R. Boeklen,
Heading Bolts.

No. 112,410. Patented. Mar. 7. 1871.

Fig 1.

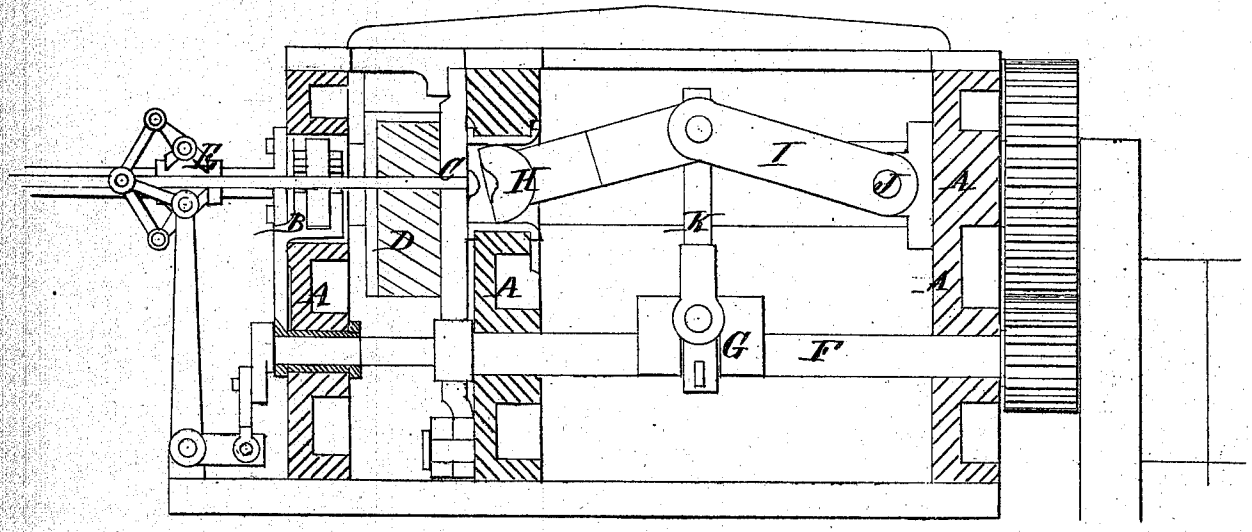
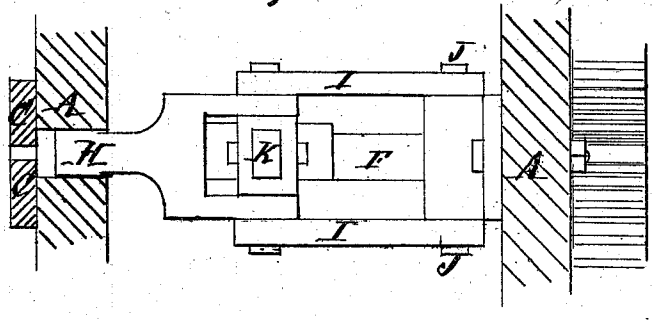


Fig 2.



Witnesses
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UNITED STATES PATENT OFFICE.

REINHOLD BOEKLEN, OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF AND HENRY TORSTRICK, OF NEW YORK CITY.

IMPROVEMENT IN MACHINES FOR HEADING BOLTS AND SPIKES.

Specification forming part of Letters Patent No. **112,410**, dated March 7, 1871; antedated February 28, 1871.

I, REINHOLD BOEKLEN, of the city of Brooklyn, Kings county, in the State of New York, have invented and made certain new and useful Improvements in Heading-Machines for Upsetting Heads of Bolts and Spikes.

This invention relates to the process of upsetting in heading-machines; and consists in causing the header to work up or set up the head of the bolt from its shank by a compound motion being given to said header, to obtain a vibrating pressure, or to operate the header, so as to press the metal from several directions onward to the center of the shank on the bottom of the head instead of operating the header in the usual manner with a single motion in one and the same direction toward the bottom of the head.

By means of its compound motion the face of the header is caused to vibrate while operating upon the metal in upsetting, expelling thereby any air or gases which may be confined between said face and the metal, and preventing such gases to interfere with obtaining the desired solid bearing of said face upon the metal.

By the vibrating pressure the particles of metal are permitted to have a gradual progressive movement to locate themselves accordingly, so as to fill up completely the spaces designed for them in the header-face or countersunk of the clamp, and without requiring the extravagant expenditure of power necessitated in consequence of the construction of heading-machines now in use.

In the accompanying drawing, which makes a part of this specification, Figure I represents a vertical longitudinal section of a machine for making screw spikes and bolts, in which my invention is exhibited in the mechanism for upsetting the head of the bolt or spike. Fig. II is a detached top view of said mechanism, the parts in close connection therewith being shown bisected. Fig. III is a side view, and Fig. IV a top view, of a modification of my improvements.

A, Fig. I, represents the frame; B, the usual guide for the material to be worked by the machine. C C represent the dies for clamping said material while being headed; D, the spiral-grooved rollers for threading, and E the tongues for forwarding the material from the furnace into the machine. F is the driving-shaft of the same, and directly from it the heading mechanism receives its motion by means of the crank or eccentric G, which is secured to or formed on said shaft. H represents the header or punch, the working face of which is so shaped as to correspond to, and in combination with its compound motion form, the head of the desired shape on the spike or bolt. Its rear end is jointed to a link, I, having its fulcrum J in the frame A nearly in line with the central opening of the clamps C C, by means of the rod K, which is connected with the crank G on its one end, and on its other end with the common joint of the link I and the header H, in a manner to allow for said rod universal motion. The forward part or working end of the header is guided in the frame A in the usual manner to keep it in its proper place.

It will be observed that when the crank is on its upper stroke the header is withdrawn to allow the material to feed up to the header, and as the crank is drawn to the center of its stroke the header is forced up, so as to cause the upsetting of the metal, and while proceeding in that motion it is continually changing or varying the position of its working face toward the work or metal, whereby the liability of keeping or concealing air or gases between said face and the metal when forming is obviated, such gases being effectually squeezed out and removed. In this way a solid bearing and positive action of the header upon the metal are obtained, while at the same time, and by means of the progressive bearing and pressure of said header, the particles of metal in upsetting the head are gradually moved and located properly, said work being effectually protected from becoming damaged or faulty by the violent separation of its particles, which has been of frequent occurence hitherto.

The operation of my improved machine will be more rapid and effective in securing the desired object than that of any now in use.

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

Jointly, the application direct of the upset-

ting or heading die to the extremity of one of a pair of toggle-jointed bars, and the combination, with said device, of a crank and connecting-rod, or other equivalent mechanism, to operate said toggle-jointed bars in the usual manner, for the purpose of imparting to the die simultaneously a forward and a rolling movement, the former to stave up and compress the metal, the latter to reduce and spread the staved-up portions into the proper shape, substantially as described.

Signed this 29th day of June, 1870.

REINHOLD BOEKLEN.

Witnesses:

WM. B. JACKSON,

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