(No Model.)

J. F. DUFFY.

DIE FOR MAKING BLACKSMITHS' FULLERS.

No. 277,468. Patented May 15, 1883.

Fig. 1.

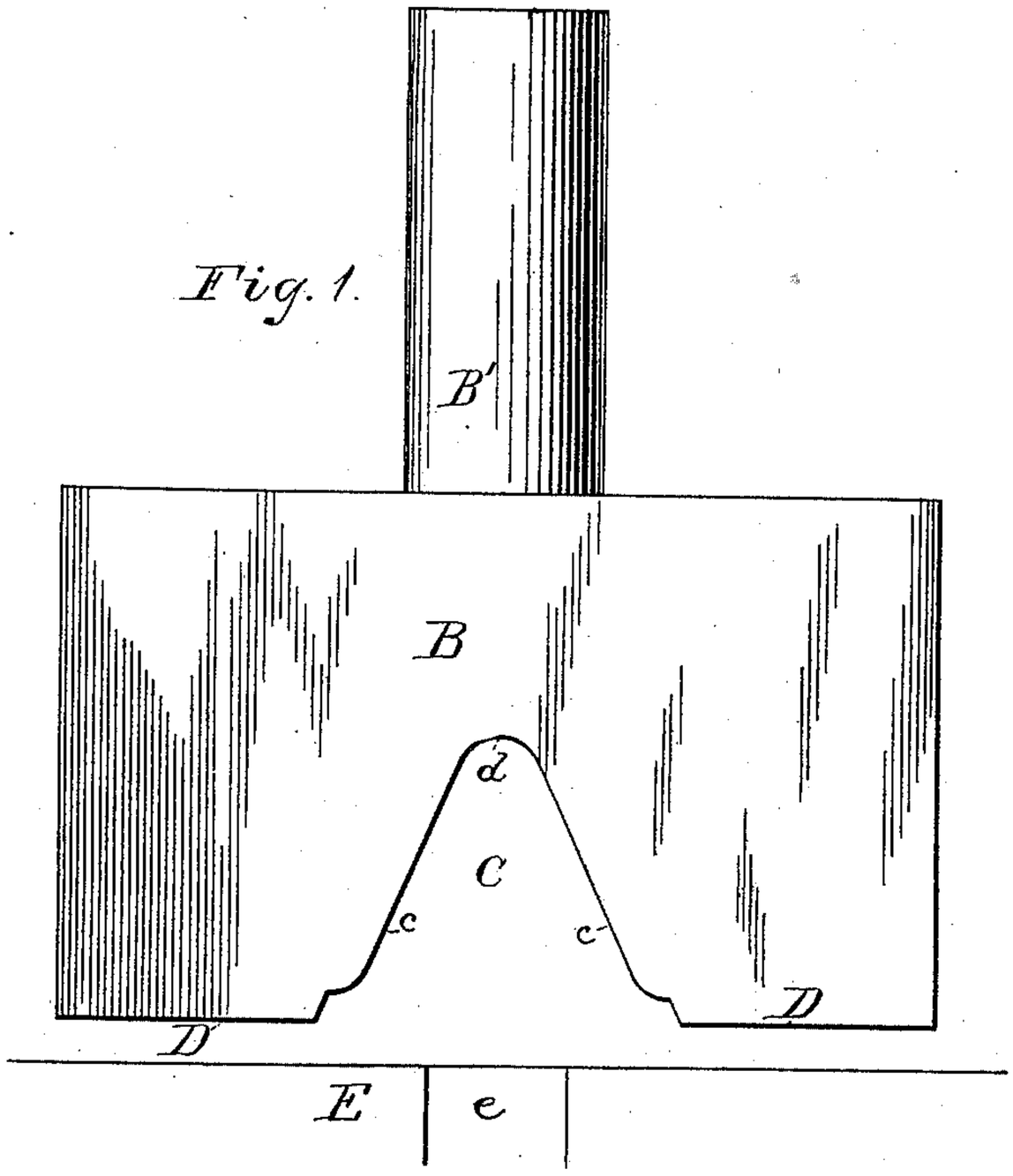
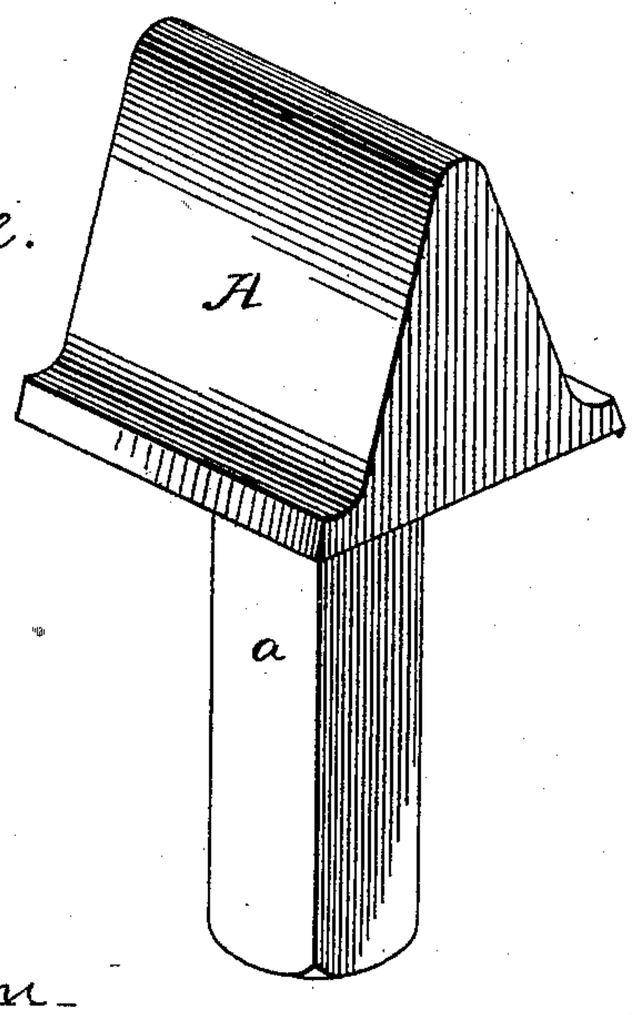


