

(No Model.)

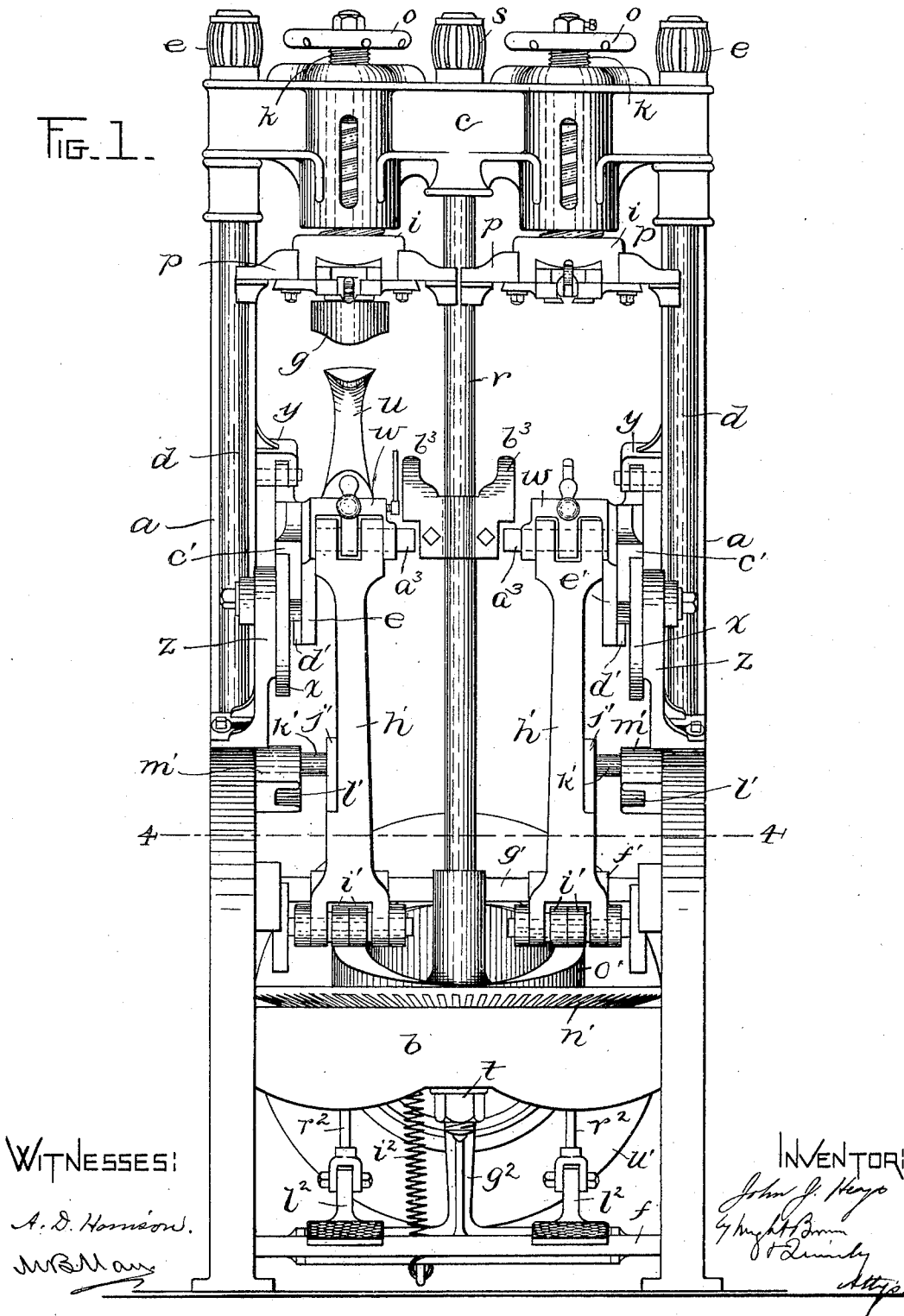
4 Sheets—Sheet 1.

J. J. HEYS.
MACHINE FOR BEATING OUT OR LEVELING SOLES OF BOOTS OR
SHOES.

No. 581,662.

Patented Apr. 27, 1897.

FIG. 1.



(No Model.)

