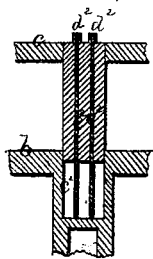
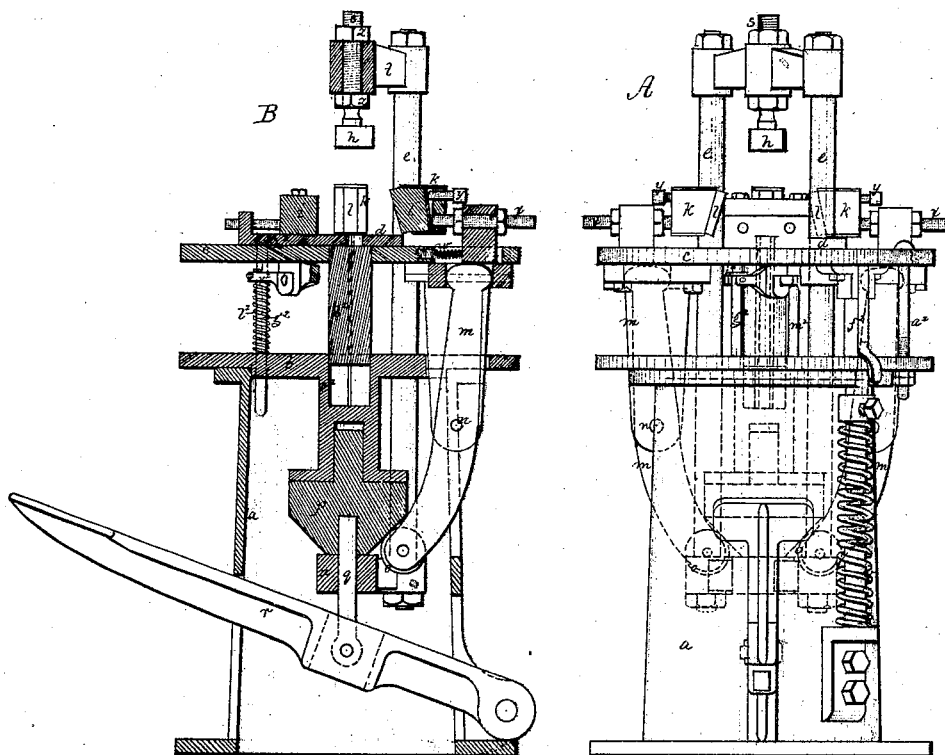
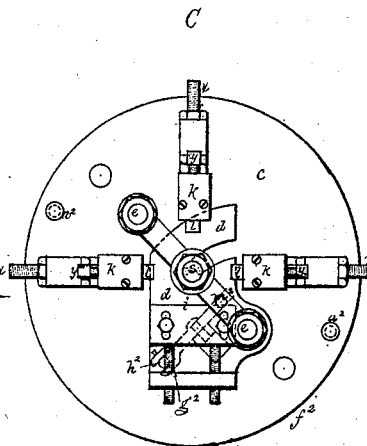


C. W. Glidden,
Heel Machine.
No. 112,702. Patented Mar. 14, 1871.



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By his atty's
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Witnesses { *S. B. Kidder.*
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United States Patent Office.

CHARLES W. GLIDDEN, OF LYNN, ASSIGNOR TO McKAY HEELING-MACHINE ASSOCIATION, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 112,702, dated March 14, 1871.

IMPROVEMENT IN MACHINES FOR MAKING BOOT AND SHOE-HEELS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CHARLES W. GLIDDEN, of Lynn, in the county of Essex and State of Massachusetts, have invented an Improved Machine for Piling and Tacking together the Lifts of Boot and Shoe-Heels; and I do hereby declare that the following, taken in connection with the drawing which accompanies, and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

Machinery is now very generally employed for shaving or trimming the convex outlines of boot and shoe-heels, instead of performing that operation by hand, and this renders it desirable that the lifts or layers of which heels are made should be arranged with method and regularity, because the heel-shaving machines cut in a given path, and cannot be made to conform to distorted arrangement of material, as can be done when heels are shaved by hand.

