

No. 869,700.

PATENTED OCT. 29, 1907.

J. J. FRASER.
BOTTLE STOPPER.
APPLICATION FILED MAY 6, 1907.

Fig. 1.

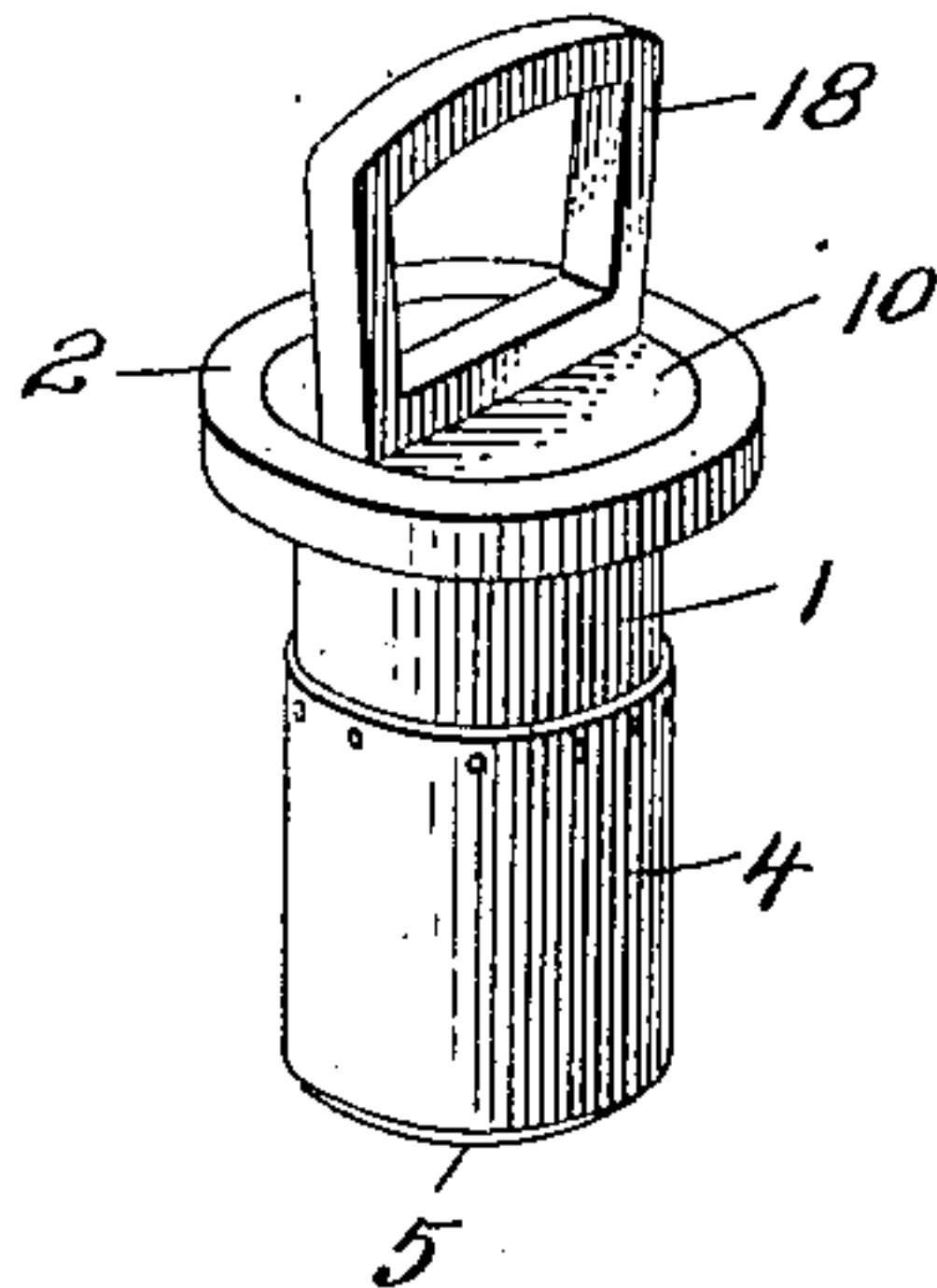


Fig. 2.

