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G. CLAUSING

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SHOE LAST

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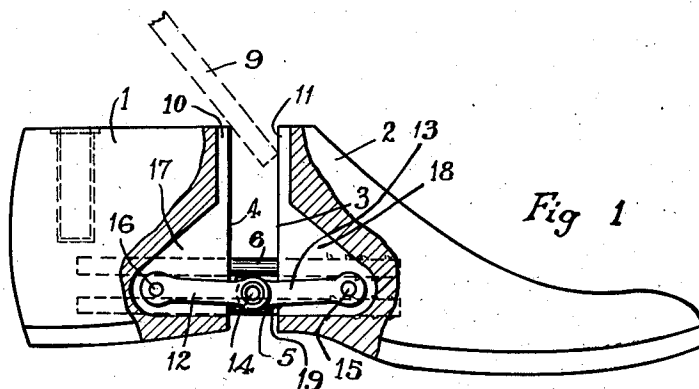
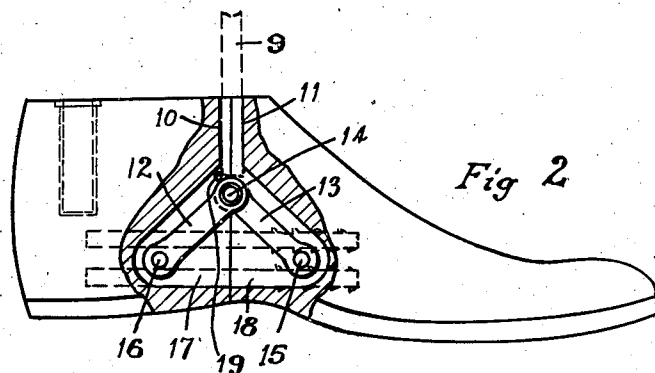
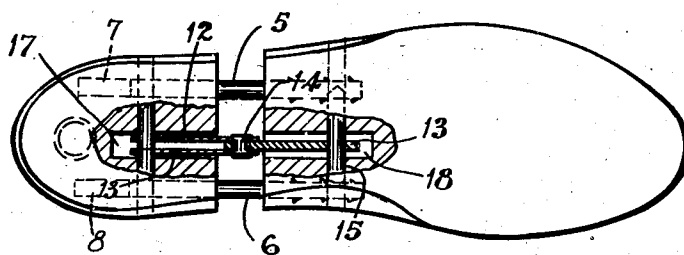
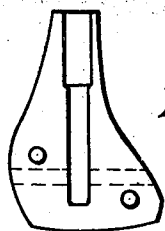


Fig 4

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SHOE LAST

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3 Claims. (Cl. 12—135)

This invention relates to shoe lasts and particularly, to the type of last in which the expansion of the fore and heel parts thereof takes place along a straight line as distinguished from the usual last construction in which the fore and heel parts are pivoted together.

The last construction as presented herein has various uses and is particularly adapted to the construction of certain types of sport shoes in which the vamp and quarter are stitched together in the usual way and in which the upper thus formed is sewed directly to the inner sole of the shoe after which the shoe is lasted and the outer sole is vulcanized, cemented or otherwise attached to the shoe.

The chief object of the invention is to provide a last, the construction and operation of which is particularly adapted to the construction of shoes of the above suggested character.

A further object of invention is to provide a last which may be manufactured at small cost and which is simple and rugged in construction.

A further object of invention is to provide a locking mechanism which functions to lock and unlock the last respectively when pressure is applied to the mechanism by external means and when an oppositely acting tension is applied thereto to release the locking means.

A further object of the invention is to provide a locking mechanism for lasts which is semi-automatic in its action and acts by gravity to lock and unlock the last when suitable forces are applied externally to the fore and heel parts thereof.

Further objects and features of the invention will more fully appear from the following specification in connection with the accompanying drawing and will be particularly pointed out in the claims.

In the drawing:

Fig. 1 is a side elevation of the last in its expanded condition with certain of the parts broken away more clearly to show the operating mechanism.

Fig. 2 is a similar view showing the relation of the parts when the last is contracted.

Fig. 3 is a plan view of the last shown partially in horizontal cross section.

Fig. 4 is an end view of the fore part of the last.

While a particular embodiment of the invention is illustrated and will be described herein, it is to be understood that the scope of invention is not restricted to the details of construction shown.

The last desirably is divided in a substantially

vertical plane through the instep to form a heel or back part 1 and a toe or fore part 2, such division desirably presenting opposing flat faces 3 and 4. The expanding and contracting movement of the last parts takes place along a straight line. To provide for such movement desirably, two or more guide rods 5 and 6 are provided which are rigidly secured at one end in one of the last parts, as for instance, the fore part. The guide rods are arranged in parallel relation to the longitudinal axis of the last and are preferably spaced apart a substantial distance in different horizontal planes and are also located unsymmetrically with respect to a vertical plane.

