

A. M. LEIGHTON.

LAST.

APPLICATION FILED AUG. 12, 1910.

1,000,419.

Patented Aug. 15, 1911.

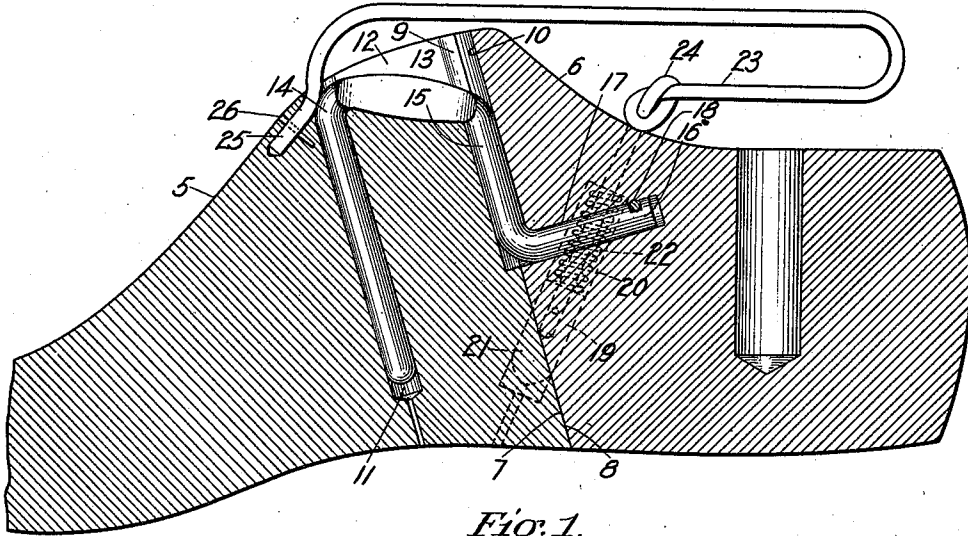


Fig. 1.

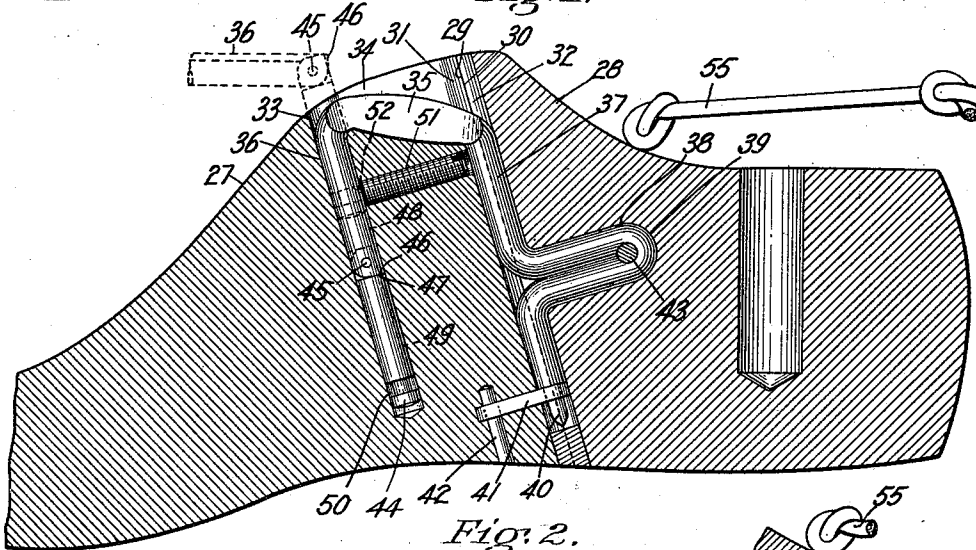


Fig. 2.

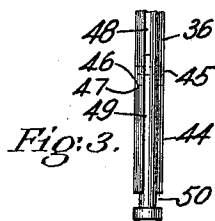


Fig. 3.

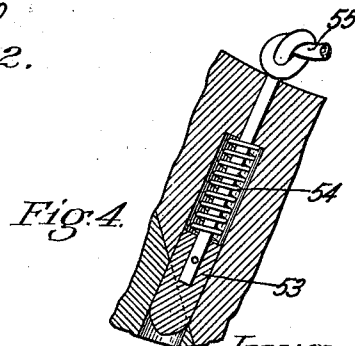


Fig. 4.