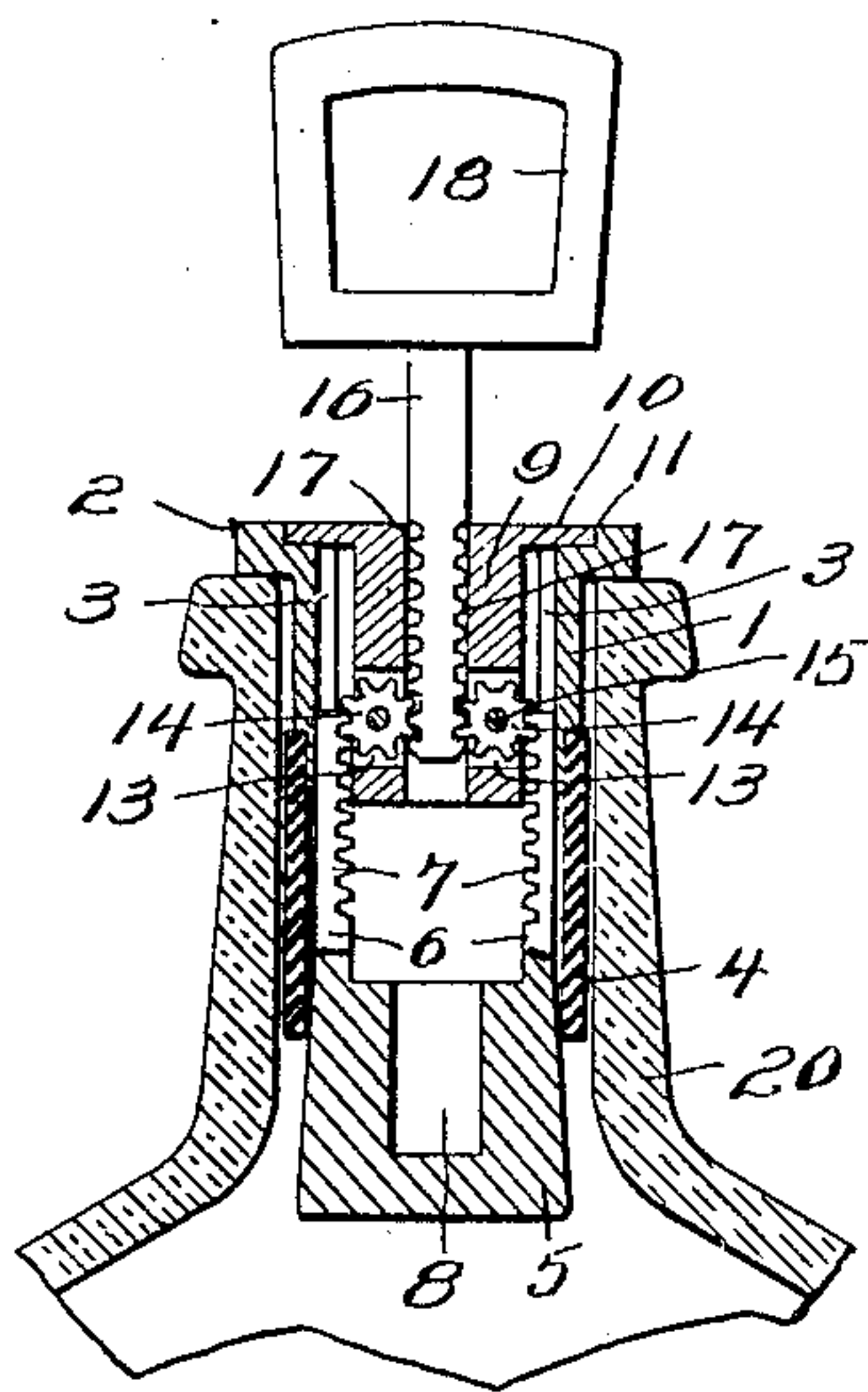


Fig. 3.

