

(No Model.)

C. W. HUBBARD.

DIE FOR MAKING AX BIT BLANKS.

No. 314,674.

Patented Mar. 31, 1885.

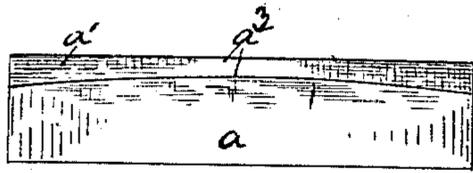


Fig. 1.

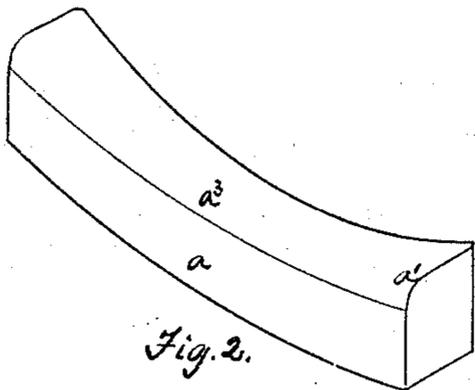


Fig. 2.

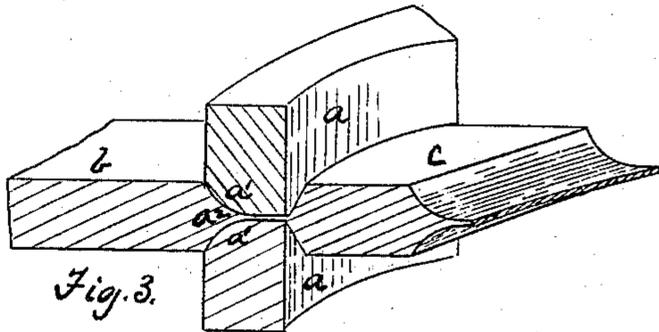


Fig. 3.

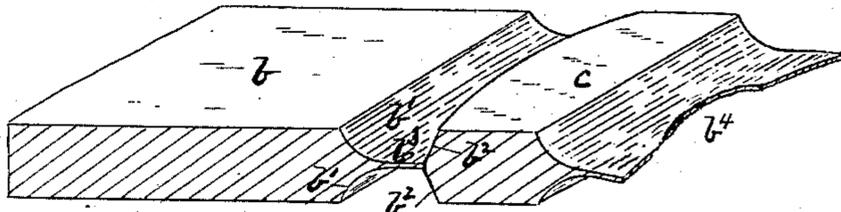


Fig. 4.

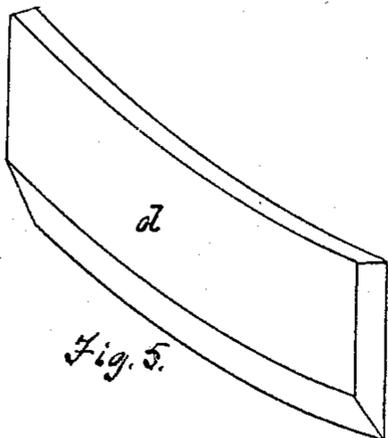


Fig. 5.

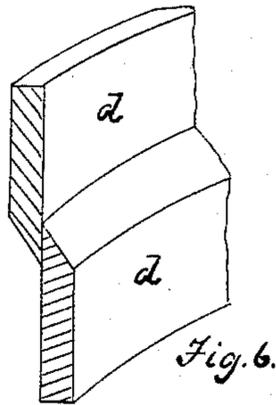


Fig. 6.

