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(54) **SHOE SOLE**

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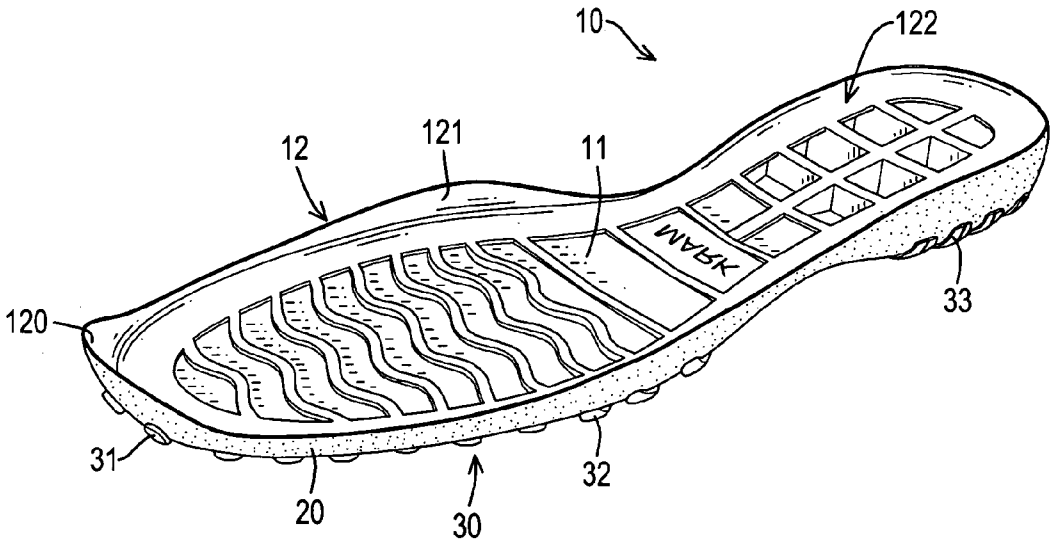
(57) **ABSTRACT**

The shoe sole has a base, a fabric layer and at least one grip. The base is made by injection molding and has a basal layer and a wall. The basal layer has a top surface and a bottom surface. The wall protrudes from the top surface and is formed around the basal layer and has an outer surface. The fabric layer is mounted on and embedded in the bottom surface of the basal layer and the outer surface of the wall. The at least one grip is formed on and protrudes from the bottom of the basal layer and mounted on and permeates through the fabric layer by the injection molding.



