

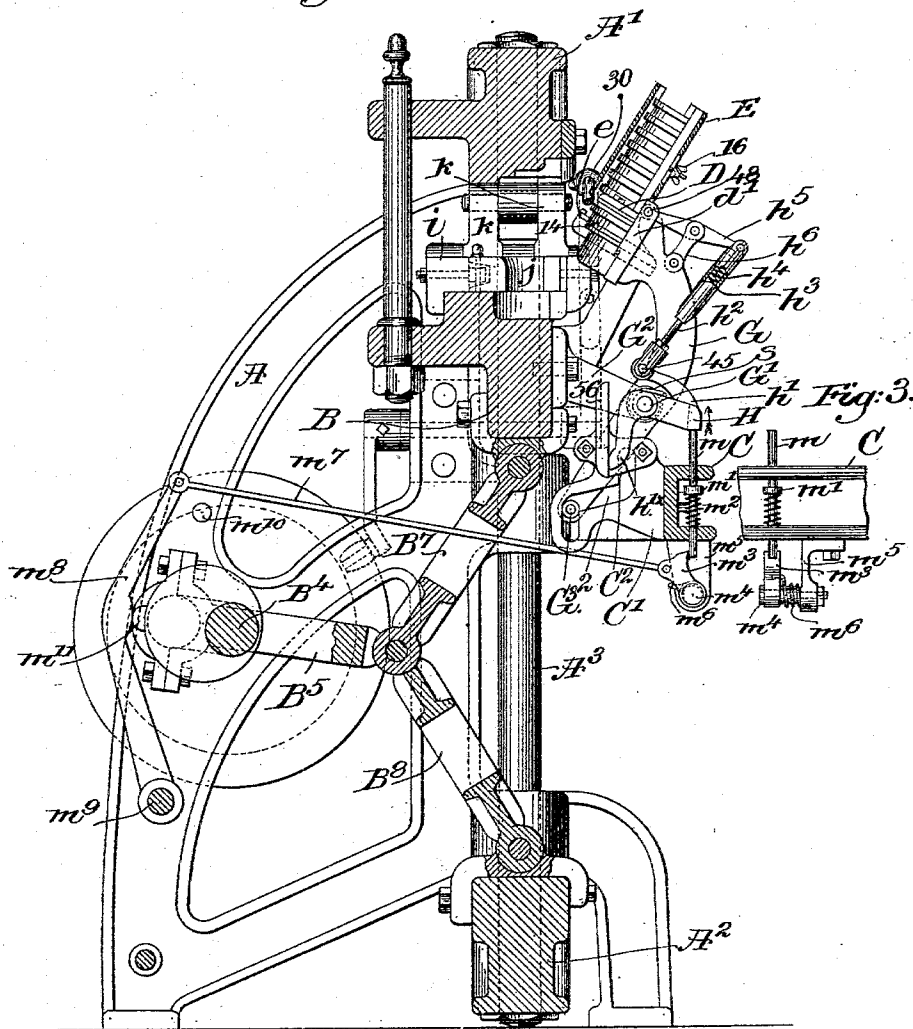
C. W. GLIDDEN & J. J. HEYS.

HEEL COMPRESSING MACHINE.

No. 548,438.

Patented Oct. 22, 1895.

Fig. 1.



Witnesses.

