No. 876,626. PATENTED JAN. 14, 1908.

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MACHINE FOR INSERTING NAILS.

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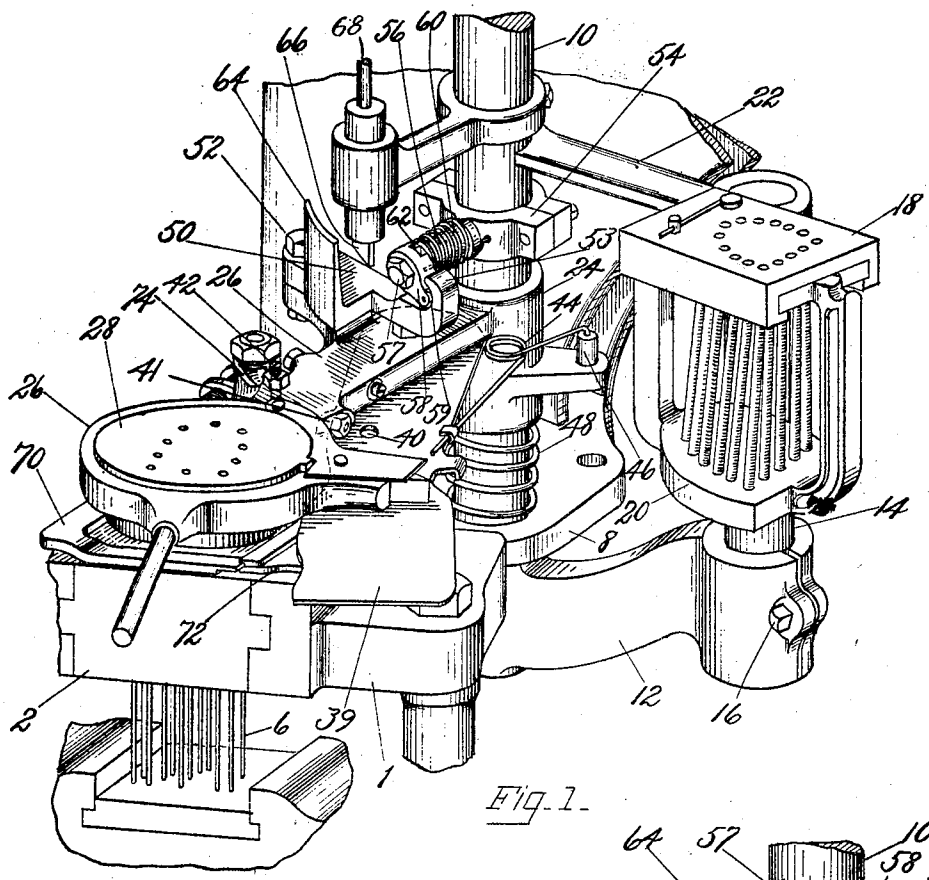


Fig. 1.

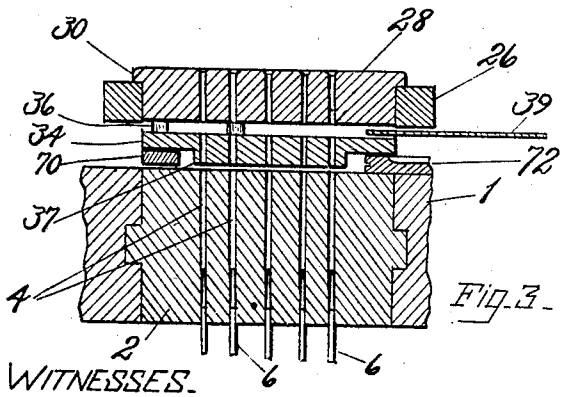


Fig. 3.

