

(No Model.)

F. F. RAYMOND, 2d.
NAILING MACHINE.

No. 475,417.

Patented May 24, 1892.

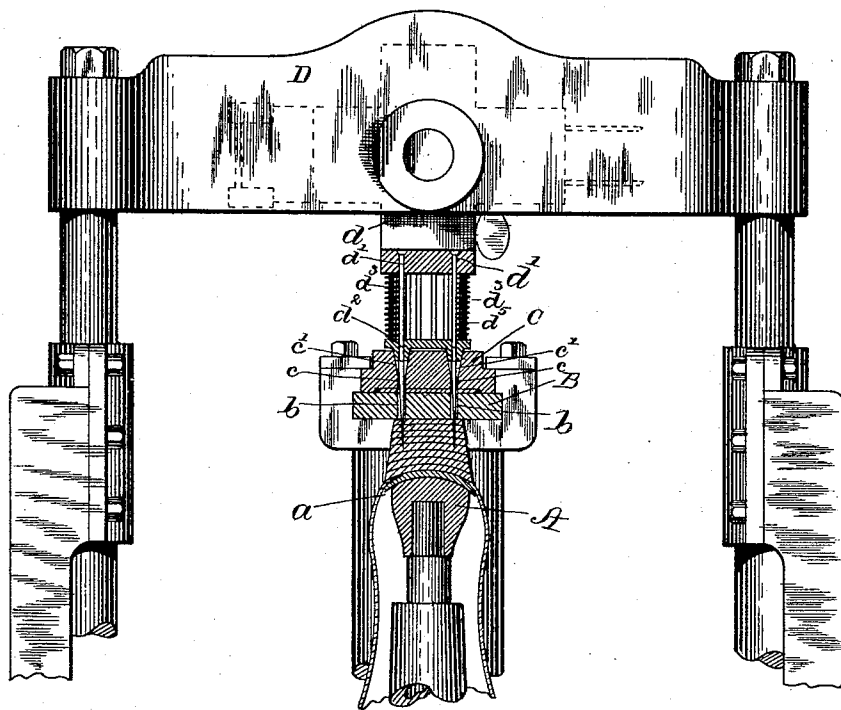


Fig. 1.

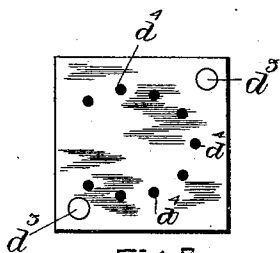


Fig. 2.

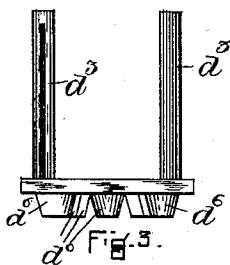


Fig. 3.

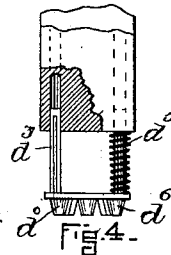


Fig. 4.

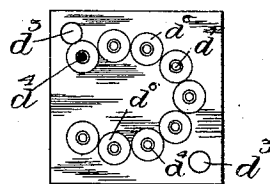


Fig. 5.

WITNESSES.

J. H. Doolan
E. T. Small.

INVENTOR.

F. F. Raymond

UNITED STATES PATENT OFFICE.

FREEBORN F. RAYMOND, 2D, OF NEWTON, MASSACHUSETTS.

NAILING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 475,417, dated May 24, 1892.

Application filed July 27, 1889. Serial No. 318,946. (No model.)

To all whom it may concern:

Be it known that I, FREEBORN F. RAYMOND, 2d, a citizen of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Nailing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates especially to a nailing-machine having a nail-carrier provided with holes enlarged at their upper ends and through which the nails are driven by a gang of drivers, with the said gang of drivers and a driver-centering device comprising a plate having a teat or projection, preferably for each hole of the carrier, of a size to enter or partially enter the same and hold the driver in a central or substantially central position in relation to the hole during its operation.

In nailing-machines employing a nail-carrier having enlarged holes and through which the nails are driven by the drivers it happens occasionally that a nail may not leave the hole of the carrier or may become so tipped or canted in the hole that a driver upon entering a hole instead of striking the head of the nail runs alongside of it and becomes wedged between its surface and the surface of the hole and of course prevents the driving of the nail and breaks the driver, and it is to avoid this liability that I have made the herein-described invention. It is represented as applied to a heel-nailing machine; but I would say that it may be used in any nail-driving machine, whether a gang-nailing machine or a single-nailing machine, where a carrier is used having one or more enlarged holes through which the driver or drivers are reciprocated in driving the nail.

