3 Sheets—Sheet 1.

H. W. KIP.

METHOD OF MAKING HAMMERS.

No. 184,158. Patented Nov. 7, 1876.

Fig. 1.

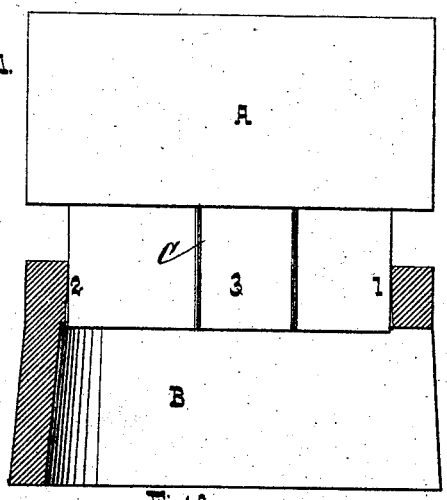


Fig. 2.

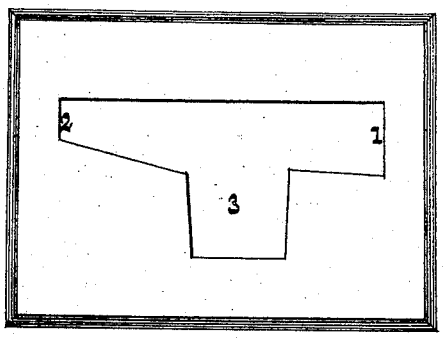


Fig. 3.

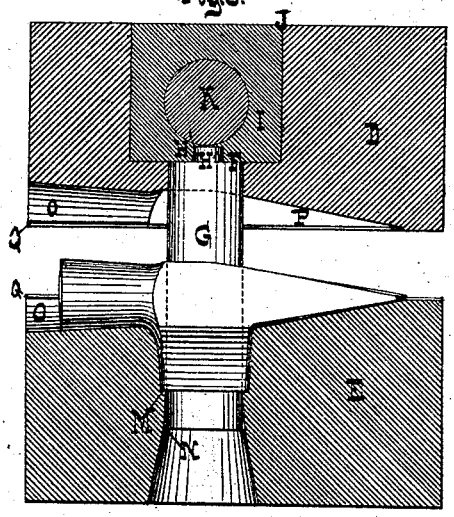


Fig. 5.

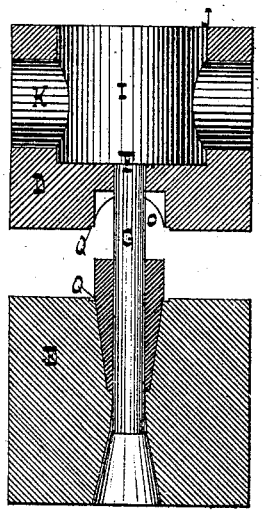


Fig. 4.

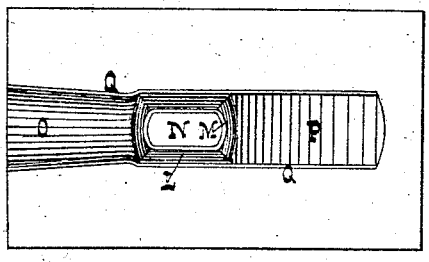
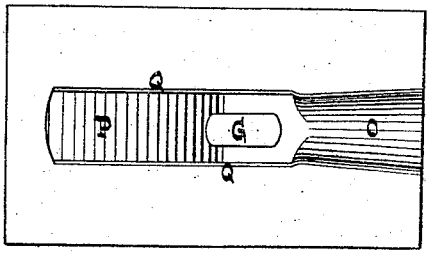


Fig. 6.



Witnesses.

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Inventor.

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his attorneys

3 Sheets—Sheet 2.

H. W. KIP.

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Fig. 7.

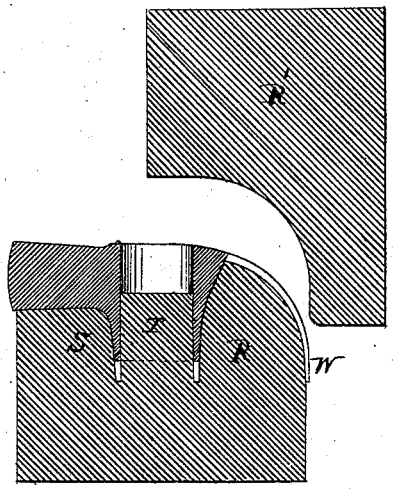


Fig. 8.

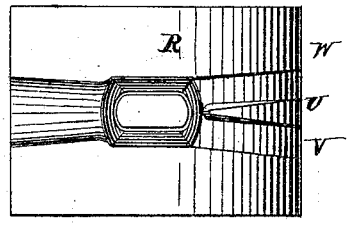
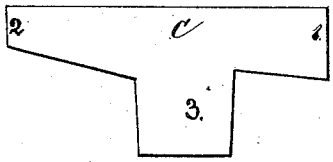


Fig. 9.



