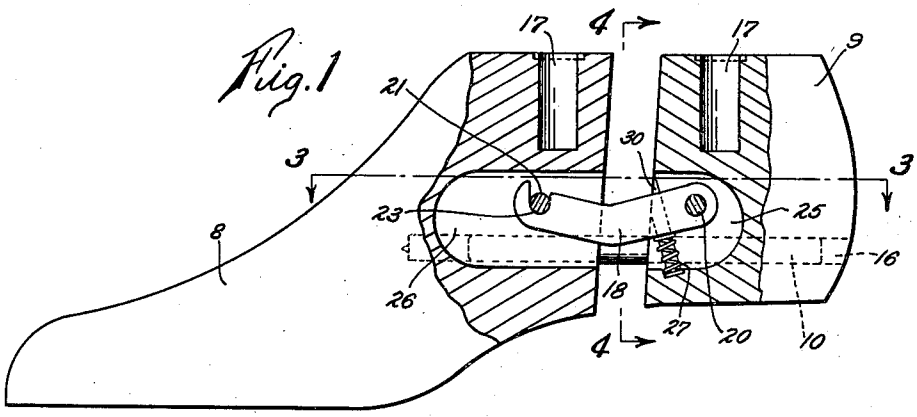
May 6, 1947. G. CLAUSING 2,419,944

SHOE LAST

Filed June 21, 1945

Fig. 1



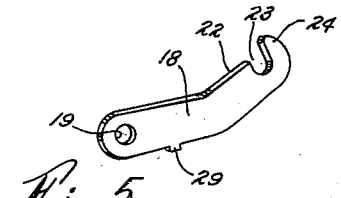


Fig. 5

Fig. 2

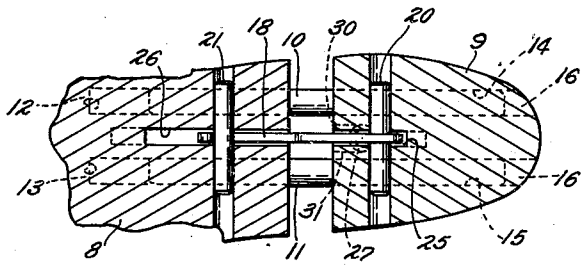


Fig. 3

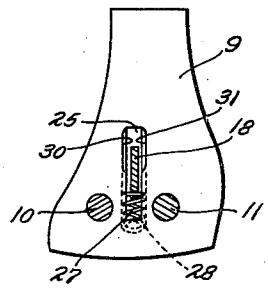


Fig. 4

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SHOE LAST

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9 Claims. (Cl. 12—135)

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The present invention relates to shoe lasts and is particularly directed to an improved locking means for last parts arranged for relative movement along a linear path parallel to the longitudinal axis of the last.

An object of the invention is to provide in a last of the type indicated a means for positively locking the last parts in expanded position, and in last contracted position offering sufficient resistance to the movement of the parts to preclude opening of the last under normal handling and storage conditions.

Another object of the invention is to provide a positive acting lock for the parts of a last of the character described which has a few simplified catch parts that can be economically manufactured and assembled.

A further object of the invention is to provide a locking device for last parts arranged for relative movement along a straight line parallel to the longitudinal axis of the last which securely holds the last parts in expanded position against operational stresses, strains or jars and which may be readily tripped by an operator for releasing the parts from said locked, expanded position.

Another object of the invention is to provide a free, quick acting lock means for a last of the construction referred to which definitely fixes the relative limits of outward motion of the last parts without regard to the manner in which the parts are manually moved toward their expanded, locked position.

Other objects will be apparent from the following specification and drawings which illustrate a preferred embodiment of my invention, and in which:

Fig. 1 represents a vertical elevation, partly in section, of my last construction showing the internal arrangements in the expanded and operative position.

Fig. 2 is a view similar to that of Fig. 1 with the last parts illustrated in contracted or inoperative position for its withdrawal from a shoe, in the usual manner.

Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 1.

Fig. 5 is a perspective view of the locking link for the last.

With reference to the drawing there is shown an expansible shoe last comprising a relatively movable toe or fore part 8 and a heel or back part 9. These parts are arranged for movement in a straight line parallel to the longitudinal axis

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of the last by means of two spaced guide rods 10 and 11 which are freely, but snugly received in bores 12 and 13 respectively formed in the fore part and bores 14 and 15 respectively formed in the back part. The rods are retained in their respective bores by wood plugs 16 fixed in the outer ends of the bores 14 and 15. Each of the parts is provided with the usual thimbles or bushings 17 for mounting the last on a suitable jack (not shown).

A novel locking means is provided for positively maintaining the last parts in expanded position and also to frictionally secure them against relative outward movement in last contracted position, said means consisting of a movable latch element or flat link 18 manufactured by a single stamping operation. This link lies in a vertical plane passing through the longitudinal axis of the last and is pivotally mounted for movement in one of the last parts and as illustrated in the drawing, one end of the link has an aperture 19 for receiving a transverse pin 20 carried by the back part of the last. The free end of the link cooperates with a catch element which may take the form of a transverse link pin 21 fixed in the fore part of the last. The free end of the link has an inclined upper edge 22 which terminates in a notch 23 which in last expanded position (Fig. 1) receives the link pin 21 and positively locks the last parts in their open, operative position. The outer extremity of the link is provided with an upwardly extending nose portion 24 which extends considerably above the outer extension line of the inclined edge 22. This nose acts as a positive stop which fixes the relative limits of motion of the last parts at their expanded, locked position regardless of the force exerted by an operator in manually moving the parts toward and into said position.

The back part 9 has formed therein a narrow, centrally disposed groove or rout 25 which permits free pivotal movement of the link therein while maintaining it in its central position relative to the last body. The free end of the link freely moves in a longitudinally elongated groove or rout 26 which provides sufficient clearance for the free end of the link when the last is in its contracted or expanded positions.

The link is preferably biased toward constant engagement of its inclined edge with the link pin by means of a compression spring 27 seated in a slightly inclined recess 28 formed in the bottom wall of the groove 25. The spring is illustrated as cylindrically shaped and encircles at its upper end an extension 29 integrally formed in the bot-

tom edge of the link. The diameter of the spring 27 is somewhat greater than the width of the groove 25. Opposed, concave cuts 30 and 31 are formed in the vertical walls of said groove to accommodate the spring and also provide a means for assembling the parts. These cuts are formed by a drill which is introduced angularly into said groove at the upper portion of its open end and is directed downwardly into the last part and at the end of its penetration cuts the recess 28.

It will therefore be understood that the latch element or link is constantly urged toward engagement with the cooperating catch element or link pin 21 by means of the compression spring 27. When the last is in its contracted position (Fig. 2), the link pin engages the link at the bottom of its inclined edge 22. In this position the lock elements offer sufficient frictional resistance to the movement of the last parts to preclude opening of the last under normal handling or storage conditions. When, however, the last parts are manually moved toward their open, expanded condition, as illustrated in Fig. 1, the link pin slidably engages the inclined edge 22 of the link and is received in the notch 23 for positively locking the parts in said open, expanded position; the extension 24 and the bias of the link 18 definitely fixing the relative limits of motion of the last parts and precluding their unintentional separation. After the particular shoe making operations have been completed, the operator may readily trip the last lock by a suitable mechanical means which may comprise a narrow bumper tool, or the like, fixed to a work bench. By manually moving the last toward the tool so that said tool passes between the last parts from the upper side thereof, the tool by engagement with the central portion of the link depresses it against the action of the spring 27 and thereby disengages the link from the pin 21 and permits the parts to assume their closed, inoperative condition.

