

PATENT SPECIFICATION

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(54) IMPROVEMENTS IN OR RELATING TO A SOLE FOR AN ARTICLE OF FOOTWEAR

(71) We, CITC INDUSTRIES INC., a corporation organized under the laws of the State of New York, one of the United States of America, of One Park Avenue, City and State of New York, United States of America, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a sole for an article of footwear, such as a shoe or sneaker.

It is known in the art to mold such soles from a vulcanizable rubber or similar moldable material, and, to mold such soles with surface designs or a tread in order to increase the gripping power of the sole when in use. It also is known to mold into such soles designs, manufacturer's identification marks and the like.

However, such soles and the molded surface configuration thereon are monochromatic in color, and, are not readily adaptable to the coloring of selected portions thereof by conventional techniques.

It is an object of the present invention to provide a sole for an article of footwear, in which selected portions thereof are of a color or colors different to that of the remainder of the sole, and in which said differently colored selected portions are at least initially protected from wear and abrasion arising from use of the article of footwear.

According to the present invention, there is provided a sole for an article of footwear, including at least one recessed area within which is located a separately formed inset having an exposed three-dimensional surface of a color or colors different from that of the sole, the inset being located entirely within a recess in the sole, the depth of the recess being slightly greater than the maximum thickness of the inset, such that the inset, at its point of maximum thickness, is spaced inwardly from the walking surface

of the sole.

The sole of the present invention, when incorporated into an article of footwear, is more pleasing in its visual appearance than is the conventional monochromatic sole, and by appropriate selection of the pictorial representations, combined with names, texts or words, can constitute an educational device in the teaching of children.

The invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is an underside plan view of the sole of the present invention when incorporated into an article of footwear;

Figure 2 is an exploded perspective view showing a sole preform and an inset prior to the assembly thereof;

Figures 3 and 4 are transverse sectional views of the sole of the present invention, taken along the lines 3-3 and 4-4, respectively, of Figure 1;

Figure 5 is a partial underside plan view of an alternative form of the sole according to the present invention; and,

Figures 6 through 9 illustrate the manner in which the sole of the present invention may be manufactured.

Referring now more particularly to Figures 1 to 4 of the drawings, the article of footwear, which is shown as a shoe or sneaker, has an upper 12 which is formed and assembled in any conventional manner, and which is attached to a sole 14.

The sole has a substantially central recessed area 14a of an outline complimentary to that of an inset 14b located within the recess. While the recess 14a can be of an outline identical with that of the outline of the inset, preferably the outline of the recess 14a is slightly larger than the outline of the inset, and may include a channel 14d of a depth similar or identical to that of other channels 14d provided in the walking surface of the sole. The inset thus is slightly smaller in out-

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line than that of the recess, thus presenting a set-off border surrounding the inset.

In the drawings, the article of footwear is shown as having a foxing tape 16 applied to its periphery, the foxing tape having illustrations 16a thereon, which preferably are correlated with the illustration provided by the inset.

The inset 14b, which may be comprised by a single inset or a plurality of separate insets assembled into the required configuration, is recessed within the walking surface of the sole to an extent such that the highest point that is the maximum thickness, of the inset is slightly recessed within the walking surface of the sole, other portions of the inset, as shown more particularly in Figure 4, being recessed within the sole to a greater extent. It is, of course, preferable that the entire inset be recessed within the sole to an extent sufficient to protect the inset from wear and abrasion, at least during initial use of the article of footwear.

With reference to Figure 5, a modification of the configuration of the sole is illustrated in which the recess 14a is substantially rectangular, the inset 14b having straight edges as opposed to the varied curved outlines of the inset illustrated in Figures 1 to 4. The sole in Figure 5 is shown as being provided with a tread area 14c, which may, of course, extend throughout the entire walking surface of the sole.

While the sole of the present invention may be manufactured in any convenient manner using conventional techniques, it may be manufactured as now described with particular reference to Figures 6 to 9.

With particular reference to Figure 6, the inset is fabricated from a sheet 22 of a suitable material, such as white or colorless non-vulcanized rubber sheeting having a thickness of approximately one millimeter. The sheet 22 is placed in a conventional silk-screen printing apparatus, indicated generally by the reference numeral 24, and, the representations 14b are applied to the surface of the sheet using one or more colors, as desired.

The representations are then preferably permitted to dry in order that the printed sheet may be handled more readily, subsequent to which the representations 14b are cut or punched out of the sheet to form the individual insets.

The representations may, of course, be applied to the sheet using any conventional printing techniques that are suitable for such a printing operation.

The insets 14b are then laid face downwards in an appropriately configured central cavity of a mold, indicated by the reference numeral 26 in Figure 8, the bottom surface of the central cavity (which is not visible in Figure 8) being appropriately formed in

reverse with the ultimate three-dimensional shape to be imparted to the insets. A sole preform, such as the sole preform 14 of Figures 2 to 4 is then placed in each of the cavities of the mold 26, which is then placed between the plates 30 of a conventional press as illustrated in Figure 9, subsequent to which the assembled sole is vulcanized.

