A. RIDAL.

Dies for Making Half-Round File-Blanks.

No. 225,076. Patented Mar. 2, 1880.

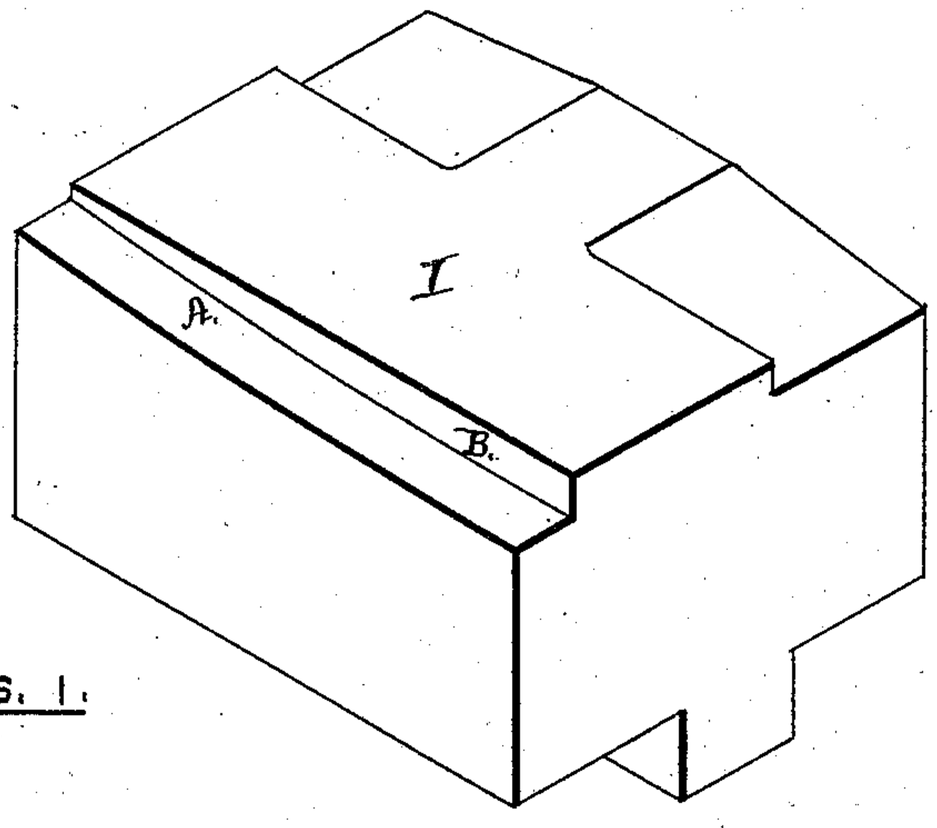

FIG. 1.

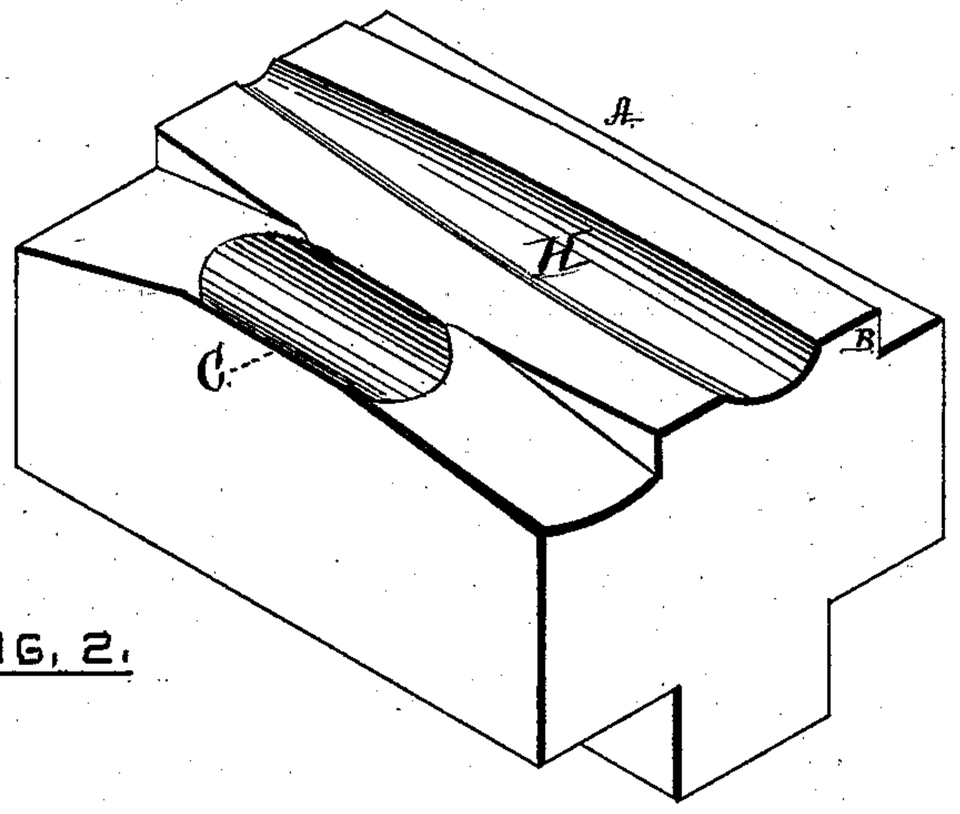

FIG. 2.

