

(No Model.)

W. P. BONWICK.  
STOPPER FOR BOTTLES.

No. 494,361.

Patented Mar. 28, 1893.

Fig. 1

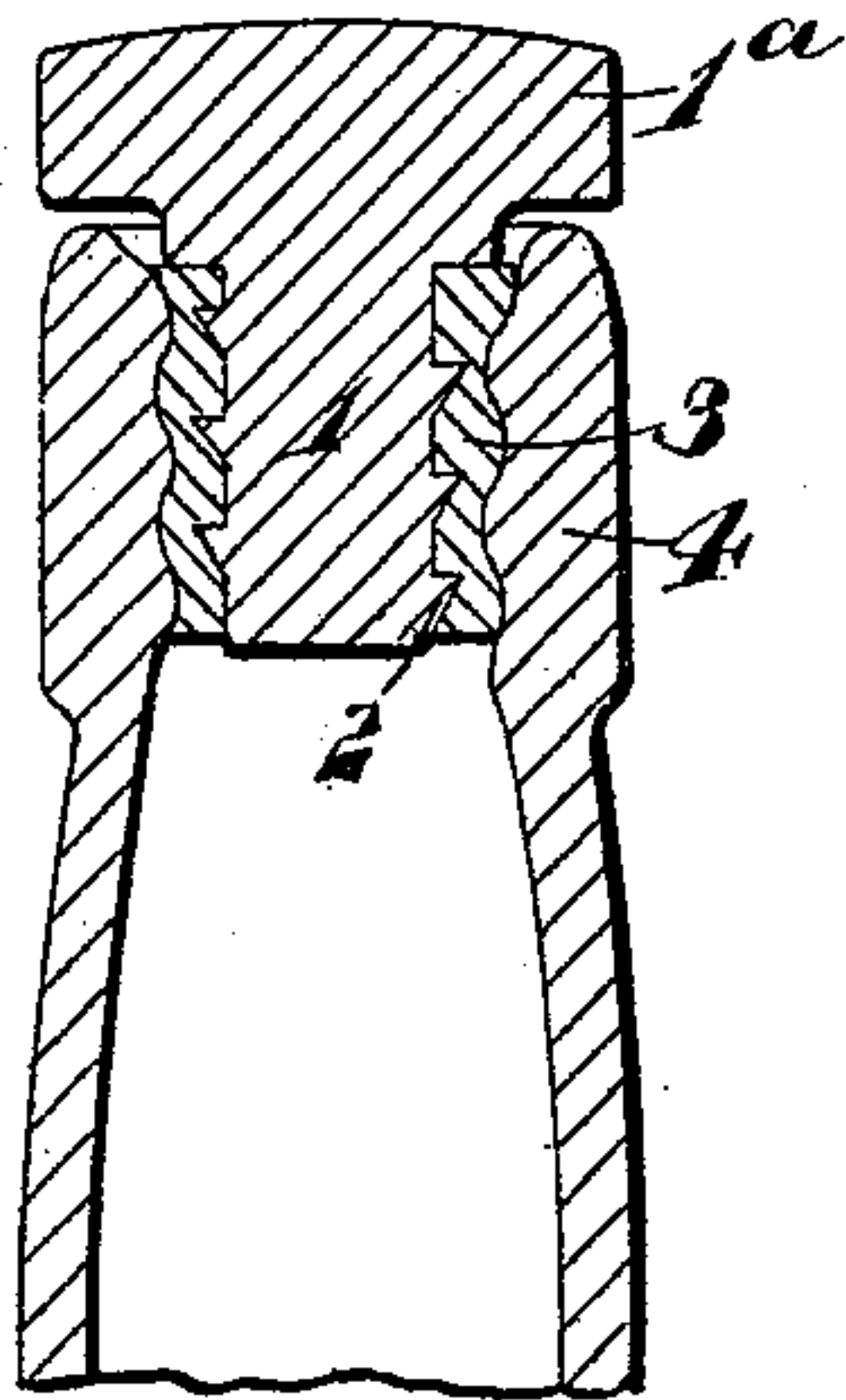


Fig. 2.

