

H. FRANK.

Tool for Forming Mouths of Bottles, &c.

No. 130,207.

Patented Aug. 6, 1872.

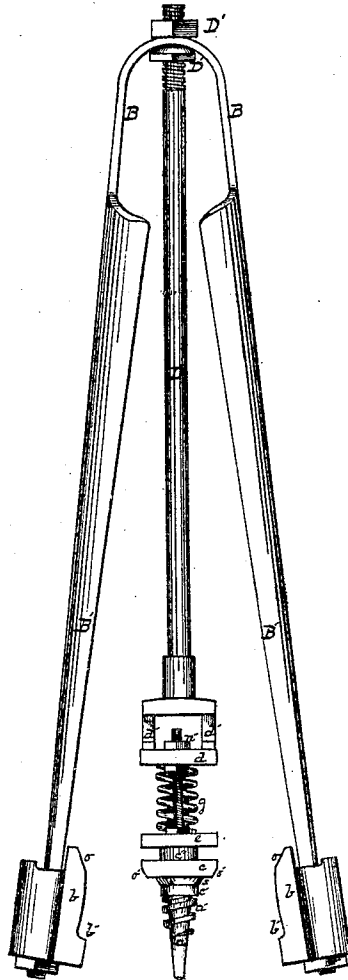


FIG. 1.

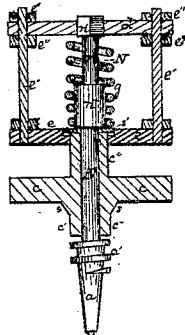


FIG. 2.

WITNESSES.
Josiah Smith
James S. Kay

INVENTOR.
Hiram Frank,
by Bakewell, Christy & Kerr,
his Attys.

UNITED STATES PATENT OFFICE.

HIMAN FRANK, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN TOOLS FOR FORMING MOUTHS OF BOTTLES, &c.

Specification forming part of Letters Patent No. 130,207, dated August 6, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, HIMAN FRANK, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Tool for Forming Mouths of Bottles and Jars; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a side view of my improved tool, and Fig. 2 is an enlarged sectional view through the plug and connecting devices in a longitudinal plane at right angles to the view shown in Fig. 1.

Like letters of reference indicate like parts in each.

My improvement relates to a tool for forming a screw-thread on the inside of the necks of glass bottles and jars along with a suitably-shaped seat for a gasket; and consists in the features of construction and combination substantially as hereinafter set forth and claimed.

To enable others skilled in the art to make and use my improvement, I will proceed to describe its construction and mode of operation.

In the drawing, B represents the spring-bow and B' B' the arms or handles, which carry at their outer ends the jaws *b b*. These jaws have a shoulder, *b'*, at or near their outer ends for forming a shoulder on the outside of the bottle-neck, and to facilitate the working of the plastic glass into the threads of the plug *a*. D is the stem which carries the plug *a*, and it is adjustable lengthwise by means of the nuts D'. The stem D does not extend quite as far forward as the handles B'. Its forward end is bifurcated, as shown at *d'*, and on the outer or forward end of the bifurcation is fastened a plate, *d*. Through this plate, in the axial line of the plug *a*, is a hole of other than circular form, in which works the base end *n'* of the stem N. This end *n'* of the stem N is of a form corresponding to that of the hole, so that when therein it will be prevented from turning. The stem N above the base *n'*, as at *n*, is of such form that when the stem is forced endwise and the base *n'* is projected wholly outside the plate *d* the part *n* will turn freely in the hole. The plug *a* is on the outer or forward end of the

stem N, and has the usual screw-thread *a'*, as shown. Above or back of the screw-thread is a cylindrical ring, *e'*, of a diameter at least equal to that of the largest part of the screw-thread. At the base of this ring is a fillet, *s*, and both are attached to or form part of a plate, *e*, which is loosely arranged on the stem N. A ring, *e''*, on the base or back side of the plate *e* plays through a guiding-plate, *e*, which latter is adjustably connected with the plate *d* by means of post *e'* and nuts *e''*. On the stem N is a spiral or other suitable form of spring, *g*, with one end bearing against the end of the ring *e''* and the other against the plate *d*. A small flange, *s'*, stops the outward motion of the plate *e* at the proper point, and the stem N, with its plug *a*, is caused to move endwise as the plate *e* is moved forward and back, by means of the ring *e''* bearing against an enlarged part, *n''*, of the stem N. The jaws *b b* are beveled at their back or inner ends, along the inner or working face, as at *o o*, and the upper outside edges of the plate *e* are correspondingly beveled, as at *o'*, so that the jaws, when closed together, shall act on the plate *e* on the wedge principle and force it back.

The operation is as follows: The jaws being open, the plug *a* is inserted into the mouth of the jar or bottle till the end of the bottle or jar mouth comes against the plate *e*. The jaws are then closed together. By that means the plate *e* is thrust back, and with it the stem N and all the devices carried thereon, till the round part *n* of the stem comes in the hole through the plate *d*. The plug is then free to revolve along with the bottle, and the inside and mouth of the neck are shaped by the usual operation. When this is done the jaws are allowed to open. The spring *g* then throws the stem N forward till the square part *n'* comes in the hole of the plate *d*. The plug *a* is thereby held against rotating, and the bottle or jar is screwed off in the usual way. The stem N must be free to rotate while the bottle-neck is being shaped on the plug *a*, and must be held against rotating while the bottle is being screwed off or removed from the plug. By means of the plate *e* the mouth of the jar or bottle receives a smooth finish. The fillet *s* makes, just around the inside of the mouth, a gasket-seat. The ring *e'* gives a cylindrical form to that part of the mouth which is next below, and this part in

the bottle is filled with an enlarged part of the stopper, so as to prevent the contents of the bottle or jar from coming in contact with the gasket. Next below comes the screw-thread. Such a bottle and stopper form the subject-matter of a separate application.

The guiding-plate *e* is made adjustable, in order to adapt a single tool to making bottle or jar necks of different thicknesses of glass. The further it is set back the closer together the jaws will come, and, consequently, thereby the glass of the neck will be worked down thinner, or a thinner neck may be worked. It is obvious that for the plate *c* having the bevels *o' o'* other device may be substituted, which, while being connected with the stem *N*, will be capable of being acted on by the closing and opening of the jaws, so that the stem *N* shall thereby receive a longitudinal motion.

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

1. In a tool for forming the mouths of bottles and jars, a plate, *c*, carrying a fillet, *s*, and

ring *c'*, in combination with a rotating threaded plug *a*, arranged substantially as described.

2. The jaws *b b*, in combination with a longitudinally-moving stem, *N*, with suitable interposed connections, whereby, on the closing of the jaws, the plug *a* will be free to rotate, and, on the opening of the jaws, will be held against rotating, substantially in the manner set forth.

3. The jaws *b b*, beveled as at *o o*, and plate *c*, beveled as at *o' o'*, in combination with stem *N*, spring *g*, and plate *d*, substantially as described.

4. The guiding-plate *e*, adjustably connected with the main stem *D*, in combination with plate *c* and jaws *b b*, substantially as set forth.

In testimony whereof I, the said HIMAN FRANK, have hereunto set my hand.

HIMAN FRANK.

Witnesses:

A. S. NICHOLSON,
G. H. CHRISTY.