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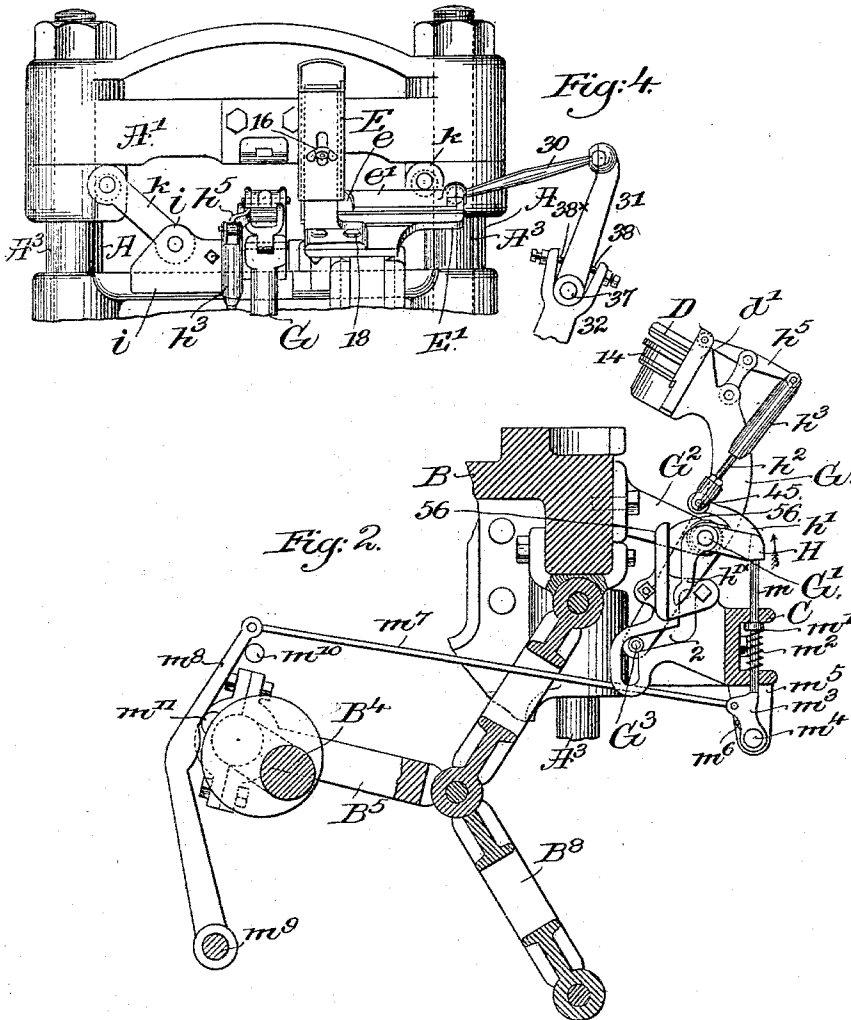
(No Model.)

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UNITED STATES PATENT OFFICE.

CHARLES W. GLIDDEN AND JOHN J. HEYS, OF LYNN, ASSIGNOR TO JAMES W. BROOKS, TRUSTEE, OF PETERSHAM, MASSACHUSETTS.

HEEL-COMPRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 548,438, dated October 22, 1895.

Application filed July 22, 1895. Serial No. 556,674. (No model.)

To all whom it may concern:

Be it known that we, CHARLES W. GLIDDEN and JOHN J. HEYS, of Lynn, county of Essex, State of Massachusetts, have invented an Improvement in Heel-Compressing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention relates to machines for compressing heel-blanks preparatory to their application to the soles of boots and shoes.

In the following specification and in the accompanying drawings we have elected to disclose our invention in connection with a heel-compressing machine of the type shown and described in United States Letters Patent No. 530,046, issued November 27, 1894, to John J. Heys, one of the present applicants, though it is to be understood that our present invention is not limited in its application to the particular machine herein shown and described nor to the particular machine illustrated in said patent. In the said Patent No. 530,046 the uncompressed heel-blanks, contained in a suitable hopper, are fed singly to a movable carrier in position upon a top-lift plate and between the same and a heel-seat die arranged immediately above it on the said carrier. Suitable devices are there provided to normally press the heel-seat die downwardly toward the top-lift plate to grip or clamp the uncompressed blank between it and said plate to prevent displacement of the blank or heel during the subsequent movements of the carrier. In the said machine the compressed heel is ejected from between the heel-seat die and top-lift plate on the carrier by the next blank fed into position between the same, and the raised edge of the compressed heel, as the latter is pushed from under the heel-seat die, acts to momentarily raise said die, though never sufficiently to clear a new blank, just as the new or uncompressed blank enters between the said die and top-lift plate. Before the new blank, however, has reached its final position between the die and top-lift plate the compressed heel is so far ejected as to permit said die to drop under the full tension of its spring upon the top of the incoming blank, so that the

balance of the feeding movement of the new blank must take place under the full pressure of the heel-seat die upon its top and practically about its edge, which first enters between said die and plate. 55