It will be understood that the sheet 22 with the representations printed thereon, or, the insets punched out from the sheet, may be partially or wholly vulcanized prior to assembly into the mold in order to bond the colored material printed thereon to the sheet prior to manual handling of the sheet or the insets. Alternatively, the colored material applied to the sheet may be air dried or heat dried, the bonding of the colored material to the sheet then taking place during the vulcanization of the assembled sole.

The vulcanization of the assembled sole while under compression unites the insets with the sole preforms, and simultaneously imparts to the preforms their final three-dimensional form.

WHAT WE CLAIM IS:—

1. A sole for an article of footwear, including at least one recessed area within which is located a separately formed inset having an exposed three-dimensional surface of a color or colors different from that of the sole, the inset being located entirely within a recess in the sole, the depth of the recess being slightly greater than the maximum thickness of the inset, such that the inset, at its point of maximum thickness, is spaced inwardly from the walking surface of the sole.

2. A sole as claimed in claim 1, wherein said inset is secured in said recess of the sole.

3. A sole as claimed in claim 1 or 2, wherein said inset is at least partly embossed.

4. A sole as claimed in claim 1, 2 or 3, wherein said inset comprises a pictorial representation of a figure.

5. A sole as claimed in claim 1, 2, 3 or 4, wherein said inset comprises letters, numerals and/or combination thereof.

6. A sole as claimed in any one of the preceding claims, wherein at least portions of said inset are coloured.

7. A sole as defined in any one of the preceding claims, wherein said inset is slightly smaller in its outlines than those of said recessed area of the sole, thereby presenting a set-off border to said inset.

8. A sole for an article of footwear, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

9. An article of footwear including a sole according to any one of the preceding claims.

line than that of the recess, thus presenting a set-off border surrounding the inset.

In the drawings, the article of footwear is shown as having a foxing tape 16 applied to its periphery, the foxing tape having illustrations 16a thereon, which preferably are correlated with the illustration provided by the inset.

The inset 14b, which may be comprised by a single inset or a plurality of separate insets assembled into the required configuration, is recessed within the walking surface of the sole to an extent such that the highest point that is the maximum thickness, of the inset is slightly recessed within the walking surface of the sole, other portions of the inset, as shown more particularly in Figure 4, being recessed within the sole to a greater extent. It is, of course, preferable that the entire inset be recessed within the sole to an extent sufficient to protect the inset from wear and abrasion, at least during initial use of the article of footwear.

With reference to Figure 5, a modification of the configuration of the sole is illustrated in which the recess 14a is substantially rectangular, the inset 14b having straight edges as opposed to the varied curved outlines of the inset illustrated in Figures 1 to 4. The sole in Figure 5 is shown as being provided with a tread area 14c, which may, of course, extend throughout the entire walking surface of the sole.

While the sole of the present invention may be manufactured in any convenient manner using conventional techniques, it may be manufactured as now described with particular reference to Figures 6 to 9.

With particular reference to Figure 6, the inset is fabricated from a sheet 22 of a suitable material, such as white or colorless non-vulcanized rubber sheeting having a thickness of approximately one millimeter. The sheet 22 is placed in a conventional silk-screen printing apparatus, indicated generally by the reference numeral 24, and, the representations 14b are applied to the surface of the sheet using one or more colors, as desired.

The representations are then preferably permitted to dry in order that the printed sheet may be handled more readily, subsequent to which the representations 14b are cut or punched out of the sheet to form the individual insets.

The representations may, of course, be applied to the sheet using any conventional printing techniques that are suitable for such a printing operation.

The insets 14b are then laid face downward in an appropriately configured central cavity of a mold indicated by the reference numeral 26 in Figure 8, the bottom surface of the central cavity (which is not visible in Figure 8) being appropriately formed in

reverse with the ultimate three-dimensional shape to be imparted to the insets. A sole preform, such as the sole preform 14 of Figures 2 to 4 is then placed in each of the cavities of the mold 26, which is then placed between the plates 30 of a conventional press as illustrated in Figure 9, subsequent to which the assembled sole is vulcanized.

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The vulcanization of the assembled sole while under compression unites the insets with the sole preforms, and simultaneously imparts to the preforms their final three-dimensional form.

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1. A sole for an article of footwear, including at least one recessed area within which is located a separately formed inset having an exposed three-dimensional surface of a color or colors different from that of the sole, the inset being located entirely within a recess in the sole, the depth of the recess being slightly greater than the maximum thickness of the inset, such that the inset, at its point of maximum thickness, is spaced inwardly from the walking surface of the sole.

2. A sole as claimed in claim 1, wherein said inset is secured in said recess of the sole.

3. A sole as claimed in claim 1 or 2, wherein said inset is at least partly embossed.

4. A sole as claimed in claim 1, 2 or 3, wherein said inset comprises a pictorial representation of a figure.

5. A sole as claimed in claim 1, 2, 3 or 4, wherein said inset comprises letters, numerals and/or combination thereof.

6. A sole as claimed in any one of the preceding claims, wherein at least portions of said inset are coloured.

7. A sole as defined in any one of the preceding claims, wherein said inset is slightly smaller in its outlines than those of said recessed area of the sole, thereby presenting a set-off border to said inset.

8. A sole for an article of footwear, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

9. An article of footwear including a sole according to any one of the preceding claims.

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