

(No Model.)

W. PAINTER.
BOTTLE STOPPER.

No. 540,072.

Patented May 28, 1895.

Fig. 1.

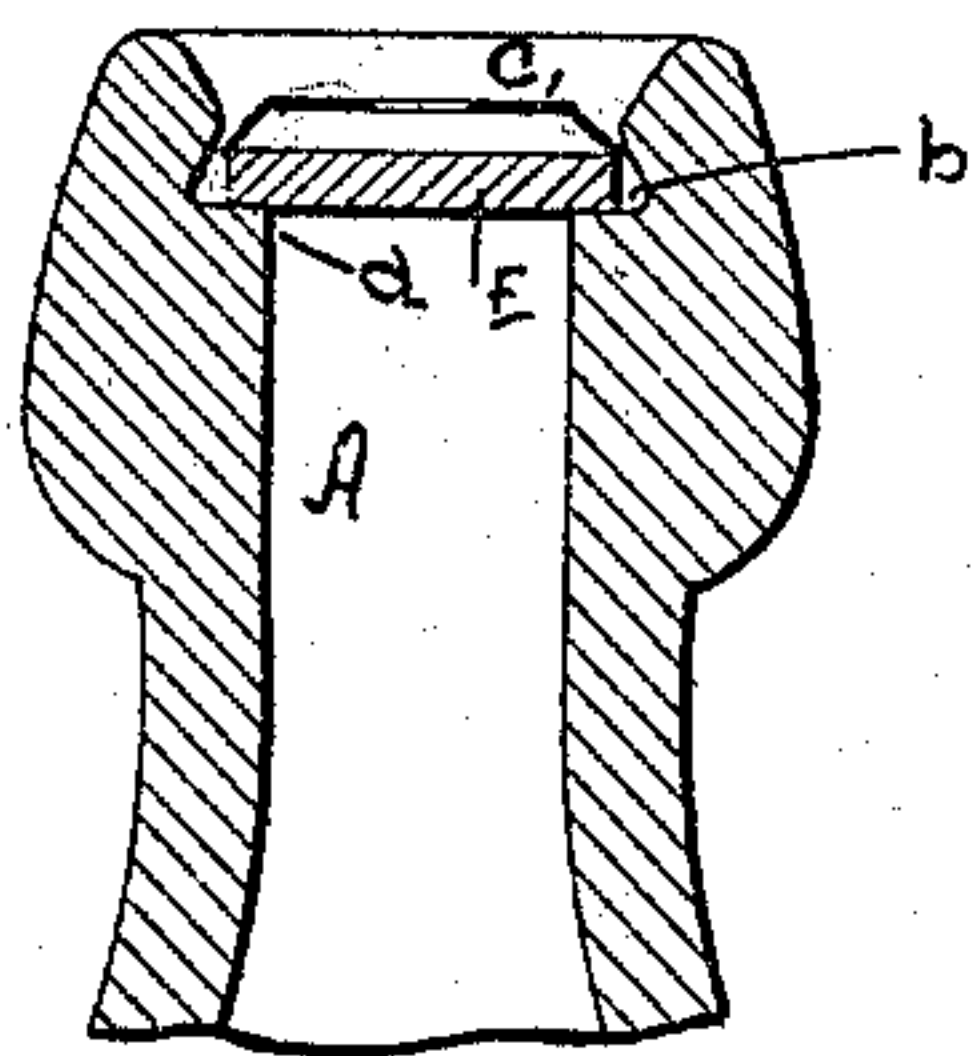


Fig. 2.

