W. GORDON.

LAST.

APPLICATION FILED JAN. 12, 1912.

1,203,609. Patented Nov. 7, 1916.

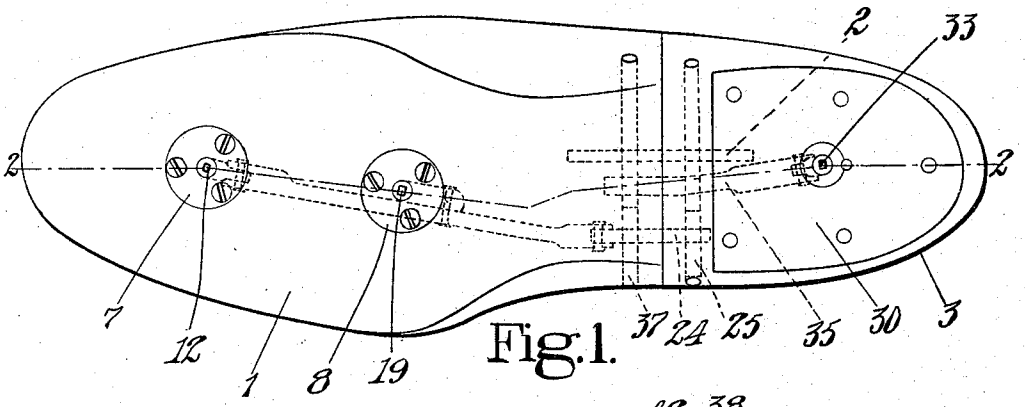


Fig.1.

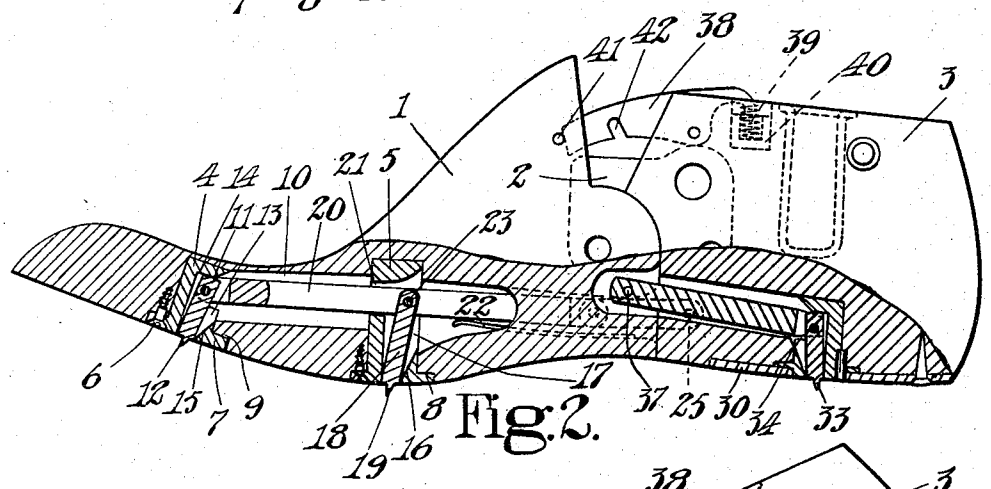


Fig.2.

