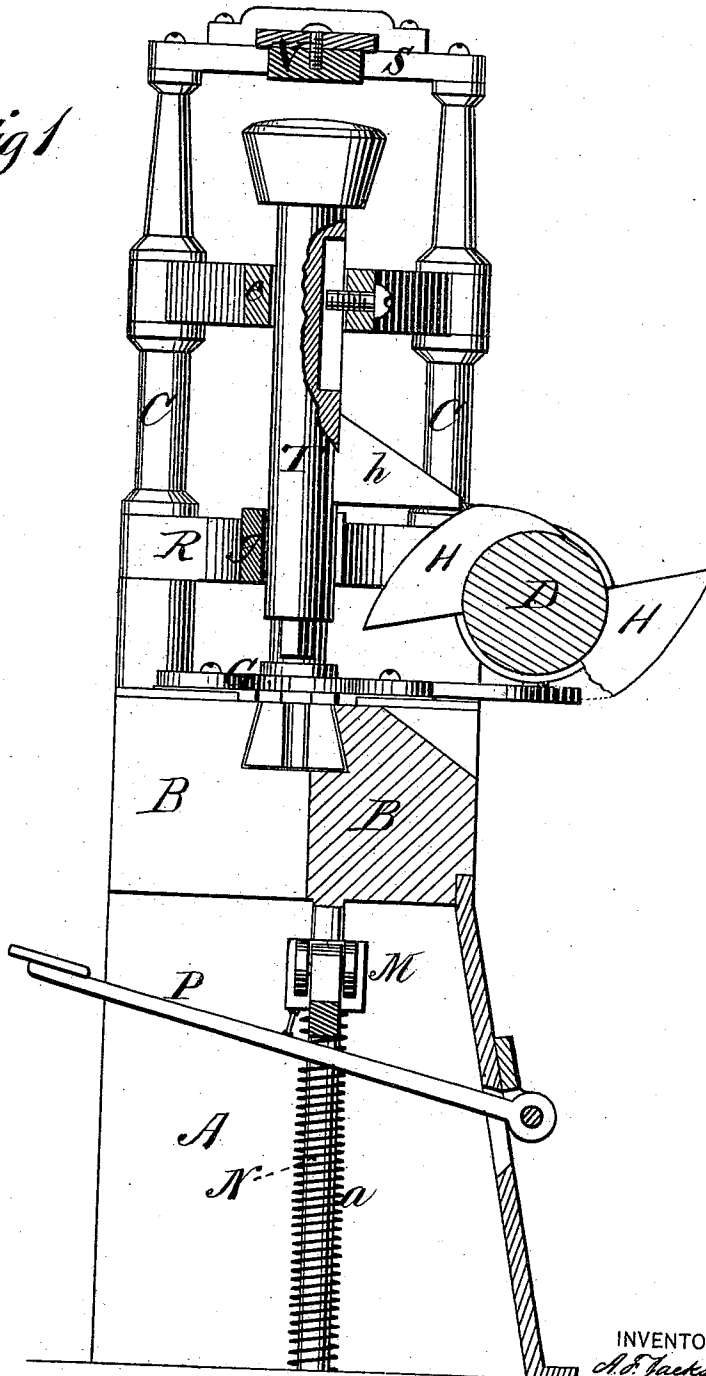


A. F. JACKSON.
MACHINE FOR HEADING BOLTS.

No. 179,563.

Patented July 4, 1876.

