

UNITED STATES PATENT OFFICE.

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LAST.

982,838.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HENRY F. LOEWER, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Lasts, of which the following is a specification.

This invention relates to lasts of the type in which a toe-block and a heel-block are movably fastened together, with provision for locking them either in extended or retracted relative position.

The object of the invention is to produce a last of this type which is provided with a movable instep-block and with simple and effective means for hinging the parts of the last together for controlling the movements of the instep-block and for locking the parts of the last in operative position.

To the above end the invention consists in the last hereinafter described and illustrated in the accompanying drawing, as it is defined in the succeeding claims.

In the drawings: Figure 1 is a vertical, longitudinal section through a last embodying this invention, showing the parts in the locking position and on a jack post; Fig. 2 is a like vertical, longitudinal section, showing the parts unlocked, and in the unlasting position; and Fig. 3 is a like vertical, longitudinal section, showing the parts in the lasting position, locked, and removed from the jack post.

In the drawings, the toe-block 1 is provided with an instep-block 2, hinged thereto at 3 in any suitable manner. The toe-block and instep-block are slotted as at 4, 5, in a central plane passing vertically through the last, for the reception of a hinging and operating plate that is set edgewise in said slots. The heel-block 6 is provided with a jack post socket 7, and is also provided in the central, vertical, longitudinal plane of the last with a slot 8 that registers with the slots 4, 5, in the toe-block and instep-block.

The parts of the last are connected or hinged together, by the operating plate 9. The plate is pivoted to the heel-block 6 by a cross pin 10, that passes through the plate and into the heel-block. The plate has three slots, one, 11 extending substantially in a radius from the pin 10, and another slot 12, slightly curved and having the convex side of the curve toward the slot 11 and pivot pin 10. A third slot 13 in the plate 9 is of a cam character, for the purpose of opening

and closing the instep-block as the plate swings in the toe-block, and is drawn in a curve of increasing radius with respect to a center in or near the slot 11. The slots 11 and 12 hold the toe-block 1 against the heel-block 6, and guide the two parts as they slide upon each other. The slot 11 limits the longitudinal movement of the heel-block with reference to the toe-block, and the slot 12 limits and guides the sliding or transverse movement of one of these parts with reference to the other. A pin 14 passes transversely through the toe-block and through the slot 12, and another pin 15 passes through the toe-block and through the slot 11. A pin 16 passes through the toe-block and through the slot 13.

In the slot or socket 8, in the heel-block 6, there is pivoted, on a pin 17, a double, swinging latch 18 actuated in one direction by a spring 19. A portion of the latch is adapted, when it is tilted in one direction to extend into the jack-post socket 7, and this portion of the latch has a face adapted to lie against the jack-post when the latter is in the socket 7, and to force an engaging portion 21 of the latch into a socket 22 in the plate 9, and in this position the heel-block and the toe-block are locked together in the lasting position, as shown in Fig. 1.

The pawl or latch 18 has a hooked or engaging part 23 on the opposite side of the center from the engaging part 21, which is adapted to engage in a socket 24 in the plate 9 when there is no jack-post in the jack-post socket, and thus to hold the heel-block and toe-block in the lasting position, as shown in Fig. 3. The spring 19 tends always to tilt the pawl or latch, so as to produce this last mentioned engagement. Hence, in this device the pawl or latch has two locking positions for engaging and holding the toe-block in the lasting position, both when the jack-post is fully inserted in the jack-post socket, and also when there is no jack-post in said socket. When it is necessary to unlock the last a short post 25, Fig. 2, is inserted in the socket, whereby the pawl or latch 18 is tilted just so far as to free it from the plate 9 at its end 23 without throwing its other end into engagement, and the toe-block may then be moved with reference to the heel-block 6 to the unlasting position shown in Fig. 2.

The slot 13 acts upon the pin 16 in the

instep-block to swing said instep-block on its hinge 3, and thus to move the instep-block to and from the toe-block 1, thus expanding and contracting the last at the instep-portion; so that in the lasting position the instep-block is forced away from the toe-block and fits tightly in the shoe, while in the unlasting position the instep-block is contracted against the toe-block 1, and the last is loosened with reference to the shoe. The cam slot 13 is drawn on a curve of increasing radius with respect to a point at about the position of the pin 15, although said pin shifts to the extent permitted by the slot 11.

It will be noted that the contact surface between the toe-block and the heel-block is in a plane transverse to the length of the last, and inclined forwardly from the surface of the bottom of the last, and that therefore the heel-block and the toe-block have meeting surfaces constructed to permit relative movement both longitudinally and vertically, or transversely, whereby in the lasting position shown in Figs. 1 and 2, a line from the rear end of the heel block to the extremity of the toe-block is longer than between the same points when the parts are in the unlasting position shown in Fig. 2.

