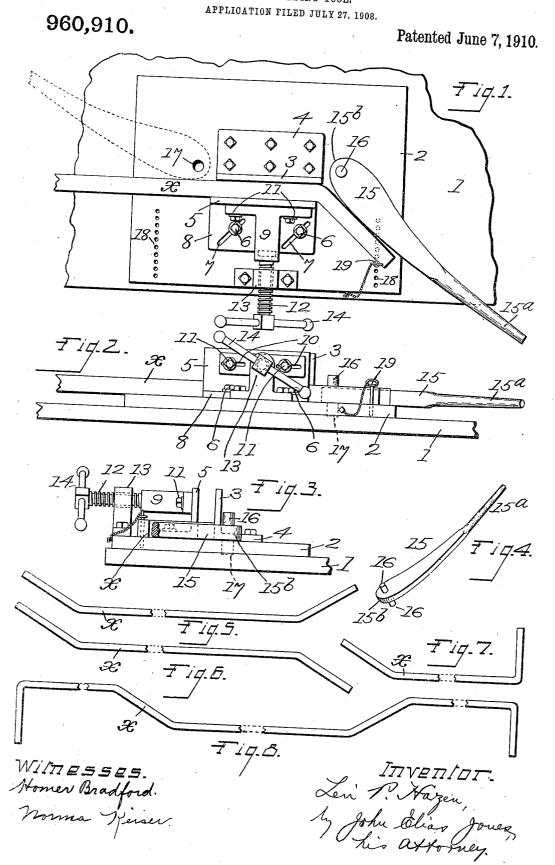
L. P. HAZEN. METAL BENDING TOOL. APPLICATION FILED JULY 27, 1908.



## UNITED STATES PATENT OFFICE.

LEVI P. HAZEN, OF CINCINNATI, OHIO.

METAL-BENDING TOOL.

960,910.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed July 27, 1908. Serial No. 445,463.

To all whom it may concern:

Be it known that I, LEVI P. HAZEN, a citizen of the United States of America, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Metal-Bending Tools, of which the following is a specification.

This invention relates to improvements in metal bending machines, or more particularly, to tools for bending metal bars for use in concrete structures or the like.

The object of the invention is to provide a convenient means of clamping the metal 15 bars in such position that they may be bent at the desired angle by a conveniently placed and manipulated interchangeable lever, and as readily adjusted to and from clamping position without the loss of time 20 and the expense of extra labor in attaining

The invention consists in the provision of a flat metal base or bed-plate, a stationary upright jaw on said base, a movable upright jaw having oblique slots and coacting with said stationary jaw, a carrier-block attached at one end to the upright portion of said movable jaw and extending forwardly therefrom, a handled screw engaging a threaded 30 block on the forward edge of said base with its fore end engaging a socket in the outer end of the extended portion of said carrier-block for moving the movable jaw into clamping position on a metal bar placed be-35 tween the two jaws, and a lever having pivot-pins projecting in opposite directions at its inner end, such pins being adapted to interchangeably engage sockets or holes made in the base adjacent the opposite ends 40 of the stationary jaw whereby different thicknesses of bars may be clamped between the jaws and be bent by said lever in various directions and angles at either end of the movable jaw against which the bending is done and without taking the bar from be-tween the jaws or turning it over lengthwise. Other features of the invention will be fully hereinafter described and more par-

ticularly pointed out in the claims. In the accompanying sheet of drawings, Figure 1 is a plan view of a fragmentary portion of a bench or table on which is shown in plan the device embodying my invention, a broken-off end of a bar being 55 shown in clamped position in the device and a lever in the position it occupies when

finishing a bend in said bar, the said lever being shown dotted in the position it occupies when a bend is to be made in the bar at the other end of the movable jaw; Fig. 60 2, a front elevation of Fig. 1; Fig. 3, a side elevation of Fig. 1, taken from the right-hand side, but with the lever shown broken of mid-length; Fig. 4, a detail perspective view of the preferred form of the bending- 65 lever used in the device; Fig. 5, a plan view showing a bar with its opposite ends bent toward the same side; Fig. 6, a view similar to Fig. 5, but with the bar having its ends bent in opposite directions, or at oppo- 70 site sides of its body portion; Fig. 7, a view similar to Fig. 5, but with one end bent at a right-angle to the body portion; and Fig. 8, a plan view of a bar having right-angled bends at its opposite ends and obtuse-angled 75 bends intermediate said ends. (The last four named views are designed to show the diversity of bends in a bar that the device is capable of producing in its operation.)
In said views, 1 represents a bench or 80

other suitable support for my device.

