

932,790.

Patented Aug. 31, 1909.

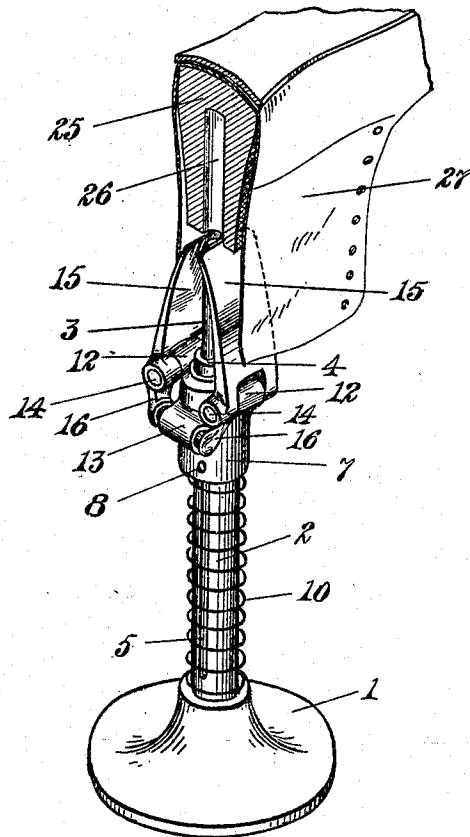


Fig. 1.

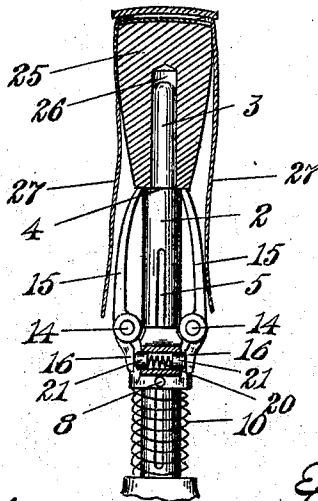


Fig. 2.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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WORK-SUPPORT.

932,790.

Specification of Letters Patent.

Patented Aug. 31, 1909.

Application filed November 22, 1907. Serial No. 403,396.

To all whom it may concern:

Be it known that I, EUCLID I. LA CHAPELLE, a citizen of the United States, residing at Beverly, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Work-Supports, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to work supports, and more particularly to last supports used in the manufacture of footwear.

In the manufacture of boots and shoes it is customary to fit the upper, insole and other portions of a shoe upon a last, as is well known in the art. This assembling of the shoe upon its last is one of the early operations, and during most of the succeeding operations, the last remains in the shoe. The shoe with its last is conveyed from one machine to another during the succeeding operations, and is frequently mounted, in these subsequent operations, upon a work support which is arranged to enter a hole in the cone of the last. Lasts are usually made of wood with a hole bored in the top or cone, and frequently a metal lining or thimble is fitted in such hole. The work support consists of a pin or spindle with its upper portion of an appropriate diameter to enter the thimble hole in the last, but somewhat shorter than the depth of the thimble hole. The lower portion of the spindle is of larger diameter than the thimble hole and thus forms a bearing or shoulder for the cone of the last to rest upon during an operation upon the shoe and the strain is distributed from this bearing in preference to having such strain come upon the bottom of the thimble hole in the last. It is customary for the thimble to be formed with a flange overlapping the cone of the last and serving as a metal bushing to bear against the metal shoulder of the last spindle.

In assembling or fitting boots and shoes other than "low cuts" or oxfords upon a last, the top of the upper extends considerably beyond the top or cone of the last. The top portion of the upper, being without support, usually tumbles inwardly and folds over upon the cone of the last, thus concealing the mouth of the thimble. Consequently,

when the operator mounts a shoe upon the spindle of a work support, the sides of the upper must be spread apart or cleared away from the mouth of the thimble, or the upper might be caught between the top of the spindle and the cone of the last. In the prior art, this spreading of the upper had to be done by hand, and required an appreciable amount of time and skill. Also this spreading operation had to be performed every time the shoe was mounted upon a different spindle or in a machine where a spindle was used.

It is an object of this invention to provide automatic means to clear and spread the sides of the upper away from the last and thimble hole during the mounting of the shoe upon a spindle, thus saving the time and skill heretofore required in performing this operation by hand.

After the upper has been cleared from the thimble hole in the operation of mounting a shoe with its last upon the spindle of a work support, there is great danger that the lining and upper may be caught between the cone of the last and the shoulder of the spindle upon which the last bears. As above noted, when the last is so mounted in a machine, the strain incident to the operation of such machine is usually brought to bear at the line of contact between this shoulder and the last. Should the upper or lining be caught between the shoulder and the last and the machine then operated, the upper or lining would be damaged and might be cut entirely through. This danger of so catching is especially imminent in narrow coned lasts. Hence, in the prior art, it was usual for the operator, in mounting a shoe upon a spindle, also to protect the upper from being caught between the last and the shoulder of the spindle.

It is an important object of this invention to render impossible such catching of the upper or lining between the last and the shoulder on the spindle, and also to save the time and hand operation heretofore required to prevent such catching. Simple means are provided to prevent contact of the upper with the shoulder and to move the upper positively away from the shoulder, such means being automatically actuated by the ordinary operation of mounting the shoe upon the spindle.

In the drawing is shown a preferred em-

bodiment of the invention as applied to an ordinary last stand. It is to be understood, however, that this device is applicable to any work support or last jack, wherein a heel pin or spindle is used to enter the hole in the cone of a last. Such spindles are common in machines for operating upon shoes.

Figure 1 is a perspective view of a spindle equipped with this device, and a shoe with its last in cross-section at the thimble hole is shown as about to be mounted on the spindle. Fig. 2 represents an end view, with the shoe and last in cross-section fully mounted on the spindle, the base of the last-stand being partly omitted.

