

J. WHYSALL, Jr. & C. M. MERRICK.

MACHINE FOR SHEARING HORSESHOE NAILS.

No. 177,047

Patented May 2, 1876.

FIG. 1.

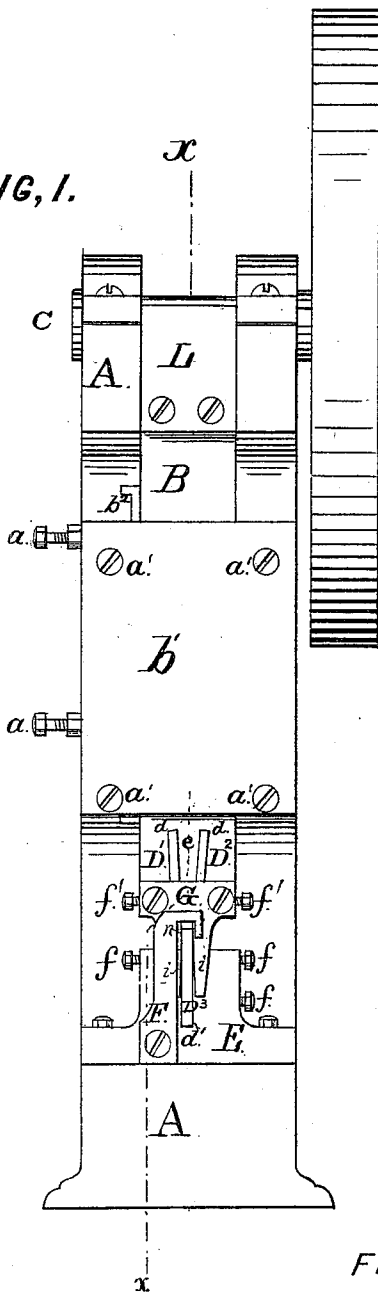


FIG. 2.

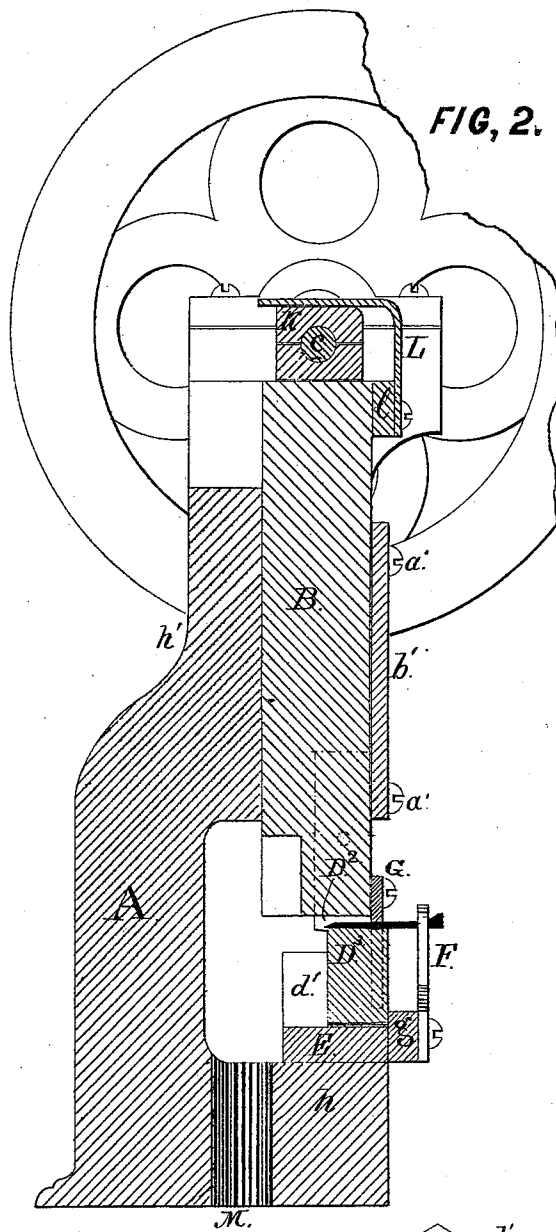


FIG. 3.

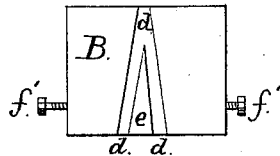
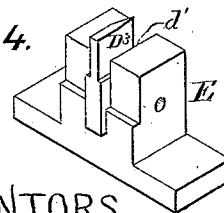


FIG. 4.



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JOB WHYSALL, JR., AND CHARLES M. MERRICK, OF NEW BRIGHTON, PA.

IMPROVEMENT IN MACHINES FOR SHEARING HORSESHOE-NAILS.

Specification forming part of Letters Patent No. **177,047**, dated May 2, 1876; application filed February 25, 1876.

