

No. 775,203.

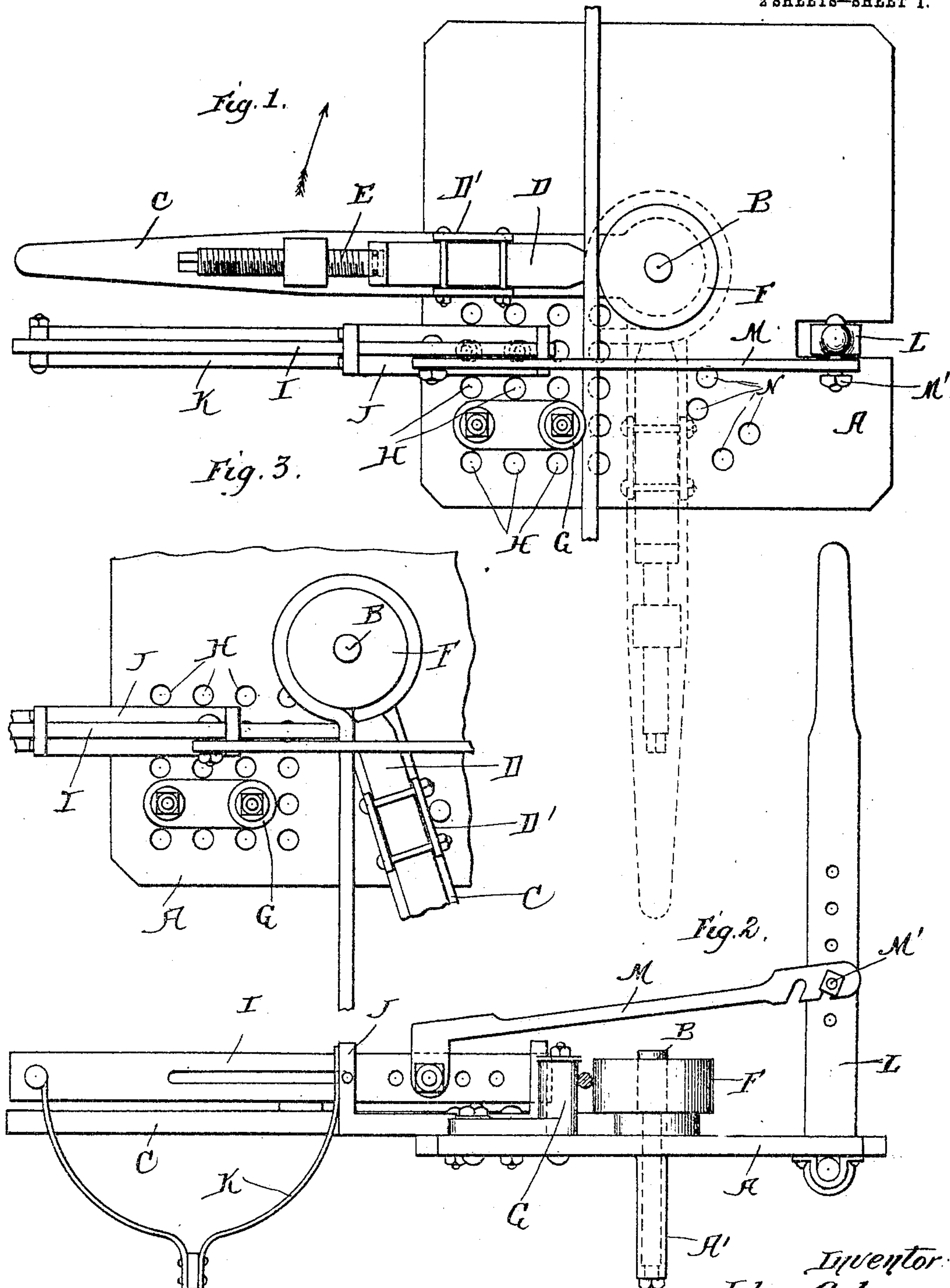
PATENTED NOV. 15, 1904.