4 Sheets—Sheet 4.

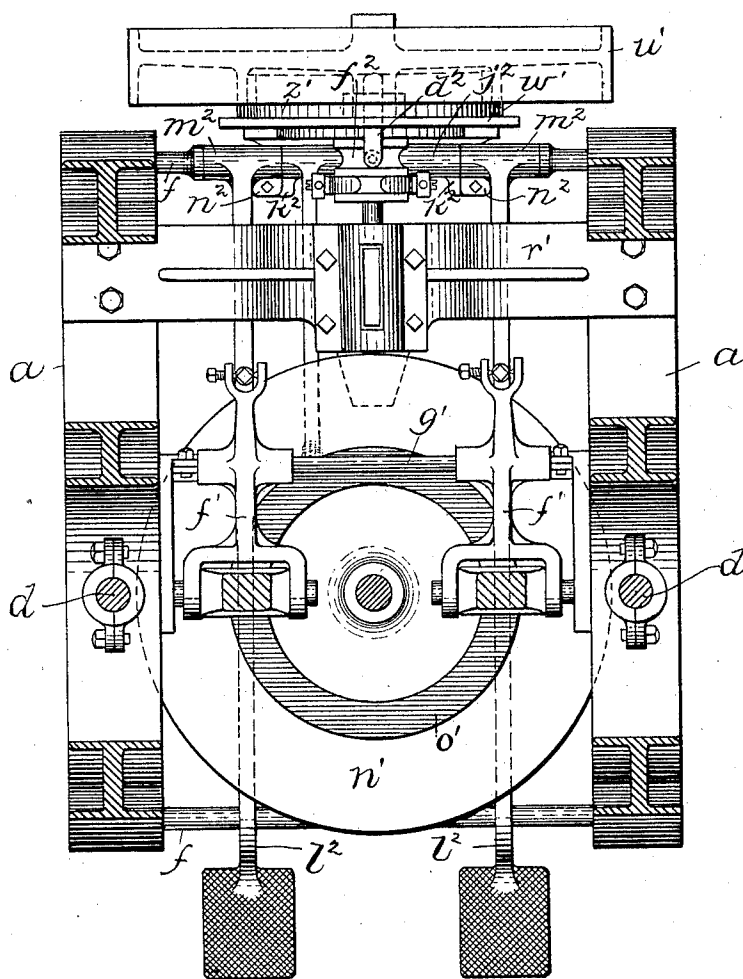
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FIG. 4.



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JOHN J. HEYS, OF LYNN, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO
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MACHINE FOR BEATING OUT OR LEVELING SOLES OF BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 581,662, dated April 27, 1897.

Application filed July 25, 1896. Serial No. 600,475. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. HEYS, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful
5 Improvements in Machines for Beating Out or Leveling the Soles of Boots or Shoes, of which the following is a specification.

This invention has relation to machines for beating out or leveling the soles of boots and
10 shoes in which the boot or shoe is placed upon one of two alternately and oppositely acting jacks and is forced up against a mold or die; and it consists of a machine equipped with those important features of construction and
15 arrangement which I shall hereinafter describe in detail and then point out in the claims hereto appended.

Reference is to be had to the accompanying drawings, and to the letters and numerals
20 marked thereon, forming a part of this specification, the same letters and numerals designating the same parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 is a front elevation of my improved machine. Fig. 2 is a side
25 elevation of the same. Fig. 3 is a vertical section through the machine. Fig. 4 is a transverse section on the line 4 4 of Fig. 1.

The machine is provided with side standards *a a*, preferably of castings, and united
30 by a cross-head or brace *c* at their upper portion and a cross-head *b* at their lower portion, together with vertical rods or bars *d d*, threaded at their upper ends to receive nuts *e*. The
35 side standards are also united by tie-rods *f f*, of which there may be as many as is necessary.

In the cross-head *c* are yieldingly mounted two molds or dies *g h*. The said molds or dies
40 are provided with tongues fitting in dovetailed grooves in the die-carriers *i*, which latter are secured to the ends of rods *j*, passed through the cross-heads *c* and passing loosely through the hand-wheel *o*, which has the externally-
45 threaded sleeve *k* screwed in the top of the cross-head, the said rod *j* being threaded at its ends to receive a nut *l*.

m is a strong spring having one end pressing against the die-carrier *i* and the other end
50 against the disk *n*, resting against the exter-

nally-threaded sleeve *k* of the hand-wheel *o*, the spring, the rod *j*, and the disk all fitting in a tubular socket in the cross-head. By means of the said nut *l* the tension of the
spring upon the die-carrier may be varied, 55 (the rod *j* passing loosely through the said sleeve, so that when pressure is put upon the said die-carrier and the die they may yield slightly upward,) and the die-carrier may be also adjusted by the hand-wheel *o*, which lies 60 above the cross-head.