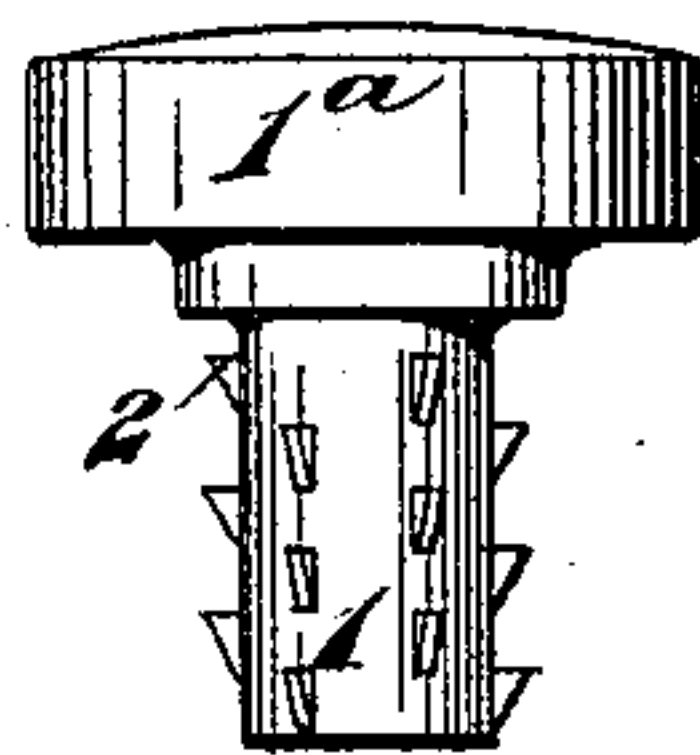


Fig. 4

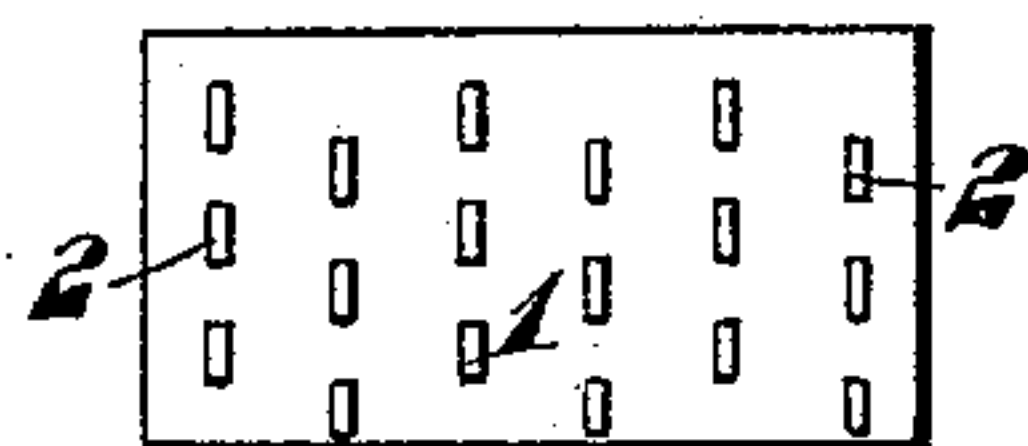


Fig. 3

