(No Model.)

J. H. ALKER.

BOLT HEADING APPARATUS.

No. 560,962. Patented May 26, 1896.

Fig. 1.

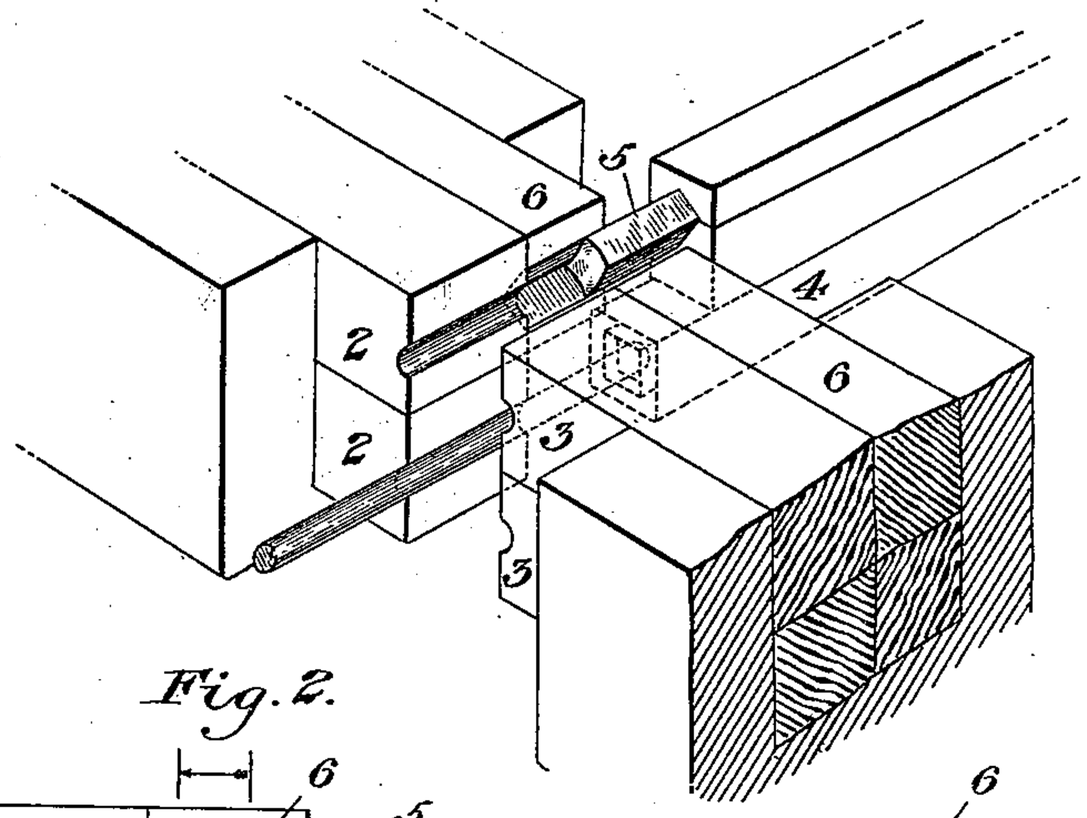

Fig. 2.

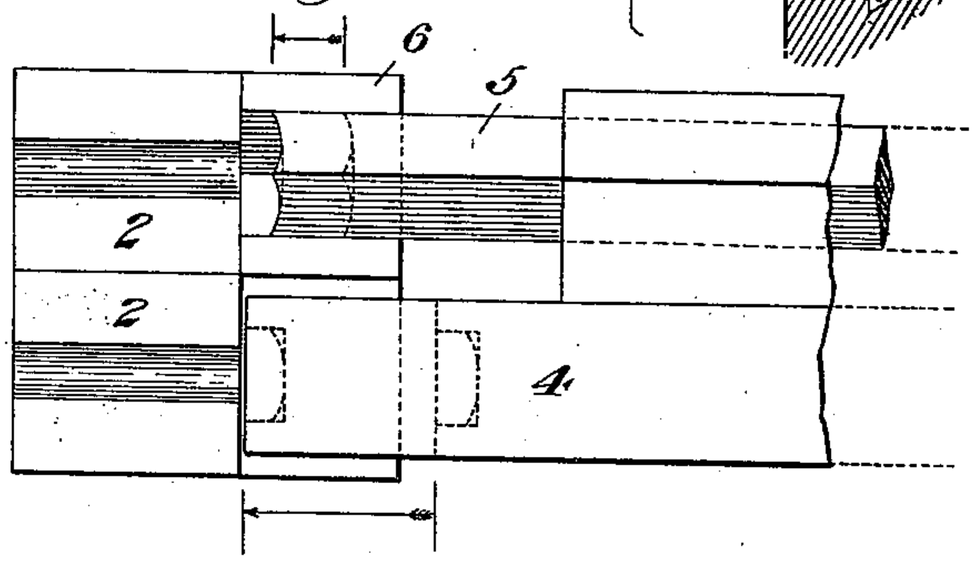

Fig. 3.

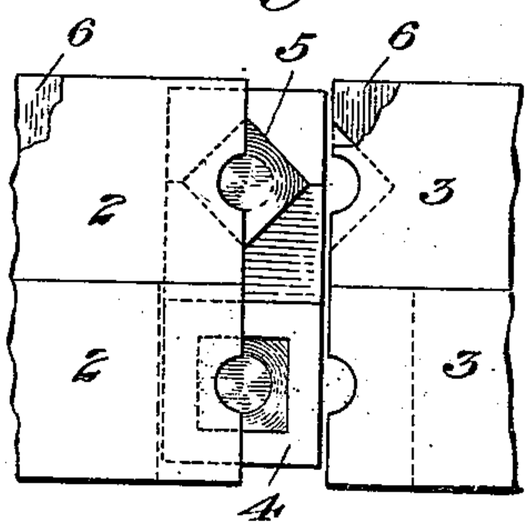

Fig. 4.