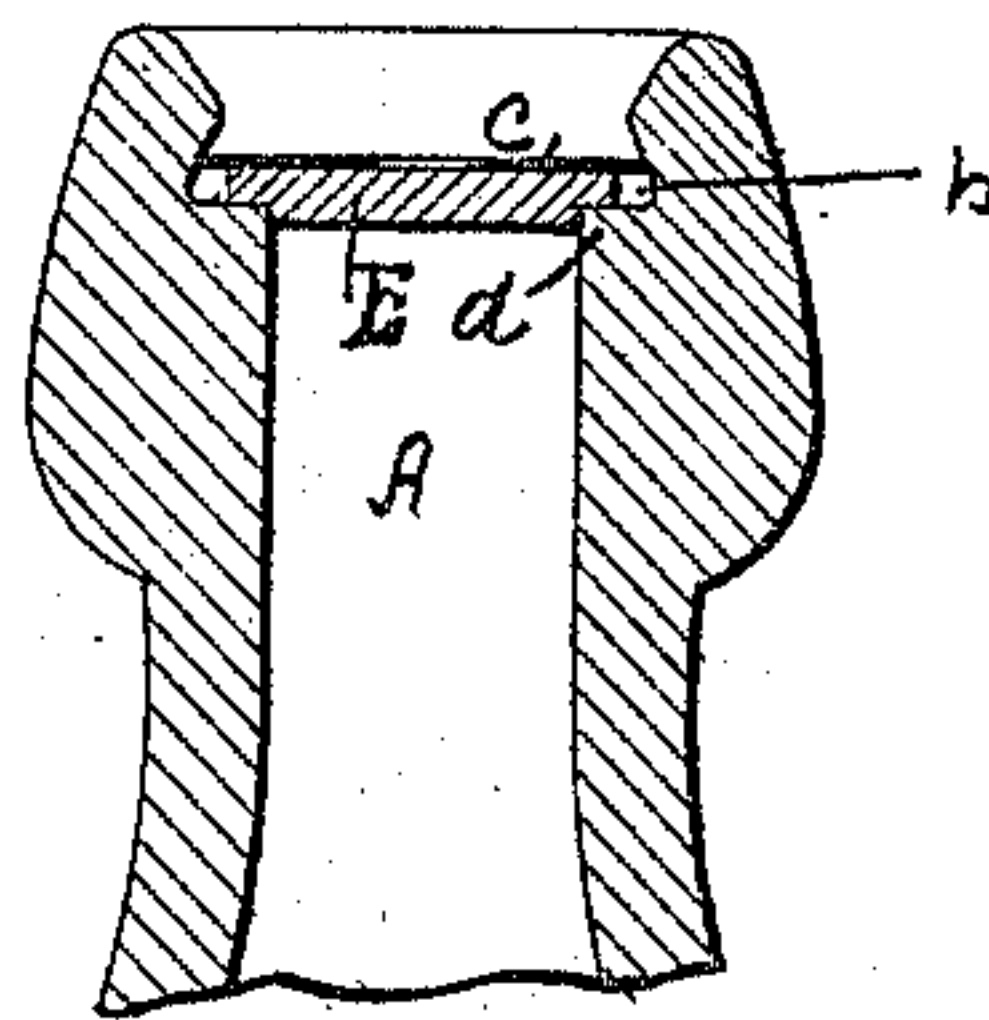


Fig. 3.

