No. 865,712. PATENTED SEPT. 10, 1907.

E. O. KRENTLER.

LAST LOCK.

APPLICATION FILED MAY 21, 1906.

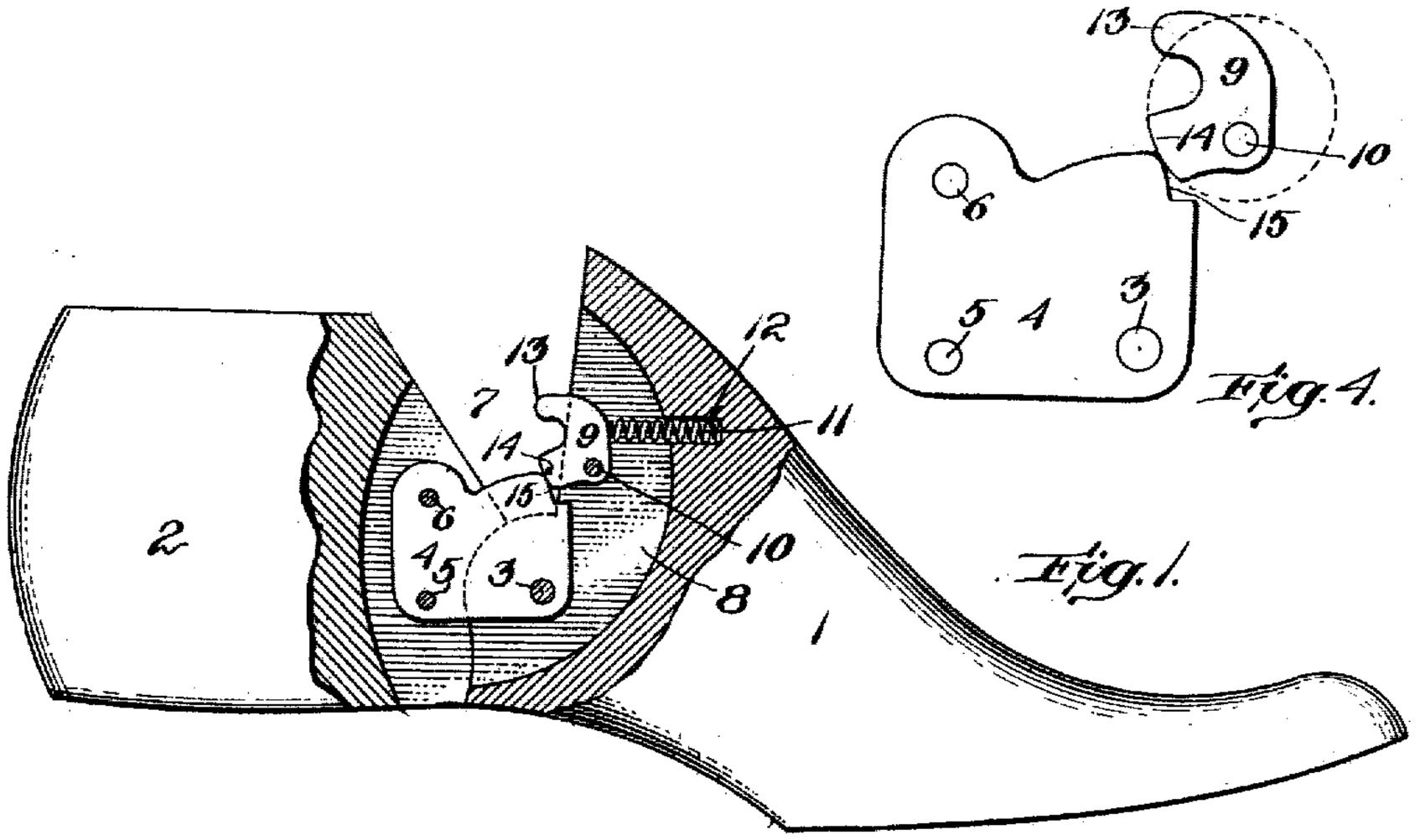

Fig. 4.

