(No Model.)

C. W. GLIDDEN & A. D. ELLIOTT.

HEEL NAILING AND TRIMMING MACHINE.

No. 457,462. Patented Aug. 11, 1891.

Fig. 1.

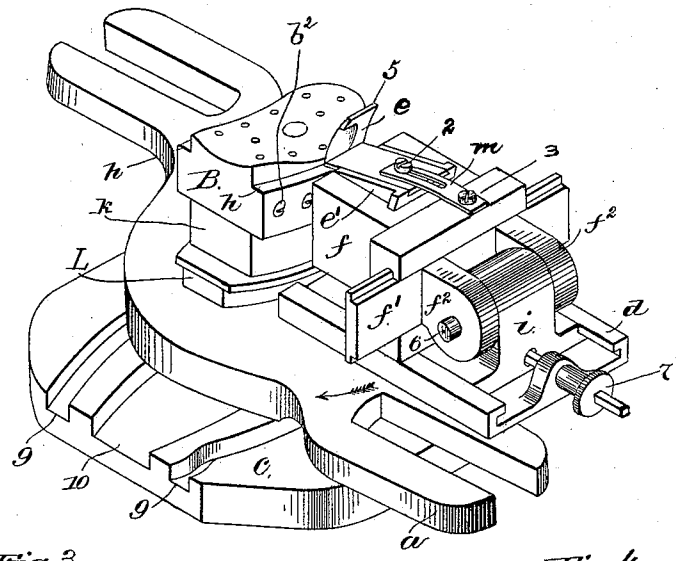


Fig. 3.

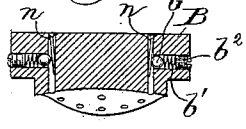


Fig. 4.

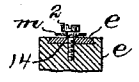
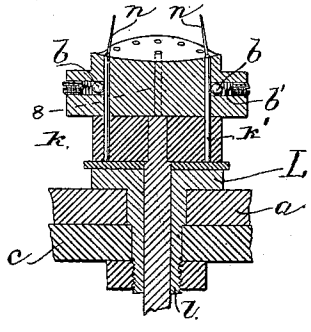


Fig. 2.



Witnesses.
Edward F. Allen.
Fred S. Greenleaf.

Inventors.
Charles W. Glidden
Alvin D. Elliott.
by Crosby & Gregory Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES W. GLIDDEN, OF LYNN, AND ALVIN D. ELLIOTT, OF LAWRENCE, ASSIGNORS TO JAMES W. BROOKS, TRUSTEE, OF CAMBRIDGE, MASSACHUSETTS.

HEEL NAILING AND TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 457,462, dated August 11, 1891.

Application filed March 3, 1891. Serial No. 383,578. (No model.)

To all whom it may concern:

Be it known that we, CHARLES W. GLIDDEN, of Lynn, county of Essex, State of Massachusetts, and ALVIN D. ELLIOTT, of Lawrence, county of Essex, State of Massachusetts, have invented an Improvement in Heel Nailing and Trimming Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of a machine by which to nail what are known as "spring-heels."

In accordance with this invention the nails to be driven into the heel end of the sole are placed or loaded into a loader or skimmer, where they are retained frictionally by pressure against their sides between their points thereby, and this skimmer is laid upon or in contact with a nail-box containing usual drivers, which, when actuated in usual manner, contact with the heads of and drive the nails from the loader or skimmer into the heel.

The skimmer, in accordance with this invention, has a guiding-surface for the knife used in trimming the heel.

The knife referred to is connected to a segmental base mounted in a knife-holder adjustable horizontally upon a guide pivoted to a bearing-block made adjustable toward and from the nail-box.

This invention is an improvement on that described in United States Patent No. 217,866, granted to Charles W. Glidden July 29, 1879. In the patent referred to the knife-holder is adapted to turn about a horizontal pivot arranged radially with relation to the axes about which the knife travels in trimming, such arrangement of pivot enabling the knife to tip, so that its upper end may tip to at the proper time be in advance of its lower edge, as required, to keep the edge of the knife tangent to the part of the heel being trimmed. In this present invention, however, the knife-holder is hinged to the radially-adjustable bearing-block, so that it may be turned back out of the way while the nails are being driven into the spring-heel and the loader or skimmer is being applied or removed.

Figure 1 is an isometric view of a sufficient portion of a heel nailing and trimming machine to enable our invention to be understood. Fig. 2 is a sectional detail of a portion thereof in a line at right angles to the length of the loader. Fig. 3 is a sectional detail of the loader with nails held therein, and Fig. 4 shows the screw 2 removed.

The form-plate *c*, having the grooves 9 and 10, and the trimming-lever *a*, carrying a turn-table plate *d*, grooved to contain a bearing-block *i*, are and may be all substantially as in said patent, where the parts are designated by like letters, except that the shape of the bearing-block has been somewhat changed.

It will be understood that the turn-table will have at its lower side roller or other studs to enter the grooves 9 10, as provided for in United States Patent No. 166,765, dated August 17, 1875, and issued to Glidden and Simmons. The heel pattern-plate L, having a hollow shank *l*, extended down through and secured to the form-plate *c*, the drivers *k'*, and nail-box *k* are all substantially as shown in the latter patent, where they are designated by like letters, except that the nail-box is shorter for the loader or skimmer, to be described, and during the operation of nailing forms an extension of the nail-box.

The "loader" or "skimmer" B, as it is frequently called, has a series of holes for the reception of the nails *n* to be driven into the spring-heels, the top of the said holder being shaped substantially as shown in United States Patent No. 347,482, granted to Charles W. Glidden August 17, 1886, in order to adapt it to the shape of the heel end of the sole.