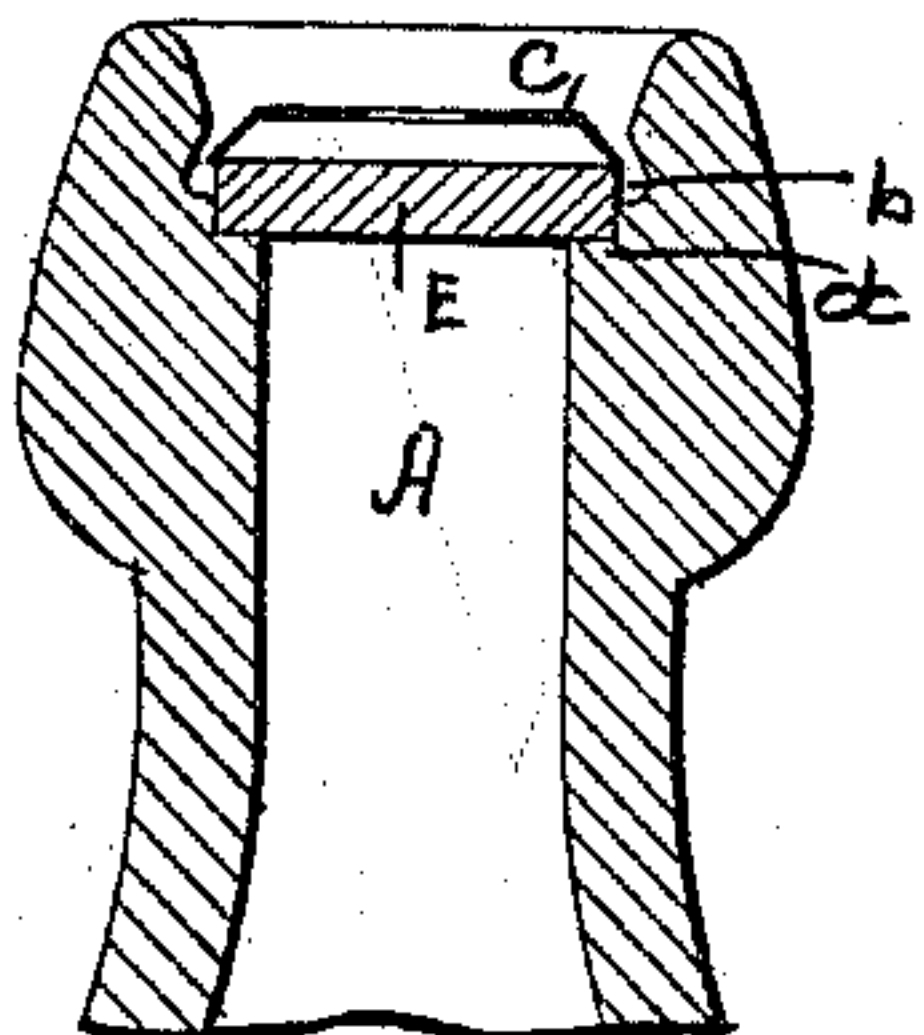


Fig. 4.

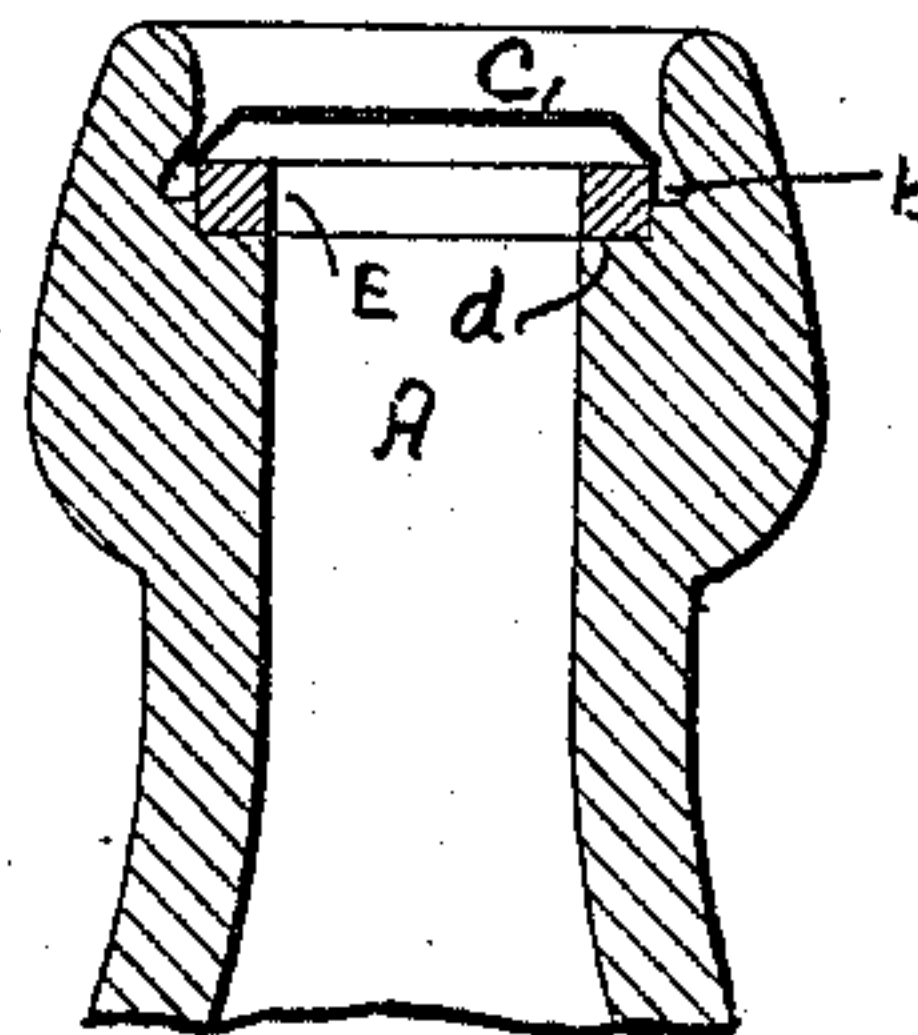


Fig. 5.