Fig. 1.

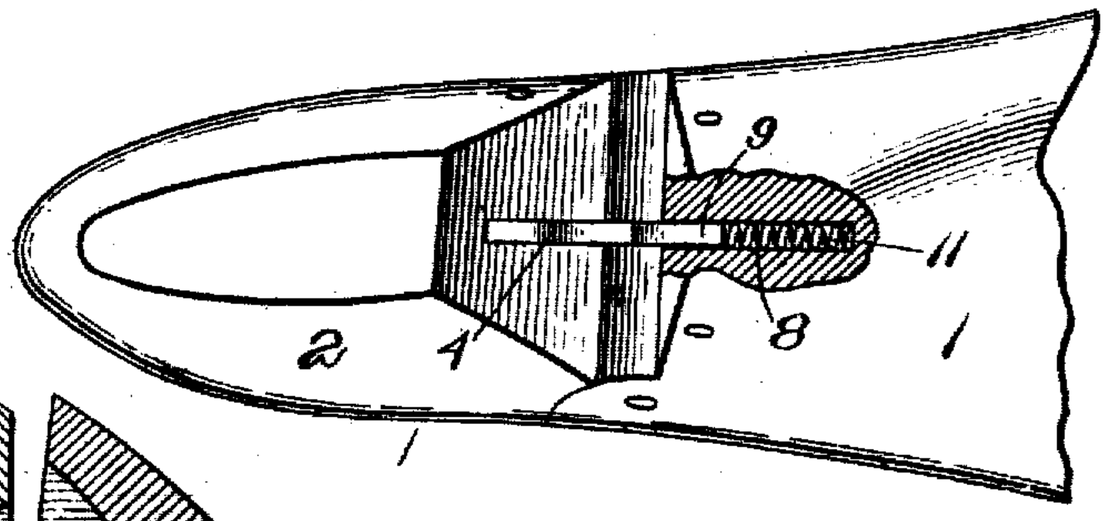

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

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LAST-LOCK.

No. 865,712. Specification of Letters Patent. Patented Sept. 10, 1907.

Application filed May 21, 1906. Serial No. 317,862.

To all whom it may concern:

Be it known that I, EDWIN O. KRENTLER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented an Improvement in Last-Locks, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

For certain purposes, many shoe manufacturers desire that the parts of the hinged last (of the type shown for instance in my Patent No. 764,894 of July 12, 1904) shall be positively locked together. Various locks for this purpose have been suggested and provided, but the usage of lasts is so rough in most of the factories, and the strains on the last are so complicated and exacting, that I have found it desirable and necessary to devise a lock which would provide a more simple and less complicated kind of lock, so located and arranged to coöperate with the hinge that it may be readily operated and yet is capable of withstanding all the severe usage and strains brought to bear upon it.

I provide above the ordinary hinge plate a locking piece, operated by an outward pull on a projecting portion, and normally impelled at all times toward locking and tightening position, the hinge plate being provided with a coöperating notch or shoulder for engaging the locking piece automatically when the last is moved into lengthened position. The locking piece and hinge plate stand in one and the same vertical plane and are retained by the side walls of a kerf which they snugly fit, merely the operating projection of the locking piece being exposed in the open gap of the last above the hinge plate.

Further constructional details of my invention will be pointed out in the course of the following description, reference being had to the accompanying drawings, in which I have shown the best embodiment of my invention at present contemplated by me.

In the drawings, Figures 1 and 3 are views in side elevation, of a last embodying my invention, parts being broken away adjacent the secant portion to show more clearly the constructional details; Fig. 2 is a fragmentary view thereof in top plan, parts being broken away; and Fig. 4 is an enlarged view in side elevation, of the hinge connection and locking means, showing more clearly the construction and principle of operation.