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES F. DUFFY, OF CHICAGO, ILLINOIS.

DIE FOR MAKING BLACKSMITHS' FULLERS.

SPECIFICATION forming part of Letters Patent No. 277,468, dated May 15, 1883.

Application filed May 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. DUFFY, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Manufacture of Blacksmiths' Forging-Fullers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 of reference marked thereon, which form a part of this specification.

Heretofore it has been the custom to make blacksmiths' fullers by hand—a method which from its very nature is uncertain, and must result, to a greater or less extent, in imperfect work, and by which it is almost impossible to produce a uniformly good tool. This is due to the resisting qualities of the different kinds of steel used, and to the inability of a workman to regulate the number or force of the blows necessary to make the tool. My method overcomes these difficulties by making fullers in one or more heats with a die inserted in the ram of a power-press or the hammer of a drop-hammer, the blows of which are uniform and regular. Its object is, first, to make a uniformly perfect tool having the apex or crest of the fuller run parallel to its sides, and having the metal equally and symmetrically distributed; second, to preserve the quality of the steel by accomplishing in one heat, if need be, what has heretofore with the most skilled workmen required at least ten or twelve heats; third, to save labor; and, fourth, to prevent the waste of metal by scaling or oxidation.

Similar letters of reference represent like parts in both figures of the drawings, in which—

Figure 1 is a side view of my die, showing its relative position to the anvil; and Fig. 2 is a perspective view of an ordinary fuller.

In the drawings, A represents a bottom fuller, a cross-section of the head of which would describe the profile of a conoid or truncated cone the base of which extends outward. Said head has a tang, *a*, projecting downward from its under side, which is inserted in a corresponding aperture in the face of the blacksmith's anvil when in use. The difficulty experienced in making these tools is to procure a uniformly rounded crest or apex running centrally between and parallel to the sides of the head, corresponding incline or bevel to the sides of the same, and a tang that will extend centrally downward from the head. These difficulties I overcome by a die, B, of suitable proportions, having a tang, B′, which enters and is secured in a corresponding aperture in the ram of a power-press or hammer of a drop-hammer.

In the operating-face of the die I make a depression, C, running longitudinally across the same, open at both ends, and having beveled walls *c c* converging inward toward a common center and culminating in the rounded portion *d*, the whole of which corresponds to the shape of the operating portion of the head of a fuller which it is intended to produce, substantially as shown.

Extending an equal distance on either side from the mouth of the depression C are plane surfaces D D, which are used for drawing out the tang and flattening the ends of the fuller, as will be hereinafter more fully described.

Arranged below the die is an anvil, E, having a smooth plane surface provided with an aperture, *e*, preferably square in cross-section, located immediately under the longitudinal and transverse center of said depression, and corresponding exactly in position and dimensions to the tang of a fuller which it is adapted to receive.

To make the fuller the tang is first drawn out from the blank metal under the plane surfaces D D on either side of the mouth of the depression, and then placed in the corresponding aperture, *e*, in the anvil. The operating part of the head is then made by the corresponding depression in the die, and thus the blows that form the head of the fuller contribute to make the under side of the head perfectly plane, so as to bear flat on the face of the anvil when in use. After the operating part of the head is formed the ends thereof are flattened under the plane surfaces.

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

1. A plane-faced die having a central depression extending straight across its operating-face, leaving sufficient plane surface on either side of it to draw out the tang of a fuller, said depression being open at both ends and having its sides or walls converging inward

toward a common center, the device being in form and structure such as described and represented in the drawings.

2. The combination, with the above-claimed die, of a base or bottom die having a plane face provided with an aperture to admit the tang of the fuller, substantially as described and shown.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

JAMES F. DUFFY.

Witnesses:
JAMES H. COYNE,
FRANK THOMASON.