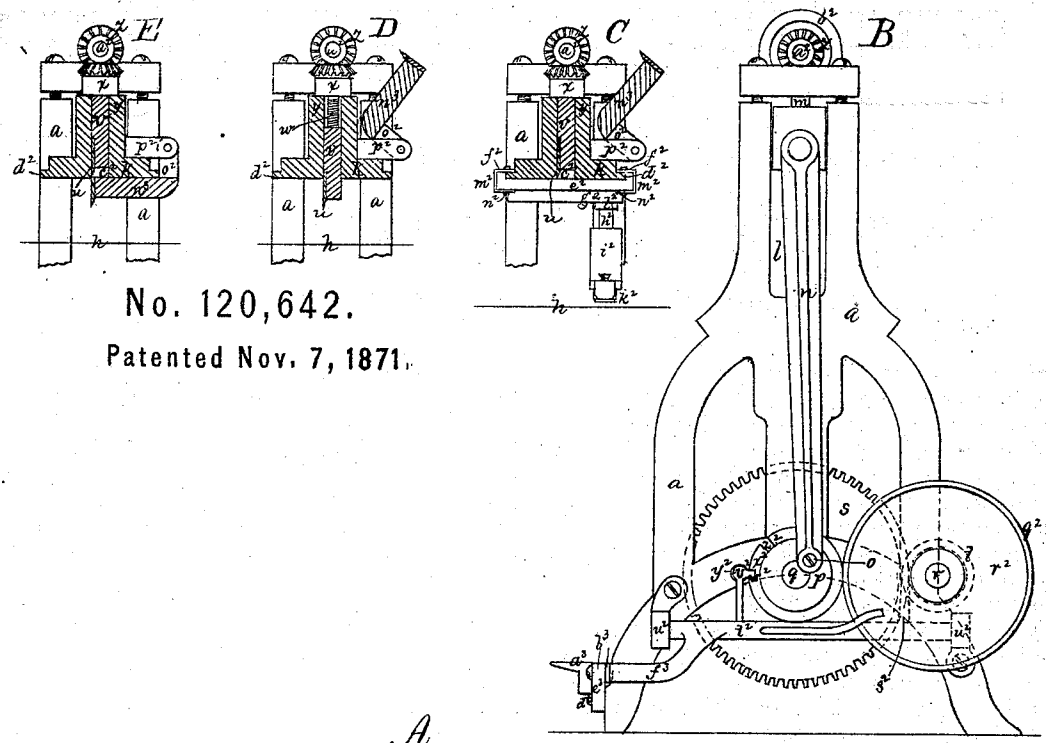
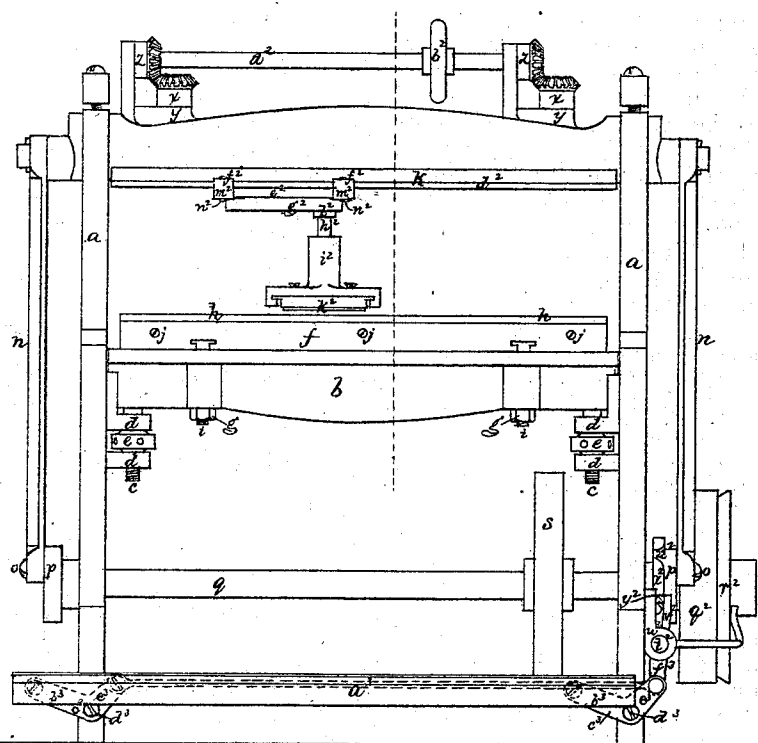


**L. D. HAWKINS.**  
**Improvement in Cutting up and Punching Sole Leather.**



No. 120,642.  
 Patented Nov. 7, 1871.

*A*



*Witnesses.*  
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# UNITED STATES PATENT OFFICE.

LORENZO D. HAWKINS, OF STONEHAM, MASSACHUSETTS.

## IMPROVEMENT IN CUTTING UP AND PUNCHING SOLE-LEATHER.

Specification forming part of Letters Patent No. 120,642, dated November 7, 1871.