What is claimed is:

1. In a shoe last the combination of a fore part, a back part, guide means for providing relative movement for each last part into last expanded and last contracted position along a line parallel to the longitudinal axis of said last, and means for locking the parts in expanded position and comprising a latch element rockably mounted on one last part and having a notch formed therein, a cooperating catch element fixed within and bodily movable with the other last part, and means for biasing the first mentioned latch element in a direction to engage the notch in the cooperating element and to secure a sliding engagement between the elements.

2. A longitudinally expansible shoe last comprising relatively movable fore and back parts, means connecting said parts and acting to guide their relative movements in a straight line extending longitudinally of the last, and means for locking the parts in expanded condition and comprising a link pivoted to one last part and having a side with a notch formed therein, a link pin fixed to the other last part, and means biasing the side of the link into sliding engagement with the pin.

3. A longitudinally expansible shoe last comprising relatively movable fore and back parts, means connecting said parts and acting to guide their relative movements in a straight line extending longitudinally of the last, and means for locking the parts in expanded condition and comprising a link pin fixed to one last part, and a link pivoted to the other last part, said link having a notch therein for receiving the pin when the parts are moved to expanded last position.

4. A longitudinally expansible shoe last comprising relatively movable fore and back parts, means connecting said parts and acting to guide their relative movements in a straight line extending longitudinally of the last, and means for locking the parts in expanded condition and comprising a link pin fixed to one last part, a link pivoted to the other last part, said link having a notch formed in one side edge thereof for receiving the pin when the parts are moved to expanded last position, and means for biasing the link edge into sliding engagement with the pin.

5. A longitudinally expansible shoe last comprising relatively movable fore and back parts, means connecting said parts and acting to guide their relative movements in a straight line extending longitudinally of the last, and means for locking the parts in expanded position and comprising a transversely extending link pin fixed in one part, a longitudinally disposed, flat link pivoted at one end for edgewise movement in the other last part, said link having an inclined edge, a notch formed in the edge portion adjacent the outer end for receiving the pin when the parts are in expanded last position, and means for biasing the link into notch and edge engagement with the pin.

6. A longitudinally expansible shoe last comprising relatively movable fore and back parts, means connecting said parts and acting to guide their relative movements in a straight line extending longitudinally of the last, and means for locking the parts in expanded position and comprising a transversely extending link pin fixed in one part, a longitudinally disposed, flat link pivoted at one end for edgewise movement in the other last part, said link having an inclined edge, a notch formed in the edge portion adjacent the outer end for receiving the pin when the parts are in expanded last position, means for biasing the link into notch and edge engagement with the pin, and an extension formed on the outer end of the link for limiting the opening movement of the last parts.

7. In a shoe last the combination of a fore part, a back part, guide means for providing relative movement for each last part into last expanded and last contracted position along a line parallel to the longitudinal axis of said last, and means for locking the parts in expanded position and comprising a latch element rockably mounted for vertical movement on one last part and having a notch formed therein, a cooperating catch element fixed transversely within and bodily movable with the other last part, and means for biasing the latch element in a direction to engage the notch in the catch element and to secure a sliding engagement between said elements.

8. A longitudinally expansible shoe last comprising a fore part, a back part, guide means for providing relative movement for each last part into last expanded or last contracted position along a line parallel to the longitudinal axis of said last, and means for locking the parts in expanded position said means including a latch element rockably mounted in one last part and having a free end extending into the other last part, a catch element fixed within and bodily movable with the said other last part, and a spring for biasing the latch into locking position and sliding engagement with the catch.

9. A longitudinally expansible shoe last comprising relatively movable fore and back parts, means connecting said parts and acting to guide their relative movements in a straight line extending longitudinally of the last, and means for locking the parts in expanded condition and including a catch fixed to one last part, a link pivoted to the other last part and having a side formed with a catch engaging deformation, and means biasing the side of the link into sliding engagement with the catch.

GEORGE CLAUSING.

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