

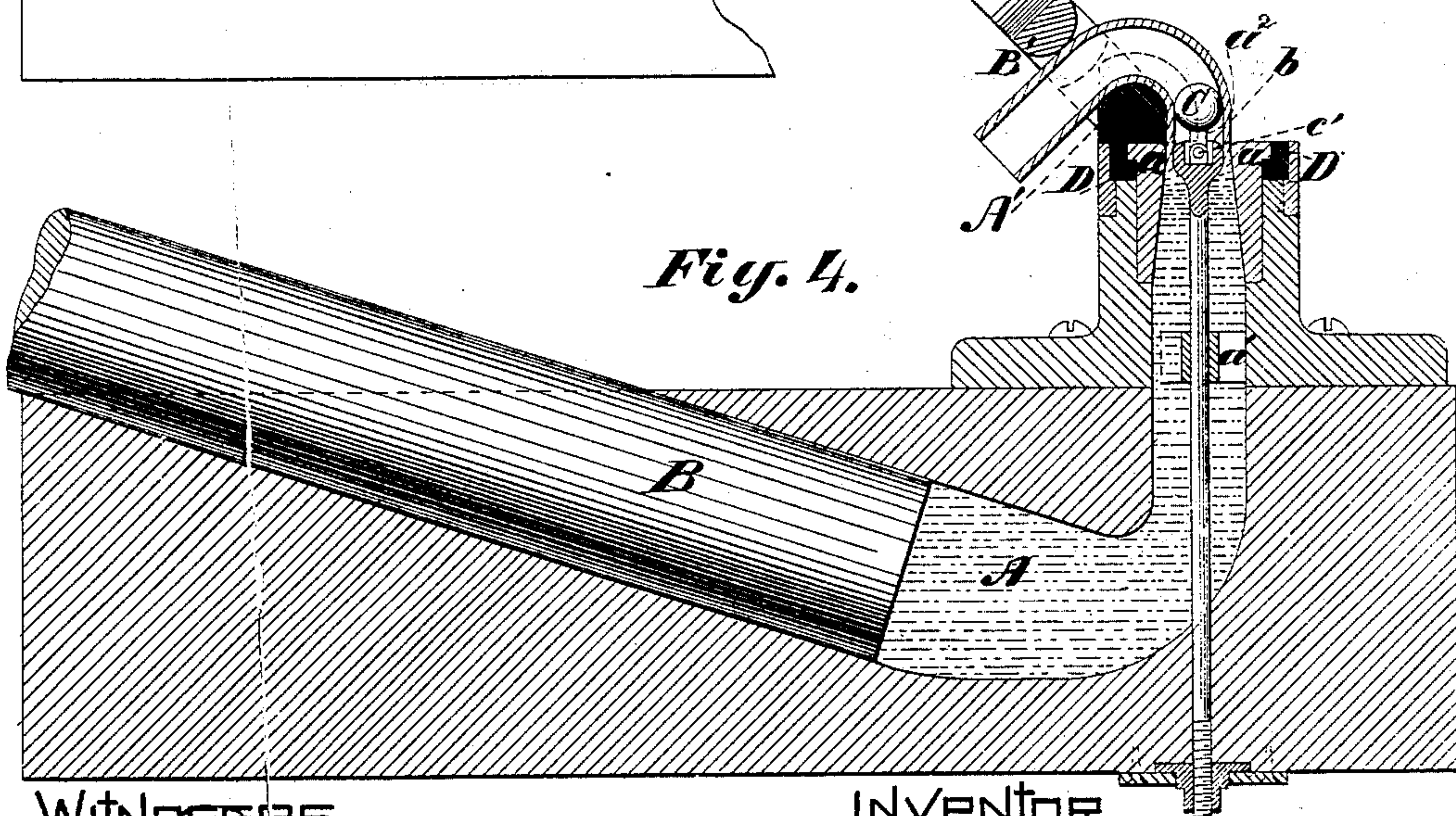
