G. L. PIERCE.

FLEXIBLE SHOE.

APPLICATION FILED AUG. 2, 1915.

1,161,332.

Patented Nov. 23, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

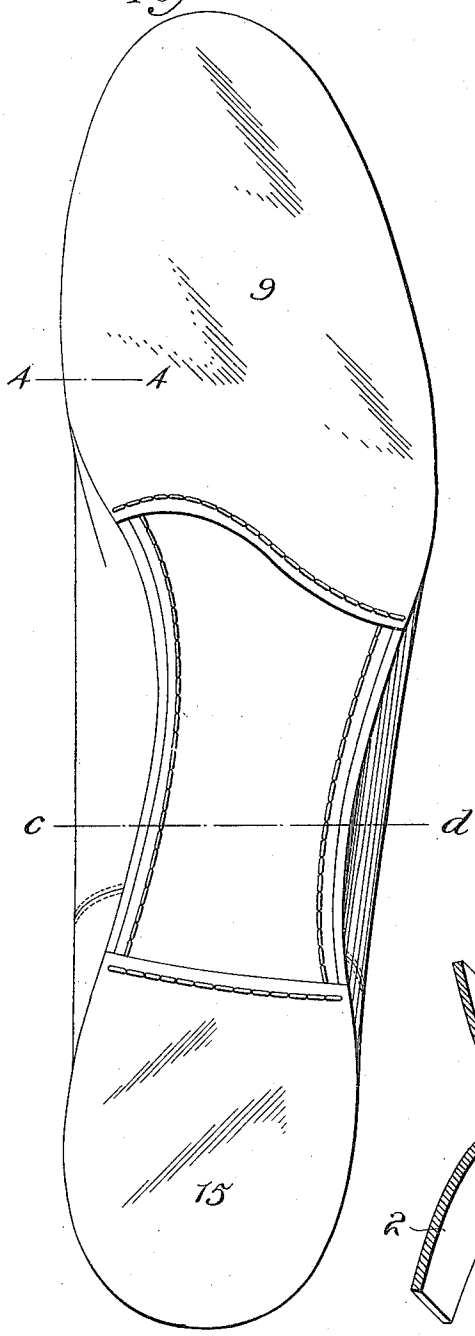


Fig. 2.

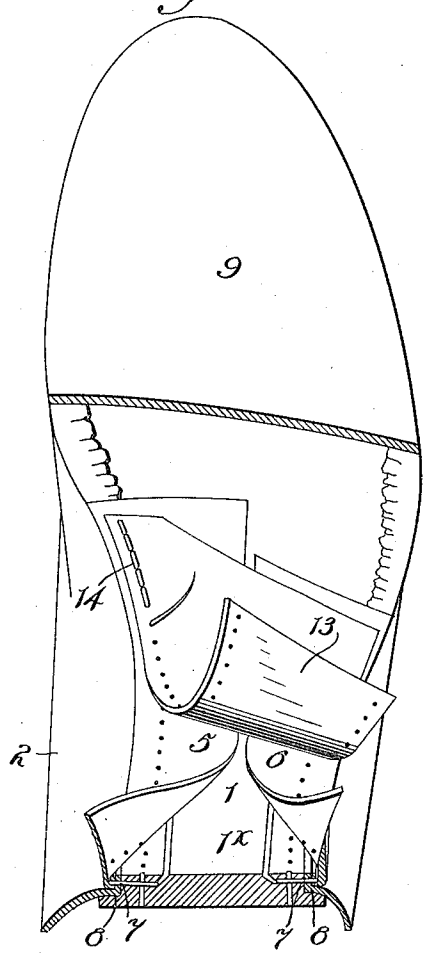
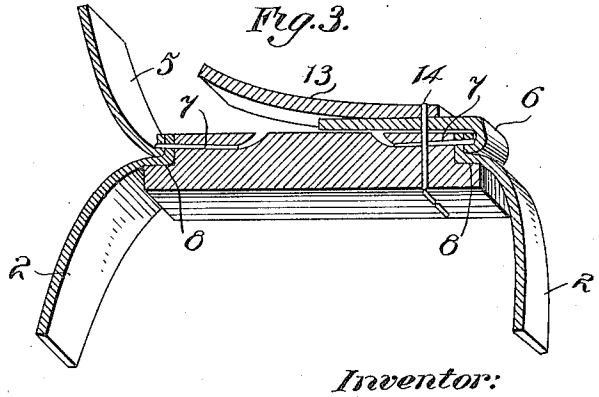


Fig. 3.



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Fig. 4.

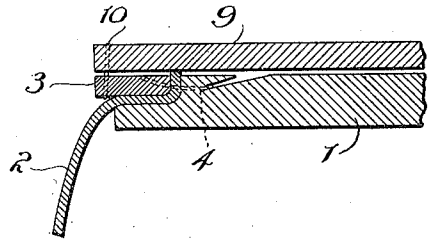


Fig. 5.

