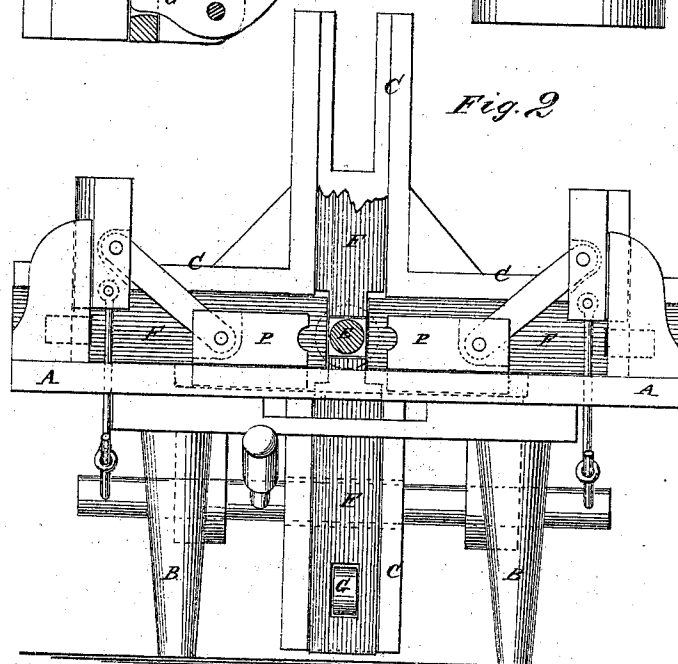
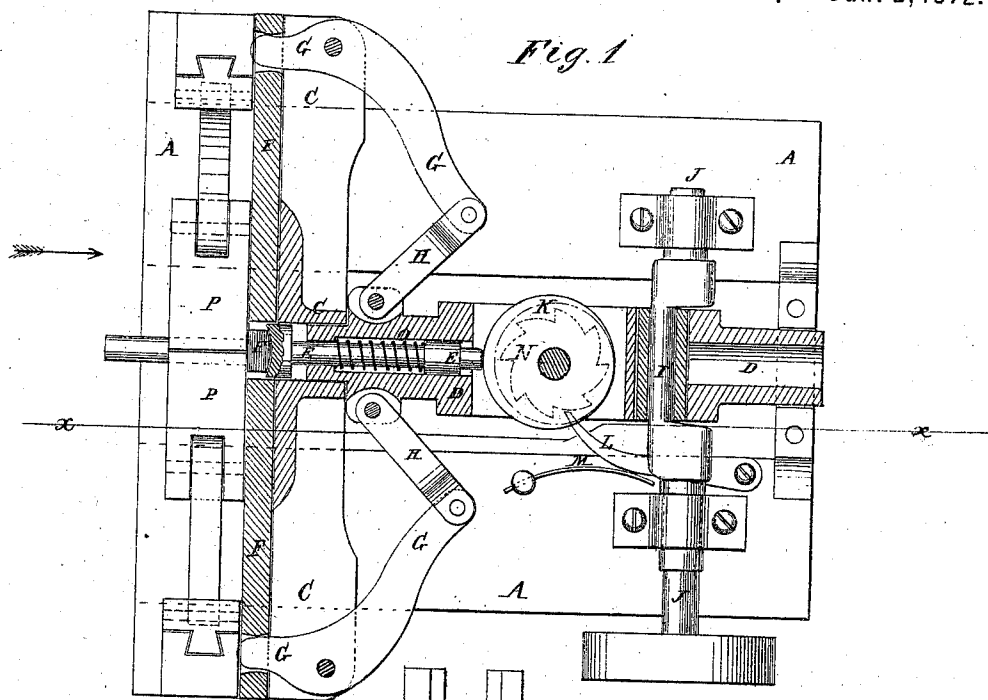


CHARLES E. HUNTER.

Improvement in Bolt Heading Machines.

No. 122,385.

Patented Jan. 2, 1872.



Witnesses:

A. W. Almquist

Francis McCord

Inventor:

Chas E Hunter

PER

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Attorneys.

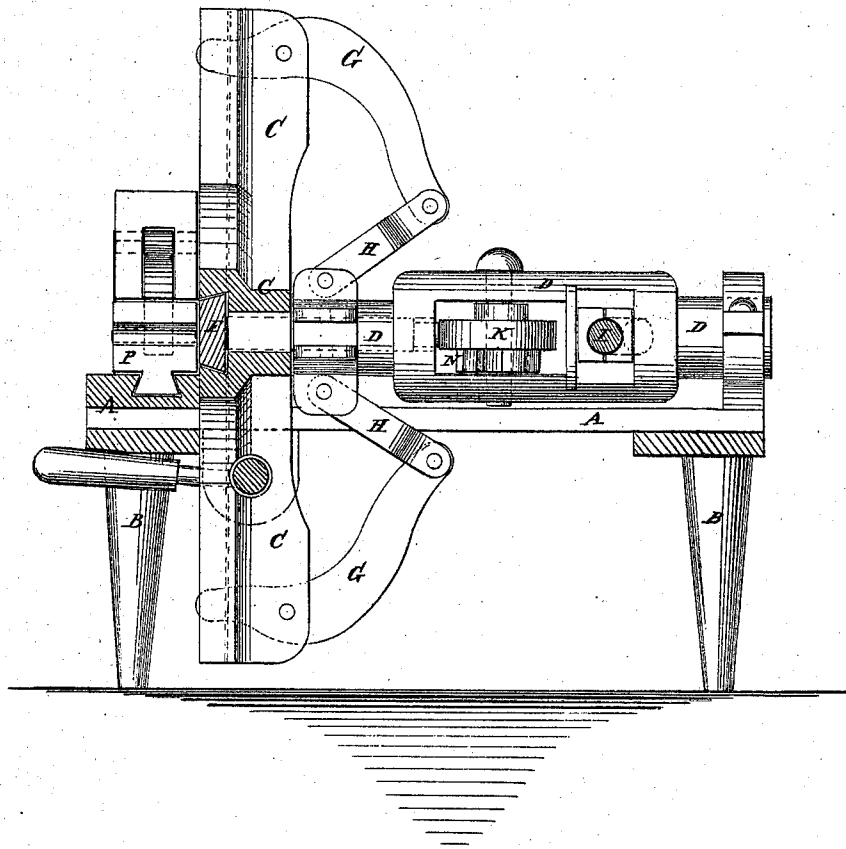
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Fig. 3



