Dec. 13, 1938. H. L. SUTCLIFFE 2,140,119

SHOE AND METHOD OF MAKING SAME

Filed March 19, 1935 2 Sheets-Sheet 1

Fig. 1.

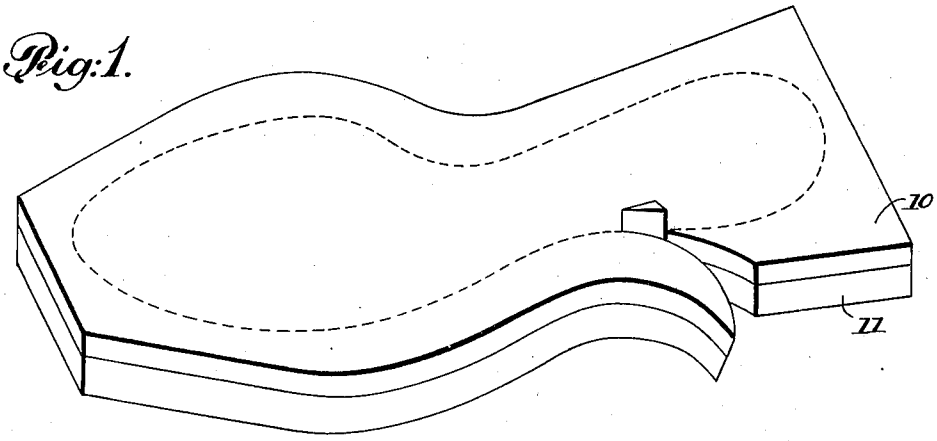


Fig. 2.

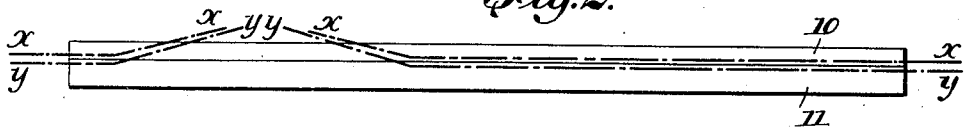


Fig. 3.

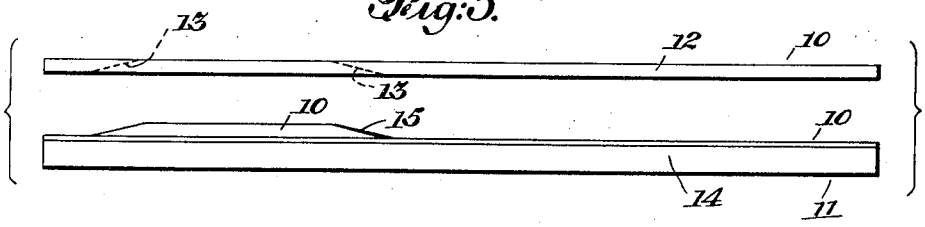
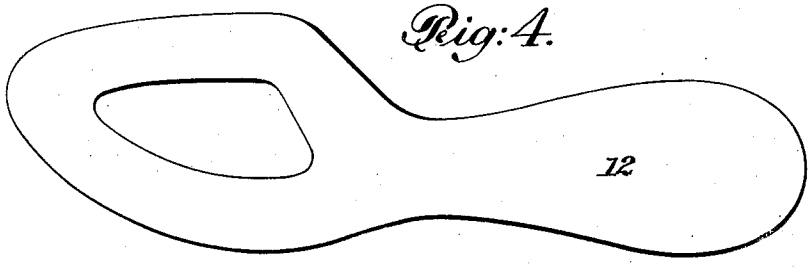


Fig. 4.



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Filed March 19, 1935 2 Sheets-Sheet 2

Fig:5.

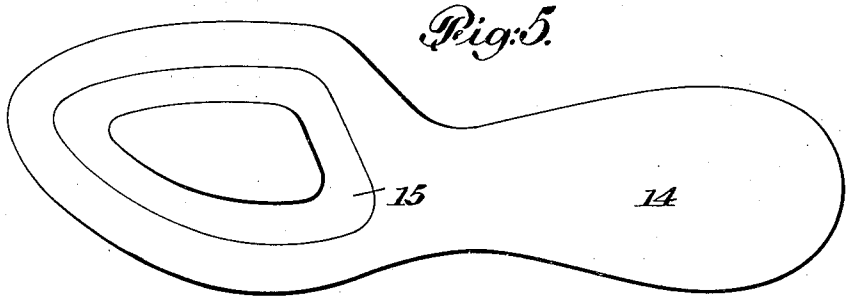


Fig:6.

