A. E. PECKHAM.

LOCKING HINGED LAST.

APPLICATION FILED NOV. 5, 1907. RENEWED MAR. 9, 1909.

960,578.

Patented June 7, 1910.

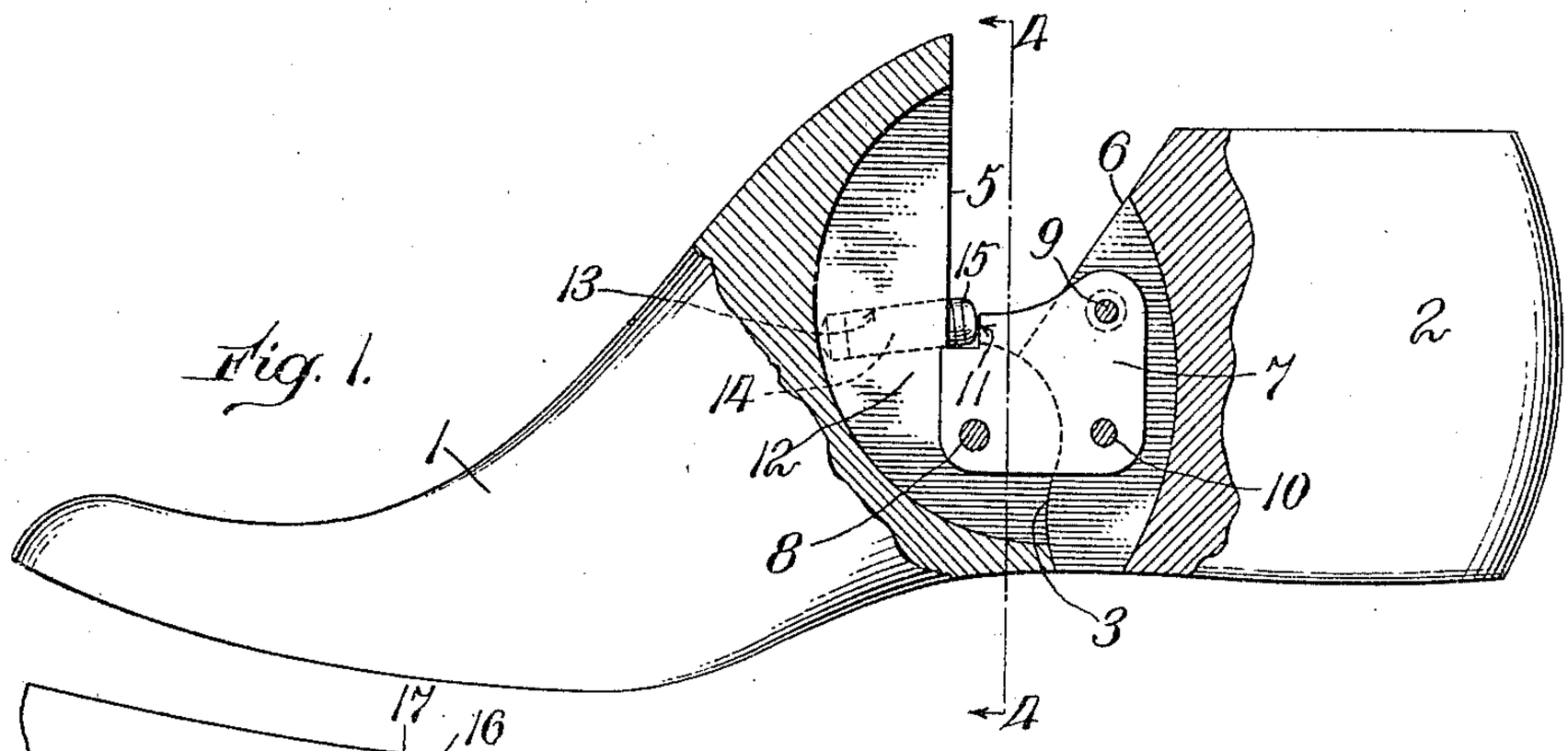

Fig. 1.

