(No Model.)

3 Sheets—Sheet 1.

E. S. MANSELL.

HEEL MACHINE.

No. 262,902. Patented Aug. 15, 1882.

Fig. 1.

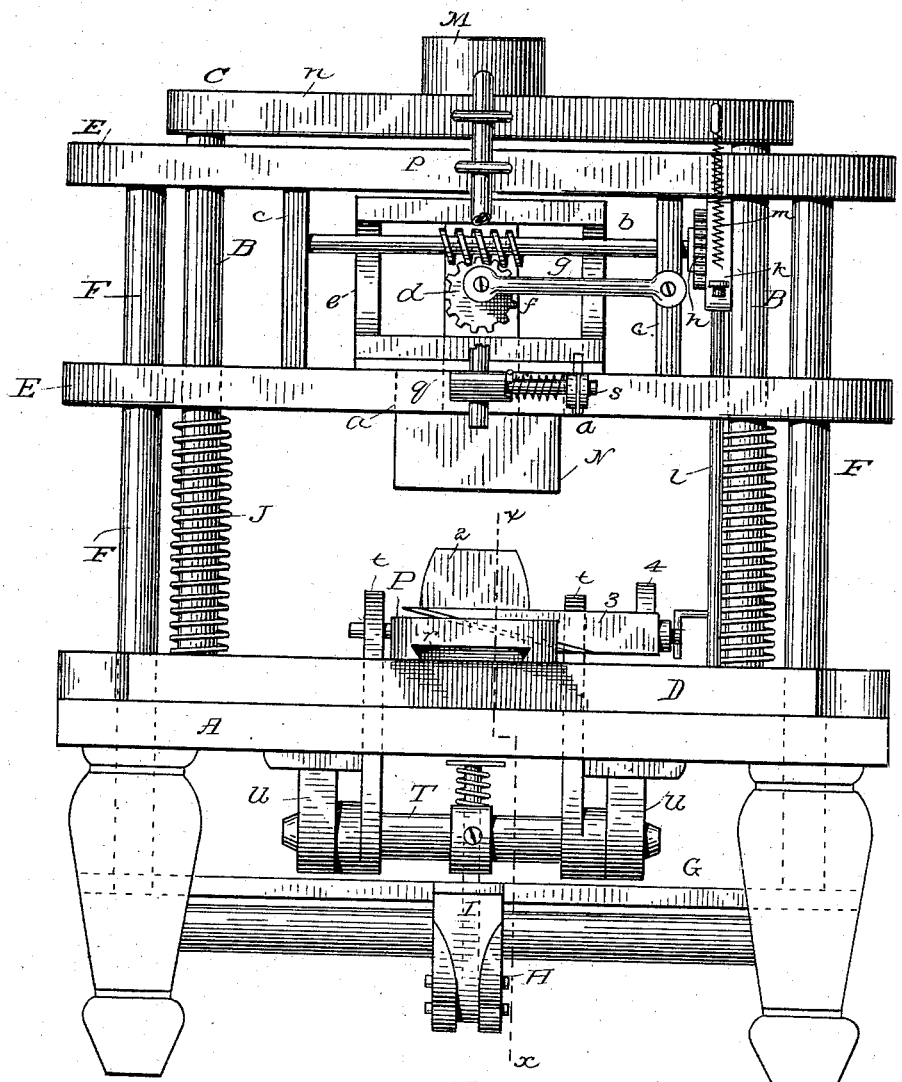
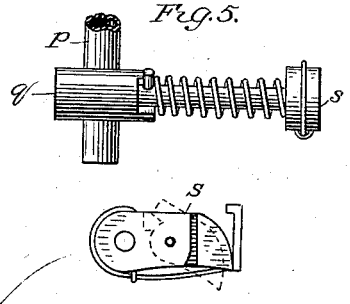


Fig. 5.



Attest:
Walter Dwaldron
L. W. Seely

Inventor
Elbridge S. Mansell.
by Ellis Spear
Atty.

(No Model.) 3 Sheets—Sheet 2.

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Fig. 2.

