

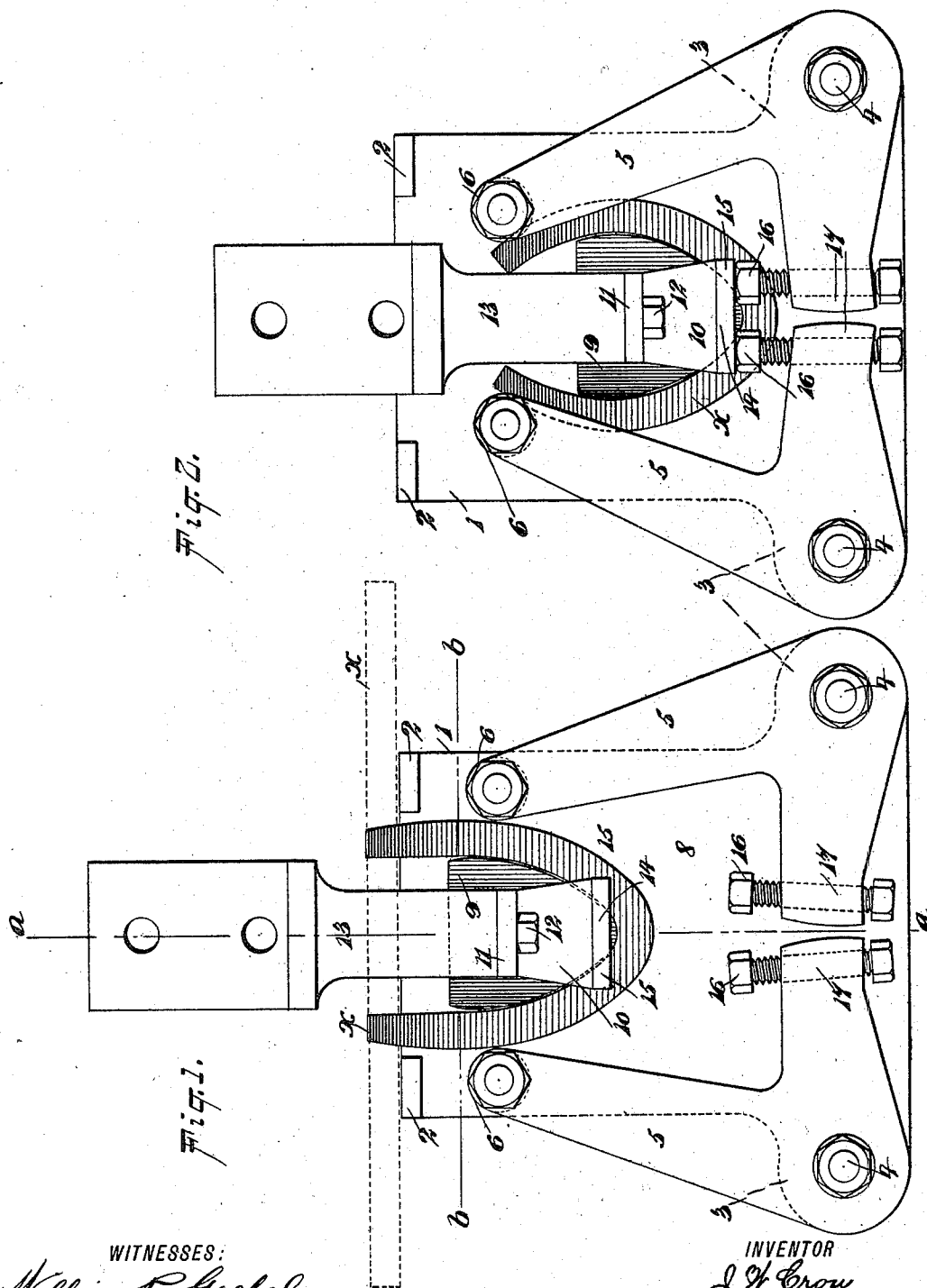
(No Model.)

2 Sheets—Sheet 1.

J. W. CROW.
HORSESHOE MACHINE.

No. 572,870.

Patented Dec. 8, 1896.



WITNESSES:

