(No Model.) 2 Sheets—Sheet 1.

W. EVANS.

DIE FOR MAKING ADZES.

No. 258,570. Patented May 30, 1882.

Fig. 1.

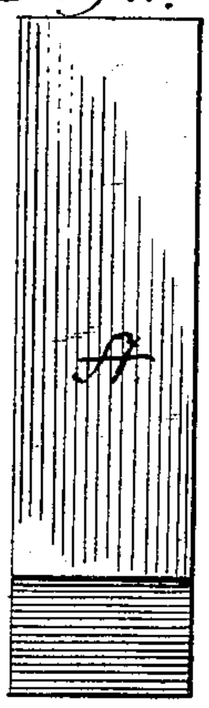


Fig. 2.

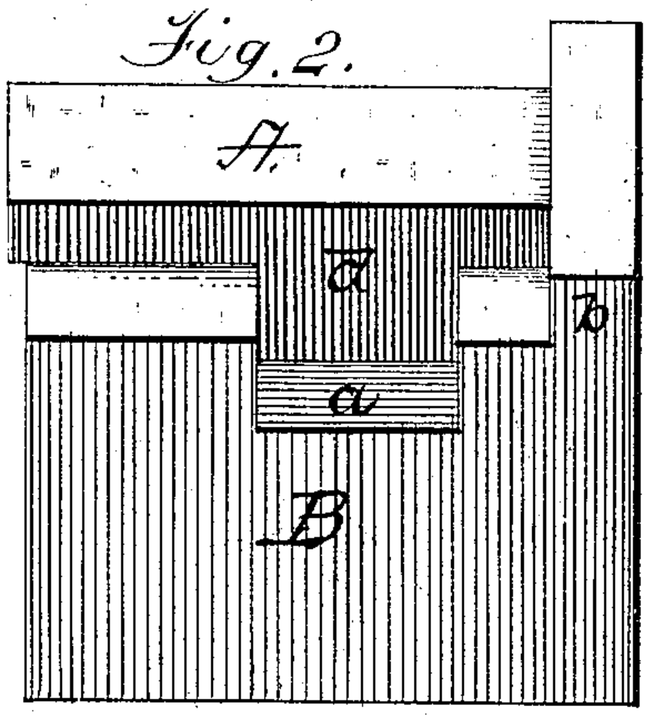


Fig. 3.

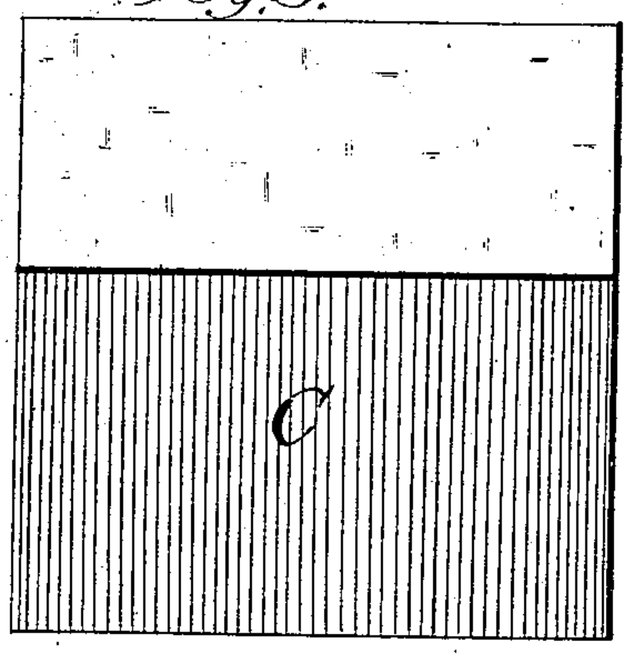


Fig. 4.