Up to the time of my invention, herein set forth, heel-lifts have been arranged by hand into piles for the formation of heel-blanks; and while the intent has been to make such piles symmetrical, symmetry has seldom been attained; and hence, to insure that the cutter of a heel-trimming machine should always find material to remove all around the convex outline of a heel, the lifts have been made with an excess of area in each, so as to render it reasonably certain that, notwithstanding defective arrangement or piling of the lifts, no part of the heel proper would come within the path of motion of the knife.

But this excess of a material so expensive as leather is it desirable to save so as to cheapen the cost of boots and shoes, and by my invention, hereinafter described, I accomplish such saving, and also effect a saving in the time occupied in piling the lifts and tacking the lifts of the piles together.

Heels being taper from seat to tread, the respective lifts are cut by dies of different sizes, so that a selected assemblage of the lifts will make a pile roughly approximating the shape of the finished heel when the lifts are systematically arranged—that is, with their longitudinal center lines in one plane, and with the breast of each lift in another plane; and one part of my invention consists in an organization of mechanism by which an assemblage of heel-lifts, placed in a pile with relation to their respective sizes, shall be automatically positioned or arranged with the longitudinal centers of all in one vertical plane, and the straight faces or breasts of all in another vertical plane, this position bringing their curvilinear edges into concentric lines, and to the nearest approximation which they are capable of assuming to the regular or flush tapering surface to be formed by the heel-trimming cutter.

The invention further consists, in the combination

with such automatic placing mechanism, of mechanism by which the placed lifts are clamped together, and while so clamped are tacked or fastened together, ready for application to the sole of a boot.

The drawing represents a machine embodying the invention.

A shows the machine in front elevation.

B is a sectional elevation of it.

C is a plan of it.

a denotes a vertical stand or frame, on the top of which is a stationary head, *b*.

Parallel to this head, and at some distance above it, is a horizontal table, *c*, upon which rests a lift-plate, *d*.

This plate swivels or turns horizontally on a pin, *e*, and when swung outward it is brought into position to receive the lifts to be arranged and fastened together.

When swung inward to the center of the table, its movement is arrested by a pin or tube, *d'*, (which plays in a circular slot, *g*, in the plate,) and when stopped the pile of lifts will be directly under a clamp-block, *h*.

On one side of this lift-plate is a breast-gauge, *i*, having a rigid vertical face, against or toward which the straight edge of each lift is placed in assembling the lifts.

Opposite to this gauge, (when the plate is swung in,) and on the two sides of the table, is a series of three slide-blocks, *k*, sliding radially toward and from the center of the lift-plate, the centers of the adjacent block being ninety degrees apart.

In the inner end of each block, *k*, is an India-rubber or similar elastic presser, *l*, the front or inner end of which has an inclination corresponding to the inclination to be given to the side or to the rear of the heel opposite such presser.

Each slide-block is jointed or connected to the upper end of one of a set of vertical levers, *m*, each of which levers is pivoted to the stand *a*, as seen at *n*.

The lower end of each lever bends inward and carries a friction-roll, *o*, and against the three rolls *o* the tapering face of a cone, *p*, bears, as seen at B.

This cone is fixed to the top of a pin, *q*, the bottom of which is jointed to a pedal-lever, *r*, the downward movement of the pedal drawing down the cone and causing it to move the lower end of each lever outward, thereby forcing in the upper ends of the levers, and with them the slide-block and pressers.

The clamp-block *h* is on the lower end of a vertical screw, *s*, running through a cross-head, *t*, at the top of two slide-rods, *e*, the lower ends of which rods are supported upon another cross-head, *u*, through the center of which passes the pedal and cone-pin *q*, depression of the pin not only effecting inward radial movements of the presser-blocks, but also the downward movement of the clamp-block.

