J. M. LAUGHLIN.

MACHINE FOR BEVELING HORSESHOE NAIL-PLATES.

No. 189,111. Patented April 3, 1877.

Fig. 1.

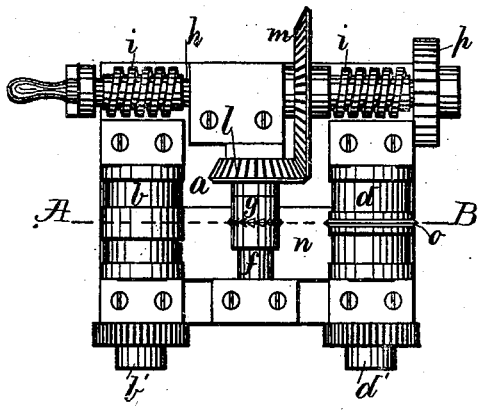


Fig. 2.

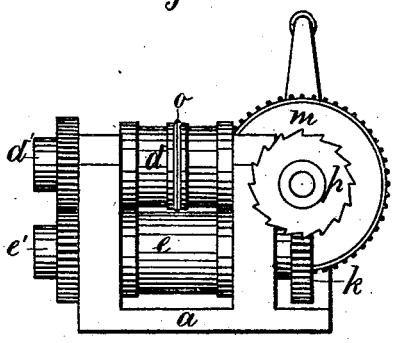


Fig. 4.

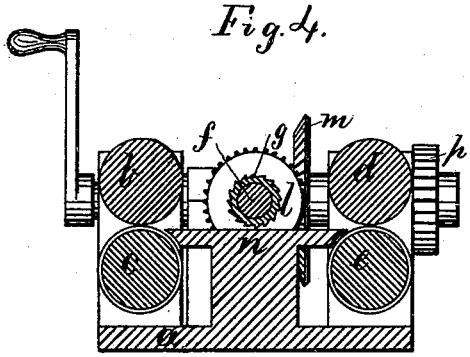
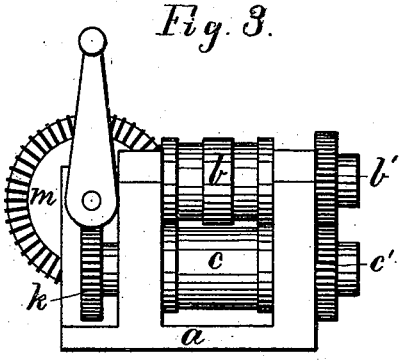


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOSEPH M. LAUGHLIN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR BEVELING HORSESHOE-NAIL PLATES.

Specification forming part of Letters Patent No. **189,111**, dated April 3, 1877; application filed May 26, 1876.

To all whom it may concern:

Be it known that I, JOSEPH M. LAUGHLIN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Shaping and Milling Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form part of this specification.

My invention relates to an improved shaping or milling machine for the purpose of forming one or more grooves by the removal of a part of the stock on the nail-plates for the manufacture of horseshoe-nails, which groove, after being shaped or milled on this my improved machine, serves for the formation of the bevel or point of the nail when punched from the nail-plate by a suitable punching-machine.

My invention consists of a frame-work, provided with bearings for two pair, or more or less, of feed-rollers, between which is located a rotary mill-shaft containing a rotary mill or cutter, below which is located a suitable rest or support for the nail-plate to rest on during the operation of the machine.

This my improved milling-machine I intend to use independent of a punching-machine, or combined with the latter. In the first instance it only serves for shaping the nail-plate that is afterward presented to the action of the punch of a punching-machine. In the latter instance the nail-plate is punched directly from the milling-machine without additional handling, and any ordinary punching-machine may be used for this purpose.

On the accompanying drawings, Figure 1 represents a plan of my invention. Figs. 2 and 3 represent end views of the same; and Fig. 4 represents a central longitudinal section on the line A B shown in Fig. 1.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

a represents the frame of the machine, provided with bearings for the feed-rollers *b c d e*, as well as for the rotary mill-shaft *f*, that is provided with the rotary mill or cutter *g*, secured to the shaft *f* in a suitable manner. Each pair of feed-rollers *b c* and *d e* are geared together by means of spur-wheels *b' c'* and *d' e'* in the ordinary way, and both pair of feed-rollers are made to rotate with equal velocity by means of the worm-shaft *h*, worms *i i*, and worm-wheels *k k*, or in a similar manner. The rotary mill-shaft *f* is also set in a rotary motion from the worm-shaft *h* by means of the bevel-gears *l m*, as shown in Fig. 1. Below the mill or cutter *g* is arranged a rest or support, *n*, for the plate to be supported on during the operation of forming the groove on the plate, and feeding the latter forward. The said support is shown stationary in the drawing; but I may also make it adjustable up and down when different thicknesses of stock are used.

The feed-roller *d* is provided with an annular projection, *o*, that will project and move in the groove formed by the rotary mill or cutter *g* on the nail-plate, and thus better guide the nail-plate during its advancement toward a punching-machine, when used in combination with the latter, as well as hardening the metal below the groove, if so desired.

The machine is provided with a ratchet-wheel, *p*, by which and a suitable pawl on an ordinary punching-machine the machine can be driven from the latter with an intermittent but positive motion, so as to remain at rest when the punch performs its operation of punching the nail from the grooved plate.

The feed-rollers *b c d e* may be made smooth or grooved, as may be desired; but I prefer to make them grooved, as shown in Figs. 1, 2, and 3.

When this my invention is used in combination with a punching-machine I reverse the relative position of the mill or cutter *g* and the rest or support *n*, so as to produce the groove on the under side of the nail-plate, and thereby present the upper smooth side of the plate to the action of the punch on the punching-machine.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

The improved milling or shaping machine, as herein shown, consisting of the feed-rollers *b c d e*, the mill-shaft *f*, with its mill or cutter *g*, and the bed or support *n* for the nail-plate, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own invention I have affixed my signature in presence of two witnesses.

JOSEPH M. LAUGHLIN.

Witnesses:
ALBAN ANDRÉN,
HENRY CHADBOURN.