The die-carriers have outwardly-projecting brackets *p p*, which partly encircle the vertical rods *d*, whereby they are guided in their vertical movement, which vertical movement, 65 however, is very slight.

r is a rod similar to those at *d d* and extending up through the center of the frame and likewise being partially encircled by the brackets *p p* on the die-carriers. This last-
70 mentioned rod extends from the cross-head *c* to the cross-head *b* and is provided at each end with nuts *s t*, threaded thereon.

u v are the jacks which cooperate with the dies or molds for beating out or leveling the
75 soles of the boots and shoes. Each jack is mounted on a table *w*, and they are moved alternately into pressure against their respective dies, means being provided for arresting the motion of the machine temporarily while
80 each jack is pressing a sole against the die, thereby allowing the finished sole to be removed from its jack while the latter is at clearance.

For moving the jacks and their tables to-
85 ward and from the dies or molds and forward out of the vertical lines of said dies to a position of clearance for the easier placing of the sole upon the jack I provide the following devices: *x x* are inclined bars, each piv-
90 oted at one end to a bracket *y* on the side standards and extending forwardly therefrom, being adjustably held in a bracket *z* on the lower portion of the frame. The said bracket *z* has a slot *a'*, through which the
95 bolt *b'* passes, whereby the bar *x* may be adjusted to any inclination relatively to the vertical lines of the molds or dies. On each one of the said bars *x* is a slide *c'*, having a
100 groove to receive the said bar and also hav-

ing a vertical groove to receive the vertical tongue d' on the depending flange e' of the table w .

The table is partially guided in its vertical movements by its tongue-and-groove connection with the slide and by the pin a^3 moving in a vertical groove in the bracket b^3 and is guided horizontally or transversely by the engagement of the slide with the inclined bar x .

The means for moving the table transversely and vertically comprises a lever h' , pivoted to the table, and a guide-lever f' , pivoted on a shaft g' , extending between the standards. The pivoted ends of the two levers are bifurcated, as shown in Fig. 1, and the pintle connecting them is provided with rollers i' .

The lever h' has an arm j with a roller projecting into a cam-groove l' in a bracket m' , the said cam-groove having an inclined portion 1 and a vertical portion 2.

Mounted loosely upon the vertical central rod r is a large bevel-wheel n' , having a cam-track o' , on which the rollers of the two levers h' h' rest, said rollers being held from sidewise movement by the levers f' . The cam-track is so formed that when the disk is rotated the rollers are elevated and depressed alternately and oppositely, so as to throw the jacks alternately into their positions of pressure and clearance. During one half of a revolution of the bevel-wheel or disk with the cam-track o' one of the jacks will be elevated and the other will be correspondingly depressed.

Referring to Fig. 3 and assuming that the rollers i of one set of the toggle-levers are in their lowest position as the cam-track and the disk rotate or revolve, the lever h' will be raised, which, by reason of having the arm j' , with the roller k' , extending into the cam-slot l' , will be forced rearwardly by the rods x , lying in the grooves in the slides c' . The table and the jack are moved rearwardly until the jack is in the vertical line of the die, at which time the roller k' will have reached the end of the cam-track in the bracket m' . Then the pin a^3 will enter the vertical groove of the bracket b^3 as the roller k' leaves the slot l' , and the jack will be guided vertically against its die.

As the bevel-wheel n' completes the last half of its revolution the weight of the jack and its parts will cause them to slide down to their first position s , as shown in Fig. 3. The sliding connection of the table with the slide and the slide with the guide-bar x causes the said table to be always maintained in a horizontal position, as will be understood.

Motion is imparted to the bevel-wheel n' by a small bevel-wheel p' on a shaft q' , which is mounted in a bracket supported at one end upon the cross-head b and at the other end upon a standard r' . s' is an oil-cup upon the said bracket, having ducts t' extending down

to the shaft q' for keeping it constantly lubricated.

