

H. KEIL.
LAST.

APPLICATION FILED JUNE 12, 1902.

956,582.

Patented May 3, 1910.

2 SHEETS—SHEET 1.

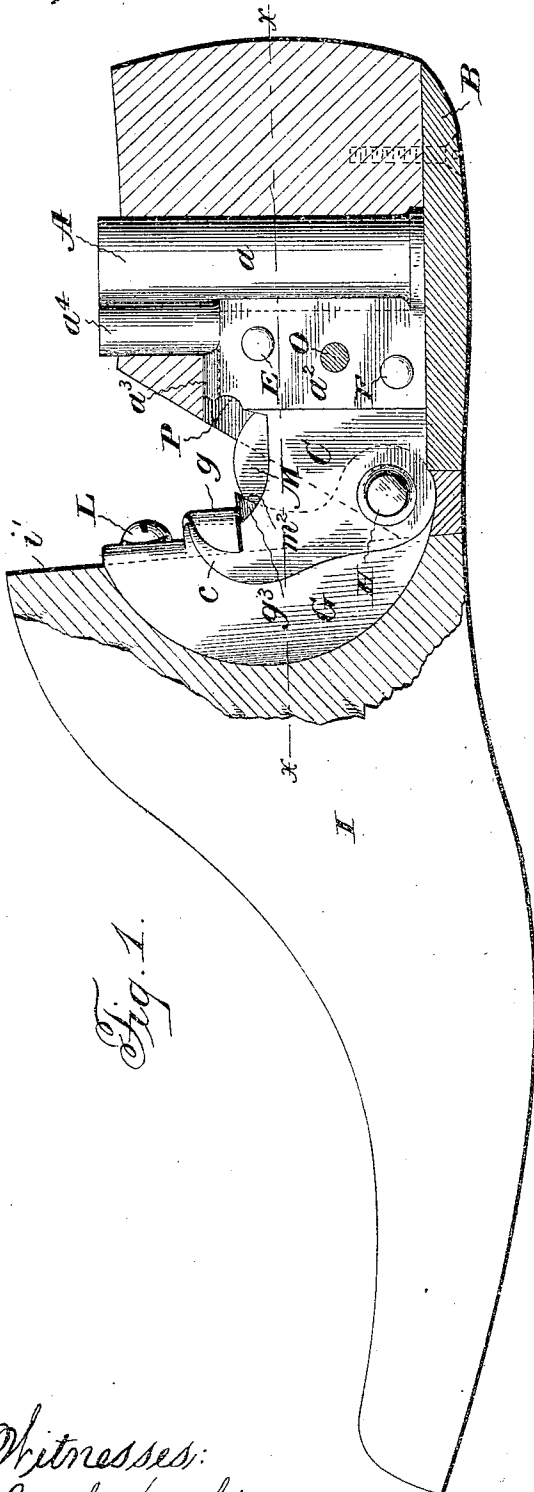
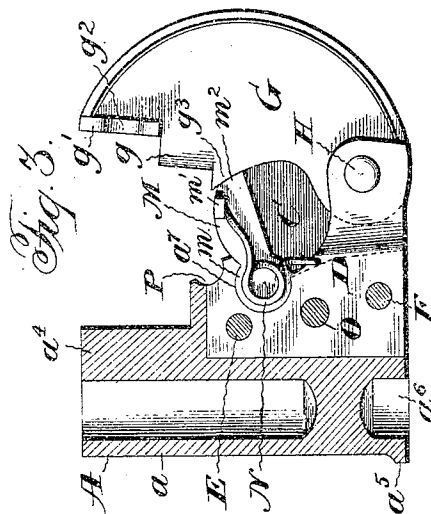
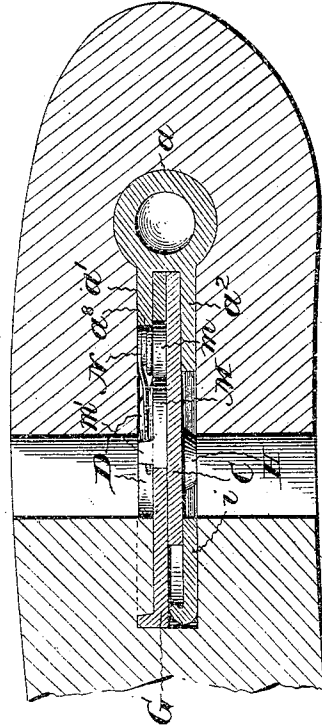


Fig. 2.



Witnesses:
Jas. E. Hutchinson
J. L. Lawlor.