In the drawing the numeral 1 designates the base of a last-stand having suitably mounted thereon the post 2 with its uppermost portion 3 of a somewhat smaller diameter and arranged to fit in the hole of a last. The upper portion 3 may be a separate pin, socketed into the post 2, and vertically adjustable therewith. The shoulder 4 is formed at the junction of the portions 2 and 3. This constitutes the usual last spindle as now used.

In applying this invention to the construction above described, a keyway 5 is cut in the post 2 for a portion of its length. A collar 7 is arranged to slide upon the post 2 and a key 8 is set through the collar 7, loosely engaging the keyway 5 and thereby acting as a stop both to the rotation of the collar and to its upward movement. A spring 10, coiled around the post 2, bears upon the base 1 and against the lower part of the collar 7, and normally holds said collar in its extreme upward position slightly higher than the position shown in Fig. 1, and with the key 8 bearing against the uppermost end wall of the keyway 5. The collar 7 is constructed with two diametrically opposite cylindrical lugs 12, 12, and a third lug 13, each lug being formed hollow. The lugs 12, 12, are arranged to support the plates 15, 15, by means of the pivot pins 14, 14, as clearly shown in Fig. 1. The lug 13 is disposed at right angles to and relatively lower than the lugs 12, and receives a spring 20. Extensions 16 on each plate 15 extend below the pivot pins 14, 14, and are positioned opposite and adjacent to the open ends of lug 13. Two sliding bolts 21, 21, are arranged to fit in the bore of the lug 13 between the spring 20 and the extensions 16, as shown in Fig. 2. The spring 20 is coiled to exert a constant outward pressure upon the bolts 21, which in turn are thereby held in contact with the extensions 16, thus tending to rock said plates 15 on their respective pivot pins 14, and move the upper edges of the plates toward each other. With the collar 7 in its extreme upward position, the top edges of the plates 15 are arranged to meet

above the top of the portion 3 of the spindle thereby constituting a wedge formation.

25 indicates a last, with the usual thimble hole 26 formed therein. 27 represents the upper and lining of a shoe, upon said last.

The operation of the device is as follows:—In normal position, the collar 7 is sustained in its extreme upward position by the spring 10 and the upper edges of the plates 15 meet over the top of the portion 3, and present a wedge to the shoe and last to be positioned upon the spindle. If the upper of the shoe folds in over the cone of its last as is usual, as the shoe is moved downward to be mounted on the spindle, the wedge presented by the plates 15 tends to separate and spread the sides of the upper away from the last and to dispose the same upon their respective sides of the last. During further downward movement of the shoe the cone of the last contacts with the plates 15 at their wedge forming edges. As said plates are yieldingly sustained in their uppermost position, the continued downward movement of the last moves the plates 15 and the collar 7 downward against the pressure of the spring 10. During such downward motion, the inner or under sides of plates 15 contact with the upper portion 3 of the last spindle, this contact separating the plates 15 from their wedge formation, and giving to the upper edges of said plates a lateral movement, thereby contracting the spring 20 through extensions 16 and bolts 21, and positively spreading the upper away from the mouth of the thimble hole. Thus if the wedge has not appropriately spread the upper, but the upper or lining has been caught between the last and the wedge, this lateral movement of the plates gives a decisive spreading motion, before the upper is subjected to other pressure than that of the spring 10, which is insufficient to injure it. Continued downward movement of the last further depresses the plates and the collar 7, the inner sides of plates 15 sliding in contact with the portion 3 of the spindle, until contacting with the shoulder 4, when a further spreading movement is imparted to the plates and the last is fully mounted as shown in Fig. 2. It will be noted that the spreading movements are all performed by the ordinary operation of mounting a last upon a last spindle, and that no extra time, operation or skill is required of the operator. It will also be noted that it is impossible for the lining and upper to be caught between the cone of the last and the shoulder 4, since this device protects the shoulder at all times from contact with the upper. The spring 10 is of sufficient force to lift the device into its uppermost position, but is insufficient to raise the last and shoe also. Hence the shoe will remain mounted until removed as usual,

when the device is automatically positioned and ready for another operation.

Having described my invention I claim as new and desire to secure by Letters Patent of the United States:—

1. A last spindle in combination with means to prevent the upper of a shoe upon a last from contacting with said spindle while said shoe and last are being mounted thereon.
2. A last spindle in combination with means operated by the mounting of a last and shoe upon the spindle, to prevent the upper of said shoe from contacting with the spindle.
3. A last spindle and a yielding guard on said spindle comprising automatic means to spread the upper of a shoe away from the cone of its last, while said shoe is being mounted upon the spindle.
4. A last spindle in combination with automatic means to spread positively the upper of a shoe being mounted on said spindle.
5. In a last spindle, a collar arranged to slide upon said spindle, a spring to sustain said collar normally in uppermost position, vertical plates pivotally mounted on said collar, and means to incline said plates toward each other.
6. In a last spindle, yieldingly mounted vertically positioned plates, arranged to meet

over the top of the spindle to form a wedge with their upper edges.

7. In a last spindle, vertically positioned plates normally forming a wedge over the top of the spindle in combination with means operated by the mounting of a last upon the spindle to impart a lateral movement to said plates.

8. In a last spindle, a collar constructed to slide vertically on said spindle, means to sustain said collar normally in uppermost position, plates pivotally mounted on said collar, said plates arranged to be oscillated by contact with the spindle during the movement of the collar.

9. An apparatus of the class described, having a spindle and a shield for the end of the spindle, and constructed and arranged for engagement of the shield with the work and lateral movement thereof away from the end of the spindle as the latter is thrust into the work.

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

EUCLID I. LA CHAPELLE.

Witnesses:

JAMES R. HODDER,
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