G. B. HILL.

MACHINES FOR FORGING BOLT-BLANKS.

No. 182,277. Patented Sept. 19, 1876.

Fig. 1.

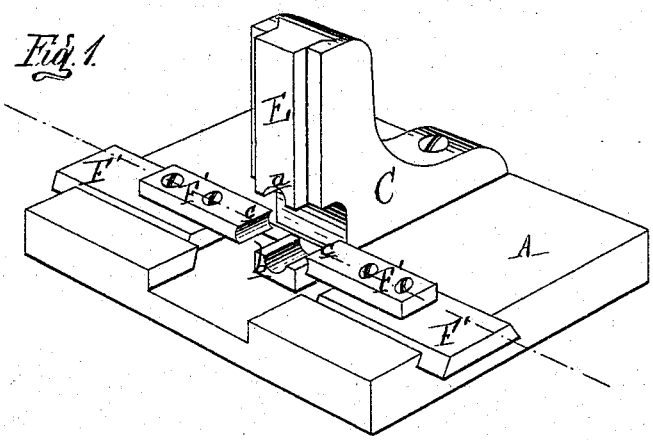
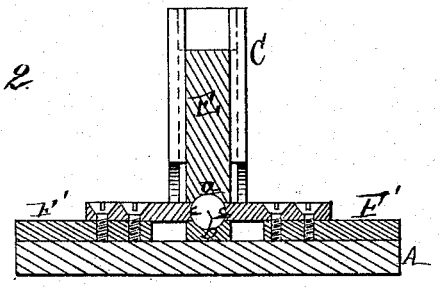


Fig. 2.



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GEORGE B. HILL, OF DETROIT, MICHIGAN.

IMPROVEMENT IN MACHINES FOR FORGING BOLT-BLANKS.

Specification forming part of Letters Patent No. **182,277**, dated September 19, 1876; application filed July 25, 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 Improvement in Dies for Forging Bolt-Blanks, of which the following is a specification:

In the manufacture of vehicles, agricultural machinery, bridges, and other wooden or composite structures, in has been found necessary to use, in order to secure parts together, a round bolt having a square neck whose width exceeded the diameter of the bolt in its middle part, in order to insure strength to resist tensile strain on the neck, and also to prevent the bolt from turning in its hole.

Such bolts are, however, not new, having been heretofore drawn out under the hammer, and with suitable forming-dies, from square bar-iron.

The object I have in view is to afford an easy, cheap, and expeditious means for swaging such bolts, in a machine adapted to the purpose, by means of segment-faced dies. To this end I prefer to employ the machine shown and described in Letters Patent No. 175,460, issued to me March 28, 1876, substituting for the dies therein shown and described three movable dies and one stationary die, the face of each hollowed to form a quarter-circle, and adapted, when they converge, to swage a square bar into a circular cross-section.

Figure 1 is a perspective view, showing a portion of the said machine fitted with my new dies, which latter are shown open, ready to receive a bar. Fig. 2 is a transverse vertical section, showing the dies closed.

In the drawing, A represents the bed or table of the machine described in the aforesaid Letters Patent; C, the standard, in the face of which the vertical ram E is gibbed, and which is actuated by a lever. F′ F′ are horizontally-moving die-bars, actuated as described in the said Letters Patent.

At the lower end of the ram is a concave-faced die, *a*, whose face is a quarter-segment of the bolt that is to be pressed. Directly under it is a stationary die, *b*, on the bed-plate, of similar form and proportion. *c* *c* are similar dies, secured to the inner ends of the die-bars F′ F′, which latter close in upon the sides of the introduced square bar just before the die *a* descends upon its top. By properly timing the cams which actuate said dies, when the latter converge, their faces form a true circle, into which form the bar is pressed, after which the blank may be cut from the bar, and the rod be finished it the usual manner.

What I claim as my invention is—

In a machine for forging bar-iron into a circular form, the combination, with the table A and standard C, of the sliding dies *a c c*, and anvil *b*, having concave faces, constructed and arranged substantially as described and shown.

GEO. B. HILL.

Witnesses:

H. S. SPRAGUE,

WM. J. BALDWIN.