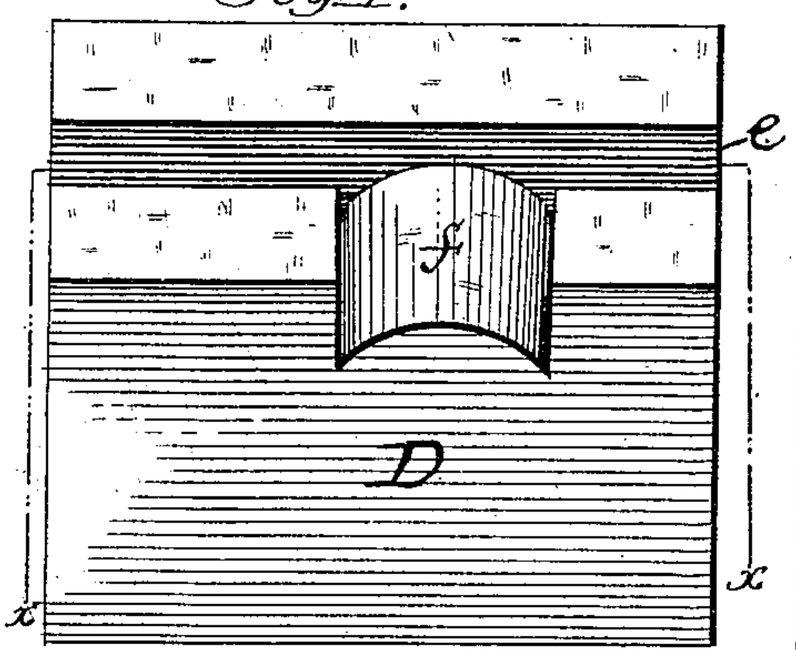


Fig. 5.

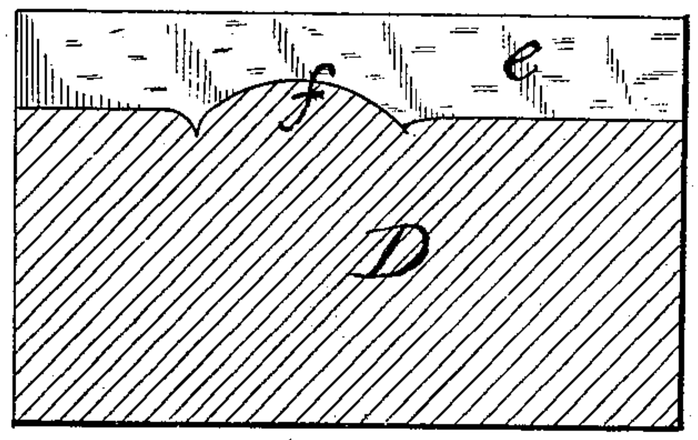


Fig. 6.

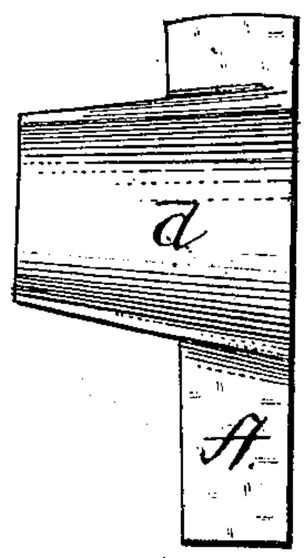


Fig. 7.

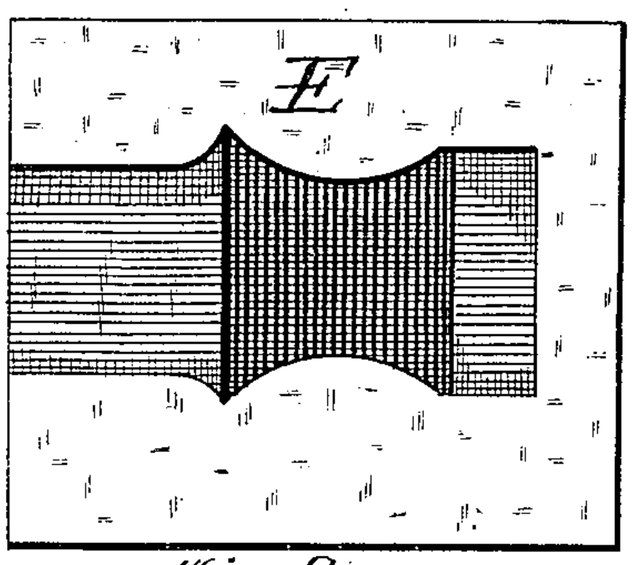


Fig. 8.