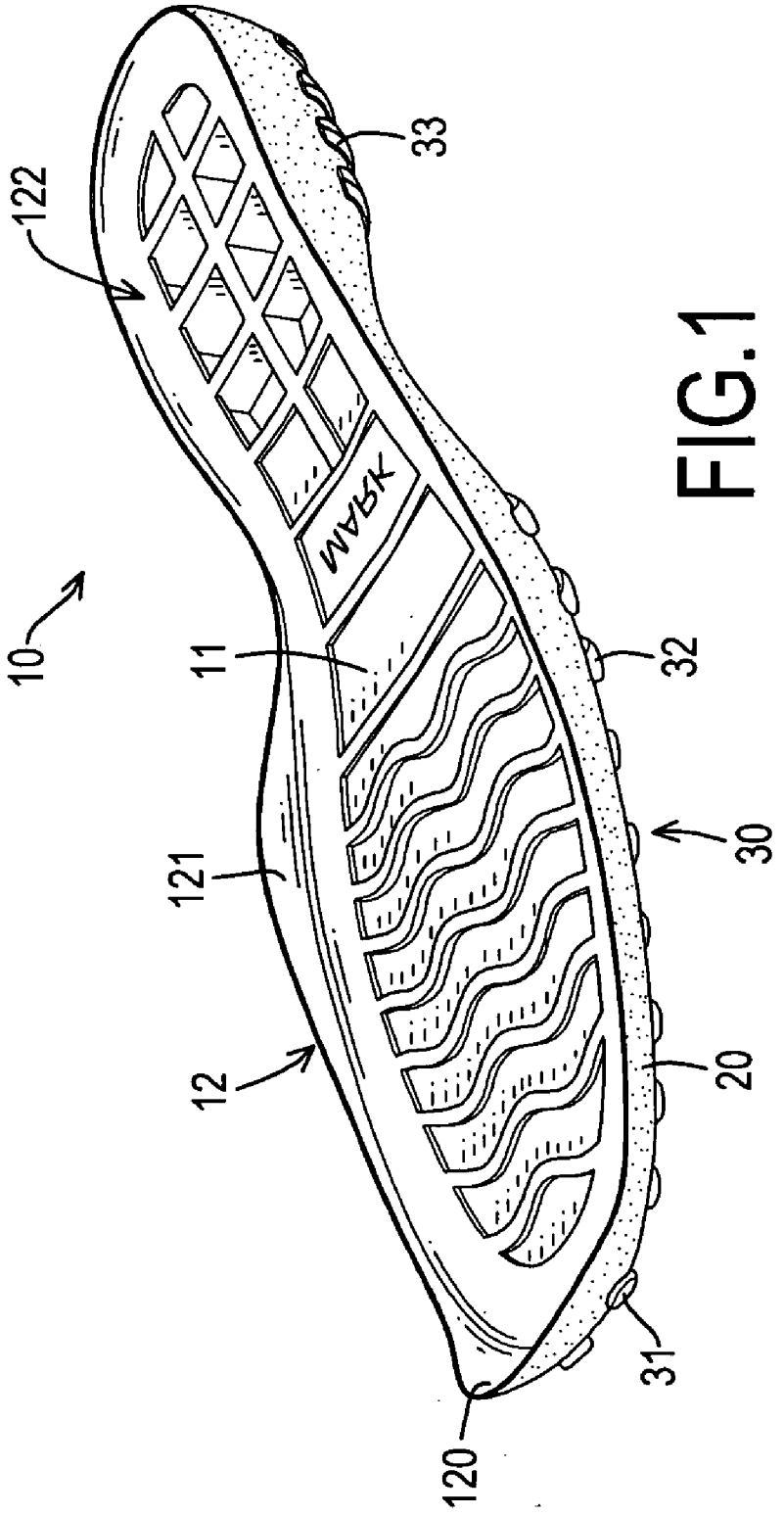


FIG.1

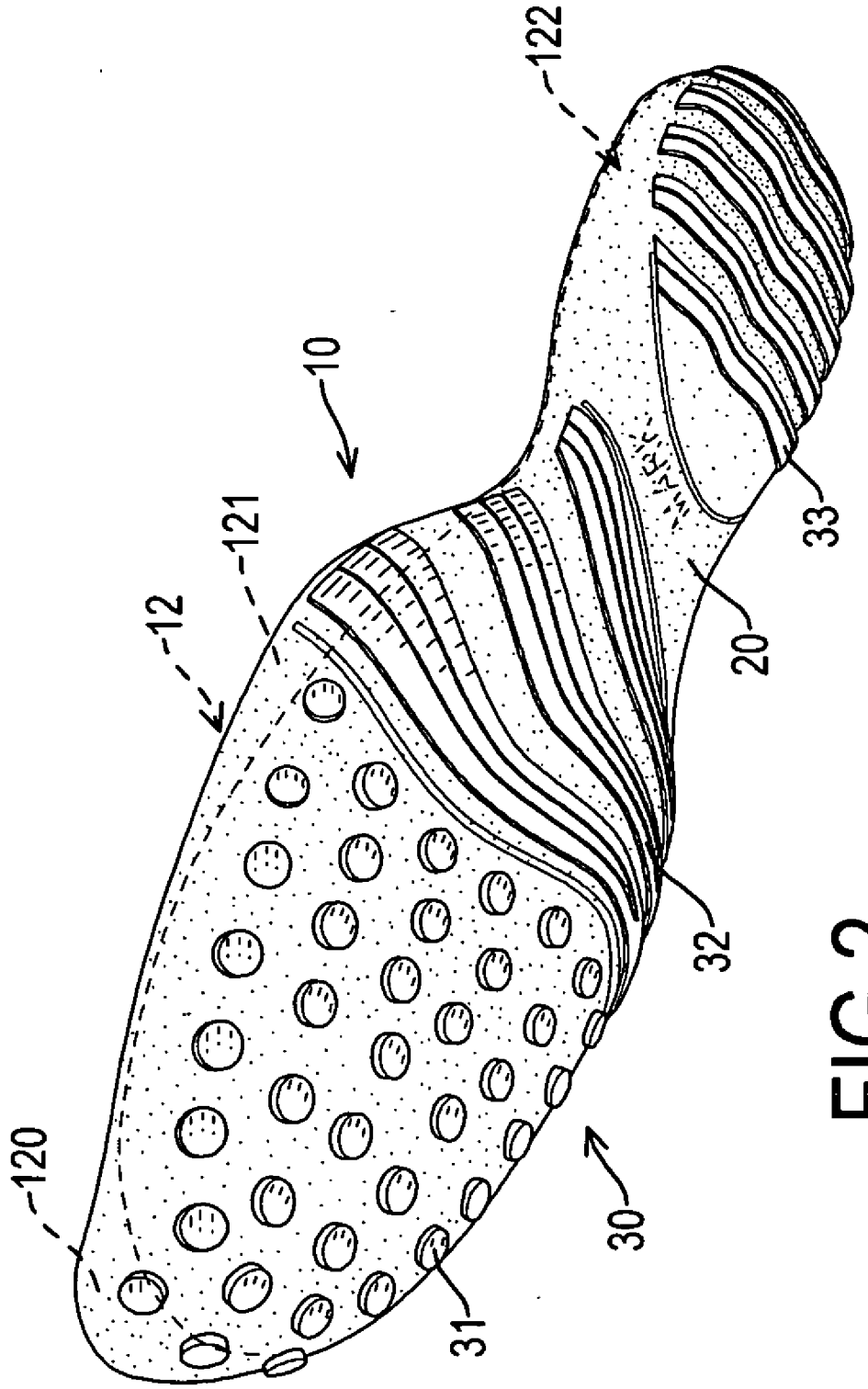


FIG.2

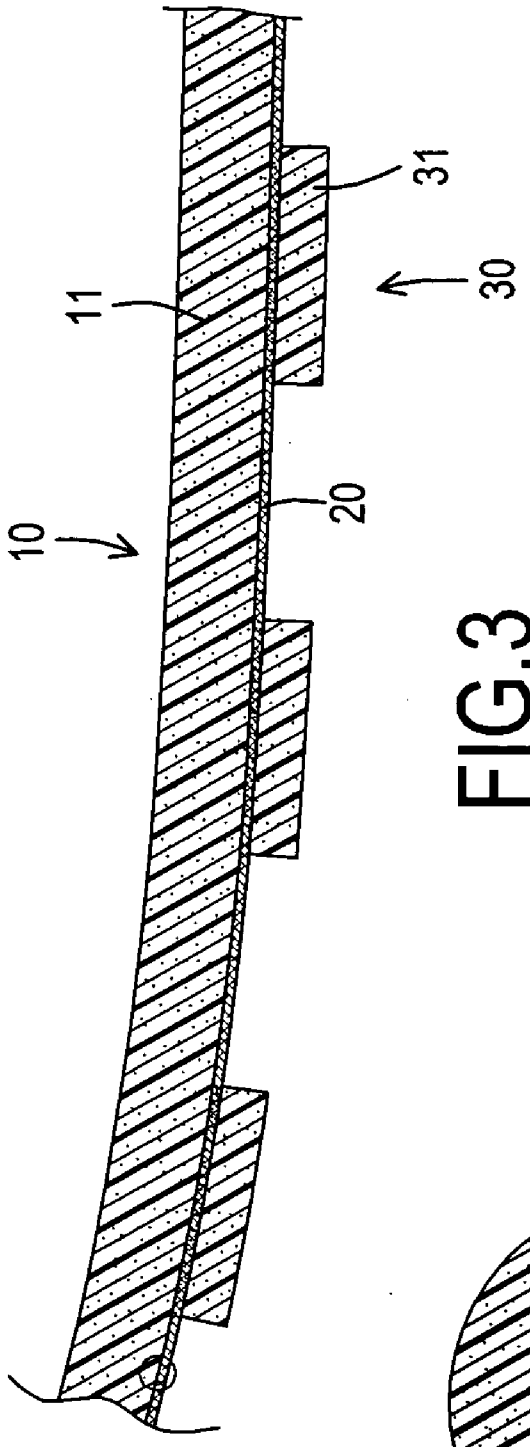


FIG.3

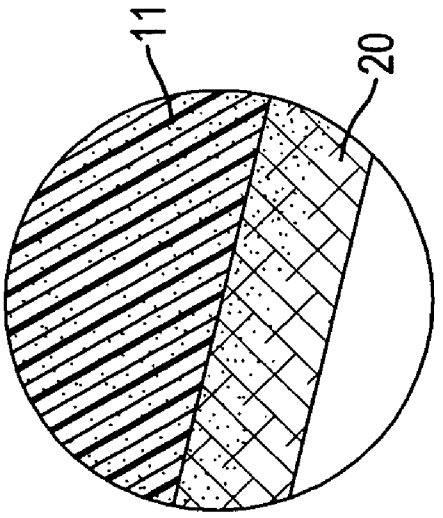


FIG.3A

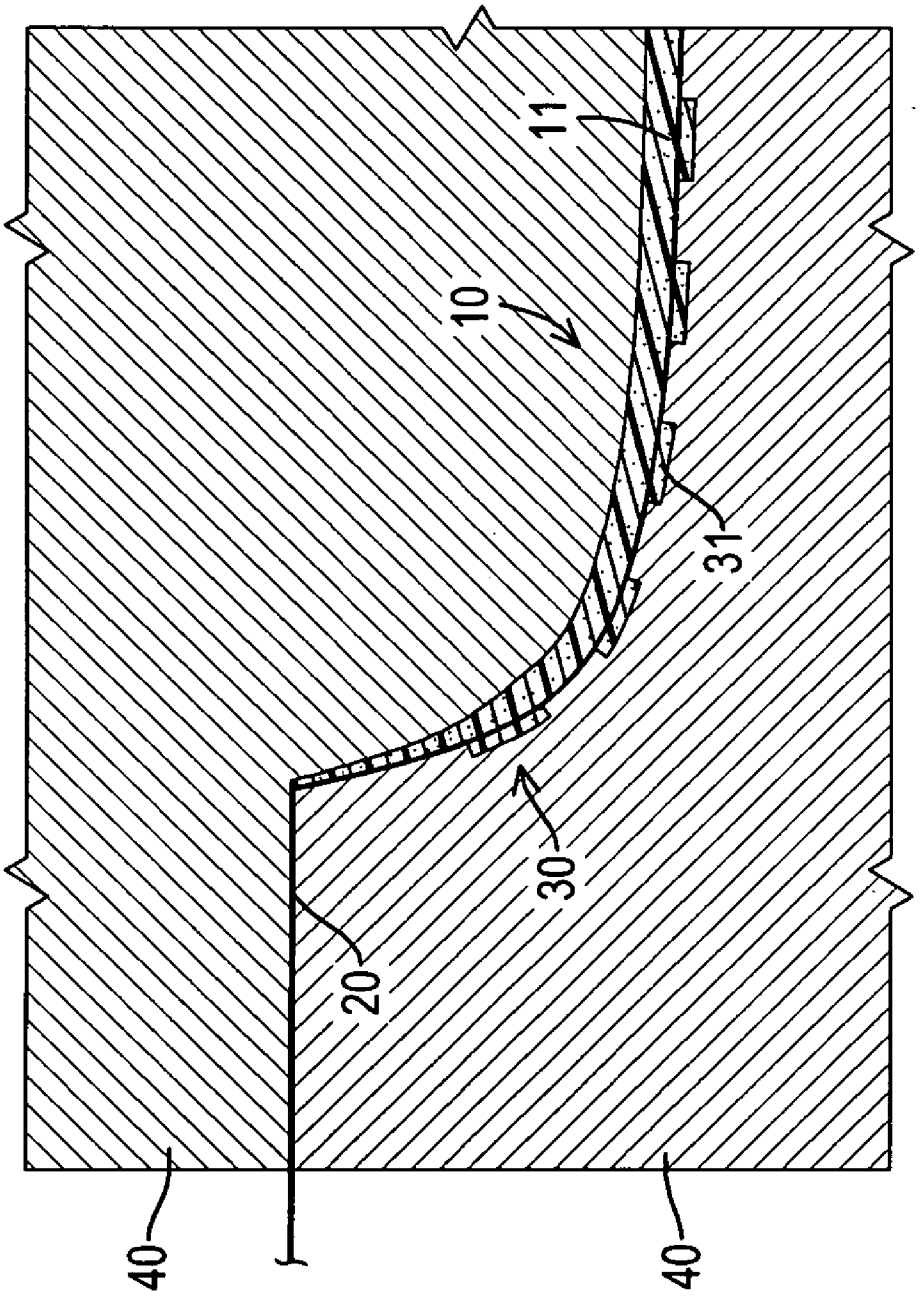


FIG.4

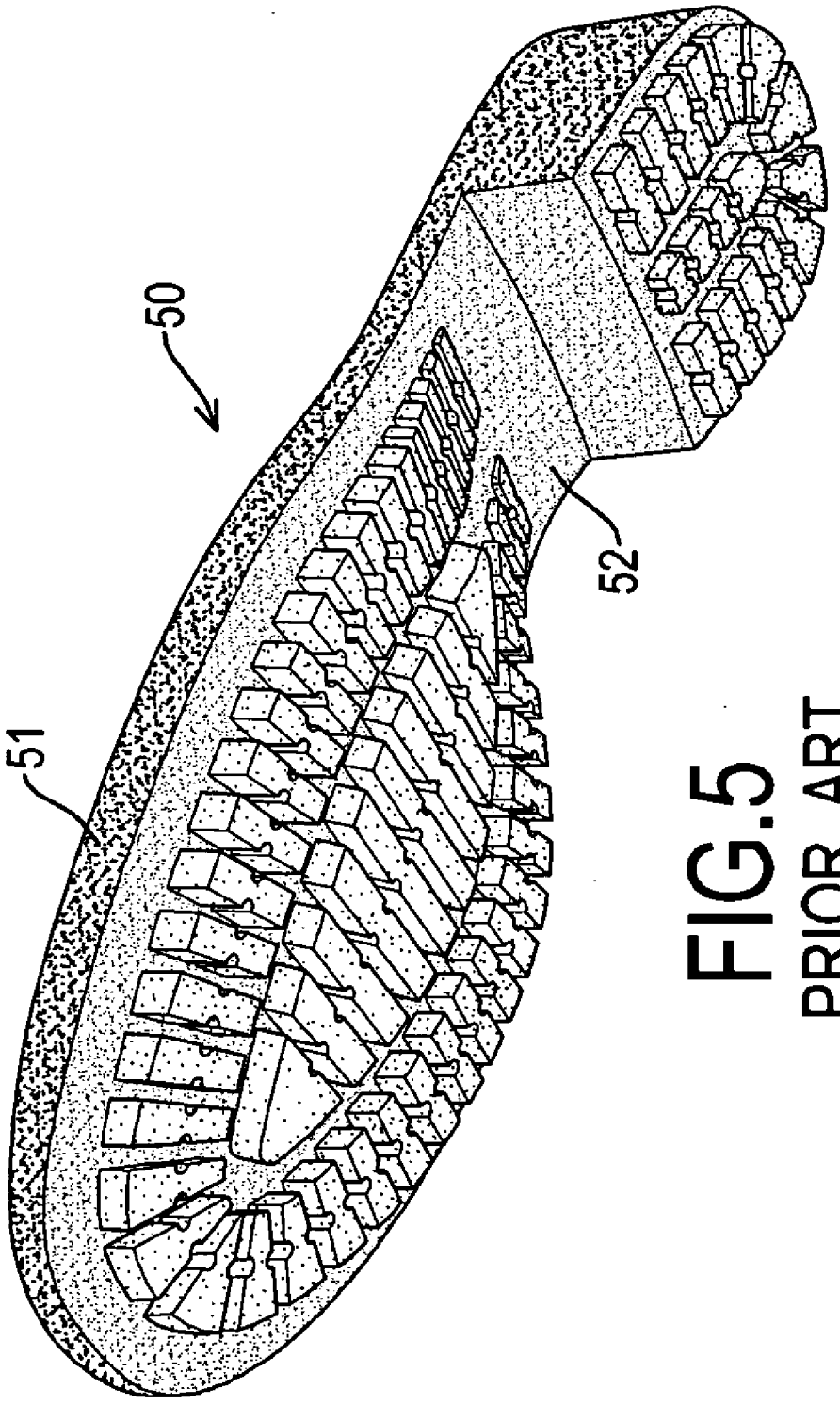


FIG.5
PRIOR ART

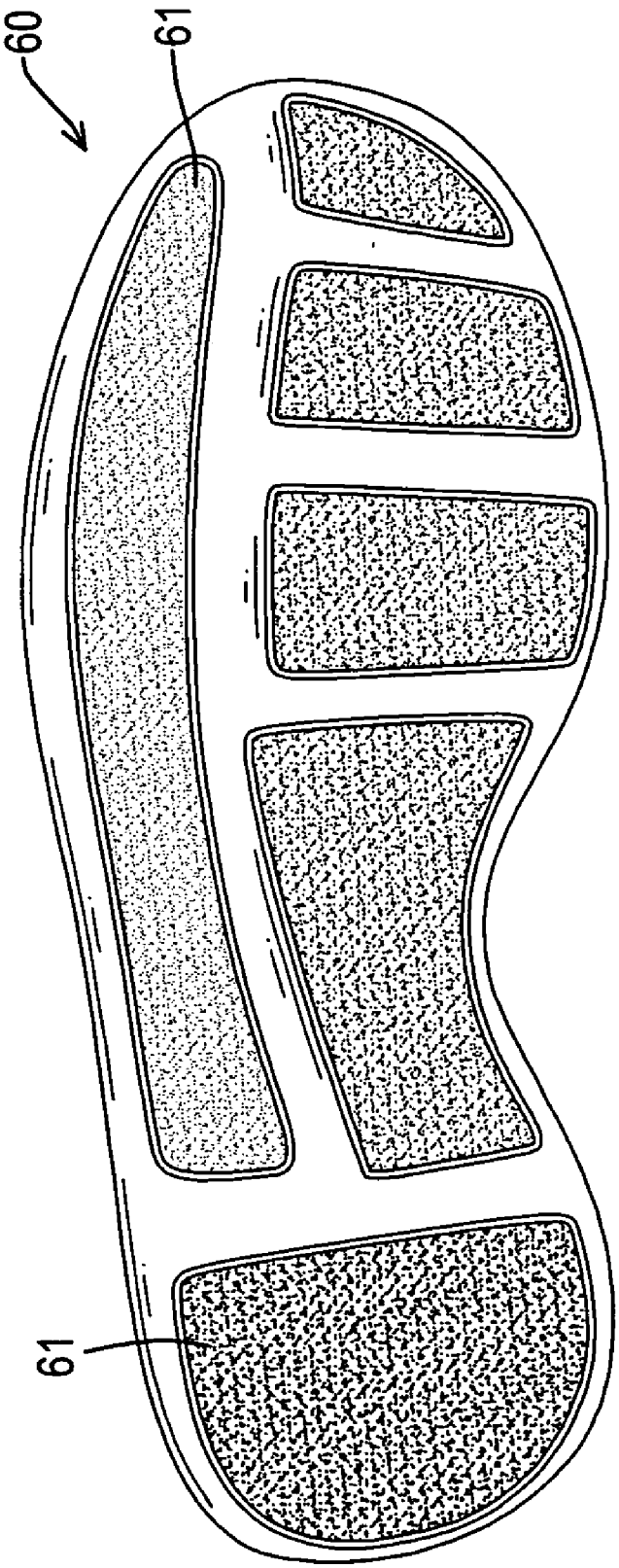


FIG.6
PRIOR ART

SHOE SOLE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a shoe sole, and more particularly to a shoe sole having a bottom connected to a fabric layer to make the appearance of the shoe aesthetic and at least one grip mounted securely on the fabric layer to provide excellent strength and skidproof effect.

[0003] 2. Description of Related Art

