

Aug. 9, 1927.

1,638,136

R. E. BARTELS
SHANK STIFFENER
Filed Sept. 8, 1920

Fig. 1

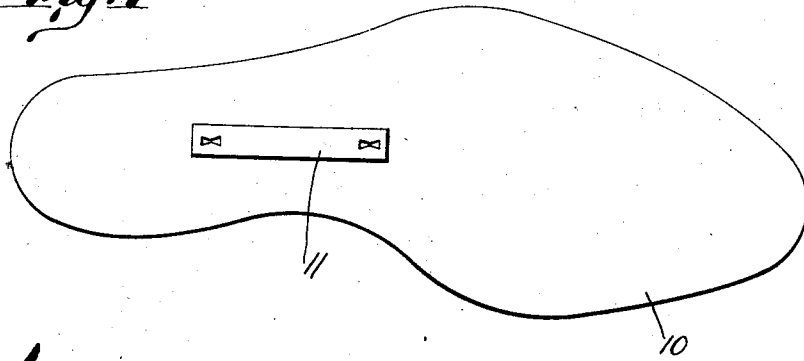


Fig. 2

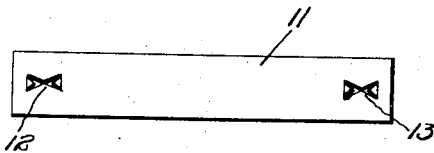


Fig. 3

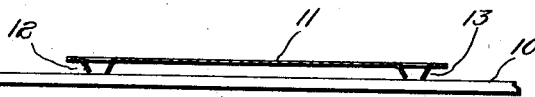
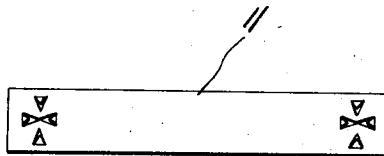


Fig. 4

Fig. 5



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SHANK STIFFENER.

Application filed September 8, 1920. Serial No. 408,800.

The present invention relates to shank stiffeners to be used in connection with shoe soles, i. e. either outsoles or innersoles, or the leather shank pieces used in turn shoes.

Stiffeners of this character in common use are usually made of thin flat strips of metal, as ductile iron or steel, and are designed to be fastened to the flat blank which has been or may afterwards be tempered by soaking it in water and then shaped or molded into the form desired. In molding the sole member, the stiffener is also given a definite shape to hold the member in the desired form.

Heretofore the stiffener has been secured to the sole member by means of tines or prongs struck out of the body of the metal and turned at right angles thereto. The tines are designed to be driven through the leather of the sole member, and, if the sole member is sufficiently thin, to clinch on the upper face thereof. In such case, the bent-over tines form hard points on the upper side of the sole which are objectionable to the purchaser or wearer of the shoe. In case the tines do not pierce entirely through the leather and clinch, the stiffener is likely to pull loose therefrom when the sole is shaped into form as stated above. Another objection to metallic stiffeners, as at present used, is that they are provided with no effective protection against corrosion, and consequently compounds are formed by the combination of the tannic acid of the leather or of moisture with the metal of the stiffener, which discolor the leather about the stiffener and impair the commercial value of the shoe.

The present invention contemplates remedying the above objections by providing a shank stiffener in which the tines are struck up at an angle of less than 90° to the plane of the body portion so that the tines will not pierce entirely through the leather, and, by arranging the tines in pairs inclined toward each other whereby the tines grip the leather between them, firmly securing the stiffener to the sole. A single tine, set at an angle of less than 90° would tend to flatten and not penetrate the leather, so that, as stated, it is important that the tines be arranged in pairs and be closely adjacent. The formation of the discoloring compounds, as set forth above, is prevented by coating the stiffener with a suitable waterproof varnish which prevents corroding influences from coming into contact with the metal.

A specific embodiment of the invention is disclosed on the accompanying drawings, forming a part of the present application, in which

Figure 1 shows a plan view of the stiffener attached to the shoe.

Figure 2 is a plan view of the stiffener alone.

Figure 3 shows a stiffener placed on an outsole and ready to be attached thereto.

Figure 4 shows the stiffener attached to the sole.

Figure 5 is a view similar to Figure 2, but showing a modification.

Referring to the drawings by reference numerals, the same numerals designating the same parts throughout the drawings,— 10 designates a sole, which I have selected merely for the purpose of illustrating a sole member, and 11 a shank stiffener attached thereto. The shank stiffener (see Figures 2 and 3) has formed adjacent its ends and within its margin pairs of closely adjacent tines or prongs 12 and 13, preferably struck from the body of the metal. The tines of each pair are preferably in alinement with each other longitudinally of the stiffener and are inclined toward each other and at an angle of less than 90° to the body of the stiffener. Preferably also, when this can be done, both tines of a pair are so cut and struck from the material as to leave but a single hole therethrough, as shown in Figures 1, 2 and 3, the material struck therefrom being divided transversely substantially centrally to form the free ends of the tines. By bending the tines at less than 90° to the plane of the body portion the metal is less weakened at the bends than if they were bent through a larger angle. Formed in this manner, when the stiffener is in position on the sole as shown in Figure 3, the tines are driven into the leather of the sole at angles to the surface thereof, the ends of the tines clinching within the body of the sole and gripping a portion of the leather thereof between them. Thus the tines do not penetrate entirely through the leather and give the shoe a damaged appearance, or afford an opportunity for discoloration adjacent the points, even though the stiffener is not japanned or varnished.

It will appear from the above description that the tines, if desired, may be placed on the stiffener in transverse alinement there-

on and that there may be any number of these pairs of tines at one or both ends of the stiffener.

It will also appear that tines may be arranged in transversely alined pairs and in longitudinally alined pairs as shown in Figure 5 of the drawing.

Any suitable varnish may be used to prevent corrosion of the metal of the stiffener and consequently discoloring the sole which is insoluble in water and unaffected by tannic acid. A suitable varnish for the purpose is a baking varnish containing the following components: copal 5 parts, dammar 10 parts, shellac 25 parts, alcohol 15 parts, and turpentine 45 parts.

What I claim is:—

1. A shank stiffener comprising a blank of thin sheet metal having a hole formed by the striking of material therefrom adjacent to one end, the material so struck being transversely divided to form a pair of oppositely positioned prongs projecting from one face thereof and inclined toward each other.

2. A shank stiffener comprising a blank of thin sheet metal having prongs struck therefrom within its margin in oppositely

disposed alined pairs, the prongs of each being closely adjacent to and inclined toward each other.

3. A shank stiffener comprising a blank of thin sheet metal having prongs struck therefrom at less than 90° and arranged in opposed pairs, the prongs of each pair being inclined toward each other.

4. The combination with a shoe sole of a shank stiffener secured thereto by means of prongs projecting from the stiffener, said prongs being arranged in adjacent alined pairs struck from the material of the stiffener within its margin and gripping a portion of the sole between them, said prongs being clinched toward each other within the body of said sole.

5. The combination with a shoe sole, of a shank stiffener secured thereto by means of prongs projecting from said stiffener, said prongs being struck from the material of said stiffener less than 90° and inclined toward each other in opposed pairs gripping a portion of said sole therebetween and clinched within the body of said sole.

In testimony whereof I have affixed my signature.

REINHARD E. BARTELS.