

James B. Clark,

improvement in
DIES FOR SQUARING AND HEADING BOLTS.

No. 123,084.

Patented Jan. 30, 1872.

Fig. 1.

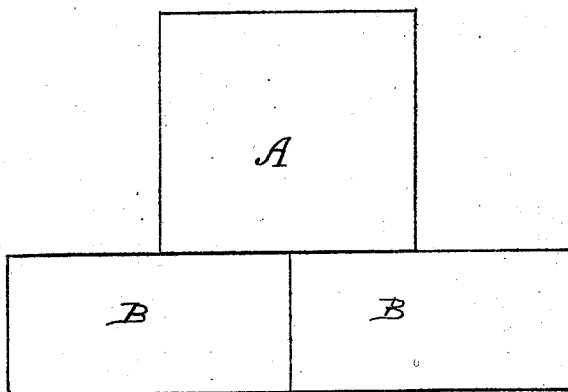


Fig. 2.

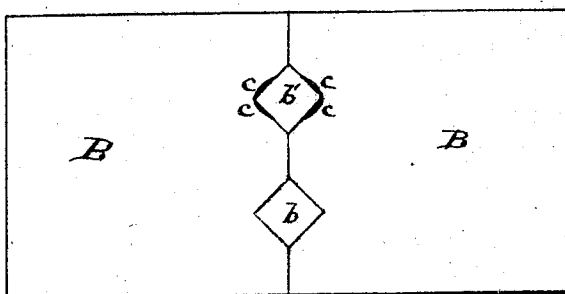


Fig. 3.

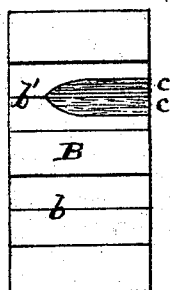


Fig. 4.

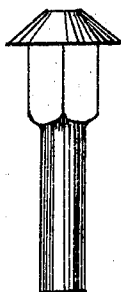
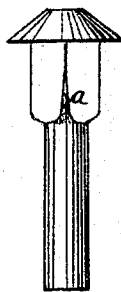


Fig. 5.



Witnesses

C. A. Shepard.
S. Shepard

Inventor,

James B. Clark.
By James Shepard Atty.

UNITED STATES PATENT OFFICE.

JAMES B. CLARK, OF PLANTSVILLE, CONNECTICUT.

IMPROVEMENT IN DIES FOR HEADING BOLTS.

Specification forming part of Letters Patent No. 123,084, dated January 30, 1872; antedated January 13, 1872.

I, JAMES B. CLARK, of Plantsville, in the county of Hartford and State of Connecticut, have invented a new and Improved Die for Squaring and Heading Bolts, of which the following is a specification:

This improvement relates to the dies which square a portion of the bolt-blank and hold the same in place while being headed; and consists in the employment of two sets of squaring-dies, one set of which dies after being made square are still further recessed a part of their length, as and for the purpose hereinafter described.

In the accompanying drawing, Figure 1 is a front view of the squaring and heading dies; Fig. 2, a plan view of the under side of the squaring-dies; Fig. 3, a face view of one of said dies; Fig. 4, a side elevation of a bolt as made by my improved dies; and Fig. 5, a side elevation of a bolt made by a pair of ordinary dies.

The ordinary mode of making this class of bolts is to gripe and square the blank in a single set of square dies, in which it remains while the head is formed. The dies are then opened, the bolt given a quarter turn, when the same dies and heading-tool are again brought upon the bolt. The result is that the two corners of the bolt which are on the dividing line of said dies when the blank is first squared are full and square, while the other corners of the square do not fill, as shown at *a*, Fig. 5, with the exception of a short distance from the head, which is upset and thus filled by the action of the heading-tool. The object of my invention is to forge bolts with all of the corners of the square full and sharp.

A designates an ordinary heading-tool, with the exception that its face has a duplicate recess for forming the head. B B designate blocks, in which are the squaring-dies *b b'*. These are arranged in any of the ordinary heading-machines so that the blocks B B shall move laterally, and thus open sufficiently to receive the bolt-blank, while the heading-tool A must be arranged to move vertically or swing upon an aligner. The face of the dies *b'*, af-

ter being made square like dies *b*, are cut away near the corners to form the recesses *c c*, which extend from the bottom of the dies to near the top of the same. A round blank, having the portion to be squared made larger than that portion which is to remain round, is properly heated and placed between dies *b'*, which are then closed, and thus form the large part of the blank into the form of said dies, and also hold the blank while the heading-tool A descends and forms the head. The dies are then opened, the bolt given a quarter turn and placed in dies *b*, when the dies *b* and heading-tool A are brought to bear upon the bolt, which finishes the forging of the same.

It will be observed that the dies *b'*, except near the top, are free from any sharp and angular corners, whereby the iron readily fills the dies, to the extreme corners of the same, which it would not do if the same were sharp and square. Thus a surplus or ample amount of stock is left near the corner of the square, which the second set of dies *b* readily form into a square with full corners. The corners of the square which are on the dividing line of the dies when the blank is first struck, and all of the corners for a short distance from the head, will always form full and square in an ordinary square die. For this reason, the recesses *c c* do not extend the whole length of the dies, and are made for only two of the corners.

By striking the blank first in a die having no angular corners, as described, and then finishing in a square die, the dies are found to last to square a much larger number of bolts than will square dies.

I claim as my invention—

Jointly, the die *b'* with its recesses *c c* and the die *b* for use successively in the formation of the square neck on the enlarged cylindrical portion of a cylindrical bolt-blank, as described.

JAMES B. CLARK.

Witnesses:

HEBER S. IVES,
JAMES SHEPARD.