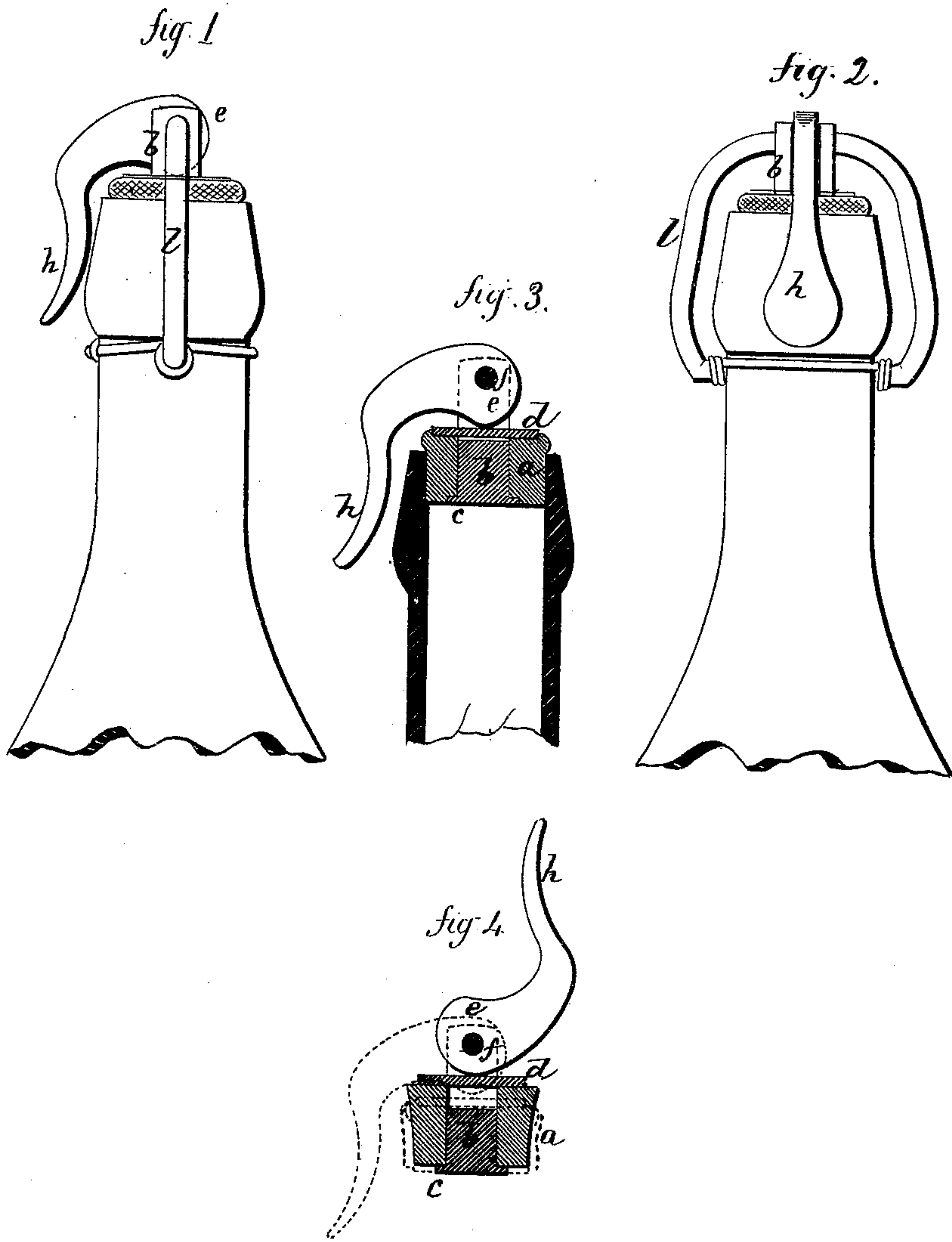


C. S. BARNARD.
BOTTLE-STOPPERS.

No. 195,473.

Patented Sept. 25, 1877.



Witnesses.
J. H. Chumley.
H. A. Nelson.