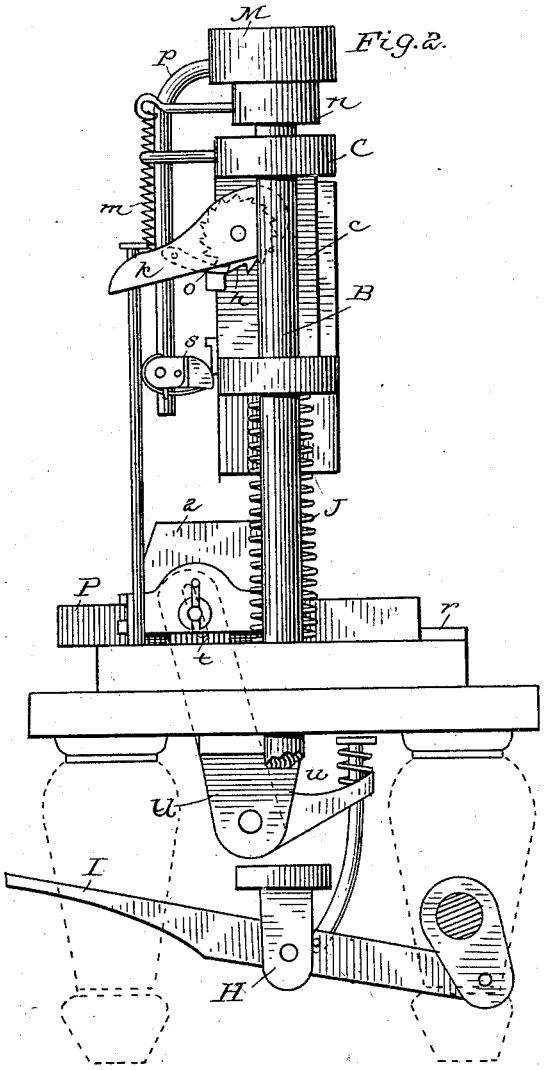
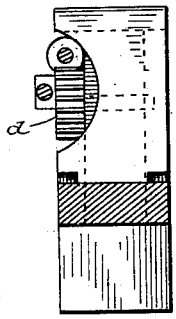


Fig. 6.



Attest:
Walter Donaldson
L. W. Seavy

Inventor
Elbridge S. Mansell,
by Elbridge Spear
Atty.

(No Model.)

3 Sheets—Sheet 3.

E. S. MANSELL.

HEEL MACHINE.

No. 262,902. Patented Aug. 15, 1882.

Fig. 3.

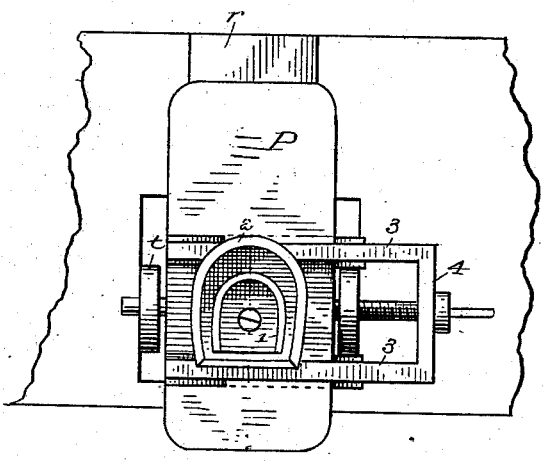


Fig. 4.

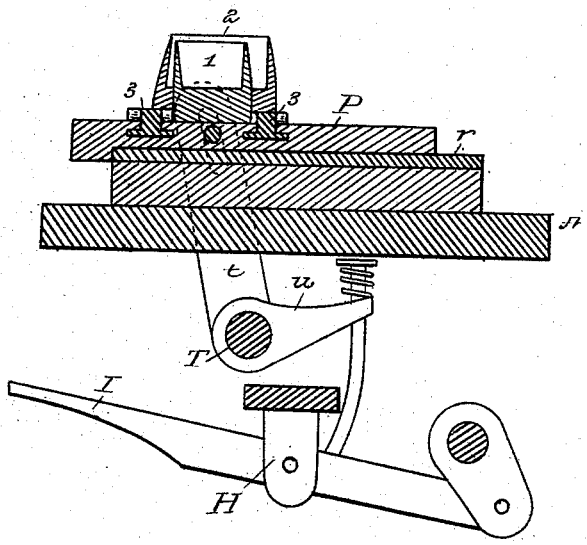
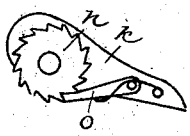


Fig. 7.



Attest
Wm. A. Gualdron
L. N. Lemay

Inventor
Elbridge S. Mansell.
by Ellis Spear
Atty.

UNITED STATES PATENT OFFICE.

ELBRIDGE S. MANSELL, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GEORGE O. TARBOX, OF SAME PLACE.

HEEL-MACHINE.

SPECIFICATION forming part of Letters Patent No. 262,902, dated August 15, 1882.

Application filed August 11, 1881. (No model.)

To all whom it may concern:

Be it known that I, ELBRIDGE S. MANSELL, of Lynn, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Heel-Making Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to that class of heel-making machines in which a block, by vertical reciprocation, operates in conjunction with a die for cutting out lifts.