*To all whom it may concern:*

Be it known that I, LORENZO D. HAWKINS, of Stoneham, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Cutting Up and Punching Leather Stock; 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.

My invention relates to the construction of a machine for stripping or cutting up sole-leather and for punching out soles from strips or sides of leather; the invention consisting in the method of effecting the adjustment of the bed or cutter-block as to height and lateral position; in the provision for stopping the platen or follower after each action of the knife or punch; in the arrangement of the stripper or straight cutter so that it may be drawn up into the platen or follower, or may be made to project therefrom; in the method of applying the punch-slide to the follower and the punch to the slide; and in the employment of a swinging stripper-knife, which may be thrown down under the platen or back and up therefrom; and in other details of construction or arrangement.

The drawing represents a machine embodying my invention.

A shows the machine in front elevation. B is a side elevation thereof. C is a cross-section, showing the punch in end view. D is a similar cross-section, showing the stripper-knife projecting below the follower. E is a similar cross-section, showing the swinging stripper-knife in position to cut, said knife being shown at C and D as swung out of position. *a* denotes the frame of the machine; *b*, a bar or beam extending between the two uprights of the frame *a*, and having under each end a vertical screw-pin, *c*, which passes through two ears, *d*, projecting from the inner side of the adjacent upright, a nut, *e*, working upon the screw between the ears, the nut having a bearing against the adjacent upper and under surfaces of the two ears. By simultaneously turning the two nuts *e* in the same direction the bar or beam *b* is raised or lowered to raise or lower the bed-frame resting upon this bar. This bed-frame is shown at *f*. It is fastened to the top of the bar *b* by suitable screws, *i*, the heads of which work in T-slots in the under side of the bed-frame, the screws passing through the beam *b* and being

drawn down by nuts *g*. In the top of the bed-frame *f* is the cutting-block *h*, formed of wood, and having an upper surface upon which the leather is placed and against which the knife or punch acts. The frame *f* may be adjusted in position or removed by loosening the nuts *g*; and the block *h* may be removed from the frame *f* by loosening the screws *j*. The top or cutting-face of the block is adjusted in height for the stroke of the cutter or punch by the nuts *e*. Over the cutting-block *h* is the vertically-reciprocating platen or follower *k*, the opposite ends of which pass through slots *l* in the opposite uprights of the frame *a*, and slide on rods *m*. Links *n* connect the opposite ends of the follower to crank-pins *o*, extending from wheels *p* on the opposite ends of a shaft, *q*, driven from the driving-shaft *r* by gears *s t*. *u* denotes the stripper-knife, for cutting up the stock into straight strips, from which strips the soles are to be cut by the punch or die. This knife is shown as confined in a stock, *v*, hung upon two vertical screws, *w*, (the screw-threads of which work in nut-threads in the cutter-stock,) the screws having on their upper ends bevel-wheels *x*, (resting upon bosses *y* at the top of the follower,) said wheels meshing into and being driven by bevel-gears *z* on a horizontal shaft, *a*<sup>2</sup>, journaled in suitable bearings and having a hand-wheel, *b*<sup>2</sup>, by means of which the shaft is rotated and the knife raised or lowered. The knife-stock is placed in a slot or recess, *c*<sup>2</sup>, in the under part of the follower, and when the stock is raised the knife withdraws into the slot, while, when the stock is lowered, the knife-edge projects down beyond the lower face of the follower and is in position to cut, the cutting-block *h* being first brought up by the screws *c* so that the down-stroke of the knife, effected by the links *n*, will bring the edge down to the face of the block *h*. When the knife is drawn back into the platen or follower the face of the latter is ready for the application thereto of the punch-carrier or slide, for which application the follower is formed with holding and guiding edge-flanges *d*<sup>2</sup>. The punch-carrier or slide *e*<sup>2</sup> has lips *f*<sup>2</sup> extending over and hanging and sliding upon these flanges *d*<sup>2</sup>; and on the under side of this slide is a wheel or rotary disk, *g*<sup>2</sup>, having extending from it a stem, *h*<sup>2</sup>, upon which is hung the punch-stock *i*<sup>2</sup>, having fastened upon its under side the punch *k*<sup>2</sup>. The punch-stock slides freely (vertically) upon the stem *h*<sup>2</sup>, and is not

pressed against the leather until a shoulder,  $t^2$ , on the stem, as the platen descends, strikes the top of the punch-stock, the punch, during part of the previous descent, resting loosely upon the leather, but in such manner that it (the leather) can be freely moved under the punch to bring it into proper position for the action of the punch. The punch-stock turning freely on the stem, the disk-wheel rotates freely on its axis, and the slide moves freely on the guide-flanges  $d^2$ , and, by these provisions for movement of the punch, it can be readily brought over any part of the cutter-block. The lips  $f^2$ , by which the slide is hung to the platen or follower-flanges, are the top plates of swiveling hangers or hooks,  $m^2$ , turning on corner-pins  $n^2$ , and by swinging these hangers outward their hold upon the flanges  $d^2$  is removed, and the punch mechanism may then be taken off for the action of the stripper-knife or straight cutter.