Chas. S. Barnard,
By Atty. Inventor
J. S. Park

UNITED STATES PATENT OFFICE.

CHARLES S. BARNARD, OF WEST MERIDEN, CONNECTICUT, ASSIGNOR OF
ONE-HALF HIS RIGHT TO JOHN A. THOMAS, OF SAME PLACE.

IMPROVEMENT IN BOTTLE-STOPPERS.

Specification forming part of Letters Patent No. 195,473, dated September 25, 1877; application filed
August 8, 1877.

To all whom it may concern:

Be it known that I, CHAS. S. BARNARD, of West Meriden, in the county of New Haven and State of Connecticut, have invented a new Improvement in Bottle-Stoppers; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, side view; Fig. 2, front view; Fig. 3, vertical central section; Fig. 4, the plug and lever detached from the bottle.

This invention relates to an improvement in a device for closing the mouths of bottles, as a substitute for corks, commonly termed "bottle-stoppers," and such as are attached permanently to the bottle, and particularly to the class in which the closing is produced by means of a cam-lever working on a yoke hinged to the neck of the bottle.

In this class of stoppers the closing depends upon the action of the cam to press the elastic plug or stopper into the neck of the bottle, and all the expansion attainable of the elastic plug is dependent upon a bearing of the plug upon the inner surface of the neck of the bottle, and if such bearing be not first obtained the proper stopping of the bottle is impossible.

The object of this invention is to produce the expansion of the elastic stopper independent of the bottle; and it consists in an elastic plug, having a vertical spindle through its center, the lower end of which is headed to take a bearing on the under surface of the plug, combined with a disk loosely around the spindle on the upper surface of the plug, and a cam hinged in the upper end of the spindle, so that by the turning of the said cam the plug will be vertically compressed between the disk and the head of the spindle, and thereby force a lateral expansion, as more fully hereinafter described.

Referring to Fig. 4, *a* is the plug, made from india-rubber or other suitable elastic material, and of a diameter corresponding nearly to that of the mouth of the bottle to be stopped. Vertically through this plug *a* a spindle, *b*, is placed, having a head, *c*, upon the under side to take a bearing upon the under surface of the plug. Around this spin-

dle *b*, and upon the upper surface of the plug, a disk or collar, *d*, is placed, and to the spindle above the collar *d* a cam-lever, *e*, is hung upon a pivot, *f*. This cam-lever is formed into a convenient handle, *h*, and so that when the handle is up, as in Fig. 4, the plug is in its normal condition; but by turning the handle downward the cam bears upon the disk *d*, and draws the head *c* and disk *d* toward each other, compressing the plug and causing lateral expansion, as indicated in broken lines.

This device is applied to the bottle, as seen in Figs. 1 and 2, by means of a yoke, *l*, hinged below to the neck of the bottle, extending upward, and, passing through the spindle and cam-lever, forms the pivot *f* on which the cam-lever turns.

Thus applied the plug is set into the mouth of the bottle in the usual manner, and the lever turned downward causes lateral expansion of the plug to fill the mouth of the bottle; and this is done without the necessity of first obtaining a bearing for the plug in the neck of the bottle, to resist the action of the cam, as in the usual construction of stoppers—that is to say, the lateral expansion of this plug is produced equally as well whether the plug be hung to the bottle or not, because, without the yoke, if the plug be simply introduced into the mouth of the bottle and the lever turned downward, the compression and consequent lateral expansion will be produced; hence the stopper is adapted to a greater range or variation of size or shape of the mouth of the bottle than by the usual construction of this class of stoppers.

It will be understood by the foregoing that I do not, broadly, claim a bottle-stopper in which the expansion of the plug is produced by a cam-lever; but

What I do claim as my invention is—

In a bottle-stopper, the combination of an elastic plug, *a*, the vertical headed spindle *b*, the collar *d* on the upper surface of the plug, and the cam-lever *e* hung to the said spindle above, and so as to bear upon the said collar, substantially as and for the purpose described.

CHARLES S. BARNARD.

Witnesses:

GEORGE W. SMITH,
D. J. DONAHOE.