

UNITED STATES PATENT OFFICE.

JEDEDIAH HOLCOMB, OF BRANDON, VERMONT.

NAIL MACHINERY.

Specification of Letters Patent No. 4,634, dated July 14, 1846.

To all whom it may concern:

Be it known that I, JEDEDIAH HOLCOMB, of the town of Brandon, in the county of Rutland and State of Vermont, have invented certain new and useful improvements in the mode of manufacturing wrought-iron nails for shoeing horses, oxen, and for other uses, also wrought board-nails, which improvements are described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a vertical section of a common rolling machine illustrating the common mode of rolling the iron into a proper shape to be cut into nail plates, the cuts being made on the dotted lines 1, 1, 1. Fig. 2 is a vertical longitudinal section of a machine for cutting the iron into suitable plates for being cut into nails after it has passed through between the rollers, or under the trip hammer as hereafter described. Fig. 3 is a top view of ditto. Fig. 4 is an end view of ditto. Fig. 5 represents a nail plate (full size) after being cut from the bar of iron by the machine represented at Fig. 2 and placed upon the lower die to be cut into nails by the upper die. Figs. 11 and 12 is a side elevation of ditto. Figs. 13 and 14 is an end elevation of ditto. Fig. 6 is a vertical section of the dies for shaping the bar of iron by swaging instead of rolling preparatory to being cut into plates by the cutting machine aforesaid drawn on the dotted line 8 8 of Fig. 8. Fig. 7 is a vertical transverse section drawn on the line $x x$ of Fig. 6. Fig. 8 is a top view. Fig. 9 is an edge and a front view of the piece of iron as cut from the nail plate drawn to its full size preparatory to being pressed into a proper shape for a horseshoe nail. Fig. 10 is a plan of the said piece of iron after being pressed into the form and size of the required horseshoe nail by means of common dies.

The iron being properly prepared either in the form of a rectangular rod, or as a cylinder as at r Fig. 8 is placed upon the stationary plating die L where it is formed into a nail plate of suitable size and shape having its two edges on opposite sides left a sufficient thickness for the heads of the nails and the center for the blades.

The top of the stationary die L has a depression formed on its upper side corresponding in depth with the required thickness for the heads of the nails. The face of

the hammer M' has a similar depression corresponding in depth with the required thickness of the other edge of the plate for the heads of the nails. The iron rod or plate is first passed through an opening in a vertical gage plate N Fig. 6 fastened to the front of the stationary die. It then passes between two vertical guides or projections P, to the face of the stationary die immediately under the hammer or movable die and between two movable flat hands Q formed on the ends of two curved arms Q² whose upper or curved ends are inserted into the vibrating axle R of the hammer M the flat ends being placed at such distance apart that when the iron is hammered and plated that the edges of the said flattened plate will touch said hands Q which hands Q serve as sides to the die or matrix. Then when the hammer or rising and falling die is raised and the axle turns the said arms and hands Q² Q with the plate grasped between them will move toward the axle over the face of the die, the hands Q continuing to draw the plate forward as fast as it is flattened or plated. The said hands being so arranged and adjusted that they will not take hold of the plate until it be plated to the required width which will be equal to the length of the intended nail when they will act in the manner above stated. By which arrangement the machine becomes self adjusting and self feeding and not liable to make the nail plate of an uneven width.

The nail plates when finished will be of the form represented at V Fig. 5 and at V Fig. 14.

In Figs. 6 and 8 a round rod of iron is represented as being passed through the opening in the plate N and between the guides P to the feeding hands Q below the hammer to be hammered and formed into a continuous nail plate. The round rod r when thus plated by the dies L and M will resemble in its cross section the figure of the section seen at V Fig. 14.

Mode of cutting the aforesaid swaged or rolled iron into nail plates.—The piece of iron to be cut into nail plates from which the nails are to be cut is gripped and brought forward to the cutters G by means of two horizontally moving jaws A A made in the required form to answer the intended purpose as represented in Figs. 2 and 3, or other suitable form and connected by a pin

or bolt B to the head of a movable curved bar C that is made to have a simultaneous transverse rocking and a longitudinal sliding motion for gripping and drawing forward the iron to be cut by means of cams D on the shaft E that act on said bar, causing it to move longitudinally back and forth by acting in a concave portion of the bar, which is made in the form of the letter C as at C².

The rock motion is effected by the under side of the lever F as at F² of the cutter G being made to bear down an arm H inserted at right angles into the side of the curved bar aforesaid, which causes the bar to turn toward the cutter G and at the same time contract the spring I that bears against the under side of the arm. There is a curved bar, arm, and spring on each side of the center of the cutter, made, arranged and operated in a similar manner. As soon as the lever F leaves—the arms H H, the springs I I again expand and lift the arms and turn the bars from the cutters at the same time carrying back the jaws for another grip. The dotted lines represent the position of the iron and of the jaws when in the act of holding and carrying forward the iron to the cutters.

The before described compound gripping and conveying motion will be readily understood from the foregoing description and a reference to the drawings Figs. 2, and 3.

The axes of the aforesaid turning and sliding bars are seen at J J. *d* is a spring stop attached to the cutter for stopping the advance of the bar of iron when carried as far as it is intended to go.

Iron plated in this manner by hammering instead of rolling will be more tough, and will make better nails than that rolled in the usual way.

The iron being prepared and cut into nail plates as above described is next applied to the ordinary cutting dies S and T arranged

in a common nail cutting machine and cut up into nails on the zig zag lines as indicated in Fig. 5—the cut being made from head to point or from *a* to *b* by reversing the position of the plate on the lower or stationary die T, until the nail plate is entirely cut up into nails leaving little waste iron—the dies being properly shaped for that purpose and operated in the usual way which is well understood by nail makers. The nails when thus cut will be in the form represented at Fig. 9. They drop from the cutting die between a set of common concave dies which will form the heads as represented at Fig. 10.

To make wrought iron board nails the same apparatus for feeding and hammering the plates will answer to shape the plates or bars into proper nail plates. But in order to cut the plates into nails of the required shape having flat instead of curved surfaces, the dies must be varied in shape accordingly.

What I claim as my invention and desire to secure by Letters Patent is—

1. The combination of the before described peculiarly constructed bars C, cams D, and sliding jaws A arranged and operated in the manner and for the purpose described.

2. I also claim the manner of feeding the iron to the plating dies L and M by the hands Q Q and curved arms Q², Q², constructed, arranged, and operated in the manner described for the purpose set forth—the hands Q serving the double purpose of feeders and sides of the matrice, or die, in which the nail plate is swaged and shaped as above described.

JEDEDIAH HOLCOMB.

Witnesses:

A. W. TITUS,
IRA CUSHMAN.