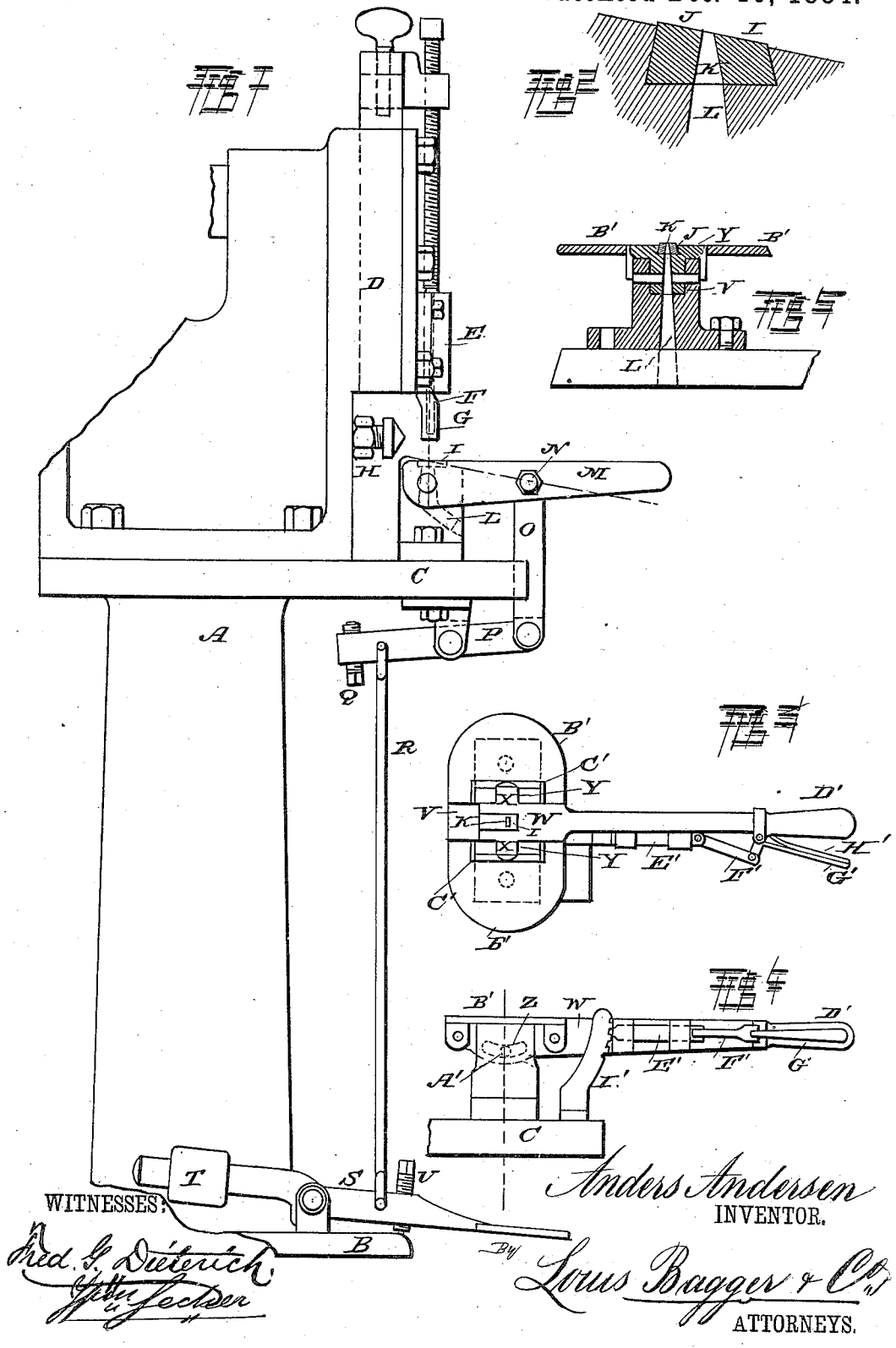
(No Model.)

A. ANDERSEN.

METAL PUNCHING MACHINE.

No. 309,432. Patented Dec. 16, 1884.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ANDERS ANDERSEN, OF COPENHAGEN, DENMARK, ASSIGNOR TO THE KJOBENHAVNS HESTESKOFABRIK, OF SAME PLACE.

METAL-PUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 309,432, dated December 16, 1884.

Application filed April 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, ANDERS ANDERSEN, a subject of the King of Denmark, residing at Copenhagen, Kingdom of Denmark, have invented certain new and useful Improvements in Metal-Punching Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a side view of my improved machine for punching metal. Fig. 2 is a vertical sectional view of the anvil; and Figs. 3, 4, and 5 are respectively a top, a side, and a cross-sectional view of a slight modification of the work-supporting table.

