

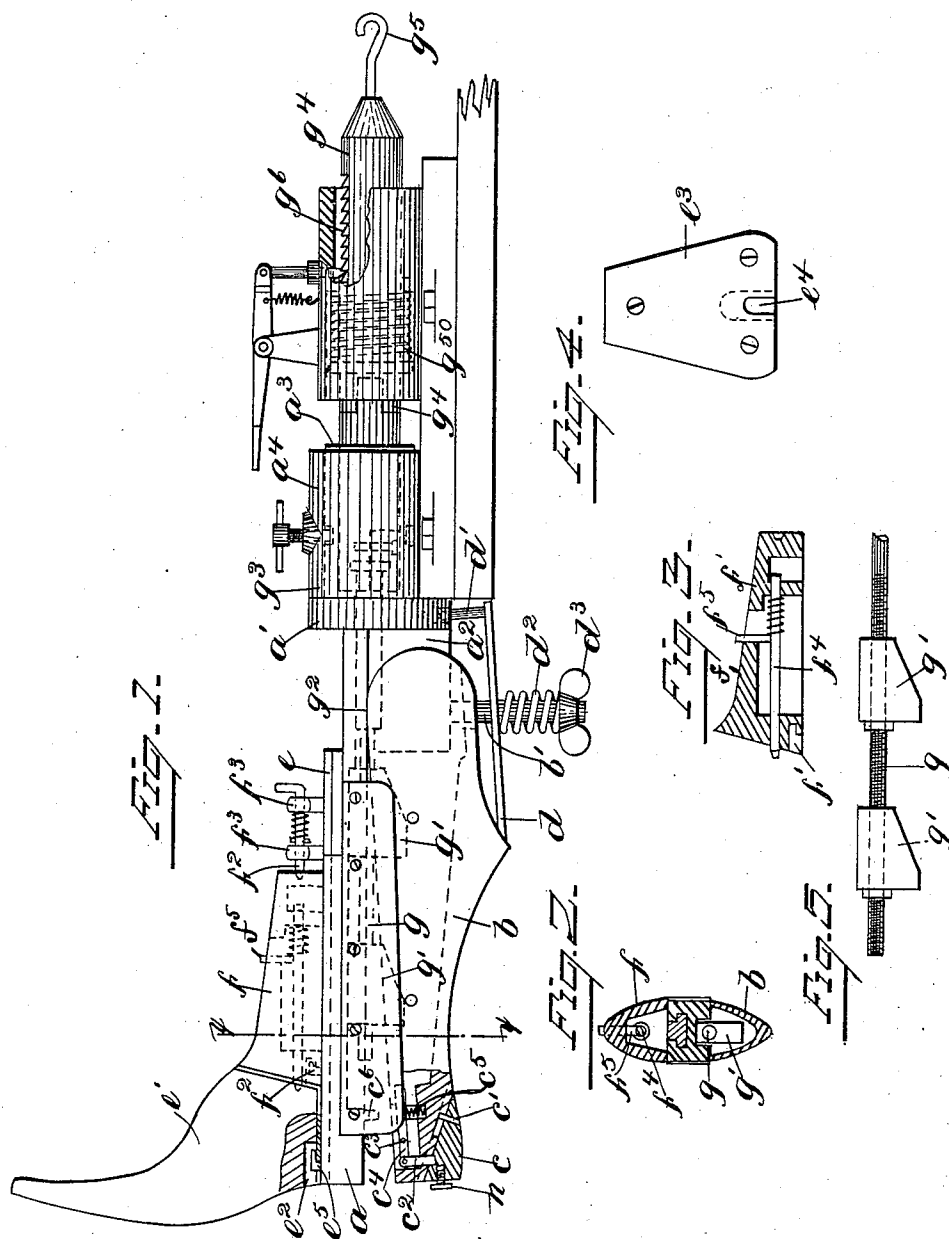
(No Model.)

G. H. CLARK.

MACHINE FOR TREEING OR SHAPING BOOTS OR SHOES.

No. 564,407.

Patented July 21, 1896.



WITNESSES.
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UNITED STATES PATENT OFFICE.