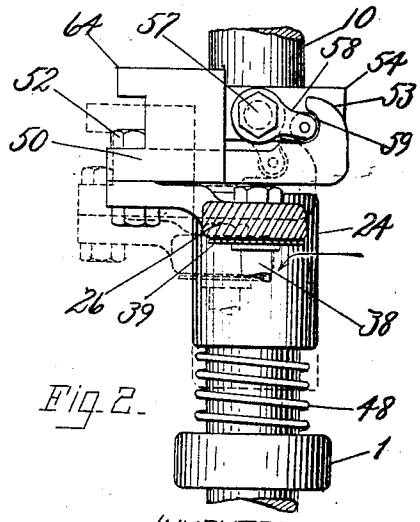


Fig. 2.

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UNITED STATES PATENT OFFICE.

MARY E. ELLIOTT, OF LAWRENCE, MASSACHUSETTS, EXECUTRIX OF ALVIN D. ELLIOTT, DECEASED, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR INSERTING NAILS.

No. 876,626. Specification of Letters Patent. Patented Jan. 14, 1908.

Application filed March 24, 1905. Serial No. 251,800.

To all whom it may concern:

Be it known that ALVIN D. ELLIOTT, deceased, late of Lawrence, in the county of Essex and Commonwealth of Massachusetts, invented certain Improvements in Machines for Inserting Nails, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for inserting nails, and more particularly to machines for attaching heels to boots or shoes.

In the manufacture of boots and shoes it is at times desired to insert in heels a group or gang of nails which are considerably shorter than those more commonly employed for attaching a heel to a boot or shoe. For instance, heels that are attached to slippers and to footwear of that class are generally of considerably less height than those employed on other classes of boots or shoes, and nails for attaching such heels are required to be correspondingly less in length.

This invention is concerned more particularly with means for facilitating handling of short nails in a machine for inserting nails in heels.

There is illustrated herein one embodiment of the invention applied to a well-known form of heel-attaching machine. This form of machine includes a die block provided with nail passages in which a group of drivers are arranged to move, a foot plate provided with nail passages, means for automatically supplying nails to said foot plate, and a nail transferrer movable between the foot plate and die block and adapted to receive nails from the foot plate and deliver them to the die block. In the use of machines of this class heretofore the employment of short nails has been impracticable for the reason that the shortness of such nails has seriously interfered with their accurate discharge from the transferrer into the die block.

According to the present embodiment of the invention means is provided for supporting a nail transferrer adapted to permit movement of the transferrer laterally of the die block and also vertical movement of the transferrer with relation to the die block. There is also provided mechanism for controlling the path of the transferrer constructed to move the transferrer into close relation to the die block at approximately the end of movement of the transferrer into nail delivering position. This mechanism may conveniently comprise a means tending to maintain the transferrer in an elevated position and means arranged in the path of the transferrer constructed to deflect the transferrer downwardly at the desired point in its path.

In machines of the type illustrated a heel carrier and top-lift carrier are pivotally mounted to move over the surface of the die block, the heel carrier when the parts are in position to permit nails to be delivered from transferrer to die block having a central open portion above the nail passages of the die block. The application of the invention to a machine of ths type permits the transferrer to be moved laterally over the carriers on the die block to a position approximately above the central open portion of the heel carrier and then depressed to bring its lower portion within the heel carrier and its lower face in close relation to the top of the die block.

It will be understood that the invention may be advantageously applied to machines of a form other than that shown; for example, to a heel-attaching machine in which the upper face of the die block is free and unobstructed by heel carrier or top-lift carrier.

Other features of the invention will be hereinafter described and pointed out in the claims.

In the drawings:—Figure 1 is a view in perspective of a portion of a heel-attaching machine with one embodiment of the invention applied thereto; Fig. 2 is a view in front elevation of a portion of the machine shown in Fig. 1, showing successive positions of the parts; and Fig. 3 is a vertical sectional view of the die block and adjacent parts.

In the drawings one embodiment of the invention is shown applied to a heel-nailing machine of a type shown in Letters Patent of the United States No. 694,656, March 4, 1902, to B. F. Mayo.