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

My invention has relation to machines for punching metal, and more particularly to machines for punching or cleaning out the nail-holes in horseshoes; and it consists in the improved construction and combination of parts of the same, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates the frame of the machine, which consists of a foot, B, a table, C, and upright sliding ways D, in which the punch-carrying block E is reciprocated, F indicating the punch, and G indicating two arms projecting adjustably from the lower ends of the sliding ways upon both sides of the punch, serving to strip the work off the punch as it ascends, only one of which arms is shown in the drawings, and the punch is shown in dotted lines behind the exposed arm. A screw, H, having a conical head, turns in the inner side of the frame above the table and below the ways, serving to bear against the inner side of the work for the purpose of adjusting it, and the work rests upon an anvil, I, secured upon the table, having its upper side inclined outward, and having a block, J, laid into its upper side, having a mortise, K, registering with the punch, the sides of which mortise diverge toward its lower end, as plainly shown in Fig. 2, and open into a channel, L, passing through the anvil for the purpose of carrying off all particles of metal punched out of the work. Two arms, M, are pivoted at their inner ends upon the sides of the anvil, having their upper surfaces flush with the surface of the same, and are connected by means of a bolt, N, to the middle of which the upper end of a bar, O, is pivoted, the lower end of which bar is pivoted to the forward end of a lever, P, pivoted under the table, having a set-screw, Q, at its inner end, by means of which the throw of the lever may be adjusted, the end of the screw bearing against the under side of the table when the inner end of the lever is tilted upward, and a connecting-rod, R, is pivoted at its upper end to the inner end of the lever and at its lower end to the outer arm of a foot-lever or treadle, S, pivoted at the lower end of the foot of the frame, having a weight, T, upon its inner arm, and having a set-screw, U, passing through the outer arm of the treadle immediately outside the pivotal point of the connecting-rod, the lower end of the said screw bearing against the foot-plate of the frame, and thus regulating the downward throw of the outer arm of the treadle. It will now be seen that by depressing the outer arm of the treadle, as shown in the drawings, the outer ends of the arms upon the anvil will be raised, and the work resting upon the upper sides of the said arms will be presented, lying flat below the punch, while when the outer arm of the treadle is released the weight will tilt the levers and connecting rods and arms in such a manner that the work-supporting arms will be in an inclined position, flush with the surface of the anvil, the angle of their upper surfaces being shown by a dotted line in Fig. 1, thus presenting the work in an inclined position to the punch, and consequently causing an inclined perforation to be made. It will be seen that this construction will only admit of the work being presented at two different angles to the punch, and for the purpose of presenting the work at any desired angle to the punch I construct the anvil with a recess, V, in which the arm W may rock, the said arm having semi-cylindrical trunnions X upon its sides, which rock in semi-cylindrical bearings Y in the upper side of the anvil, upon each side of the recess in the same, the upper flat sides of the trunnions being flush with the upper side of the arm,

and the said arm has the punch-receiving mortise and its block in a line with the trunnions. The recess in the anvil has two segmental slots, Z, in its sides, extending through the sides of the anvil, and transverse pins A′, passing through the arm below the mortise, slide in the said segment, securing the arm in its bearings and limiting its motion. Two laterally-projecting tables, B′, are secured to the sides of the arm, flush with its upper surface, having slots C′, through which the upper sides of the anvil project, the said tables serving to make a larger bearing-surface for the work. The outer arm of the lever forms a handle, D′, and a bolt, E′, slides upon the side of the arm, having a connecting-rod, F′, hinged to its outer end, which again is hinged to the short arm of a bell-crank, G′, pivoted upon the side of the handle, and bearing with its long arm against a spring, H′, and the inner end of the said sliding bolt engages a notched segment, I′, secured to and projecting upward from the table of the frame, the bolt serving to adjust the arm, and with it the work, at any desired angle, enabling the machine to punch or clear out holes at any desired angle to the surface of the work.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, with a reciprocating punch, of a rigid anvil or support, a work-supporting arm or arms pivoted upon the anvil, and means for tilting the said supporting arm or arms, as and for the purpose shown and set forth.

2. The combination, with a reciprocating punch, of a rigid anvil having a vertical recess in its middle, and formed with bearings in its upper face at both sides of the recess, a work-supporting arm having laterally-projecting trunnions rocking in the bearings, and having a mortise registering with the punch, and having downwardly-diverging sides, and means for adjusting the said arm, as and for the purpose shown and set forth.

3. The combination, with a reciprocating punch, of a rigid anvil having a vertical recess in its middle, and formed with semi-cylindrical bearings in its upper face at both sides of the recess, a work-supporting arm having laterally-projecting semi-cylindrical trunnions rocking in the bearings, and having a mortise registering with the punch, and having downwardly-diverging sides, and means for adjusting the said arm at different angles, as and for the purpose shown and set forth.

4. The combination, with a reciprocating punch, of a rigid anvil having a vertical recess in its middle, and formed with bearings in its upper face at both sides of the recess, a work-supporting arm having trunnions rocking in the said bearings, and having a mortise registering with the punch, a spring-actuated bolt sliding in bearings upon the side of the work-supporting arm, and an upright segmental rack engaged by the end of the sliding bolt, as and for the purpose shown and set forth.

5. The combination of a reciprocating punch with a rigid anvil having a vertical recess in its middle, and formed with semi-cylindrical bearings in its upper face at both sides of the recess, and with segmental slots in the lower portions of its sides, a work-supporting arm having laterally-projecting semi-cylindrical trunnions flush with its surface, rocking in the bearings, having laterally-projecting pins sliding in the segmental slots, and provided with a mortise registering with the punch, and means for adjusting the angle of the arm, as and for the purpose shown and set forth.

6. The combination, with the reciprocating punch, of a rigid anvil having a vertical recess in its middle, and formed with semi-cylindrical bearings in its upper face at both sides of the recess, and with segmental slots in the lower portions of the same, a work-supporting arm having laterally-projecting semi-cylindrical trunnions flush with its surface, rocking in the bearings, and having a mortise registering with the punch, laterally-projecting pins projecting from the sides of the arm, sliding in the segmental slots, a spring-bolt sliding in bearings upon the side of the work-supporting arm, and an upright notched segment engaged by the said bolt, as and for the purpose shown and set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ANDERS ANDERSEN.

Witnesses:
FREDERIK WOLFF,
EMIL HANSEN.

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 309,432

DATED : July 24, 1990

INVENTOR(S) : Derek Vincent Mancini

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the sheets of drawings
Cancel Figures 1a and 2a.

Signed and Sealed this

Thirteenth Day of August, 1991

Attest:

HARRY F. MANBECK, JR.

Attesting Officer

Commissioner of Patents and Trademarks