J. D. Willoughby,

Tool for Making Glass Bottles

No. 29,739. Patented Aug 21, 1860.

Fig 2.

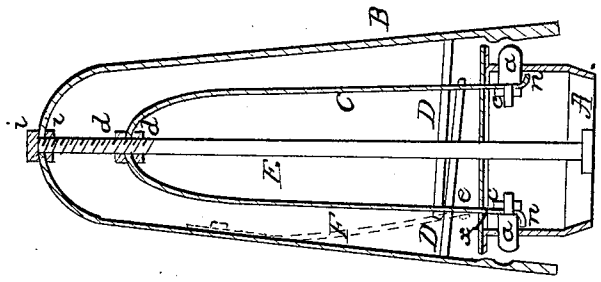
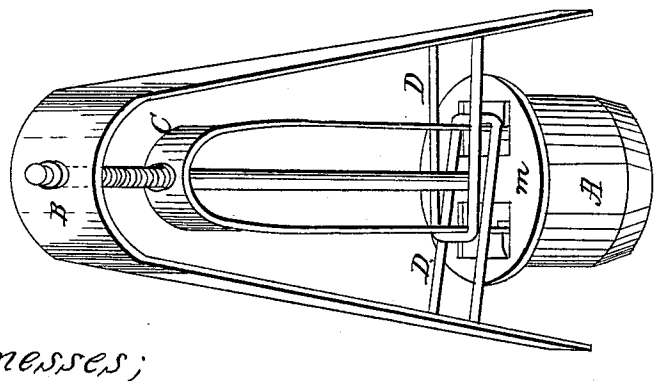


Fig 1.



Witnesses;

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UNITED STATES PATENT OFFICE.

J. D. WILLOUGHBY, OF PETERSBURG, VIRGINIA.

MACHINE FOR FORMING GROOVES IN THE NECKS OF CANS, &c.

Specification of Letters Patent No. 29,739, dated August 21, 1860.

To all whom it may concern:

Be it known that I, JAMES D. WILLOUGHBY, of Petersburg, in the State of Virginia, have invented certain new and useful Improvements in Machines for Forming Grooves or Annular Recesses in the Inside of Bottle or Can Necks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in forming annular recesses or grooves in the inside of the necks of cans or bottles, by means of the hereinafter described machine, or its equivalent.

In the annexed drawings Figure 1 is a perspective of the machine. Fig. 2 is a section of the same.

In the figures, A, represents a metallic mouth piece, which enters the neck or mouth of the bottle or can; when the recess is to be formed. This mouth piece is provided with a disk, *m*, at its outer end which is made large enough to catch upon the rim of the bottle or can mouth and thus prevent the mouth piece from entering too far into the neck.

E, represents a rod which is secured in the mouth piece A, at one end, and which extends out some distance beyond it. To the outer end of the rod E, is secured a spring B. The rod passes through the center of the spring, and the two ends of said spring are brought around to lie close beside the mouth piece A. This spring is regulated upon the rod E, by means of two nuts *i*, *i*, which are placed on each side of it as seen in Fig. 2.

C, represents a spring which is also secured upon the rod, E, and is made in the same shape with the spring B. The two ends of spring C, enter the mouth piece, A, through slots or openings in the disk, *m*.

a, *a*, represent pins which are secured to the ends of the spring C, by means of nuts, *c*, *c*, as seen in Fig. 2. The outer ends of these pins, are made rounding.

The object of making them rounding is that the groove or recess in the neck of the bottle or can may be of the same shape, as they form the recess. The mouth piece A, is provided with openings on each side of it through which the pins *a*, *a*, protrude when necessary.

D, D, represent staples which are secured to the spring B, and which embrace the spring C, as is represented in the figures. The two springs B and C, are so arranged that they have a tendency to move outward from the rod E. This being the case it will be seen that as the ends of the spring B move outward the staples embracing the ends of the spring C draw them in, and that as the spring B or the ends of said spring are pressed together the ends of the spring C move outward, causing the pins *a*, *a*, to protrude through the openings in the sides of the mouth piece. Recesses are formed in the spring B, near its ends, as is seen in Fig. 2, to correspond with the shape of the ends of the pins *a*, *a*.

When a recess is to be formed in the neck of a bottle with this machine the mouth piece A, is inserted in the neck of the bottle or can while the glass is red hot and pliable. The disk *m* prevents the mouth piece from entering too far into the neck. When the mouth piece has been inserted the proper distance the operator presses the two ends of the spring B together, which relieve the ends of the spring C, and they moving outward cause the pins *a*, *a*, to press against the glass which is held between the ends of the spring B and the out side of the mouth piece. The pins *a*, *a*, pressing against the glass firmly and the neck of the can or bottle being caused to revolve an annular recess of the shape of the end of the pins is formed on the inside of the neck of the can or bottle, the red hot glass being pushed or forced out to fill the recess in the ends of the spring B.

n, *n*, represent small projections on the sides of the pins for the purpose of preventing them from protruding too far and making the recesses too deep. After turning the neck of the bottle or can around several times or often enough to make the recess perfect, the operator relieves the ends of the spring B which causes the ends of the spring C, to move inward (the staples drawing them in) and thus the pins, *a*, *a*, recede from the recess and the machine may readily be removed from the mouth of the can or bottle. Instead of the spring C, I may use a spring lever, F, as seen in dotted lines, Fig. 2, with a fulcrum at *x*, and a joint at *e*, so that when the spring B is pressed upon the pins *a*, *a*, would be thrown out in a similar manner, or I may only use a fulcrum, at *x*, or any desired point so arranged that when

the ends of the spring, B, are pressed in the pins *a*, *a*, will be thrown out and when said ends are relieved of pressure the pins will be drawn in as has been described.

The nuts on the pins *a*, allow of their being adjusted so as to form a deeper or a shallower groove or recess, as may be desirable.

I may vary this machine, and I may use a variety of modes for pressing the pins into the glass and out again but I regard them all as equivalents of the mode which has been described.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is—

The combination of the mouth piece A, the springs B, and C, and the pins *a*, *a*, when the same are so arranged as to form grooves in the necks of cans and jars, and bottles, when the material is plastic substantially as specified.

J. D. WILLOUGHBY.

Witnesses:

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