

A. ALEXANDER.
Machines for Heading Bolts.

No. 158,011.

Patented Dec. 22, 1874.

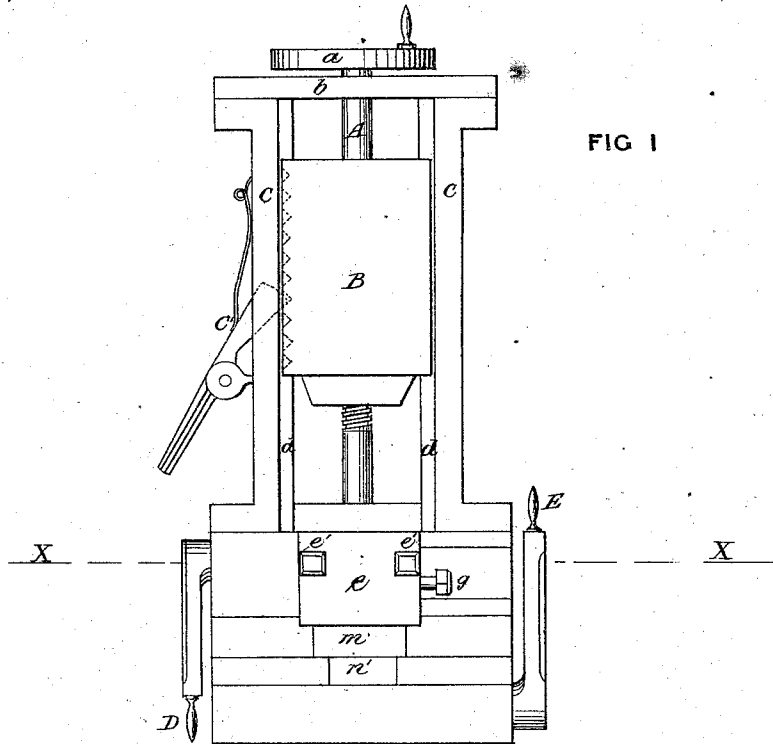


FIG I

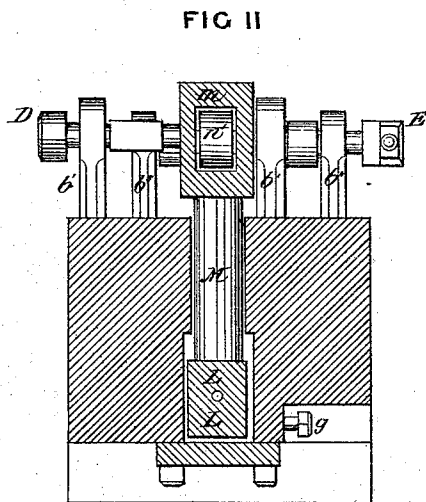


FIG II



FIG. VIII

WITNESSES

R. K. Evans
Wm. H. Mason

INVENTOR

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by his attys
A. H. Evans & Co.

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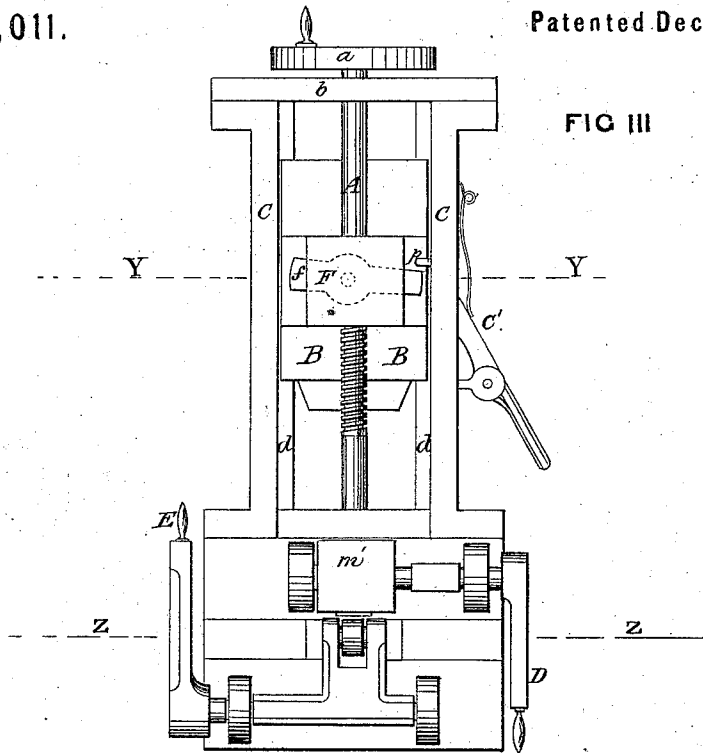
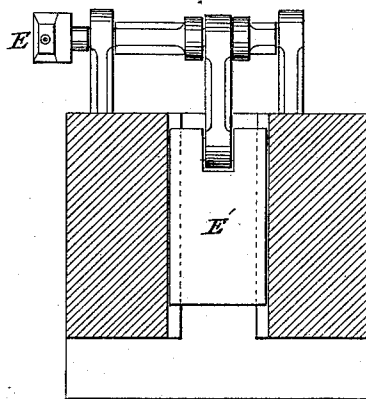