GEORGE H. CLARK, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE HUB TREEING MACHINE COMPANY, OF PORTLAND, MAINE.

MACHINE FOR TREEING OR SHAPING BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 564,407, dated July 21, 1896.

Application filed November 30, 1895. Serial No. 570,604. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. CLARK, of Boston, in the county of Suffolk, State of Massachusetts, have invented an Improvement in Machines for Treeing or Shaping Boots or Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to machines for treeing or shaping boots or shoes, and has for its object to provide improved means for reducing the size or measurement of the form or tree on a line extending from the rear end of the heel to the instep portion as the boot or shoe is drawn off or on the tree, to thereby not only facilitate this work but to obviate wrinkling the boot or shoe and also tearing the lining as it is withdrawn; and to this end my invention consists in a heel-piece adapted to slide obliquely on the back leg portion or other part which supports it.

To hold the heel-piece from sliding when the boot or shoe is on the form or tree and the latter "jacked up," a locking device is provided which may be made automatic, that is to say, it may be automatically operated to lock the sliding heel-piece and may be automatically operated as the parts of the form or tree close together to unlock said sliding heel-piece.

Another part of my invention has for its object to so construct and arrange an expandible form or tree having a detachable fore part that the measurement at the top of the shoe may be changed for the different sizes; and to this end it consists in providing such a form having a detachable fore part with an independent detachable shin-piece which may be readily removed and an another substituted of a different size.

In practice I may use three or more different sizes of shin-pieces.

The fore parts of the feet of the forms or trees are also detachable and are graduated to correspond to certain of the shin-pieces.

Both the shin-piece and fore part will be detachably connected with a slide on the tree.

The parts of the form are herein shown as separated bodily, two wedges being employed on the expanding device, which act upon or

at different parts of the form, and the expanding device is adapted to be operated by a treadle and locked when the form is expanded to hold it in such condition.

Figure 1 shows in side elevation a machine embodying this invention for treeing and shaping boots and shoes; Fig. 2, a vertical section of the form or tree shown in Fig. 1, taken on the dotted line *xx*; Fig. 3, a longitudinal section of the detachable shin-piece; Fig. 4, a rear end view of the fore part removed, and Fig. 5 a detail of a portion of the expanding device.

The central support or frame of the form or tree consists of a frame-bar *a*, of a width corresponding to the width of the form or tree and extending from end to end of said form or tree, and having at its upper or knee end a circular flange *a'*, and an ear or equivalent *a²*, formed adjacent to it, and a cylindrical hub *a³*, which enters and is adapted to revolve in a bearing-box *a⁴*, stationarily supported on a bench or other suitable frame.

On the under side of the central frame or support *a* the back leg portion *b* is mounted, it being hollowed out or recessed, and having at its upper or knee end two ears which receive between them the ear *a²* of the frame-bar, and having at its lower or opposite end a heel-piece *c*. A pin *b'* projects from the ear *a²*, which passes through a hole at the upper end of the back leg part *b*, and thence through a plate *d*, one end of which bears upon or against the back leg portion, and the other end of which has a pin *d'*, which enters a hole formed in the circular flange *a'*. A strong spiral spring *d²* encircles the pin *b'*, which presses against the plate *d*, and a thumb-nut *d³* is turned onto the pin *b'*, which acts upon the spring. By means of this device for connecting the upper or knee end of the back leg portion *b* with the central or main frame it will be seen that said back leg portion is bodily movable toward and from said central portion to a certain extent.

The heel-piece *c* is cut off obliquely and adapted to slide obliquely with relation to the part to which it is connected, and it has a dovetailed projection which enters and slides freely in a groove formed to receive it in the heel end of the back leg part *b*.

The obliquely-sliding heel-piece *c* has a pin *c'*, which enters a slot formed in the part to which it is connected, which limits the sliding motion of said heel-piece.

