J. ROOT.

BOLT HEADING MACHINE.

No. 75,198. Patented Mar. 3, 1868.

Fig. 1.

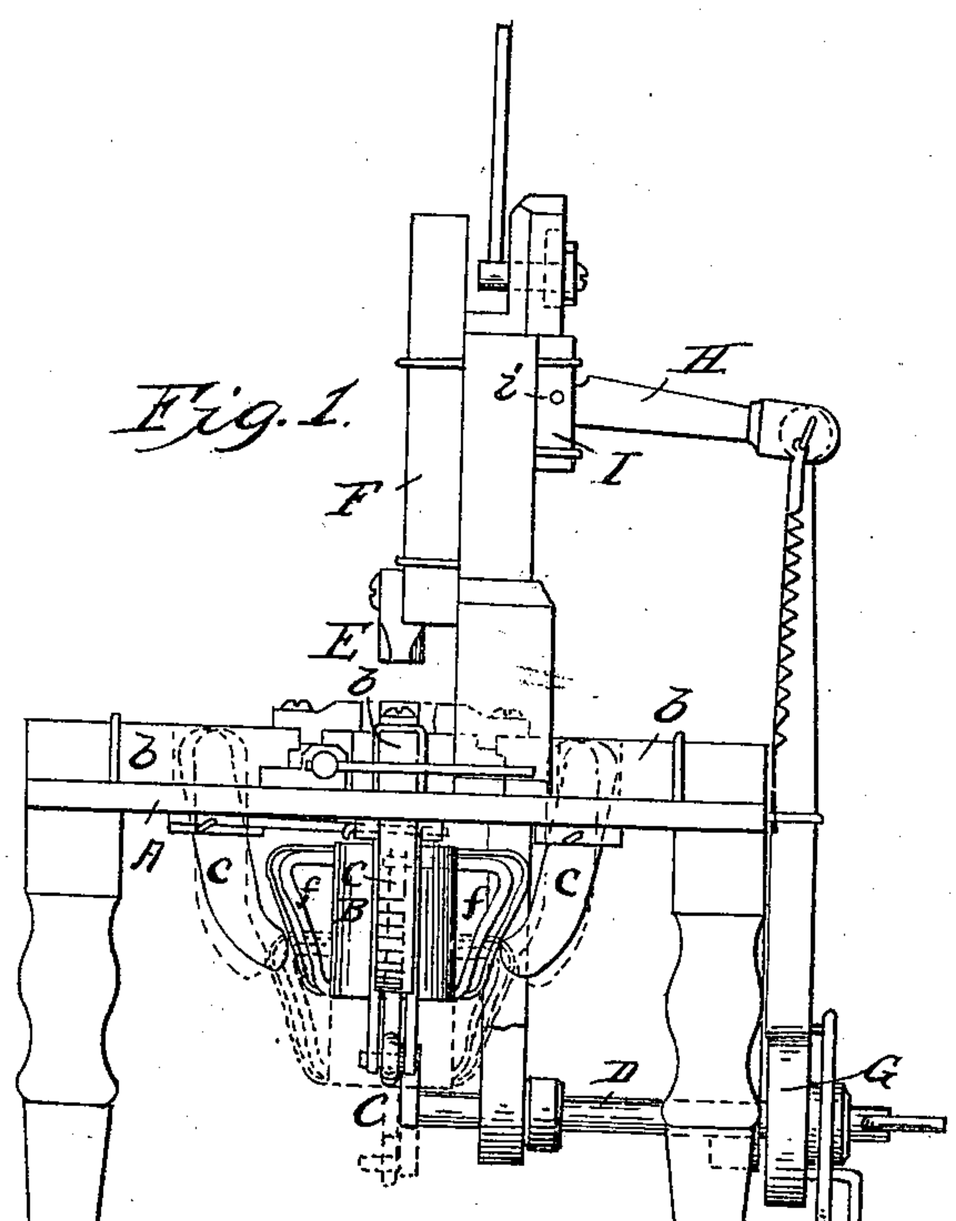


Fig. 3.

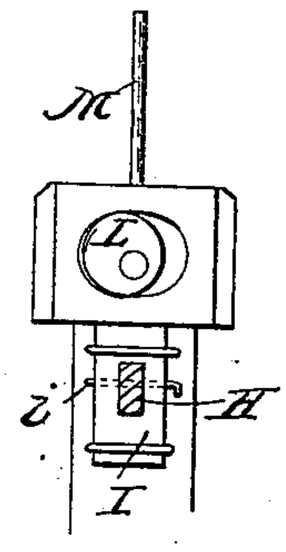


Fig. 4.

