

(No Model.)

C. H. BEACH.

TOOL FOR FINISHING THE NECKS AND MOUTHS OF BOTTLES.

No. 491,069.

Patented Feb. 7, 1893.

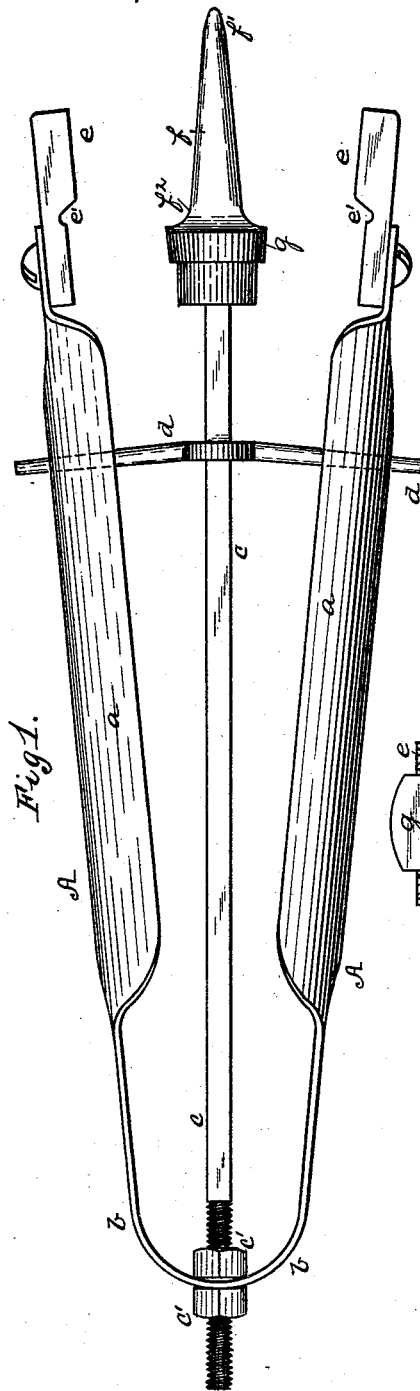


Fig. 1.

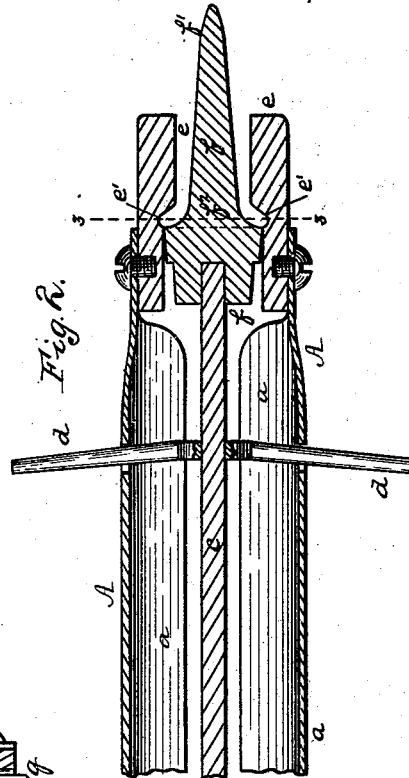


Fig. 2.

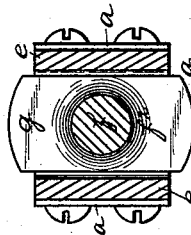


Fig. 3.

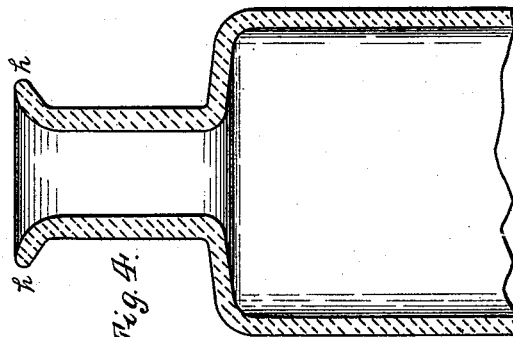


Fig. 4.

Witnesses:

J. T. Cooney.  
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# UNITED STATES PATENT OFFICE.

CLIFTON H. BEACH, OF PITTSBURG, PENNSYLVANIA.

## TOOL FOR FINISHING THE NECKS AND MOUTHS OF BOTTLES.

SPECIFICATION forming part of Letters Patent No. 491,069, dated February 7, 1893.

Application filed October 28, 1891. Serial No. 410,079. (No model.)

### *To all whom it may concern:*

Be it known that I, CLIFTON H. BEACH, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Tools for Finishing the Necks and Mouths of Bottles; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to tools for finishing the mouths and necks of glass bottles, its object being to provide a tool which will give to the flange or pouring lip of the bottles a smooth rounded exterior, free from all sharp edges and fins.

In the formation of the mouths and necks of the bottles, and especially in the higher grades, such as are used for perfumes, medicines, &c., it has been customary to form the mouth slightly flaring or funnel-shaped to facilitate the pouring of the liquid as well as the filling of the bottle. The tool heretofore used for forming this kind of a mouth imparted to the flange or lip surrounding the mouth a square edge, that is one with sharp edges which are liable to chip off and present an uneven and ragged flange, while as is well known to those skilled in the art it is impossible to form such a flange without fins which must be ground down or remain to mar the appearance of the mouth. The reason for this was that all the bottle finishing tools were constructed so that the plug forming the interior of the bottle mouth, and the jaws forming the exterior thereof, met either around the outer edge of the bottle mouth, or at the inner edge thereof, and as the glass was liable to fin at the point or conjunction and there was no means of reducing such fin or pressing it back into the edge of the glass, the bottle would have the rough or ragged edge, while at the same time the edge would be sharp or abrupt, so that it would be liable to chip as above stated.

