

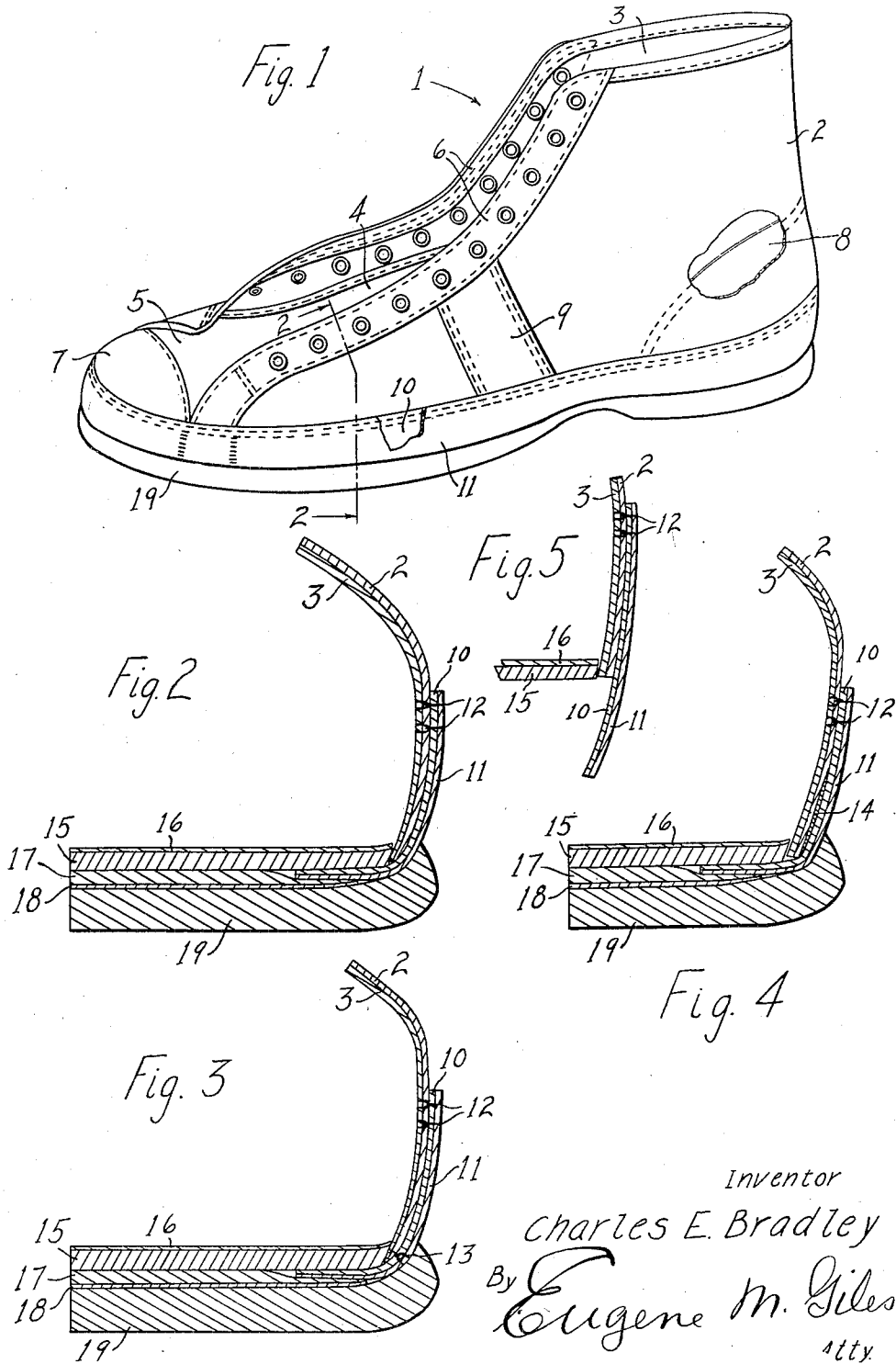
April 12, 1932.

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1,853,034

RUBBER SOLED SHOE AND METHOD OF MAKING SAME

Filed Nov. 1, 1930



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# UNITED STATES PATENT OFFICE

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## RUBBER SOLED SHOE AND METHOD OF MAKING SAME

Application filed November 1, 1930. Serial No. 492,831.

My invention relates to improvements in shoes, and the method of making same, wherein a rubber sole is vulcanized onto the upper and has a foxing extending upwardly therefrom around and attached to the lower portion of the upper, this invention having reference more particularly to the utilization of the foxing as the means for lasting the upper to the sole.

sole which must be compensated for by extra filler but there is also the additional wastage of stock due to the unnecessary provision of both the upper and the foxing strip with corresponding edge portions which are adapted to be turned in and lasted to the sole.