In addition to imparting to the jacks the movements before described I provide means for arresting the action of the machine, as aforesaid, when each jack is in its lowest position, such arresting being accomplished by the following devices: u' is a continuously-driven wheel mounted loosely upon the shaft q' and having an inwardly-projecting ring-like flange v' . w' is a disk secured rigidly upon the shaft q' to turn therewith and provided with an aperture x' and a diametrically opposite aperture y' , it being also provided with a ring-like flange z' , corresponding to that at v' on the wheel u' .

a^2 is a split friction-ring inside the flange v' of the wheel and having the faces of its adjacent ends converging to receive between them the wedge-shaped end b^2 of a lever d^2 , pivoted in ears on the disk w' . The ring a^2 has a lug e^2 extending into the aperture x' of the disk w' , so that the ring turns with the disk-handle inside the flange v' of the wheel u' .

The downwardly-curved end of the lever d^2 extends into a groove in a sliding sleeve f^2 on the shaft q' . When the sleeve f^2 is moved away from the disk w' , the end b^2 of the lever d^2 is wedged between the ends of the split ring a^2 , so as to expand the said ring against the ring v' and by frictional engagement therewith to cause the rotation of the shaft q' , and when the sleeve is moved toward the disk the wedge-shaped end b^2 is lifted to allow the ends of the split ring to approach each other to free the ring from frictional engagement with the flange v' and unclutch the wheel from the disk and shaft.

For sliding the sleeve f^2 I employ a bell-crank lever g^2 , having an arm h^2 , connected by a spring i^2 with the frame and pivoted upon one of the tie-rods f . The bell-crank lever has a hub or sleeve j^2 extending on both sides of the same, with forwardly-projecting lugs k^2 . (See Fig. 4.)

l^2 l^2 are foot-levers, each having a hub or sleeve m^2 upon the tie-rod f , with a lug n^2 resting loosely upon one of the lugs k^2 of the hub j^2 . Thus it will be seen that by depressing either of the levers l^2 its lug n^2 will engage one of the lugs k^2 , so as to throw the arm g^2 of the bell-crank lever forward and through the medium of the sleeve f^2 and the lever d^2 clutch the shaft and the wheel together. The bell-crank lever, however, may be thrust downwardly independently of either of the two foot-levers. Each lever f' has a rearwardly-extending arm o^2 , with a sleeve p^2 loosely pivoted in the bifurcated ends thereof by a pin q^2 .

r^2 is a link connecting each end of the foot-levers, with the lever f' passing loosely through the sleeve p^2 and having a nut s^2 thereon. When the table and the jack have reached their lowest positions, the end o^2 of the lever f' will be at its highest position and

will have raised the lever l^2 which was depressed to start the machine, through the medium of the rod r^2 , so as to unclutch the wheel u' and the shaft p' thereof, stopping the movement of the machine, the arm g^2 of the bell-crank lever being provided with a brake-shoe v^2 , adapted to impinge upon the disk w' when the said arm g^2 is in its rearward position. When it is desired to start the machine again after having placed a fresh sole upon the jack, which is in its lowest position, the other foot-lever l^2 is depressed to clutch the wheel and the shaft together.

By observing Fig. 2 it will be seen that when one of the levers is raised to unclutch the wheel of the shaft the other lever l^2 may be easily depressed, since its corresponding lever f' is raised and the link r^2 extends some distance through the sleeve p^2 on the end o^2 of the said lever f' .

The unclutching action of the parts is caused entirely by the spring v^2 , which also operates the brake, the foot-lever being employed only for clutching them. In starting the machine the foot is kept on one of the levers until one of the levers f' raises the other foot-levers and allows the spring to unclutch the shaft from the wheel.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

1. A machine for beating out or leveling the soles of boots or shoes, comprising in its construction, a frame having two molds or dies, two jacks to coact with said molds or dies, levers for operating said jacks, means for guiding the lower ends of said levers in the direction of the line of pressure, means located above the lower ends of the levers for guiding the opposite ends of said levers in the direction of the line of pressure and transverse thereto and means arranged to engage said levers for imparting power thereto.

2. A machine for beating out or leveling the soles of boots or shoes, comprising in its construction, a frame having two molds or dies, two jacks to coact with said molds or dies, a support for each jack, jack-support levers, a rotatable cam for operating said levers and with which the lower ends of said levers engage, means for guiding the lower ends of said levers in the direction of the line of pressure, path-cams located above the said cam for guiding the opposite ends of said levers in the direction of the line of pressure and transverse thereto, and provisions for stopping the machine when the jacks are in a position of clearance.

3. In a machine for beating out or leveling the soles of boots and shoes, the combination of the cross-head of the machine, a spring-held die-carrier, and a hand-wheel arranged

to adjust the position of the spring and the die-carrier.

