

939,302.

2 SHEETS--SHEET 1

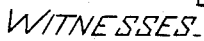


Fig. 1-58

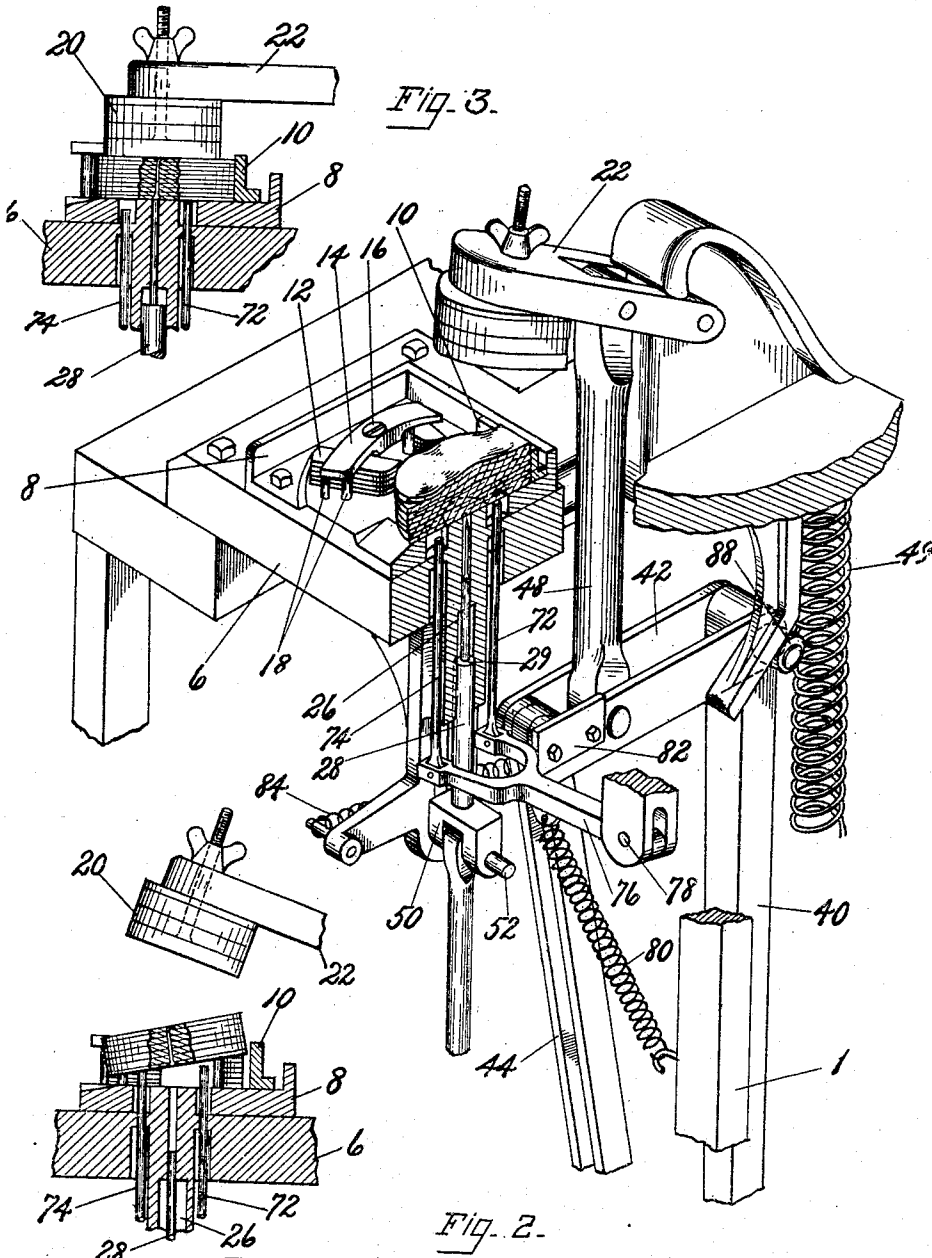
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HEEL BUILDING MACHINE.
APPLICATION FILED AUG. 17, 1905.

939,302.

Patented Nov. 9, 1909.
2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WILLIAM PARIS, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

HEEL-BUILDING MACHINE.

939,302.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed August 17, 1905. Serial No. 274,563.

To all whom it may concern:

Be it known that I, WILLIAM PARIS, a citizen of the United States, residing at Manchester, in the county of Hillsboro and State of New Hampshire, have invented certain Improvements in Heel-Building Machines, 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 heel-building machines for assembling heel lifts.

In the manufacture of heels, as is well known, lifts which have been previously died out to a certain contour are manually superposed to produce a heel of a desired shape and are then secured together. While being successively superposed the lifts commonly receive an application of paste and they are then pressed firmly together and secured by a nail or nails driven through them.

