Oct. 16, 1928. 1,687,528

P. W. VALENTINE

SHOE AND METHOD OF SHOEMAKING

Filed June 13, 1925

Fig. 1

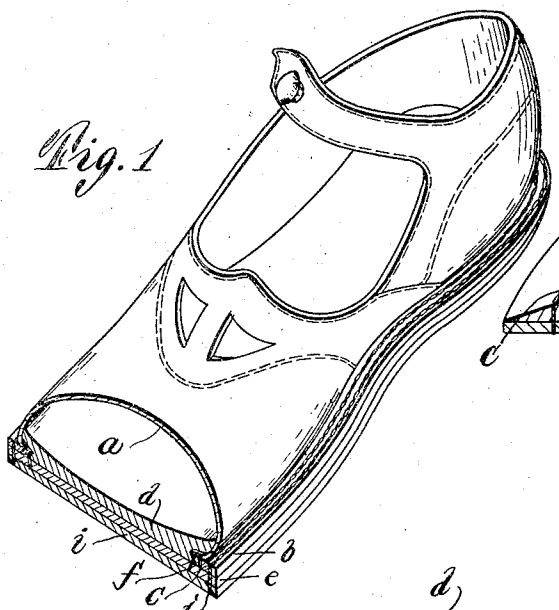


Fig. 2

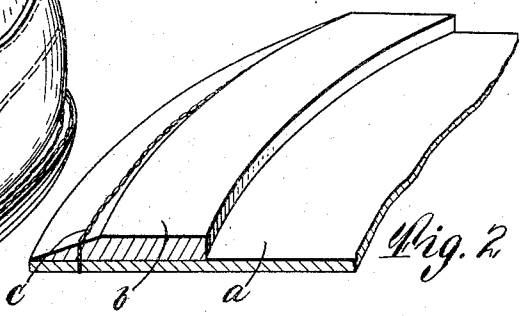


Fig. 3

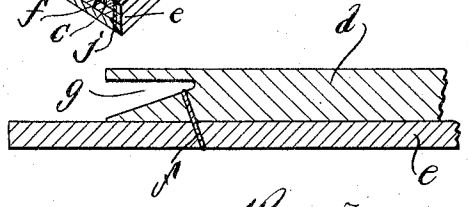


Fig. 4

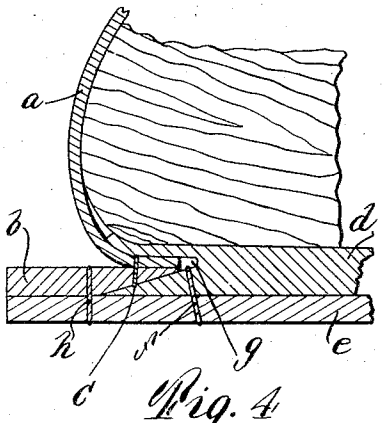


Fig. 6

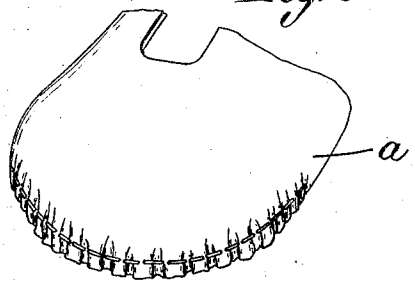


Fig. 5

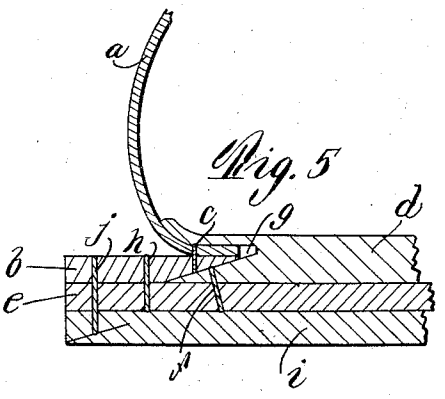
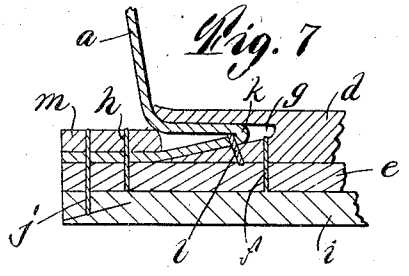


Fig. 7



Inventor:
Percy W. Valentine,
by Wright, Brown Quinby & Shay
Atty's.

Patented Oct. 16, 1928. 1,687,528

UNITED STATES PATENT OFFICE.

PERCY W. VALENTINE, OF CAMBRIDGE, MASSACHUSETTS.

SHOE AND METHOD OF SHOEMAKING.

Application filed June 13, 1925. Serial No. 36,838.

The present invention relates to shoes and methods of shoe making, the characteristics, objects and results of which can best be explained in connection with a detailed description of the method and in the shoe resulting from the practice of such method. The invention consists in the new method hereinafter described and claimed.

The drawings furnished herewith illustrate the steps employed in practising the method.

