

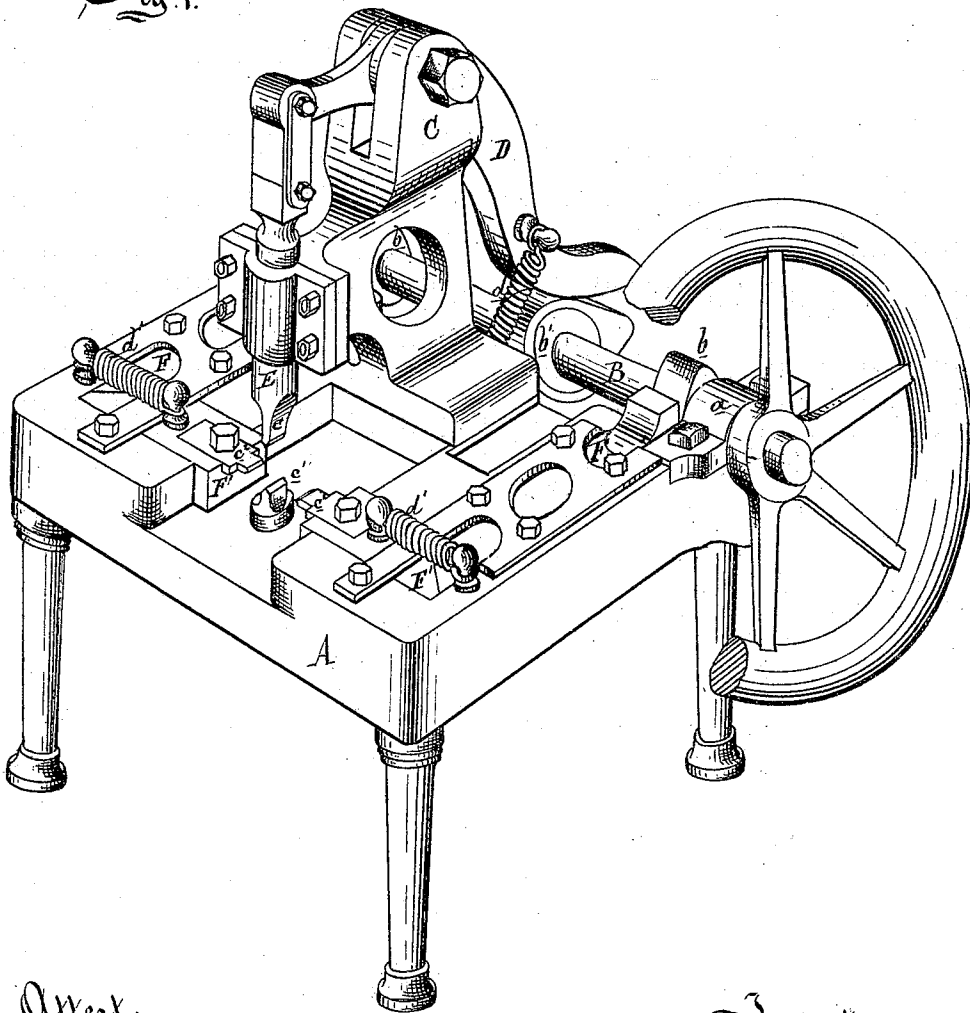
G. B. HILL.

MACHINES FOR SWAGING BOLT BLANKS.

No. 175,460.

Patented March 28, 1876.

Fig. 1.



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Fig. 2.

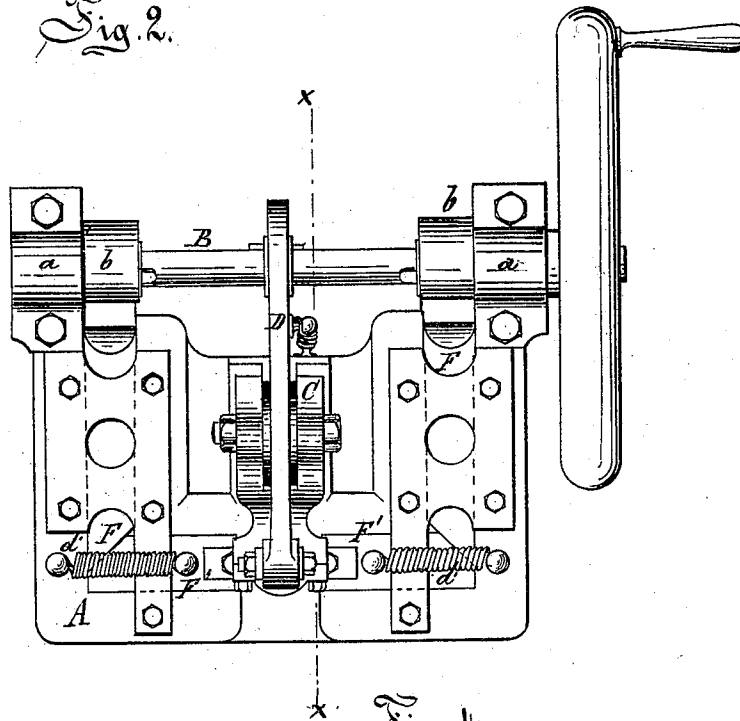


Fig. 3.