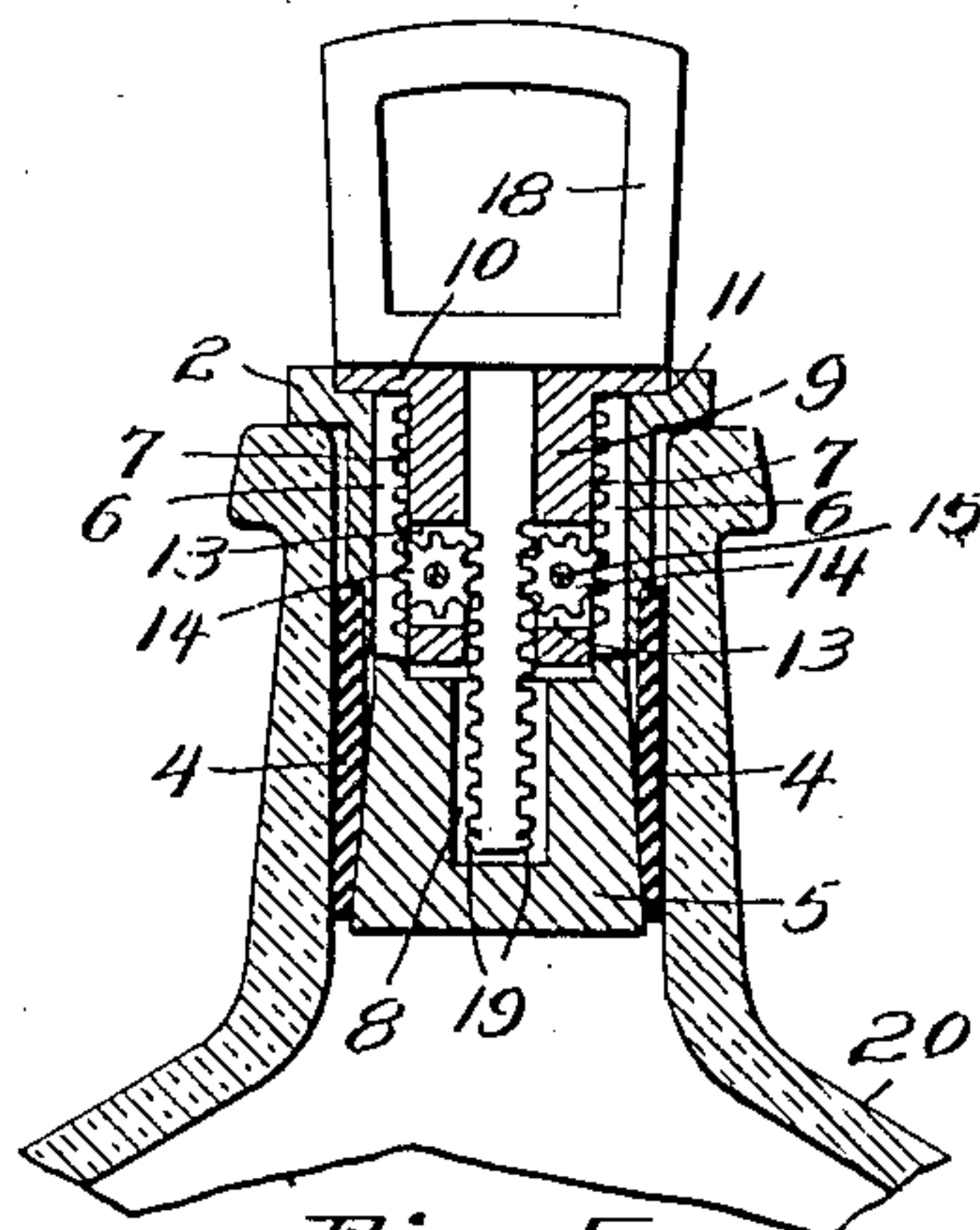


Fig. 4.

Fig. 5.