The object of my invention is, first, to provide, in combination with such a machine, a device for applying an adhesive material between the contiguous lifts, whereby said lifts are caused to adhere to each other, and the blank is formed compactly throughout without the use of nails as preliminary holding devices.

In the second place, my object is to provide means whereby the die is moved forward when the block rises, in order conveniently to receive the piece of leather from which the lift is to be cut and then to move backward to receive the pressure of the block, thus avoiding any danger of cutting the fingers of the operator.

The third object is to provide simple and convenient means for giving the block lateral movement, so that the whole surface may be presented equally to the action of the cutting-dies and uniform wear be obtained.

These objects I accomplish by mechanism shown in the accompanying drawings, in which—

Figure 1 represents a front elevation of the machine, and Fig. 2 a like view of one side. Fig. 3 is a top view of a part of the table, with the block carrying the dies. Fig. 4 is a section on line *x x* of Fig. 1. Figs. 5, 6, and 7 represent details.

In these drawings the bed-plate is represented at A, with standards B B and cross-bar C, constituting the frame-work of the machine, which is arranged in an upright position in a suitable table or bench-board, D, as shown in Fig. 1. Within the main frame is a rectangular frame, E, said frame being arranged to reciprocate vertically upon standards B, which pass through the upper and lower bars thereof. The frame E is provided with rods F, fixed in the ends of the frame and passing vertically down through holes in the table-bed. They are connected at their lower ends by a cross-bar, G, which in turn is connected by a suitable link, H, to the treadle-arm I, whereby the frame E may be depressed by pressure of the foot, or the frame may be depressed by any suitable power applied by a crank. The frame E is pushed upward by means of springs J, placed upon the standards B, said springs acting constantly to press the frame up, and with it the block N, held to the under side of the lower bar of the frame by means hereinafter described. Within the frame E is a smaller frame, *e*, adapted to slide longitudinally in the larger on splines, which move between guides in the upper and lower bars of the larger frame. In this smaller frame is set the shank of the block N, being held firmly therein. The lower bar of the frame E is slotted, as shown at *a* in dotted lines, the shank passing through this slot and permitting longitudinal movement of frame *e*, shank, and block in relation to the larger frame. This is for the purpose of shifting the face of the block in relation to the cutting-die.

In order to give slow backward and forward movement to the block, I provide a shaft, *b*, having its bearings in the uprights *c c* of the frame E. It is provided with a worm at the central part, which meshes into a pinion, *d*, the pinion *d* being pivoted upon the shank. A wrist-pin, *f*, is set eccentrically in the face of this pinion and connected by a link and pin, *g*, to one of the uprights *c*. As the pinion is turned by the worm it carries the frame *e*, and with it the block, very slowly backward and forward. The worm-shaft is turned by means of a pawl and ratchet at the end. The ratchet-wheel *h* is fixed on the end of the shaft, and upon the same shaft is pivoted an arm, *k*, the outer end of which is pivoted upon a supporting-rod, *l*, being conveniently held up by a spring, *m*. A spring-pawl, *o*, is pivoted upon this arm, and engages with the ratchet-wheel.

The parts are so adjusted that when the frame E descends, carrying with it the pivoted end of the lever *k*, it draws the pawl over one tooth, and as it rises it carries up the pivoted end of the arm and causes the pawl to turn the ratchet-wheel.

The paste-supplying devices, as herein shown, consist of a paste pot or vessel, M, set upon the cross-bar *n*. From this a paste-tube, *p*, extends downward in line with the cutting-die. Near the lower end is a cock, *q*, the stem of which projects laterally, and is provided with a tripping-arm, *s*. The tripping-arm has a pivoted latch in the end, which, as the frame E is depressed, rides over a stud on said frame, but is turned by said stud when the frame rises, thus opening the cock and letting a drop of the adhesive material fall from the tube. When the cutting-dies for the lifts are moved from under the cutting-block the lift last cut out and packed in the die is brought under the pasting apparatus. The cutting dies or cutters are mounted on a movable plate, P, which moves from front to rear upon a guide-rail, *r*. It is caused to reciprocate by means of arms *t t*, fixed upon the rock-shaft T, mounted in hangers U beneath the table. Another fixed arm on this shaft extends horizontally, and through a hole in its end passes a rod connecting the arm to the treadle-lever. The connection of the rod with the arm *u* is made by means of a button and spring interposed between the button and upper side of the arm.

The arms *t t* are slotted at their upper ends to receive pins fixed in the plate P. Depression of the treadle moves the plate backward, and it is moved forward by means of the springs J, through the connections, as described. The spring between the button and the arm *u* is for the purpose of allowing movement of the frame, which brings down the block after the plate P has reached the limit of its movement, and thus brought the cutting-die into place. The limit of its movement to the rear is determined by the length of the slots in which the arms *t t* move, and after they have reached their limit of movement to the rear further motion of the treadle completes the movement of the block N.