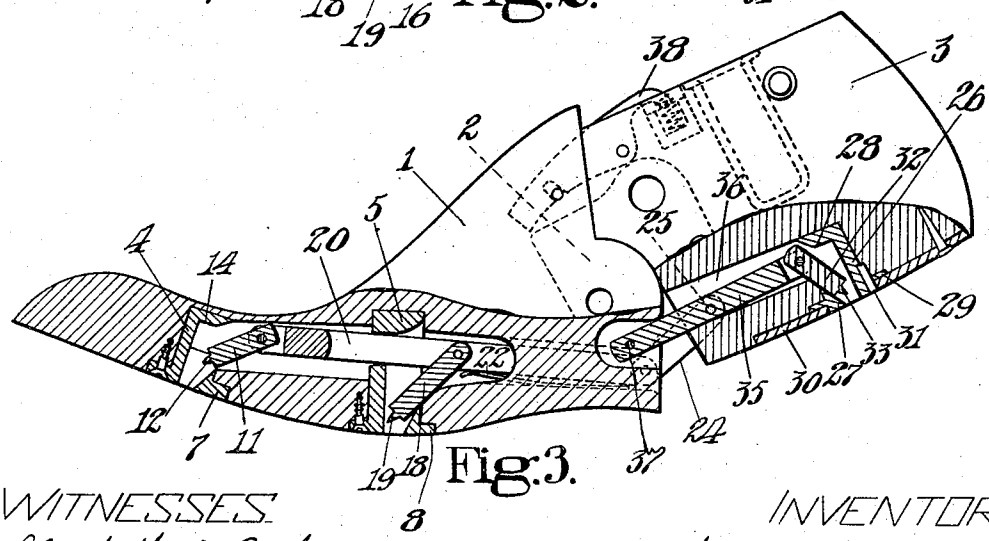


Fig.3.

WITNESSES.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM GORDON, OF DUXBURY, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

LAST.

1,203,609. Specification of Letters Patent. Patented Nov. 7, 1916.

Application filed January 12, 1912. Serial No. 670,875.

To all whom it may concern:

Be it known that I, WILLIAM GORDON, a citizen of the United States residing at Duxbury, in the county of Plymouth and State of Massachusetts, have invented certain Improvements in Lasts, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to lasts.

More particularly it relates to that type of lasts which are provided with sole retaining prongs arranged to be projected through the bottom of the last or to be retracted within the last.

The invention has among its objects to provide a last of this type with improved means for moving the sole retaining prongs and to provide means for holding the prongs in predetermined positions.

To the accomplishment of these objects one feature of the present invention contemplates the provision, in a last provided with a forepart and a heelpart relatively movable to extend and collapse the last, and sole retaining means comprising prongs arranged to be forced into the sole, of means for operating said prongs through the relative movement of the fore and heel parts. The specific manner in which the sole retaining prongs are operated by the relative movement of the fore and heel parts may be varied as found desirable or expedient. It is usually desirable, however, to so move the sole retaining prongs that they are projected through the bottom of the last when the last is extended and are withdrawn into retracted position within the last when the last is collapsed.

A further feature of the invention contemplates the provision, in a last provided with sole retaining prongs mounted within the last for movement into projected or retracted positions, and means for moving the prongs, of means for locking the prongs against movement when they are withdrawn within the last. This arrangement insures that the sole retaining prongs shall not be accidentally projected into operative position when the last is not in use, thus not only protecting the sharpened prongs from damage but also preventing them from injuring other articles with which they might come in contact. It is further proposed to lock the prongs in their projected positions, thus avoiding any likelihood of their being withdrawn from the sole except at the will of the operator.

Broadly considered the invention contemplates the use of any suitable form of locking means for the sole retaining prongs; but in the construction illustrated herewith the prongs may be positively locked from movement away from either their projected or retracted positions by a latch arranged to lock the last either in its extended or collapsed condition.

The invention also is directed to novel supporting means for the sole retaining prongs and to other features that will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a bottom view of a last embodying the features of the invention in the best form at present devised; Fig. 2 is a side elevation of the last, partly in longitudinal section on the line 2—2, Fig. 1; and Fig. 3 is a view similar to that of Fig. 2, but showing the position of the parts when the last is collapsed.

In the embodiment of the invention illustrated in the drawing a forepart 1 is connected by a hinge 2 to a heelpart 3 so that the heelpart may move on the forepart to extend or collapse the last. The bottom of the forepart is bored vertically and countersunk to provide holes for hollow cylindrical socket pieces 4 and 5 that are secured to the forepart by screws 6 which clamp peripheral flanged plates 7 and 8 respectively on the sockets 4 and 5, to shoulders 9 formed by the countersink. These sockets intersect a bore 10 which extends longitudinally from the forepart vertical wall to a point adjacent to the toe, and the sockets serve to strengthen the portion of the forepart that is weakened by the removal of the wood.

A cylindrical pin 11 provided with a sole retaining prong 12 is arranged to be moved through an opening 13 formed in the socket 4 into a position wherein the prong is projected through an opening in the plate 7, and the head of the pin 11 abuts against an overhanging wall 14 of the socket. In order that the pin may tilt in the socket to permit its introduction and removal the socket is provided with an inclined wall 15 beneath the opening 13. The socket 5 is similarly provided with an inclined wall 16, and with

an opening 17 to facilitate the introduction into and removed from the socket of a cylindrical pin 18 provided with a sole retaining prong 19.