J. ARBER.
BENDING MACHINE.

APPLICATION FILED JULY 23, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



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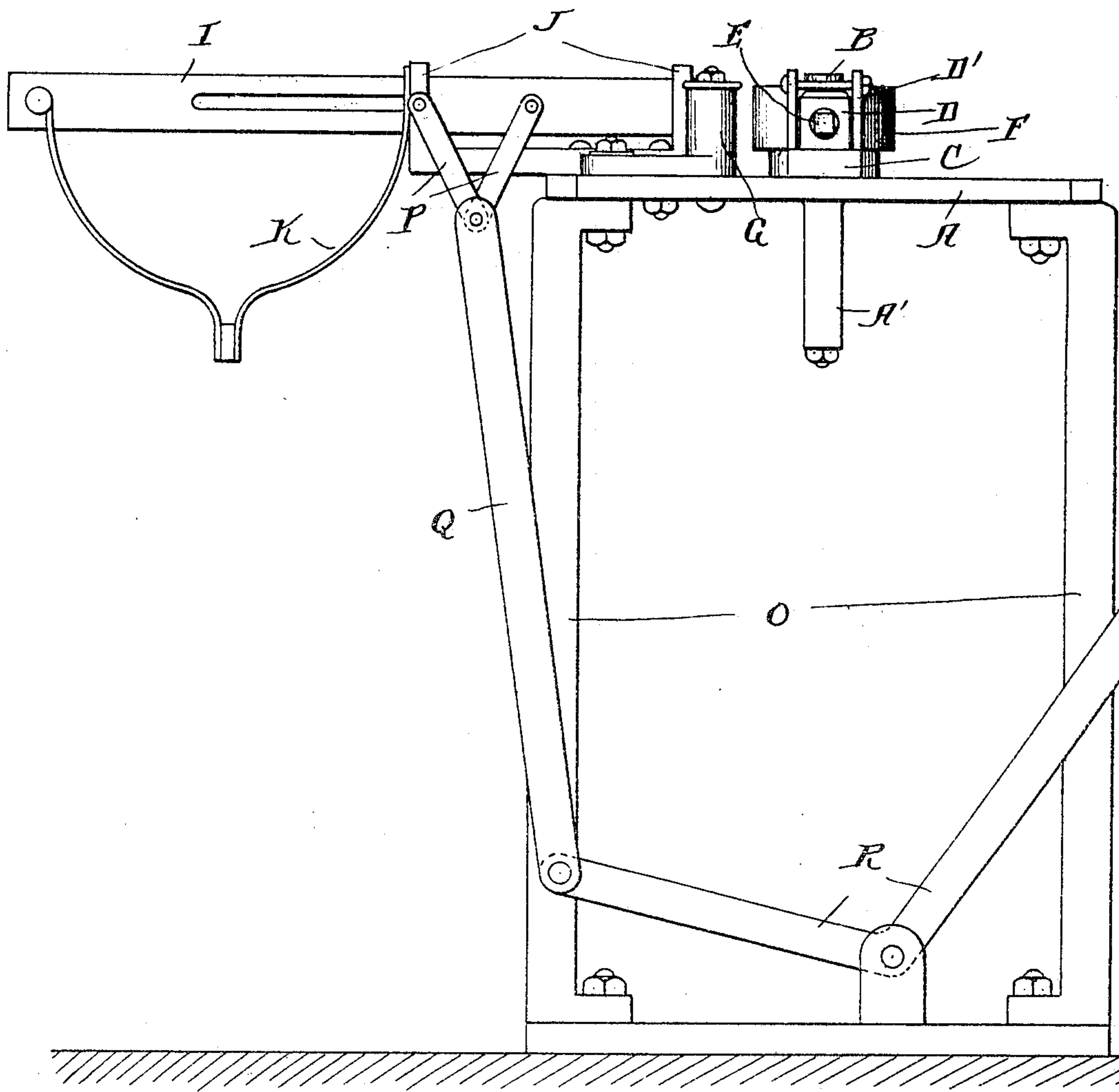
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Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN ARBER, OF PHILADELPHIA, PENNSYLVANIA.

BENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 775,203, dated November 15, 1904.

Application filed July 23, 1904. Serial No. 217,759. (No model.)

To all whom it may concern:

Be it known that I, JOHN ARBER, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a certain new and useful Improvement in Bending-Machines, of which the following is a specification.

My invention relates to a new and useful improvement in bending-machines, and has for its object to provide a machine simple in construction, but exceedingly durable and efficient in action, by which metal rods or tubes may be bent in different variety of curves; and a further object of my invention is to so construct the apparatus that it may be used and attached to an anvil, or it may be made in the form of a stationary machine by being attached to suitable standards or lugs.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of my apparatus in its portable form, or in the form designed to be attached to an anvil; Fig. 2, a side elevation of the portable form of device; Fig. 3, a plan view of a portion of the device, showing the position of the parts after an eyebolt has been formed; Fig. 4, a side elevation of my device in its stationary form.

A represents the table or bed-plate of the device, which has extending downward from the center thereof a lug A', which is adapted to fit into the hole formed in an anvil. If this lug is too small for the hole in any particular anvil, a separate block may be used to fit in the hole in the anvil, said block having a recess adapted to fit the lug A'.

B is a pin secured in the center of the bed-plate A and extending downward through the lug A'. Journaled upon this pin above the bed-plate is the bending-lever C, and the pin B extends upward above said lever.

