(No Model.) 2 Sheets—Sheet 1.

C. W. GLIDDEN.

HEELING MACHINE.

No. 377,301. Patented Jan. 31, 1888.

Fig: 2.

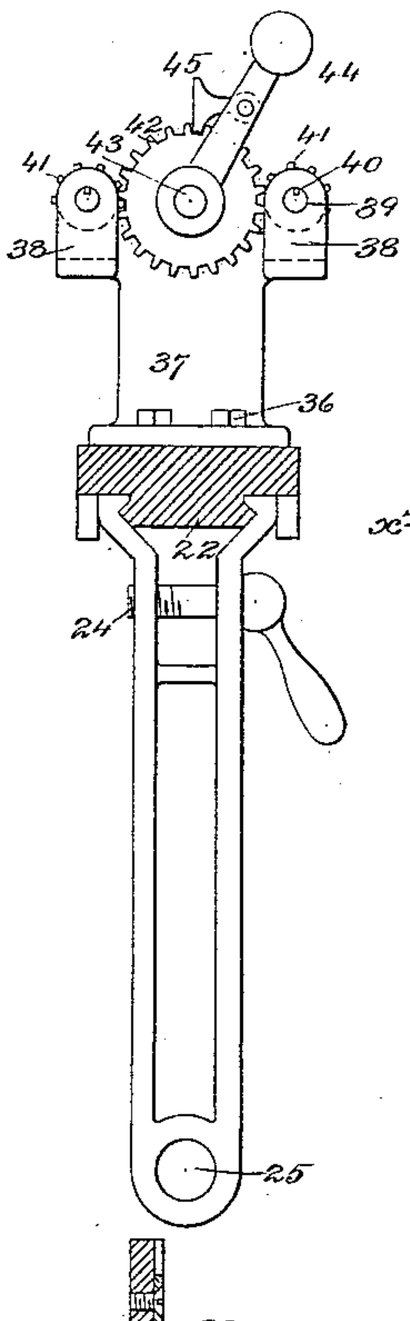


Fig: 1.