In the machine shown a head 1 and die block 2 are provided, the die block having nail passages 4, in which drivers 6 are arranged to move. Supported from a frame 8 of the machine is a post 10 to which is secured an arm 12, having a tubular boss to receive a standard 14. The boss may be split and clamped upon the standard 14 by a bolt

16 to permit adjustment of the standard. Adjustably secured to the upper end of the standard 14 is a nail block 18 provided with a removable foot plate 20. An arm 22 projects from the nail block 18 and bears against the post 10 to serve as a guide for the block in its vertical adjustment. It will be understood that nails arranged with their heads lowermost are automatically supplied to the nail block 18 by any suitable mechanism.

A nail transferrer is provided with a tubular boss 24, bearing upon the post 10 to permit pivotal movement of said transferrer about said post 10 from beneath the foot plate 20 to a point over the die block 2. The transferrer shown is the same in many of its features as that shown in an application for United States Letters Patent filed January 10, 1902, by B. F. Mayo, Serial No. 89,139. It comprises an arm 26 adapted to support a nail receiver 28, represented as a circular plate having a rim 30 to rest upon said arm 26, said receiver having nail holes arranged in the proper order for the particular driving desired. A nail guide 34 provided with a series of holes in alinement with the holes in the nail receiver is provided and as shown is sustained from the under side of the receiver by means of stands 36. The nail guide 34 is located sufficiently below the lower end of the nail receiver and the arm 26 to afford space for a nail sustainer and is provided with a centrally arranged extension 37.

The arm 26 is provided with a stud 38 upon which the nail sustainer 39 is pivotally mounted, said nail sustainer keeping the nails in the holes of the nail receiver while the transferrer is being moved from nail receiving into nail delivering position. The nail sustainer 39 has projecting from one side of it a lip 41 and near the lip the sustainer has a hole 40, which is entered by a pin 42 in the transferrer arm 26, said pin acting as a catch to maintain the sustainer in its operative position. A spring 44 is provided bearing at one end upon the sustainer and at the other end inserted in a hole in a stud 46 supported by the tubular boss 24, said spring, when the sustainer is freed from the pin 42, immediately moving the sustainer from under the receiver.

The arm 26 of the transferrer is free to move vertically upon the post 10. A spring 48 bears upon the lower side of the boss 24, and tends to maintain the transferrer in a raised position with relation to the upper face of the die block. A block 50 is removably secured to the arm 26 by a bolt 52. The block 50 is provided with a vertical abutment 53. A collar 54 is adjustably secured to the post 10 and is provided with an outwardly extending stud 56 in the end of which is inserted a bolt 57 which pivotally supports a deflector 58. A spring 60 serves to maintain the deflector 58 normally in the position shown in full lines in Fig. 2, and the extent of pivotal movement may be limited by a stop 62 upon the pin 56 coöperating with a slot in the face of the deflector 58. The deflector 58 is arranged to engage the block 50 when the transferrer is approximately over the nail passage 4, and depress the transferrer into close relation to the die block as shown in Fig. 3. As shown, the acting portion of the deflector 58 is provided with a roller 59, arranged to bear upon the block 50.

The block 50 has a projection 64, which when the transferrer is moved towards position to receive nails meets the inclined face of a pivoted piece 66 at the end of a rod 68 and moves said rod vertically, which moves a suitable device to start into operation nail-assorting mechanism, as provided for in said patent, so that said mechanism may immediately discharge into the nail block 18 a series of nails to enter the holes in the receiver 28.

A frame comprising a heel carrier 70 and a top-lift carrier 72 is pivotally mounted upon the upper face of the head 1. This frame may be substantially the same as that shown in said patent. It will be understood that in the position of the parts in which nails are to be delivered to the die block an open portion of the heel carrier is located above the passages 4 and the extension 37 is arranged in said open portion, as shown in Fig. 3.