The object of this invention is to construct a machine which will facilitate the accomplishment of an assembling operation of this nature and permit it to be performed with greater rapidity than heretofore.

An important feature of the invention consists in a support adapted to receive and position in proper relation a plurality of successively superposed heel lifts, coöperating with means for clamping said lifts upon the support and nail-driving mechanism for forcing a nail or nails through the lifts so held, said clamping means and nail-driving mechanism being arranged to be governed by the manipulation by the operator of a single element constituting a controlling device.

In the machine herein shown which constitutes the preferred embodiment of the invention, the lifts to form a heel are sustained by a support having a space or cavity for receiving a plurality of said lifts and maintaining them in proper vertical alinement, said support being a stationary part of the machine. A clamp is movably mounted with relation to said support and guided in its movement so that its acting face may be brought to bear upon the top of the lifts and press said lifts firmly together. A nail passage, in which a suitable driver works, is arranged in line with the central part of the space for receiving the lifts. A conven-

ient arrangement is that shown wherein the nail passage is located in the support approximately perpendicular to the face of said support so that a nail in said passage is driven upwardly through the lifts in a vertical direction. A single device is arranged to control said clamp and nail driver, and by the manipulation of this device both of these elements are brought into action.

The construction is preferably such that the acting movement of the clamp and nail driver is produced by force applied by the operator, and in the machine herein disclosed there is provided a treadle, by the actuation of which the clamp is forced upon the lifts and the nail driver moved upwardly to drive the nail. It is of course desirable that the lifts be held from displacement while the driver is acting and the arrangement in the machine shown is therefore such that the clamp is brought in contact with the lifts before the driver commences to force the nail into the bottom lift.

In order to press the pasted lifts more firmly together and prevent the occurrence of cracks between them, it may be desirable to hold the superposed lifts under pressure for a short interval of time.

An important feature of this invention consists in the provision of means by which the application of a sustained pressure upon the lifts may be secured for any length of time desired without continuous effort on the part of the operator, and which at the same time will permit said pressure to be relieved and the clamping mechanism restored to its inoperative position by the manipulation of the single controlling device governing the working parts of the machine. The arrangement is preferably also such that the maintenance of a considerable pressure upon the lifts for a short interval of time is insured regardless of the haste with which this controlling device is actuated.

In the present embodiment of the invention mechanism is provided for retaining the clamp above referred to in clamping position, wherein it exerts pressure upon the lifts, said means operating in the acting movement of the treadle to hold the clamp upon the heel blank and being rendered ineffective when the treadle has moved to a predetermined extent on its return move-

ment. This permits pressure to be maintained on the lifts without any considerable effort on the part of the operator, insures that the pasted faces of the lifts will be held
 5 for a time in close contact and allows the heel blank to be quickly released when desired.

Other features of the invention including details of construction and combinations of
 10 parts will be hereinafter described and defined in the claims.

In the drawings which illustrate a machine forming one embodiment of the invention Figure 1 is a view in side elevation
 15 with parts in section of this machine; Fig. 2 is a view in perspective of a portion of this machine showing the parts on an enlarged scale; Fig. 3 is a view in vertical section of a part of the machine showing the
 20 lifts at the completion of the nail-driving operation; Fig. 4 is a view similar to Fig. 3 illustrating the manner in which a heel blank is removed from the machine.

In the machine shown the working parts
 25 are supported by a frame 1 having a base 2. A plate 6 is secured to the top of said frame and provided upon its upper face with a suitable supporting means for the lifts. A convenient construction includes a base plate
 30 8 provided with a centrally arranged space in which the heel blanks are built up, adjustable parts being arranged upon said base plate to determine the outline of said space. A back rest 10 is provided at the
 35 rear of this lift-receiving space and at the sides a plurality of blocks 12 of small plates. These blocks of superposed plates are shown arranged at each side of the central space and are clamped to the base plate as by
 40 means of curved bars 14 extending over two adjacent blocks, a screw 16 passing through the bar 14 and entering a threaded hole in the base plate, and guide pins 18 upon said bar 14 entering holes in the base plate. It
 45 will be understood that when the clamping means above described is loosened the blocks 12 may be adjusted independently and their inner ends arranged to conform to any desired outline of heel plate. A clamp 20
 50 is carried by an arm 22 pivoted at 24 to the plate 6. The path of said clamp is in line with the support for the heel lifts and such that it may be brought downwardly upon said lifts in a symmetrical relation thereto
 55 to press them firmly together.

The plate 6 is provided with a vertical driver passage 26 arranged in line with the center of the lift-receiving space above referred to. It will be understood that a plu-
 60 rality of driver passages may be employed if it is desired to insert a plurality of nails in a heel blank. A driver rod 28 is arranged to move in said driver passage and supports upon its upper end the nail which
 65 is to be inserted in the lifts. A shoulder 29

upon said rod may serve as a stop to limit its upward movement. The nails which are employed may conveniently be manually supplied to the driver passage 26. The upper
 70 end of the driver passage 26 is in the plane of the bottom of the central lift-receiving space above referred to.