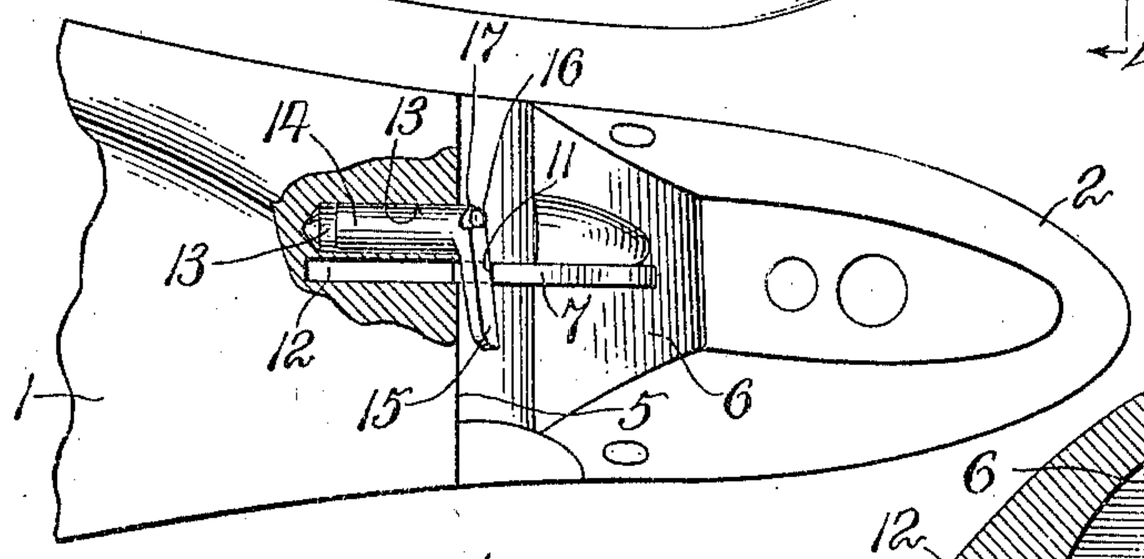

Fig. 2.



Fig. 3.

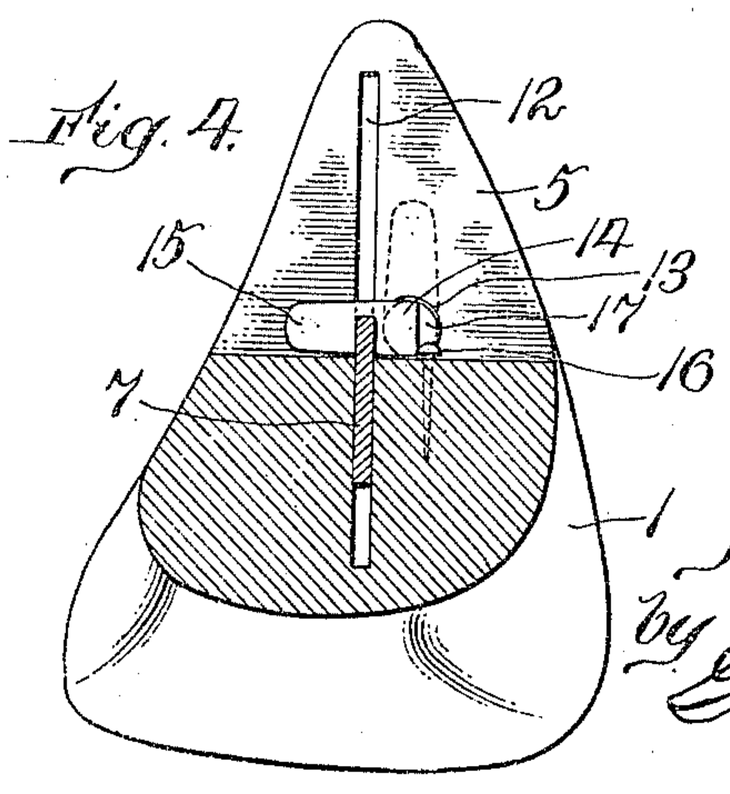

Fig. 4.