4. In a machine for beating out or leveling the soles of boots or shoes, the combination of the cross-head of the machine, a spring-held die-carrier, a hand-wheel arranged to adjust the position of the spring and the die-carrier, and a nut for varying the tension of said spring.

5. In a machine for beating out or leveling the soles of boots and shoes, the combination of a cross-head having a socket, a die-carrier, a rod extending from said carrier into the socket and through the cross-head, a hand-wheel above the cross-head and threaded thereinto, said rod passing loosely through the hand-wheel, a spring interposed between the hand-wheel and the die-carrier, and arranged in said socket, and means for holding the rod in the hand-wheel.

6. In a machine for beating out or leveling the soles of boots and shoes, the combination of a cross-head having a socket, a die-carrier, a rod extending from said carrier into the socket and through the cross-head, said rod being threaded on its upper end, a hand-wheel threaded into the top surface of said cross-head and loose on the rod, a nut threaded on the end of the rod and abutting against the hand-wheel, and a spring arranged in said socket, and interposed between the wheel and the carrier.

7. In a machine for beating out or leveling the soles of boots and shoes, the combination of a cross-head, a die-carrier, a spring interposed between the die-carrier and the cross-head, and a single means for adjusting the said spring and the die-carrier relatively to the cross-head.

8. In a machine for beating out or leveling the soles of boots and shoes, the combination of a cross-head, a die-carrier, of a spring interposed between the die-carrier and the cross-head, a single means for adjusting the said spring and the die-carrier relatively to the cross-head, and a device for varying the tension of the spring.

9. In a machine for beating out or leveling the soles of boots and shoes, the combination of dies and jacks, the movable jack-supports, alternately-acting levers for said jack-supports, a cam for imparting movement to the levers, a power device for revolving the cam, pivoted guide-levers for the jack-support levers, and devices under the control of the guide-levers for accomplishing the intermittent stopping of the jack-supports when in a position of pressure and clearance, respectively.

10. In a machine for beating out or leveling the soles of boots and shoes, the combination of the dies and jacks, movable jack-supports, levers connected with the jack-supports for reciprocating them, power devices for actuating said levers, a continuously-driven wheel

for imparting movement to said power devices, a clutch mechanism interposed between the wheel and the power devices, independently-acting pivoted levers, each hinged to
 5 one of the first-mentioned levers and adapted to effect the unclutching of the wheel from the power devices, as it is operated by said devices.

11. In a machine for beating out or leveling
 10 the soles of boots and shoes, the combination of the reciprocating levers for the jacks, a revoluble cam for elevating and depressing said levers alternately, a continuously-driven wheel, a clutch mechanism interposed be-
 15 tween the cam and the driven wheel, and pivoted levers, each of which is connected to one of the reciprocating levers for guiding it on said cam, said pivoted levers being each connected to said clutch mechanism to operate
 20 it for the purposes described.

12. In a machine for beating out or leveling the soles of boots and shoes, the combination of the jacks, the levers for reciprocating them, the pivoted guiding-levers hinged thereto, a
 25 cam for operating the jack-levers, means for actuating said cam, a clutch mechanism interposed between said means and the cam, two independent foot-levers for operating the clutch mechanism, sleeves pivoted on the
 30 guiding-lever, and rods or links connected to the foot-levers and passing loosely through

said pivoted sleeves, each guiding-lever being raised alternately by its jack-lever to operate the clutch mechanism.

13. In a machine for beating out or leveling 35 the soles of boots and shoes, in combination, two jack-levers, a cam for actuating said jack-levers alternately, means for guiding the lower ends of said levers in the direction of the line of pressure, a shaft for imparting power to 40 the cam, clutch mechanism, and means connected to said levers for alternately operating the clutch mechanism.

14. A machine for beating out or leveling the soles of boots and shoes, comprising in its 45 construction a frame having two molds or dies, two jacks to coact with said dies, means for moving said jacks in the direction of the line of pressure and transverse to the line of pressure, a cam for operating said means, and 50 provisions controlled by said means for automatically stopping the machine, with one jack in position of pressure and the other in position of clearance.

In testimony whereof I have signed my 55 name to this specification, in the presence of two subscribing witnesses, this 20th day of July, A. D. 1896.

JOHN J. HEYS.

Witnesses:

A. D. HARRISON,
 P. W. PEZZETTI.