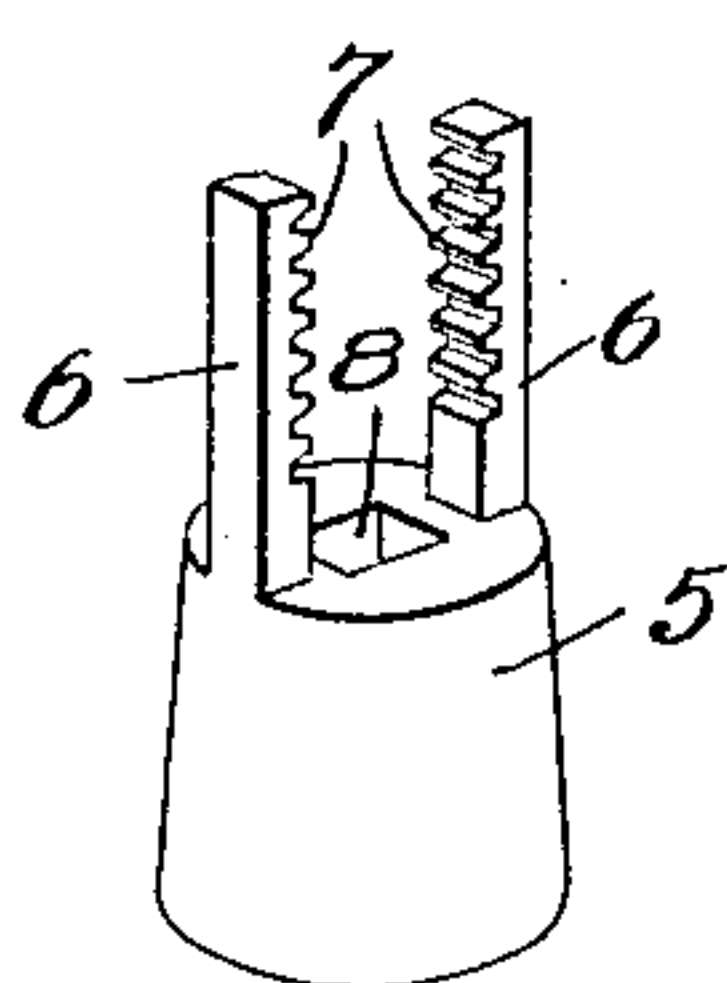
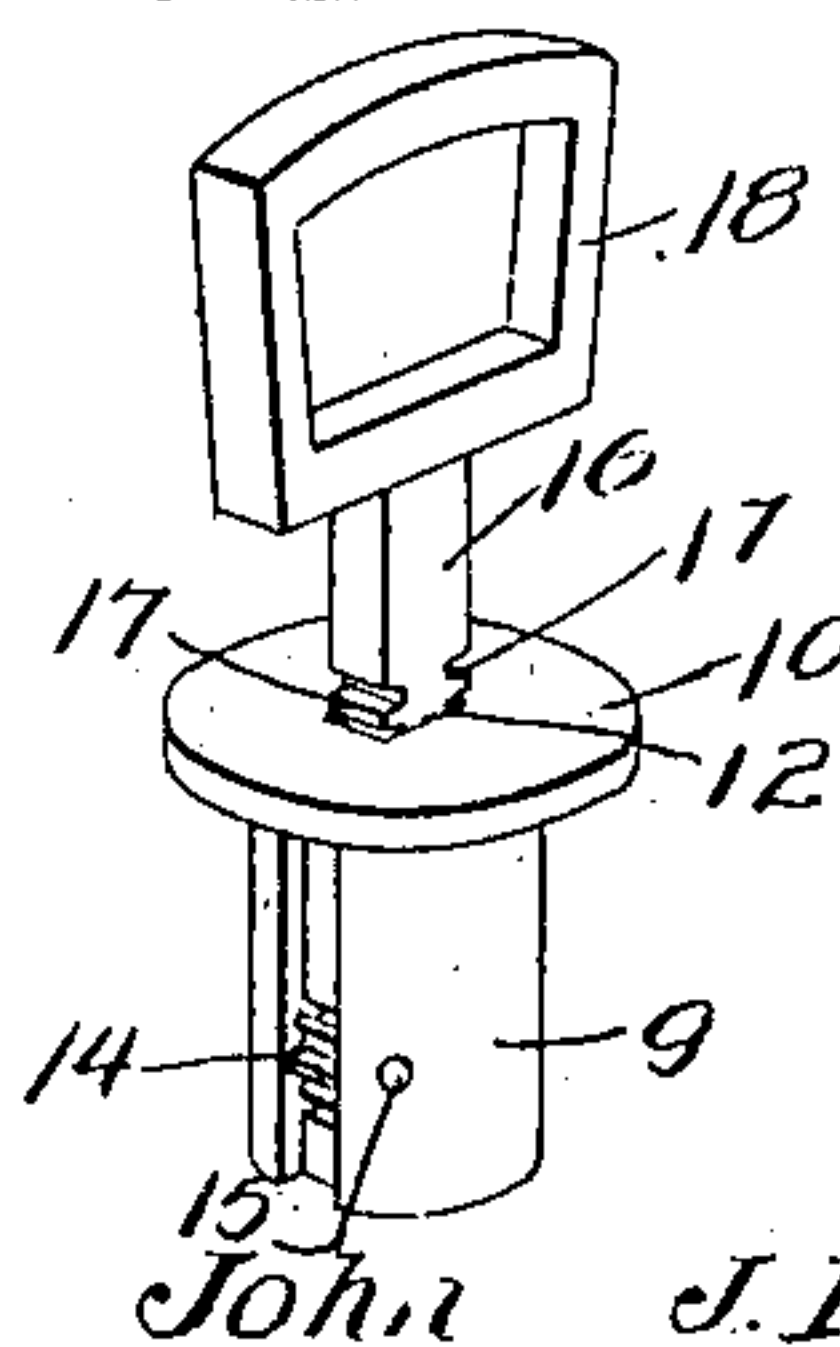
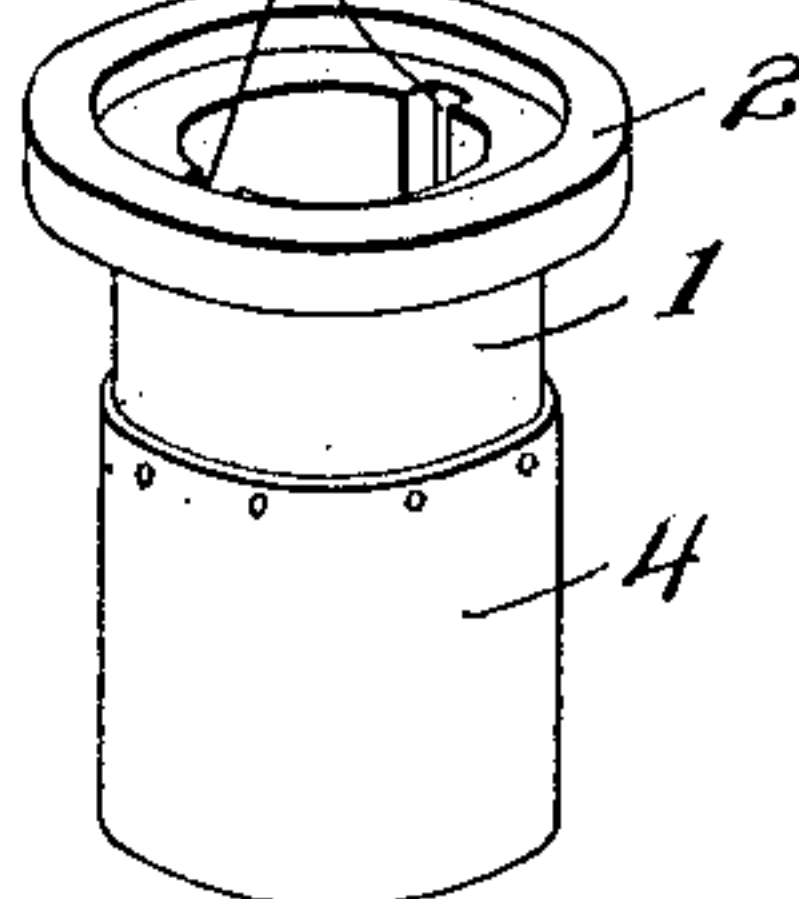


