E. DEVINE.

Metal-Bending Machine.

No. 165,804. Patented July 20, 1875.

Fig. 1.

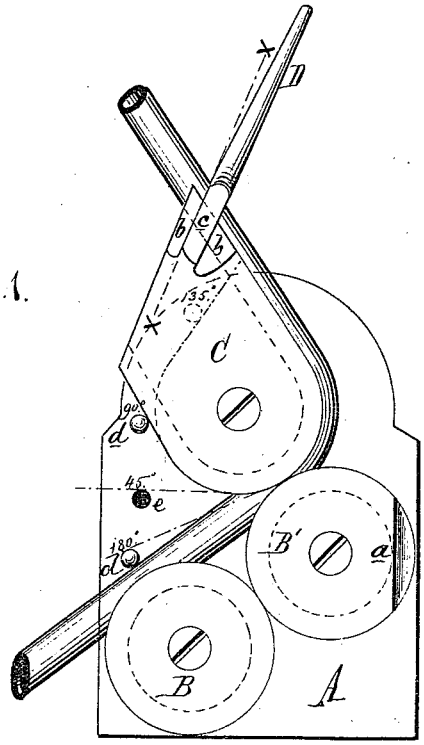


Fig. 2.

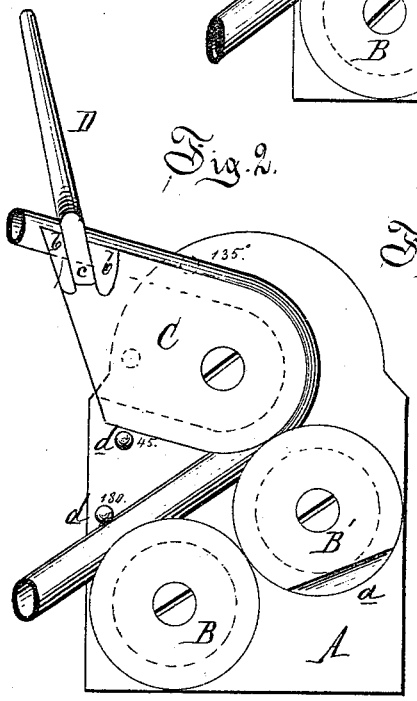


Fig. 4.

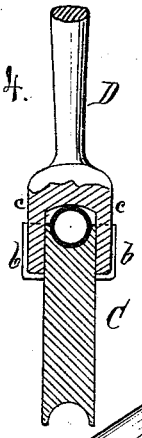
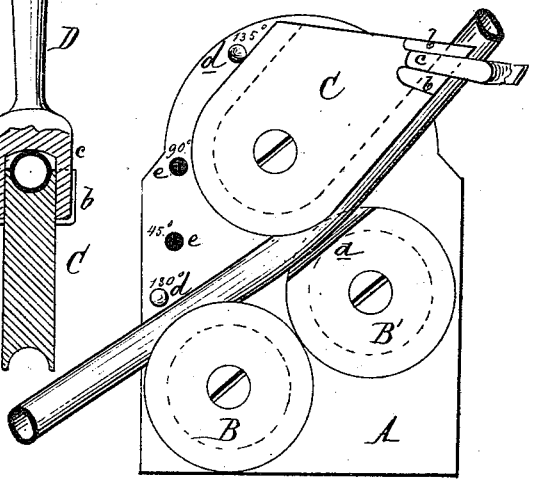


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWARD DEVINE, OF DETROIT, MICHIGAN, ASSIGNOR TO HIMSELF AND MICHAEL McWILLIAMS, OF SAME PLACE.

IMPROVEMENT IN METAL-BENDING MACHINES.

Specification forming part of Letters Patent No. **165,804**, dated July 20, 1875; application filed April 17, 1875.

To all whom it may concern:

Be it known that I, EDWARD DEVINE, of Detroit, in the county of Wayne and State of Michigan, have invented an Improved Pipe-Bending Machine, of which the following is a specification:

My invention has for its object to furnish a machine by means of which wrought-iron pipe can be bent to any angle up to one hundred and eighty degrees with ease and facility, and without flattening the pipe.

The invention consists, first, in a pair of guide-sheaves and a rotating former, each having a half-round groove in the edge, and pivoted to the surface of a bed-plate for bending the pipe; and, secondly, in a peculiar lever for rotating the former, and at the same time to clamp the pipe to the side thereof, as will be more fully hereinafter set forth.

Figures 1, 2, and 3 are plan views of the machine, showing, respectively, pipes bent to the angles of ninety degrees, forty-five degrees, and one hundred and thirty-five degrees. Fig. 4 is a cross-section through the former and the fork of the lever at *x x* in Fig. 1.

In the drawing, A represents a bed-plate, near one corner of which there is pivoted a sheave, B, having a half-round groove in its periphery. B′ is a similar sheave, in like manner pivoted on the bed-plate at one side of the center. A portion of the rim at the top is cut away, as at *a*, giving an opportunity to lay a pipe in the groove. C is a former having a semicircular end, pivoted in its radial center to the bed-plate, its pivot-bolt being in a right angle with a line drawn through the pivots of the sheaves B B′. Its rim and sides are grooved like the peripheries of said sheaves, and its edge is nearly in contact with the periphery of the sheave B′. In one corner of said former a pair of ribs, *b b*, are molded on the upper side, and a similar pair on the lower side, to receive a fork, *c*, at the end of a lever, D, by means of which the said former may be rotated on its pivot. *d* is a pin, which may be inserted in any one hole, *e*, on the farther side of the bed-plate, to arrest the former at any angle desired less than one hundred and eighty degrees.

To bend a pipe, the sheave B′ is turned to the position seen in Fig. 3, when the pipe to be bent at that point (previously brought to a red heat) is dropped into the groove. The former is swung back until its side is in contact with the pipe, which is secured thereto by inserting the fork of the lever in the guide-ribs *b*. The pipe is then bent around the circular end of the former by turning the latter on its pivot, the angular face of the jaw preventing the pipe from slipping. The concave rims of the sheaves and former prevent the pipe from flattening.

By bending pipe in this way, for steam-heating and other purposes, a large saving is made in the cost of fittings, pipe-cutting, and threading, that would otherwise be necessary, besides materially reducing the number of joints in the work.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the sheaves B B′ and former C, with the bed-plate A, substantially as and for the purpose set forth.

2. The forked lever D, in combination with the former C, substantially as and for the purpose set forth.

EDWARD DEVINE.

Witnesses:

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