In the drawings, Figure 1 represents a view, part in section and part in elevation, of the central and upper parts of a heel-nailing machine having the features of my invention. Figs. 2, 3, 4, and 5 are detail views to which reference is hereinafter made.

In the drawings, A represents the last or work support; a, a shoe mounted thereon; B, a templet having the holes b, through which the nails are driven; C, the nail-carrier; D, a

reciprocating head carrying a block d, supporting the drivers d'. The nail-carrier C has the holes c for receiving the nails. These holes are represented at their lower ends as reduced in size to the size of the holes b of the templet B, and are represented as enlarged at their upper ends, preferably by the long taper c'. It is advantageous to provide a nail-carrier with holes of this shape when the nails are fed to it automatically from a set of distributing tubes or passages, and especially when the nail-carrier C is provided with an automatic movement from the nail-distributor to the nail-driving devices and must be moved to bring its holes first in register with the holes of the nail-distributor and then with the holes of the templet and with the drivers. By thus shaping them an absolutely perfect registration of the holes of the carrier with the holes of the distributor is not absolutely essential. When, however, holes of this shape are used, there is a slight liability of a nail not dropping from its hole into the hole of the templet when it is brought into register therewith and also of the driver not striking the head of the nail, but passing alongside of it between it and the side of the hole, and this is caused, of course, by the hole at its upper end being considerably larger than the head of the nail. To prevent this liability, I have secured to the driver-block d a plate d², which is secured to the driver-block d to be movable vertically by guide-pins d³. (See Fig. 3.) This plate has holes d⁴ for the drivers d', and when in its normal position is held from the driver-block d by the spring d⁵. (See Fig. 1.) This plate also has extending from its under surface a teat or projection d⁶ about each driver-hole. This teat or projection is of a shape to enter or partially enter the upper ends of the holes c, and by so doing two results are obtained: first, if the teat is made of sufficient length it comes into contact with the head of the nail and starts it down; second, it centers the end of the driver in relation to the hole, so that the driver is caused to enter the hole centrally, and is so held during its downward movement through the hole. Consequently it is held so as to strike the head of the nail, even if the nail is canted in the hole. In other

words, it cannot enter the space between the side of the nail thus held in the hole and the side of the hole.

In operation upon the downward movement of the head D the teats or projections are caused to enter the upper ends of the holes, and being conical or tapering in shape they automatically center the plate and the ends of the drivers which, the said plate coming to rest, immediately move through the holes in said plate and centrally through the holes c of the nail-carrier, and upon the upward movement of the head D the plate d^2 is returned to its normal position by the springs d^5 .

A plan view of the plate is represented in Fig. 2 and a plan view inverted in Fig. 5. In Fig. 4 the plate is represented, as well as a part of the arm of the head, showing the guide-pin as movable in holes in the head.

It is obvious that the invention is applicable to a machine using a single driver, as well as to a machine using a gang or group of drivers.

It is obvious that where the invention is used in a machine having a gang of drivers it is not essential that the guide-plate d^2 have as many teats or projections d^6 as there are holes in the nail-carrier, although this is the better form of construction, or that they even enter said holes, so long as they enter holes which serve to hold the plate in such relation to the holes of the nail-carrier that all its holes are centrally located in relation thereto, so that the drivers are caused to enter the said holes centrally.

This improvement is especially valuable in automatic machines where the nails are fed by a nail-carrier to a templet and the drivers immediately reciprocated, there being no appreciable time between the instant that the holes of the nail-carrier come into position beneath the drivers and the operation of the

drivers because it is desirable for certain reasons that the holes of the nail-carrier be enlarged at their upper end. The ends of the drivers cannot be larger than the smallest section of the said holes, the nail-carrier coming into position rapidly and the drivers following so quickly the nails do not always leave the holes of the nail-carrier, and there is a possibility, unless the drivers are held centrally in the holes of the nail-carrier, that they may shoot one side of the nail and break in the hole. The tapering ends of the guide-plate entering the tapering holes of the nail-carrier center the drivers and also act in advance of the drivers to move downward into the holes any nails which may not have started to fall.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a nailing-machine, the combination of a throat-plate having one or more holes through which nails are driven from a nail-carrier, a reciprocating nail-carrier having one or more holes to register with the holes of the throat-plate, enlarged at its or their upper ends, with one or more drivers and a driver-guide controlled as to its position by said nail-carrier, substantially as described.

2. The combination of a nail-carrier having holes c enlarged at their upper ends, the gang of reciprocating drivers d' , the independently-movable guide-plate d^2 , having holes for the drivers and one or more teats or extensions for centering the guide-plate and the ends of the drivers in relation to the upper ends of the holes of the carrier, substantially as described.

FREEBORN F. RAYMOND, 2D.

Witnesses:

J. M. DOLAN,
E. P. SMALL.