5 When the parts of the form or tree are separated, it is necessary, or at least very desirable, that the sliding heel-piece should be locked in position, and when the parts close together that said heel-piece shall be free to
10 slide in order that the advantages sought for may be gained. Therefore an automatic locking device is provided which consists of a detent *c²*, pivoted at *c³* in a suitable recess formed in the heel end of the back leg part *b*, which
15 is adapted to enter a hole formed in the sliding heel-piece *c*, when said heel-piece is in its normal position, and the hole therein is thus brought into position beneath the detent. The pivoted detent has a projection or extension *c⁴*, which is acted upon by a spring *c⁵*, the tendency of which is to press the detent into
20 engagement with the sliding heel-piece when it is permitted to act. A projection or lug *c⁶* (see dotted lines, Fig. 1) is arranged on the under side of the central portion or frame-bar just above the extension *c⁴* of the detent, and when the parts of the form or tree close together this lug engages said extension and by depressing it raises the detent out of en-
25 gagement with the sliding heel-piece. Thus this locking device is automatic in its action to both lock and unlock the sliding heel-piece.

The upper face of the frame-bar *a* is formed with a T-groove, which receives a T-shaped
35 slide *e*, and the fore part *e'* is formed in any usual manner, having, however, at its rear side a recess *e²* and a back plate *e³*, having a slot *e⁴* at its lower end, the slotted end of said plate partially covering the recess *e²*, so as to
40 form a socket, one side wall of which is the projecting edge of the plate, said socket being adapted to receive a headed stud *e⁵*, rising from the slide. Also mounted on this slide is a detachable shin-piece *f*, against the
45 front end of which the fore part abuts, the latter being suitably graduated to fit this end of the shin-piece.

The shin-piece is formed at its front end with a grooved recess *f'*, which is designed to
50 receive a headed stud *f²* on the slide made similar to the headed stud *e⁵*, thereby detachably connecting this end of the shin-piece to the slide.

The upper end of the shin-piece has a socket
55 which receives a spring-pressed pin *f²*, sliding in holes formed in studs *f³*, rising from the slide, said spring-pressed pin having a finger-piece by means of which it may be operated to disengage the shin-piece. This fast-
60 ening detachably connects the upper end of the shin-piece with the slide. A socket is formed in the upper end of the fore part or in that face which abuts against the lower or front face of the shin-piece, which receives a
65 spring-pressed pin or rod *f⁴*, sliding longitudinally in the shin-piece, it having a finger-piece *f⁵* projecting out through a slot in

said shin-piece, by means of which it may be operated to disengage the fore part. Thus both the fore part and the shin-piece are in-
70 dependently or separately detachably connected with the slide.

For different sizes I may employ, say, three different sizes of shin-pieces, and the fore
75 parts will be graduated to fit their respective shin-pieces. The fore part will also be graduated to fit the standard size shank-piece, which is formed at the front end of the central frame or bar *a*.

In making the fore parts of different sizes
80 fit the standard-sized shank-piece, and also fit the shin-pieces, the back plate *e³* serves as a templet, being made of metal and shaped to fit the standard-sized shank-piece. Thus this templet is of a standard size and all the
85 fore parts are graduated to it, and on top of the fore part the flat face which abuts against the shin-piece has a plate thereon which also serves as a templet, being made of metal and shaped to fit the shin-piece. The templet on
90 top of the fore part and the templet on the rear of the fore part may be made of a single piece, if desired, but more or less right-angul-
95 arly. When so made, the upper ends of the flat blanks may be made longer and some shorter than others to fit the different shin-pieces.

The expanding device for the parts of the tree consists of a screw-rod *g*, having thereon
100 two wedges *g'* *g'*, which may be adjusted along the rod, said wedges entering and sliding in a groove formed in the under side of the central portion *a* and bearing upon rolls
105 journaled in the back leg portion *b*. This screw-rod *g* passes through a hole made in the knee end of the frame-bar *a*, and is attached to a rod *g²*, swiveled to a block *g³*, having its bearings in the rotating hub *a³* of
110 the tree. The block *g³* is connected to a sliding block *g⁴*, having its bearings in a suitable stationarily-supported frame, which block has at its rear end a hook *g⁵*, to which
115 a cord is attached which passes over a suitable pulley, and thence to a treadle, by means of which the parts are drawn rearwardly and the form or tree expanded. A spring *g⁵⁰* is
120 provided for retracting the parts. The block *g⁴* is provided with a series of notches *g⁶*, which are engaged by a spring-pressed pawl to lock the expanding device in whatever
125 position it may be set, said pawl having a hand engaging portion, by means of which it is operated to release the expanding device.

