J. E. WHEELER & D. B. LORING.
Horseshoe-Nail Machine.

No. 199,483. Patented Jan. 22, 1878.

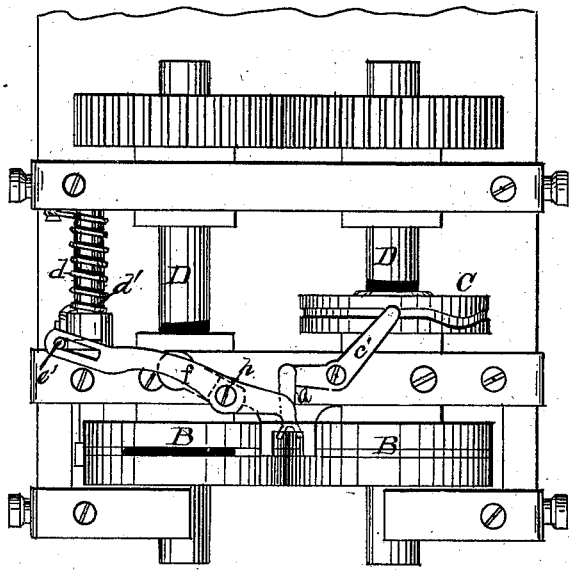

Fig. 1.

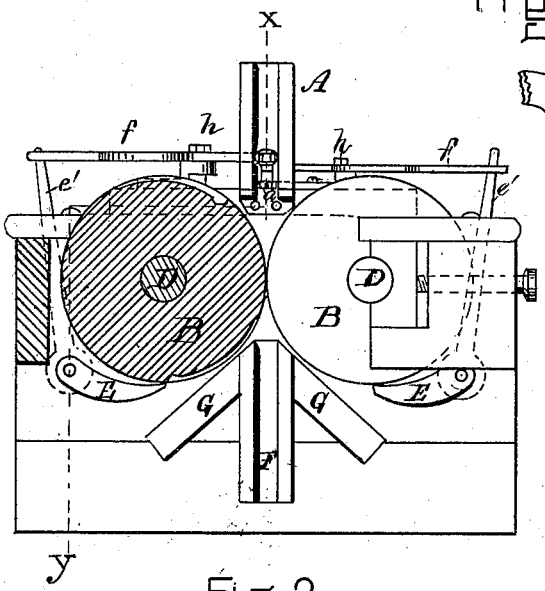

Fig. 2.

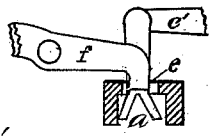

Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN E. WHEELER, OF LYNN, AND DAVID B. LORING, OF BOSTON, MASS.

IMPROVEMENT IN HORSESHOE-NAIL MACHINES.

Specification forming part of Letters Patent No. **199,483**, dated January 22, 1878; application filed March 19, 1877.

To all whom it may concern:

Be it known that we, JOHN E. WHEELER, of Lynn, in the county of Essex and State of Massachusetts, and DAVID B. LORING, of Boston, in the county of Suffolk, in said State, have invented certain Improvements in Horseshoe-Nail Machines, of which the following is a specification:

This invention consists of an improvement in horse-nail mechanism, and relates particularly to the following-described method of regulating the feeding of the blank to the roll; the freeing from the roll of rolled blanks lodged therein; the prevention of further feeding of blanks if the rolled blank is not dislodged, and the separation of the imperfect from the perfect rolled blanks.

Reference is made to the accompanying drawings, forming a part of this specification, in which Figure 1 is a plan of my machine. Fig. 2 is a vertical section of the same, and Fig. 3 is a cross-section on the dotted lines *x y* of Fig. 2.

A is the feed-tunnel, located in relation to the rolls B, substantially as shown, and provided with an automatic cut-off, *a*, which plays in and out of the tunnel through slot *e*, and is actuated by the bent lever *c'* and cam C.

The cam C is placed on either of the axles D, by which the rolls B are operated, and the cut-off is so timed by the cam that feeding to the dies in the rolls is interrupted while a blank is in the dies by the cut-off moving into the tunnel.