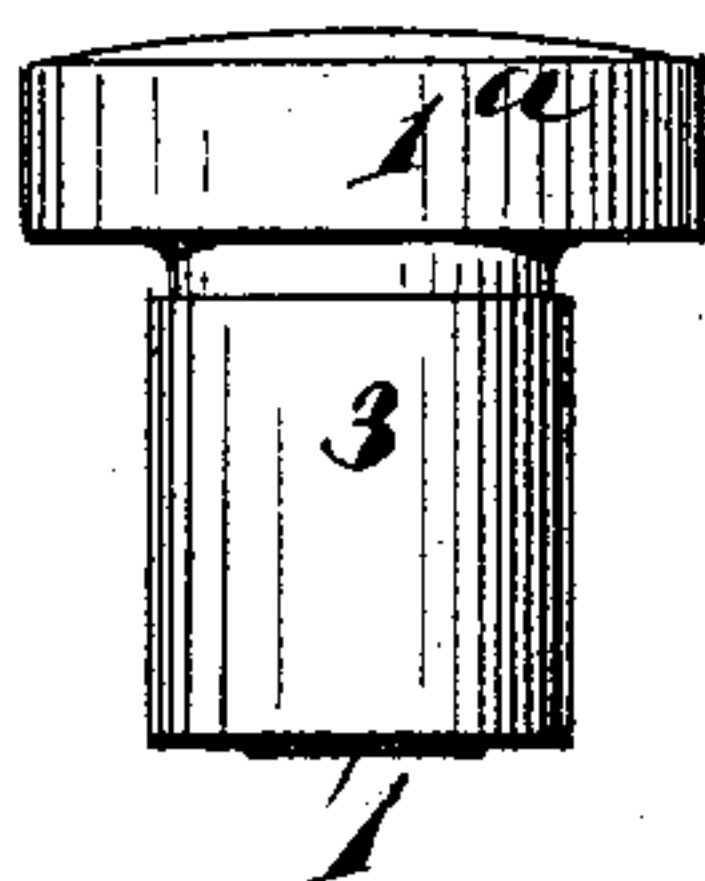


Fig. 6.

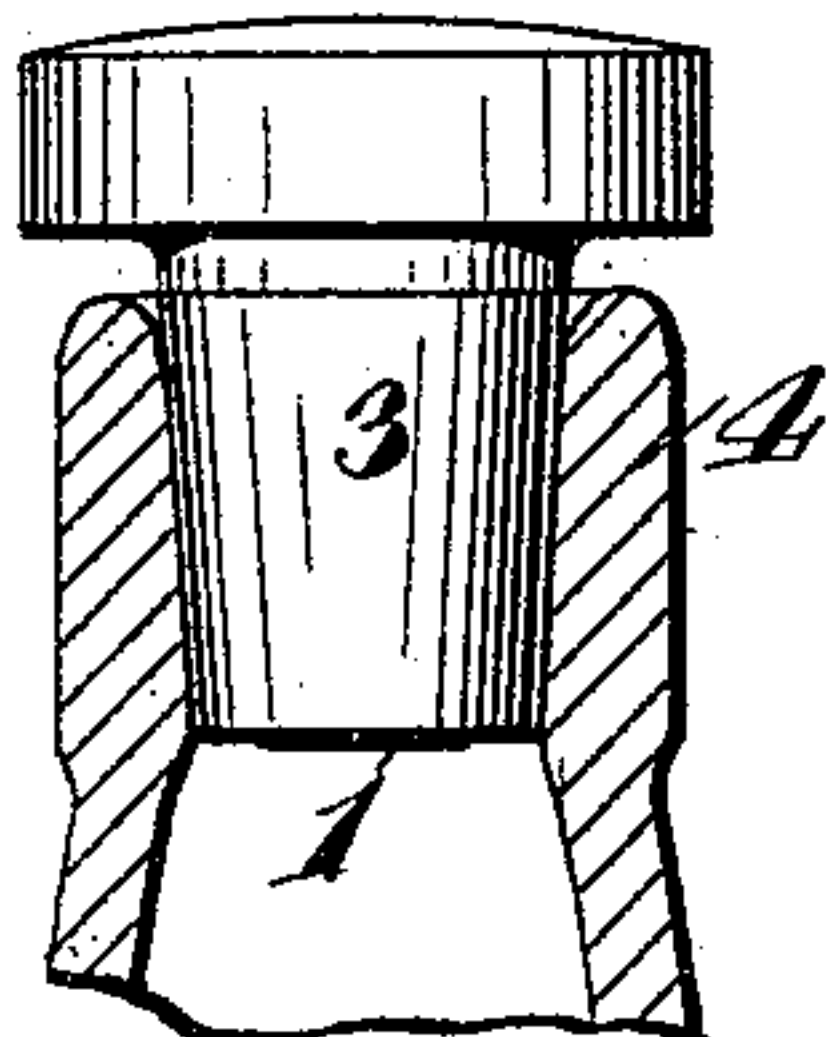


Fig. 5.