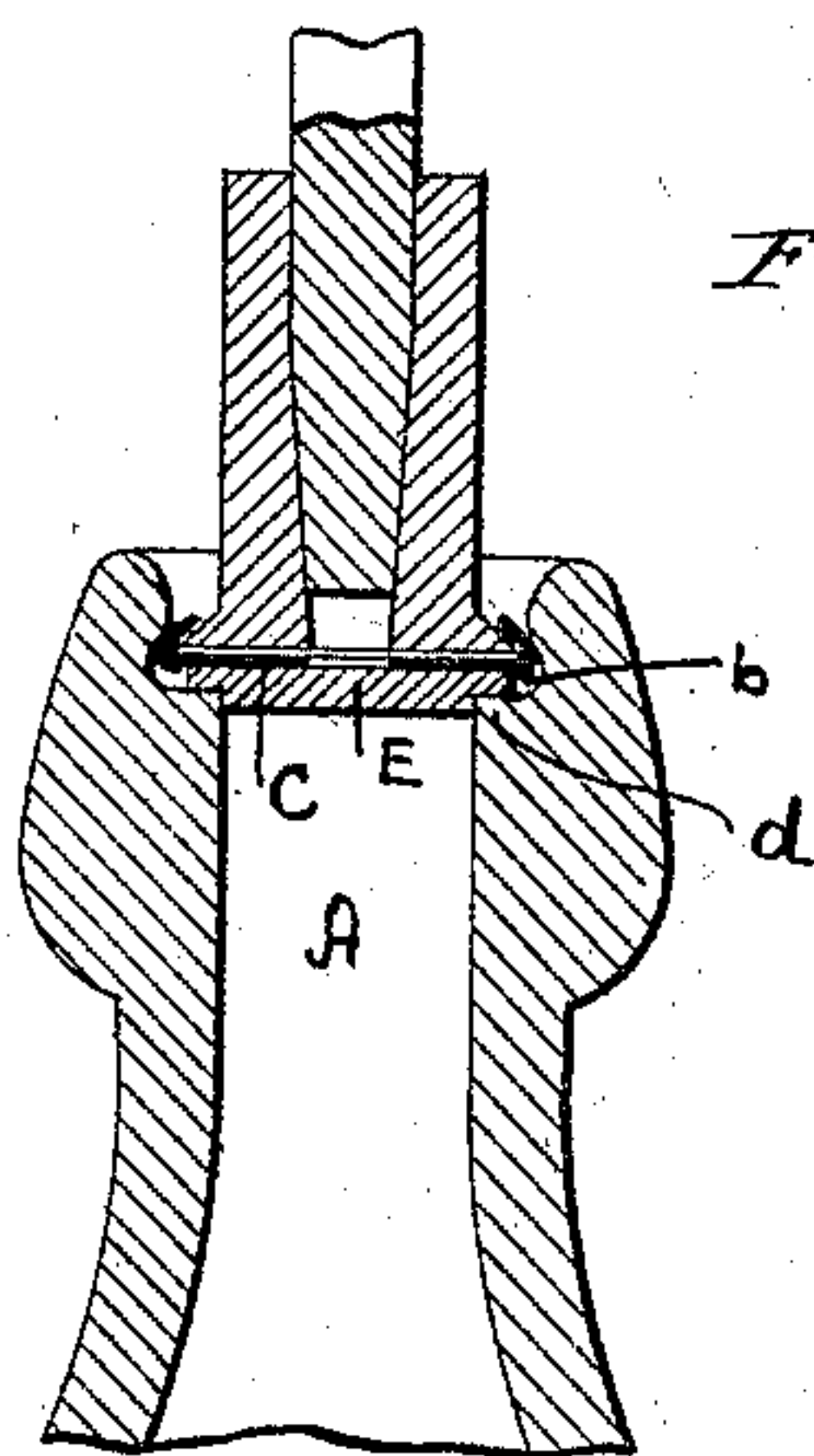
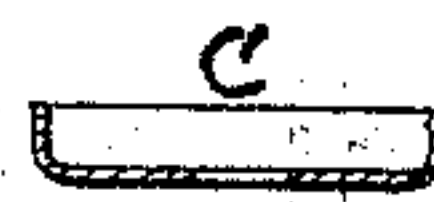


Fig. 6.