To all whom it may concern:

Be it known that we, JOB WHYSALL, JR., and CHARLES M. MERRICK, of New Brighton, Beaver county, Pennsylvania, have invented certain Improvements in Machines for Shearing Horseshoe-Nails, of which the following is the specification:

The object of our invention is to rapidly and uniformly shear the surplus metal from the sides of horseshoe-nail blanks, which have been otherwise previously finished, by the combination, in a shearing-machine, of a vibrating or movable plunger having dies inserted and secured therein, a stationary die shaped to correspond with the point of the nail desired when sheared, a guide to present the nail central upon the stationary die, a gage to regulate the length of the nail, and a passage or opening through which the cuttings drop naturally and entirely clear of the dies.

Figure 1 is a front elevation of our machine; Fig. 2, a sectional elevation on the dotted line *x x*, Fig. 1; Fig. 3, an enlarged end view of the slide, with the dies removed; and Fig. 4, a detached perspective view.

A is the frame of the machine, consisting of a pedestal, *h*, and overhanging arm *h'*, the latter being provided with bearings for the crank-shaft C and slotted to receive the slide or plunger B, which is confined by the cap-plate *b'*, which is secured to the frame A by screws *a'*. A bracket, L, bolted to the front of the slide B, extends over and retains in contact with the top of the slide a divided sliding box, K, receiving the eccentric portion *e* of the crank-shaft C. Plate *b''*, adjustable by set-screws *a*, bears upon one side of the slide B and serves to take up wear or lost motion. The slide B, at the lower end, has slots *d d* to receive the cutters or dies *D¹ D²*, which slots are wider apart at the top end than at the bottom, with a stationary tongue, *e*, between, as clearly shown in Fig. 1, so as to give clearance to the nail after shearing. This is a very important matter, as otherwise the nail will not be free after being sheared, but will stick in the dies, and likely be bent out of shape. These slots also converge toward the back end of the slide to give the proper inclination to the cutters for imparting the points to the nails. Set-screws *f' f'* serve to secure the cutters after

adjustment. By thus slotting the plunger and inserting the dies in two separate pieces we are enabled to use straight or slightly-curved pieces of steel, of just the size required, which pieces are easily removed for grinding or renewal, and may be adjusted longitudinally by inserting filling-pieces above them. *D³* is a stationary die or anvil of a shape to conform to the point of the nail, and an exact counterpart of the space between the cutting-edges of the dies *D¹ D²* of the slide B, and is, in like manner, secured by set-screws *f f* in the slot *d'* of a bed-plate, E, bolted to the pedestal. A forked plate, G, is bolted to the front and extends beyond the lower end of the slide, the arms *i i* of the fork spreading outward at the bottom, for a purpose described hereafter; and to a stud, *g*, at the front of the standard E, is bolted an adjustable plate, F, having a recess, *n*, open toward the under side. The dies or cutters *D¹ D²* are so adjusted that their lower shearing-edges shall, as the slide descends, pass parallel to, in close contact with, the inclined faces of the anvil.

The nail-blank to be sheared is passed through the recess *n* in the plate F until its head bears against the side of the plate, which serves as a gage to determine the position of the shank upon the anvil *D³*, as shown in Fig. 2. Upon a rotary motion being imparted to the crank-shaft the box K, confined vertically between the end of the slide B and the overhanging arm of the bracket L, will slide longitudinally as the crank imparts a vertical reciprocating movement to the slide. Upon the descent of the cutters the blank will be straddled by the arms of the plate G, and will be centered and held by the latter and by the gage-plate F in its position upon the anvil, between the inclined faces of which and the cutters *D¹ D²* the sides of the blank are then sheared, imparting the tapering point to the shank and forming the nail.

Inasmuch as the nail-blank is held stationary in a horizontal position, the cuttings are carried downward by the cutters away from the dies, through the opening M, into any suitable receptacle below, instead of remaining to clog and impede the operation of the machine, as heretofore. A cleaner cut is also produced than when the nail-blank is forced through an

opening in a die-plate, and greater facility of sharpening, adjusting, and repairing the dies is afforded.

The gage-plates F G serve to adjust and retain the blanks securely without interfering with their instant removal after cutting, the removal being further facilitated by the relatively inclined positions of the cutters, which pass from contact with the nail after their shearing-edges descend below the face of the anvil, so that the blank cannot be jammed between them.

By the arrangement of the independent cutter-plates in separate openings or slots $d\ d$ great simplicity of construction and accuracy of adjustment are secured, either cutter being readily removed and replaced for sharpening and repairs without disturbing the other.

We claim—

1. In a shearing-machine, the slide B, having slots $d\ d$, and an intermediate stationary

projection, e , to the opposite sides of which the detachable cutters $D^1\ D^2$ are clamped, whereby each cutter may be adjusted independently, as set forth.

2. The slide having slots $d\ d$, inclined toward each other, intersecting at the rear, with a stationary tongue, e , between, and adapted to receive independent detachable cutters $D^1\ D^2$, as set forth.

3. The combination, with the stationary die, of the stationary plate F and the forked plate G, secured to the slide, substantially as and for the purpose set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOB WHYSALL, JUN.
C. M. MERRICK.

Witnesses:

CHARLES E. FOSTER,
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