T. H. BRADY.
Bottle-Stopper.

No. 196,624 Patented Oct. 30, 1877.

Fig. 1.

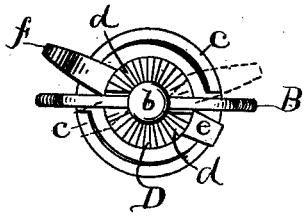



Fig. 2.

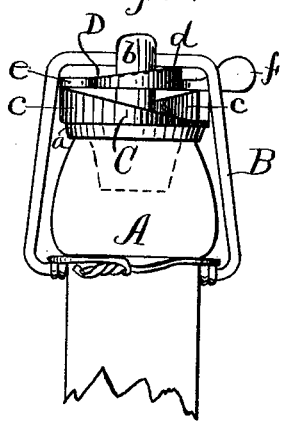



Fig 3

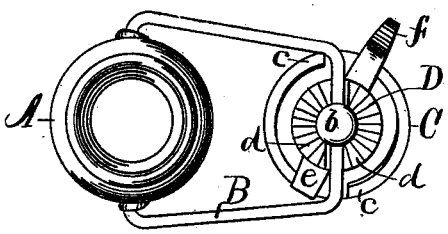
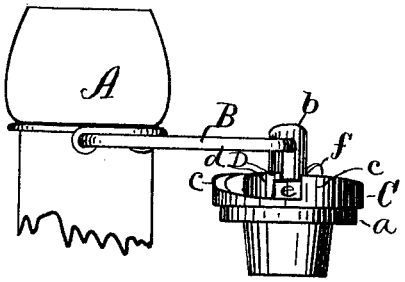



Fig. 4.

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## IMPROVEMENT IN BOTTLE-STOPPERS.

Specification forming part of Letters Patent No. **196,624**, dated October 30, 1877; application filed April 13, 1877.

*To all whom it may concern:*

Be it known that I, THOMAS H. BRADY, of New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Bottle-Stoppers, of which the following is a specification:

My invention consists in the peculiar construction of devices and in the combination of parts, as hereinafter described.

In the accompanying drawings, Figure 1 is a plan or top view of a bottle-stopper which embodies my invention. Fig. 2 is a side elevation of the same as applied to the mouth of the bottle. Fig. 3 is a plan view of the same with the stopper removed to one side, and Fig. 4 is a side elevation of the same in a like position.

A designates the end of a bottle, and B a swinging bail, attached to the neck of the bottle in a well-known manner. The stopper is formed of an elastic cushion, *a*, secured to the metal base C in any ordinary manner. The base C has a central stud, *b*, projecting upward from its top, said stud being provided at its upper end with a vertical slot, through which the bail B passes, as shown. At the edges of the plate C there are two upward-projecting flanges following the circular contour of the plate, and inclined at their upper edges, so as to form said flanges into cams *c c*, and leaving an annular space or chamber between the said cams and stud. Surrounding the stud *b*, and fitted so as to rotate thereon, is a cam-plate, D, the lower or under surface of which is flat, and the upper surface of which is provided with two inclines or cams, *d*, notched or grooved in a radial direction, as most clearly shown in Figs. 1 and 3. The cam-plate D has a wing, *e*, and a handle or lever, *f*, the end of the wing *e* being flush with the edge of the base-plate C, and the outer end of the handle projects beyond the edge of said plate, for use both as a handle and as a lever. The under sides of the wing *e* and handle *f* rest upon the cams *c c*, the flush end of the wing swinging freely within the arms of the bail, so that in whatever position the device is placed said wing will not interfere with the operation of the parts. The cam-plate D, with the exception of the wing and lever, is of a smaller circle than the inside of the cams *c c* on plate C, and bears upon said cams only through the wing and lever, and therefore, when said parts rest in the deepest depressions of the cams *c c*, as shown in Fig. 1, the cam-plate D falls bodily downward into the annular chamber inside of cams *c c*, when no part of said plate projects above the highest part of said cams.

By this construction I am enabled to make two pairs of endwise-acting cams work in a very short space—much shorter than would be possible in case the cams were formed on the same sized circle, and rested one directly over the other.

To close the bottle, the device is taken when the parts are in the position shown in Figs. 3 and 4, the stopper swung upward between the arms of the bail, and placed over the mouth of the bottle as the bail is brought into an upright position, as shown in Fig. 1, the cams being meanwhile in the position shown in said figure—that is, depressed. By means of the handle or lever *f* the cam-plate is rotated toward the position indicated by broken lines in Fig. 1, and shown in Fig. 2, the wing *e* and lever *f* riding up the cams *c c*, and the cams *d d* acting upon the under side of the bail to force the stopper against the mouth of the bottle until the requisite pressure is brought to bear upon the stopper, when the bail, resting in one of the radial grooves or notches in each of the cams *d d*, locks the cam-plate D firmly in place. Several grooves or notches are made in said cams, so the rotation of the plate D may be stopped at any desired point so soon as the requisite pressure is obtained, and without any liability of accidental unfastening.

I am aware that cams and cam-plates are old as applied to bottle-stoppers; but they have, so far as I know, been provided with a flat seat or a depression at the upper end of the cam, above its incline, so that the cams have to be forced wholly by the bail, in order to secure the cam-plate in place, no provision being made to secure it elsewhere; and therefore in all these prior structures there is no range of adaptation to different thicknesses of cushions, and no matter whether the rubbers or cushions be thick or thin, new or old, little used or much worn, the stoppers must invariably be stopped

at the same point. The advantage of my stopper, which can be stopped at various points, is apparent.

I am also aware that such cam-plates have been provided with two handles, set opposite each other, for rotating the plate. When the stopper is hanging pendent from the bail, as shown in Figs. 3 and 4, the lever *f* is wholly below the bail; and if there were two opposite handles, and they should happen to come on a line parallel to the cross-piece of the bail, (as they are very liable to do,) and the stopper were then swung inward and upward for closing, it is evident that both handles would come upon the same side of the bail, one resting against one arm and the other against the other arm, so that it would be impossible to turn the plate in either direction to let either arm pass it, without backing out and beginning anew; but when the part opposite the handle is so short as to clear the bail, (in the position above described,) the arm of the bail, striking the handle, will turn the plate far enough to let the stopper be put in place, without, in the least, interfering with the necessary inward and upward movement of the stopper.

I claim as my invention—

1. In a bottle-stopper, the cam-plate D, provided with a projecting lever or handle at one side, and the side opposite said handle, made substantially flush with the base, so as to rotate freely between the arms of the bail, substantially as described.

2. In a cam-plate for bottle-stoppers, the cams *d d*, having radial notches or grooves formed in the surface of their inclines, substantially as described, and for the purpose specified.

3. The combination of the base, provided with cams, central stud, and annular chamber, and the cam-plate D, formed on a circle adapted to come within the annular chamber, and provided with the wing *e* and lever *f*, substantially as described, and for the purpose specified.

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