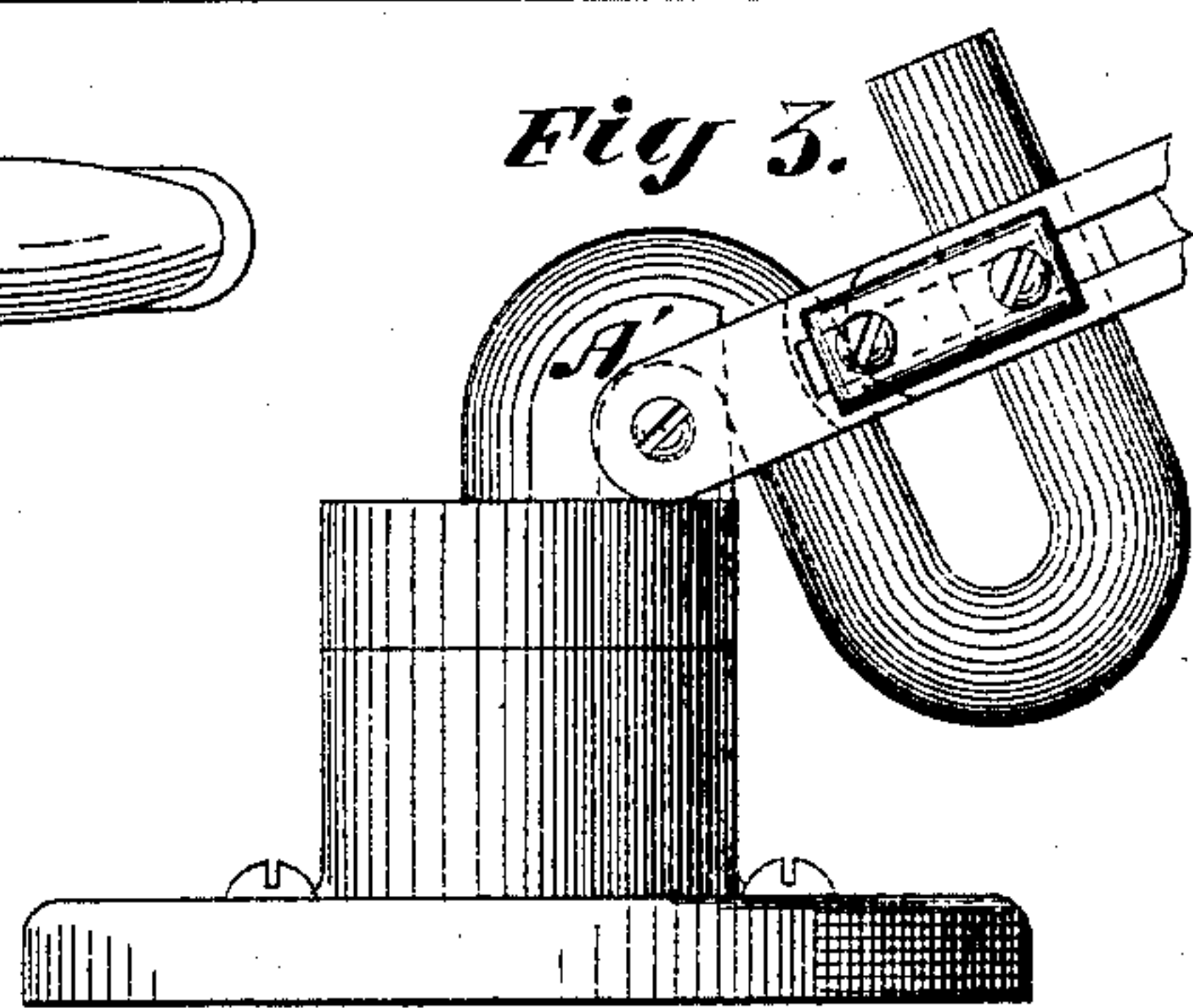
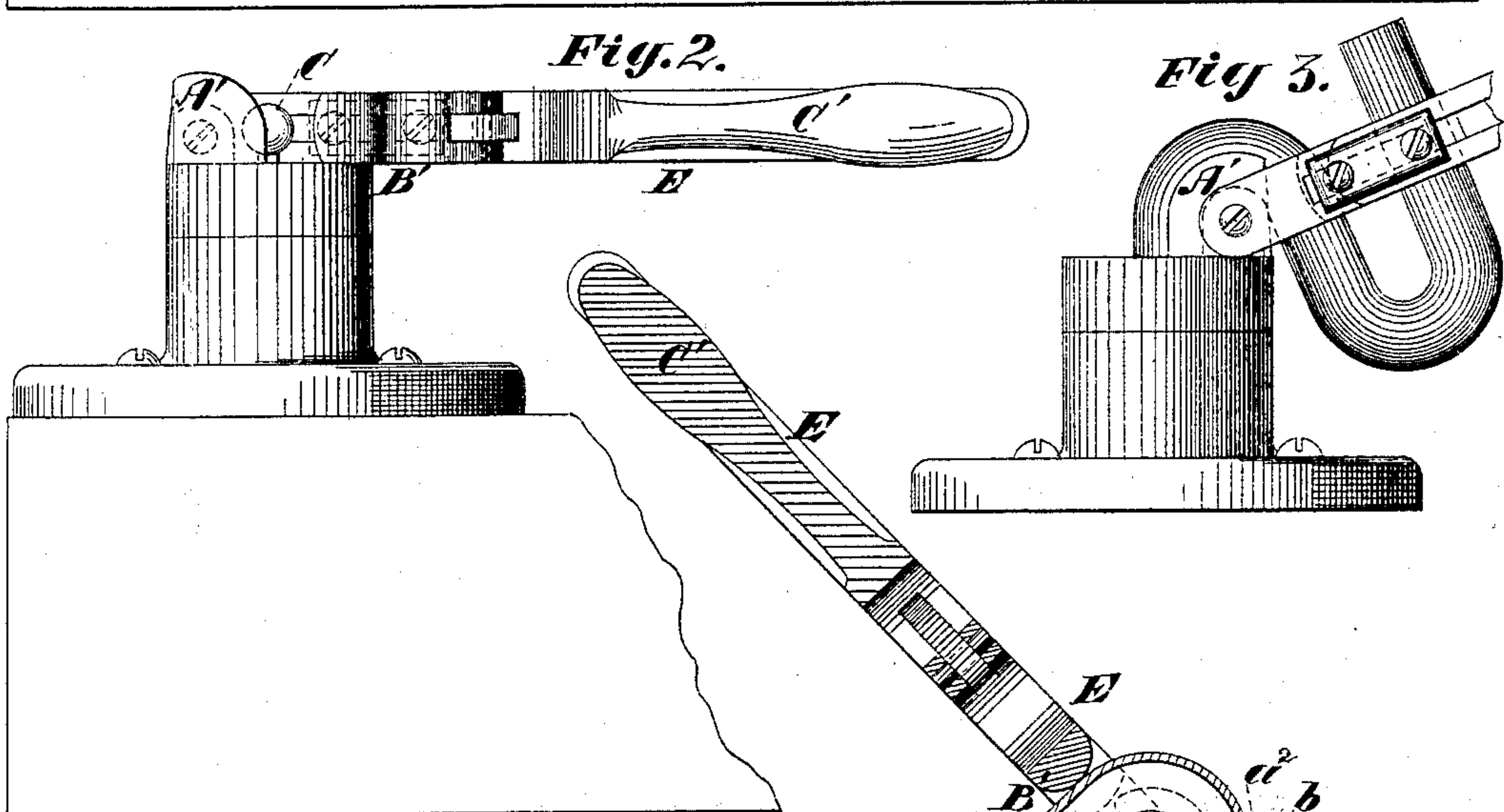