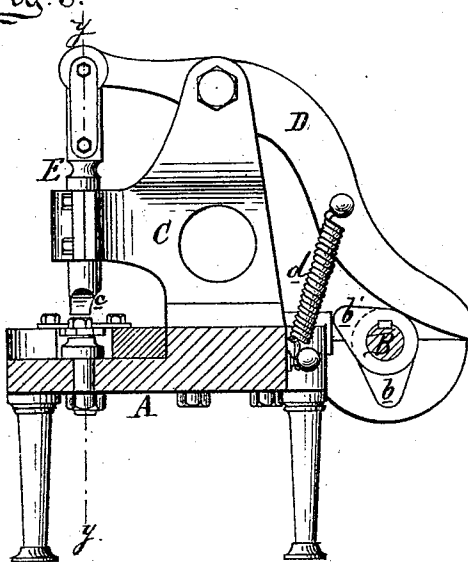
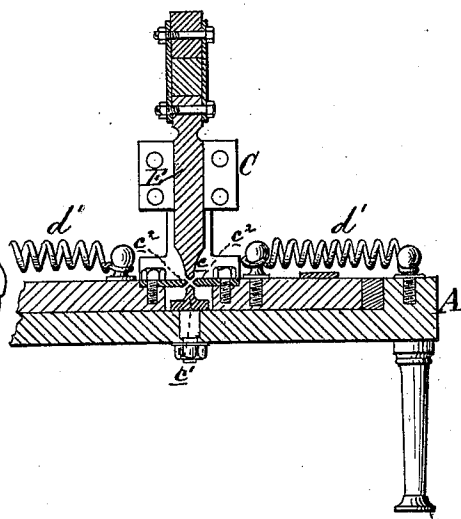


Fig. 4.



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GEORGE B. HILL, OF DETROIT, MICHIGAN.

IMPROVEMENT IN MACHINES FOR SWAGING BOLT-BLANKS.

Specification forming part of Letters Patent No. **175,460**, dated March 28, 1876; application filed January 23, 1876.

To all whom it may concern:

Be it known that I, GEORGE B. HILL, of Detroit, in the county of Wayne and State of Michigan, have invented an Improved Bolt-Machine, of which the following is a specification:

My invention has for its object to furnish a machine which will forge or press the end of a round iron bar into a cruciform section, whose width across any two of its radial ribs will exceed the diameter of the bar, preparatory to forging the same into a carriage-bolt having a cruciform shank.

The invention consists in a vertically-moving and two opposing horizontally-moving dies, in combination with a stationary die on a table, the moving dies being actuated by cams and levers, as more fully hereinafter set forth.

Figure 1, Sheet 1, is a perspective view of the machine with the dies apart ready to receive a rod. Fig. 2, Sheet 2, is a plan view. Fig. 3 is a cross-section at line *xx*, Fig. 2. Fig. 4 is a transverse vertical section at line *yy*, Fig. 3, showing the position of the dies when closed together.

In the drawing, A represents the bed or table of the machine, across the back end of which the driving-shaft B is journaled in boxes *a a*, near each of which a cam, *b*, is keyed on said shaft, and a third one, *b'*, midway between them, in front of which a standard, C, is erected on the table. In the top of this standard a curved lever, D, is pivoted in a slot, whose rear and longer arm rests upon the cam *b'*, being kept in contact therewith by a spiral spring, *d*. The lever is vibrated by the rotation of the cam *b'*, and in turn imparts a vertical movement to a ram, E, suspended

from its pivot-arm by connecting links, the lower end of the ram terminating in a flat double-beveled die, *c*, directly under which a similar die, *c'*, is secured to the table by having its shank pass through it and fastened by a nut on its lower end. Each cam *b* in its revolution forces forward a wedge-ended bar, F, lying in a guide-groove in the end of the table. Each of the bars F acting upon the beveled end of a bar, F', lying in a guide-groove at a right angle with it, forces the said bar F' toward the opposing one, these latter terminating at their inner ends in a die, *c''*, similar in form to the others, which dies converge upon the end of a round bar laid upon the die *c'* while red-hot, and press it to a cruciform section, as will be understood upon reference to Fig. 4. Springs *d'* retract the die-bars F' when the cams *b* turn away from the rear ends of the bars F. The dies *c c'* may be reversed in their relative positions—that is to say, the die *c'* may be a stationary inverted die, and the moving die *c* may be worked from below the table, if desired.

After the shank of the bolt is pressed to the section described, the blank may be cut from the rod and the bolt be finished in the usual manner.

What I claim as my invention is—

The combination of a vertically-moving and two opposing horizontally-moving dies, converging toward a stationary vertical die, and their actuating mechanism, for pressing a round bar into a cruciform section, substantially as described.

GEO. B. HILL.

Witnesses:

H. S. SPRAGUE,
EDWARD BARTHEL.