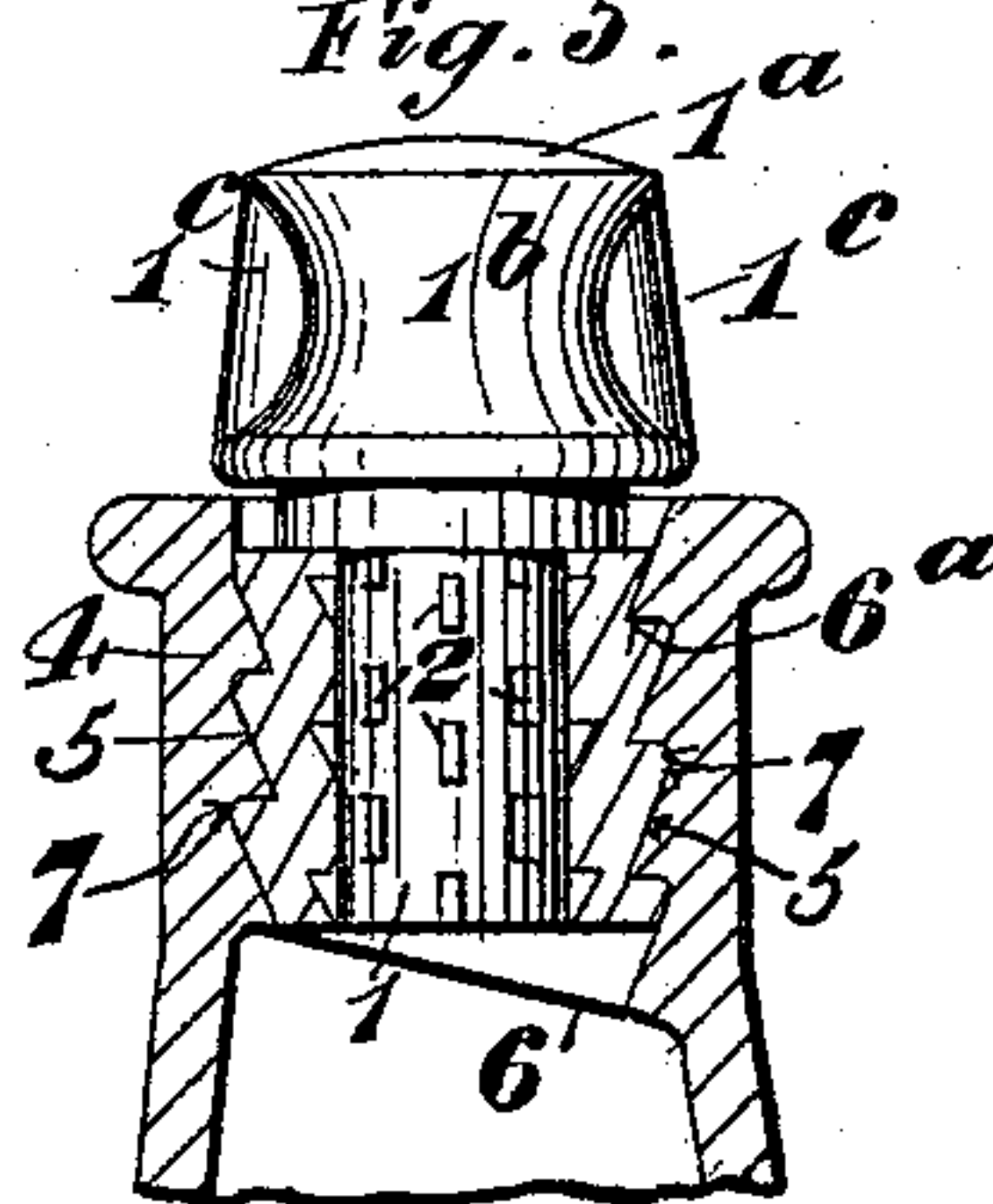


Fig. 8.

