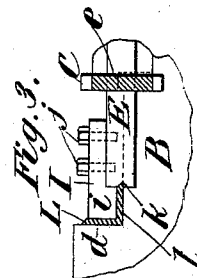
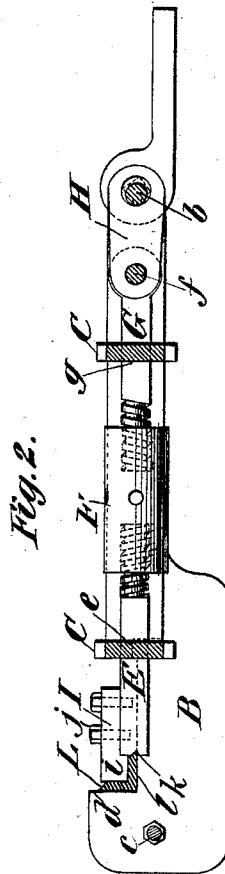
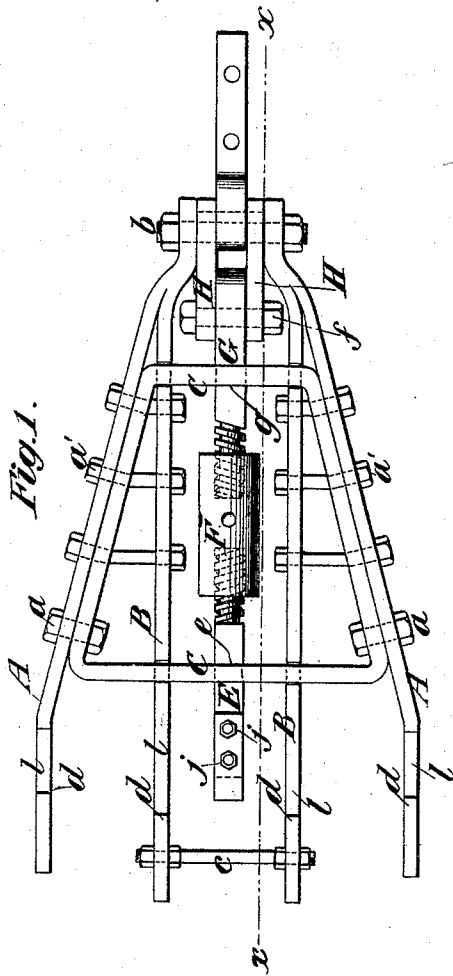


(No Model.)

C. CUNNINGHAM.
METAL BENDING MACHINE.

No. 498,930.

Patented June 6, 1893.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHRISTOPHER CUNNINGHAM, OF BROOKLYN, NEW YORK.

METAL-BENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 498,930, dated June 6, 1893.

Application filed March 29, 1893. Serial No. 468,185. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER CUNNINGHAM, of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Metal-Bending Machines, of which the following is a specification.

This invention relates to that class of bending machines commonly used for bending railway rails at the place where they are to be laid, such machines consisting of a frame in which the rail to be bent is laid against suitable abutments and a plunger fitted to said frame and pressed against the rail by means of screws. Such machines have also been used for bending angle-iron but were not hitherto adapted to bending such iron having beveled edges because they would injure the said edges and therefore when the machines have been used for bending angle-iron requiring such edges the iron has been bent before beveling and the beveling has been performed after the bending, the latter operation having generally been done by chipping with a cold chisel which is a slow operation although the beveling before bending can easily be performed.

The object of my present improvement is to provide for the bending of angle-iron which has already been beveled, without injury to the beveled edges.

The nature of the improvement will be explained with reference to the accompanying drawings and its novelty set forth in the claim.

Figure 1 represents a plan of a machine embodying my improvement. Fig. 2 represents a vertical longitudinal section of the same in the line *xx* of Fig. 1. Fig. 3 represents a partial longitudinal section corresponding with Fig. 2, showing the adaptation of the machine to the bending of angle-iron of different dimensions.

Similar letters of reference designate corresponding parts in all the figures.

A B C designate the frame of the machine represented as consisting of side bars A, intermediate bars B, and a lateral bracing C bolted together laterally by bolts *a a'*. The bars A and B are also united at one end, where they are brought together, by means of a transverse bolt *b*; and at the other end of the frame

where the bars are separated the intermediate bars are united by a stretcher *c*. At the last mentioned end the bars A and B have their ends projecting upward as shown at *d d* to form abutments against which the iron to be bent is supported against the pressure of the square bending plunger E which is arranged between and parallel with the bars B where it is fitted to work in a guide provided at *e* in the forward part of the lateral bracing C. The plunger has a screw-threaded stem on its rear end and is connected by means of the thread on said stem and a double nut or turnbuckle F with a screw-thread on an eyebolt G which is connected with the transverse bolt *b* of the frame by two links H and a pin *f*, the screw-threads on the plunger stem and the bolt G being respectively right and left handed so that, by turning the nut F in one direction or the other, the plunger may be drawn back to permit the placing of the iron to be bent between it and the abutments *d* on the frame, or be forced forward to produce the bending of the so placed iron. The bolt G which is square works in a guide at *g* of corresponding form in the lateral bracing C.

As thus far described the machine does not differ from the machines in common use for bending railway bars and I have only so described it as leading to the explanation of my improvement which consists simply in providing the end of the plunger with a projecting lip to overlap one side or flange of the angle-iron while its edge and the inner face of the other side or flange are operated upon by the plunger, and in forming in the end of the plunger under said lip a transverse groove corresponding in form with the beveled edge of the iron to be bent.

This improvement is particularly illustrated in Figs. 2 and 3 of the drawings and also partly shown in Fig. 1 and will be briefly described with reference to the several figures.

The overlapping lip *i* is represented as formed upon the end of a plate I which is bolted by bolts *j* to the top of the plunger. The groove across the end or face of the plunger is shown in Figs. 2 and 3, in both of which figures the bevel-edged angle-iron L is shown in section. The said groove *k* conforms to the bevel commonly given to the iron. The lip *i* projects forward beyond the end of the plun-

ger to such distance that it will completely overlap that side or flange of the angle-iron which rests on the flat bearings provided for it at l on the tops of the bars A and B and
 5 that it will reach the inner face of that side or flange the outer face of which is presented toward the abutments d , while the groove receives the beveled edge of the first mentioned side or flange, so that when the plunger comes
 10 forward for bending it will press equally against the inner face of the one side or flange and against the edge of the other one. The depth of the overlap of the said lip i is such that it will be close upon the inner face of
 15 the lower side or flange of the iron while the latter is supported upon the top of the bars A B and will prevent the upward buckling of the iron.

To adapt the improvement to the bending
 20 of angle-iron of different widths and thickness, I provide changeable plates I having lips i of different lengths and depths of overlap

as may be understood by comparison of Figs. 2 and 3, the latter figure showing a lip of longer and deeper overlap for bending a
 25 thinner but wider angle-iron than that shown in Fig. 2.

A machine with my improvement is also applicable to the bending edgewise of flat bar iron with a beveled edge. 30

What I claim as my invention is—

The combination with the frame provided with bearings and abutments for the iron to be bent, of the plunger grooved across its face, and the changeable plate I attached to
 35 the said plunger and having a lip i projecting forward beyond the said face and overlapping the said face outside of its groove, substantially as herein set forth.

CHRISTOPHER CUNNINGHAM.

Witnesses:

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