10 The principal objects of my invention are to simplify the construction of rubber soled shoes of the character above referred to; to minimize the amount of materials required; to avoid unnecessary layers of material and 15 undesirable thickness along the lasted edge; to enhance the appearance and increase the serviceability of the shoe, and in general to facilitate the manufacture, improve the construction and minimize the cost of rubber 20 soled shoes of the type to which my invention relates.

In my preferred construction the lasting edge of the upper is entirely omitted, said upper being merely of sufficient length to extend down around the marginal edge of the inner sole substantially to the under face of the latter, and this upper has a foxing strip secured therearound and projecting sufficiently below the lower edge of the upper so that this projecting edge of the foxing alone serves as the means for lasting the upper to the sole. This foxing strip is of suitable material, as for example, a rubber faced fabric, which will insure a permanent and dependable connection of the upper with the sole and it may be secured to the upper in any convenient manner, preferably by stitching the foxing along its upper edge to the shoe upper as this insures a strong and dependable connection and avoids the unsightly presence of cement on the upper which almost necessarily occurs if cement is used for this purpose.

In the methods commonly employed in manufacturing shoes, such for example as athletic shoes, wherein a rubber sole is vulcanized onto a fabric upper, it is customary to last the edge of the upper over the insole and in addition to provide a foxing which is cemented around the lower portion of the upper and turned in over the lasted edge thereof. This not only entails considerable work which must be performed very carefully in order to insure an adequate coating of cement of definite width around the lower portion of the upper,—to apply the foxing strip evenly over this cemented area and roll it down into firm adherence,—and to turn the edge in properly over the lasted edge of the upper, but moreover it is practically impossible, even with the utmost care, to avoid the presence of some cement on the upper above the foxing strip and this necessarily detracts from the neat and finished appearance of the shoe. The edges of the cemented foxing also tend to loosen in service and this not only impairs the appearance of the shoe but shortens the life thereof. Furthermore, the lasting of the edge of the upper over the insole and the turning in of the lower edge of the foxing thereover not only affords increased thickness around the edge of the

In some cases, however, it may be desired to reinforce or strengthen the connection of the upper and sole at places where excessive strains occur, as for example, at the heel where the shoe may have a stiff counter which tends to cut and loosen up the foxing strip, and this may be accomplished by providing the upper at or around the heel portion with an extended edge for lasting over the insole in the usual manner, the lasting edge of the upper being omitted along the shank, vamp and toe portions of the upper, or this reinforcing may be accomplished by increasing the strength of the foxing strip where additional strength is required.

While I prefer, for the reasons above indicated, to stitch the foxing to the upper, the foxing may be attached merely by cementing same to the upper with the lower edge of the foxing projecting sufficiently beyond the lower edge of the upper to serve as the means for lasting the upper to the insole, or the

foxing may be stitched to the upper and also cemented thereto in which case the cementing may be confined to a narrow width along the lower edge of the upper or may be used over the entire surface underneath the foxing. Various arrangements of stitching may also be employed, for example, the upper may be stitched along its lower edge to the foxing which latter is stitched along its upper edge to the upper, and moreover this stitching of the foxing to the upper may be used to advantage in rubber shoes made in accordance with the previous practice wherein the edge portions of both the upper and foxing are lasted over the insole, as the stitching insures a secure and permanent attachment of the foxing to the upper and avoids loosening up of the foxing in service which impairs the appearance and shortens the life of the shoe.

In order that my improvements may be more fully understood, I have shown in the accompanying drawings, an athletic shoe constructed in accordance with my invention, and in said drawings:

Fig. 1 is a perspective view of the shoe taken from the side;

Fig. 2 is an enlarged detail sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a similar sectional view showing a modification;

Fig. 4 is a similar sectional view showing another modification; and

Fig. 5 is a sectional view showing the arrangement of the upper and insole preparatory to the lasting of the foxing onto the insole.

Referring to the drawings the reference numeral 1 indicates the shoe upper which preferably consists of an outer layer 2 of canvas or other suitable fabric, a fabric lining 3, and a tongue 4 which terminates at its lower end in a toe portion 5 which is stitched between the forward ends of the side portions of the upper. Lacing strips 6, a toe cap 7, a heel counter 8 and ankle strips 9 are also provided and stitched to the upper in the usual manner. This upper structure, however, instead of being made of the usual length to provide a marginal portion around the lower edge for lasting over the insole, is made merely long enough so that when placed on the last for assembling the sole, the lower marginal edge of the upper extends around the marginal edge of and terminates substantially at the outer face of the insole. In other words, the marginal edge portion of the upper that is usually provided for lasting over the insole is omitted in my present construction, and in lieu thereof I provide the upper with a foxing strip around and extending beyond the lower edge of the upper so that the extended edge portion of the foxing serves alone as the means for lasting the upper to the insole.