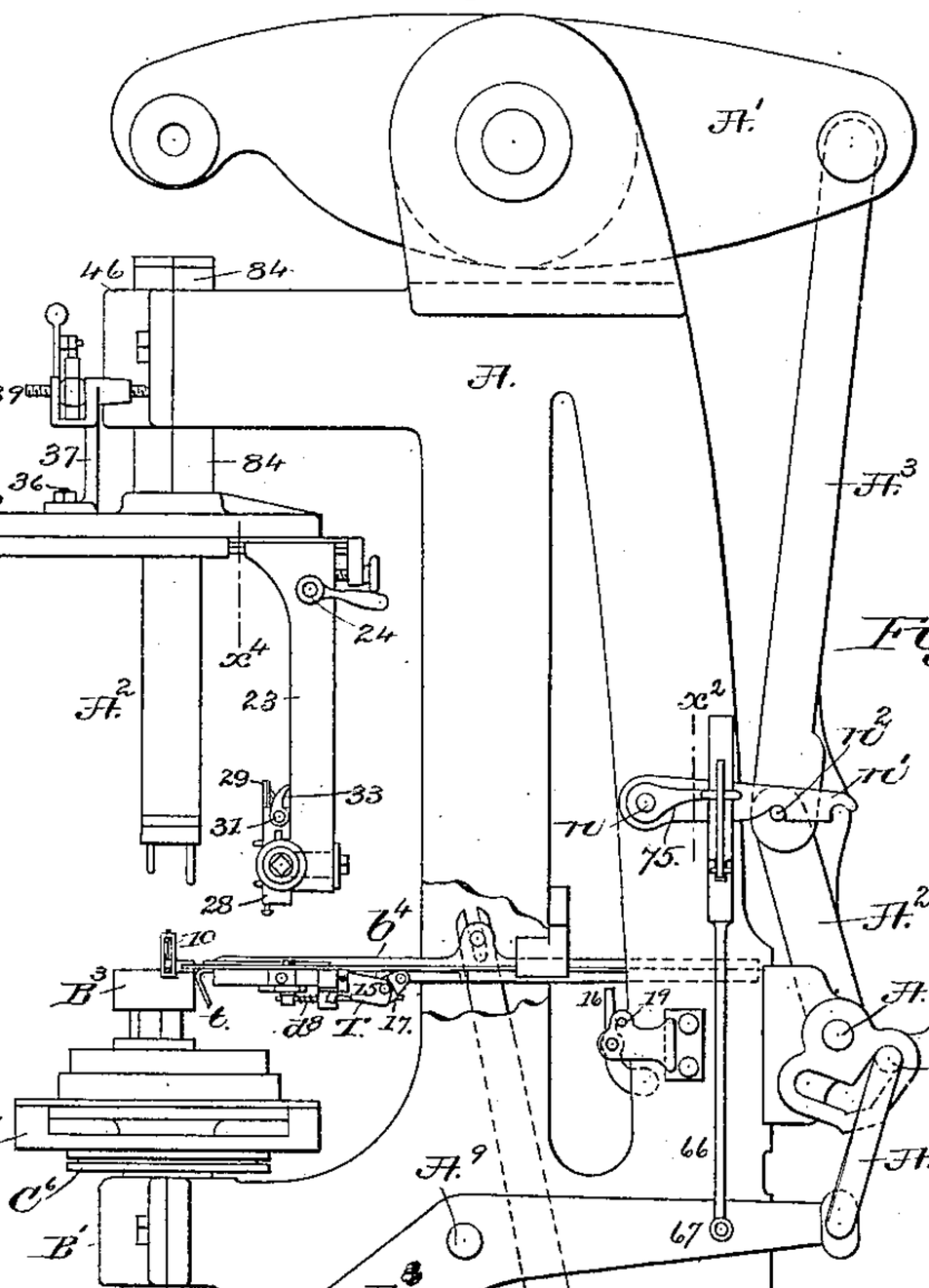


Fig: 4.

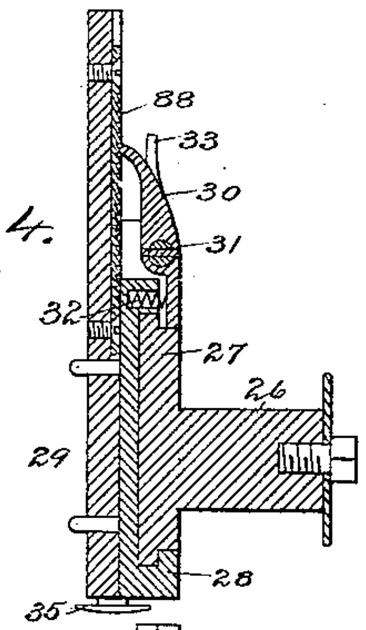


Fig: 3.

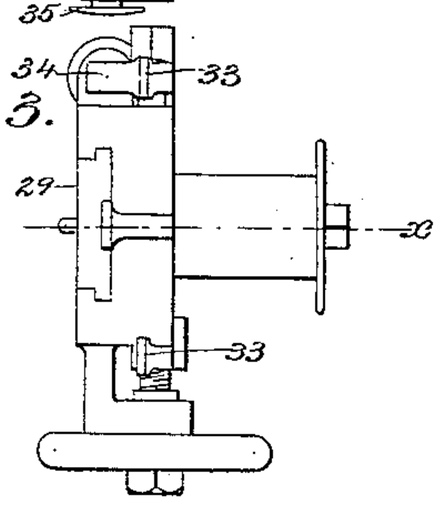


Fig: 5.

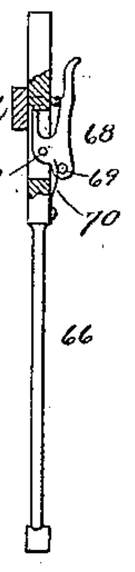
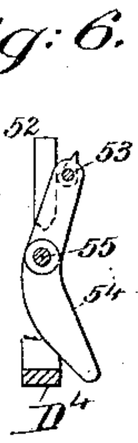


Fig: 6.