FIG III

FIG IV



WITNESSES

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FIG V

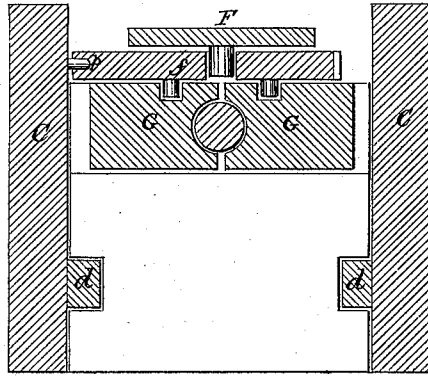


FIG VI

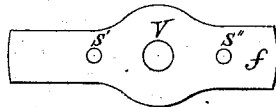
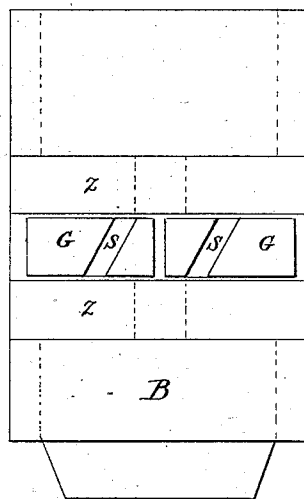


FIG VII



WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

ABRAM ALEXANDER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO
FARRELLY ALDEN, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR HEADING BOLTS.

Specification forming part of Letters Patent No. **158,011**, dated December 22, 1874; application filed
August 12, 1874.

To all whom it may concern:

Be it known that I, ABRAM ALEXANDER, of the city of Pittsburg and State of Pennsylvania, have invented a new and useful Improvement in Machinery for Heading Bolts, of which the following is a clear, full, and exact description, reference being had to the accompanying drawings of a drop-press, described in my application for a patent for an improved method of forming and welding links, filed May 22, 1874, and passed for issue June 18, 1874, and also described in my application for a forging-machine, filed August 12, 1874, in addition to which is also a drawing, showing my solid die to be used in connection with the drop-press.

Figure 1 is a front elevation. Fig. 2 is a horizontal section. Fig. 3 is a rear elevation. Fig. 4 is a horizontal section through the line *z z*. Fig. 5 is a horizontal section through the line *y y*. Fig. 6 shows the trip for opening the half-nuts. Fig. 7 is a detail to be referred to, and Fig. 8 is a vertical section of my solid die.

My invention relates more especially to bolts used in the manufacture of steam-engines and other machinery; and it consists in the combination of devices hereinafter explained, for heading and forming the bolts.

In the drawings, C represents the housing or upright frame-work of a forge. A is a screw, by which the hammer is raised, having a thread working in the half-nuts G G. To the side of the hammer B are attached the horizontal bars *z z*, between which slide the half-nuts. On each edge of the hammer are grooves working over the guides *d d*. In each of the half-nuts G G are inclined grooves *s s*, (see Fig. 7,) in which fit loosely the pins *s' s''* on the trip *f*. (See Fig. 6.) Over the trip *f* is secured the plate F, (see Fig. 3,) having on its

center a pivot-pin, fitting in the hole V of the trip. One end of the trip projects nearly to the upright frame C, as shown in Fig. 3, and when at a determined height it comes in contact with the stop *p*, by which the end of the trip is forced downward, and the pin *s''*, bearing downward against the incline *s* of one of the half-nuts, forces it from the screw A, and the pin *s'*, bearing upward against the incline in the other half-nut, forces that in the opposite direction, thus parting the nut and allowing the hammer to fall when the ratchet-catch *c* is withdrawn, as shown in Fig. 1. By means of the lever E and attached crank the sliding abutment E', forming the lower part of the die, is operated. When this sliding abutment is withdrawn the bolt drops into the space below. The straight metal rod is cut into blank pieces equal to the required length of the bolt and head. One of these pieces, with one end at a welding heat, is inserted into a solid die, E'', (see Fig. 8,) the heated end downward, when the metal is struck by the hammer on the upper or cold end, and the heated end is forced into the bottom of the die, and on the abutment E', and forms a perfect head to the bolt. On withdrawing the sliding abutment E' the bolt drops below.

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

The solid die E'', in combination with the sliding abutment E' and the drop-hammer B, all constructed and operated for the heading and forming of bolts, substantially as above set forth.

ABRAM ALEXANDER.

Witnesses:

WILLIAM BOSTWICK,
G. NICHOLS.