

J. BROWNING.

MANUFACTURE OF BOLT-BLANKS.

No. 172,081.

Patented Jan. 11, 1876.

Fig. 1.

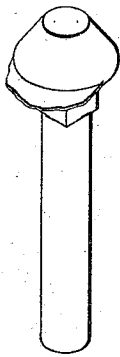


Fig. 2.

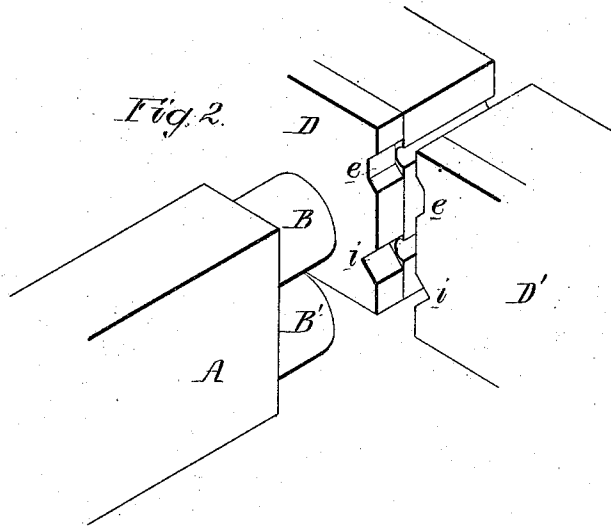


Fig. 4.

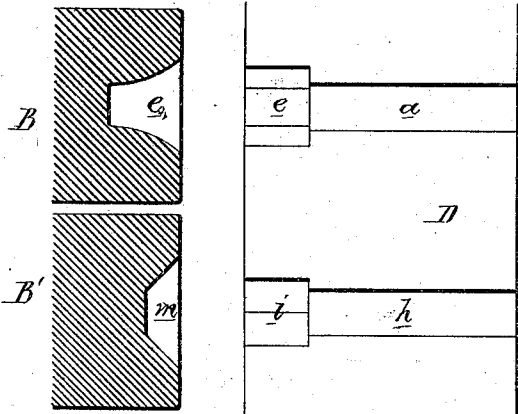


Fig. 3.

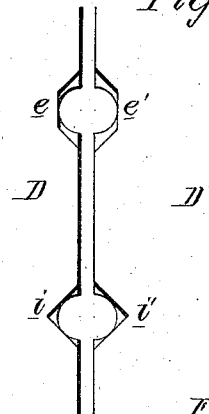


Fig. 8.

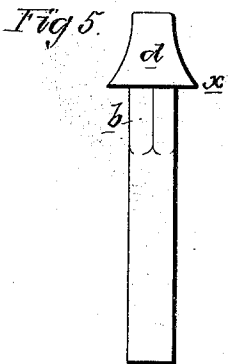


Fig. 7.

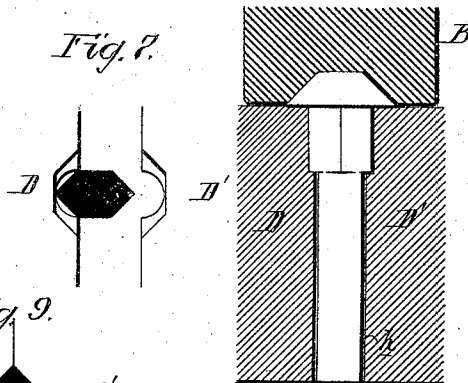


Fig. 6.

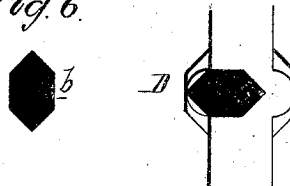
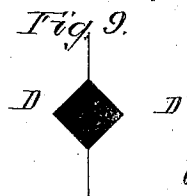


Fig. 9.



Witnesses
Harry Hanson Jr
Harry Smith

Joseph Browning
by his Attorneys.
Houson and Son.

UNITED STATES PATENT OFFICE.

JOSEPH BROWNING, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO W. C. ALLISON, J. WESLEY ALLISON, AND T. ELWOOD ALLISON, OF SAME PLACE.

IMPROVEMENT IN THE MANUFACTURE OF BOLT-BLANKS.

Specification forming part of Letters Patent No. **172,081**, dated January 11, 1876; application filed December 20, 1875.

To all whom it may concern:

Be it known that I, JOSEPH BROWNING, of Philadelphia, Pennsylvania, have invented certain improvements in the Manufacture of Bolt-Blanks, of which the following is a specification:

The object of my invention is to make carriage-bolts with perfect necks and heads, so complete and free from the usual excrescences (shown in Fig. 1 of the accompanying drawing) that the resort to the usual operation of turning the heads will be rendered unnecessary.

I accomplish this result by the dies shown in perspective view, Fig. 2, in which A is a sliding block carrying the two heading-dies B and B', operating in conjunction with the fixed and movable gripping-dies D and D', a front view of the latter being shown in Fig. 3 and Fig. 4, representing an end view of the die D and a section of the two heading-dies.

The first operation is to place the heated rod in the recess *a* of the gripping-die D, when the die D' will close on it, and, the slide A advancing, the heading-die will reduce the blank to the condition shown in Figs. 5 and 6. After the dies have receded the bolt-blank is turned, as shown in Fig. 7, when it is again seized by the gripping-die, and the same recesses *c* reduce the neck to a square form, as described in the Patent granted on the 24th day of August, 1875.

It should be understood that, by the first operation of the recess *e* of the heading-die, the edge *x* of the head of the blank is well defined, and is of the same or nearly the same diameter as the edge of the head of the finished bolt, and that the head is free from excrescences, for all superfluous metal has been absorbed in the peculiarly-shaped head.

When the slide A and the die D' have retreated for the third time, the stem of the partly-finished bolt-blank is placed in the recess *h* and the neck in the recess *i* of the die D, so that when the latter meets the die D' the neck will be contained within and compressed by the two recesses *i* which inclose a square space, as shown in Fig. 9.

It should be understood that the recess *h* is a trifle larger than the recess *a*, so that the gripping of the partly-formed blank takes place on the square neck. When the die B' advances, its recess *m* compresses the partly-finished head of the blank to the shape shown in Fig. 8, in doing which the well-defined edge *x*, previously formed, is not disturbed, the metal being converted into a head of the desired shape, and the surplus metal being forced into the square space inclosed by the recesses *i* of the gripping-dies, so that a perfectly-square neck is insured.

If there be more metal in the preliminary head than the recess *m* of the heading-die B' and the square space inclosed by the recesses *i* of the gripping-dies will contain, that extra metal will be absorbed into the stem, which is at liberty to recede, owing to the recess *h* being slightly larger than the stem of the bolt.

It will thus be seen that, by the above operation, a bolt-blank with a head properly shaped and so smooth that no turning will be required, may be made.

It will be evident that my invention may be applied to the manufacture of bolts with heads of a shape differing from that shown in Fig. 8. For instance, the heading-dies may have recesses for forming rounded heads and heads of other shapes.

I claim as my invention—

1. The mode herein described of manufacturing carriage bolt-blanks—that is to say, first forming the blank with a preliminary head and neck, as shown in Fig. 5, then squaring the neck, and finally reducing the blank to the shape, Fig. 8, as described.

2. The combination of the heading-dies B and B', having the within-described recesses, with the gripping-dies D and D', and their recesses *a e* and *h* and *i*, as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH BROWNING.

Witnesses:

HARRY HOWSON, Jr.,
HARRY SMITH.