

(No Model.)

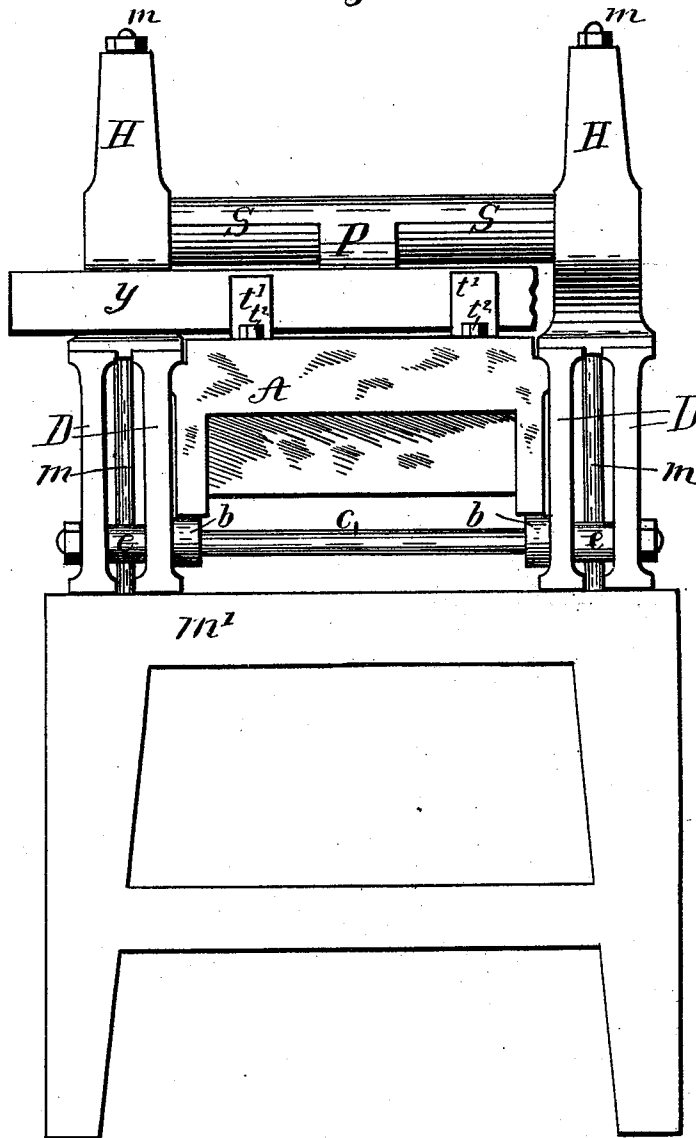
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W. CROSSLEY.
MACHINE FOR MAKING BEAM STIRRUPS.

No. 499,355

Patented June 13, 1893.

Fig. 1



WITNESSES:

Linus Barnes
Edwin B. Beckwith

INVENTOR

William Crossley
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(No Model.)

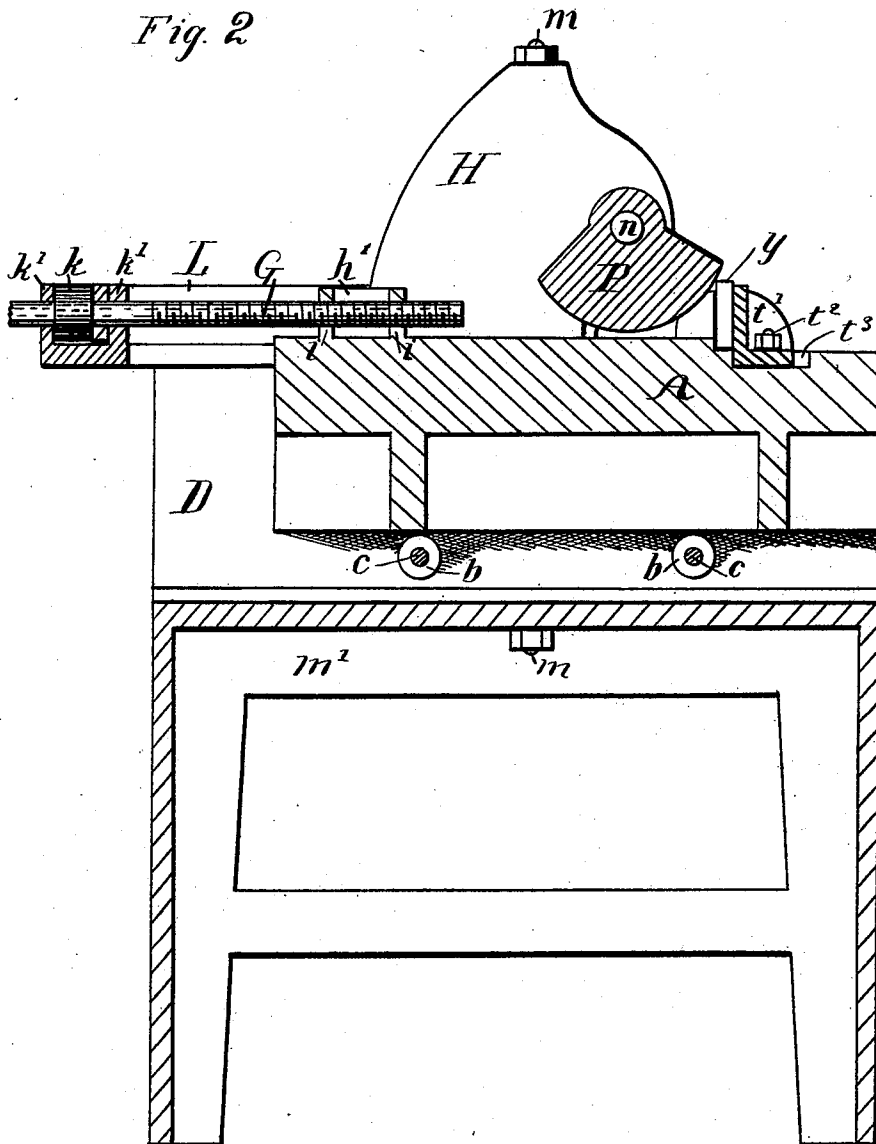
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Fig. 2