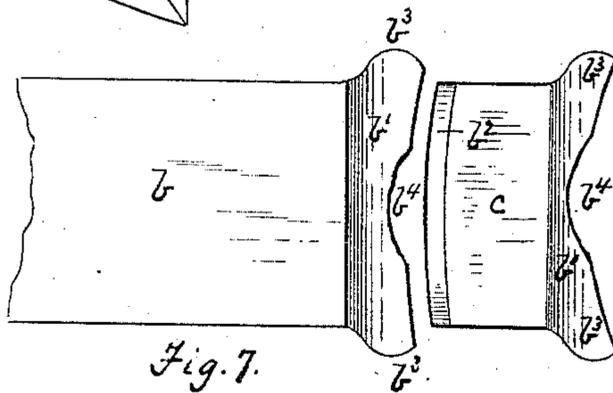


Fig. 7.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

CHARLES W. HUBBARD, OF PITTSBURG, PENNSYLVANIA.

## DIE FOR MAKING AX-BIT BLANKS.

SPECIFICATION forming part of Letters Patent No. 314,674, dated March 31, 1885.

Application filed December 29, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. HUBBARD, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Inserted Ax-Bits; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention has for its object to cheapen the manufacture of axes having inserted bits. To this end I make use of a bar of steel of the proper width and thickness to cut the bit-blanks off laterally from the end of the bar; and I effect the formation of the bit and its insertible edge by means of peculiar-shaped dies, which, being placed in a suitable press or rolls, impart their form to the blank prior to its severance from the bar, and then I sever it by means of suitably-shaped shears.

To enable others skilled in the art to make and use my improvement, I will now describe it by reference to the accompanying drawings, in which—

Figure 1 is a front view of one of the dies for forming the bit. Fig. 2 is a perspective view of the same. Fig. 3 is a vertical section of a pair of dies operating upon the bar. Fig. 4 is a view of the bar after being subjected to the action of the dies shown in Figs. 1, 2, and 3. Fig. 5 is a view of one of the shears. Fig. 6 is a vertical section of the shears, illustrating their operation; and Fig. 7 is a view of the bar after being put through the shears to sever one of the edges formed in the dies shown in Figs. 1, 2, and 3.

Like letters of reference indicate like parts in each.

The dies *a a* are each formed with a curved working-face, *a'*, forming a tapering cavity, *a<sup>2</sup>*, at their meeting edges. The curve *a'* is struck on a shorter radius at the middle part, *a<sup>3</sup>*, of the dies than at the ends, so as to produce a sharper pinching effect at that point. As the dies *a a* are blunt and work on each other, they do not sever the blanks from the bar, so that their effect is confined to form-

ing a curved recess or groove on each side of the bar *b*, that portion *b'* which is formed by the curved face *a'* tapering gently to a point, while that portion *b<sup>2</sup>* which is formed by the straight back sides of the dies is abrupt. The metal is displaced laterally, forming laterally-projecting fins or edges *b<sup>3</sup>*, as shown in Fig. 4, which enable the bit to be more perfectly and securely welded to the ax-poll. The effect of the shorter curve of the working-faces at the middle of the dies *a* is to partially sever the previously-formed blank, as at *b<sup>4</sup>*, Fig. 4. The bar *b*, being placed between the dies *a*, is acted upon by the latter, as just described, at determined points, the bar being fed forward the proper distance to give the required length for the bit *c* at each operation of the dies. The effect of the dies *a a* upon the bar is shown in Fig. 4, where a complete but unsevered blank, *c*, is shown. The bar in the condition shown in Fig. 4 is next submitted to the action of a pair of knives or shears, *d*, Figs. 5 and 6, which are of the proper curve to sever the blank from the bar, as shown in Fig. 7. When the dies *a a* are forming the front edge of one blank, *c*, they form the rear edge of the preceding blank. The blank *c* thus made is subsequently used by welding it to the poll of the ax and then drawing it out to form the cutting-edge of the same.

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

The dies *a a*, having curved working-faces *a'*, which are struck on a shorter radius at the middle than at the ends, whereby the metal of the bar acted upon by the dies shall be displaced laterally at both sides of the same, so as to form laterally-projecting fins or edges on the blank, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 22d day of December, A. D. 1883.

CHARLES W. HUBBARD.

Witnesses:

W. B. CORWIN,  
THOMAS B. KERR.