In some instances it is desirable to lengthen the heel *c*. Hence it may have an adjustable
125 plate *n*, such as shown in Fig. 1.

I do not desire to limit my invention to the particular way herein shown of connecting the obliquely-sliding heel-piece to its support, as I believe myself to be the first to provide
130 a form or tree with an obliquely-sliding heel-piece; nor do I desire to limit my invention to the particular way of attaching the shin-piece, as it is obvious that many simple ways

may be devised which would come within the spirit and scope of this invention.

I claim—

1. In a shaping-machine for boots and shoes, an expansible form having a detachable fore part and an independent detachable shin-piece.
2. In a shaping-machine for boots and shoes, an expansible form, having an independent detachable shin-piece, and a fore part detachably connected thereto.
3. In a machine for treeing or shaping boots and shoes, an expansible form having a slide, a fore part and a shin-piece made independent of each other, and separately detachable from the slide to which they are connected, substantially as described.
4. In a machine for treeing or shaping boots and shoes, an expansible form having a detachable shin-piece, and a detachable fore part abutting against said shin-piece, said parts being made independent of each other, and separately detachable substantially as described.
5. In a machine for treeing or shaping boots and shoes, an expansible form having a slide, a shin-piece detachably connected thereto, an independently-detachable fore part made separate and independent of said shin-piece and means for connecting its rear end to the slide and means for connecting its upper end to the shin-piece, substantially as described.
6. In a machine for treeing or shaping boots and shoes, a form having a heel-piece sliding obliquely on the rear side of the back leg part in a direction toward the shank, substantially as described.
7. In a machine for treeing or shaping boots and shoes, an expansible form having a heel-piece sliding obliquely on the rear side of the back leg part, in a direction toward the shank, and a locking device therefor, substantially as described.
8. In a machine for treeing or shaping boots and shoes, an expansible form having a heel-piece sliding obliquely on the rear side of the back leg part, in a direction toward the shank, and an automatic locking device therefor, substantially as described.
9. In a machine for treeing or shaping boots and shoes, an expansible form having a heel-piece sliding obliquely on the back leg part, a locking device therefor, means for operating said locking device to lock the sliding heel-piece when the parts are separated, and means for operating said locking device to

unlock the sliding heel-piece when the parts close together, substantially as described.

10. In a machine for treeing or shaping boots and shoes, an expansible form having a heel-piece sliding obliquely on the back leg part, a pivoted locking-lever for said sliding heel-piece, spring for moving it into locking position, and a projection on one member of the form for operating said locking-lever when the parts thereof close together, substantially as described.

11. In a machine for treeing or shaping boots and shoes, an expansible form having a sliding fore part, and a sliding heel-piece, the latter sliding obliquely on its support, substantially as described.

12. In a machine for treeing or shaping boots and shoes, an expansible form, having a fore part and a heel, and a plate on the bottom of said heel, adjustable toward and from the heel, substantially as described.

13. In a machine for treeing or shaping boots or shoes, an expansible form, having a rotatable frame provided with a pin having a screw-threaded end, a back leg portion having at its upper end a hole for said pin, a plate bearing at one end upon the back leg part, and at the other end upon the rotatable frame, a spring encircling said pin and bearing upon said plate, and a nut turning on the pin and acting on said spring, substantially as described.

14. The detachable fore part e' having at its rear side the recess e^2 , and in its top a hole, and the back plate e^3 bent angularly and shaped to fit the rear and top sides of said fore part, it having a hole in the top part, and a slot e^4 in its rear part, the slotted end portion of said plate partially covering the recess e^2 , and thereby forming a socket to receive a headed stud, substantially as described.

15. In a machine for treeing or shaping boots and shoes, a shin-piece, a detachable fore part, a fastening for the rear end of said fore part, and a spring-actuated locking-pin for the top of said fore part which passes through said shin-piece, substantially as described.

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

GEORGE H. CLARK.

Witnesses:

B. J. NOYES,
F. H. DAVIS.