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# UNITED STATES PATENT OFFICE.

ALBERT E. PECKHAM, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO KRENTLER-ARNOLD HINGE LAST COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

## LOCKING HINGED LAST.

960,578. Specification of Letters Patent. Patented June 7, 1910.

Application filed November 5, 1907, Serial No. 400,763. Renewed March 9, 1909. Serial No. 482,403.

*To all whom it may concern:*

Be it known that I, ALBERT E. PECKHAM, a citizen of the United States, and resident of Grant Rapids, in the county of Kent and State of Michigan, have invented an Improvement in Locking Hinged Lasts, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

Notwithstanding the fact that most of the hinged lasts commonly found in shoe factories are what are known as self-sustaining, the trade seems to demand a construction in which the movable last-parts can be positively locked in their open or extended position, and accordingly, my present invention aims to provide a last in which the locking device is extremely simple and inexpensive to construct and put in position, and in which proper compensation is provided for the wear of the parts. To this end, I have succeeded in entirely eliminating the usual fastening pins, screws, etc., operating springs, eccentric or wedge-shaped constructions, etc. I first bore a simple straight hole into the last, and provide therefor a post or pin which merely requires to be properly inserted in the hole in order to complete the assembling of the parts, said post having at its outer end a lateral arm or projection capable of being swung down into engagement with the notched hinge-plate, the post being so set that the farther down the arm is swung the farther rearward it crowds or binds the hinge-plate, and, on the other hand, the farther up it is swung, the tighter it moves into fixed inoperative position against the adjacent wood of the last.

A further explanation of my invention is contained in the following detailed description, taken with reference to the accompanying drawings, in which I have shown a preferred embodiment of the invention.

In the drawings, Figures 1 and 3 show in side elevation one form of hinged last containing my invention, the wood being broken away adjacent the last-union to disclose the internal construction; Fig. 2 is a fragmentary top plan view thereof, also broken away to show the locking device in operation; and Fig. 4 is a cross-sectional view taken on the line 4, Fig. 1.

For the purpose merely of illustration, I have shown my invention applied to a last having the general construction of the Pym or Krentler knuckle-joint last, but it will be understood that my invention is not restricted in this respect.

The forepart 1 is severed from the heel-part 2 by a transverse cut 3, extending up from the bottom of the last in a reverse curve, in the last of the drawings, a usual gap 4 being provided between the upper rear face or wall 5 of the forepart and the upper front face 6 of the heel-part. Said two last-parts are joined by a hinge-plate turning on a pivot pin 8, and secured rigidly in the heel-part by a heavy rivet 9 and a pin 10. The top edge of the hinge-plate 7 is provided with a locking shoulder or notch 11 at its forward end. At one side of the front kerf 12, I bore a short hole 13, pointing very slightly diagonally downward from a perpendicular to the wall 5 and to the notch or shoulder 11 of the hinge-plate 7, and in this hole I insert a pin or post 14, which is provided at its outer end with a latch member in the form of an arm 15 extending outward laterally from the stem or body of the post or pin 14, preferably at a slight obtuse angle, as best shown in Fig. 2. As an inexpensive and convenient means of securing the pin against accidentally jarring out, I drive a holding lug, shown as a tack 16, Figs. 2, 3, and 4, which engages with a notch 17 of the pin. Ordinarily the post or pin 14 will hold itself in place without any extraneous holding means, as, being set obliquely, it tends to bind against the walls of the hole 13 when turned into either extreme upright position or extreme lowered position.