WITNESSES:

G. M. Carpenter Jr.

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UNITED STATES PATENT OFFICE.

AMOS RIDAL, OF PAWTUCKET, RHODE ISLAND.

DIE FOR MAKING HALF-ROUND FILE-BLANKS.

SPECIFICATION forming part of Letters Patent No. 225,076, dated March 2, 1880.

Application filed November 29, 1879.

To all whom it may concern:

Be it known that I, AMOS RIDAL, of Pawtucket, in the county of Providence and State of Rhode Island, have made certain new and useful Improvements in Dies for Making Half-Round File-Blanks; and I do hereby declare that the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description thereof.

Figures 1 and 2 together represent a pair of my improved hammer-forging dies.

My invention relates to dies especially designed for the forging of half-round file-blanks; and it consists in the improvements in the construction thereof, as hereinafter described.

Dies of this class have one part attached to the end of a lever, (not shown,) which is operated by suitable mechanism and caused to descend with great force upon the other part, (shown in Fig. 2,) which is placed upon a suitable bed underneath.

The operator, aided by a pair of pinchers, manipulates the heated file-blank while it is being acted upon by the dies. The faces of these dies are usually divided longitudinally into three parts, the blank being transferred from one division to another during the forging process, as its proper development may require.

The faces of the dies now in use for making half-round files are made with a groove upon the right side to receive the edge of the blank, such groove varying in depth to correspond to the taper of the file-blank, and are alike in both the stationary and striking parts. The middle division of the lower die is concaved at H, to correspond to the required form of a half-round file-blank, while the corresponding portion I of the upper die is flat, all as shown in Figs. 1 and 2. The remaining division, upon the left side, is the same in both the upper and lower parts of the dies, and consists of two inclined surfaces meeting in a horizontal hammering-surface.

The mechanism for operating these dies being put in motion, the upper die descends at regular intervals, and the operator, taking the heated blank from his furnace, draws it, by subjecting it to the action of the horizontal hammering-surfaces, changes it to the center division to develop its half-round form, and draws it edgewise by placing it in the groove at the right.

In operating these dies, the groove upon the right side becomes filled and clogged with scales and dirt, which, unless frequently removed, results in damaging or spoiling the blank. The action of the dies upon the edges of the blank after it has received its half-round form frequently, even with the greatest care, bends them over and renders it worthless.

The object of my improvements is to prevent the groove upon the right side from becoming filled with scales and dirt, and to avoid the injury resulting to the blank from the bending over of its edges; and they consist in the removal of the outer side or wall of the groove upon the right side and the concaving of the horizontal surface upon the left side of the lower die.

In my invention I cut down the faces of the dies A, Figs. 1 and 2, to a depth varying according to the taper of the file, leaving a perpendicular shoulder, B, against which the flat side of the blank rests, while the edge receives the successive blows of the descending die. This, while it fully answers the purpose of the groove, is entirely open upon one side, and furnishes no place for the collection and retention of scales and dirt.

The blows upon the thin edges of the blank turn them over in the direction of the flat side. To compensate for this it is necessary to previously turn them in the opposite direction, so that the subsequent blows will only bring them back to their proper place. I do this by slightly concaving the horizontal surface C upon the left side of the lower die, leaving the corresponding horizontal hammering-surface of the upper die flat, as in the dies now in use.

The blank, in being drawn by the action of the concave surface C and the corresponding flat surface, will have its edges slightly turned back, as will be readily seen, and in that form will be placed against the shoulder B to receive the necessary blows upon the edge, which will only bring back the edges to their original position.

Instead of having the faces of the dies divided into three parts, as described, two or three different pairs of dies may be used, and

the blank changed from one pair to another during the forging process, although much loss of time would thus be incurred.

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

The device herein described, consisting of the lower or stationary die shown in Fig. 2, and the movable or hammer die shown in Fig. 1, the stationary die having the two usual inclined surfaces, terminating in a horizontal surface, C, slightly concave, an open channel, A, and an intermediate tapering groove, H, of curved form in cross-section, the said surfaces being for the successive reception of the heated blank while being acted on by surfaces of the upper die, as and for the purpose described.

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Witnesses:

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