The next feature of my invention is the means of freeing blanks from the rolls and distributing the blanks. This I accomplish by pivoting or otherwise fastening to the frame of the machine the metal strippers E, arranged to contact, or almost to contact, with the peripheries of the rolls, and having their under surfaces arranged at a slight angle in relation to the circumference of the rolls, which always revolve toward them. These strippers E may be permanently fixed, or each may be held against the rolls, by spring *d*, surrounding shaft *d'*, in which case—by means of shaft-arm *e'* and slotted lever *f*, pivoted at *h* on the frame of this machine—another cut-off is operated to prevent the feeding of blanks while an imperfect blank is being carried in the die-groove.

The delivery-tunnel F is permanently fastened to the frame of the machine below the divergence of the rolls, and sufficiently removed from them to permit a blank lodged in the dies to pass. Projecting outward and downward from the top of the tunnel are the deflectors or separators G, whose use will be hereinafter explained.

It will be observed that the strippers E are curved upon their under portions so that they shall describe arcs of circles, which intercept, at the points of contact with the rolls, the paths of the dies with the least possible variation from the paths of which the axes of the rolls are the centers. It will further be seen that we leave sufficient space between the top of the delivery-tunnel and the rolls to permit the passage of a rolled blank, if lodged in one of the dies, to the stripper; and that the strippers are placed in relation to the delivery-tunnel, so that the imperfectly-rolled blanks cannot drop through the tunnel when freed from the die by contact with the strippers; and it will be seen, also, that the inclines G are located immediately beneath the strippers, and prevent the falling of the imperfect-rolled blank into the pan for the reception of the perfect-rolled blanks.

The object in making the end of the cut-off forked is to provide a means for centering the blank in the dies as it drops. This is accomplished by the rapid return of the forked ends of the cut-off, (after they have been withdrawn from the tunnel to allow the blank to fall,) which embrace each side of the shank of the blank and hold the same vertically while it is being drawn into the rolls, and effectually prevent the blank from canting against the sides of the tunnel. If it were not for the centering of the blank in the dies by the detent described, or an equivalent device for holding the shank of the blank perpendicular in the center of the feed-tunnel, and as close to the rolls as such a mechanism could be conveniently operated, the blank would fall against one side of the tunnel, and the head-forming portion of the dies would draw in but one side of the head-forming portion of the blank. The other portion of the blank, designed to form a part of the head of the rolled blank, when upset, would be forced into the shank of the rolled blank, and the result would be that the

rolled blank would often have imperfect head, be more or less curved by the action of the dies, and would wedge in one of the dies instead of dropping vertically from the rolls as the dies diverge.

The operation of the machine is as follows: The blank is fed head first and through tunnel A, and is held in position in the tunnel by the cut-off *a* until the dies commence to diverge, when, by the withdrawal of the cut-off through the action of cam C and lever *c'*, the blank is dropped upon the rolls at a point slightly in advance of the coming together of the dies.

If the rolled blank be a perfect one, it generally drops vertically from the rolls through the delivering-tunnel F. If, however, it should be lodged in the dies, as sometimes happens, its head will contact with stripper E, which will free the blank from the die, when it will fall upon the separator G, and be conveyed to a separate receptacle from that holding the perfect-rolled blanks, as it will probably be removed from the die bent or in a damaged condition. If, however, the blank should be so securely lodged as not to be removed by simple contact with the stripper E, it may, by forcing the stripper downward, compel the same to operate the shut-off lever *f* through shaft *d'* and arm *e'*, in which case further feeding of blanks is obstructed till the blank is removed from the die. We do not design, however, to always have the strippers E pivoted and held up against the rolls by springs; but the same may be permanently fastened in the position shown, in which case, of course, the spring-arm *e'* and lever *f* are dispensed with.

We claim—

1. The combination of the rolls B, strippers E, and delivery-tunnel F, not extended to the periphery of the rolls, all operating as described, to separate the perfect from the imperfect rolled blanks.

2. The combination of the metal strippers E, shaft *d'*, spring *d*, arm *e*, and slotted lever *f*, substantially as and for the purpose described.

3. The combination of a feed-tunnel, revolving dies, and delivery-tunnel with the strippers E and the inclines G, all arranged in relation to each other, and operating as described.

4. The combination, in a horse-nail machine, of a tunnel having a positive forked cut-off, rolls B, and a distributing device with metal strippers E, arranged to operate a cut-off only when a blank is lodged in a die, substantially as shown and described.

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