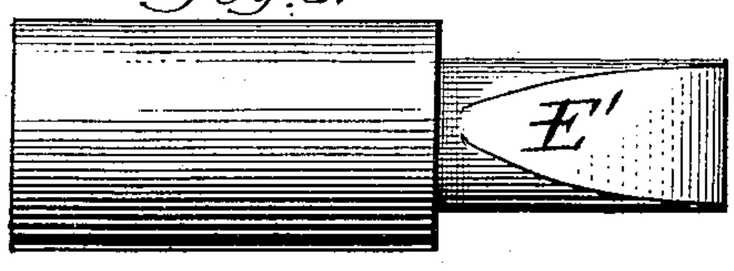
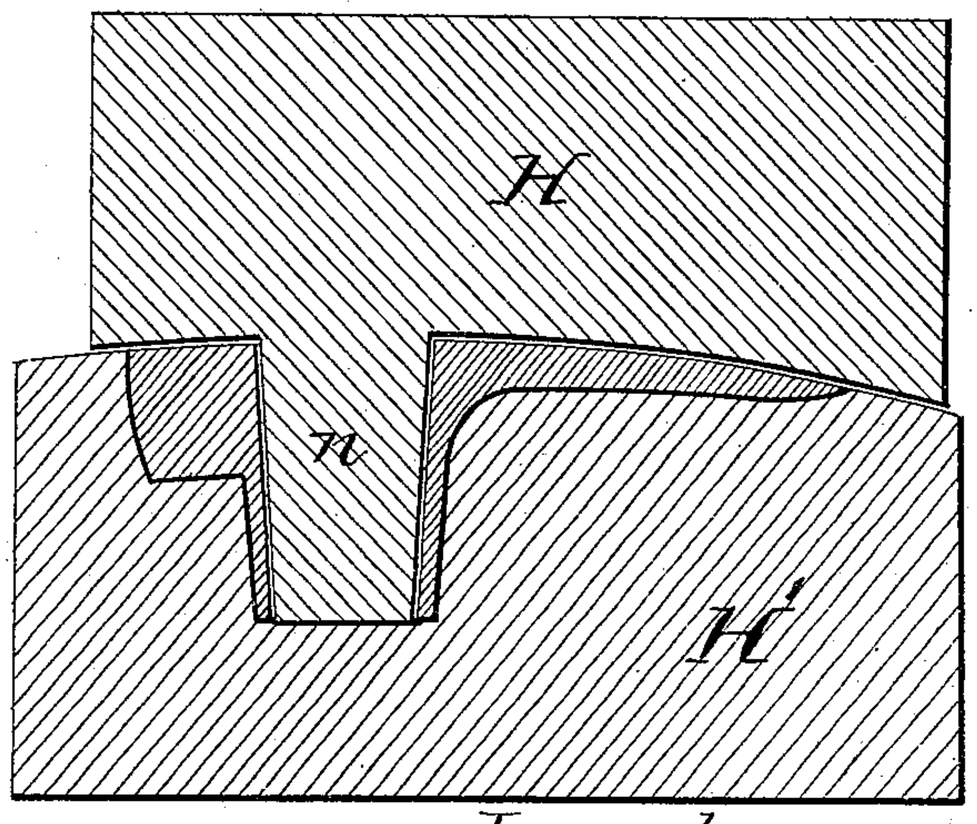


Fig. 10.



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(No Model.) 2 Sheets—Sheet 2.

W. EVANS.

DIE FOR MAKING ADZES.

No. 258,570. Patented May 30, 1882.

Fig. 9.