Fig. 1 is a perspective view of a completed shoe, made according to this method, the toe part of the shoe being cut off and shown in section;

Fig. 2 is a fragmentary perspective view and cross section of the side or mid portion the upper and welt connected together prior to lasting; this portion being shown as spread flat for convenience of illustration;

Fig. 3 is a fragmentary sectional view of an innersole and a middle sole as constructed, and secured together, in accordance with my invention, prior to lasting;

Fig. 4 is a sectional fragmentary view illustrating the step of securing the welt to the inner sole after lasting the upper;

Fig. 5 is a fragmentary sectional view illustrating the completed shoe;

Fig. 6 is a perspective view showing the toe part of a shoe upper prior to the attachment of the welt, the upper having a greater original length of edge than the welt to be attached to it and being puckered to reduce the length of its edge portion to approximately the same length as the welt and to facilitate fitting around the toe end of the last;

Fig. 7 is a view similar to Fig. 5 illustrating a modification of the invention.

Like reference characters designate the same parts wherever they occur in all the figures.

The upper *a* of the shoe, (the term "upper" as here used being an inclusive term to include not only the upper leather so-called, but also the upper leather and lining when a lining is provided,) is attached, prior to lasting, to a welt *b* the corresponding edges of the upper and welt being matched together, and the union being effected preferably by a sewed seam *c*. The welt may extend about the entire circuit of the upper, or may terminate at each side adjacent to the heel part, depending on the style of shoe to be made. In lasting the shoe, the innersole is tacked temporarily to the bottom of the last, and the upper with the welt attached is pulled over the last and made fast to the innersole. The procedure thus far described is not new with the present invention, and, as heretofore practised, involves fastening the upper to the bottom of the innersole with a quick drying adhesive; and further includes attaching an outer sole directly to the welt by stitching, or equivalent means.

The method as thus described and previously used, is subject to the defect that the attachment of the upper to the innersole is not permanent, but is designed to continue only long enough to hold the upper in lasted condition until the outer sole can be secured. The innersole soon becomes loose inside the shoe, as a result of being bent when worn, or even when bent in a similar way in course of inspection before being worn, so that it is liable to hump up inside the shoe. The upper, moreover, is held in shape only by its attachment to the outer sole, and when the latter is worn out and removed, preparatory to repairing the shoe, the upper is then loose and free to get out of shape, and this makes it difficult, when repairing the shoe by attaching a new outer sole, to preserve the former shape of the shoe, or to restore it to such shape.

The purpose of this invention is to secure the innersole permanently in the shoe, making its displacement and humping up impossible, and to secure the upper in its lasted shape by means independent of the outer sole, so that repairing is made easier and the shape of the shoe is automatically retained when repaired.

I have accomplished this object by providing a middle sole, to which the innersole is attached prior to lasting, and by securing the upper and welt to such middle sole in the course of lasting operation and prior to the attachment of the outer sole.

Fig. 3 shows in cross section an innersole *d* and a middle sole *e* thus attached by a stitched seam *f*. The seam is preferably set in a channel *g* cut inward from the edge of the innersole. Such channel may be formed simply by incising the edge of the innersole and turning back the upper flap thereof temporarily while the seam *f* is being sewed, or it may be formed by cutting out a narrow strip from the innersole between the top and bottom faces thereof, as shown by the drawing; the latter method being preferred, because it gives more room for reception of the upper and welt, without causing the flaps to be permanently

spread apart so widely as would otherwise be the case, as presently described, although it is not obligatory.

The connected inner and middle soles are then temporarily attached to the bottom of the last by tacks, as shown in a fragmentary manner in Fig. 4, and the upper and welt are pulled over and tucked into the channel *g*, and the welt is secured to the middle sole by stitches *h*. If desired, that part of the welt which is sewed to the upper may be beveled, substantially as shown, in order that it may be entered deeply into the channel *g* without displacing either lip of the innersole enough to produce an objectionable ridge, but this detail also is nonessential.

Finally, the outer sole *i* is laid against the middle sole and secured by stitches *j*, which pass through the middle sole and the welt substantially as shown in Fig. 5. This completes the process so far as the present invention is concerned, and the shoe may thereafter be finished ready for the market by whatever further steps or operations, practised in the shoe making art, may be desired for the purpose.

This mode of lasting and securing the upper and welt may be carried throughout the entire circuit of the shoe, including the heel part as well as the fore part; but it need not be, for the welt may be limited to extend only as far as the heel part, and the upper in the heel part of the shoe may be pulled over and permanently secured to the innersole by tacks, or otherwise, according to known methods.

The new step of the invention above described has the important and valuable results that, although the innersole is not directly stitched to the upper and the expensive inseaming operation of the prior art is avoided, yet the innersole is made fast at its edges throughout substantially its whole length, so that it cannot become loose and be pulled out from the fore part of the shoe, and neither can it rise or bulge in a hump at the shank part, or anywhere else. And the stitches which thus hold the innersole are contained in a channel where they are overlaid by the upper or inner surface of the innersole, and so are permanently covered and prevented from irritating the wearer's foot. Besides this, the middle sole holds the upper permanently in the proper lasting shape independently of the presence or absence of the outer sole. Thus, when the outer sole is worn out, it can be removed and a new one substituted, without in any way disturbing the upper or changing its shape. The middle sole may be made of inferior and inexpensive leather, or other material, since it need not have much strength or wear-resisting qualities.