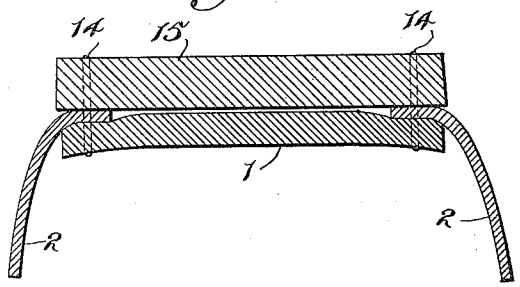
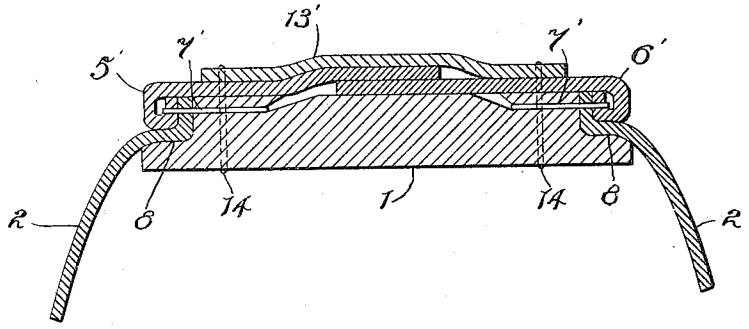


Fig. 6.



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UNITED STATES PATENT OFFICE.

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FLEXIBLE SHOE.

1,161,332. Specification of Letters Patent. Patented Nov. 23, 1915.

Application filed August 2, 1915. Serial No. 43,231.

To all whom it may concern:

Be it known that I, GEORGE L. PIERCE, citizen of the United States, residing at Brooklyn, New York, have invented certain new and useful Improvements in Flexible Shoes, of which the following is a specification.

It is the object of my invention to provide a shoe having a great degree of flexibility particularly at its shank portion, and while the shoe is adapted for general use, it is particularly suited to the requirements of foot-ball and base-ball players many of whom desire to have a shoe with a flexible shank so as to enable them to attain higher speed in running. A shoe adapted for use of athletes must be of durable construction, and while seeking to obtain a shoe of flexible character I have also had in mind the necessity of strength in construction.

The invention consists in the features and combination of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings Figure 1 is a bottom plan view of a shoe embodying the invention; Fig. 2 is a perspective view representing the shoe as cut on the line *c*—*d* and with members of the structure displaced or turned up to better show their relative positions and a part of the outer sole has been omitted from this view; Fig. 3 is an enlarged sectional view substantially on the line *c*—*d* showing the shoe at one point in its course of construction; Fig. 4 is a sectional view substantially on the line 4—4 of Fig. 1, and Fig. 5 is a sectional view at the heel portion of the shoe. Fig. 6 is a sectional view of a modification.

The shoe comprises an inner member 1 of leather extending from toe to the rear edge of the heel, providing the inner sole and flexible shank portions.

The upper 2 is lasted over this combined inner sole and shank member, and while on the last the upper is stitched at 4 to the welt 3 along the ball and the upper is attached at the heel in the usual manner. Along the intermediate shank portions 1× the upper, together with the two flexible strips of leather 5, 6, are stitched as at 7 to the edge of the shank, said edge being channeled or shouldered as at 8, to receive first the edge of the upper and second the doubled edge of the flexible shank strip. This stitching of the upper and the flexible shank or welt strips 5, 6, to the shank portion of the inner sole can be done as though these strips were continuations of the welt 3, the stitching operation for uniting the upper to the welt around the ball of the foot being continued along the shank portion to unite the upper and the flexible shank or welt strips 5, 6. The outer sole covering the ball can be sewed to the welt 3 without removing the last. This outer sole is shown at 9, the stitches uniting the outer sole with the welt being indicated at 10. At the heel portion of the shoe the upper is attached to the inner member and the heel tap superimposed in the usual manner, which will be familiar to any one skilled in the art.

It will be observed that the flexible shank or welt strips 5, 6, overlie the face of the shank portion of the inner sole, and extend over the stitching which connects their outer edges to the edge of the shank portion. Their inner edges nearly meet as shown, but if desired these inner edges may overlap in order to provide extra thickness of material along the median lines of the shank. The overlying portions, flexible shank or welt strips 5, 6, are cemented to the inner member 1.

The only operation which is carried out after removing the last is that now to be described. At 13 is shown an outer strip of flexible leather which overlies the meeting or overlapping edges of the shank strips 5 and 6. This strip having been superimposed on the shank or broad welt strips, it is stitched at 14 to the shank portion of the inner sole, the stitches passing through this covering strip, the shank strips or welts 5 and 6, and said shank portion of the inner sole. This operation of stitching at 14 is carried out after the shoe is removed from the last. It can be conveniently done, and as all the other operations of uniting of the parts previously described take place while the parts are on the last, there is no opportunity for the shoe to get out of shape in the course of manufacture, the last operation being done while the last is removed, not affecting the shape of the shoe already attained.