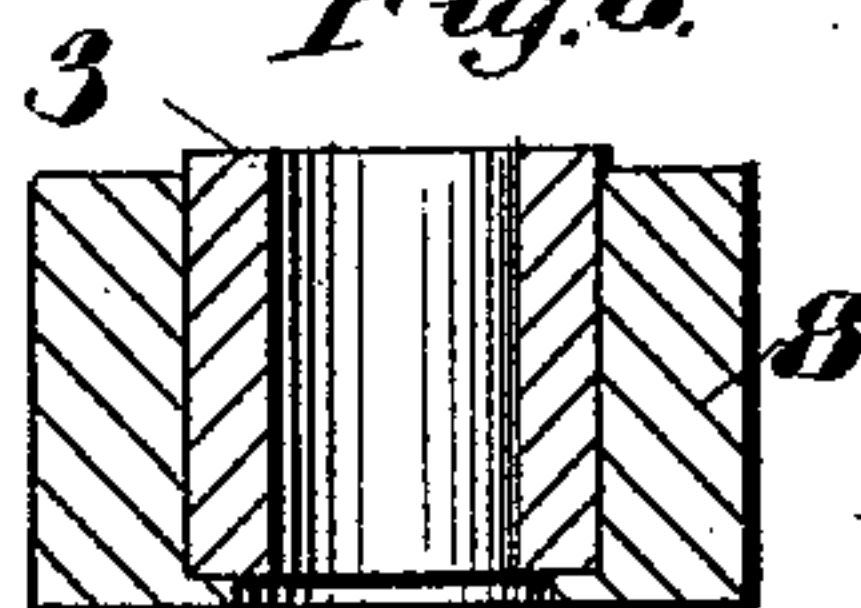
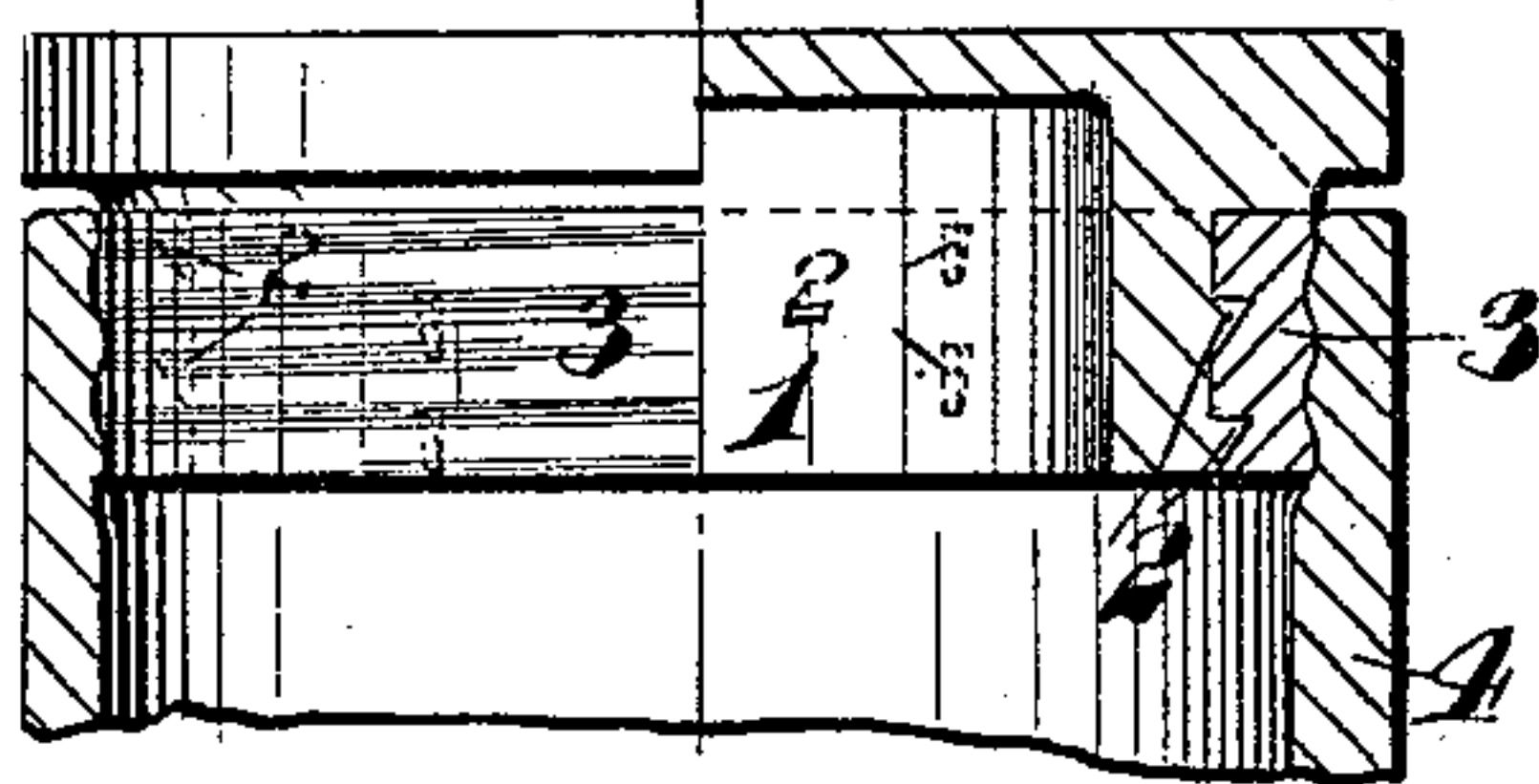