Fig. 5.



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JOHN J. FRASER, OF SOMERVILLE, MASSACHUSETTS.

BOTTLE-STOPPER.

No. 869,700.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed May 6, 1907. Serial No. 372,075.

To all whom it may concern:

Be it known that I, JOHN J. FRASER, a subject of the King of Great Britain, residing at Somerville, in the county of Middlesex and State of Massachusetts, have

invented new and useful Improvements in Bottle-Stoppers, of which the following is a specification.

This invention relates to bottle stoppers; and it has for its object to provide a closure of simple and improved construction comprising a stopper member which may be readily introduced into the neck of a bottle or similar vessel, said stopper member including an expansive annulus constituting a packing member which may be expanded so as to provide an absolutely tight closure; the device further includes an expanding member whereby the packing may be expanded so as to engage the neck of the bottle or vessel; and the device further includes an operating member whereby the expansion member may be actuated for the purpose of expanding the packing.

Further objects of the invention are to simplify and improve the construction and operation of this class of devices.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention; it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawing, Figure 1 is a perspective view of the improved stopper. Fig. 2 is a vertical sectional view showing the stopper introduced into the neck of a bottle. Fig. 3 is a similar view showing the operating member fully inserted and the packing member expanded. Fig. 4 is a perspective detail view of the expansion member. Fig. 5 is a perspective detail view of the stopper member proper. Fig. 6 is a perspective detail view of the operating member, detached.

Corresponding parts in the several figures are denoted by like characters of reference.