Pivoted intermediate its ends upon the base 2 is a rocking member 30. The member 30 is actuated in one direction by a treadle
 75 32 which is pivoted upon a supporting member 34 and is provided at its forward end with a pin 36 entering an inclined slot 38 in one end of the rocking member 30. The other end of said rocking member 30 is con-
 80 nected to the arm 22. The connecting means shown comprises a frame formed by a vertical bar 40 which is pivotally connected at its lower end to the rocking member 30 and to the upper end of which is pivotally con-
 85 nected a laterally extending member 42. Said member 42 has pivotally connected to its front end a member 44 adjustably secured to the bar 40 as by means of set screws
 90 46 passing through slots in member 44 and entering the bar 40. A link 48 connects the arm 42 with the arm 22. A spring 49 secured at one end to the plate 6, and at its other end to the bar 40 moves the clamp 20
 95 into inoperative position.

The driver rod 28 extends from a cross-head 50 which is provided with pins 52 entering guiding slots 54 in the plate 6. To the crosshead 50 is pivotally connected a
 100 link 56 which is arranged to be moved upwardly in the acting movement of the treadle 32. According to the arrangement shown the link 56 is provided with a slot 58 at its lower end which is entered by the pin 36
 105 above referred to. A spring 60 is provided to depress the rod 56.

It will be seen that in the acting movement of the treadle 32 the rocking member 30 will be actuated to depress the clamp 20 and the driver rod 28 will be elevated. It is
 110 desirable that clamp 20 come in contact with the top of the heel blank before the driver starts to insert a nail and the slot 58 is accordingly so proportioned that sufficient downward movement of the clamp 20 is
 115 permitted to bring the clamp in contact with the heel blank before the pin 36 engages the upper end of the slot 58.

A swinging latch 62 is pivoted to the base 2 and provided with a lug 64 which in the
 120 inward movement of said latch is brought over the adjacent end of the rocking member 30 and holds that end from upward movement. Springs 66 are provided to move said latch 62 into its effective position.
 125 When the rocking member 30 has had imparted to it approximately the limit of its acting movement the latch 62 will act to maintain the pressure imparted to the heel blank by the clamp 20. This latch 62 is
 130

released in the return movement of the treadle 32 by a tripping rod 68 pivotally connected at 70 to the rod 56 and resting upon the rocking member 30 with its acting end in proximity to the lug 64. The supporting member 34 for the treadle 32 is mounted as shown to have a rocking movement upon the base 2, the extent of this movement being limited by stops 71.

It will be seen that in the return movement of the treadle 32, the rocking member 30 being temporarily held from movement by the latch 62, the descent of the pin 36 in the slot 38 will cause said treadle to be moved forwardly and consequently the acting end of the tripping rod 68 will be forced against the lug 64 to release the latch. Until the treadle has been allowed to move to a predetermined extent in its return path the heel blank will be subjected to the pressure originally imparted to it by the clamp 20.

I prefer to provide means for raising the heel blank from the lift-receiving space at the close of the assembling operation so that the removal of said blank from the machine may be facilitated. In the machine shown two ejecting rods 72 and 74 are sustained in vertical guideways formed in the plate 6 and are arranged respectively to the rear and in front of the driver passage 36. The upper end of the ejecting rod 72 is slightly higher than that of the rod 74. The rods 72 and 74 are pivotally secured to an arm 76 pivoted at 78 to the plate 6 and held downwardly by a spring 80. The arm 76 is arranged to be raised in the return movement of the treadle 32 by a lug 82 arranged upon the arm 42. In the downward movement of the clamp 20, said lug 82 is moved beneath the arm 76 by a spring 84 secured to the rod 44. It will be seen that in the upward movement of the clamp 20 said lug 82 will raise the arm 76 and lift the heel blank into an inclined position such as that shown in Fig. 4. A cam 86 is carried by the plate 6 in position to act upon a roll 88 upon the arm 42 and move said arm to the left in Fig. 2 at approximately the end of the upward movement of the clamp 20 and thus move the lug 82 outwardly from beneath the arm 76, allowing the ejector rods 72 and 74 to return to their inoperative position.

It will be understood that in the construction shown the vertical dimension of the lift-receiving space or cavity may be varied by changing the number of plates in the blocks 12. The thickness of the clamp 20 may be similarly changed to secure the pressure desired upon the heel blank, said clamp being formed of a plurality of independently removable plates.