This foxing strip which is made of suitable material to insure a permanent and dependable connection, preferably consists of a strip 10 of frictioned fabric with a facing 11 of rubber composition on the outer side and is stitched along its upper edge as at 12 (two lines of stitching being preferably employed) to the upper so that sufficient of the foxing strip projects below the lower edge of the upper for satisfactorily lasting over the insole.

The foxing may be additionally secured to the upper, if desired, by stitching the upper along its lower edge to the foxing as indicated at 13 in Fig. 3, or any or all of the surface of the upper underneath the foxing may be cemented to the foxing as at 14 in Fig. 4, the stitching, however, being preferred as it may be conveniently accomplished as the other parts of the upper are stitched together.

After the upper has been prepared as above, with the foxing 10—11 attached thereto, it is applied on a last in the usual manner and the insole, which in my present construction consists of a layer 15 of rag stock compound with an adhesively attached fabric sock sole 16, is placed in position with the edge portion of the upper overlapping the edge face of the insole and terminating substantially at the exposed face of the insole as shown in Fig. 5. The projecting edge of the foxing 10—11 is then turned inwardly over the edge of the upper and lasted onto the inner sole, the exposed face of which has previously been coated with rubber cement so that the foxing will adhere thereto, and the remainder of the sole is then assembled. In the illustrated construction this comprises a middle sole 17 of rag stock composition with fabric facing 18 adhesively attached to what constitutes the bottom face thereof in the finished shoe, which said middle sole is adhesively attached to the inner sole layer 15 and the inturned edges of the foxing, said parts having been previously provided with a coating of rubber cement in the usual manner for this purpose. The exposed face of the assembled sole structure is then coated with rubber cement after which the outer sole 19 of rubber composition is cemented in place with the edges thereof fitted along and secured to the foxing slightly up the side of the latter substantially to the top of the inner sole somewhat as shown in Figs 2, 3 and 4 and this, in case the bottom edge of the upper is stitched to the foxing as at 13 in Fig. 3 covers and protects the stitches 13. After the shoe has been assembled as above, it is vulcanized in the usual manner.

With this construction the upper is not attached directly to the insole but merely extends down around the marginal edge of the insole substantially to the bottom face of the latter and is lasted to the insole by the pro-

jected edge of the previously attached foxing. Thus a material saving in the upper stock is not only effected, but the decrease in the thickness of the inturned edge permits a substantial saving in filler and greater flexibility. Moreover, the attachment of the foxing to the upper as herein contemplated, results in a shoe of greatly improved appearance which is produced more readily and with less labor than previous shoes of this character.

While I have shown and described my invention in a preferred form, I am aware that various changes and modifications may be made therein without departing from the principles of my invention, the scope of which is to be determined by the appended claims.

I claim as my invention:

1. The method of attaching soles to shoe uppers which comprises lasting over the insole that portion of a foxing which projects beyond the bottom edge of the upper and clamping said bottom edge of the upper opposite the marginal edge face of the insole, then completing and vulcanizing the shoe.

2. The method of attaching soles to shoe uppers which comprises placing an insole in the lower end of an upper so that the lower edge of the upper is substantially flush with the bottom face of the insole, then turning inwardly over the upstanding marginal edge of the upper and onto the insole the projecting edge portion of a foxing on the upper, securing said inturned projecting edge of the foxing to said insole and then completing and vulcanizing the shoe.

3. The method of attaching soles to shoe uppers which comprises providing an upper with a foxing attached around and projecting beyond the lower portion of the upper, placing an insole within said lower portion of the upper with the edge face of the latter substantially flush with the bottom face of the insole, then lasting the projecting portion of the foxing over the upstanding marginal edge of the upper and over the insole, then completing and vulcanizing the shoe.

4. The method of making vulcanized shoes which comprises attaching the upper margin of a vulcanizable foxing to the lower portion of an upper, placing the parts thus formed upon a last, positioning an insole on the last with the outer surface thereof substantially flush with the lower edge of the upper, lasting the lower margin of the vulcanizable foxing over the upstanding marginal edge of the upper and onto the insole, applying a vulcanizable outsole to the insole and to the lower margin of the vulcanizable foxing, and then vulcanizing the shoe.

5. The method of making vulcanized shoes which comprises stitching the upper margin of a vulcanizable foxing to the lower portion of an upper, placing the parts thus formed upon a last, lasting the lower margin of the vulcanizable foxing over an insole with

the lower edge face of the upper between the edge of the insole and the upstanding portion of the foxing, applying a vulcanizable outsole to the insole and to the lower margin of the vulcanizable foxing, and vulcanizing the shoe.