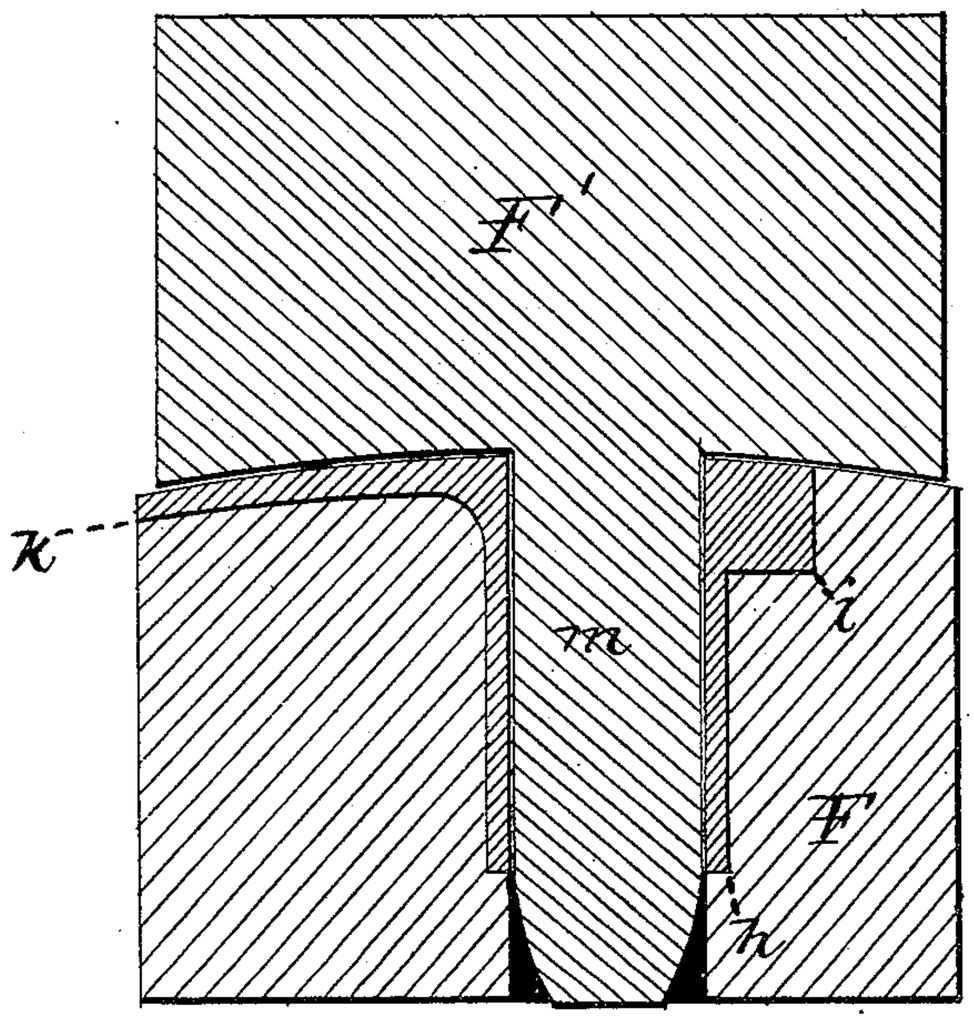
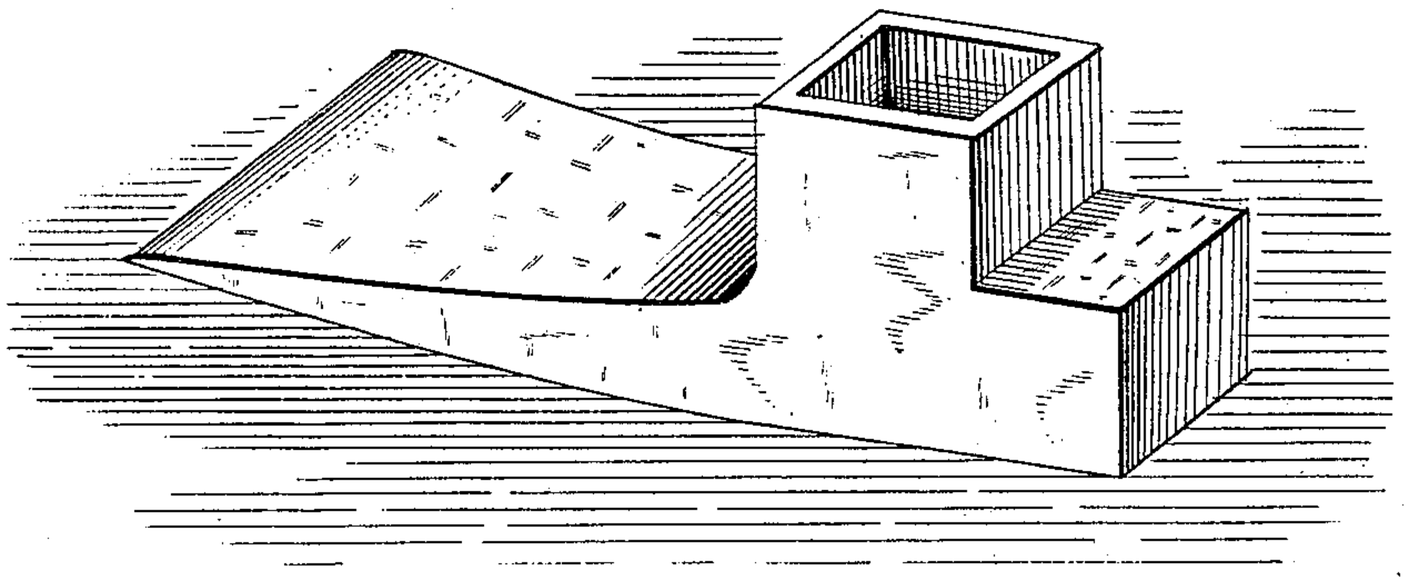


Fig. 11.



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UNITED STATES PATENT OFFICE.

WILLIAM EVANS, OF CHESTER, PENNSYLVANIA.