Witnesses:

Sydney E. Taft.
Leonard A. Powell

Inventor:

Arthur M. Leighton
By his attorney, Charles S. Gooding.

UNITED STATES PATENT OFFICE.

ARTHUR M. LEIGHTON, OF CHARLESTOWN, MASSACHUSETTS, ASSIGNOR TO WILLIAM C. LEIGHTON, OF MACHIAS, MAINE.

LAST.

1,000,419.

Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed August 12, 1910. Serial No. 576,892.

To all whom it may concern:

Be it known that I, ARTHUR M. LEIGHTON, a citizen of the United States, residing at Charlestown, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Lasts, of which the following is a specification.

This invention relates to improvements in lasts and particularly to that class of lasts which are transversely divided and in which the heel part slides upon the fore part so as to be withdrawn upwardly in order that the last may be removed from the shoe.

One object of my invention is to provide improved means for connecting the heel part and fore part together to permit one to slide upon the other.

The object is further to provide means for permitting first an upward sliding movement of the heel part relative to the fore part and subsequently a forward swinging movement as well as a lateral swinging movement of the heel part with relation to the fore part.

Another object is to provide means to prevent relative lateral displacement of the fore part and heel part and to provide means to rigidly connect the heel part and fore part to each other.

Another object is to provide means to lock the two parts of the last against sliding movement one upon the other.

Still another object is to provide means whereby the locking means may be rendered inoperative and the heel part withdrawn upwardly in a single movement.

Still other objects and advantages will appear hereinafter.

To these ends, the invention consists in the novel features of construction and in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims.

Referring to the drawing: Figure 1 is a central vertical longitudinal section of a last embodying my invention, the fore part being partly broken away. Fig. 2 is a longitudinal vertical section of another embodiment of my invention. Fig. 3 is a detail elevation of a part of the means which forms the sliding and swinging connection between the two parts of the last. Fig. 4 is a detail sectional view showing the means for locking the two parts of the last against relative sliding movement.

Like numerals refer to like parts throughout the several views of the drawing.

In the drawing, referring to Fig. 1, which shows a transversely divided last, 5 is the fore part and 6 the heel part whose abutting faces 7 and 8 are inclined forwardly and upwardly from the bottom so as to facilitate the withdrawal of the heel part from the shoe by sliding movement relative to the fore part. The fore part and heel part are provided, respectively, with grooves 9 and 10 registering with each other and the fore part is provided with a hole 11 arranged parallel with these grooves and preferably connected therewith by a recess or groove 12 extending longitudinally of the last. The fore part and heel part are connected to each other by a suitable means extending into the hole 11 and located partly in each of the grooves 9 and 10, such means consisting preferably of a substantially U-shaped member 13 provided with an arm 14 slidably arranged in the hole 11 and an arm 15 located partly in the groove 9 and partly in the groove 10, the latter arm being provided with a projection 16 extending rearwardly into a hole 17 provided in the heel part 6 and secured therein by any suitable means such, for example, as a transverse pin 18. The arm 15 being located partly in the groove 10, prevents relative lateral displacement of the fore part and heel part and thus normally retains the two parts in accurate registry with each other. That part of the member 13 which is located in the recess 12 may be made to fit the sides of said recess and thus also contribute to this result.

The member 13 forms a sliding connection between the parts 5 and 6 and prevents relative longitudinal displacement thereof. The fore part and heel part are normally locked against relative sliding movement by a suitable means such, for example, as a locking pin 19 arranged to slide in a hole 20 provided in the heel part 6 and entering a hole 21 provided in the fore part 5. This pin, it will be observed, extends across the plane of the abutting faces of the fore part and heel part and thus normally prevents upward withdrawal of the heel part. The locking pin is normally held in the position shown by a suitable spring 22 which, in the present instance, consists of a helical compression spring bearing at its lower end against the upper end of the pin 19 and at

its upper end against the upper end of the hole 20.

In order that the locking pin 19 may be withdrawn upwardly to unlock the parts, a suitable flexible connection, such as a cord 23, passes downwardly through the spring 22 into the pin 19 and is suitably secured thereto. This cord is provided with suitable means for limiting the downward movement of the pin 19, such means, in the present instance, consisting of a knot 24 which normally bears against the upper face of the heel part 6 and acts as a restraint upon the spring 22. The other end of the cord 23 is preferably secured to the fore part 5 in any suitable manner as, for example, by inserting the same in a hole 25 provided therein and driving a pin 26 therethrough.