In the preferred mode of use of the machine shown, the parts being in the position shown in Fig. 2, and a nail having been in-

serted in the driver passage 26, the operator builds up a heel blank in the lift-receiving space formed on the base plate 8, applying paste to the lifts as they are successively superposed. When a sufficient number of lifts have been assembled to form a blank of the desired height, the outer end of the treadle 32 is depressed. In the first part of this movement of the treadle the clamp 20 descends upon the heel blank, and at approximately the point when the clamp comes in contact with the heel blank, the pin 36 upon the treadle 32 reaches the upper end of the slot 58, and the rod 56 is thereafter raised to force the nail upwardly into the heel blank. It will be understood that during this movement of the nail, the clamp descends farther to press the lifts firmly upon the support and secure together their contacting pasted faces. The nail is forced vertically through the heel blank and its point clenched on the face of the clamp 20, as shown in Fig. 4. When the clamp 20 has been forced with considerable pressure upon the heel blank, the latch 62 will act to hold said clamp from upward movement. In case the condition of the lifts renders desirable a prolonged pressure upon the heel blank, it will be obvious that the latch 62 permits this to be obtained without effort on the part of the operator. In any event, according to the normal operation of the machine, pressure is maintained upon the heel blank until the latch 62 is released which occurs in the return movement of the treadle, said movement being caused by the spring 60 when pressure on the treadle is removed. In the course of this return movement the tripping rod 68 will be moved forwardly as above described, and release the latch 62, allowing the spring 49 to restore the parts quickly to their original or inoperative position.

In the downward movement of the clamp the lug 82 is moved by spring 84 beneath the arm 76 supporting ejector rods 72 and 74, and in the return movement of said clamp said lug raises the arm 76 to lift the heel blank into an inclined position in which it may be readily removed by the operator. At the close of the upward movement of the clamp said lug 82 is moved to the rear by cam 86 and allows the ejector to descend to inoperative position.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A heel building machine, having in combination, a support provided with a heel building space arranged to permit a heel blank to be assembled therein, a clamp for pressing the elements of the blank into engagement with the support, a nail driver arranged to force a nail through said blanks, a movable device arranged for manipula-

tion by the operator, mechanism for transmitting to the clamp force applied to said device by the operator and for thereafter actuating the nail driver, and means for locking the clamp in its effective position arranged to be mechanically actuated in the acting movement of said device and constructed to be mechanically thrown out of operation in the return movement of said device to its initial position.

2. In a machine of the class described, the combination with a frame and a heel support carried by the frame, of a clamp movably mounted upon the frame, a driver passage in said heel support arranged approximately perpendicular to the face of said support a driver in said passage and mechanism for actuating said clamping device including a member pivotally supported intermediate its ends upon the frame, means providing connection between the clamp and member at one side of its pivot, mechanism arranged to be actuated by the operator for imparting a rocking movement to said member, a connection between the driver and said mechanism arranged to impart movement to the driver in a direction opposite to that of the clamp and locking means constructed to automatically engage said member and secure it in effective position and arranged to be mechanically thrown out of operation to permit the return movement of said member.

3. In a machine of the class described, the combination with a support provided with a space formed to receive heel lifts, an ejector arranged to engage the lifts in said space at a plurality of points and constructed to raise said lifts into an inclined position in said space, and means for actuating said ejector.

4. In a machine of the class described, the combination with a support provided with a space formed to permit a heel blank to be built up therein and a clamp movable with relation to said support for clamping said blank, of an ejector arranged to act upon the blank in said space, means for controlling the movement of said clamp and mechanism for actuating said ejector arranged to be au-

tomatically brought into action in the return movement of the clamp.

5. In a machine of the class described, the combination with a heel support having a driver passage arranged therein approximately perpendicular to the face of the support, of a movable clamp, a driver in said passage and mechanism for actuating said clamp and driver including a member pivotally supported intermediate its ends and having an inclined cam slot on one side of the pivot, means providing connection between the clamp and the member, a treadle provided with a pin working in said cam slot and arranged to impart a locking movement to said member and means for connecting the driver and treadle arranged to impart a movement to the driver in a direction opposite to that of the clamp.

6. In a machine of the class described, the combination with a heel support, of a clamp for subjecting the heel to pressure, a treadle for actuating said clamp, a device for locking the clamp in its effective position arranged to become effective in the acting stroke of the treadle, and means actuated in the return movement of the treadle for rendering said device ineffective.

7. In a machine of the class described, the combination with a heel support provided with a driver passage, of a clamp for subjecting a heel to vertical pressure, a driver arranged for movement in said driver passage, a treadle for actuating successively said clamp and driver to clamp the heel and insert a nail therein, a device for locking the clamp in its operative position arranged to become effective in the acting stroke of the treadle, and means operating in the return stroke of the treadle for rendering said device ineffective.

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

WILLIAM PARIS.

Witnesses:

W. L. KIMBALL,
JOHN T. LEVASSEUR.