view of the modified form of bottle-neck shown in Fig. 6.

The stopper is provided with a hollow cup-shaped body *a*, composed of some ductile metal, such as aluminium, and has an approximately flat and closed bottom *b*, an annular side wall *c*, slightly flared outwardly at its upper end, and an upper integral rim *d*. Said rim forms a shoulder and a flange. The shoulder *d'* projects within the plane of the vertical side walls *c* and is crimped or doubled upon itself, and the flange *e* on the outer part of the rim is bent downwardly, as shown best in Figs. 1 and 4.

The sealing-collar *f* of the stopper may be of any suitable material, but is preferably composed of cork and is shaped on its interior to accurately fit around the exterior walls of the metallic stopper-body, as shown in Fig. 4. Said sealing-collar is fitted on said body with its upper edge abutting against the under side of the rim *d* and is there tightly clenched to the said body by the exterior downwardly-extending annular flange *e*. The said sealing-collar is preferably of such height that when clenched underneath the rim *d* the lower edge of the collar will come a little short of being flush with the bottom *b* of the metallic stopper-body.

Figs. 1, 2, and 3 illustrate one form of a bottle-neck A in which our improved stopper is adapted to be expanded and whose mouth-rim is provided with a downwardly tapering or inclined interior wall *g*, below which is formed the annular groove *h*.

In practical operation the stopper is deposited by hand or any suitable mechanical feeding device into the mouth of the bottle, as shown in Fig. 1. A compressing and expanding tool B, such as is partly shown in Fig. 3, forces the stopper down into the bottle-mouth. The casing *i* of said tool presses downwardly upon the rim *d*, which forces the stopper-body downwardly until its metal bottom passes the annular groove *h* in the bottle, whereupon expanding-fingers *j* of the tool are moved outwardly against the vertical wall of the stopper-body, thereby drawing or expanding the ductile metal into said groove, which securely fastens the stopper in the bottle-mouth.

It is to be especially noted that the downward pressure exerted by the rim of the metal stopper causes the cork sealing-collar *f* to be wedged and compressed both laterally and in a vertical direction—laterally between the

inclined interior wall *g* of the bottle-mouth and the metal stopper-wall *c* and vertically between the rim *d*, the said inclined bottle-mouth wall, and stopper-wall *c*. The sealing-collar is thus wedged and compressed from all directions, assuming an approximate V shape in cross-section. Hence its pores or any small cracks or imperfections that may exist in the cork are effectually closed and the bottle is perfectly sealed.

The stopper may be readily removed from the bottle by inserting the end of a nail or any suitable stiff rod, to be used as a lever underneath the inwardly-projecting shoulder *d'*, as shown in Fig. 2, and bearing down on the opposite side of the stopper as a fulcrum.

In Fig. 6 is illustrated a slightly-modified form of bottle-neck A', whose mouth is provided with a downwardly-inclined interior wall *m*, whose lower part terminates in an upwardly-projecting annular shoulder *n*. In this form of bottle-mouth said shoulder *n* serves as a seat for the sealing-collar and to compress the sealing-collar in a direct opposite direction to the downwardly-pressing rim *d*.

We are aware that it is not new to expand a cup-shaped stopper of ductile metal within an annular groove in a bottle-mouth, such stopper being provided with a sealing-collar, which is pressed between the wall of the stopper and adjacent interior wall of the bottle-mouth; but we believe we are the first to provide a stopper of this character which when pressed downwardly to its seat will compress the sealing-collar from all directions, both laterally and vertically, and thus crowd and wedge the same between the stopper-body and mouth-wall, as hereinbefore described.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, the herein-described bottle-stopper, comprising a hollow body of ductile material provided with a closed bottom and also provided at its upper end with a rim whose extremity extends downwardly whereby to form an annular clamping-flange; and a cork or similar sealing-collar surrounding said hollow body with the upper end of said collar clenched by said clamping-flange, as set forth.

2. As a new article of manufacture, the herein-described bottle-stopper, comprising a hollow body of ductile material provided with substantially vertical side walls, and also provided at its upper end with a rim which projects within the plane of said vertical side walls whereby to form an inward annular shoulder, *d'*, and is then doubled upon itself and extends outwardly beyond said walls, with its extremity projecting downwardly whereby to form an annular clamping-flange; and a sealing-collar surrounding the side walls of said hollow body with the upper end of said collar abutting against the under side of said rim and clenched by said clamping-flange, as set forth.

3. The combination of a bottle whose mouth is provided with an inclined or tapered interior wall and an annular groove below said inclined wall; a hollow, ductile metallic stopper-body expanded into said groove and provided at its upper end with an outwardly-extending rim; and a sealing-collar surrounding said stopper-body with its upper edge pressed downwardly by the outwardly-extending rim of the stopper-body, and its lower edge wedged between the inclined wall of the bottle-mouth and the side wall of the stopper-body, whereby the collar is wedged and compressed both vertically and laterally, as set forth.

4. The combination of a bottle whose mouth is provided with an inclined or tapered interior wall with an upwardly-projecting annular shoulder at the lower end of the latter, and also provided with an annular groove below said inclined wall; a hollow ductile metallic stopper-body expanded into said groove and provided at its upper end with an outwardly-extending rim; and a sealing-collar wedged and compressed vertically between said rim and the said annular shoulder in the bottle-mouth and laterally between the said inclined wall of the bottle-mouth and the side wall of the stopper-body, as set forth.

In testimony whereof we affix our signatures in the presence of two witnesses.

JOSEPH BUTKUS.
JOHN A. BUTKUS.

Witnesses:
F. S. STITT,
CHARLES L. VIETSCH.