The operation of this form of my invention is as follows: Assuming that the last is in a shoe and the fore part and heel part occupy the relative positions shown in Fig. 1, the operator grasps the cord 23 and pulls upwardly thereon, thus overcoming the tension of the spring 22 and withdrawing the pin 19 from the hole 21, whereupon further upward pull results in the heel part 6 sliding upwardly from its place in the shoe, it being understood that during this movement the arm 14 will slide upwardly in the hole 11 and may either be entirely withdrawn therefrom or partially withdrawn, after which the heel part may be swung laterally thereon as a pivot.

Referring now to Figs. 2, 3 and 4, wherein another embodiment of my invention is shown, this form is similar in many respects to that hereinbefore described and yet has some features which the first form has not. In this embodiment, the last is also transversely divided and comprises a fore part 27 and a heel part 28 whose abutting faces 29 and 30 are inclined forwardly and upwardly from the bottom and are provided, respectively, with grooves 31 and 32 registering with each other. The fore part 27 is provided with a hole 33 extending downwardly thereinto parallel with the grooves 31 and 32 and is also provided with a recess or groove 34 connecting the hole 33 with the grooves 31 and 32. A member 35 is provided with an arm 36 located in the hole 33 and is also provided with an arm 37 located partly in each of the grooves 31 and 32. The arm 37 is provided with a projection 38 extending rearwardly into a hole 39 provided in the heel part 28 and formed by bending said arm rearwardly at right angles and then forwardly upon itself, thus making a complete return bend, the free end of the arm being extended thence downwardly in the grooves 31 and 32 and being provided with a reduced portion 40 which enters a suitable socket 41 provided on the fore part 27. This socket, in this instance,

consists of a plate or pin embedded in the fore part and suitably secured therein as, for example, by means of a pin 42 passing therethrough. This connection of the lower end of the arm 27 with the socket 41 greatly strengthens the last and prevents any tendency of the two parts spreading at this point. The rearwardly extending projection 38 may be secured in the hole 39 in any suitable manner as, for example, by means of a pin 43 extending therethrough.

Hinged to the arm 36 is a pin 44 and preferably the mode of connection of the two parts is such that when the arm 36 is withdrawn from the hole 33, said arm may be rocked forwardly but not rearwardly with respect to said pin and for this purpose, said arm is pivoted to the pin 44 by a pivot 45 and is provided with a right angle shoulder 46 engaging a shoulder 47 in the pin 35. The arm 36 is provided with a longitudinal groove 48 and the pin 44 is provided with a longitudinal groove 49 which forms a continuation of the groove 48. The pin 44 is also provided with a circumferential groove 50 communicating with the longitudinal groove 49. I provide suitable means normally located in the groove 48 and consisting, in the present instance, of a screw or other suitable pin 51 having a reduced projecting end 52 located in said groove.

Since the longitudinal groove 49 terminates at the circumferential groove 50, the projecting end 52 limits the upward sliding movement of the pin 44 in the hole 33, but said circumferential groove permits the heel part 28 of the last to be swung freely about the axis of the pin 44 when the said projection is located in said circumferential groove. This mode of connection of the two parts of the last prevents their disconnection from each other.

In this form of my invention, as well as in the form first described, the fore part and the heel part are normally locked to each other by a suitable means, such, for example, as a locking pin 53 similar to the pin 19 and normally held in its locking position by a spring 54 similar to the spring 22. The pin may be operated by a cord 55 similar to the cord 23. The operation of this form of my invention is as follows: Assuming the last to be in a shoe and the parts in the relative positions shown in Fig. 2, the operator grasps the cord 55 and pulls the same upwardly, thus withdrawing the spring-pressed pin 53, whereupon further movement results in the heel part 28 being withdrawn forwardly and upwardly from its place in the shoe. During the first part of this movement, the arm 37 slides out of the socket 41 and at the end of such movement the projection 52 passes from the longitudinal groove 49 into the circumferential

groove 50 as illustrated in dotted lines in Fig. 2. The heel part may now be rocked forwardly upon the pivot 45, the position which the arm 36 occupies being shown in dotted lines in Fig. 2 and the heel part may then be swung freely about the axis of the pin 44 as a center.

Having thus described my invention, what I claim and desire by Letters Patent to secure is:

1. A last having, in combination, a fore part and a heel part whose abutting faces are provided respectively with grooves one registering with the other, said fore part being provided with a hole arranged parallel with said grooves, and means having one arm located in said hole and another arm located partly in one of said grooves and partly in the other, the last mentioned arm being secured to said heel part.