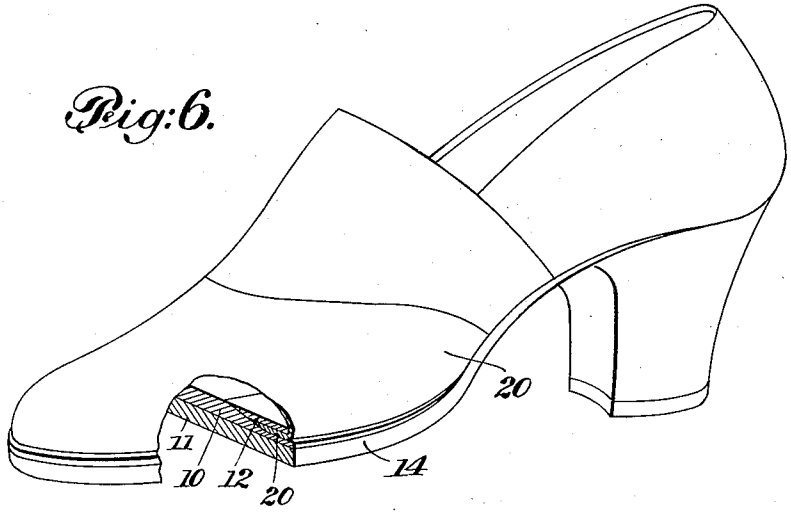
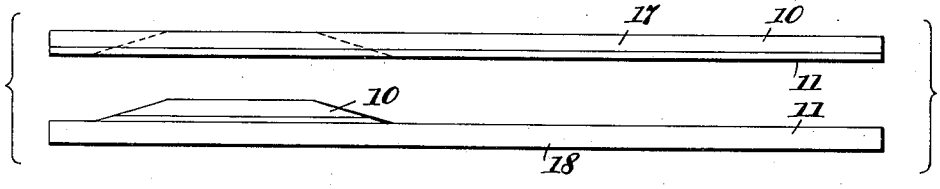


Fig:7.



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2,140,119

UNITED STATES PATENT OFFICE

2,140,119

SHOE AND METHOD OF MAKING SAME

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Application March 19, 1935, Serial No. 11,755

4 Claims. (Cl. 12—146)

My invention relates to shoes and shoe making, and more particularly to the making of shoes in which an insole skeletonized over the forepart is employed, said insole being obtained from an outsole by splitting it therefrom in such manner that the insole is in all respects complemental to the outsole and may be used in combination therewith or with an outsole from which a similar insole has been removed.

I have successfully produced both cemented and stitched shoes of this type for men's, women's and children's wear, including welts of the character taught in my United States Patent No. 1,939,527, and have found such shoes extremely satisfactory by reason of their great flexibility, wearing and fitting qualities.

However, I have experienced difficulty in economically obtaining sole leather in quantities of a gauge which will permit the removal of the insole from the outsole and at the same time leave remaining an outsole of sufficient weight to be satisfactory for certain types of shoes, such as are usually preferred by men, suitable for children, particularly boys, and occasionally required by women. The cost of heavy sole leather, twelve irons and over in thickness, is proportionately much more expensive than the lighter grades of sole leather. With the object of meeting this situation, it has been proposed to use soles of materials other than leather but, except for sport wear, shoes having composition soles have not been well received by the trade.

It has also been proposed to produce a skeleton insole and the complementary outsole separately, from different stock pieces, but difficulty has been encountered in so accurately forming, sizing and stock-fitting the parts as to insure that they will mate perfectly when the shoe is finally assembled. Also, such operations have proven costly, although they afford an advantage in that the insole may be made of a material more flexible and more suitable for the purpose.

A principal object of my present invention, therefore, is to provide substantially heavier insole-outsole combinations of the character described which will exactly complement each other and which will be economical of materials and production operations, while at the same time preserving the flexible qualities of lighter sole combinations of the type here dealt with. Viewed in another aspect, this object of my invention is to provide more satisfactory and more flexible insole-outsole combinations of any desired weight and, at the same time, effect a saving in the cost of materials.

Another object is to provide sole combinations of this character in which the insole member shall be of a material more flexible and more suitable for its purpose. A further object is to provide an improved method of producing shoes and sole combinations therefor. A further object is to provide an improved shoe embodying my novel sole construction, and other and further objects will appear from the following specification:

Referring to the drawings which form a part of the specification,

Figure 1 is a perspective view showing a laminated sole blank prepared in accordance with my improved method, and indicating the conventional rounding operation.

Figure 2 is an edge elevation of the rounded laminated blank.

Figure 3 is a longitudinal sectional view illustrating the manner in which the sole is divided into the complemental insole and outsole members.

Figure 4 is a plan view of the insole.

Figure 5 is a plan view of the outsole.

Figure 6 is a perspective view of a shoe, shown partly in section to disclose the relationship of the parts comprising the sole structure.

Figure 7 is a view similar to Fig. 3 and illustrates a modification of my invention.

In carrying out my invention, I first provide a sole blank comprising two laminated layers of material secured together by a suitable adhesive, such as rubber cement or latex. The upper layer 10 is preferably of soft, flexible material, such as pigskin, split leather, or such other material as is suitable for shoe insoles. The lower layer 11 is of cowhide or other material adapted for hard wear as the outsole. I prefer to laminate and secure the layers together before rounding, substantially as illustrated, but it will be understood that the parts 10 and 11 may be first separately rounded if desired, and that such modifications are within the scope of my invention.

The laminated blank is then divided along line x—x of Fig. 2 to provide a skeleton insole 12 having an opening in the forepart thereof, the marginal edges of the opening being beveled at 13 and an outsole 14 elevated in thickness over the central area of its ball portion to form a projection, the margins of said elevated area being beveled at 15 to exactly mate with the margins of the insole opening.