It will be understood that the movements described are so timed that the plate P, carrying the block in its forward movement, passes under the paste-tube at the instant when the cock is opened (the cock being opened but for an instant) to allow the paste to escape. The plate P is moved far enough to the front from under the block, as before stated, to allow the operator to place the leather upon the die, and then the plate is moved back to its place beneath the block, which, as it descends, presses the leather upon the die, which cuts the leather into the shape demanded by the die, the leather being forced into the die.

In order to form what are known in the trade as "deck-heels" it is necessary to provide cutting-dies of two sizes, and this requires also that the relative positions of the cutting-dies should be changed, so that first the edge of the inner and then the edge of the outer shall be the higher. To effect this I set the inner and smaller cutting-die fixedly in the plate P and make the outer die vertically adjustable thereto. The smaller die is shown at 1. The outer die is formed with a bottom cut with an opening adapted to fit accurately over the parallel sides of the inner die. The outer die is marked 2. It rests on the horizontal faces of two wedges which work in guideways across the block P. These wedges are so adjusted that when thrown back they lower the outer die until its edge is a little below the edge of the inner. When the wedges are pushed forward they raise the outer die until the position of the edges is reversed, those of the outer die being a little above the edges of the inner. The two wedges marked 3 3 are connected by a cross-piece, 4, through which a screw passes, having its inner end, which is threaded, passing into a threaded hole in the plate P. The part which passes through the cross-piece 4 is provided with collars, by means of which, when it is turned in or out, it carries the cross-piece forward or back, and thus advances or retracts the wedges. Any suitable means may be used instead of the screw for moving the wedges back and forth. The pressure spreads the adhesive material between the lifts and causes it to adhere throughout the whole surface—a compact and solid heel-blank.

I do not desire to limit my invention to the precise mechanism herein shown for applying paste to each lift to enable the series of lifts to be held together by paste instead of nails; nor do I desire to limit my invention to the employment of wedges as the adjusting mechanism by which the relative vertical position of the outer and inner cutting-die is changed, so that the edge of one may be thrown to a position above the other and be held there, instead of being removed.

The cutting-die used may be of any usual shape, and the leather or material placed between the block and die will always be cut into a shape corresponding with the shape of the die.

Having thus described my invention, what I claim is—

1. In a machine for cutting lifts and forming heel-blanks, a cutting-die and block, whereby the lifts are cut and pressed into the die, and mechanically-operating pasting devices adapted to supply paste or adhesive material to each of the said lifts as cut, the parts specified being connected with operating mechanism in the machine, substantially as described.

2. In a machine for cutting lifts and forming heel-blanks, a vertically-reciprocating block, a paste-tube arranged on the frame by the side of the same, a cutting-die adapted to reciprocate across the line of movement of the block and into line with the paste-tube, the whole being combined with the actuating mechanism, substantially as described.

3. The combination of the block N, carried upon the vertically-reciprocated frame, a treadle and intermediate connections for depressing and raising the same, a plate, P, carrying the cutting-die, movable upon the guideway, and arms *t t* upon the rock-shaft, connected to the treadle, whereby the plate is made to

reciprocate from front to rear as the block rises and falls, substantially as described.

4. The combination, in the described machine, of the vertically-reciprocating block, the horizontally-reciprocating plate carrying the cutting-die, a paste-holding vessel, and a tube separate from the block and provided with a stop-cock worked by a trip-arm as the frame carrying the block reciprocates vertically, all substantially as shown.

5. The combination of the block and movable frame *e*, with the worm-gear and pinion, and the pawl and ratchet adapted to turn said worm-gear as the frame rises and falls, substantially as described.

6. The combination, in the described machine, of a vertically-reciprocating frame carrying the block, the block adapted to move back and forth across the line of its vertical movement on the said frame, and a gearing, substantially as described, connecting said movable block to the driving mechanism, whereby the block is shifted in position in relation to the cutting-die, substantially as described.

7. The inner and outer cutting-dies, in combination with mechanism, substantially as described, for lowering or raising the movable die to bring its cutting-edge below or above the edge of the fixed die, and for holding it in raised or operative position, the parts operating in the machine, substantially as described.

8. The horizontally-movable plate and the vertically-adjustable cutting-dies, combined with means, substantially as described, for such adjustment, whereby one die may have its cutting-edge elevated above the cutting-edge of the other die, substantially as and for the purpose set forth.

9. The inner cutting-die and the outer cutting-die, combined with a wedge to adjust one die with relation to the other, substantially as described.

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

E. S. MANSELL.

Witnesses:
C. P. LEACH,
C. B. TUTTLE.