2. A last having, in combination, a fore part and a heel part whose abutting faces are provided respectively with grooves registering one with the other, said fore part being provided with a hole arranged parallel with said grooves, and means having one arm located in said hole and another arm located partly in one of said grooves and partly in the other, the last mentioned arm extending from said grooves rearwardly into said heel part and being secured therein.

3. A last having, in combination, a fore part and a heel part having abutting faces, one of said parts being provided with a hole parallel to said faces, and means carried by the other of said parts, slidably arranged in said hole and forming a sliding connection between said parts.

4. A last having, in combination, a fore part and a heel part having abutting faces, one of said parts being provided with a hole parallel to said faces, means carried by the other of said parts, slidably arranged in said hole and forming a sliding connection between said parts, and means to lock said parts against relative sliding movement.

5. A last having, in combination, a fore part and a heel part having abutting faces, one of said parts being provided with a hole parallel to said faces and a recess in its upper side leading from said hole to said faces, and means secured to the other of said parts extending from said faces through said recess and into said hole.

6. A last having, in combination, a fore part and a heel part having abutting faces provided respectively with grooves registering with each other, said fore part being provided with a hole parallel with said grooves and a recess in its upper side leading from said hole to said grooves, and means having one arm located in said hole, another arm located partly in one of said grooves and partly in the other, and a connection be-

tween said arms located in said recess, the last-mentioned arm being secured to said heel part.

7. A last having, in combination, a fore part and a heel part having abutting faces provided respectively with grooves registering with each other, said fore part being provided with a hole parallel with said grooves and a recess in its upper side leading from said hole to said grooves, and means having one arm located in said hole, another arm located partly in one of said grooves and partly in the other, a connection between said arms located in said recess, the last-mentioned arm being secured to said heel part, and means for locking said parts against relative sliding movement.

8. A last having, in combination, a fore part and a heel part having abutting faces provided, respectively with grooves registering with each other, said fore part being provided with a hole arranged parallel with said grooves, means having one arm located in said hole and another arm located partly in one of said grooves and partly in the other, the last-mentioned arm being secured to said heel part, and a socket on said fore part which receives the last-mentioned arm.

9. A last having, in combination, a fore part and a heel part having abutting faces one of which is provided with a groove and the fore part of which is provided with a hole arranged parallel with said groove, and means having one arm located in said hole and another arm located in said groove and secured to said heel part.

10. A divided last having, in combination, a fore part and a heel part having abutting faces, said fore part being provided with a hole arranged parallel with said faces, means secured to said heel part and having an arm slidably arranged in said hole, and a member hinged to said arm and also located in said hole.

11. A divided last having, in combination, a fore part and a heel part having abutting faces, said fore part being provided with a hole arranged parallel with said faces, means secured to said heel part and having an arm slidably arranged in said hole, a member hinged to said arm and also located in said hole, said member being provided with a longitudinal groove and a circumferential groove communicating with said longitudinal groove, and means adapted to project into either of said grooves.

12. A divided last having, in combination, a fore part and a heel part having abutting faces, said fore part being provided with a hole arranged parallel with said faces, means secured to said heel part slidably arranged in said hole and provided with a longitudinal groove and a circumferential groove communicating with said longitudinal groove, and means normally lo-

cated in said longitudinal groove and adapted to enter said circumferential groove.

13. A divided last having, in combination, a fore part and a heel part having
5 abutting faces provided, respectively, with grooves registering with each other, said fore part being provided with a hole arranged parallel with said grooves and said heel part being provided with a hole extending rearwardly thereinto, and means having
10 one arm located in the first-mentioned hole, said means having also another arm located partly in each of said grooves and provided with a projection extending into the second-
15 mentioned hole.

14. A divided last having, in combination, a fore part and a heel part having abutting faces provided, respectively, with grooves registering with each other, said

fore part being provided with a hole arranged parallel with said grooves and a recess extending from said hole to said grooves, and said heel part being provided with a hole extending rearwardly thereinto, and means having one arm located in the
20 first-mentioned hole, a second arm located partly in each of said grooves, a connection between said arms located in said recess, and said second arm being provided with a
25 projection extending into the second-mentioned hole.
30

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ARTHUR M. LEIGHTON.

Witnesses:

LOUIS A. JONES,
FRANKLIN E. LOW.

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