Fig. 7.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## STOPPER FOR BOTTLES.

SPECIFICATION forming part of Letters Patent No. 494,361, dated March 28, 1893.

Application filed July 6, 1891. Serial No. 398,541. (No model.) Patented in England December 4, 1890, No. 19,825; in France July 3, 1891, No. 214,611; in Belgium July 3, 1891, No. 95,504; in Victoria July 15, 1891, No. 8,826; in New South Wales July 18, 1891, No. 3,126; in Queensland July 20, 1891, No. 1,806; in New Zealand July 27, 1891, No. 5,115; in Spain August 28, 1891, No. 12,285; in Italy September 30, 1891, LXI, 302; in Austria-Hungary November 25, 1891, No. 24,599; in Switzerland March 19, 1892, No. 4,761; in Norway March 22, 1892, No. 2,605; in Sweden March 22, 1892, No. 4,001; in South Australia April 8, 1892, No. 2,200; in India July 16, 1892, No. 93, and in Canada July 25, 1892, No. 39,428.

*To all whom it may concern:*

Be it known that I, WILLIAM PRIESSNITZ BONWICK, a subject of the Queen of Great Britain and Ireland, residing at Paddington, London, England, have invented Improvements in Stoppers for Bottles, Jars, and the Like, (for which I have obtained Letters Patent in Great Britain, No. 19,825, dated December 4, 1890; in Austria-Hungary, No. 24,599, dated November 25, 1891; in Queensland, No. 1,806, dated July 20, 1891; in South Australia, No. 2,200, dated April 8, 1892; in Victoria, No. 8,826, dated July 15, 1891; in New South Wales, No. 3,126, dated July 18, 1891; in New Zealand, No. 5,115, dated July 27, 1891; in Spain, No. 12,285, dated August 28, 1891; in France, No. 214,611, dated July 3, 1891; in Belgium, No. 95,504, dated July 3, 1891; in Italy, No. 302, Vol. LXI, dated September 30, 1891; in Sweden, No. 4,001, dated March 22, 1892; in Norway, No. 2,605, dated March 22, 1892; in Switzerland, No. 4,761, dated March 19, 1892; in India, No. 93, of 1892, dated July 16, 1892, and in Canada, No. 39,428, dated July 25, 1892) of which the following is a specification.

This invention has reference to improvements in that kind of stoppers for bottles, jars and the like in which a body of suitable material such as glass is faced with elastic or yielding material such as cork to afford an air tight closure, and the invention has for its object to secure the facing to the body in a more effectual and desirable manner than heretofore as I will now explain by reference to the annexed drawings in which

Figure 1 shows in vertical section my improved stopper applied to a bottle mouth having an internal screw thread. Fig. 2 is an elevation of the body of the stopper without the elastic or yielding facing. Fig. 3 is an elevation of the complete stopper. Fig. 4 is a development of the stem of the stopper with the teeth or projections thereon. Fig. 5 shows partly in elevation and partly in section, a modification. Fig. 6 shows in elevation a stopper according to this invention applied to a plain mouth bottle which is shown in vertical

section. Fig. 7 shows partly in vertical section and partly in elevation the application of my invention to a stopper or closure having a diameter suitable for a wide mouth bottle or jar. Fig. 8 is a vertical section of a tubular holder hereinafter referred to.