As the nail transferrer arrives in its nail delivering position, the holes therein having been placed in alinement with the holes in the die block, the lip 41 on the nail sustainer meets a stop 74 which acts upon the lip to depress the sustainer and release the same from the pin 42 extending downwardly from the lower side of the transferrer arm, permitting the spring 44 to withdraw the sustainer from its effective position. It will be understood that the sustainer is returned to its effective position as it is moved beneath the foot plate 20, by a stop arranged in the path of the sustainer, as disclosed in said patent.

In the operation of the machine shown, as the nail receiver 28 is moved from foot plate 20 into nail delivering position, its movement will be horizontal until it is approximately at the end of its path. At this point the deflector 58 engages the abutment 53 on the block 50, and in the further slight lateral movement permitted the receiver 28, said deflector depresses the arm 26 and brings the lower face of said receiver 28 into close relation to the upper face of the die block. In the reverse movement of the parts a slight movement of the arm 26 causes the deflector 58 to release said arm and permits the spring 48 to raise the nail receiver into a position removed from the upper face of the die block.

Having described the invention, what I

claim as new and desire to secure by Letters Patent of the United States is:

1. In a machine of the class described, the combination with a die block provided with nail receiving passages, of a nail transferrer for supplying nails to the die block arranged to be moved laterally of the die block, and means for depressing said transferrer into close relation to the die block at approximately nail delivering position of said transferrer.

2. In a machine of the class described, the combination with a die block provided with nail receiving passages, of a nail transferrer for supplying nails to the die block arranged to be moved laterally of the die block from nail delivering into nail receiving position, and means for elevating said transferrer with relation to the die block at the initial portion of its movement into nail receiving position.

3. In a machine of the class described, the combination with a die block provided with nail receiving passages, of a nail transferrer for supplying nails to the die block preliminary to the attaching operation, and means for supporting said transferrer arranged and constructed to permit movement of the transferrer laterally of the die block and also vertical movement of the transferrer with relation to said die block.

4. In a machine of the class described, the combination with a die block provided with nail receiving passages, of a nail transferrer for supplying nails to the die block, means for supporting said transferrer arranged and constructed to permit movement of the transferrer laterally of the die block and also vertical movement of the transferrer, and means for controlling the path of the transferrer constructed to move said transferrer into close relation to the die block at approximately the end of movement of the transferrer into nail delivering position.

5. In a machine of the class described, the combination with a die block, of a nail transferrer, means for supporting said transferrer arranged to permit horizontal movement of the transferrer laterally of the die block and also a vertical movement of the transferrer, means tending to maintain said transferrer in an elevated position, and means arranged in the path of the transferrer constructed to deflect said transferrer downwardly at approximately the end of its movement into nail delivering position over said die block.

6. In a machine of the class described, a die block, a nail transferrer, means for sustaining said transferrer arranged to permit its movement horizontally over said die block and in a vertical direction with relation to said die block, means tending to maintain said transferrer in an elevated position, and a pivotally mounted deflector having an acting portion movable in a fixed path inclined downwardly with relation to the die block, arranged in the path of said transferrer and constructed to bear on a face of said transferrer at approximately its nail delivering position, and depress said transferrer into close relation to said die block.

7. In a machine of the class described, the combination with a die block provided with driver passages, of a nail transferrer for supplying nails to the die block arranged for movement laterally of the die block from nail receiving position into nail delivering position, and means for depressing said transferrer in its movement between said positions.

8. In a machine of the class described, the combination with a die block provided with driver passages, of a nail transferrer for supplying nails to the die block arranged for movement laterally of the die block from nail receiving position into nail delivering position, and means for yieldingly sustaining said transferrer whereby it may be depressed in its movement between said positions.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARY E. ELLIOTT,
Executrix of the estate of Alvin D. Elliott, deceased.

Witnesses:
THOMAS LUND,
THOMAS BEVINGTON.