The free ends of the guide rods 5 and 6 project into apertures 7 and 8 in the heel part 1. The apertures receive the rods 5 and 6 with an easy sliding fit. The apertures 7 and 8 are in line with the axis of the rods 5 and 6 thereby providing the means for guiding the fore and heel parts along a straight line path and act to maintain the parts in proper alinement throughout the expansion and contraction of the last.

The expansion of the last may be accomplished in any desirable manner such as by the insertion of a tool 9 between the two parts thereof and using the tool as a lever to force the parts into their expanded position or a tool may be forced downward against the pivot point 14 as shown in Fig. 2. The tool used may be a short section of metal rod, a screw driver or any suitable tool which may be available. By such construction it is unnecessary to have at hand a special tool for manipulating the last. It is desirable, but not essential, to provide oppositely disposed grooves or notches 10 and 11 in the faces 3 and 4 of the parts 1 and 2. When the last is in contracted position, as shown in Fig. 2, the notches 10 and 11 present an aperture within which the tool 9 is readily received.

To maintain the last expanded, a special locking means is provided. Such means may desirably comprise a pair of link members 12 and 13 which are freely pivoted together at 14 and also pivoted at their other ends to freely rotate upon horizontally disposed pivot pins 15 and 16, secured respectively in the heel and fore parts of the last. The links 12 and 13 desirably are situated in a central vertical plane within the last. The link 12 is received in a chamber 17 in the heel part while the link 13 is received in a chamber 18 in the fore part. The chambers are so formed as to provide for the free upward movement of the links. A stop shoulder 19 is formed on the link 13 which engages with the

link 12 when the last is expanded and locked. The link 12 is composed of two members and embraces the inner end of the link 13 and extends in parallel relation from the pivot pin 16. Any suitable structure of the links may be provided, however, such as a pair of similar links which may be pivoted at 14 in overlapping relation.

While the above described last may be used for the construction of various types of shoes, the operation thereof will be described in connection with a specific type of sport shoe. Only the major operations required in constructing the shoes will be pointed out. The vamp and quarter are sewed or otherwise secured in the usual manner to form the upper structure of the shoe. The upper is then sewed directly to the inner sole. At this time the shoe's upper is in a mulled or softened condition and is ready for the final lasting operation. Up to this point, the assembling operations are executed more readily without the use of the last. To continue the construction of the shoe the last is inserted therein while in its contracted condition, a suitable lever is then inserted between the last parts which are then forced apart by means of the lever into their expanded position or a tool may be forced downward onto the pivot point 14 to cause the links to expand the last. During this operation, the links 12 and 13 which are initially in the position shown in Fig. 2 move downwardly either by gravity or are forced down to and slightly beyond the dead center of their pivotal points. The stop shoulder 19 is so positioned that it will engage with the link 12 at this time. The last is thereby firmly locked in its expanded position. The shoe, by such expansion movement, is thus forcibly molded by a slight stretching and made ready to receive the outsole which is then attached in any suitable manner as by vulcanizing, cementing or any other means. Since the shoe is still in a mulled condition, when placed on the last, its final appearance and dimensions will be definitely established by the contour of the last.

To remove the last after completion of the shoe, the last must be inverted and the lever applied between the fore and back parts of the last in a manner similar to that described in connection with the expansion of the last, such application of the lever being sufficient only to relieve the pressure upon the toggle caused by the tension due to the presence of the shoe on the last. When such tension is relieved, the toggle will move downwardly by gravity due to

the inversion of the last and when the toggle moves beyond its dead center the last may be readily contracted and removed from the shoe.

Obviously, the last may be contracted by inserting a tool having a hooked end for engaging and lifting the point 14 of the toggle thereby causing the fore and heel parts to assume their contracted positions.

Having thus described the invention, I claim:

1. A longitudinally expansible shoe last comprising a relatively movable fore and heel part, means connecting said parts and acting to guide their relative movements in a straight line extending longitudinally of the last, toggle means extending between said last parts, said toggle means moving, upon the application of a last expanding force, from an angular position when the last is contracted into a dead center position and slightly beyond when the last is completely expanded, and a stop engaged by said toggle when in its beyond center position thereby to lock the last expanded.

2. An expansible shoe last comprising relatively movable fore and heel parts, two or more straight parallel guiding members connecting said last parts and disposed longitudinally of the last, a pair of links freely pivoted together at one of their ends and at their other ends pivoted respectively to said fore and heel parts, said links moving, upon application of a last expanding force, from an angular position when the last is contracted into a straight or aligned position and slightly beyond until their common pivot point is over dead center, and a stop engaged by said link when in their beyond center position thereby to lock the last expanded.

3. An expansible shoe last comprising relatively movable fore and heel parts, two or more parallel guide rods disposed longitudinally of the last, one end of said rods being fixed in one of said last parts and the other ends thereof slidably received in apertures in the other last part, said apertures being disposed in alignment with their respective rods, a pair of links freely pivoted together at one of their ends and at their other ends pivoted respectively to said last parts, said links, upon application of a last expanding force, moving from a relatively angular position when the last is contracted into an aligned pivot or dead center position and slightly beyond, and a stop engaging said links at said beyond center position thereby locking the last expanded.

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