As shown in Fig. 3, the outsole construction comprises the layer 11 together with an adhering

portion of the flexible layer 10 whereas the insole is completely formed of the layer 10.

The method I employ to divide the laminated sole to obtain the complementary insole and outsole members is substantially the method taught in United States Patent No. 1,988,281, issued January 15, 1935 to Fred Maccarone, in accordance with which the sole blank is temporarily distorted by inflexing or depressing it over areas corresponding to the skeletonized portions of the desired insole so that such portions will avoid the blade of the splitting machine by means of which the blank is divided. There are other known methods of dividing the sole blank to provide similar insole-outsole portions and such methods may be employed if, for any reason, it is desired to do so.

Sole members formed as above described can be obtained in weights very much heavier than is possible where a single thickness of sole material is divided, and at a production cost very much less than would be possible were it attempted to manufacture the sole members from independent pieces. Sole members so formed are also of advantage where light weight soles are desirable, because lighter and less expensive outsole stock may be employed and because the softer layer 10 obtains greater flexibility in the finished shoe and provides an insole of more suitable texture.

The insole member 12 may be size-rounded after the splitting operation or, more preferably, may be predefined and initially formed by incisions in the sole material before it is split, as described in United States Patent No. 1,988,282, issued to said Fred Maccarone. The insole thus formed and sized may then be further prepared for lasting, where necessary, and is secured to a last bottom, whereafter the shoe-upper 20 may be lasted and secured thereto in any of the ways and by any of the means which are well known to those skilled in the making of welted or McKay types of shoes.

After the upper and insole have been lasted and secured together, an outsole is assembled and secured in proper relation to the insole either by stitching or cementing, depending upon the type of construction desired.

Figure 6 illustrates a shoe in which the sole members are assembled by means of cement. However, this is merely illustrative of the relationship and construction of the sole members in the finished shoe, and it will be understood that the assembly may be secured by means of lockstitching or channel stitching or by means of an interposed welt. However the sole members may be secured, the finished shoe affords an outsole comprising the full weight of the layer 11 augmented by the adhering portion of the layer 10 such outsole being capable of withstanding hard wear, whereas the insole exactly complements the outsole, and the facing surfaces of the insole and outsole are of the same material.

The preferred method of dividing the sole blank is so accurately performed that insole and outsole members of the same style and size may be freely interchanged to form satisfactory sole combinations.

Should it be desired to construct a shoe having a comparatively heavy insole and a comparatively light outsole, the laminated blank may be divided along the line *y—y* of Fig. 2 to obtain members as illustrated in Fig. 7, in which the insole 17 is shown as comprising the layer 10 having portions of the layer 11 adhering to the underside thereof, whereas the outsole 18 comprises the principal portion of layer 11 having a portion of the layer 10 adhering thereto over the elevated area centrally of the ball portion and forming part of the outsole projection. I have found it impractical to split the blank along the line of adhesion, but the blank may be divided in any plane on either side of such line.

Having thus described my invention, I claim as new:

1. A shoe having a sole combination comprising an outsole elevated in thickness at the central area of the ball portion thereof, said elevated portion comprising a layer of relatively soft material adhesively secured to the outsole, and an insole comprising two layers of material adhesively secured together and having an opening in the ball portion thereof to receive the elevated area of the outsole, the uppermost of said insole layers being formed of said soft material.

2. A shoe having a sole combination comprising an outsole elevated in thickness at the central area of the ball portion thereof, said elevated portion comprising a layer of relatively soft material adhesively secured to the outsole, and an insole comprising two layers of material adhesively secured together and having an opening in the ball portion thereof to receive the elevated portion of the outsole, the uppermost of said insole layers being formed of said soft material, and the lowermost of said insole layers being formed of the same material as the outsole proper.

3. That improvement in methods of making soles which consists in securing together in face-to-face relation by means of adhesive two sole blanks one composed of relatively tough material and the other of relatively flexible material thereby providing a unitary laminated sole blank, deforming said laminated blank by depressing the central forward portion thereof relatively to the outer surface of said relatively flexible layer, and while said blank is thus deformed feeding it edgewise past a straight-edged knife thereby splitting the blank into an insole composed of said relatively flexible material and having an opening in its forepart and an outsole comprising a main portion composed of said relatively tough material and having upon its forepart a projecting portion complemental to said insole opening.

4. That improvement in methods of making soles which consists in securing together in face-to-face relation by means of adhesive two sole blanks one composed of relatively tough material and the other of relatively flexible material thereby providing a unitary laminated sole blank, deforming said laminated blank by depressing the central forward portion thereof relatively to the outer surface of said relatively flexible layer, and while said blank is thus deformed feeding it edgewise past a straight-edged knife thereby splitting the blank into an outsole and an insole, said outsole comprising a main portion composed of said relatively tough material and having its forepart elevated in thickness at the central area of the ball portion thereof and said insole having its forepart formed complementary to said elevated area of the outsole so as to fit the same.

HARRY L. SUTCLIFFE.