2 indicates a base or bed-plate secured upon said bench; 3, a stationary upright jaw whose horizontal base 4 is secured to the bed-plate; 5, an upright jaw, similar to jaw 85 3, but movably-held on the bed-plate by means of screws 6 whose shanks pass downward through oblique slots 7, 7 in its horizontal base 8 into the bed-plate 2; 9, a hollow carrier-block having lateral arms, the 90 latter being provided with horizontal slots 10 through which pass screws 11 for securing the carrier-block in place on the outer face of said jaw 5; and 12, a horizontal screw engaging a threaded block 13 secured 95 to the bed-plate and having its inner end swiveled in the hollow carrier-block 9, and provided at its outer end with a suitable handle 14 for moving the jaw 5 toward and from clamping engagement on a bar x 100 placed against jaw 3.

15 is a lever having a convenient handle

15ª at its outer end and oppositely-disposed pins 16, 16 projecting laterally from its opposite flat sides at its inner end, such 105 oppositely-disposed pins being adapted for engagement with sockets 17, 17 made in the bed-plate 1 adjacent the opposite ends of the base 4 of the jaw 3. The outwardly curved or convexed edge 15<sup>b</sup> of the lever 15 forms 110 the surface that contacts with the portion of the bar x to be bent, such convexed surface

reducing the friction between the lever and the bar as much as possible for the bending operation, and the arc of engaging contact being just sufficient to be effective in such 5 bending operation. The slots 7 and 10 are provided in the jaw-base 8 and carrier-block arms, respectively, for making due allowance for different thicknesses of metal bars to be clamped between the jaws, as the re-10 lation of the bending edges of the jaw 5 to the several pivot-points of the bendinglever 15 varies according to the difference in thickness of the metal bars, as is obvious. The relative positions of the jaw 5 on the 15 bed-plate 1 and the carrier-block 9, as shown in Fig. 1, are such that said jaw 5 assumes to suit bars of as great thickness as the jaws will accommodate, metal bars of a lesser thickness requiring the jaw 5 20 to be moved in an oblique line to the right and forwardly toward the jaw 3, the screws 6 and 11 being but loosely engaged with the jaw-base 8 and carrier-block 6, respectively, to allow such oblique movement. It

25 will be seen that the carrier-block is moved forward and back in a straight line to coincide with the screw 12, but the jaw 5 moves not only forwardly but laterally and obliquely to suit said differences in thick-30 ness of metal bars and the pivotal-point of

the bending-lever.

18, 18 represent series of holes or sockets made in the bed-plate at either end thereof, parallel to the screw 12, and 19, 35 19 are pins adapted to interchangeably engage said sockets 18 to suit the varying angles to which the ends or parts of the metal bar are to be bent, the handle of each pin forming a stop against which the bent part 40 of the bar strikes when it reaches its limit

The bending-lever 15 may be interchangeably used with its oppositely-disposed pivots 16 resting in either socket 17 to suit the 45 end or part of the metal bar to be bent, said lever being shown in dotted-lines in Fig. 1 ready to make a bend in the metal bar intermediate its ends (such as seen in In order to make the right-an-Fig. 8). 50 gled bends seen at the opposite ends of the bar in Fig. 8, the pins 19 are withdrawn from the bed-plate. The adaptability of the bending-lever to use in either hole 17 permits the metal bar to be drawn length-55 wise between the clamping jaws 3 and 5, the latter jaw being, of course, first properly loosed, instead of turning a long bar over lengthwise and placing its already bent end to the other side of the device from that at which it was bent. Time and labor are 60 thus saved in handling the metal bar and it is more convenient to slide such bar between the loosed-jaws where the space will not permit such bars when they are of great length to be turned over lengthwise.

I claim:-

1. A metal bending machine, comprising a bed-plate, a stationary jaw mounted thereon, a jaw parallel to said stationary jaw and movably mounted on said bed-plate, means 70 comprising a hand-screw and a horizontallymovable carrier-block whereby said movable jaw is carried to clamping position in an oblique direction, a lever having pivots projecting perpendicular from its opposite face 75 adjacent its inner end, sockets or holes in said bed-plate adjacent either end of the stationary jaw and adapted to independently receive said pivots on the lever whereby it is interchangeably operated in connec- 80 tion with either of the free, extending ends of a metal-bar clamped between said jaws and means for adjusting said movable jaw to and from clamping position on said metal bar placed between the jaws.

2. A metal bending machine, comprising a bed-plate, a stationary jaw mounted thereon, a jaw movably mounted on said bed-plate with its clamping-face parallel to the clamping-face of the stationary jaw and having 90 oblique slots engaged by loose-inserted bolts or screws in its mounting portion, a carrierblock having slotted arms and screws engaging the slots in said arms for looselyconnecting the clamping portion of said 95 movable-jaw, a handled-screw engaging a threaded block on the bed-plate with its inner end swiveled to said carrier-block, a lever having oppositely-disposed pivot-pins at its inner end for interchangeable engage- 100 ment with sockets in the bed-plate adjacent either end of the stationary jaw, a series of vertical holes at either end of the bed-plate and pins adapted to be placed in either of said holes in the bed-plate for determining 105 and limiting the angle of bend in the metal bar clamped in said jaws.

LEVI P. HAZEN.

85

Witnesses:

John Elias Jones, LEWIS W. IRWIN.