SHOE SOLE WITH AN INTEGRATED BUFFERING UNIT AND METHOD FOR MAKING THE SAME

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ABSTRACT

A shoe sole includes a sole body having a shock absorbing unit integrally connected to a recess in the sole body and a fabric is attached to the sole body. The shock absorbing unit extends from a hole defined through the fabric. The buffering unit includes a bladder in which the elastic Polyurethane is received and a flange extends from a periphery of the bladder so as to be engaged with the recess in the sole body.
FIG. 2
PRIOR ART
displacing a shock absorbing unit in a first cavity defined in a first mold

putting a fabric in the first cavity and the fabric having an aperture through which the shock absorbing unit is extended.

pouring Polyurethane in a second cavity defined in the second mold

overlapping the first mold onto the second mold and heating the Polyurethane to form a sole with a fabric and a shock absorbing unit

FIG. 3
SHOE SOLE WITH AN INTEGRATED BUFFERING UNIT AND METHOD FOR MAKING THE SAME

FIELD OF THE INVENTION

The present invention relates to a shoe sole that includes an integrated shock absorbing unit which is embedded in the sole.

BACKGROUND OF THE INVENTION

A conventional shoe sole with a shock absorbing unit is disclosed in FIG. 1 and the shock absorbing unit is glued to the desired position on the shoe sole. The shock absorbing unit and the shoe sole are manufactured in separate processes so that the manufacturing cost is high. Besides, the shock absorbing unit tends to be peeled off from the sole after being used for a period of time. Another shoe sole with a shock absorbing unit is made of foam material which protrudes from the surface of the sole. The foam made shock absorbing unit has limited shock absorbing feature and the gaps in the shock absorbing unit decrease gradually after being used for a period of time so that it becomes a stiff protrusion and makes uncomfortable touch to the feet.

The present invention intends to provide a shoe sole that includes a shock absorbing unit embedded in the sole without using glue. The shock absorbing unit is made of gel or a bladder with fluid filled therein so as to provide satisfied shock absorbing feature.

SUMMARY OF THE INVENTION

In accordance with one aspect of the present invention, there is provided a shoe sole which comprises a sole body having a shock absorbing unit integrally connected to a recess in the sole body. The shock absorbing unit is made of Polyurethane and is elastic so as to absorb shocks. A fabric is attached to the sole body and the shock absorbing unit extends from a hole defined through the fabric.

The present invention will become more obvious from the following description when taken in connection with the accompanying drawings which show, for purposes of illustration only, a preferred embodiment in accordance with the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded view to show a conventional shoe sole with a shock absorbing unit;
FIG. 2 is an exploded view to show a conventional shoe sole with a shock absorbing unit;
FIG. 3 shows steps of the method for making the shoe sole of the present invention;
FIG. 4 is a perspective view to show the mold assembly for making the shoe sole of the present invention;
FIG. 4A shows a shock absorbing unit and a fabric is displaced in the first cavity in the first mold;
FIG. 5 shows the parts composing the shoe sole of the present invention;
FIG. 5A is a cross sectional view to show the shoe sole of the present invention;
FIG. 6 is a perspective view to show the shoe sole of the present invention;
FIG. 7 shows the shoe sole of the present invention in a shoe and pressure is applied to the shock absorbing unit, and
FIG. 8 and 9 show the shock absorbing unit are located at different positions of the shoe sole.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 3 and 4, the method for making a shoe sole of the present invention comprises the following steps which are:

1. displacing a shock absorbing unit in a first cavity defined in a first mold;
2. putting a fabric in the first cavity and the fabric having an aperture through which the shock absorbing unit is extended as shown FIG. 4A;
3. pouring Polyurethane in a second cavity defined in the second mold; and
4. overlapping the first mold onto the second mold and heating the Polyurethane to form a sole body with a fabric and a shock absorbing unit.

The second mold includes a netted area defined in the second cavity and the netted area includes ridges crossing over with each other, such that when the sole body is removed from the mold assembly, the sole body includes a plurality of apertures for ventilation and the shock absorbing unit is located at the heel portion.

The sole body includes a shock absorbing unit integrally connected to a recess in the sole body and the shock absorbing unit is elastic. The shock absorbing unit includes a bladder in which the elastic Polyurethane or fluid is received. A flange extends from a periphery of the bladder and is engaged with the recess in the sole body.

As shown in FIG. 7, the shoe sole is received in a shoe and the pressure applied to the shock absorbing unit at the heel portion of the foot deforms the shock absorbing unit so as to reduce the pressure that applies to the foot.

FIGS. 8 and 9 show the shock absorbing unit can be located at different positions of the shoe sole.

The shock absorbing unit can be made by Polyurethane or Ethylene Vinyl Acetate and it can be used in wrist protectors, shin guards or any exercise pad. The shock absorbing unit can include TPU, TPR or PVC soft material in the bladder.

While we have shown and described the embodiment in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.

What is claimed is:

1. A shoe sole comprising:
   a sole body having a shock absorbing unit integrally connected to a recess in the sole body, the shock absorbing unit made of Polyurethane and being elastic, and
a fabric attached to the sole body and the shock absorbing unit extending from a hole defined through the fabric.

2. The shoe sole as claimed in claim 1, wherein the buttering unit includes a bladder in which the elastic Polyurethane is received, a flange extending from a periphery of the bladder and engaged with the recess in the sole body.

3. The shoe sole as claimed in claim 1, wherein the sole body includes a plurality of apertures defined therethrough.

4. A method for making a shoe sole, comprising:
   step 1: displacing a shock absorbing unit in a first cavity defined in a first mold;
   step 2: putting a fabric in the first cavity and the fabric having an aperture through which the shock absorbing unit is extended;
   step 3: pouring Polyurethane in a second cavity defined in the second mold; and
   step 4: overlapping the first mold onto the second mold and heating the Polyurethane to form a sole with a fabric and a shock absorbing unit.

5. The method as claimed in claim 4 wherein the second mold includes a netted area defined in the second cavity and the netted area includes ridges crossing over with each other.