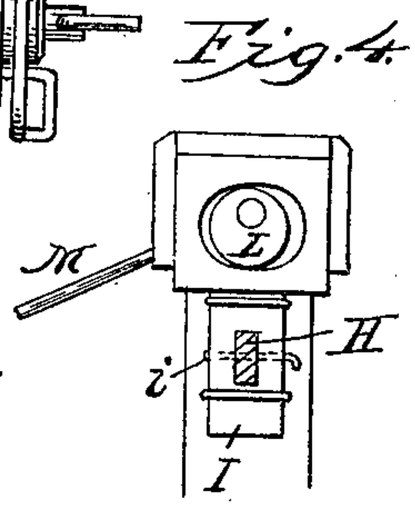
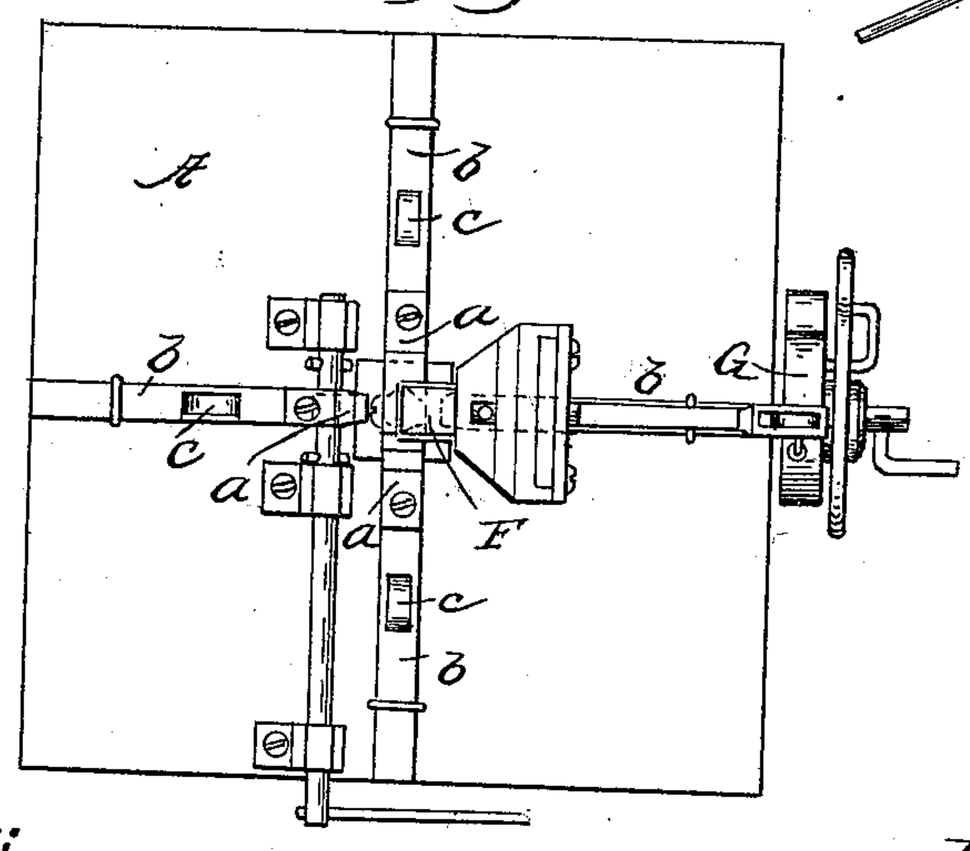


Fig. 2.



Witnesses:

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JOHN ROOT, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO HIMSELF AND McLAGON & STEVENS, OF SAME PLACE.

Letters Patent No. 75,198, *dated March* 3, 1868.

IMPROVED BOLT-HEADING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN ROOT, of New Haven, in the county of New Haven, and State of Connecticut, have invented a new Improvement in Bolt-Heading Machines; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view,

Figure 2 a top view, and in

Figures 3 and 4 detached views.

This invention relates to an improvement in the machine for heading bolts, for which Letters Patent were granted to me, dated October 29, 1867, and consists, first, in the manner of operating the jaws or dies, and, second, in adjusting the crowner during its operation.

In order to the clear understanding of my invention, as well as to enable others to construct the same, I will proceed to a description thereof, as illustrated in the accompanying drawings.

A is the bed-plate; upon its upper surface are arranged the four dies *a* attached to slides *b*, and operated through lever *c* by means of a cylinder, B, as seen in fig. 1. The cylinder B is arranged to move vertically by means of a cam or crank, C, on the shaft D, so that, by the revolution of the said crank or cam, the cylinder B moves up and down, being arranged in suitable guides to retain it in its proper vertical position. Upon the said cylinder B, and corresponding to the lever *c*, projections *f* are formed, so that the downward movement of the cam forces the lower end of the levers *c* outward, as denoted in red, and a groove or rod, corresponding to the said projections, and attached to the lower end of the levers *c*, serves to draw in the lower end of the said levers when the said cam is raised, as denoted in fig. 1. The forcing out of the lower end of the levers closes the dies *a*, and *vice versa;* thus a positive movement is given to the said dies, and may be adjusted by raising or lowering the cam. Otherwise this part of the machine is constructed the same as in my patent before referred to. E, the crowner or die for finishing the top of the head of the bolt, is arranged upon a vertical slide, F, operated by a cam, G, on the shaft D, through a lever, H, which has its fulcrum at *i* in an adjustable block, I, so that, by the operation of the cam G, the die or crowner is forced down hard upon the top of the bolt-head. As it is advisable to give two or more blows to the top of the head, the second depressing more than the first, as also to adjust the crowner to a different thickness of head, I make the block I, adjustable, so that, by raising or lowering the said block I, the crowner is carried farther from or brought nearer to the bolt-head, and this I do by hanging the said block I upon an eccentric, L, as seen in fig. 3, so that, by turning the eccentric, L, by means of the lever M, as from the position in fig. 3 to that in fig. 4, the crowner will be thrown down to its lowest point, and this may be done during the operation of the machine, so that, whatever may be the quantity of metal within the dies, the head may be perfectly finished by the operation of the adjusting-crowner so to do; or the eccentric may be set at a given point and force the head to the thickness allowed by such adjustment.

Having thus fully described my invention, what I claim as new and useful, and desire to secure by Letters Patent, is—

1. The arrangement of the cylinder B, with its projections *f*, the levers *c*, and die-holders *b*, so as to force up and withdraw the said die-holders, in the manner substantially as described.

2. The combination of the slide F, fulcrum-pin *i*, block I, and eccentric, L, with the lever H, all as herein described and for the purpose set forth.

JOHN ROOT.

Witnesses:

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