What I claim is:—

1. In a last, a toe-block and a heel-block sliding on each other and having contact surfaces inclined with reference to the bottom of the last and transverse to the length of the last; an instep-block hinged to said toe-block; a plate connecting the three parts and operating the instep-block, and having two latch abutments; and an automatic latch having two positions for engaging the respective abutments and locking the parts in the lasting position and an intermediate position for releasing the said parts.

2. In a last, a toe-block and a heel-block sliding on each other and having contact surfaces inclined with reference to the bottom of the last and transverse to the length of the last; an instep-block hinged to said toe-block; a plate connecting the three parts and operating the instep-block, and having two latch abutments; and a tilting spring-operated latch on one part having two positions for engaging the respective abutments and locking the parts in the lasting position and an intermediate position for releasing the said parts.

3. In a last, a toe-block and a heel-block sliding on each other and having contact surfaces inclined with reference to the bottom of the last and transverse to the length of the last; an instep-block hinged to said toe-block; a plate connecting the three parts and operating the instep-block, and having two latch abutments; and an automatic latch having three positions, one for locking the blocks by spring action by engaging one

abutment in one position thereof, another for locking the blocks by action of a key on said latch and engaging the other abutment in another position thereof, and a third for releasing the blocks by action of a key in an intermediate position of the latch.

4. In a last, a toe-block and a heel-block sliding on each other and having contact surfaces inclined with reference to the bottom of the last and transverse to the length of the last, an instep-block hinged to said toe-block, a plate connecting the three parts and operating the instep-block and having two latch abutments, and a tilting spring-operated latch having three positions, one for engaging one abutment and locking the blocks in the lasting position by spring action, another for engaging the other abutment and locking the blocks in the lasting position by action of a key on said latch, and a third for unlocking the blocks by action of a key in an intermediate position of the latch.

5. In a last, a toe-block and a heel-block sliding on each other and having contact surfaces inclined with reference to the bottom of the last and transverse to the length of the last; a hinge-plate set vertically and edgewise in said parts and pivoted to one of said parts by a transverse pivot and having a slot convex toward said pivot, and a second slot cut in a line running from said pivot to a point in the convex slot; pins in the second part of the last passing through said respective slots; and a tilting spring-operated latch on one part having two positions for locking the plate to hold the parts of the last in the lasting position, said latch having another position for releasing said parts.

6. In a last, a toe block and a heel-block sliding on each other and having contact surfaces inclined with reference to the bottom of the last and transverse to the length of the last; an instep-block hinged to said toe-block; a hinge-plate set vertically and edgewise in said parts and pivoted to one of said parts by a transverse pivot and having a slot convex toward said pivot, and a second slot cut in a line running from said pivot to a point in the convex slot; pins in the other part of the last passing through the respective slots, the said plate having a third slot drawn in a curve having an increasing radius drawn from a point in the last mentioned slot and cut in a part of the plate extending vertically and edgewise into the instep-block; a transverse pin in the instep-block passing through the last mentioned slot; and a tilting spring-operated latch on one part having two positions for locking the plate to hold the parts in the lasting position, and having an intermediate position for releasing said parts.

7. In a last, a toe-block and a heel-block

sliding on each other and having contact surfaces inclined with reference to the bottom of the last and transverse to the length of the last; a hinge-plate set vertically and edgewise in said parts and pivoted to one of said parts by a transverse pivot and having a slot convex toward said pivot, and a second slot cut in a line running from said pivot to a point in the convex slot, the said hinge-plate having two latch abutments; pins in the second part of the last passing through said respective slots; and a tilting latch on one part having two positions, one for automatically engaging one abutment and locking the plate to hold the other part of the last in one position, another for engaging the other abutment and locking the plate by key action in the same position, said latch having another position for releasing said part by key action.

8. In a last, a toe-block and a heel-block sliding on each other and having contact surfaces inclined with reference to the bottom of the last and transverse to the length of the last; an instep-block hinged to said toe-block; a hinge-plate set vertically and

edgewise in said parts and pivoted to one of said parts by a transverse pivot and having a slot convex toward said pivot, and a second slot cut in a line running from said pivot to a point in the convex slot; pins in the other part of the last passing through the respective slots; the said plate having a third slot drawn in a curve having an increasing radius drawn from the point in the last mentioned slot and cut in a part of the plate extending vertically and edgewise into the instep-block, the said hinge-plate having also two latch abutments; a transverse pin in the instep-block passing through the last mentioned slot; and a tilting latch on one part having three positions, one for automatically engaging one abutment and locking the plate to hold the parts in one position, another for engaging the other abutment and locking the plate by key action in the same position, and an intermediate position for releasing said parts.

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Witnesses:

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