To obviate these difficulties, then, is the object of my invention and it consists, generally stated, in a tool for finishing the mouths and necks of bottles, having a conical plug with its base sloping gradually down to the lower edge thereof, and jaws having concave faced recesses formed at the base thereof, said recesses being rounded off to meet the

sloping base of the conical plug when the jaws are forced toward each other.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings in which

Figure 1 is a side elevation of a tool embodying my invention; Fig. 2 represents a sectional view thereof, showing the jaws closed; Fig. 3 is a cross section on the line 3—3, Fig. 2; and Fig. 4 is a view of the mouth and neck of a bottle made in accordance with my invention.

Like letters indicate like parts in each.

I will illustrate my invention in connection with the tool A which is one of the simplest kind, consisting of the ordinary spring arms *a*, of any metal affording sufficient tension to hold the jaws of the tool normally open. Adjustably secured to the elbow portion *b* of the tool is the plug rod *c* which is held in place by the nuts *c'*. This plug rod *c* passes down between the arms *a* and has secured to it the cross arm *d* which serves as a guide to hold the said plug rod in alignment with the spring arms *a* while it further acts to keep the arms themselves in alignment with each other, and consequently to hold the jaws *e* at the ends thereof in proper line. The conical plug *f* is secured to the outer end of the plug rod *c*, said conical plug gradually tapering from an oblong base *g* cast integral therewith. The plug proper tapers gradually from the sides of said oblong base until it reaches an apex at *f'*, the lower portion *f''* of the conical plug sloping down to the edges of the base *g* and having a more abrupt curve or taper according to the desired flare of the bottle mouth. The pressing jaws *e* may be secured to the ends of the spring arms *a* in any suitable manner and have formed therein recesses *e'*, said recesses being concave faced or rounded off interiorly and formed at points on said jaws, where, when the jaws are closed, as shown in Fig. 2, the sloping base *f''* of the conical plug *f* will exactly meet the rounded face of the recesses of both jaws. This coincidence of the sloping base *f''* with the recesses *e'*, will present a mold cavity for the flange of the bottle having a completely rounded interior, allowing no opportunity for the formation of sharp edges or fins on the outer

edge of the bottle as the parting line between the conical plug and the jaws is on the top face of the flange and if any fin at such parting line is not smoothed off by the jaws, it will be by the oblong base of the plug.

In the manufacture of glass bottles, as is well known to those skilled in the art, the bottles are first blown to shape by the blower and when freed from the blow pipe the neck is only approximately formed. It is necessary therefore to reheat the neck of the bottle which is inserted in the "glory hole" and when sufficiently heated is withdrawn and finished to shape by the finishing tool. It is at this step of the operation that my improved tool comes into play, for when the neck is heated it is inserted between the jaws *e*, the conical plug *f* entering the mouth of the bottle and forming the circular passage to the body of the bottle. The bottle being supported in a suitable holder is manipulated by the operator in one hand while he operates the tool with the other, and by tightening his grasp on the spring arms *a* brings the pressing jaws *e* into contact with the neck of the bottle. The conical plug *f* will then be within the neck of the bottle and the pressing jaws with their flat faces will form the exterior of the neck, while the recesses *e'* in conjunction with the tapering base *f*<sup>2</sup> of the conical plug *f* form the mold to produce the flange or pouring lip *h*. Now upon rotating the bottle in the ordinary manner the neck and flange or pouring lip are formed, the rounded interior of the recesses *e'* in conjunction with the sloping base *f*<sup>2</sup> combining to produce the result shown in Fig. 4, that is a flaring mouth and a pouring lip with a rounded surface free from any fins or sharp edges. This is accomplished by the sloping base *f*<sup>2</sup> forcing the glass into the concave recess *e'*, and as the parting line is on the top face of the flange, this is the only point where it is possible to form a fin and as the oblong

base *f*<sup>2</sup> of the conical plug extends beyond the point where the circular bottle mouth will pass from the concave recess, any such fin is immediately smoothed off by the conical base of the tool.

The bottles finished with my improved tool are not liable to chip or break at the mouth when passing through the annealing oven, in packing or transportation, or in use, as the outer edge of the flange is rounded and smooth. The flaring mouth not only renders it easier to fill the bottle without spilling the liquid, but in conjunction with the rounded pouring lip, facilitates the pouring of the liquid from the bottle more accurately than where there is a sharp or ragged edge over which the liquid must pass and which will prevent its even and unbroken flow. This is a great advantage in the pouring of medicines where great accuracy of measurement is required.

My improved tool is also well suited to be employed in the manufacture of fancy perfume bottles which have to be refilled from time to time, while at the same time the evenly rounded pouring lip adds to the general appearance of the bottle.

What I claim as my invention and desire to secure by Letters Patent, is:—

A tool for finishing the mouths of bottles, having a conical plug with its base sloping gradually down to the lower edge thereof, and jaws having concave faced recesses formed therein, which are rounded off to meet the sloping base of the conical plug, the joint between the plug and jaws being formed on the top face of the bottle flange, substantially as and for the purposes set forth.

In testimony whereof I, the said CLIFTON H. BEACH, have hereunto set my hand.

CLIFTON H. BEACH.

Witnesses:

J. N. COOKE,

ROBT. D. TOTTEN.