William P. Goebel
J. H. Springer

INVENTOR

J. W. Crow
BY *muir*
ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

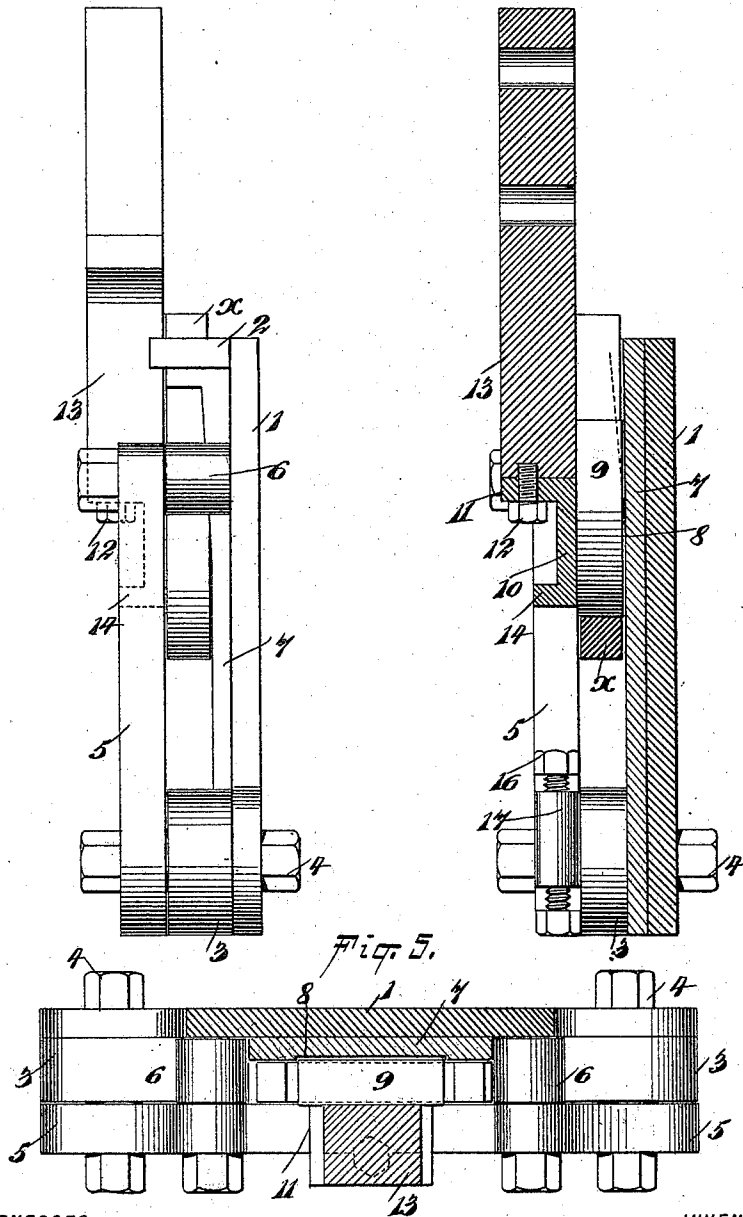
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Fig. 3.

Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN W. CROW, OF NEW YORK, N. Y.

HORSESHOE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 572,870, dated December 8, 1896.

Application filed March 9, 1896. Serial No. 582,348. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. CROW, of New York city, in the county and State of New York, have invented new and useful Improvements in Horseshoe-Machines, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in horseshoe-machines, such as are adapted for bending the shoes into form from metal bars or blanks; and the object of the invention is to provide a device of this character of a simple and inexpensive nature, which shall be strong and durable in construction and shall be adapted to bend the metal bar or blank from which the shoe is to be formed into the proper curved shape at one operation.

The invention consists in a machine comprising a table adapted to support the blank or bar from which the shoe is to be formed, a plunger mounted to reciprocate over the table and carrying a die adapted to engage the bar thereon, and pivoted levers arranged to be engaged and moved by the plunger, said levers when moved being adapted to engage the end portions of the bar or blank and bend the same around the die on the plunger.

The invention also contemplates certain novel features of the construction, combination, and arrangement of the various parts of the improved device whereby certain important advantages are attained and the device is made simpler, cheaper, and better adapted and more convenient for use than various other forms of horseshoe-machines heretofore employed, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a front view showing portions of a horseshoe-machine embodying my invention, the plunger and die carried thereby being shown in a partly-raised position. Fig. 2 is a view similar to Fig. 1, but showing the plunger and die in a lowered position. Fig. 3 is an edge view of the device, parts being in the position shown in Fig. 1. Fig. 4 is a

vertical section taken through the device in the plane indicated by the line *a a* in Fig. 1, and Fig. 5 is a horizontal section taken in the plane indicated by the line *b b* in Fig. 1.

In the views, 1 indicates a frame of suitable construction, having at its upper parts projecting lugs 2, spaced apart and adapted to support the bar or blank from which the shoe is to be bent, said bar being arranged to rest upon said lugs, as indicated at *x* in dotted lines in Fig. 1. At opposite sides of the lower portions of the frame 1 are formed forwardly-projecting bosses 3, wherein are carried bolts 4, forming pivot-points for elbow-levers, having upwardly-extending arms 5, carrying at their upper ends rollers 6. The elbow-levers have their arms spaced apart from the frame 1, as clearly shown in Figs. 3 and 5, and the rollers 6 are carried on bolts or pins at the upper ends of the arms 5 and extend across the space between the said arms of the frame 1.

To the front face of the frame 1 is secured a centrally-arranged guide-plate 7, as clearly shown in Fig. 5, said guide-plate being provided with a central vertical groove 8, wherein plays the die 9, having a curvature corresponding to the curve to be imparted to the horseshoe, and said die 9 is carried on a bracket 10, having at its upper part an angular projecting flange 11, secured by means of a bolt 12 or the like to the lower end of the plunger 13, which is mounted to reciprocate over the frame 1, being driven from any suitable source of power.