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(No Model.) 2 Sheets—Sheet 2.

C. W. GLIDDEN.

HEELING MACHINE.

No. 377,301. Patented Jan. 31, 1888.

Fig: 7.

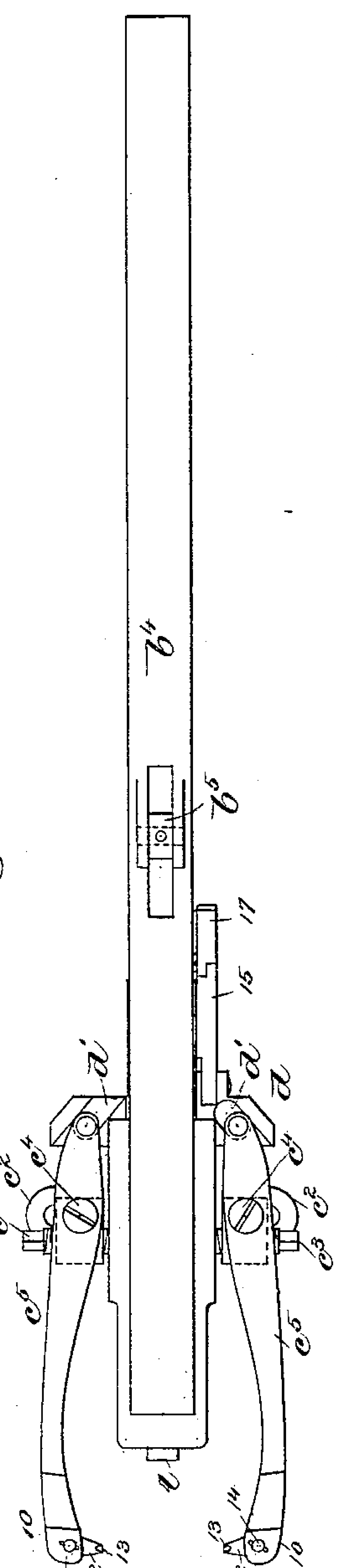
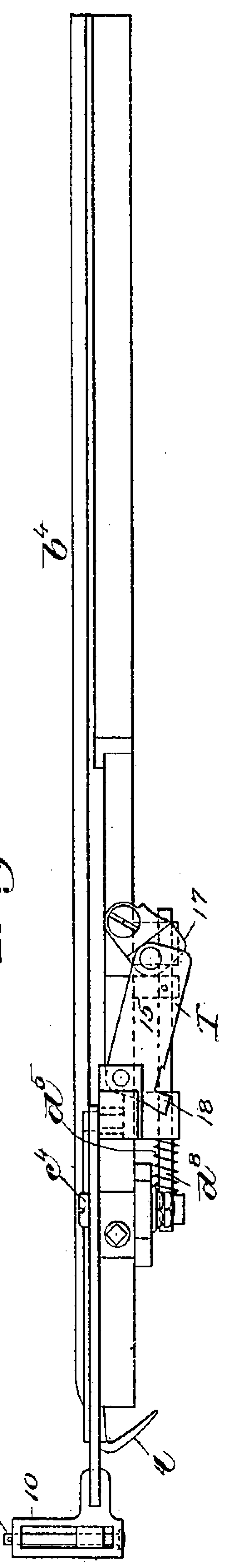


Fig: 8.



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UNITED STATES PATENT OFFICE.

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HEELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 377,301, dated January 31, 1888.

Application filed October 21, 1887. Serial No. 252,992. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. GLIDDEN, of Lynn, county of Essex, and State of Massachusetts, have invented an Improvement in Heeling-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 is an improvement upon the machine described in application Serial No. 205,991, filed June 23, 1886, and has for its object to improve the jaws for grasping and carrying ordinary top lifts; also, to provide improved means for adjusting the last and its holding slide or support to provide for right or left heels; also, in a locking mechanism cooperating with the starting-treadle to prevent the starting of the lever other than at the proper time, and also in a safety mechanism whereby the lever attached to the toggle of the die-bed spindle is prevented from being actuated to lift the die-bed spindle except at the proper times.