Instead of the vertically-adjustable cutter or knife, (protruding from or retreating within the platen or follower, as described,) the cutter may be attached to a bar or stock,  $n^3$ , having ears  $o^2$  pivoted to ears  $p^2$  on top of the follower, as seen at C, D, and E, this stock being thrown up, as seen at C and D, when the punch is in position, and being thrown under the follower, as seen at E, when the punch mechanism is removed and the stripper-cutter is to operate. This swinging cutter may be used in place of the cutter-stock  $v$ ; or the machine may be provided with each.

The machine is to be driven by power, the driving-belt running upon a fast and loose pulley,  $q^2$ . It is essential that but one blow of the knife or punch should be given at one turn, or before readjustment of the knife or punch or stock for another operation. To insure this result I connect the pulley by an unclutching mechanism, which automatically operates to disengage it from the driving-shaft after each blow is effected, this mechanism being as follows:  $r^2$  denotes a pulley fast on the driving-shaft, and having a conical inner face fitting into a conversely-shaped recess in the adjacent face of the fast and loose pulley  $q^2$ . On the inner side of the pulley  $q^2$  is a hub having a groove, into which the points of a shipper-fork,  $s^2$ , extend, this fork being on the end of a rocker-shaft,  $t^2$ , turning in bearings  $u^2$ , and having an arm,  $v^2$ , from which a finger,  $w^2$ , extends, this arm being drawn against a flange,  $x^2$ , on the crank-wheel  $p$  by a spring,  $y^2$ . At one point in this flange there is a break or slot,  $z^2$ , and when this slot, in the rotation of the crank-wheel, and after the action of the punch or knife, is brought opposite to the finger  $w^2$ , the spring draws in said finger, which turns the shaft  $t^2$  and causes the clutch-fork to throw back the pulley  $q^2$  and disengage its friction surface from the driving-wheel or cone  $r^2$ , thereby stopping further action of the knife or punch.

To throw the machine into operation again, a pedal-board,  $a^3$ , may be connected to arms  $b^3$  of levers  $c^3$ , (pivoted at  $d^3$ ,) the other arms  $e^3$  of said levers being pivoted or connected to an arm,  $f^3$ ,

extending down from the rocker-shaft. Depression of the pedal-board turns the shaft  $t^2$ , throws the finger  $w^2$  out from the slot or recess  $z^2$ , and causes the clutch-fork to drive the pulley  $q^2$  against the pulley or cone  $r^2$ , when the shaft  $q$  will again be rotated and the follower  $k$  thereby operated, the pedal enabling the operator, while holding the leather in any position along the cutter-block, to put the machine into operation without dropping or releasing the leather, and without moving from his position anywhere along the front of the machine.

I claim—

1. In combination with the vertically-reciprocating platen or follower  $k$  for imparting a positive movement to the stripper-knife, the cutter-block  $h$ , having provision for vertical adjustment at its opposite ends, substantially as described.

2. In combination with the bed  $f$  and follower  $k$ , the mechanism for stripping and the mechanism for punching, when both are arranged upon the follower to permit either to be brought into or out of action at will, either to cut the leather into strips or to punch soles or other blanks therefrom, substantially as described.

3. The stripper-knife and stock  $u v$ , combined with screws  $w$ , shaft  $a^2$ , and gears  $z a$ , to effect the retreat of the knife into the follower or its projection therefrom, substantially as shown and described.

4. The stripper-knife arm  $n^3$  arranged upon the follower, as shown and described, to permit it to be swung down under the follower into position to cut, and up over the follower and out of position, as set forth.

5. The punch-slide  $e^2$ , arranged to slide upon the ways or flanges  $d^2$  of the follower, substantially as described.

6. The punch-slide  $e^2$ , made with the hangers  $m^2$  arranged to be swung on pins, substantially as and for the purpose described.

7. The rotary punch-disk or wheel  $g^2$ , connected with and carried by the slide, and having connected to and rotating with it the punch-stem  $h^2$ , substantially as shown and described.

8. The punch-stock  $v^2$  sliding vertically upon the stem  $h^2$ , substantially as described.

9. In combination with the vertically-reciprocating punching or stripping mechanism, the described automatic stop mechanism, operated by the finger  $w^2$  when drawn into slot  $z^2$  in the flange, substantially as set forth.

10. In combination with the described stop mechanism, the mechanism for bringing the cutting or punching mechanism into action, consisting of the pedal-board  $a^3$ , levers  $c^3$ , and arm  $f$  on rock-shaft  $t^2$ , substantially as shown and described.

11. The bed or bed-frame  $f$  secured to the beam by the screws  $i$ , which permit of lateral adjustment and removal of the bed, substantially as described.

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Witnesses:

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