The lower end of the bracket 10 is provided with an angular projecting flange 14, the opposite corners 15 of which extend down outside of the lower side portions of the die 9, as clearly shown in Figs. 1 and 2, said corners 15 being adapted when the plunger is lowered, as indicated in Fig. 2, to engage the heads 16 of screws, the body portions of which pass through threaded openings in the ends or arms 17 of the elbow-levers above referred to, whereby said elbow-levers are rocked on their pivot-bolts 4 in such a way as to throw the rollers 6, carried on the upwardly-extending arms on said levers, inwardly toward each other in position to engage the bar or blank *x*, carried upon the die 9, and bend the end portions of said bar or blank around the upper curved sides of the said die.

In operation it will be seen that when the bar x is laid across the top of the frame 1, as indicated in dotted lines in Fig. 1, with its ends resting upon the lugs 2 on said frame, the downward movement of the plunger 13 and the die 9 will act to force the central portion of said bar or blank down between the rollers 6, which are normally held in the position indicated in Fig. 1, and the further downward movement of said plunger and die will serve to bring the corners 15 of the flange 14 on the bracket 10 into engagement with the heads 16 of the screws carried in the lower arms 17 of the elbow-levers, whereby said levers will be turned or swung pivotally, so as to cause the rollers carried on the upper ends thereof to engage the end portions of the blank or bar x and bend the same around the upper curved sides of the die 9. The screws 16 permit of being turned in order to adjust the throw of the elbow-levers when the said screws are engaged by the corners 15 of the bracket 10, carried on the lower end of the plunger.

The ends 17 of the elbow-levers which carry the rollers 6 to press the blank around the die are bent at angles to the arms of the levers which carry the rollers, and stand normally, as shown in Fig. 1, substantially at right angles to the path in which the plunger moves, so that when the plunger is reciprocated to form the shoe the bracket 10, carried on the end of the plunger, will engage the heads of the screws 16 and actuate the elbow-levers by direct pressure. By this formation of the elbow-levers it is evident that the length which it would be necessary to give said levers is materially lessened, as is also the throw of the plunger, and it is also made possible to feed the machine from the front, or from that side at which the arms 17 of the elbow-levers are arranged, instead of at the side of the machine. The corners 15 of the flange 14 on the bracket 10, being arranged to project beyond or overhang the front face of the die, form guides or stops to hold the blank against slipping off the die while being bent.

From the above description it will be seen that the device is of an extremely simple and inexpensive construction, and is especially well adapted for the purposes for which it is intended, since it permits the bars or blanks to be bent to the proper curved form at a single operation, and it will also be obvious that the invention is susceptible of some modification without material departure from its principles and spirit, and for this reason I do not wish to limit myself to the precise form and arrangement of the parts herein set forth.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with a frame, of a vertically-movable plunger, a die fixed to the plunger, two bell-crank levers fulcrumed on the frame each having an upwardly-extended

arm and each bell-crank lever also having an inwardly-extended arm, the inwardly-extended arms being approximately at right angles to the line of movement of the plunger, and a screw carried and movable in each of the said latter arms, such screws being engaged by the plunger, substantially as described.

2. The combination with a frame, of a vertically-movable plunger, a bracket secured to the lower end of the plunger and having at its lower end an outwardly-projecting flange, a die rigidly connected with the plunger and having the bracket extended laterally beyond a portion of the die, two bell-crank levers fulcrumed on the frame, each lever having an upwardly-extended arm and each lever also having an inwardly-extended arm, the latter arms being normally located approximately at right angles to the line of movement of the plunger, and a screw carried by the latter arm of each bell-crank lever, the screws being adjustable longitudinally with the plunger and capable of being engaged by the flange of the bracket, substantially as described.

3. The combination with a frame, of a vertically-movable plunger, a bracket depending from the plunger and having at its lower end an outwardly-extending flange, a die secured to the plunger and having the flange of the bracket projected laterally beyond each side of the die, and two bell-crank levers fulcrumed on the frame, each bell-crank lever having an upwardly-extending arm and each bell-crank lever also having an inwardly-extending arm, the latter arms being normally at approximate right angles to the line of movement of the plunger and capable of being engaged by the flange of the bracket as the plunger descends, substantially as described.

4. The combination with a frame having at its upper portion two laterally-projecting lugs, of a plunger vertically movable with relation to the frame, a bracket depending from the lower end of the plunger and having at its lower end an outwardly-extending flange, a die secured to the plunger and located between the bracket and the frame, the die having the flanged portion of the bracket extended beyond the respective sides of the die, two bell-crank levers fulcrumed on the frame, each bell-crank lever having an upwardly-projecting arm between which arms the die moves and each bell-crank lever also having an inwardly-projecting arm normally extended approximately at right angles to the line of movement of the plunger, and a screw carried by each latter arm, the screws being adjustable longitudinally with the plunger and capable of being engaged by the flanged portion of the bracket, substantially as described.

JOHN W. CROW.

Witnesses:

FRANK D. CADMUS,
ROBT. G. FRANCKE.