D is a block adapted to slide longitudinally of the lever C in suitable guideways, as represented at D'.

E is a screw threaded through a bearing extending upward from the lever C, and said screw bears against the outer end of the sliding block D. Different-size collars F may be slipped over the upper end of the pin B, or the pin B itself may be used as a templet around which the metal bars are bent.

G is a chock against which the bar bears while being bent. This chock is secured to the bed-plate by bolts passing downward through holes H, formed through the bed-plate, there being a number of these holes, so that the chock may be adjusted to any position desired, and as the bolts are smaller than the diameter of the holes the chock may be adjusted to a limited degree without removing the bolts from the holes.

In operation the bar to be bent is placed against the circular templet F, and the chock G is adjusted so as to bear against the bar, as shown in Fig. 1. The bending-lever C is then placed in the position shown in Fig. 1, and the sliding block D is forced into contact with the bar, and then by revolving the lever C in the direction of the arrow until the position shown in dotted lines in Fig. 1 is reached a circular bend is made in the bar, forming an eyelet. Of course the bending-lever can be stopped at any position desired around the circle, thus forming any degree of bend desired, or by removing the bar and replacing it in the machine a compound curve could be made.

For the purpose of bending the bar or iron with an offset or for forming an eyebolt with the bar in the center of the eye I provide a reciprocating plunger I, guided in a suitable bearing J, adjustably secured to the bed-plate of the machine, said plunger I being normally held rearward by means of the curved spring K, one end of which is secured to the plunger and the other end attached to the bearing J. In a portable machine, such as shown in Figs. 1, 2, and 3, this plunger is operated by means of a lever L, pivoted to the bed-plate of the machine and extending upward therefrom, this lever L being connected

to the plunger I by means of a link M, the outer end of which is simply hooked over a bolt M', passing through the lever L, the lever L being provided with a number of holes for the bolt M' and the plunger I being provided with a number of holes, so that the throw may be regulated. By pulling upon the lever L the plunger I may be forced in contact with the bar, and said bar may be bent with an offset, as shown in Fig. 3.

Holes N, formed through the bed-plate, are for the purpose of receiving a pin which will hold the bending-lever C in position while the plunger is operated. By adjusting the plunger to different angles and different positions different forms of offsets and bends may be made in the bar by means of this plunger. In revolving the lever C the link M is unhooked from the lever and the lever thrown downward out of the way to allow the bending-lever C to pass.

In Fig. 4 I have shown the device as a stationary machine, the table A being supported by suitable legs or standards O, and in this instance the operating-levers for the reciprocating plunger is below the bed-plate and out of the way of the bending-lever. This reciprocating plunger may be reciprocated in any manner desired; but in Fig. 4 I have shown the means as consisting of a toggle-joint composed of the two short links P, one pivoted to the bearing J and the other to the plunger I, the lower ends of these links being pivoted together to a link Q, the lower end of the link Q being pivoted to the bell-crank lever R, so that when the outer member of the bell-crank lever R is pressed downward the link Q will be raised and in raising will force the upper end of the link P apart and force the plunger I against the bar to be bent.

Of course I do not wish to be limited to the exact construction here shown, as slight modifications could be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is—

1. In a machine of the character described, a bed-plate, a lug extending downward from

said bed-plate and adapted to fit in the opening of an anvil, a bending-lever pivoted above the bed-plate, the pivot of said lever extending upward above the same, circular templets adapted to be slipped upon the upper end of said pivot, a longitudinally-sliding block arranged above said lever, suitable guideways formed upon the lever for guiding said block, a screw threaded through a bearing extending upward from the lever and bearing against the outer end of said sliding block for forcing the same toward the templet, a chock adjustably secured to the bed-plate, a reciprocating plunger, a bearing for said plunger adjustably secured to the bed-plate, means for forcing said plunger toward the bar to be bent, and a spring for returning the plunger to its normal position, as specified.

2. In a machine of the character described, a bed-plate, a lug extending downward from said bed-plate adapted to fit in the opening of an anvil, a bending-lever pivoted at one end above the bed-plate, the pivot of said bending-lever extending above the lever, circular templets adapted to be slipped upon said pivot, a longitudinally-sliding block arranged above the lever, suitable guideways provided upon the lever for guiding said block, a screw threaded through a lug extending upward from the lever and bearing against the outer end of said block adapted to force the same toward the templet, a chock adjustably secured to the bed-plate, a reciprocating plunger, a bearing for guiding said plunger adjustably secured to the bed-plate, a lever pivoted to the bed-plate and extending upward therefrom, a link, one end of which is connected to the plunger, the other end being removably connected to said lever, and a spring for returning the plunger to its normal position, as and for the purpose specified.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

JOHN ARBER.

Witnesses:

MARY E. HAMER,
L. W. MORRISON.