In practice we have found that when operating upon certain types or styles of heels or heel-blanks, particularly spring-heels, or upon decked heels having a considerable overhang at their top sides, this downward pressure of the heel-seat die upon the uncompressed blank before it has been completely pushed into position is apt to cause the said blank to be twisted or displaced, so that it is not perfectly positioned upon the carrier. To overcome this difficulty our present invention comprehends a clamp or holder on the carrier to hold the heel-blank from displacement during the movements of the carrier, as in the machine of the said Patent No. 530,046; but instead of bringing said clamp or holder into full operation before the uncompressed blank has reached its position upon the carrier, making it necessary in moving the blank to work in opposition to the holder or clamp, as in the said patented machine, our present invention comprehends suitable devices for removing or releasing the said clamp or holder until after the uncompressed blank has been placed in substantially its proper position upon the carrier, after which said clamp is operated to clamp or hold said blank in its position. 75

In the preferred embodiment of our invention the clamp or holder is operated to engage or hold the blank before any appreciable movement of the carrier, and preferably before any movement whatsoever, to thereby, so far as possible, guard against accidental displacement of the blank. 85

In the drawings, Figure 1, in vertical section, shows a heel-compressing machine of the type referred to and shown in said Patent No. 530,046; Fig. 2, a view showing some of the parts of the machine Fig. 1, but with the clamp or holding mechanism in different position; Fig. 3, a detail to be referred to, and Fig. 4 a right-hand or front elevation of a portion of the parts in Fig. 2. 95

In the embodiment of our invention selected for illustration herein the side pieces A of the 100

frame, connected at their top and bottom ends by the cross-heads $A' A^2$, which latter are also connected by the vertical guide-rods A^3 , the movable cross-head B, reciprocated by the toggle-links $B^7 B^8$, operated by a connecting rod or link B^5 from the crank on the shaft B^4 , the girt C, its bracket C' , provided with the cam-slot 2, the carrier G, pivoted at G' to the bracket G^2 , fast on the movable cross-head B, and provided at its lower end with a suitable, preferably, roller-stud G^3 , working in the cam-slot 2, the heel-blank-receiving hopper E, the feeding devices comprising the plate e , pusher e' , the link 30, compound lever 31 32, the edge-compressing jaws $j j$, their carriers $i i$, and links k are herein shown, and may be substantially like corresponding parts similarly lettered in the said Patent No. 530,046, previously referred to, to which reference may be had, the said parts co-operating in the manner described in the said patent.

Referring to Fig. 1, the carrier G is provided with a tread or, as we prefer to call it, "top-lift" plate 14, adjacent one edge of which is the breast-gage d' , movable in a plane perpendicular to the plane of the said top-lift plate and provided with the heel-seat die D, as in the said patent referred to. To this breast-gage d' is jointed one end of a lever h^5 , fulcrumed upon a short link h^6 , and to the opposite end of said lever is jointed one end of the tubular case h^4 , contracted at its lower end and receiving the headed end of a rod h^2 , jointed at 45 to an arm h' of a yoke-lever H, fulcrumed at G' to the bracket G^2 and provided with a depending arm having an intumed end h'^x , co-operating with a projection 56 on a plate C^2 , suitably attached to the bracket C' , a spring h^3 being interposed between the headed end of the pin h^2 and the opposite end of its case, said parts being constructed and operating substantially as shown in the said Patent No. 530,046 referred to.

In the operation of the machine the feeding devices feed an uncompressed blank out through the side of the hopper E into position upon the top-lift plate 14 and directly beneath the heel-seat die, after which the crank on the shaft B^4 moves the toggle-links $B^7 B^8$ to lift the cross-head B, with its attached bracket, and the carrier G, causing the said carrier, by reason of the cam-slot 2, to be swung inwardly at its upper end to place the heel-seat die and top-lift plate, with the uncompressed blank between them, in position to be compressed between the rising cross-head and the fixed cross-head A' , which constitute one form of what I shall hereinafter call "compressing members." During this upward movement of the cross-head B described the edge-compressors $j j$ are also operated to compress and shape the edges of the heel-blank. Upon descent of the cross-head B the carrier G is returned again to its outermost position and a new uncompressed

blank fed into position upon the top-lift plate, it pushing before it off from the said plate—that is, ejecting the previously-compressed heel.