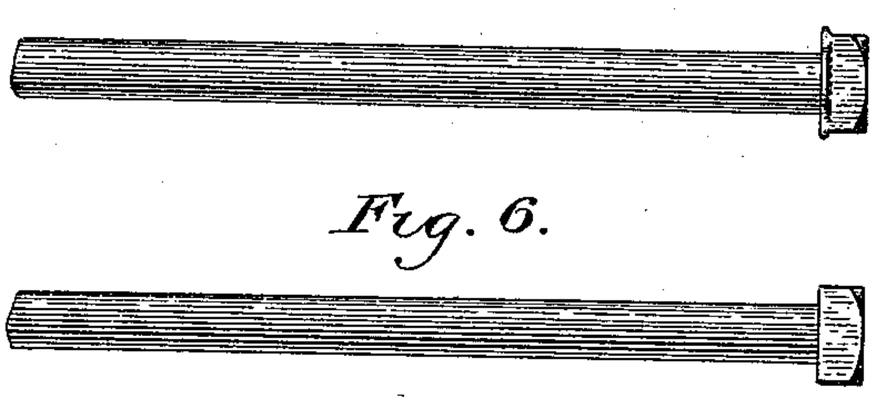

Fig. 5.

Fig. 6.

Fig. 7.

WITNESSES

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BOLT-HEADING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 560,962, dated May 26, 1896.

Application filed December 28, 1895. Serial No. 573,626. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. ALKER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Bolt-Heading Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of the dies I employ in carrying out my improved method of forming bolts. Fig. 2 is an inner side elevation of the same. Fig. 3 is an end view. Figs. 4 and 5 are side and end views of the bolt after the first stroke, and Figs. 6 and 7 are similar views of the bolt with the head formed thereon.

My invention relates to the upsetting of heads upon bolts and is designed to afford an improved means for forming such heads. Heretofore in the manufacture of bolts it has taken seven or eight strokes of the header to finish the head, as the metal which is upset was retained and formed on two sides only, the upper and lower edges being free to flow outwardly. The bolt-head was turned a quarter-revolution by the operator at each stroke of the header, and the opposite sides thus alternately acted upon until the metal had chilled so that it would not flow.

By the use of my invention a bolt-head is formed in two strokes, the first stroke roughly shaping the head with projecting fins at its base and the second stroke removing the fins and giving the final shape.

In the drawings, 2 2 and 3 3 represent coacting clamping-dies, the dies 2 being stationary, while the dies 3 reciprocate to and from them. In the rear of the lower gripping-dies is a large recess, through which passes the box-header 4, this header having a completely-inclosed shaping-cavity recessed into its front end. The stroke of this box-header is illustrated by the arrow in Fig. 2. Above the box-header and parallel therewith is a header 5, which reciprocates within the registering die-cavities of two box-dies 6 6, its stroke being shown by the upper arrow in Fig. 2. It will be noticed that the upper shaping-dies are so located relatively to the cavity in the box-header that the blank is rotated one-eighth of a revolution, when it is removed from the lower die and placed between the upper dies. This brings the vertical parting in line with the axis of the blank at a different point from that of the lower dies and effaces the slight ridges formed upon the shank in the lower gripping-die. It will be noticed that the parting transverse to the axis of the blank is at the base of the blank in the lower dies, so that the surplus metal flows out in fins between the end of the box-header and the rear ends of the gripping-dies. The parting in the upper dies is at the top of the head, the end of the header being suitably shaped to form this top, while the fins formed by the first stroke are entirely removed and the head finally shaped by the second stroke. The operator in using the dies thrusts the blank into the lower dies until it strikes the box-header. The gripping-dies then moving forward clamp the blank in place, whereupon the box-header, moving forward, forms within its cavity the rough head of the bolt. The gripping-dies then moving back the operator removes the blank and rotating it one-eighth of a revolution inserts it within the upper die-cavities and pulls it forward until the base of the head strikes the front face of the die-cavity. The die 6 then moving forward, together with the gripping-die 3, the bolt is again gripped and the shaping-cavity completely formed, and the header then moving forward forms the complete head.

The advantages of my invention are at once apparent to those skilled in the art, since instead of the old, slow, and tedious operation of shaping bolt-heads the heads by my invention are formed by only two strokes, thus greatly increasing the output.

Many changes may be made in the form and arrangement of the parts without departing from my invention, since

What I claim is—

1. In a bolt-machine, the combination with lower gripping-dies and a box-header having an inclosed recess in its end, of longitudinally-divided dies, having registering die-cavities, and a header arranged to move in the recess formed by said cavities, substantially as described.

2. The combination with gripping-dies and a box-header having a completely-inclosed recess arranged to shape the head, of longitu-

dinally-divided dies, having registering die-cavities forming a matrix-cavity at an angle to the cavity in the box-header, and a header movable within the said matrix-cavity, substantially as described.

3. The combination with two sets of gripping-dies arranged adjacent to each other, of a box-header arranged to coact with one set of gripping-dies, longitudinally-divided dies having a matrix-cavity in the rear of the other gripping-dies, and a header movable within said matrix-cavity; substantially as described.

In testimony whereof I have hereunto set my hand.

JOHN H. ALKER.

Witnesses:
STEPHEN W. TENER,
THOS. W. SMITH.