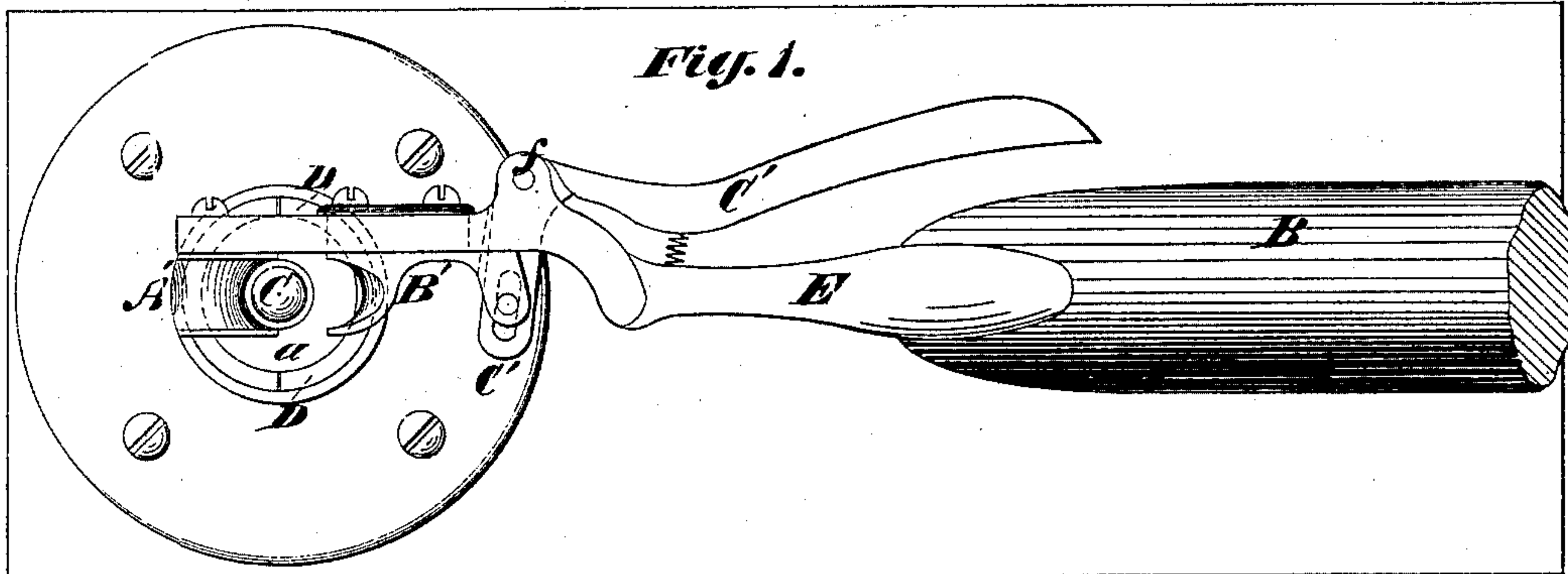
(No Model.)