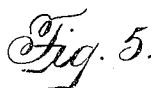
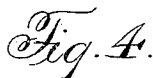
Inventor.
Herman Keil,
by Edwin J. Prindle, his Atty

LAST.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

HERMAN KEIL, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE PREMIER LAST COMPANY, OF GREAT RIVER, NEW YORK, A CORPORATION OF NEW YORK.

LAST.

956,582.

Specification of Letters Patent.

Patented May 3, 1910.

Application filed June 12, 1902. Serial No. 111,403.

To all whom it may concern:

Be it known that I, HERMAN KEIL, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Lasts, and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of a last embodying my invention, portions of the last being broken away to expose the hinge; Fig. 2 is a sectional view taken on the line $x-x$, Fig. 1; Fig. 3 is a view of my hinge taken from the opposite side from Fig. 1, the hinge being shown partly in section; Fig. 4 is a view showing the parts of my hinge in perspective; Fig. 5 is a perspective view of my hinge assembled; Fig. 6 illustrates an alternative form of my fore-part hinge plate; and, Fig. 7 is a perspective view of a locking tool.

The object of my invention has been to provide a hinged last which shall have, among others, the following advantages;— those of being amply strong to withstand all the operations of manufacturing a shoe upon the last by machinery, and especially the operations of heeling upon the last, and of lasting; of having a low cost; and of automatically compensating for wear and strain, so that the last shall be always rigid and without shake or play when locked, and to such ends, my invention consists in the last hereinafter specified.

In carrying my invention into practice, I provide a shank or thimble A, which is preferably formed by casting, and, preferably, consists of a cylindrical body a having a hole in its upper portion to receive the pins of the various machines upon which it is to be mounted, and having forwardly-projecting flanges a' and a^2 between which plates of the hinge are received. The flanges a' and a^2 unite in an arch a^3 at the top, from which rises a preferably cylindrical part or rib a^4 that lies along the front portion of the body a . At its bottom, the body a is, preferably, provided with a flange a^5 , which affords an extended support and bearing for the heel-plate B. A hole a^6 in the bottom of the body a is provided for the reception of a plug, into which a tack may be driven for fastening an insole to the last. Heel-part hinge plates C and D are

received between the flanges a' and a^2 , and are secured thereto by rivets E and F. The rivets E and F may be omitted, if desired, but they are, preferably, used. The plate C preferably extends straight forward, and the plate D, forward of the flange a^2 , is bent away from the plate C, and then forward, and the fore-part hinge plate G is pivoted to the plates C and D by being received between the same and secured near their lower edges by a pintle H. A very strong hinge is formed in this manner. The plate G is provided with an arc-shaped flange, by which it is secured in an arc-shaped slot in the fore-part I by a wedge i , substantially as in the last disclosed in the patent to Edwin J. Prindle, No. 648,525, May 1st, 1900. The fore-part plate is provided with a hook g , which is shown as being bent in a horizontal plane, but which can, if desired, be bent in a vertical plane. The plate C is provided with a vertical shoulder c which is adapted to engage the hook g , and to prevent movement of the fore-part away from the heel-part, beyond the normal position. The plate G is, preferably provided with a flange g' , the upper, rear edge of which flange is adapted to bear against the rear face of the fore-part. The said flange is preferably provided with a notch g^2 in its vertical edge, which notch enables the flange to pass beneath the head of a screw L that is secured to the rear face of the fore-part.

The plate D is provided with a circular seat a' that is open toward the front. A locking piece M is provided with a circular head m that is received in the seat a' , and the forward end of the locking piece is adapted to bear against the rear edge g^3 of the fore-part hinge plate, to prevent the collapse of the last. The locking piece is provided with a lug m' , which is engaged by a spring N, the spring being preferably mounted in a circular seat a^8 formed in the forward edge of the flange a' . The seat a^8 is, preferably, concentric with a seat a^7 , but is smaller than the latter, so that the flange a' overlies the locking piece to hold the latter in position, while leaving it free to turn. The forward edge m^2 of the locking piece is inclined to a line passing through the pintle H and longitudinally through the locking piece when the locking piece is in its upper position, and the edge g^3 is cor-

respondingly inclined. The hinge in the heel-part fits a slot whose width is equal to the distance between the outer surface of the flanges a' and a^2 . In this manner, the spring is kept in its seat by the material of the heel-part. The hinge is, preferably, secured in the heel-part by a pin O passing through the heel-part and hinge, and, preferably, headed or riveted upon both ends.