The stopper member proper consists of a tube 1 of suitable dimensions, having at its upper edge an annular flange 2 and provided upon its inner side with longitudinal grooves or channels 3—3 which are preferably disposed at diametrically opposite sides. Secured exteriorly upon the lower end of the tubular body 1, and extending a suitable distance below the latter is an an-

nular packing member 4, which should be of a flexible and elastic nature, and which may be appropriately constructed of a piece of rubber tubing.

The expansion member consists of a tapering or frustum shaped body 5 which is disposed for longitudinal sliding movement in the tubular stopper member, said tapering body being provided with upwardly extending arms 6—6 guided in the grooves 3—3 of the stopper member and said arms being provided upon their inner or opposed faces with teeth constituting racks 7. The tapering body 5 is adapted to project below the annular elastic packing member, which latter may be circumferentially expanded by forcing the said tapering body upwardly within said packing member. The body 5 is provided in its upper side with a recess or socket 8.

The operating member comprises a plug 9 fitted in the upper end of the tubular stopper member 1 and having a flange 10 seating in a recess 11 in said stopper member. The plug 9 is provided with a central longitudinal aperture 12 and with oppositely disposed slots 13 wherein small pinions 14 are supported for rotation upon pins or axles 15, said pinions being adapted for engagement with the oppositely disposed racks 7 of the expansion member. Disposed for longitudinal movement in the aperture 12 of the plug 9 is a rack bar 16 having oppositely disposed toothed faces 17 meshing with the pinions 14; said rack bar being provided at its upper end with a handle 18 which is preferably in the nature of a loop into which the finger of the operator may be conveniently introduced. The lower end of the rack bar 16 may be provided with a cross pin 19 constituting an enlargement to prevent it from being entirely withdrawn from the plug 9.

When the parts are properly assembled, as shown in Figs. 1, 2 and 3 of the drawings, and the rack bar 16 is withdrawn in an upward direction from the plug 9, the expansion member including the tapering body 5 will thereby be moved in a downward direction, projecting said tapering body downwardly and outwardly from the annular expansible packing member 4, which latter will thus be in a contracted condition, enabling the stopper to be readily introduced into the neck of the bottle for which it is designed to form a closure. After introducing the stopper into the neck, the rack bar is pushed downwardly, and the expansion member will thus be forced in an upward direction, causing the tapering body 5 to expand the elastic packing member 4 circumferentially, as will be seen in Fig. 3 of the drawings thus forcing it into engagement with the neck of the bottle and affording a perfectly tight closure. The stopper will be held in intimate relation with the neck of the bottle by the frictional contact existing between the packing member and the interior walls of the neck until

it is desired to withdraw the stopper which may be accomplished by pulling the rack bar 16 in an upward or outward direction; the pinions 14 will thus be rotated, and the bars 7 engaging said pinion, and carrying the
5 tapering body 5 will be moved in a downward direction, thus relaxing the expansive strain upon the annular packing member, and enabling the stopper to be readily withdrawn.

The annular flange 2 at the upper edge of the tubular
10 member 1 will serve to prevent the said tubular member from being projected through the neck of the bottle; the recess or socket 8 in the tapering extension member 5 will serve to accommodate the lower extremity of the rack bar 16 when the latter, in the act of expanding the
15 packing member, is forced in a downward direction. The tubular body 1 and the plug 9 may be permanently assembled or connected together in any suitable and convenient manner.

This improved stopper may be made in various sizes
20 to fit different sized bottles, jars and other vessels which require to be tightly closed after the removal of the cork or other closure originally employed. The construction is simple and inexpensive, and the device is thor-

oughly efficient for the purposes for which it is provided. 25

Having thus fully described the invention, what is claimed as new is:—

1. In a bottle stopper, a tubular body having interior longitudinal grooves, an annular elastic packing member connected with said tubular body, a tapering expansion member having oppositely disposed racks guided in the grooves of the tubular body, a plug fitted in the latter and having pinions engaging the racks of the extension member, and a rack bar movable longitudinally in the plug and engaging the pinions. 30 35

2. A bottle stopper comprising a tubular body having an annular flange and interior longitudinal grooves, an annular elastic packing member connected with and extending from the tubular body, a longitudinally movable tapering expansion member having rack bars guided in the grooves of the tubular body, a plug fitted in the latter and having pinions engaging the rack bars, and a rack bar movable longitudinally in the plug in engagement with the pinions and provided with a loop constituting a handle. 40

In testimony whereof, I affix my signature in presence of two witnesses. 45

JOHN J. FRASER.

Witnesses:

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WILLIAM CHISHOLM.