J. McCLOSKEY.

APPARATUS FOR MAKING PLUMBERS' TRAPS.

No. 327,292.

Patented Sept. 29, 1885.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## APPARATUS FOR MAKING PLUMBERS' TRAPS.

SPECIFICATION forming part of Letters Patent No. 327,292, dated September 29, 1885.

Application filed December 16, 1879.

*To all whom it may concern:*

Be it known that I, JOHN McCLOSKEY, of the city, county, and State of New York, have invented certain Improvements in Means for Manufacturing Plumbers' Traps, of which the following is a specification.

This invention relates to that class of an apparatus designed for the manufacture of traps of soft metal; and its object is to provide for the bending of the traps in the requisite shape by power applied externally to the die to give a curved form to the issuing material.

A suitable cylinder or reservoir for lead or soft metal is constructed with an annular die, through which the metal may be forced in tubular shape, and is provided with a ram or plunger actuated by hydraulic or other suitable power to force the soft metal through the annular die in the tubular form aforesaid. Loosely attached to the core, which forms the central portion of the die, is a bulb spherical, spheroidal, or of other appropriate contour, the office of which bulb is to support the inner walls of the tube in such a manner as to prevent buckling or wrinkling of the metal when the tube is bent as the latter issues from the die. Fitted externally upon and around the die is an annular collar, upon which is provided a curved shoulder, over which the pipe is designed to be bent, and also provided with a lever constructed with a gripping or bending device in such a manner that by operating the said gripping or bending device the pipe may be grasped between the latter and the shoulder and turned over in one direction to form one of the bends of the trap, which done, the pipe is released from the gripping device, the collar is turned axially one-half of a revolution, thereby bringing the curved shoulder together with the lever and gripping or bending device at the opposite side of the pipe, in order to repeat the bending operation upon the next adjacent portion of the pipe, and in an opposite direction in order to give the second bend requisite to the formation of the trap, which latter is severed from the issuing pipe by the use of a saw or other suitable means preparatory to the formation of another trap in the same manner.

Figure 1 is a plan view representing the machine embraced in my said invention. Figs. 2 and 3 are side views, and Fig. 4 is vertical longitudinal section of said machine.

A represents the chamber containing the lead or other soft metal of which the traps are to be made, and which may be heated by any suitable means to the temperature which may best facilitate the flow of the lead in a solid, semi-solid, or plastic state. In the upper part of this chamber is provided the annular die *a*, of which the core is shown at *b*, the said core being held or steadied in position by any suitable means—as, for example, radial supports, as indicated at *a'* in Fig. 4.

At the lower or opposite end of the chamber A is provided a plunger, B, actuated by hydraulic or other suitable means to force the lead or soft metal contained in the chamber A outward through the annular die *a*.

C is a bulb or ball of solid metal of spherical, spheroidal, or other suitable form, and connected by a shank, *a''*, and pin *c'* with the core *b*, as shown in Fig. 4. Other methods of connecting the bulb with the core may be adopted, if desired.

D is an annular collar fitted around the upper end of the annular die in such a manner as to freely rotate around said die, and yet be incapable of being lifted therefrom.

The manner of attaching the collar in place as well as the construction in detail of the die being matters of judgment merely, and within the known scope of the arts, need no special description here.

Upon one side of the collar is formed a curved shoulder, A', the curvature of said shoulder radially from the axis of the collar corresponding to the curves of the inner sides of the trap to be made, as more fully indicated in Figs. 3 and 4.

Pivoted to the collar D, with its axis of motion coincident with the axis of the curve of the shoulder aforesaid, is a lever, E. On this lever is placed a sliding gripping-jaw, B', actuated by an elbow-lever, C', pivoted to the lever E, as shown at *f* in Fig. 1.

