E. F. HOLINGER.

PIPE BENDING MACHINE.

APPLICATION FILED JULY 26, 1917.

1,268,844.

Patented June 11, 1918.

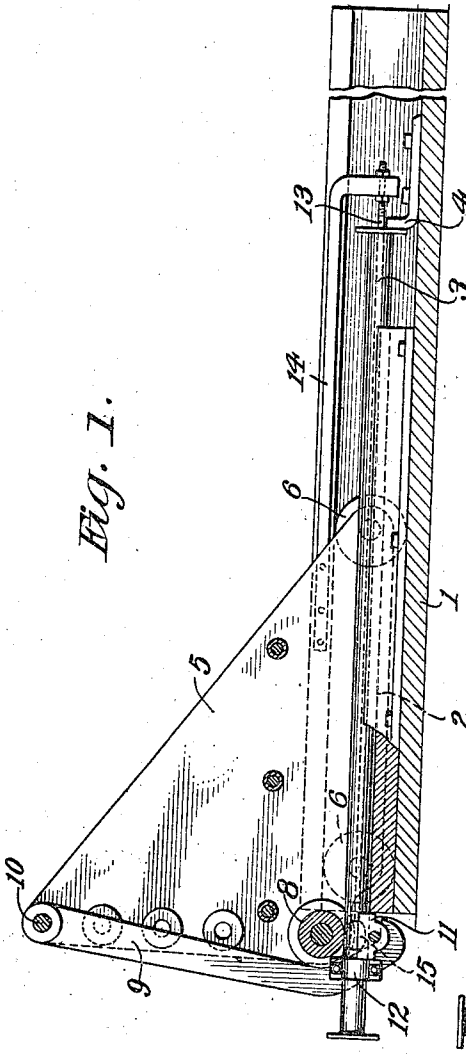


Fig. 1.

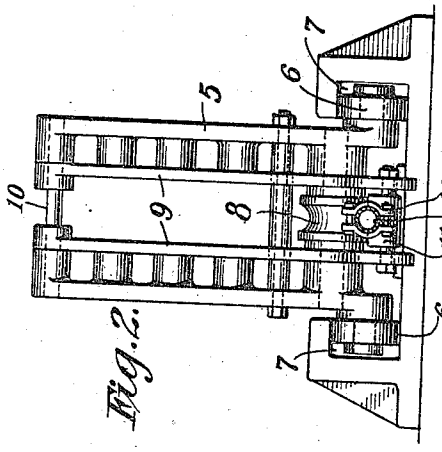


Fig. 2.

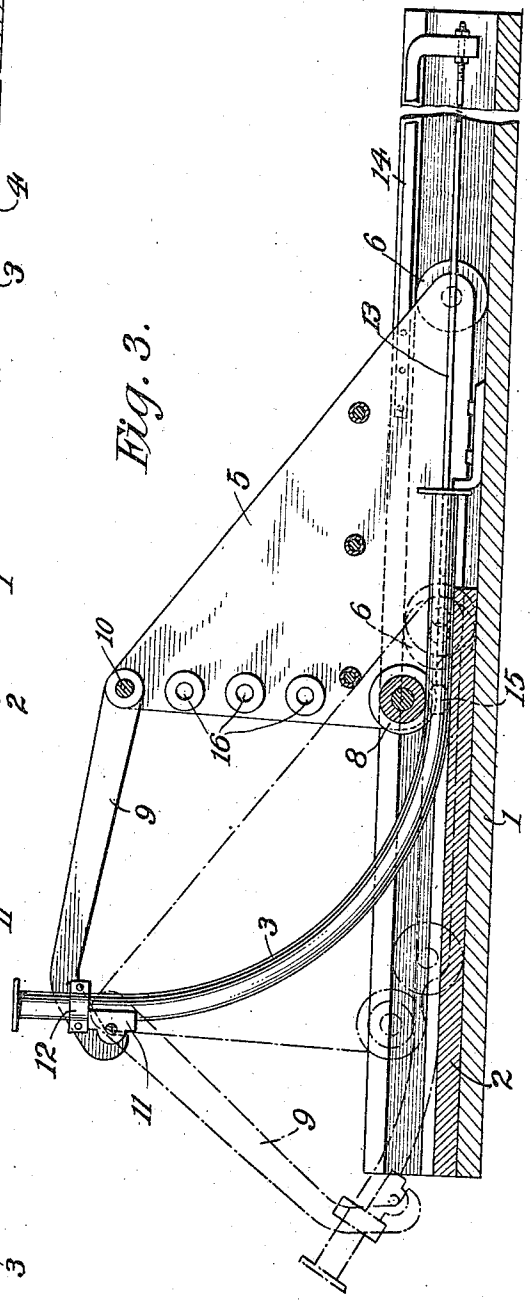


Fig. 3.

Inventor

Emil F. Holinger

By his Attorneys

Sheffield & Betts

UNITED STATES PATENT OFFICE.

EMIL F. HOLINGER, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE M. W. KELLOGG COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

PIPE-BENDING MACHINE.