6. The method of making vulcanized shoes which comprises stitching the upper edge of a vulcanizable foxing around the lower portion of an upper, cementing the upper to the inner side of the foxing, placing the parts thus formed upon a last, lasting the margin of the vulcanizable foxing over and adhesively attaching same to an insole with the lower edge face of the upper between the edge of the insole and the upstanding portion of the foxing, applying a middle sole to the insole and to the lasted margin of the vulcanizable foxing, applying a vulcanizable outsole to the insole and to the outer face of the vulcanizable foxing and vulcanizing the shoe.

7. The method of making vulcanized shoes comprising forming an upper to conform with the contour of an insole, attaching the upper margin of a vulcanizable foxing to the lower portion of an upper, placing the parts thus formed upon a last, lasting the lower margin of the vulcanizable foxing over an insole with the lower edge face of the upper substantially flush with the bottom face of the insole and between the edge of the insole and the upstanding portion of the foxing, applying a vulcanizable outsole to the insole and to the lower margin of the vulcanizable foxing, and vulcanizing the shoe.

8. The method of making vulcanized shoes comprising attaching the upper margin of a vulcanizable foxing to the lower portion of an upper, placing the parts thus formed upon a last, lasting the lower margin of the vulcanizable foxing over an insole with the lower edge face of the upper substantially flush with the bottom face of the insole and between the edge of the insole and the upstanding portion of the foxing, applying a middle sole to the insole and to the lasted portions of the vulcanizable foxing, applying a vulcanizable outsole to the middle sole and to the vulcanizable foxing, and vulcanizing the shoes.

9. The herein described method of making vulcanized shoes, comprising forming an upper to conform with the contour of an insole, stitching the lower edge of the upper to the middle portion of a vulcanizable foxing and stitching the top edge of the vulcanizable foxing to the upper, placing the parts thus formed upon a last and lasting the lower margin of the vulcanizable foxing over an insole with the lower edge face of the upper substantially flush with the bottom face of the insole and between the edge of the insole and the upstanding portion of the

- foxing, applying a vulcanizable outsole to the insole and the vulcanizable foxing, and over the stitching which fastens the middle portion of said foxing to the lower edge of the upper, and then vulcanizing the shoe. 70
- 5 10. A shoe of the class described comprising an insole, an upper having the lower edge face thereof substantially flush with the outer face of the insole, a foxing attached to the 10 outer face of the upper and lasted over the insole with the lower edge face of the upper located between the marginal edge of the insole and the upstanding portion of the foxing, and an outsole vulcanized to said insole 15 and foxing. 80
11. A shoe of the class described comprising an insole, an upper having the lower edge face thereof substantially flush with the outer face of the insole, a foxing strip attached to 20 the outer face of the upper and lasted over and vulcanized to the insole with the lower edge face of the upper located between the marginal edge of the insole and the upstanding portion of the foxing, a middle sole vul- 25 canized to said insole and foxing, and an outsole vulcanized to said middle sole and foxing. 85
12. A shoe of the class described comprising an upper, an insole, a rubber faced fabric 30 foxing strip having its upper edge stitched to the outer face of the upper and having its lower margin lasted over the insole with the lower edge face of the upper between the marginal edge face of the insole and the up- 35 standing portion of the foxing, and an outsole vulcanized to the insole and to the foxing strip. 90
13. A shoe of the class described comprising an upper, an insole, a rubber faced fabric 40 foxing strip having its midsection stitched to the lower edge of the upper and having its upper edge stitched to the outer face of the upper, said foxing having its lower margin lasted over the insole with the lower edge 45 face of the upper between the marginal edge face of the insole and the upstanding portion of the foxing, and an outsole vulcanized to the insole and to the foxing. 95
14. A shoe of the class described comprising an upper, an insole, a rubber faced fabric 50 foxing strip having its upper edge stitched to the outer face of the lower portion of the upper and the latter having that portion thereof below the stitching cemented to the 55 foxing, said foxing having its lower margin lasted over the insole with the lower edge face of the upper between the marginal edge face of the insole and the upstanding portion of the foxing, and an outsole vulcanized to 60 the insole and to the foxing. 110
15. A shoe of the class described comprising an insole, an upper, cut with its lower edge conforming to the contour of the in- 65 sole and having its lower edge terminating in the plane of and unattached to the insole, 115
- a rubber faced fabric foxing strip having its upper margin stitched to the outer face of the lower portion of the upper, and having its lower margin lasted over the insole with the lower edge face of the upper between the marginal edge face of the insole and the upstanding portion of the foxing, and an outsole vulcanized to the insole and to the foxing. 120
- CHARLES E. BRADLEY. 75
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