Fig 1



WITNESSES
A. B. Bates
A. J. Masi

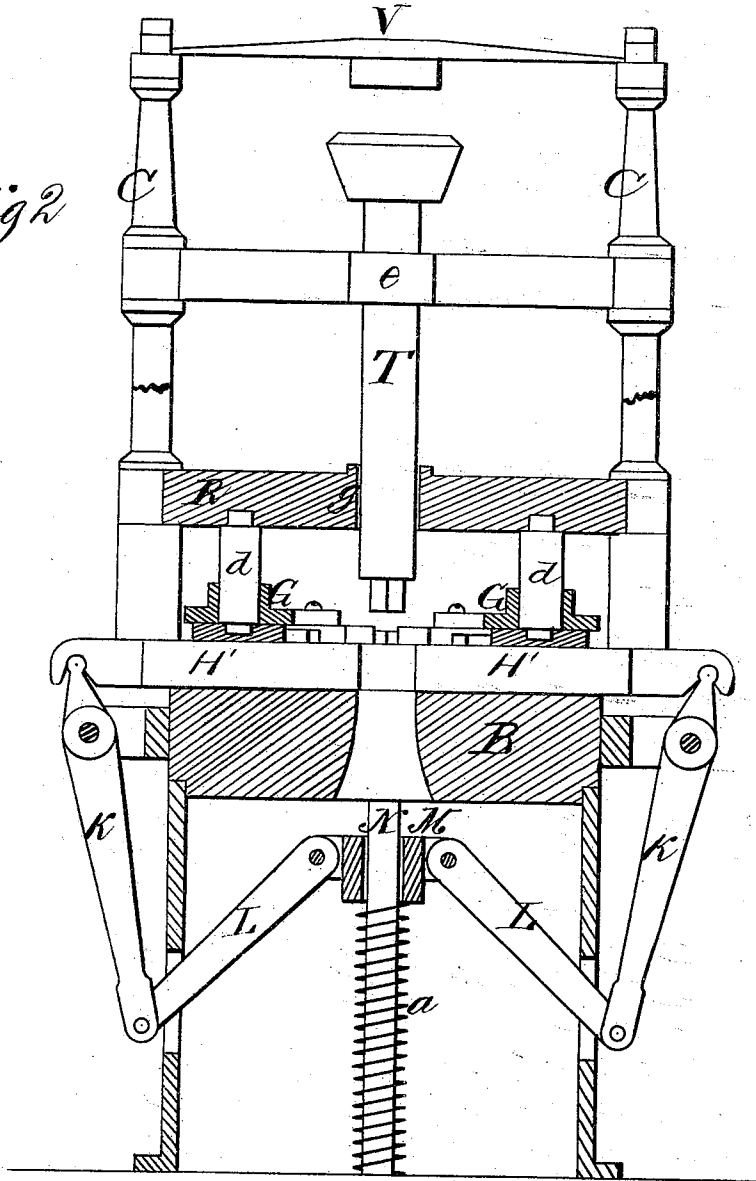
INVENTOR
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Fig 2



WITNESSES
E. H. Bates
C. J. Kassis

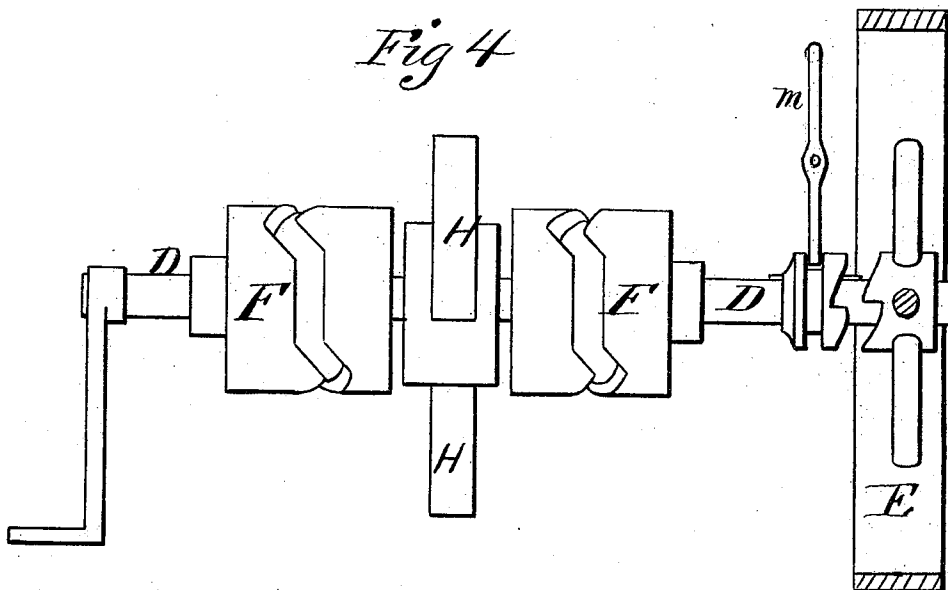
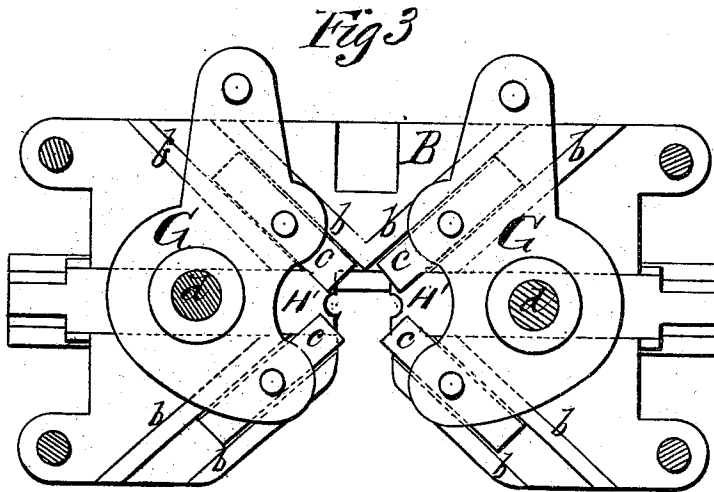
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A. J. Clasi