The heel-plate B is seated upon the flange a^5 and lower edges of the flanges a' and a^2 , and is, preferably, secured in place by nails or screws. The locking piece M preferably extends higher than the adjacent portion of the plate C, so that a tool, to engage it, can depress the locking piece by striking its upper edge, and the last be unlocked, without requiring that the tool shall pass below the upper edge of the plate C. A flat, blade-like tool can thus be used. The edge g^3 of the plate G is curved away from the center about which the locking piece moves, as such curve passes downward, so that the locking piece is freed from engagement with said edge as it descends. A notch P is formed in the front, upper edges of the flanges a' and a^2 , and the plates C and D, for the convenient engagement of a bent lever, such as is shown in Fig. 7, for forcing the wedge into the fore-part slot. The hook upon the opposite end of the lever is used to disengage and withdraw the wedge from the said slot.

The head of the pintle H is, preferably, flat and of the same vertical height as the thickness of the flange a^2 ; *i. e.* it stands away from the plate C, as seen in Fig. 2, the same distance as the flange a^2 , so that, as seen in the said figure, the vertical end surface of the said pintle is in the same plane as the outer surface of the flange a^2 . Such head is thus caused to bear upon one wall of the slot in the heel-part. The rear face i' of the fore-part is preferably inclined in a downward direction to the axis of the body a , so that the flange g^3 shall lie forward of the front edge of the heel-part. The said flange is thus, when the hinge is extended, always farther forward than any portion of the wooden heel-part. This enables the said flange to be made wider than the slot in the heel-part, as the flange does not have to pass through said slot when the hinge is thrust upwardly into the slot in the heel-part.

To collapse my last, the locking piece is depressed, preferably until its upper edge is substantially flush with the upper edge of the plate C. While in such depressed position, the fore-part is swung toward the heel-part about the pintle H. The edge g^3 of the plate G then engages and cams downward the locking piece M against the stress of the spring N—that is, it forces the locking piece toward the sole by a cam action. To straighten the last, the fore-part and

heel-part are swung away from each other about the pintle H, until the hook g engages the shoulder c . During such movement, the spring N raises the locking piece M, and causes its inclined forward end m^2 to travel along the inclined edge g^3 of the plate G, until the last is securely locked. Should there be any give, or yielding, or movement, owing to wear, by which the plate G should swing farther forward than previously, the spring will cause the locking piece to move farther upward, until it finds a firm bearing against the inclined edge g^3 of the plate G, and the hinge will thus always be rigidly locked open, regardless of wear or strain.

In the alternative construction, illustrated in Fig. 6, the hook g^4 is extended downwardly below the upper edge of the plate C, and is provided with a tail g^5 which extends rearward beyond the hook, and that bears upon the face of the plate C. The upper edge of the plate C is, preferably, substantially concentric with the pintle H. The tail g^5 , by engagement with the face of the plate C, sustains the hook and assists in preventing its bending.

Having thus described my invention, what I claim is:—

1. In a hinged last, the combination of a fore-part hinge plate formed of sheet metal and having a hook formed above the hinge center and bent forward therefrom laterally, a heel-part hinge plate having a lug projecting forward from its upper edge, said lug being adapted to engage said hook, the engagement of said hook and lug serving to prevent opening of the last beyond normal position, and a locking device pivoted to the heel-plate and bearing against said fore-part hinge plate and serving to prevent the collapse of the last.

2. In a hinged last, the combination of a fore-part hinge plate formed of sheet metal, and having a hook bent up therefrom laterally, a heel-part hinge plate having a shoulder that is adapted to engage said hook, the engagement of said hook and shoulder serving to prevent opening of the last beyond normal position, and a locking piece pivoted to the heel-plate, and bearing against said fore-part hinge-plate and serving to prevent the collapse of the last, said locking piece having its bearing end inclined to a line connecting said end with the center of movement of said locking piece, and the fore-part hinge plate having a correspondingly shaped surface, whereby, said locking piece is enabled to take up lost motion.

3. In a hinged last, the combination of means to prevent opening of the last beyond normal position, and a locking piece pivoted to one of the last parts, and bearing against a shoulder on the other last part, said locking piece at its free end, having a surface that is inclined to a line connecting said sur-

face with the center of movement of the locking piece, said shoulder being complementary to said locking-piece whereby said locking piece is adapted to lock the hinge, whether or not the latter is entirely open.

4. In a hinged last, the combination of means to prevent opening of the last beyond normal position, and a locking piece pivoted to one of the last parts, and bearing against a shoulder on the other last part, said locking piece at its free end, having a surface that is inclined to a line connecting said surface with the center of movement of the locking piece, said shoulder being so shaped that when the last is normally extended, said shoulder will be inclined to the aforesaid line whereby said locking piece is adapted to lock the hinge, whether or not the latter is entirely open.

