W. HIRT & J. MAHLER.

TOOLS FOR FORMING LUGS IN THE NECK OF FRUIT-JARS, &c.

No. 192,509. Patented June 26, 1877.

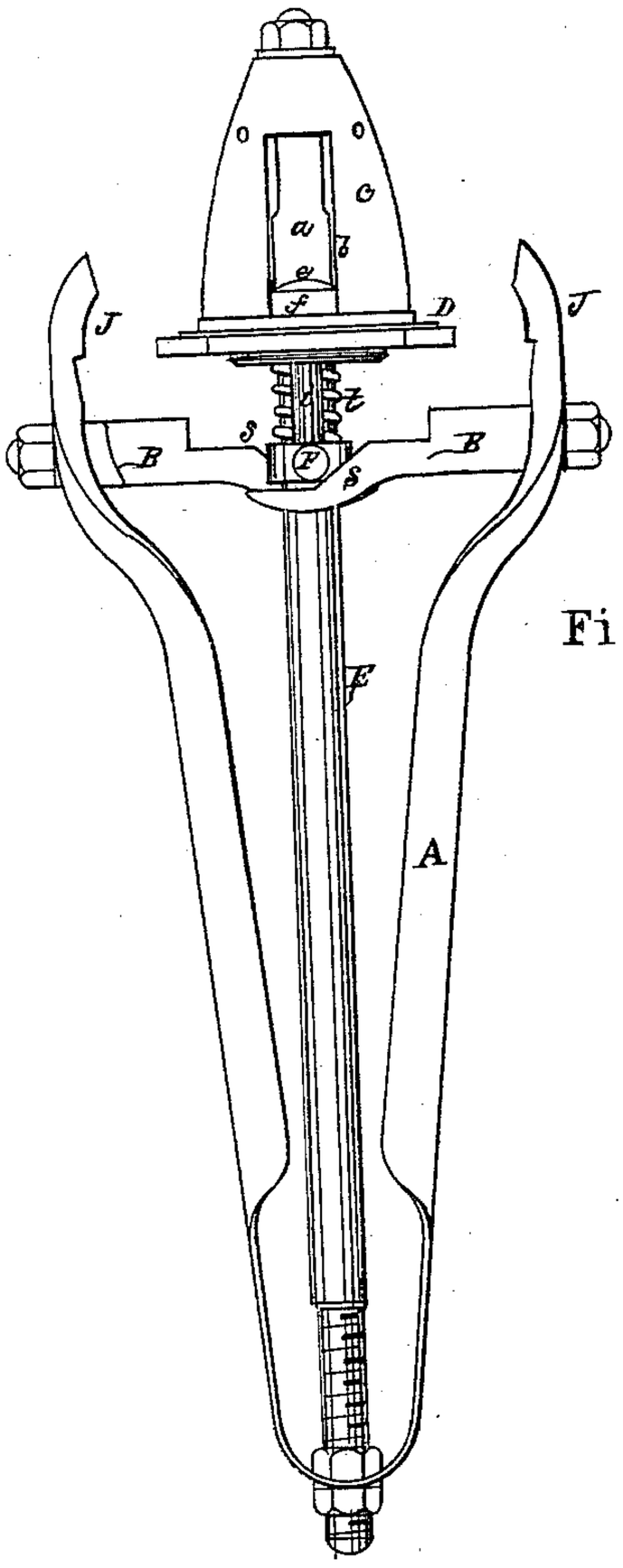

Fig. 1.

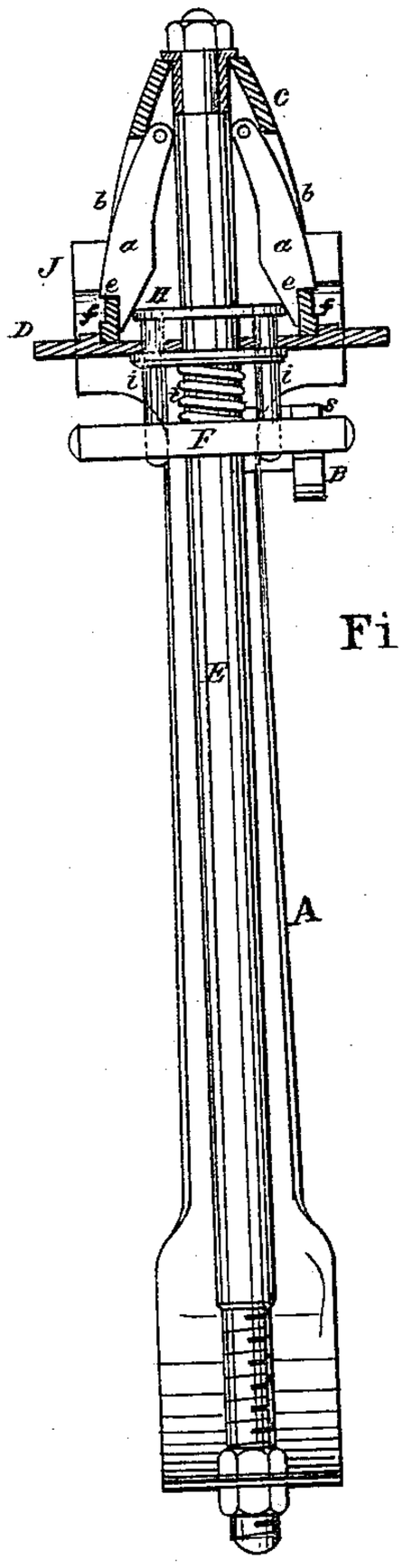

Fig. 2.