It will be seen from the above that the inner sole is continuous throughout the toe, ball, shank and heel portions, and that the shoe is sewed throughout. To put the operation briefly and in another way, the upper,

inner sole and welt are stitched together in substantially the ordinary way while the parts are in place on the last, and the stitching can be continued along the shank portion of the inner sole to secure the upper and the flexible welt strips or flaps 5 and 6 to the shank portion, this stitching being laid in the same direction as the welt stitching, and forming substantially a continuation of that operation, and after this is done and the uniting of the upper to the heel portion of the inner member has taken place, the last is removed, the covering strip is applied over the meeting or adjacent edges of the flaps or strips 5 and 6, and then this covering strip is sewed in place.

It will be observed that the usual welt indicated at 3 ends just back of the ball of the foot, namely: at the beginning of the shank and the shank is then filled in with the very broad welts or flaps 5, 6, and preferably these are made of kangaroo skin, being strong and very flexible. These strips reach to or past the center line of the shank, and the covering strip which is sewed over their meeting ends is also of kangaroo skin.

The outer sole is cut off at the beginning of the shank, and the heel begins at the rear end of the shank portion. These kangaroo shank strips extend slightly under the edge of the outer sole and heel, and are held by a line of stitches extending transversely and passing through the inner sole and heel strip.

In Fig. 6 I have shown a modification in which the broad welt strips 5′, 6′, overlap each other, and are covered by the strip 13′. This provides extra thickness of the flexible covering for the shank and added protection to the user's foot.

It will be understood that one of the main features of my invention relates to the construction of the flexible shank itself, without regard to the construction at the other parts of the shoe. For instance, the welt formation at the ball of the shoe may be omitted, if desired, only the shank portion of the shoe being constructed with the welt strips. It will be understood also that a supplemental feature of the invention is the relation of the shank construction to the construction at the other parts of the shoe.

What I claim is:—

1. A flexible shoe having an inner sole extending continuously from the toe to the rear of the heel, an upper and a welt stitched to the fore part of said inner sole, an outer sole stitched to the welt, broad welt strips together with the upper stitched to the shank portion of the inner sole, said broad welt strips extending over the bottom face of the shank portion, and a covering strip for the adjacent edges of the broad welt strips, said covering being secured to the shank portion by stitches passing through said covering strip, the broad welt strips and the shank portion of the inner sole, substantially as described.

2. In combination in a shoe, an inner sole extending from the toe to the rear of the heel, an upper secured to the inner sole about the toe and ball and shank portion, broad welt strips secured to the edge portions of the shank portion of the inner sole and extending over the bottom face of the said shank portion and a covering strip for the adjacent edges of the broad welt strips, said covering member being stitched to the shank portion of the inner sole, substantially as described.

3. In combination an inner sole extending from the toe to the heel and providing a shank portion, welt strips extending over the bottom face of the shank portion, an upper, stitches securing the upper to the inner sole along the edges of the ball and shank portions, said stitches being similarly disposed along the ball and the shank portion to permit their insertion by a continuation of a similar stitching operation from the ball to and along the shank portion, said stitches uniting the edges of the welt strips to the edges of the shank portion and a covering strip extending over the adjacent edges of the welt strips and secured to the shank portion by stitches, substantially as described.

4. In combination in a shoe, an inner sole extending from the toe to the heel of the shoe and providing a shank portion, an upper secured to the inner sole along the edges of the ball and shank portions thereof, welt strips also stitched to the edges of the shank portion and extending over the under face of said shank portion, a covering portion or strip stitched to the shank portion and overlying the adjacent edges of the welt strips, the said welt strips terminating at the ball and heel, an outer sole overlying the front portions of the said welt and covering strips, a heel tap overlying the rear portion of said welt and covering strips and stitches passing through the rear portion of the outer sole and the front portion of the heel and through said strips and inner sole, substantially as described.

5. In combination in a shoe a member extending from the toe to the heel and providing an intermediate flexible shank portion, an upper attached to said member, broad welt strips extending over the bottom face of the shank portion and overlapping each other, said welt strips being secured to the edges of the shank portion, and a covering strip extending over the overlapping portions of the welt strips and stitched through said strips to the shank portion of the said member, substantially as described.

6. In combination in a shoe, a flexible

shank between the heel and ball portions, an upper, broad welt strips stitched to the shank portion, said broad welt strips extending over the bottom face of said shank portion, and a covering strip for the adjacent edges of the broad welt strips, said covering member being secured to the shank portion by stitches passing through said covering member, the broad welt strips, and the shank portion, substantially as described.

In testimony whereof, I affix my signature in presence of two witnesses.

GEORGE L. PIERCE.

Witnesses:

H. BOARDMAN SPALDING,

FRANCIS G. COATES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."