Figure 1 in side elevation shows a sufficient portion of a heeling-machine which, taken in connection with the machine described in my said application, will enable my invention to be understood; Fig. 2, an enlarged sectional detail of part of the front of the machine, chiefly to show the devices for supporting the last, the section being in the irregular dotted line x^4, Fig. 1. Fig. 3 is a top or plan view, enlarged, of the counter-clamp holder removed. Fig. 4 is a section of Fig. 3 in the dotted line x. Fig. 5 is a detail of the latch-operating device removed from Fig. 1, as indicated by line x^2. Fig. 6 is a sectional detail immediately at the left of the dotted line x', Fig. 1; and Figs. 7 and 8 are respectively a top view and a side elevation of the slide-bar and its attached top-lift-carrying jaws and the carriage to open and close them, the said parts being enlarged.

Referring to the drawings, the frame-work A, the walking-beam A′, the links A^3 A^2, constituting a toggle-lever for moving the said walking-beam, the rock-shaft A^5, to which the link A^2 is secured, the die-bed spindle B, the rod w, nut w^4, spring w^2, guide w', lever A^8, pivoted at A^9, and link A^7, the sprocket-wheel C^6, loose on the upper end of the die-bed spindle, the attached trimmer-lever C^7, the nail-box B^3, the toggle-lever D, jointed to the die-bed spindle, the lever D^4, jointed to the toggle-lever D at D^3 and having the shoulder 50, the rotating crank-shaft D^6, the starting-treadle F, pivoted at F′ and employed to lift the lever D^4, the slide-bar b^4, the cam-carriage d, provided with inclined grooves d', the cross-piece c^2, the fulcrum-studs c^4, the adjusting-screws c^3, the jaws or levers c^5, the rod d^8, the spring surrounding it, the auxiliary slide-bar t, the lever b', forked at its upper end to embrace the block b^5, pivoted loosely on the slide-bar b^4, and the shaft 4 and its attached carrier 7, to operate the said lever b', are all substantially as in my said application, wherein like parts are designated by the like letters; so the said devices need not be especially herein further described.

The jaws or devices c^5, instrumental in seizing the top lift, as described in the said application, they taking the top lifts preferably from a hopper and carrying them forward into position above the nail-box B^3 and then releasing the top lift, are herein provided at their outer ends, as shown best in Figs. 7 and 8, with slotted ears 10, which receive each loosely a dog, as 12, preferably notched at its inner end to engage the edge of the top lift to be carried by it, the said dogs, as herein shown, being each held loosely to the said ears by means of a pin, 14, the dogs being free to slide up and down to a limited extent in the slits of the ears or upon the said pins, thus enabling the said dogs to rise and hold the top lift while the usual top-lift plate (not shown) of the nail-box attached to the rising die-bed spindle is acting to force the top lift in usual manner upon the protruding heads of the partially-driven nails.

Herein the cross-piece c^2 and the carriage d, connected by the toggle-link T, are kept separated at the desired distance by the spring d^5 on the rod d^8, as in the said application Serial No. 205,991. The toggle-link T takes the place of the latch 203 shown and described in the said application.

During the backward movement of the slide-bar b^4, the toggle-link T being broken, or as in Figs. 1 and 8, and the front ends of the jaws being closed, the short member 17 (see Fig. 8)

of the said toggle-jointed link meets the dog 16, which serves to straighten the link and open the jaws c^5 for the reception of a top lift, and immediately thereafter the lug 18, forming part of the longer member, 15, of the said toggle-jointed link, meets the dog 16, which serves to break the joint of the said link and enable the spring d^5 to again act and move the carriage to close the jaws upon the top lift.

The dog 16 is so constructed and pivoted that as the slide-bar b^4 is again moved forward the dog 16 is free to tip, but when the said slide-bar is drawn back the dog, by contact with a pin, 19, (see Fig. 1,) is prevented from tipping, and stands in upright position to perform work.