WITNESSES:

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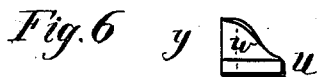
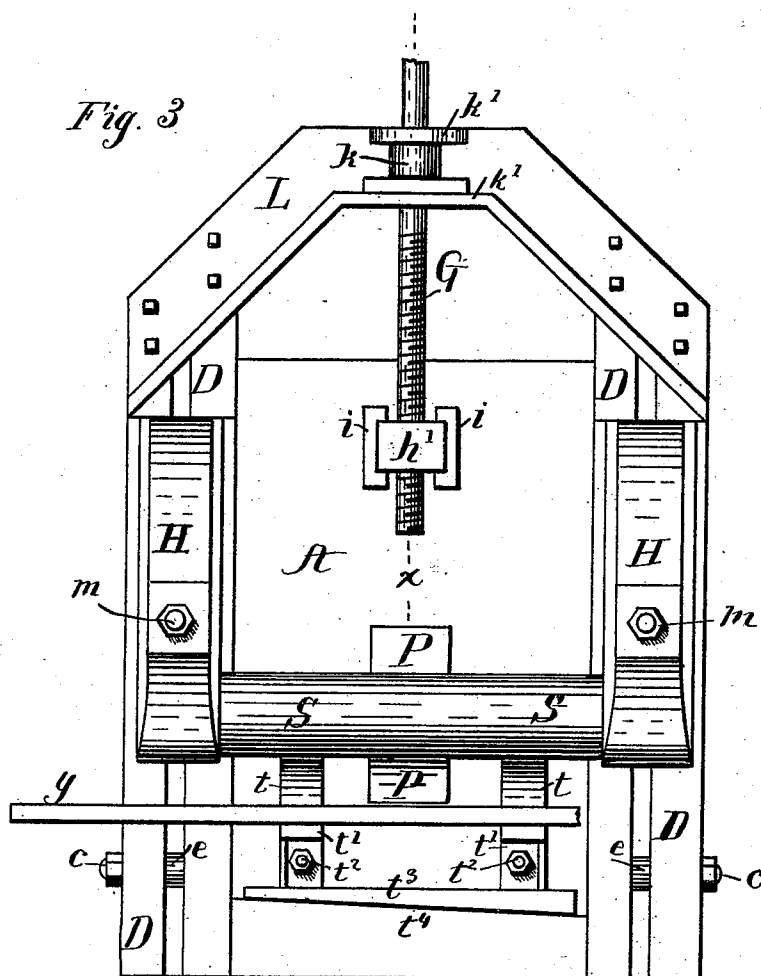
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UNITED STATES PATENT OFFICE.

WILLIAM CROSSLEY, OF NEW HAVEN, CONNECTICUT.

MACHINE FOR MAKING BEAM-STIRRUPS.

SPECIFICATION forming part of Letters Patent No. 499,355, dated June 13, 1893.