5. In a hinged last, the combination of means to prevent opening of the last beyond normal position, a locking piece pivoted on one of the last parts, and having a free end that is oblique to a line connecting said end with the pivot of the locking piece, a spring tending to move said locking piece in one direction, and a shoulder on the other of said last parts, said shoulder being inclined to the aforesaid line, when the last is in normal position, whereby, the pressure of said spring against the said locking piece, tends to cause the latter to travel along said inclined shoulder to take up lost motion.

6. In a hinged last, the combination of means to prevent opening of the last beyond normal position, a locking piece pivoted to the heel-part and bearing against a shoulder on the fore-part, a spring tending to raise the free end of said locking piece, said shoulder being inclined toward the pivot of said locking piece in an upward direction.

7. In a hinged last, fore-part and heel-part hinge plates pivoted together, a locking piece pivoted to one of said plates and engaging the other of said plates, said locking piece, when in locked position, having its plate-engaging end extending above the edge of the plate to which it is pivoted, said end being movable toward the sole of the last to unlock the last.

8. In a hinged last, the combination of a pin socket having a short, forwardly-extending flange, a hinge-plate rigidly secured to such flange, and means for movably securing the fore-part to said hinge-plate.

9. In a hinged last, the combination of a pin socket having short forwardly extending flanges, a hinge-plate fixedly secured between said flanges, and means for movably securing the fore-part to said hinge-plate.

10. In a hinged last, the combination of a pin socket having forwardly extending flanges, hinge plates secured between said flanges one of said flanges having a seat, and a locking piece mounted in said seat in one

of said plates, one of said flanges overlying said locking piece, to secure the latter in its seat.

11. In a hinged last, the combination of a pin socket having forwardly extending flanges, hinge plates secured between said flanges one of said flanges having a seat, a locking piece mounted in said seat in one of said hinge plates and held therein by an overlying portion of one of said flanges, and a spring mounted in a seat in one of said flanges, said seats being concentric.

12. In a divided last having a slot in one of the last parts, a plate adapted to be detachably secured in said slot, said plate having a flange that is adapted to lie against a face of said last part, said last part having a headed pin secured to said face, the flange being forked to embrace the shank of said headed pin.

13. In a divided last, the combination of a pin socket having flanges, a hinge plate secured between said flanges, a pintle for said hinge plate, said pintle having a head whose thickness is equal to the thickness of one of said flanges.

14. A hinged last having a jack-pin socket hole and having a vertical slot opening into said jack-pin socket hole from below, and extending forward through the heel-part, a combined hinge and jack-pin socket, adapted to be inserted into place parallel to the axis of the socket hole, said hinge having a flange that is adapted to lie against the rear face of the fore-part, said rear face being forwardly inclined so that said flange, by extending the hinge, can be made to pass beyond the forward end of the heel-part as the hinge is inserted into place.

15. A divided last, comprising a fore-part and a heel-part, separated at their meeting top ends by an open space when in lengthened position, a hinge-plate connecting said two parts rigidly secured to one part and provided with an upwardly projecting shoulder to move with relation to the other part, and a locking plate set on edge in said other part in the same vertical plane as said projecting shoulder, having a cooperating shoulder for engaging said projecting shoulder to lock the last in lengthened position, said two shoulders having their engaging surfaces arranged slightly out of alignment with the pivotal center of said hinge-plate, and constructed and arranged, in connection with the pivoting of the two plates, to provide a wedge-like action for taking up wear and maintaining the parts always with a tight fit, and means normally impelling said locking plate toward its locked position.

16. A divided last, comprising a fore-part and a heel-part, joined by pivotal connection having a locking shoulder, combined with a locking piece pivotally mounted in one of said parts above said connection and pro-

vided with a coöperating wedging locking
shoulder, said two shoulders having their
engaging surfaces nearly at right angles to
a radius from the pivotal center of said
5 locking piece to the point of locking contact,
to give firmness and certainty in locked posi-
tion, and oblique to the arc of movement
of said connection at said point of contact
and providing a wedge-like action capable
10 of taking up wear and maintaining the parts

always with a tight fit, and means normally
impelling said locking piece toward its
locked position.

In testimony that I claim the foregoing
I have hereunto set my hand this 19th day 15
of May 1902.

HERMAN KEIL.

Witnesses:

CHAS. J. WILLIAMSON,
GEO. B. PRINDLE.