The lower end of the spindle 84 supports, as usual, the shoe 20, in which slides the foot of the last-holding spindle A^2, the said shoe at its rear end having a downward projection, as 22, provided with V-shaped edges, which are grasped between the upper split end (see Fig. 2) of the bracket 23, which receives at its lower end the block or holder on which is mounted, in usual manner, the heel-clamp. (Not shown.) The bracket 23 is clamped to the said projection 22 by a clamp-screw, 24, and at its lower end the said bracket has a hole, 25, to receive the hub 26 of the block or holder 27, provided at bottom and top (see Fig. 4) with projections constituting guideways, on which is made adjustable the cross-slide 28, the said cross-slide having a vertical recess in it for the reception of the vertically-movable slide 29, to which in practice the counter-clamp is attached in usual manner.

The rear side of the slide 29 (see Fig. 4) is provided with a series of ratchet-teeth, 88, which are engaged by a pawl, 30, attached to a rock-shaft, 31, mounted in bearings of the cross-slide 28, a spring, 32, normally acting to keep the end of the pawl in engagement with the said ratchet-teeth and prevent the descent of the slide 29, but permitting it to freely ascend more or less as the shoe is carried up by the action of the nail-box B^3 on the heel, the said pawl holding it in elevated position while the nail-box descends.

The rock-shaft 31 is in practice provided at each end with a thumb-piece, as 33, by which the operator may, when desired, release the pawl from the ratchet-teeth with either hand. One or both of the thumb-pieces may be provided with a projection, as 34, which may be acted upon to disengage the said pawl by a thumb-piece, 35, adapted to slide vertically in a hole in the cross-slide 27. The shoe 20 has secured to it by bolts 36 a stand, 37, having bearing-stands 38, which receive screws 39, the said screws being connected to the said bearing-stands by a stud or pin, 40, to restrain the rotation of the screw, yet permit it to move longitudinally with relation to the bearing-stand. These screws 39 receive each a toothed gear, 41, having an internal thread to fit the said screws.

The gears 41 are engaged by a master-gear, 42, running loose on a stud, 43, the said stud also receiving upon it a pawl-lever, 44, provided with a reversible pawl, 45, by which to turn the said master-gear in one or the opposite direction, as desired, rotation of the master-gear simultaneously and equally rotating the two gears 41 and screws 39, causing them to be moved in unison.

When the ends of the two screws 39 bear against the cap 46, they lock the shoe 20 in position for heeling shoes which are not rights and lefts; but when rights and lefts are to be heeled a certain limited oscillation is required for the shoe 20, and this is provided for by turning the screws 39 so as to leave more or less space between their inner ends and the cap 46.

In the operation of the machine herein shown and of that described in the said application it sometimes happens that some person other than the operator having charge of the machine puts pressure upon the treadle F or seizes the lever D^4 at its outer or right-hand end and lifts the same to bring the shoulder 50 within the range of the crank D^6 at the wrong time, which results in breaking or smashing the machine.

The lever D^4 herein shown will in practice be operated automatically, as in the machine described in the said application; but to prevent the movement of the said lever D^4, except at the proper time, I have made the following provisions:

I have provided the lever F with inclined or cam portion f, which is acted upon by a roller, $f^\times$, at the lower end of a lever, f', pivoted at f^2, and actuated by a link, as f^3, connected to the said lever f' and to the pin D^3 of the toggle-lever D, the roller $f^\times$, when the die-bed spindle is elevated, being made to occupy the position shown by dotted lines, Fig. 1, retaining the lever F with its outer end elevated, so that the said lever cannot be depressed, except automatically, as provided for in the said application. The lever f' and link f^3 constitute a stop for the lever F.

To prevent the lever D^4 from being lifted from its rear or right-hand end, so as to place its shoulder 50 in the range of the rotating crank D^6 after the crank shall have reached its rearmost position and is descending to its lowermost position, I have provided the said crank-shaft D^6 with a wing, 52, having an inclined side, said wing acting against a stud, 53, by a locking-lever, 54, mounted upon a stud, 55, held in a bracket, 56, secured to the frame A by a bolt, 57, the said locking-lever 54, when the crank is traveling through the quarter of its stroke referred to, acting against the stud 53, causing the lower end of the locking-lever to obstruct the upward movement of the lever D^4.