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3 Sheets—Sheet 3.

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Fig. 11.

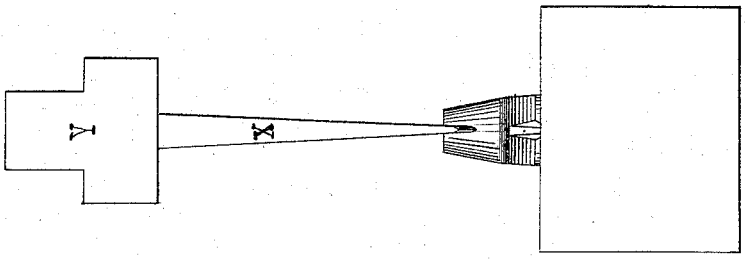
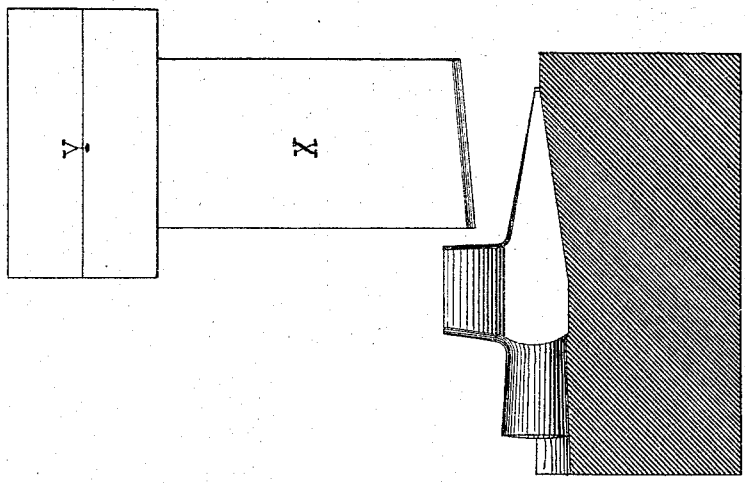


Fig. 10.



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Robt F. Miller

Inventor.
Henry Wells Kip
by
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his attorneys

UNITED STATES PATENT OFFICE.

HENRY W. KIP, OF BUFFALO, NEW YORK.

IMPROVEMENT IN THE METHODS OF MAKING HAMMERS.

Specification forming part of Letters Patent No. **184,158**, dated November 7, 1876; application filed July 10, 1876.

To all whom it may concern:

Be it known that I, HENRY WELLS KIP, of Buffalo, in the county of Erie and State of New York, have invented a new and Improved Process for Making Hammers, which invention is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 is a side view of the upper and lower dies for punching out the solid block, and which I call the block-dies, the body of the lower die being in section. Fig. 2 is a plan view of the lower block-die. Fig. 3 is a vertical section of the upper and lower dies for punching out the eye and forming the poll and drawing the peen, which I call the poll-dies. The figure shows the blank in the dies. Fig. 4 is a plan view of the lower poll-die. Fig. 5 is a cross-section of the poll-dies. Fig. 6 is an inverted plan view of the upper poll-die. Fig. 7 is a vertical section of the upper and lower bending-dies, by which the claw is bent after it is split; and Fig. 8 is a plan view of the lower bending-die. Fig. 9 represents a hammer-block as it comes from the block-dies. Fig. 10 is a front elevation of the knife for splitting the peen, showing the hammer under the knife. Fig. 11 is an end elevation of the knife.

Similar letters indicate corresponding parts.

This invention relates to an improved process of making adz-eye hammers; and consists in first punching out the solid hammer-block, from a bar of metal of the proper size and thickness, by means of block-dies, the pattern of which is such that the hammer-block is cut out flatwise from the bar, and is provided on one side, about midway of its length, with a projection for the formation of an adz-eye.

The hammer-block, when punched out, falls through the lower die, and is then placed in the lower poll-die in such a position that the adz-eye projection extends vertically downward into a socket whose sides are tapering, and that the poll of the block lies over a half-round receptacle, which, in connection with the upper die, is to give shape to the poll of the hammer, and that the peen lies in an inclined receptacle, which, in connection with the upper die, is to draw the peen out to the proper form and thickness for forming the claw.

The upper poll-die is the counterpart of the lower poll-die, excepting that, in place of the socket, it has an eye-punch whose head is keyed in the die in such a manner as to be capable of being removed with facility to renew or repair it.

The poll-dies "round" and "shape" the poll of the hammer, and punch out the eye, and give the proper taper to the outer sides of the adz-eye and draw out the peen to the proper length and thickness to form the claw. The hammer-block is next subjected to the cutting-dies, (not here shown,) which split the peen and spread its divisions properly, after which it is subjected to the action of the bending-dies, which bend the ends of the claw to the proper curve, and the shaping of the hammer is thereby completed.