In the Patent No. 530,046 referred to when the carrier G reaches its extreme retracted or outermost position the intumed end h'^x of the lever H drops under the lower end of the projection 56 and causes the heel-seat die to be pressed downwardly upon the top of the compressed heel with a pressure represented by the normal tension of the spring h^3 , and with the said heel-seat die thus acting upon the compressed heel the feeding devices push a new or uncompressed blank into position between the said die and plate, thereby ejecting the previously-compressed heel. As the previously-compressed heel is ejected from between the die and top-lift plate, its raised compressed outer edge acts, for the time being, to lift somewhat the said die against the action of the spring h^3 ; yet because of the compression of the heel, never sufficient to completely clear the incoming new blank, and while the said die is so lifted, the new or uncompressed blank is partially entered between the said die and plate. When the previously-compressed heel is, however, completely forced from between the die and plate and before the incoming heel-blank has finished its feeding movement, the heel-seat die is released, and under the action of the spring at once moves downwardly to grip with greater pressure the incoming blank, so that the last part of the feeding-in movement of the new blank takes place under the entire pressure or tension of the spring acting through the heel-seat die upon its upper surface. As referred to in the preamble, this pressing action of the heel-seat die upon the top of the heel-blank as the latter is moved into position upon the carrier, acts, particularly in the case of certain peculiar shapes of heel-blanks, to twist the latter or otherwise move them out of their proper positions. To obviate this in the present instance we have provided the girt C with a vertically-movable pin m , which, at its upper end, stands directly beneath the outer end of the yoke-shaped lever H, and which between the parallel flanges of the said girt is herein shown as provided with a collar m' , between which and the flange beneath is interposed a spring m^2 . The lower end of this pin, which drops beneath the girt, stands adjacent the free end of a dog m^3 , pivoted at m^4 on a bracket m^5 , depending from the said girt and acted upon by a spring m^6 , which moves the said dog normally in the direction of the pin. This dog m^3 in the present instance is connected by a rod m^7 with the free end of a cam-lever m^8 , fulcrumed at m^9 . This lever is normally held in its position at the right against a stop-pin m^{10} by the spring m^6 at the dog referred to, the said lever, at suitable times, being acted upon by a cam or projec-

tion m^{11} , (shown as on one of the crank-disks on the crank B^4 .) and moved to the left into its position, Fig. 1.

The operation of our improved machine is as follows, viz: As the movable cross-head or compressing member B is raised in the operation of compressing a heel-blank, the bracket G^2 , carrying the lever H, is also raised, the inturned end h'^x of the said lever traveling along the outer face of the projection 56, it being held in contact with the said face by a suitable spring s, encircling the pivot G. (See Fig. 1.) As the lever H is raised by the upward movement of the cross-head B referred to, the pin m , acted upon by the spring m^2 , follows said lever to the limit of its movement, the pin being stopped by contact of its collar m' with the under side of the topmost flange of the girt, such movement of the pin carrying its lower end above the free end of the dog m^3 , permitting the latter under the action of its spring m^6 to move to the right into its position, Fig. 2, directly beneath and in the path of movement of the pin and acting as a support to prevent dropping of the pin until the said dog is again moved from beneath it. With the pin thus held in its elevated position the movable cross-head or compressing member B, having compressed a heel, begins its return movement, causing the carrier G to be returned to its original position, Fig. 1, with the compressed heel held clamped between the heel-seat die and the top-lift plate, as in the said Patent No. 530,046 referred to. Just before the cross-head or compressing member B reaches the limit of its downward or return movement the lever H strikes the elevated pin m , which, during the further downward movement of the said cross-head, acts to turn the said lever on its pivot in the direction of the arrow, Figs. 1 and 2, to thereby swing the pivot 45 to the left and through the rod h^2 and spring-case h^4 move the lever h^5 to positively lift the heel-seat die from the top of the compressed heel upon the top-lift plate of the carrier, leaving the said heel free to be pushed off from the carrier by the new blank fed into position by the feeding device. With the heel-seat die thus held in an elevated position there is no resistance whatever to the incoming heel-blank, so that the latter, whatever be its shape, may be fed into correct position upon the carrier. After the new heel-blank has been placed in proper position upon the carrier, as described, and preferably before the crank on the shaft B^4 has passed its dead-center sufficiently to give any appreciable movement to the carrier, the projection m^{11} on the crank strikes the lever m^8 and moves the latter to the left into its full-line position, Fig. 1, withdrawing the dog m^3 from beneath the elevated pin m , permitting the latter to drop, and thereby permitting the spring s to turn the lever H in a direction, opposite the arrow on the drawings, into position with the inturned end h'^x in contact with the face of the projection 56, such movement of the lever

H acting to compress the spring h^4 and thereby turn the lever h^5 to press the heel-seat die downwardly upon the blank in position upon the top-lift plate of the carrier, said carrier thereafter placing the said blank in position between the compressing members B and A' , which in the operation of the machine strike the said die and top-lift plate from opposite sides and compress the heel-blank, after which the carriage is withdrawn, the heel-seat die lifted, and the compressed heel ejected by the introduction of a new blank, as described.