Application filed April 29, 1892. Serial No. 431,098. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CROSSLEY, a citizen of the United States, residing at New Haven, in the county of New Haven and State

of Connecticut, have invented certain new and useful Improvements in Machines for Bending Iron, of which the following is a specification. My invention relates to a machine for bending iron, the object being to provide mechanism for bending flat or bar iron torsionally, uses for which are numerous in the arts, a quarter turn or twist of ninety degrees being the most common.

The machine is intended particularly for use in the manufacture of what are well known in the arts as "bridle irons or stirrups for supporting the ends of beams against another beam transverse thereto, without weakening the transverse beam by mortising.

The invention consists in the novel combination of a holding table and a "breaking roll" movable relative to each other, whereby the bar iron, secured upon the table, may be bent over by the advance of the roll thereupon, as hereinafter more fully described and claimed.

In the accompanying drawings forming a part of this specification, Figure 1 is a front end elevation of my improved bending machine, and Fig. 2 is a lengthwise cross section of the same on line *x* Fig. 3. Fig. 3 is plan view of the machine. Figs. 4, 5 and 6 are respectively side, plan, and end views of a bar having its center portion bent over torsionally at an angle of ninety degrees with the rest of the bar, as required in the manufacture of "bridle irons."

Referring to the drawings, A designates the holding table, arranged to travel horizontally on rollers *b* journaled upon the transverse binding rods *c* which hold the side beams D of the machine together. Said side beams are I beams, a pair on each side, separated by the collars *e*, and secured to the bed F, but any desired construction of frame may be employed.

The table is operated horizontally by means of a screw, G, passing through a threaded nut *h*' secured in seats *i* on the table. The screw is provided with a collar *k* which is held between abutments *k*' on a strong transverse yoke or beam L secured to the I beams D of

the frame. The screw may be operated by any combination of mechanism usual in "gearing up" powerful machines which here require no description.

Erected on the side beams D are massive side frames H secured thereto by vertical bolts *m* passed through the frames, and the bed *m*' of the machine. These side frames support a transverse shaft *n* on which is hung a large roll, or what is sufficient for the purpose, a segment of a roll P. The said "breaking roll" P is made of the same width as that portion of the bar which is twisted out of alignment with the remainder of the bar, shown at *u* in Figs. 4, 5, and 6. The hub S of the roll fills the space between the side frames H and is free to swing on its shaft *n*.

Abutments *t* are formed on the holding table, and angle plates *t*' are provided for securing the iron bars which are to be bent, in place against the said abutments, transversely on the holding table. Clamping bolts *t*² secure the angle plates to the table, and they are prevented from slipping backward by the wedge *t*³ driven between them and a shoulder *t*⁴ on the table.

Constructed and arranged as described, the operation of the machine is as follows: A bar *y* being secured to the holding table in vertical position, as shown in the figures, as the table is moved rearwardly or in the direction of the arrow, the bar is carried under the roll P, and that portion immediately brought in contact with the roll is "broken down" or bent over to a horizontal position, the roll being placed at a height above the table corresponding to about the thickness of the bar. The action is the same as if the roll were rolled over the bar, and it is immaterial whether the table or the axis of the roll, or both are movable, except as determined by advantage of construction. The roll first strikes the upper edge of the iron bar, and gradually breaks it down and rolls over it bringing it finally to the shape shown in Figs. 4, 5, and 6. The abutments *t* are placed farther apart than the width of the roll, the intervening spaces providing for the twist of the bar, on the spiral sections *w* intermediate of the flat portions, as shown. From the bars when bent to the form shown in Figs. 4, 5 and 6, "bridle irons" may be readily constructed

by bending the flat parts of the bar as required, or the bar may be used for any other purposes for which bent iron is required.

I claim as my invention—

- 5 1. A machine for bending iron comprising in combination a frame, a holding table or carriage guided in the frame, a free segmental roll journaled with its axis parallel to the table, holding shoulders, projections or abut-
10 ments mounted on the table vertical thereto, upon each side of and adjacent to the path of the roll, clamping means for securing an iron bar against the said abutments, across
15 the rolling plane of the roll, and operating mechanism for actuating the table relatively to the roll to break down or bend the bar tor-

sionally, substantially as and for the purpose specified.

2. A machine for bending iron, comprising in combination a frame, a segmental free roll 20 suspended in said frame, a holding table or carriage guided and adapted to travel in the frame, a chuck or clamping means for securing a metal bar on the table, and an operating screw, a nut, and thrust block for actuat- 25 ing the table in a rectilinear path beneath the roll, substantially as specified.

WILLIAM CROSSLEY.

Witnesses:

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LYMAN T. LAW.