The upward movement of the pedal and clamp-block is effected by springs, *v*, and the outward movement of the presser-blocks by springs *w*.

When the presser-blocks move inward the elastic presser opposite to the gauge-block presses all the lifts forward, so that the straight edge or breast of each is forced against the upright face of the gauge, and the two side pressers have equal and simultaneous movements toward the center line between the rear block and breast-block, and therefore so move the lifts as to cause them to be arranged, as regards their opposite side edges, in regular form, or with each lift in central position upon or under the next one.

The placing operation is effected before the clamp-block reaches the top lift, the cylindrical surface of the cone-block sliding against the rolls after the presser-blocks have moved inward, and while the clamp-block continues to move down.

To adapt the machine for arranging lifts to form heels of various lengths and breadths, each slide-block is made adjustable by a set screw or screws, *x*; and for various inclinations of heels the face of each elastic presser may be set more or less inclining, by means of a set-screw, *y*. For various heights of heels the clamp-block *h* may be set higher or lower by the screw *s* and nuts *z*.

The lifts having been regularly arranged or placed by the pressers and clamped by the clamp-block, are ready to be tacked or fastened together, and this is effected as follows:

The table *c* has projecting from its under surface guide-pins *a*², which pass through and slide vertically in the head *b*. The table has a center piston, *b*², the foot of which enters a tube, *c*², in the center of the head. In the piston are vertical nail-tubes, *d*², which contain drivers, *e*², the bottoms of which drivers rest on the bottom end of the tube *c*². While the lifts are being arranged and clamped, the table is held in normal position above the head *b* by a bolt or button, *f*², and in this position the upper ends of the tubes *d*² form nail or tack receivers, the tacks resting upon the drivers *e*², with their points or upper ends just below the top of the lift-plate *d*. When the pedal has descended far enough to place the lifts and clamp them together, the bolt is thrown out, and the continued descent of the pedal will then draw down the table *c* and its piston,

causing the nail-driver to force the nails or tacks up through the nail-tubes into and through the lifts, the points of the nails being clamped against the clamp-block *h*. The lift-formed heel blank is now ready for removal, to be applied to a boot, and for the action of the heel-trimming and heel-nailing mechanism.

To lock the lift-plate in position for the action of the placing mechanism a slide-pin, *g*², may be employed, this pin sliding through the head *b* and table *c*, and entering a hole, *h*², in the lift-plate *d*, said hole coming into line with the pin when the plate is swung in against the stop-pin or tube *d*². The pin *g*² has a flange, *i*², against which the prongs of a fork at the end of a lever, *k*², are held by a spring, *l*².

The opposite arm of the lever extends over a pin, *m*², fixed on and moving with the cone *p*, and in the normal position of the mechanism the top of the pin presses up the lever-arm and thereby frees the stop-pin *g*² from the stress of the spring, the top of the pin being below the top of the table. But as the pedal begins to drop the pin *m*² falls away from the lever and the spring *l*² then forces up the pin *g*², causing its upper end to enter the hole in the lift-plate and lock the plate in position.

While I have thus specifically described the arrangement of the mechanism, it will be obvious that the construction and arrangement of the parts may be variously modified without departure from the essential elements of my invention.

I claim—

1. A series of radial slide-blocks, arranged and operating substantially as described.
2. The combination, substantially as described, of the positioning slide-blocks, the block for clamping the lifts in place, and the mechanism for tacking the lifts together.
3. In combination with each slide-block, an elastic presser, *l*.
4. The radial placing blocks *k* and vertically-moving clamp-block *h*, made adjustable for heels of various sizes, substantially as described.
5. In combination with the sliding blocks, a swiveling lift-receiving plate, *d*, and a breast-gauge, *i*.

Witnesses: CHARLES W. GLIDDEN.

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