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UNITED STATES PATENT OFFICE.

AMBROSE F. JACKSON, OF MINNEAPOLIS, MINNESOTA.

IMPROVEMENT IN MACHINES FOR HEADING BOLTS.

Specification forming part of Letters Patent No. **179,563**, dated July 4, 1876; application filed June 24, 1876.

To all whom it may concern:

Be it known that I, AMBROSE F. JACKSON, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and valuable Improvement in Bolt-Headers and Trip-Hammers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a transverse vertical section of my machine. Fig. 2 is a longitudinal vertical sectional view of the same, and Fig. 3 is a horizontal sectional view thereof. Fig. 4 is a detail view.

This invention has relation to means for forming the heads of bolts; and it consists in the construction and novel arrangement of the side hammers, trip-hammer, and operating mechanism, constituting a machine for the purpose stated, all as hereinafter fully shown and described.

In the accompanying drawings, the letter A represents the frame of the machine, having the body-block B, and extending upward therefrom, standards C, to support the bearings of the trip-hammer. D represents the shaft of the power-wheel E, which is journaled in suitable bearings in rear of the frame, somewhat above the surface or platform of the body of the machine. This shaft is provided with side cams F, for operating the levers G, which work the side hammers, and with a central cam, H, whereby the trip-hammer is lifted. Sliding in suitable bearings underneath the hammer-levers G are the holding-dies H'. These work below the plane of the side hammers, and are seated in suitable recesses in the body B. These gripping-dies H' are operated by side levers K, which are pivoted in fulcrum-bearings on the side of the frame, and are connected at their power ends to the toggle-links L, which are pivoted to the sliding box M, which works on the rod N, extending downward underneath the body B. This slide-box is kept up by means of a spiral spring, a, around the rod N. A treadle, P, is connected with the slide-box, and serves to depress the same, throwing outward the

toggle-links L, and the power ends of the levers K, and forcing together the gripping-dies, causing them to bear on the blank between them. Upon the upper surface of the body B are provided suitable radial ways, b b, in pairs, which are in line with each other on opposite sides of the open center of the body, through which the upper end of the blank projects. In these ways slide the side hammers c, each two of which are pivoted to the ends of a crescent-shaped lever, G, and operated at right angles with each other, but in line with the corresponding hammers or dies of the opposite pair. These levers G are pivoted upon strong journal posts or bearings d, which may be secured to the lower transverse brace R of the frame of the trip-hammers. The end of each lever is in engagement with its operating-cam, and the mechanism is so arranged that the levers shall have a parallel motion. In this manner an alternate movement is given to the side hammers, each pair of which is in line with each other, alternately moving toward each other, to form the opposite sides of the head of the bolt. S is the upper brace of the frame of the trip. T indicates the trip-hammer, working in its bearings e g. It is provided with a lug or toe, h, which engages with the central cam H of the operating-shaft D when the trip T is lifted. When the trip is at its highest point its upper end is in forcible contact with the transverse spring V, which is secured to the upper part of the frame.

When the cam and lug of the trip are disengaged, the trip falls, impelled by the reaction of the spring upon the end of the bolt-blank spreading the same.

By the operation of this machine the top and sides of the head of a bolt are formed with precision and rapidity.

It is designed to provide a check-arm in connection with the clutch-lever m, which moves the engagement-clutch, to catch and hold the trip when the machine is not working; also, to provide a sliding post under the lower ends of the bolt-blanks during the heading operation.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a bolt-heading machine, the combina-

tion, with the power-shaft and its cams, of the vibrating levers, carrying the side hammers *c*, and the reciprocating trip *T*, substantially as specified.

2. In a bolt-heading machine, the levers *G*, in combination with the alternately-acting pairs of radial side hammers *c*, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

AMBROSE F. JACKSON.

Witnesses:

EBEN F. THOMPSON,
L. M. STEWART.