It is to be remarked that the shoulder A', while having the radial curvature hereinbefore described, is made concave transversely, as more fully shown in Fig. 1, this transverse contour being semicircular to correspond with one-half of the circumference of the pipe formed from the metal issuing through the die *a*. The outermost end of the gripping-jaw B' is made concave in like manner, as also represented in Fig. 1.



In the operation of the machine, the lever E is brought to a horizontal position, as represented in Figs. 1 and 2. The plunger B being set in motion the metal is forced from the chamber A through the die *a* in tubular form. The elbow-lever C is then brought toward the lever E to cause the issuing pipe to be gripped with more or less snugness between the gripping-jaw B' and the shoulder A', whereupon the lever is turned over the shoulder with a rapidity of movement proportioned to the rapidity with which the metal issues through or from the die, thereby causing the material, as it issues in tubular form from the die, to be curved around the shoulder aforesaid, thus forming one of the bends of the trap, as indicated in Fig. 4. When this is done, the elbow-lever is manipulated to relieve the pipe from the grip of the jaw B'. The lever E is reversed to bring the gripping-jaw B' clear of the pipe or tubular material. The continued issue in an upward direction of the material carries the just-formed bend clear of the shoulder A' and the lever E, together with the gripping-jaw B', and the collar D with its shoulder A' is turned axially around one-half of a revolution to bring the said parts to the opposite side of the tube issuing from the die, and the operation aforesaid is repeated, the result being to give a second turn to the tube, but in a direction opposite to the first, so as to form the second bend of the trap, as represented in Fig. 3. This done, and a sufficient portion of the metal having been allowed to issue in an upward direction and in a straight form from the die, the second arm of the trap is thus formed on the latter and the trap is sawed off.

The operations are repeated in succession for any desired number of traps, it being understood that the bulb C being within the pipe as it is bent, as hereinbefore explained, prevents the crushing in of the walls of the pipe or their buckling or wrinkling, which would otherwise be likely to occur from the stress on the tubular material.

If for any reason it is desired that the bends be in planes at an angle to each other, instead of directly opposite each other, as described, the lever E and collar D are turned the proper proportion of a revolution, and the apparatus is manipulated in the same manner as when the bends are formed directly opposite each other.

It is of course to be understood that in making traps with one bend only the shoulder A' can be stationary in its relation with the die, and that the lever carrying the gripping or bending device may in such case be incapable of axial movement around the die, it being only necessary that said lever with its gripping or bending device should be in proper relation with the shoulder of the die and the bulb.

It is furthermore to be remarked that, in

case the apparatus is to be constructed for use in making traps in which the bends are in planes at an angle to each other, the bulb may be connected with the core by a universal joint.

What I claim as my invention is—

1. The combination of an annular die for soft metal, a bulb connected to the core thereof, a jaw or shoulder adjacent to said die provided with a rounded arc-shaped face, and a bending-lever provided with a jaw having a rounded arc-shaped face, substantially as described.
2. The combination of the bulb C, or its equivalent, with the annular die *a*, substantially as and for the purpose herein set forth.
3. The combination, with an annular die, *a*, of a gripping or bending device for bending the metal simultaneously with the operation of the die and a shoulder or support for giving definite curvature to the tubular metal as bent by the bending or gripping device, all substantially as and for the purpose herein set forth.
4. The combination of a movable shoulder, A', a gripping or bending device, B', and an annular die, *a*, whereby the operation of forming the different curves of an S or similar trap is caused to proceed simultaneously with the ejection of the soft metal in tubular form from the die, all substantially as and for the purpose herein set forth.
5. The combination of the annular die *a*, the rotatable collar D, having the shoulder A', and a gripping or bending device for bending the tubular material over said shoulder as it issues from said die, all substantially as and for the purpose herein set forth.
6. The combination of the lever E, carrying the sliding gripping-jaw B', the collar D, provided with the curved shoulder A', the annular die *a*, the chamber A, and a plunger, B, all substantially as and for the purpose herein set forth.
7. The combination of an annular die for soft metal, a bulb connected to the core thereof, a jaw or shoulder adjacent to said die provided with a rounded arc-shaped face, and a bending-lever provided with a movable jaw having a rounded arc-shaped face, substantially as described.
8. The combination of an annular die for soft metal, a bulb connected to the core thereof, a jaw or shoulder adjacent to said die provided with a rounded arc-shaped face, a bending-lever provided with a movable jaw having a rounded arc-shaped face, the shank of said movable jaw having an inclined slot, an elbow-lever pivoted to said bending-lever and provided with a pin which engages said slot, substantially as described.

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Witnesses:

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