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COMPLETE SPECIFICATION

Rubber Soled Footwear and the Manufacture Thereof.

We, ROLLMANN, KAUFMANN & COMPANY and ANDRE SZERENYI, both of 33 Rue du Sel, Brussels, Belgium, a Belgian Corporation and a Canadian Citizen respectively, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention refers to footwear and the manufacture of footwear of the type having an upper of fabric, such as woollen or cotton fabric and a sole containing sponge rubber.

In footwear of which the uppers are fabric and the sole of solid rubber, a layer of solid rubber is often applied also to the lower edges of the fabric uppers. In the manufacture of such footwear, the surface at the lower edges of the flat uppers is first covered by means of sheets of rubber, and then the uppers are fitted on trees, and finally the soles are applied and the whole is vulcanized under pressure and heat in an autoclave.

In footwear having fabric uppers not covered with layers of rubber, it is known to vulcanize a sole of sponge rubber on the uppers, much quicker than according to the aforesaid process, by fixing the uppers mounted on the tree into a vulcanizing mould where the sponge sole is simultaneously formed and integrated with the uppers.

In footwear according to the invention, having an upper of fabric and a sole containing sponge rubber, a strip of solid rubber is provided on the margin of the upper next to the sole, said strip extending inwards and connecting the upper and the sponge rubber in the sole.

The footwear according to the invention offers simultaneously the advantages inherent in the reinforcement of the uppers by covering the edges by means of a layer of rubber and those of the soles of sponge rubber integrated with the uppers by vulcanization. This combination has the supplementary advantage that the sponge sole adheres better to the fabric of the uppers. There are fabrics to which the sponge rubber adheres well, without any pressure being applied from outside, due to the vulcanization of the sponge sole in the closed mould the integration between the uppers and the rubber thus takes place under the mere action of swelling of the rubber. But there are other fabrics where there is a complete lack of adhesion or where the latter is merely superficial if the vulcanization is effected under the conditions described; it is particularly the very smooth or velvety fabrics that behave in this manner.

The invention also comprises a method of manufacture of footwear having an upper of fabric and a sole containing sponge rubber, which consists in applying a strip of solid rubber to the margin of the upper next to the sole, placing said upper on a mould containing sponge rubber forming material and forming and vulcanizing the sole into said upper in contact with said rubber strip.

The rubber layer is preferably applied under strong pressure and binds solidly in all cases; the sponge rubber adheres well to the non-vulcanized rubber of the covering layer although the vulcanization of the sponge sole takes place in the absence of any external pressure. It follows that thanks to the invention one can employ any fabric for the uppers which have to be connected with the sponge soles.

This advantage according to the invention can also be achieved for footwear having a sole of solid rubber connected with the uppers merely by a layer of sponge rubber enveloped by the sole.

It is preferable not to vulcanize, or to vulcanize only very lightly, this layer of rubber after its application to the fabric, the vulcanization proper being effected with the vulcanization of the sponge sole.

Preferred embodiments of the invention will now be described by way of example with reference to the accompanying drawings, in which:—

Fig. 1 shows in a diagram a cross section of a shoe according to the invention with a sole of sponge rubber covered on its bottom

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with a solid rubber treadsole;

Fig. 2 shows a similar cross section of a shoe according to another embodiment of the invention;

Fig. 3 shows an upper as used for the shoe shown in Fig. 1 or 2, this upper being in the flat stage with the solid rubber strip pressed on.

The shoe according to the invention has an upper 1, as shown in Fig. 1, which consists of fabric. The shape of the upper depends upon the proposed use of the footwear, such as street shoe, slipper, sport shoe, sandal, etc., and no detail of this upper is shown as it is not relevant to the invention. The sole is composed of a layer 4 of sponge rubber and a treadsole 5 of solid rubber.

According to the invention a strip 2 of solid rubber is applied to the margin of the upper 1 where the upper is in contact with the sponge rubber of the sole. This strip 2 may extend on the side of the upper 1 for ornamental purposes or to protect the upper against wear. It is essential that this strip 2 of solid rubber reaches towards the inside of the sole to offer a connecting surface to the sponge rubber.

To obtain a secure bond between the material of the upper 1 and the strip 2 of solid rubber the two materials are pressed together under high pressure.

The solid rubber strip on the margin of the upper extending inwards to contact the sponge rubber in the sole may be used also to great advantage for footwear where not only the bottom of the sole but also the sides and the upper rim of the sole are formed of solid rubber, as shown in Fig. 2. Here the bottom 6 of the solid rubber part of the sole extends over the side and the upper rim so that the sponge rubber layer 4 is not visible from the outside. The solid rubber strip 2 passes the upper rim and extends inwards to contact the sponge rubber, thus the sponge rubber is encased in an outer covering of solid rubber.

What we claim is:—

1. Footwear having an upper of fabric and a sole containing sponge rubber, wherein a strip of solid rubber is provided on the margin of the upper next to the sole, said strip extending inwards and connecting the upper and the sponge rubber in the sole.

2. Footwear according to Claim 1 wherein the rubber strip forms a fused bond by being vulcanized simultaneously with said sponge rubber in contact with the sole and the upper.

3. Footwear according to Claims 1 or 2 wherein the sponge rubber is encased in an outer covering of solid rubber.

4. A method of manufacture of footwear having an upper of fabric and a sole containing sponge rubber, which consists in applying a strip of solid rubber to the margin of the upper next to the sole, placing said upper on a mould containing sponge rubber forming material and forming and vulcanizing the sole into the solid rubber strip which is applied to the upper.

5. Footwear substantially as hereinbefore described and as shown in Fig. 1 or Fig. 2 of the accompanying drawings.

6. A method of manufacturing footwear substantially as hereinbefore described with reference to the accompanying drawings.

Dated this 29th day of December, 1947.

A. A. THORNTON & CO.,
Chartered Patent Agents,
24-27, High Holborn, Napier House,
London, W.C.1,
For the Applicants.

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