1,268,844. Specification of Letters Patent. Patented June 11, 1918.

Application filed July 26, 1917. Serial No. 182,861.

To all whom it may concern:

Be it known that I, EMIL F. HOLINGER, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Pipe-Bending Machines, of which the following is a disclosure.

My invention relates to machines for bending metallic pipe of various kinds, and the object of my invention is to provide a relatively strong and simple machine that will be comparatively cheap to construct, simple to operate, and which can be readily adjusted to bend a pipe to any desired curvature or radius. A further object of the invention is to provide a machine of this kind which can be used to bend pipe having comparatively thin walls, without danger of crushing the pipe during the bending operation.

In the drawing accompanying and forming a part of this specification, I have illustrated the preferred embodiment of my invention, and my invention will be readily understood from a description of the machine illustrated.

Referring to the drawing,

Figure 1 is a side elevation of the machine, a portion thereof being in section, with a pipe in position and ready to be bent.

Fig. 2 is an end view of the structure shown in Fig. 1.

Fig. 3 is a side elevation, a number of the parts being shown in both broken and solid lines in order to show their relative positions during the operation of bending a pipe.

Referring in detail to the structure shown, the numeral 1 designates the bed or framework of the machine. This framework carries an elongated member 2, the upper surface of which is made concave and is adapted to receive and support the pipe 3 to be bent. The member 2, together with the stop 4, constitute a rack for the pipe, and support the body of the pipe during the bending operation. A carriage 5 is mounted on the frame 1 and is provided with wheels 6 adapted to support the carriage and to permit its being moved longitudinally along the frame. The wheels 6 are moved in guideways 7 formed in the side members of the frame, and hold the carriage in operative relation at all times. The carriage 5 carries a bending roller 8, adapted to move in contact with the pipe disposed in the frame, and the pipe is bent around this roller as hereinafter explained. The carriage 5 also carries a swinging or pivoted arm 9, secured at one end to a pivot pin 10. The arm 9 is made in two sections, as shown, and at its outer end carries a bearing block 11 adapted to engage the pipe to be bent. The pipe is preferably provided with a clamp 12 to prevent the block 11 sliding along the pipe during the bending operation.

In bending a pipe having comparatively thin walls, it is desirable to incorporate in the machine means which will prevent the walls of the pipe from collapsing during the bending operation, and to this end I provide a tension member in the form of a rod 13, and secure the outer end of this rod by means of the bar 14 to the carriage 5. The inner end of the rod terminates in a ball-shaped head 15. In operation the head is drawn along by the carriage and maintains its position immediately beneath the bending roller 8.

The operation of the machine above described is as follows: The pipe to be bent is placed in the frame, as shown in Fig. 1. An arm 9, corresponding in length to the radius to which the pipe is to be bent, is then selected, and is secured at one end to the carriage 5 by means of pin 10 passing through one of the openings 16 on the carriage, and is secured at its outer end as shown in the protruding end of the pipe. The carriage 5 is then pulled along the frame in any suitable way, and the free end of the pivot arm 9 gradually rises, as shown in Fig. 3, carrying the free end of the pipe with it, and bending it to the desired radius.

During one operation the pipe may be bent into a quarter circle, or so as to make a right angle connection. It is obvious, however, that by repeating this operation the pipe may be bent to any extent desired and to any desired curvature within the limitations of the particular machine. In order to facilitate the bending of pipe to different curvatures, each machine is preferably provided with a plurality of pivot arms 9, each corresponding in length to a desired curvature, and the carriage is provided with a plurality of holes 16, so that it can accommodate the arms of varying

length. Instead of having a plurality of arms, a single arm, adjustable as to length, may be provided.

While the foregoing is the preferred way of using my improved machine, I am aware that the machine may also be used with the carriage 5 held in fixed relation to the frame, provided suitable means are provided for drawing the pipe through the machine and in contact with the roller 8, while its free end is engaged by the pivot arm 9.

Also, while I have illustrated and described only one embodiment of my improved machine I am aware that modifications may be made therein by those skilled in the art without departing from the scope of my invention, and I desire protection for all such modifications as come within the scope of my claims.

What I claim is:

1. In a machine of the kind described, a pipe rack, a carriage adapted to move along said rack, a roller on said carriage adapted to move in contact with a pipe disposed in said rack, an arm pivotally connected to said carriage, and means for securing the arm at its free end to said pipe, all for the purpose described.

2. In a machine of the kind described, a pipe rack, a carriage adapted to move along said rack, a roller on said carriage adapted to move in contact with a pipe disposed in said rack, an arm pivotally connected to said carriage, means for securing the arm at its free end to said pipe, a tension member secured at one end to said carriage and adapted to enter said pipe, and a head secured to said tension member and held in position under the roller, all for the purpose and substantially as described.

3. In a machine of the kind described, a pipe rack, a carriage adapted to move longitudinally with respect to a pipe in said rack, a roller adapted to engage the surface of said pipe, an arm, and means for securing one end of said arm to said carriage and the other end to the pipe to be bent, all for the purpose described.

EMIL F. HOLINGER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."