The holes made in the loader B are intersected by recesses, (shown in Fig. 2,) which receive each a ball *b*, a spring *b'*, and, preferably, a screw b^2, by which to vary the effective strength of the spring. The ball and spring constitute one form of nail-holding device to contact frictionally with the nail at its side near its head end, to thus retain in place

frictionally the nails pushed into the holes in the loader until the nails are positively driven from the loader by the drivers, the said nail-holding device enabling the loader when filled with nails to be reversed without the nails dropping out.

In this our invention it will be noticed that the friction device acts only upon one side of the nail and it normally acts to keep the opposite side of the nail pressed against the wall of the nail-receiving hole made in the nail-box.

Prior to our invention we are aware that nails having heads have been acted upon by spring-fingers to center the nails in the holes from which they are driven. Such form of holding device we disclaim.

The nail loader or skimmer is provided externally with a shoulder *h*, which constitutes a knife-guide and enables the knife to cut the heel close to the tread-plate of the loader and yet enables the parts which support the knife to come properly up to the heel pattern-plate.

The knife marked *e* differs somewhat in shape from the knife designated by like letters in Patent No. 217,866; but it is attached to a segmental base *e'*, fitted to slide in correspondingly-shaped guides in a knife-holder *f*, as provided for in said patent.

The knife herein represented is so shaped that it may rest on the shoulder *h* referred to, the shank of the knife shown as slotted being attached by a suitable screw 2 to the upper end of the segmental base, a spring *m*, as herein represented, being also attached at one end by the same screw to the upper end of the said base, the opposite end of the said spring being attached to the knife-holder by a screw 3, the said spring acting normally to lift upwardly the said base, so that the upper blunt end 5 of the knife, which is adapted to act as a guard, contacts with the quarter of the upper at the heel-seat.

The knife-holder *f* is provided with a dovetail slot to embrace a correspondingly-shaped guide *f'*, having ears f^2 f^2, which are hinged by a pin 6, extended through them and the upright part of the bearing block. The bearing-block is made horizontally adjustable toward and from the nail-box in usual manner by the nut 7.

In practice the loader or skimmer will be filled with nails *n* in any usual manner, and, as shown in Fig. 3, the said nails will be retained in place frictionally by the nail-holding devices, the nails being put into the holes of the loader while wrong side up. While the knife is turned about the hinge-pivot 6 or over to the right from the position shown in Fig. 1, the loader will be put upon the nail-box, it being, it will be understood, held up in usual manner, as by a spring below the rod 1, all as provided for in United States Patent No. 166,765, before referred to, the loader being applied to the nail-block right side up, as in Fig. 1, the loader having holes to engage suitable dowel-pins 8. (Shown by dotted lines as extended above the usual nail-box.) In this condition the heel to be nailed will be placed in the tread face of the loader, and the drivers will be made in usual manner common to the patent referred to to drive the nails from the loader into the heel end of the sole and the loader to constitute the spring-heel. The heel having been nailed, the knife-holder *f* will be turned over toward the loader and the knife *m* permitted to rest in the shoulder *h*, as shown in Fig. 1, when the trimmer-lever *a* will be actuated in usual manner to cause the knife to travel about and trim the edge of the heel to shape.

The loader shown forms practically an extension of the nail-box, and we desire it to be understood that under the term "loader," as used herein, we desire to cover and include as within our invention any box to contain nails to drive out therefrom.

The screw 2, which holds the shank of the knife to the segmental base *e'*, is shouldered, as shown separately in Fig. 4, the shoulder 14 acting against the shank, while the part of the screw between the shoulder 14 and the under side of the head enables the slotted part of the spring to play as required as the base *e'* moves in the holder *f*.

We claim—

1. In a heel nailing and trimming machine, the following instrumentalities, viz: a nail-holding loader or box, combined with a series of recesses intersecting the nail-holes, and a ball-like nail-holder in each of said recesses normally contacting with the nails midway their length or between their points and heads, and retaining devices for the holders, said holders keeping the nails pressed against the opposite side of the nail-hole in the loader or box, thus enabling the box to be inverted or used either side up without the nails dropping out, substantially as described.

2. In a heel nailing and trimming machine, the following instrumentalities, viz: a nail-holding loader or box, combined with a series of ball-like nail-holders, springs, and adjusting-screws acting upon the said springs, the said nail-holders intersecting the nail-holes contacting with the nails midway their length or between their points and heads, said holders keeping the nails pressed against the opposite side of the nail-hole in the leader or box, thus enabling the box to be inverted or used either side up without the nails dropping out, substantially as described.

3. In a heel nailing and trimming machine, a radially-movable bearing-block, a nail-holding loader or box having a shoulder, and a knife, combined with a slotted knife-holder and a knife-holder guide upon which said knife-holder moves laterally, said guide being hinged to the said bearing-block and nor-

mally held away from the nail-holding loader or box, except when the heel is to be trimmed, as set forth.

4. In a heel nailing and trimming machine, the knife, the segmental base *e'*, to which it is attached, the holder *f*, the holder-guide, and the base-block *i*, combined with a spring connected loosely to the base and acting normally to elevate the said base and knife, substantially as described.

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

CHARLES W. GLIDDEN.
ALVIN D. ELLIOTT.

Witnesses for C. W. Glidden:
W. C. WILLSON,
H. P. FAIRFIELD.
Witnesses for A. D. Elliott:
W. C. WILLSON,
WILBUR E. ROWELL.