If desired, the edge of the upper at the toe part, may be contracted by puckering or gathering its edge in small gathers prior to, or possibly in the course of stitching it to the welt. The effect of thus gathering in the upper is to produce a fullness in that part which is pulled over the toe of the last, and this makes it easier to pull the upper smoothly over the last toe, and also makes the upper fit that part of the last better, because the gathers of the upper are evenly distributed. It also avoids the formation of slack in the welt at the toe part of the shoe in the course of lasting, and enables a shorter welt to be used, thus effecting an economy in the use of welting.

The same invention and means for securing the innersole may be applied to making shoes of the stitch-down type, that is, those in which the bottom edge of the upper is turned outward from the last and secured to the outer sole. This use of the invention is shown in Fig. 7. The innersole *d* and middle sole *e* are substantially the same as before described, and are secured together in the same way. A fold *k* of the upper near its edge is tucked into the channel in the innersole and secured by suitable means, preferably by staples *l*, or thread stitches. The edge of the upper is turned outward and is secured to the middle sole, as before described. At the same time, or previously, a strip *m* simulating a welt may be applied and secured on the outer surface of the upper near its edge. An outer sole may be secured in the same way as previously described. This construction has this novel feature in common with the construction first described, that the upper is made fast in a channel in the innersole, and the innersole is secured so that it cannot pull out or rise up, while its edge portion in the shoe overlaps a part of the upper.

In this specification, the word "stitch" and its derivatives are used with generic meaning to include, not only attachments formed of thread, but those made by other materials, as wire, pegs, etc.

What I claim and desire to secure by Letters Patent is:

1. The method of making shoes which consists in separately securing an upper and a welt together, separately securing an inner sole and a second sole together, lasting said upper, securing said welt to said second sole, and securing an outer sole to said welt and second sole.

2. In the process of making a repairable shoe, the steps of securing an upper and a welt together with their outer edges approximately contiguous, separately securing an innersole and a second sole together, with the edges of the second sole projecting beyond those of the innersole, placing the contiguous edges of the upper and welt between the second sole and the edge of the innersole, and stitching the welt and the outer edge portions

of the said second sole together, and finally securing an outer sole detachably to the welt.

3. The method of making shoes which consists in providing an upper with a welt stitched thereto along the bottom edge of the upper, providing an innersole and a middle sole stitched together, the innersole having a peripheral channel in which said stitches are laid, placing the innersole and upper on a last, pulling over the upper and tucking its edge and that of the welt in said channel, and stitching the welt to said middle sole.

4. The method of making shoes which consists in providing an innersole and a middle sole connected together, providing also a connected upper and welt having contiguous edges, lasting the upper and passing the contiguous edges thereof and of the welt between the middle sole and that side of the innersole which comes next to the foot in the shoe, and connecting the welt to the middle sole independently of the innersole.

5. The method of making shoes which consists in providing an innersole and a middle sole connected together, providing also a connected upper and welt having contiguous edges, lasting the upper and passing the contiguous edges thereof and of the welt between the middle sole and that side of the innersole which comes next to the foot in the shoe, connecting the welt to the middle sole independently of the innersole and independently attaching an outersole to the welt and middle sole.

6. In a shoe, an upper, a welt secured to said upper independently of other parts of the shoe, an innersole, a second sole, means independent of other parts of the shoe, securing said soles to one another, and independent means securing said welt and second sole together.

7. A shoe comprising an upper, a welt separately secured to the edge of said upper, an innersole and a middle sole separately secured to one another, the middle sole projecting at its edges beyond the inner sole, independent means securing said welt and middle sole together, an outer sole, and means securing said outer sole to said middle sole and welt.

8. A shoe comprising an innersole having a channeled edge, an upper and welt independently connected together projecting into said channel, a middle sole stitched to the innersole in said channel, and separately stitched to the welt, and an outer sole stitched to the welt.

9. A shoe comprising an upper, a welt, inner, middle and outer soles, and separate fastening means for respectively securing said upper and welt together, securing said middle and inner soles together, securing said welt and middle sole together, and securing said outer sole in place outside of said middle sole.

10. A shoe comprising an upper, a welt separately attached to said upper, an innersole and a middle sole stitched together, the innersole having a channel in which said stitches lie, contiguous edges of the upper and welt being contained in said channel, the edge of the middle sole projecting outside of the innersole and being stitched to the welt, and an outer sole independently secured to the welt.

11. A shoe comprising an innersole and a second sole independently connected together, the second sole projecting at its edges beyond the innersole, and independently secured thereto, a lasted upper, a welt independently secured to said upper, the contiguous edges of said welt and upper lying outside of the inner surface of the innersole and within the edges of the second sole, and attaching means separately securing said welt to the outwardly projecting part of the second sole.

In testimony whereof I have affixed my signature.

PERCY W. VALENTINE.