1 is the stem which may be of glass, earthenware or other suitable material; it is provided externally with a number of teeth or projections 2.

3 is a ring or tube of elastic or yielding material, say cork (hereinafter called the cork facing) that surrounds or covers the said stem and engages with the teeth or projections 2 thereon. These teeth or projections are made preferably of ratchet or wedge shape as seen in side view and as will be seen are arranged so that while they will permit of the cork facing 3 being readily passed endwise into position over the stem so as to surround the same, the teeth will by becoming embedded in the cork, effectually prevent its being removed from or rotated upon the stem so long as the cork remains intact. The teeth or projections 2 are spaced apart as shown so that the portions of the cork located between the teeth or projections can expand and come into close contact with the stem 1. The teeth or projections 2 are preferably made integral with the stem 1. Such a stopper (Fig. 3) when inserted in the mouth of a bottle 4 formed with an internal screw thread as shown in Fig. 1 can be used after the manner of an ordinary screw stopper, the cork facing readily adapting itself to the screw thread in the bottle mouth.

In Fig. 1 the bottle is shown as formed with a screw thread of the ordinary rounded form commonly used for screw stoppers. The screw thread may however, (especially for bottles designed to contain aerated liquids) be made of the form shown in vertical section in Fig. 5. In this case the ridges 6 are made inclined on the upper side as shown at 5 to facilitate the insertion of the stopper, and are made flat or approximately so at the inner portion of the under side as shown at 6<sup>a</sup> the grooves 7



between the ridges being curved as shown. With this construction when the stopper is forced into the bottle mouth, its cork facing will be compressed by the ridges which will effectually hold the stopper in place, the intervening portions of cork expanding into and tightly fitting the grooves 7 and thus forming a gas tight joint with the bottle neck.

The stopper shown in Fig. 5 has its head 1<sup>a</sup> formed with a groove 1<sup>b</sup> and with lateral fins or webs 1<sup>c</sup> to facilitate the turning of the stopper.

Stoppers constructed according to this invention can be used for plain mouthed bottles as shown in Fig. 6. In this case the cork facing may be made slightly conical if desired. In the example shown in Fig. 7 the stopper is shown in conjunction with an internally screw threaded bottle or jar, but it will be evident that it can be applied to a bottle or jar that is not internally screw threaded.

To facilitate the insertion of the stem, while also reducing the liability to splitting of the cork facing, the facing may, when the stem is being forced through it, be supported externally by a tubular holder 8 as shown in Fig. 8.

Although the stem 1 is shown of cylindrical form, it may in some cases be made of other forms, for example it may be made slightly conical. Also the teeth or projections instead of projecting radially from the stem may be inclined thereto at angles other than right angles, or some may be so inclined while others are radial as in Fig. 5.

The head 1<sup>a</sup> of the stopper can be made of any suitable size or shape, and may be milled or roughened either entirely around or partly around its edge or periphery, to enable it to be readily manipulated. By the means de-

scribed I am enabled to combine, without the use of cement, a glass stem with a cork facing in such a manner that they act as one piece. In the case of internally screw threaded bottles my invention enables india rubber and other objectionable materials or compositions usually employed for obtaining a tight joint, to be dispensed with, and the valuable advantages respectively incidental to the use of screw stoppers and of corks, to be obtained.

As will be obvious stoppers or closures according to this invention can be used with bottles, jars or other vessels for containing various substances.

Bottle stoppers according to this invention can be variously modified from those shown by way of example in the drawings, particularly as regards the number of teeth or projections and the formation of the head 1<sup>a</sup>.

What I claim is--

The herein described bottle stopper consisting of the core 1, of hard material provided with a head and having the flat projections 2, arranged longitudinally (vertically) thereon with their lower edges inclined upwardly and their upper edges forming shoulders or stops, as described, and the tube or ring of soft elastic material into which said core is forced so that said shoulders prevent the core pulling out and the flat sides of the projections prevent the core independently rotating.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM PRIESSNITZ BONWICK.

Witnesses:

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Both of 46 Lincoln's Inn Fields, London.