The letter A designates the upper or male and B the lower or female block-dies, which punch out from a piece of metal of the proper thickness a hammer-block, C, having one square end, 1, to form the poll of the hammer, and the other end, 2, wedge-shaped, to form the peen, and a side projection, 3, to form the adz-eye.

The hammer-block is represented in Fig. 9 as it comes out of the block-dies, being a solid piece having the general or crude outlines of a hammer. The female block-die B is hollow, and when the punch of the male die A punches out the block, the block falls through the female die down to the ground, whence it is taken to the poll-dies D E. The upper poll-die D has a removable eye-punch, F, consisting of a piece of steel, G, of the shape and dimensions, in cross-section, of the eye to be made in the hammer. The upper end of the punch G has a tenon, H, which sets in a mortise, H′, in a round head, I, which is set in a round socket, J, made in the top of the body of the upper die D, in which socket the head is secured by a steel key, K, which passes transversely through the body of the die D and through the head I of the punch.

This construction and arrangement of the punch and of the means for securing it are of great advantage, as it enables me to remove and replace the punch with facility, and gives

it a rigid and secure setting. It also enables me to remove and replace the head I with facility.

The upper and lower poll-dies have sunken surfaces, which are the counterparts of each other, and are intended to round and draw out the poll, and draw out the peen at the same time the eye is being punched out by the eye-punch.

The lower poll-die is provided at that part of its surface which is opposite the punch of the upper die with a socket, L, which, at the top, is wide enough to admit the end of the projection 3 of the hammer-block, but which tapers as it descends, the socket proper terminating in a shoulder, M, below which there is a perforation, N, into which the eye-punch passes, pushing before it the metal punched out of the hammer-block in the process of punching out the eye. The shoulder M is a bearing for the end of the projecting part 3 to rest upon while the eye is being punched out by the punch.

The sunken surfaces of the upper and lower poll-dies, which draw out and round the poll, are designated O O, and the sunken surfaces which are intended to draw out and reduce the peen are designated P P. Their edges in both the upper and lower poll-die are rabbeted, so that when the dies are brought together the rabbets form a groove, Q, which receives any surplus metal which may be pressed from the block by the poll-dies.

In Fig. 3 I have represented a section of the hammer-block as it appears when it has been shaped by the poll-dies, on coming from which it is subjected to the knife, which splits the peen and forces the divisions asunder the proper distance. The knife X is made of steel, and is connected to a head, Y, capable of being secured in a press. The hammer is laid on a plate of copper or other suitable bed, so as to bring the peen under the knife, and, power being applied, the knife splits the peen open preparatory to the bending of the claws. This part of the hammer is next subjected to the bending-dies R R′, which turn the ends of the divided peen over, so as to give to them the desired claw shape, the claw shape being thus given at one operation at a separate stage of the process, the peen being kept perfectly straight up to this stage of the process.

The dies R R′ are so constructed and arranged that the upper die R′ presses on the outer side of the peen, so that it has a stretching action upon the divisions of the peen in the operation of bending their ends over the convex surface of the under die R.

In order to keep the other parts of the hammer in shape, and prevent distortion while the claw is being bent, I construct the under claw-bending die R with a socket, S, of the proper depth and shape to receive the adz-eye, and from the bottom of the socket rises a pin, T, which enters the hole of the eye, so that the hammer, on being removed from the poll-dies, can be set in the lower bending-die R, in the position shown in Fig. 7, the adz-eye 3 fitting in the socket S around the pin T. I also make provision in the lower die R for keeping the claws apart while they are undergoing the operation of bending under the pressure of the upper die R′. The provision for this purpose consists in a curved, wedge-shaped guide, U, arranged centrally in a claw-socket, V, the socket being made to expand in width in the direction of the right-hand end of the die R, observing Fig. 8, to correspond to the shape of the outer sides of the claw, and the guide U being made to increase in thickness in the same direction, to correspond to the expansion of the divisions of the claw.

By these means the hammer is prevented from becoming distorted under the operation of bending the claw, and the divisions of the claw are suitably bedded in the socket V, upon the guide U, while the upper die R′ is making its pressure.

The socket V runs out at W, down to which line it decreases in depth corresponding to the decreasing thickness of the claw, the depth of the socket being, however, less than the thickness of the claw, in order that the upper die R can press with full force on the outer side of the claw. This is indicated in Fig. 7, where the section shows the inner edge of one division of the claw as it appears when bent to the proper shape.

What I claim as new, and desire to secure by Letters Patent, is—

The method above specified of manufacturing adz-eye hammers by means of the devices above described, namely, cutting out a hammer-block having a projection, 3, for the adz-eye, a square end for the poll, and a tapering end for the peen by suitable dies, then subjecting the said hammer-block to the poll-dies, by which the poll is rounded and shaped and the peen drawn out and the eye punched out in one operation, and then splitting the peen and forming the claws, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 26th day of June, A. D. 1876.

HENRY WELLS KIP. [L. S.]

Witnesses:

JAMES L. RAZE,

RALPH JOHNSON.