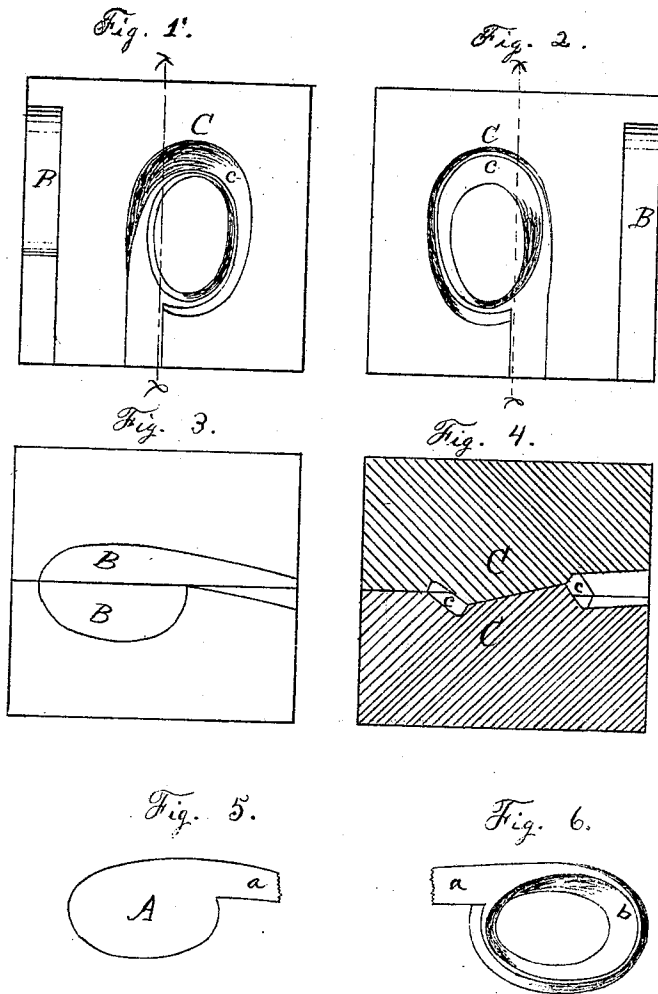


A. R. Bailey,

Forging Shear Bows.

No. 101412.

Patented Apr. 5, 1870.



Witnesses.

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UNITED STATES PATENT OFFICE.

ALBERT R. BAILEY, OF PLANTSVILLE, CONNECTICUT.

IMPROVEMENT IN DIES FOR FORGING SHEAR-BOWS.

Specification forming part of Letters Patent No. 101,412, dated April 5, 1870.

To all whom it may concern:

Be it known that I, ALBERT R. BAILEY, of Plantsville, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Forging Shear-Bows, of which the following is a specification.

The object of my invention is to forge solid shear-bows without welding, and of a size suitable for tin-smiths' "snip-shears."

My invention consists in the manufacture of shear-bows by a series of dies, constructed as hereinafter described, which, by successive operations, form the shear-bows into the required shape at a single heat.

In the accompanying drawings, Figures 1 and 2 are front elevations of the face side of the dies used in my process; Fig. 3, a side elevation of the blanking-dies; Fig. 4, a section of dies, Figs. 1 and 2, on lines *x x*; Fig. 5, a side elevation of a blank forged by dies, Fig. 3; and Fig. 6 is a side elevation of a finished bow.

The dies are arranged in a powerful drop or press, with their faces toward each other, as shown in Figs. 3 and 4. A bar of iron of the proper thickness for the shank *a* of the bow *b*, and of about the width of the widest part of the blank *A*, is properly heated and subjected to the dies *B B*, which form the iron into the solid oval-shaped blank *A*, Fig. 5, which is immediately placed as central as it can be conveniently between the dies *C C*, which are closed, thus throwing or swaging the bulk of the metal of said blank into the bow-recess *c c* in the dies *C C*. A thin sheet of surplus metal projects a little from the outside of the bow, as usual in swaging other articles, and also a thin solid sheet of surplus metal fills the oval inclosed by the bow *b*. This thin oval-shaped sheet of surplus metal is removed from the inside of the bow, and the other surplus metal trimmed off in any proper manner, and the forging of the shear-bow is finished, as shown in Fig. 6.

By reference to Fig. 4 it will be noticed that the dies are so sunk that the main dividing-line of said dies is at an angle to the length of the bow; or, in other words, the recesses *c c*, which form the bow, are sunk at an oblique angle to the face of the dies, and that the dividing line or face of the dies on the inside of the bow is at still another angle. Said dividing-lines, and consequently the lines of the surplus metal, thus cross each other, whereby I am enabled to give the peculiar form of the bow shown in the drawings. It

also brings the parts of the dies most immediately acting on the iron obliquely to the direction of motion of the forced die, which causes the metal to spread and fill all the parts of the die in a much better manner than it would if these parts were at right angles to said motion.

The blank *A* in its general outlines is about the shape designed for the outlines of the finished bow; but is somewhat smaller as it spreads in the process of swaging. By making this blank of the proper size, only a very little surplus metal will be thrown out between the plane surfaces of the dies *C C* in swaging the bow.

Ordinarily shear-bows for snip-shears are made by drawing out the iron into a long tapering bar, and then bending it into the form of the bow, and then welding the same together at the lap. By my improvement in forging bows, I save twelve cents per pair over the ordinary mode in the labor of forging. I also save a large amount of fuel and produce a better article, which, being of a solid piece, is stronger, and is also much smoother, whereby it can be finished at less expense than those forged in the ordinary manner.

I am aware that solid bows have been struck up in dies, as shown in the patent to S. H. Woods, November 16, 1869; but the recesses in his dies are parallel to the face of the same, while his dies show no arrangement for blanking. He also constructs the face of his dies which forms the aperture in the bow slightly convex, as his specification says, "in order to facilitate the operation and more effectually spread the metal from the solid lump." This construction prevents the surfaces and rough edges of the dies inside of the bow from meeting each other, and consequently they can only partially forge the aperture. By the oblique arrangement of my dies I am also able to "more effectually spread the metal from the solid lump," while at the same time I secure all the advantages of the flat die, of having the faces of the dies meet, whereby the film of metal left inside of the bow is no thicker than the surplus metal on the outside of the same.

I claim as my invention—

The series of dies *B B* and *C C*, constructed as shown and described, and for the purposes set forth.

Witnesses: ALBERT R. BAILEY.
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SARAH E. NORTON.