In the Patent No. 530,046 referred to, inasmuch as the new blank is fed into position upon the carrier, partially, at least, under pressure of the heel-seat die upon its upper surface, it was necessary, as there described, to momentarily lift the die after the beginning of the forward movement of the carrier to give opportunity for the blank to gravitate to proper position against the breast-gage in case it should not have been first placed in such proper position, the heel-seat die being again and quickly pressed down upon the top of the blank, where it remained during the rest of the movement of the carrier. In this our invention, however, the heel-blank, when fed into position upon the carrier, is unrestrained by any device and is free to at once gravitate, if necessary, to its proper position upon the top-lift plate against the breast-gage before the said heel-seat die descends to clamp it, so that it is thereafter unnecessary to provide any release of the clamp or holder during the remainder of the movement of the carrier.

In the present embodiment of our invention the heel-seat die itself constitutes a clamp or holder to confine the blank in position during the movements of the carrier; but our invention is not limited to the particular means herein shown for clamping or holding the heel-blank or compressed heel in its proper position upon the carrier, our invention consisting in the use of a clamp or holder in combination with suitable releasing devices to release or remove said holder or clamp when the carrier is in position to receive a new blank from the feeding device, in order that said new blank may be positioned upon the carrier without restraint of any sort.

Having described one embodiment of our invention, and without limiting ourselves as to details, what we claim, and desire to secure by Letters Patent, is—

1. A heel compressing machine, containing compressing members, and means to impart a relative movement thereto; a movable carrier to place the heel blanks in compressing position relatively to said members; blank feeding devices to feed the blanks to the carrier; a blank holder on and movable with said carrier, and releasing devices to release said holder when said carrier is in position to receive a blank from said feeding devices, substantially as described.

2. A heel compressing machine, containing

- compressing members, and means to impart a relative movement thereto; a movable carrier to place the heel blanks in compressing position relatively to said members; blank feeding devices to feed the blanks to the carrier; a blank holder on and movable with the said carrier, releasing device to release said holder to permit a blank to be fed to the carrier; and means operated while the carrier is in its retracted position and before any considerable movement of the same toward compressing position to move said holder to confine the heel blank upon the carrier, substantially as described.
- 15 3. A heel compressing machine, containing compressing members, and means to impart relative movement thereto; a movable carrier; a top lift plate and a heel seat die thereon; blank feeding devices; means to move said
20 heel seat die to engage and hold a heel blank between it and said top lift plate, and releasing devices operated when said carrier is in position to receive a new blank to move said heel seat die to release the blank held thereby,
25 substantially as described.
4. In a heel compressing machine, a frame, compressing members, a main shaft, and means operated thereby to impart a relative movement to said compressing members, a
30 movable carrier operated by movement of one of said compressing members; blank feeding devices; a blank holder on and movable with

said carrier, and means operated from the said shaft, independent of the relative movement of said compressing members, to release
35 said holder during the period of substantial rest of said compressing members, substantially as described.

5. A heel compressing machine containing compressing members, and means to impart
40 a relative movement thereto, a movable carrier to place the heel blanks in compressing position relatively to said members, a blank holder on and movable with said carrier, and releasing devices to release said holder when
45 said carrier is in position to receive a new blank, substantially as described.

6. A heel compressing machine containing compressing members, and means to impart
50 a relative movement thereto, means to support the heel blanks in compressing position relatively to said members, a blank holder to act upon and hold said blanks, and releasing devices to release said holder at the proper
55 times for the introduction of new blanks, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CHARLES W. GLIDDEN.

JOHN J. HEYS.

Witnesses:

HADLEY P. FAIRFIELD,

HENRY M. ESSELEN.