The main idea of my invention is to provide locking means which operates to force the adjacent walls of the last-parts apart so as to lock them in last-lengthened position by means of a wedge-lock or eccentric swinging member arranged to swing transversely of the last into wedging relation between the two last-parts. This swinging wedge-lock is pivoted on one last-part, preferably having an axial post set in the last lengthwise of said last-part so as to have its swinging end or eccentric member swing into and out of wedging position. This construction and movement may be carried out, in their broader aspects, in various ways provided

the wedging action is such as to tend to force the last-parts into last-lengthened position by reason of the swinging of the last-lock about its axis which extends lengthwise of the last.

In use, when the locking pin 14 is turned up into the position shown in Fig. 3, its slanting or oblique trend in the last causes the arm 15 to crowd hard against the wall 5, which thereby causes it to maintain itself in said position, whereas, when turned down toward the position shown in Figs. 1, 2, and 4, the arm 15 swings gradually away from the wall 5 rearwardly, this operation being likewise due to its slanting or oblique trend or pivotal position in the last. This gradual rearward movement of the arm or separation thereof from the adjacent wall 5 of the forepart gives a wedge-like action and operates to crowd hard and continuously against the notch 11, wedging it back, without, however, employing any wedge. So that as either or both engaging surfaces of the metal parts wear, or the wood portions of the last shrink, or the pivots loosen slightly, the last may still be held locked rigidly simply by pushing the locking arm 15 down farther, the same being herein shown as pushed down into its lowermost position.

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

1. A hinged last, comprising a forepart and heel-part connected for shortening and lengthening movement, and locking means consisting of a swinging wedge-lock pivoted on one last-part to swing substantially in a transverse plane of the last into wedging position to force the adjacent walls of the last-parts apart and lock them in last-lengthened position.

2. A hinged last, comprising a forepart and heel-part connected for shortening and lengthening movement, and locking means consisting of an axial post set in the last lengthwise of one last-part, carrying at its outer end an eccentric engaging-member to swing transversely of the last into wedging position to force the adjacent walls of the last-parts apart and lock them in last-lengthened position.

3. A hinged last, having its last-parts connected by a vertical hinge-plate, combined with a latch pivoted to swing transversely of said plate into engagement therewith with a wedging action lengthwise of the last.

4. A hinged last, having its last-parts connected by a vertical hinge-plate, combined with a locking device consisting of a pivot post set endwise into the transverse secant end of the wood of one of the said last-parts, and having a transversely extending latch member at its outer end to turn with the post into locking engagement with said hinge-plate.

5. A hinged last, having its last-parts connected by a vertical hinge-plate, provided with an upright locking shoulder, combined with a swinging wedge-lock pivoted to swing transversely of said hinge-plate into engagement in a direction lengthwise of the last with the vertical side of said locking shoulder under a tendency to force said hinge-plate back on its pivot into last-lengthened position.

6. A hinged last, having its last-parts connected by a vertical hinge-plate, provided with a locking shoulder, combined with a post set longitudinally of the last in the wall of the last-part containing the hinge pivot, said post being provided at its outer end with an arm extending laterally therefrom, the axis of said post being out of a perpendicular to the adjacent secant wall of said last-part, thereby causing said arm to swing in a plane out of parallelism with said wall.

7. A hinged last, having its last-parts connected by a vertical hinge-plate, provided with a locking shoulder, combined with a pivot post extending longitudinally of the last-part containing the hinge pivot and said direction being also slightly downward obliquely to said shoulder when the latter is in last-lengthening position, and a locking arm extending laterally from the outer end of said post to swing co-axially of said post into engagement with said shoulder, whereby the farther said locking arm swings inwardly over said shoulder the tighter the engagement therewith becomes.

8. A hinged last, having its last-parts connected by a vertical hinge-plate, a locking post and arm to coöperate with said plate in locking the last in lengthened position, said post being set longitudinally into one of the last-parts, and a projecting lug driven into said last-part transversely of said post and having its outer end projecting into overlapping engagement with the end of said post for retaining the same.

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

ALBERT E. PECKHAM.

Witnesses:

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