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UNITED STATES PATENT OFFICE.

CHARLES E. HUNTER, OF HINSDALE, NEW HAMPSHIRE.

IMPROVEMENT IN MACHINES FOR HEADING BOLTS.

Specification forming part of Letters Patent No. 122,385, dated January 2, 1872.

Specification describing certain Improvements in Bolt-Heading Machine, invented by CHARLES E. HUNTER, of Hinsdale, in the county of Cheshire and State of New Hampshire.

Figure 1, Sheet I, is a top view of my improved machine, partly in section, to show the construction. Fig. 2, Sheet I, is a front view of the same, part being broken away to show the construction. Fig. 3, Sheet II, is a side view of the same, partly in section, through the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention consists in the means for gradually advancing the compressing plunger of a bolt-heading machine, as hereinafter fully described and subsequently pointed out in the claim.

A is the bed-plate or frame of the machine, which is supported upon legs B of such a length as to raise the machine to a convenient height. To the forward part of the frame A is attached a vertical four-armed plate, C, having a hole in its center to receive the forward end of the hollow slide D, which holds and carries the plunger E. The forward sides of the arms of the plate or frame C have dovetailed grooves or ways formed in them to receive the slides F, by which the side edges of the bolt-heads are formed. The upper ends of the sliding hammers F have holes formed in them to receive the forward ends of the levers G, which enter slots in the outer ends and rear sides of the arms of the plate C, and are pivoted to the ends of the said arms. The other ends of the levers G are inclined or curved inward, and are pivoted to the outer ends of the connecting-bars or links H, the other ends of which are pivoted to the hollow slide or holder D, as shown in Figs. 1 and 3, so that the hammers F may be forced forward to give the blow as the plunger E is being withdrawn, and may be withdrawn as the plunger E is being forced forward to give its blow. The hollow slide or holder D is moved forward and backward by a cam or crank, I, formed upon or attached to the crank-shaft J, which revolves in bearings attached to the frame A, and to

which power may be applied in the ordinary manner. E is the plunger, the forward end of which should be made larger than the required bolt-head, and may be flat or concaved, according as the heads of the bolts are required to be flat or rounded. The plunger E passes longitudinally through and works in the hollow forward part of the holder D. K is a cam pivoted in a slot in the outer part of the holder D in such a position that its face may rest against the rear end of the plunger E. L is a pawl attached to the frame A, and held forward by a spring, M, against the teeth of the ratchet-wheel N, formed upon or rigidly connected with the cam K. The ratchet-wheel N should be made with as many teeth as it is desired to give blows in finishing a bolt-head. The plunger E is held back against the face of the cam K by a spring, O, connected with it and placed within the holder D, with one end resting against a shoulder upon the said plunger E, and its other end resting against a shoulder in the said holder D, as shown in Fig. 1. The plunger E may be operated by a cam, crank, eccentric, lever, spring, screw, or other device that will feed it forward and withdraw it gradually as it is being operated to give the blows. The bolt-blank while being headed is held by the clamp or jaws P, which are operated in the ordinary manner.

In forming the bolt-heads the operation should be begun and ended with the end of the plunger E resting against the cam K at its point of shortest distance from its axis. Then, as the holder D and plunger E are moved forward, the head is upset to the point at which it will be when finished. As the plunger E is withdrawn the sliding hammers F advance and square up the head. At each succeeding advance of the plunger E it is forced forward a little further until the plunger rests against the face of the cam K at its point of greatest distance from its axis, after which it recedes after each successive blow until the said cam K has made a complete revolution and the formation of the bolt-head is completed.

By this construction and operation of the machine the corners of the bolt-head will be filled out sharp, like the heads of hand-made

bolts, and will not be left imperfect, as machine-made heads usually are. Each of the hammers F may, if desired, be provided with a graduated plunger as well as the shaft or holder D.

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

The combination, with a movable nut or bolt-

head plunger, E, of the cam K, ratchet N, and stationary pawl L, when all are arranged in connection with a movable holder D, as and for the purpose set forth.

CHARLES E. HUNTER.

Witnesses:

HENRY E. HUNTER,
WARREN S. BARROWS.

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