Attest:

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BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 540,072, dated May 28, 1895.

Application filed October 12, 1885. Serial No. 179,712. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PAINTER, of Baltimore, in the State of Maryland, have invented new and useful Improvements in Stop-
pers for Bottles or other Vessels; and I declare that the following is a full and accurate description of the invention.

Bottlestoppers which act by expansion have heretofore been made, but so far as I am aware they have always been composed of elastic material, expanded and maintained in that condition by a sustained mechanical pressure. This requires the presence of mechanism with each stopper whereby the required pressure may be produced and maintained. My invention differs from these in the employment of an expanding stopper made of some material substantially inelastic which when once expanded within the bottle mouth will remain so.
In the accompanying drawings, Figure 1 is a central section showing my stopper in position to be expanded. Fig. 2 is a similar section showing the same expanded. Figs. 3, 4, 5, and 6 are modifications.

A is the bottle neck provided interiorly with a groove *b*.

C is a cup shaped disk of malleable metal, commercial tin or other substantially inelastic metallic material being suitable. The circumferential diameter of the disk C is slightly less than the interior diameter of the bottle neck above the groove *b*, so that it will slip freely through and rest upon the shoulder *d* which projects inward slightly farther than that portion of the bottle neck above the groove. The disk C is introduced concave side downward and convex side outward so that its edge rests all around on said shoulder *d*, and is free to expand into said groove when sufficient pressure is applied to the convex side, to permanently reduce the convexity. Sufficient pressure will suppress the convexity and produce a plane, but the relative dimensions preferred are such, that the edge of said disk will reach the bottom of said groove before the convex figure has disappeared, and in that way a hard and tight contact all around may be produced; but as it is practically impossible to produce disks or bottle necks perfectly circular, it is desirable to employ a pack-

ing of some kind with the disk C. This packing may be in the form of a gasket laid in said groove around the edge of the disk or beneath the same and between it and the shoulder *d*, but I prefer to employ a disk of the packing material laid below the disk C and either clamped against the shoulder *d*, or forced into the bottle throat below said shoulder and retained there by the disk. Material for the packing may be india rubber, cork, or other suitable material, many of which are well known in the art.

For convenience in extracting a small hole may be made in the middle of the disk C for the insertion of a tool whereby said disk may be pulled out.

It is apparent that this stopper is applicable to vessels other than bottles such as jars, kegs, barrels, &c.

The characteristic of the material from which I form the disk or plate, is that it possesses permanent flexion—that is to say, it retains the form into which it may be bent or flattened or partially flattened. By the words “primarily concave side” as hereinafter used, I intend that side of the disk which is concave before the disk has been forced into its final position, although when in the latter position the original or primary concave form may have been lost by the flattening of the disk.

Having described my invention, I claim—

1. The combination of a receptacle having a groove in the inside of its mouth and a shoulder projecting inward beyond the wall of the mouth above the groove, and a cup-shaped disk or plate of material having permanent flexion, all operating as set forth.

2. The combination of a receptacle having a groove in the inside of its mouth and a shoulder projecting inward beyond the wall of the mouth above the groove, and a cup-shaped disk or plate of material having permanent flexion and formed with a hole, all operating as set forth.

3. The combination of a receptacle having a groove in the inside of its mouth and a shoulder projecting inward beyond the wall of the mouth above the groove, and a cup-shaped disk or plate of material having permanent

flexion arranged with its primarily concave side downward, all operating as set forth.

4. The combination of a receptacle having a groove in the inside of its mouth and a shoulder projecting inward beyond the wall of the mouth of the groove, a cup-shaped disk or plate of material having permanent flexion,

and a packing or stopper beneath and retained by the disk or plate, all operating as set forth.

WM. PAINTER.

Witnesses:

R. D. O. SMITH,

E. PHILLIPS.