The forepart 1 and heelpart 2 of the last may be of any usual or preferred construction, being herein shown as of the identical construction shown in my before-mentioned patent. My last lock is primarily intended for use with what is known as the "2-piece" knuckle joint last, in which the forepart is pivotally connected at 3 to the heelpart by a vertical hinge-plate 4, secured rigidly to the heelpart by transverse pins or rivets 5, 6.

The rear end of the forepart 1 and the forward end of the heelpart 2 are separated by an intervening open space 7 when the last is in lengthened position as shown, and the hinge-plate is retained in a vertical kerf 8. Above the hinge-plate, and preferably in the same kerf, which, for this purpose, is simply sawed longer or higher, I mount a locking piece 9, pivotally supported on a pin 10 and forwardly and downwardly impelled by a spring 11 retained in a socket 12 in the forepart of the last, said locking piece having an extension or projecting portion 13 extending upwardly above the engaging end or locking portion of the locking piece and the hinge-plate and extending into the gap or V-shaped opening 7. Beneath this projection or locking piece 9 is a shoulder 14 for engaging a correspondingly shaped shoulder 15 extending upwardly from the hinge-plate 4. The position of the pin 10 with relation to the swinging movement of the heelpart 2 and hinge-plate 4 is such that the resisting pressure or locking strain of the contacting shoulders 14, 15 is brought in direct line with the pin 10 at all times, so that thereby the greatest strength and stability of position are assured. The pressure or resistance of said surfaces is transmitted directly along a line extending from the pivot 10, or, in other words, the engaging surfaces 14, 15, are approximately at right angles to the radius from said pivot. The locking or engaging surfaces and the pin 10 are in a line approximately tangential to the swinging movement of the hinge-plate 4 about its center of movement 3, or preferably the pin 10 lies slightly outside of said tangential line.

It will be observed also that in my preferred construction as herein shown, the surfaces 14 and 15 are wedge-shaped with relation to the swinging movement of the locking piece 9, or are not exactly at right angles to said arc of movement, the surface 14 being preferably formed on the circle shown in dotted lines in Fig. 4, eccentric to the pin 10. This is for the purpose of taking up all wear of the locking surfaces 14 and 15 without permitting any looseness or uncertainty of locking action. The locking piece is retained snugly by the side walls of its holding kerf, said locking piece being set back almost entirely within the wood of the last so that it cannot possibly become bent or disarranged, but must at all times stand edgewise in correct alinement with the hinge-plate 4, so as to transmit all closing strains of the last directly to the pin 10, thereby insuring great strength, permanency, and endurance. At the same time the construction is exceedingly simple and inexpensive.

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

1. A divided last, having its heelpart and forepart pivotally connected by a vertical hinge-plate, a shoulder being provided in the upper edge of said hinge-plate, and a

locking plate set on edge in the same vertical plane as said hinge-plate and pivotally mounted above the latter in one of said parts, said locking plate having a shoulder for engaging the shoulder of said hinge-plate, and being provided with a projection extending upwardly above the locking portion of the locking plate into the open space above said hinge-plate, and a spring for always impelling said locking plate towards locking position.

2. A divided last, comprising a forepart and a heelpart, 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 coöperating shoulder for engaging said projecting shoulder to lock the last in lengthened position, said locking plate being provided with an overhanging projection extending into said open space above said hinge-plate, constructed and arranged to unlock the parts by an upward swinging movement of the locking plate.

3. A divided last, comprising a forepart and a heelpart, provided at their meeting ends with alined vertical kerfs, a hinge-plate pivotally connecting said two parts mounted in said kerfs and provided with a locking shoulder at its edge adjacent the rear wall of the forepart, a locking plate set edgewise in the kerf of the forepart above said locking plate and provided with a shoulder for normally engaging the locking shoulder of said hinge-plate, a transverse pin pivotally supporting said locking plate approximately in tangential line with the arc of movement of said hinge-plate, which includes said locking shoulders, and means normally impelling said locking plate toward locking position, said locking plate having a rearward extension projecting into the open gap above said locking plate.

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

EDWIN O. KRENTLER.

Witnesses:
LOUISE KEMBLE,
CORA E. LAKE.