DIE FOR MAKING ADZES.

SPECIFICATION forming part of Letters Patent No. 258,570, dated May 30, 1882.

Application filed June 15, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM EVANS, a citizen of the United States of America, residing at Chester, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Dies for Manufacturing Adzes and Similar Articles; and I do hereby 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 letters or figures of reference marked thereon, which form part of this specification.

This invention relates to the manufacture of adzes and similar articles by machinery.

My invention consists in the novel construction of the dies for manufacturing adzes, as will be hereinafter described, and pointed out in the claims.

Figure 1 of the drawings is a representation of the metal blank. Fig. 2 is a view of the bottom die for forming the depressed portion to shape the eye. Fig. 3 is a perspective view of the top die. Fig. 4 is a perspective view of a "fullering-die." Fig. 5 is a sectional view of the fullering-die, taken through the line *x x* of Fig. 4. Fig. 6 is a side view of the blank after being operated upon by the fullering-die. Fig. 7 is a plan view of the punch-dies. Fig. 8 is a view of the punch. Fig. 9 is a view of a pair of dies for shaping the poll, socket, and bit. Fig. 10 is a view of the final dies for shaping the adz, and Fig. 11 is a perspective view of the adz.

The method or process of manufacture is as follows: I take from a bar of iron of the proper size a piece about the weight of the adz I wish to make, which I call the "blank" or "stock" A, as shown in Fig. 1 of the drawings. This blank is heated to a "white heat" and placed in the die B, which is constructed with a transverse recess, *a*, and a flange, *b*, and subjected to a blow or blows by the flat-face die C to "break down" the stock near one end to form the socket-piece *d*, as seen in Fig. 2. The blank is next turned sidewise and placed in the second die, D, one of a pair for "fullering" the metal at the eye or socket portion. Each of these sectional dies D is formed with a longitudinal passage, *e*, for the body of the blank and the groove or passage *f*, arranged at right angles thereto, (see Fig. 4,) the bottom of which is curved for the purpose of fullering the eye or socket portion of the metal. The advantage of fullering is to spread the metal for forming the socket or eye extensions of the adz and compress the metal around the eye to secure strength. The appearance of the blank after leaving these dies is represented by Fig. 6. This shaped blank is now placed in a third die, E, with a cavity (see Fig. 7) having the outlines to receive the same, and while the blank is arranged in this die a hole is formed in the socket portion by means of a punch, E′, (see Fig. 8,) without removing any metal. The blank is next placed in between the fourth pair of dies, F F′, (see Fig. 9,) the lower one of which is formed with a square opening and a shoulder, *h*, and the cavities *i k* for the head and blade portion of the adz, and the upper one with punch *m* for shaping the socket or eye. The adjacent or meeting faces of the dies are curved, as shown, to give the desired curve to the back of the adz. The metal at the blade end is again (the second time) heated to a welding heat and split to receive a steel bit, likewise heated to a welding heat and placed between the fifth or finishing pair of dies, H H′, the lower one, H′, of which is formed with a poll or head cavity and a depression of the shape of the blade to be struck up, and the upper one with a steady eye-pin, *n*. The adz as it comes from this pair of dies is represented by Fig. 11, and now only requires to be tempered and polished for the market.

It is obvious that the progressive steps in the method of manufacturing herein set forth will apply to the forming of adzes from a steel blank, in which case the splitting and welding are omitted.

Heretofore in the manufacture of adzes eight heats of the metal were required; but by my improved method or process only two heats are required to manufacture the adz.

This method of manufacturing adzes by the series of dies arranged in a press in progressive steps improves the quality of the article and reduces the cost of manufacture.

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

1. Jointly, the die B, formed with the trans-

verse groove *a* and flange *b*, and die C, with a plain surface for breaking down the metal, substantially as described.

2. Jointly, the dies D, each constructed with the longitudinal groove *e* and the transverse convex surface *f*, said groove and surface being arranged as shown, for the purpose of fullering the metal.

3. The die E, substantially of the construction seen in Fig. 7, for the purpose stated.

4. The pair of dies F F′—the former or lower one formed with square opening, shoulder *h*, and cavities *i k*, and the latter or upper one provided with a punch, *m*, substantially as and for the purpose set forth.

5. The pair of dies H H′, substantially of the construction seen in Fig. 10, for finally shaping the adz.

6. The series of dies hereinbefore described for manufacturing adzes in progressive steps.

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

WILLIAM EVANS.

Witnesses:

J. WALTER LINDSAY,

SAM. LYONS.