The pin 11 is pivoted between the arms formed near the end of a slide 20 mounted to slide in the bore 10 through a slot 21 formed in the socket 5. The slide 20 is frictionally held in position in the bore 10 by a spring 22 arranged on the floor of the bore to engage the bottom of the slide. The pin 18 is pivoted at 23 intermediate the ends of the slide. The other end of the slide is pivoted to a link 24 which is pivoted on a transverse pin 25 carried by the heelpart. By this construction when the heelpart is swung upward to collapse the last the prongs are simultaneously retracted within the last and when the heelpart is swung downward to extend the last the prongs are simultaneously projected from the last and forced into an insole held against the bottom of the last. The heelpart is also bored vertically and countersunk to provide a hole for a socket 26 having an inclined wall 27 and an overhanging wall 28. This socket is provided with a peripheral flange 29 which rests on the shoulders formed by the countersink and is secured to the heelpart by the anvil plate 30 which covers the flange 29. The socket is prevented from turning in the hole by a pin 31. A cylindrical pin 32 provided with a sole retaining prong 33 is mounted for movement through an opening 34 into and out of the socket 26. The pin 32 is pivoted between two arms formed on a link 35 which is mounted to slide through a bore 36 in the heelpart. The link 35 is pivoted on a transverse pin 37 carried by the forepart. By this construction the prong 33 is forced into the sole and withdrawn therefrom simultaneously with the similar movements of the prongs 12 and 19. Pressure exerted upon the face of the sole during the various shoe making operations will not disturb the prongs, since the prongs 12 and 33 are held against individual movement under pressure exerted upon their protruding points by the overhanging walls 14 and 28, which engage the heads of the pins 11 and 32; and the prong 19 also is held against individual movement by its connection with the slide 20, which is supported to resist such pressure by the wall 14 and the upper surface of the bore 10.

In order to prevent the prongs from being retracted within the last when the latter is in use, the heelpart carries a pivoted latch 38 one end of which rests upon a coiled spring 39 mounted in a recess 40 in the cone of the last, and the other end of which wedges against a pin 41 on the forepart. The parts are so proportioned and the end of the latch is so shaped that when the heelpart is moved to extend the last the spring 39 automatically wedges the latch against the pin 41. To release the latch so that the last may be collapsed and the prongs withdrawn the spring pressed end of the latch is depressed to free the other end of the latch from the pin 41. In order that the prongs may be maintained retracted within the last when the last is not in use, the latch is provided, intermediate its wedge end and the pivot, with a notch 42 which when the last is collapsed hooks over the pin 41 and locks the parts of the last against movement.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A last, having, in combination, a forepart and a heelpart relatively movable to extend and collapse the last, sole retaining means comprising prongs arranged to be forced into the sole, and means for operating said retaining means through the relative movement of the fore part and heel part.

2. A last, having, in combination, a forepart and a heelpart relatively movable to extend and collapse the last, sole retaining means comprising prongs arranged to be forced into the sole, and means for operating said retaining means through the relative movement of the fore part and heel part, so constructed and arranged that said retaining means is held against movement while said last is in one of its extreme positions.

3. A last, having, in combination, a forepart and a heelpart relatively movable to extend and collapse the last, sole retaining means comprising prongs arranged to be forced into the sole, means for operating said retaining means through the relative movement of the fore part and heel part, and means for locking the last in collapsed position.

4. A last, having, in combination, a forepart and a heelpart relatively movable to extend and collapse the last, sole retaining means comprising prongs arranged to be forced into the sole, means for operating said retaining means through the relative movement of the fore part and the heelpart, and means for locking the last in either its extended or collapsed position.

5. A last, having, in combination, a forepart and a heelpart relatively movable to extend and collapse the last, sole retaining means comprising prongs, and means for operating said retaining means through the relative movement of the forepart and heel part to project the prongs when the last is extended, and retract the prongs within the last when the last is collapsed.

