(No Model.)

C. M. HUNSICKER.

MACHINE FOR BENDING METAL PIPES.

No. 347,488. Patented Aug. 17, 1886.

Fig. 1

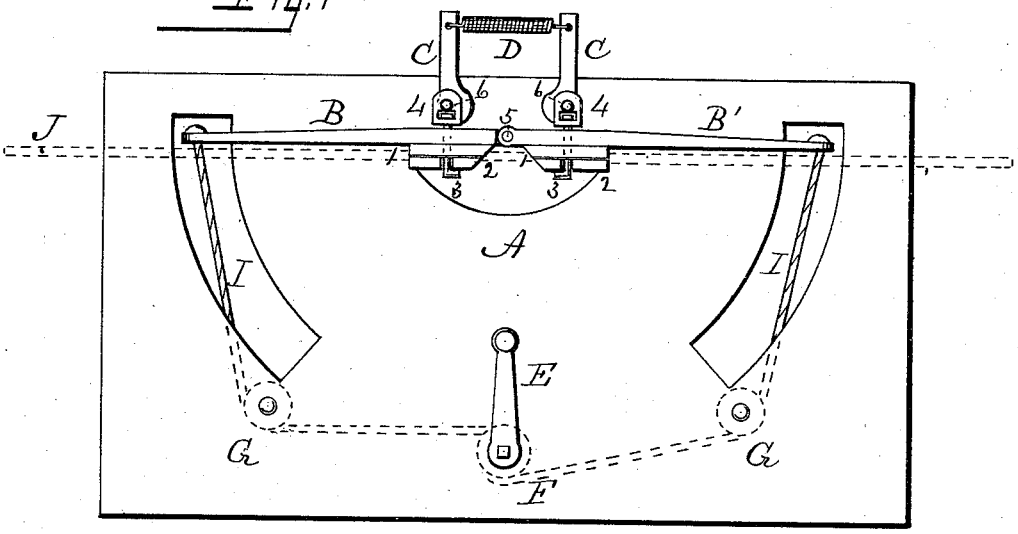


Fig. 2

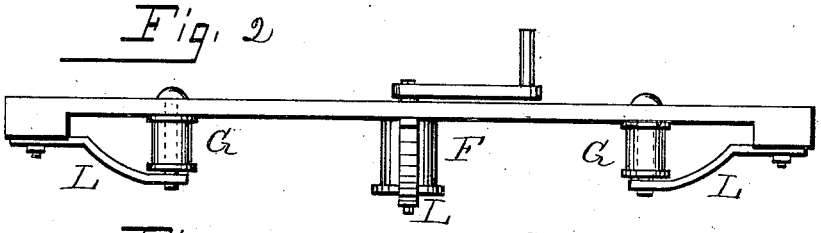


Fig. 3

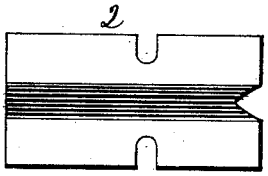
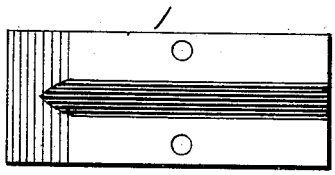


Fig. 4



Witnesses
Fred Reibold
Leopold Leibold

Inventor
Charles M. Hunsicker
By His Attorney B. Pickering

UNITED STATES PATENT OFFICE.

CHARLES M. HUNSICKER, OF DAYTON, OHIO.

MACHINE FOR BENDING METAL PIPES.

SPECIFICATION forming part of Letters Patent No. 347,488, dated August 17, 1886.

Application filed January 21, 1886. Serial No. 189,250. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. HUNSICKER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented a certain new and useful Improvement in Machines for Bending Metallic Pipes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to a machine for bending metallic pipes, in which the iron pipe, when heated to a red heat, is thrust through two pairs of semicircular dies in line, and supported on a common pivot, and the arms on which the dies are supported are brought to a right angle, thus holding the pipe in such manner that the bending is made without flattening or diminishing the orifice of the pipe. The arms carrying the dies are preferably operated by a crank and pulley with cords or chains attached thereto. I attain the object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top view of the pipe-bending machine. Fig. 2 is a front view of the frame, exhibiting the arrangement of the pulleys. Fig. 3 is an enlarged view of the outer die. Fig. 4 is an enlarged view of the inner die.

A is the base or frame on which the operative parts are supported. This base may have legs attached to support it at a proper elevation, or may be otherwise supported.

The arms B B′ are made of iron, and are identical in construction, and are supported on the pivot 5, which is fixedly attached to the base. To the inner ends of each of these arms are attached a pair of dies, 1 and 2, which are held to the arms by the bolts 3, there being two similar bolts for each set of dies. There are four of the plates 4—one for each bolt used to fasten the dies. In the near end is a square orifice for the nuts of the several bolts, and the farther end has a hole for the bolt 6, on which the eccentric levers C C are pivoted. To the outer end of these levers is attached the spiral spring D. The effect of this spring is to hold these levers as the arms are moved, and thereby tighten the bolts against the dies as the eccentric surfaces engage the rear surfaces of the arms. When the arms are carried back in the position as illustrated, there is no tension on the spring, and, as a consequence, the bolts are easily turned. The heads of the bolts are formed by bends at right angles, and the shaft occupies the notches of the outer dies, holes in the inner dies, the arms, and the pivotal plates of the eccentric levers. To remove the outer die it is only necessary to turn the bolt-head in a vertical position. On the inner surfaces of the dies are formed semicircular grooves, and the faces next the pivot have an inclination of forty-five degrees, (45°.) The outer ends of the arms are bent down sufficiently to carry the cords I I beneath the base. These cords are attached to the pulley F, and pass over the pulleys G G. The upper ends of the shafts of these pulleys are secured in the base, and the lower ends are held by the stays L. To the shaft of pulley F is attached the crank-handle E.

The dotted lines J show the position of the pipe as placed in the dies in preparation for bending. The object is to bend the pipe at a right angle, but it may be bent at any less angle.

The device for operating the arms may be varied, the essential feature being that the arms should move simultaneously.

The operation is thus: Heat the iron pipe to a red heat at the point to be bent. Thrust the same into the orifices of the dies. Then draw the arms forward by the crank until the dies come in contact. This completes the bending of the pipe at a right angle. The pipe is so held in the dies that the back side is expanded and the near side is contracted, thus forming a bend which does not flatten and does not diminish perceptibly the orifice. The dies, of course, must be adapted to the different sizes of pipe, and must enter the same freely. To remove the pipe after bending, turn the heads of the bolts to a vertical position, and the outer die can be removed and the pipe taken away.

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

1. A pipe-bending machine having arms B B′, supported on a common pivot, the two pairs of dies with orifices and angular faces

opposite each other, and notches and holes for the holding-bolts, which are held in the arms and pivotal plates, and the eccentric levers joined by a spiral spring, the whole combined substantially as set forth.

2. The two series of dies 1 and 2, with faces inclining at an angle of forty-five degrees, and semicircular grooves facing each the other, and combined with an operative mechanism, substantially as described.

3. The combination, substantially as set forth, of the arms B B′, pairs of dies 1 and 2, eccentric levers C C, spiral spring D, cords I I, or their equivalents, pulley F, and crank E.

4. The method, substantially as herein set forth, of bending iron pipe at a right angle.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CHARLES M. HUNSICKER.

Witnesses:
B. PICKERING,
EDWARD T. HALL.