The lever F has jointed to it at 60 a link, 62, slotted, as at 63, to embrace a pin, 64, attached to the lever D^4, the said link 62, acting against the pin 64, serving to lift the lever D^4 and place its shoulder 50 in range of the cam

D^6, but only at such time as when the stop shall be out of position and the automatic mechanism (not shown) for moving the said lever is in position to permit such movement, that being only as the machine is to be started to apply a heel, the subsequent movements of the lever D^4 until the heel is applied, the top lift put on, and the heel trimmed being effected automatically, as provided for in the said application.

The latch n', which engages the pin n^2 of the toggle-joint contrivance A^2 A^3, is raised and lowered to effect the disengagement of the pin n^2 at the proper times by means of a rod, 66, jointed to the lever A^8 at 67, the said link having pivoted upon it at 89 a U-shaped dog, 68, having a pin, 69, which is acted upon by a spring, 70, the spring normally keeping the longer cam-shaped leg of the U-shaped dog against a finger, 75, fixed to the pivot n of the latch n'.

With the parts in the position shown in Figs. 1 and 5, should the outer end of the lever A^8 be lifted, the pin 76 on the arm A^7 will be drawn down to the bottom of the U-shaped slot in the usual arm, 77, attached to the rock-shaft A^5, and the short arm of the lever 68 is brought below the latch n', so that as the movement of the lever A^8 is reversed, the pin 76 then traveling into the other end of the same slot, the rod 66 is raised, causing the short arm of the lever 68 to meet and lift the latch n' from the pin n^2; but the said latch having been lifted to release the pin n^2 and the lever A^3 A^2 having been moved, the latch n' must be free to drop quickly and engage the pin n^2 and again hold the levers A^2 A^3 in place. To provide for this disengagement, the cam-shaped end of the lever 68 meets the finger 75 and pulls the lever 68 aside, as in Fig. 5, permitting the latch to drop by gravity, notwithstanding the rod 66 is in its most elevated position.

I claim—

1. In a heeling-machine, jaws to grasp and release a top lift, combined with loosely-connected dogs carried thereby and adapted to be moved independently of and vertically in the ends of the jaws, as and for the purposes set forth.

2. The shoe 20, for supporting the last-holding spindle, and the projection 22 thereof, combined with the bifurcated bracket 23, clamped to the said projection, substantially as described.

3. In a heeling-machine, the bracket 23 and its attached block 26 and cross-slide 28, combined with the vertically-movable slide 29, having ratchet-teeth, and with a pawl to engage the said teeth and hold the slide 29 in position, substantially as described.

4. In a heeling-machine, the cross-slide 28 and the vertically-movable slide 29, having ratchet-teeth and pawl to engage the said ratchet-teeth, combined with thumb-pieces by which to operate the said pawl and disengage it from the ratchet-teeth, the said thumb-pieces being in position to be engaged by either hand of the operator, substantially as described.

5. In a heeling-machine, the shoe 20, to receive and support the foot of the last-holding spindle, and its attached stands and bearing-stands, combined with screws rotatable in unison to control the position of the said shoe with relation to the spindle 84, supporting it, substantially as described.

6. In a heeling-machine, the die-bed spindle, its toggle-connection D, the lever D^4, and the rotating crank-shaft, combined with a cam or projection, as 52, and with a locking lever or device to prevent the raising of the lever D^4 except at the proper time, substantially as described.

7. In a heeling-machine, the die-bed spindle, its connected toggle D, and lever D^4, and treadle F, combined with a movable stopping-lever actuated by the toggle-joint connection D, and adapted to prevent the depression of the outer end of the said treadle except at the proper time, substantially as described.

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

CHARLES W. GLIDDEN.

Witnesses:
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F. L. EMERY.