Witnesses.

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UNITED STATES PATENT OFFICE.

WILHELM HIRT AND JOSEPH MAHLER, OF PITTSBURG, PENNSYLVANIA;
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IMPROVEMENT IN TOOLS FOR FORMING LUGS IN THE NECKS OF FRUIT-JARS, &c.

Specification forming part of Letters Patent No. **192,509**, dated June 26, 1877; application filed June 14, 1877.

To all whom it may concern:

Be it known that we, WILHELM HIRT and JOSEPH MAHLER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful tool for forming solid lugs or projections on the inside of glass fruit-jar necks or wide-mouthed bottles, of which the following is a specification:

Our invention will be readily understood from the following description, taken in connection with the accompanying drawing, wherein—

Figure 1 represents a side elevation of our improved tool designed for the purposes above mentioned; Fig. 2, a vertical transverse section of the same.

We are aware that separate independent prominences or projections have been formed in the necks of wide-mouthed bottles to act as bearings for a sectional screw raised around the circumference of a top or detachable cover; but heretofore such projections formed in the necks of glass jars or bottles have been made by means wholly different from the tool or implement invented and used by us.

The construction and operation of our invention are as follows:

We make a long U-shaped spring-handle, A, provided at its open extremities with broad jaws J J, between which a conical revolving head or plug, *c*, is supported on a base-plate, D, held in proper position by an upright rod, E, screwed into the spring-curved portion of the spring-handle. This part of the implement is very similar in construction to those in ordinary use by glass-workers for the purpose of giving form to the inside and outside of fruit-jar necks; but, in order to accomplish the object of our invention, we make the conical plug or head *c* hollow, and suspend therein, by means of pins near the top or end of the cone, two or more blocks or arms, *a a*, that are free to vibrate in openings *b b* through the sides of the head, and are curved for a short distance to suit its contour. The outside lower ends of these several arms or blocks *a a* are formed each with an offset, *e*, that will, when forced outward, constitute the fourth side of a recess, *f*, situated in the walls of the revolving head *c*, outside of the base-plate D, each recess being of a size and shape required for the lug or projection on the inside neck of the proposed fruit-jar.

The inside ends of the swinging blocks *a a* are made tapering, and abut against a circular plate or disk, H, attached to a couple of vertical pins, *i i*, that extend beyond the base-plate D, terminating in a cross-head, F, through which the upright supporting-rod E passes. To each of the spring-handles A is affixed a horizontal finger, B, upon which the cross-head F rests, each finger being provided with a short inclined plane, *s*, so arranged with respect to the cross-head as that, on closing the jaws of the tool, such inclined planes will force the cross-head upward, and, carrying with it the vertical pins *i i*, drive the circular plate or disk H between the tapering ends of the pivoted blocks or arms *a a*, spreading them to the full extent of filling the apertures in the sides of the revolving head *c*, and completing the sides of the recesses *f f* formed therein for giving shape to the aforesaid lugs.

The operation of forming the necks of jars and bottles by our improved tool is similar to that operation performed by other tools; but, for the purposes of our invention, when the revolving head *c* is introduced into the neck of the semi-molten or plastic glass jar, and the jaws J of the implement are made to approach, for giving form to the neck, a certain amount of said semi-molten glass will be forced into the recesses *f f* in the head *c*, the glass during this time being rotated until the neck is finished, when, by simply allowing the jaws J to separate, they, in turn, will withdraw the inclined planes *s* from beneath the cross-head F, enabling the spiral spring *t* to drive it down, carrying with it, by means of the vertical pins *i i*, the circular plate or disk H from between the pivoted blocks *a a* in the hollow revolving head *c*, so as to admit of their falling inward automatically, and thus release the lugs or projections formed in the neck of such jars or bottles, and permit the withdrawal of the jar or bottle from the tool.

We claim—

1. The hollow conical shell *c* and recesses *f*

f, in combination with the vibrating arms *a a*, substantially as and for the purposes set forth.

2. In a tool for forming lugs or projections on the insides of glass-jar necks, the arms of the revolving hollow plug or shell, pivoted and arranged therein to form, when thrust out, the fourth side of recesses in the walls of the plug or shell, and to automatically drop inward away from said recesses, when relieved from the action of the thrusting device, to allow of the withdrawal of the tool from the jar-neck over said lugs or projections.

3. The combination, with the pivoted arms *a*, adapted to form the fourth side of wall-recesses in the conical plug or shell, as described, of the disk H, its connected cross-head F, the spring-arm fingers B B, and the spring *t*, adapted for co-operation, as set forth.

4. The arms *a*, provided at their free ends with inclined extensions, whereby to receive the thrusting action of the disk H, and to form stops to limit their outward movement through the plug or shell openings, as set forth.

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Witnesses:
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