6. A last, having, in combination, a forepart and a heelpart relatively movable to extend and collapse the last, sole retaining means comprising prongs, means for operating said retaining means through the rela-

tive movement of the fore part and heel part to project the prongs when the last is extended and retract the prongs within the last when the last is collapsed, and means for locking the prongs against movement away from either of their extreme positions.

7. A last, having, in combination, sole retaining prongs mounted within the last for movement outwardly through the bottom of the last, means for moving the prongs, and means for locking the prongs against movement when they are withdrawn within the last.

8. A last, having, in combination, a forepart and a heelpart relatively movable to extend and collapse the last, sole retaining means comprising prongs arranged to be forced into the sole, means for operating said retaining means, and means for locking the prongs against movement when the last is collapsed.

9. A last, having, in combination, a forepart and a heelpart relatively movable to extend and collapse the last, sole retaining means comprising prongs arranged to be forced into the sole, means for operating said retaining means, and means for locking the prongs against movement when the last is either extended or collapsed.

10. A last, having, in combination, a forepart and a heelpart relatively movable to extend and collapse the last, sole retaining means comprising prongs arranged to be forced into the sole when the last is extended and to be withdrawn from the sole when the last is collapsed, and means for positively locking the prongs against movement away from their extreme positions.

11. A last, having, in combination, a forepart and a heelpart movable thereon to extend and collapse the last, a member carried by the forepart, sole retaining means arranged to be operated thereby, and connections between the heelpart and member whereby the member is actuated by the movement of the heelpart.

12. A last, having, in combination, a forepart and a heelpart movable thereon to extend or collapse the last, a member carried by the forepart, sole retaining prongs arranged to be operated thereby, a link pivoted to the forepart and mounted to slide within the heelpart, a sole retaining prong arranged to be operated thereby, and connections between the heelpart and member whereby the prongs are simultaneously actuated by the movement of the heelpart.

13. A last, having, in combination, a forepart and a heelpart relatively movable to extend or collapse the last, sole retaining prongs carried by the forepart, operating means for moving said prongs, and connections between said heelpart and said operating means whereby the prongs will be retracted when the last is collapsed.

14. A last, having, in combination, a forepart and a heelpart relatively movable to extend or collapse the last, sole retaining prongs carried by the forepart, operating means for moving said prongs, and connections between said heelpart and said operating means whereby the prongs will be projected when the last is extended.

15. A last having at different points in its length sole retaining prongs arranged for movement into a sole on the bottom of the last, means connecting said prongs for simultaneous movement, and means for preventing movement of the prongs out of the sole under pressure applied to the face of the sole.

16. A last having sockets located at different points in its length, a sole retaining prong arranged in each socket for movement into and out of a sole on the bottom of the last, and means on the sockets for preventing movement of the prongs out of the sole under pressure applied to the face of the sole.

17. A last having a socket inserted therein, a prong within the socket arranged to be forced into a sole on the bottom of the last, said socket being formed to hold the prong against movement out of the sole under pressure applied to the face of the sole.

18. A last, having, in combination, a forepart and a heelpart movable thereon to extend and collapse the last, a link carried by the heelpart, sole retaining means carried thereby, and connections between the forepart and link whereby the latter is actuated by the movement of the heelpart.

19. A last having a sole retaining prong movable into a protruding, operative position or into a non-protruding inoperative position and means engaging the prong only when it is in operative position to prevent movement of the prong under pressure applied to the protruding portion of the prong.

20. A last having a sole-retaining prong movable into a protruding operative position or into a non-protruding inoperative position, and means engaged by the prong as it moves into operative position to prevent movement of the prong under pressure applied to the protruding portion of the prong.

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

WILLIAM GORDON.

Witnesses:
RALPH E. DEAN,
EMILE H. TARDIVEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

Correction in Letters Patent No. 1,203,609.

It is hereby certified that in Letters Patent No. 1,203,609, granted November 7, 1916, upon the application of William Gordon, of Duxbury, Massachusetts, for an improvement in "Lasts," an error appears in the printed specification requiring correction as follows: Page 2, line 2, for the word "removed" read *removal;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 20th day of February, A. D., 1917.

[SEAL.]

F. W. H. CLAY,
Acting Commissioner of Patents.

Cl. 12—121.