[0004] With reference to FIG. **5**, a conventional shoe sole of leather shoes or high-heeled shoes is made by injection molding, and has a base (**50**), a side color layer (**51**) and a bottom color layer (**52**). The base (**50**) has a side wall and a bottom. The side color layer (**51**) and the bottom color layer (**52**) are respectively painted on the side wall and the bottom of the base (**50**) to enhance the appearance of the shoe sole.

[0005] With reference in FIG. **6**, another conventional shoe sole of sport shoes or sport sandals is made by injection molding, and has a base (**60**) and multiple skidproof mats (**61**). The base (**60**) has a bottom. The skidproof mats (**61**) are respectively made by injection molding in different colors, and are respectively mounted on the bottom of the base (**60**) by glue to provide the skidproof effect and improve aesthetic appeal of the shoe sole.

[0006] However, the convention shoe soles use paint and glue during the manufacturing process, and the paint and the glue may contain heavy metal and poisonous composition and contaminate the environment. The painted color layers (**51**,**52**) of the shoe sole may discolor and split easily after use. Furthermore, the skidproof mat (**61**) mounted on the base (**60**) by glue falls off when the glue loses adhesive effect and the skidproof effect provided by the skidproof mats (**61**) is reduced.

[0007] To overcome the shortcomings, the present invention tends to provide a shoe sole to mitigate or obviate the aforementioned problems.

SUMMARY OF THE INVENTION

[0008] The main objective of the present invention is to provide a shoe sole with a fabric layer to increase aesthetic appeal of the shoe sole and at least one grip mounted securely on the fabric layer to provide excellent strength and skidproof effect.

[0009] The shoe sole has a base, a fabric layer and at least one grip. The base is made by injection molding and has a basal layer and a wall. The basal layer has a top surface and a bottom surface. The wall protrudes from the top surface and is formed around the basal layer and has an outer surface. The fabric layer is mounted on and embedded in the bottom surface of the basal layer and the outer surface of the wall. The at least one grip is formed on and protrudes from the bottom of the basal layer and is mounted on and permeates through the fabric layer by injection molding.

[0010] Other objects, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. **1** is a perspective view of a shoe sole in accordance with the present invention;

[0012] FIG. **2** is a bottom perspective view of the shoe sole in FIG. **1**;

[0013] FIG. **3** is a partial cross sectional side view of the shoe sole in FIG. **1** showing circles;

[0014] FIG. **3**A is an enlarged cross sectional side view of the shoe sole in FIG. **3**;

[0015] FIG. **4** is a partial cross sectional side view of the shoe sole in FIG. **3** showing a mold during the manufacturing process;

[0016] FIG. **5** is a bottom perspective view of a conventional shoe sole for a leather shoe in accordance with the prior art; and

[0017] FIG. **6** is a bottom view of another conventional shoe sole for a sport shoe in accordance with the prior art.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0018] With reference to FIGS. **1** to **4**, a shoe sole in accordance with the present invention has a base (**10**), a fabric layer (**20**) and at least one grip (**30**). The base (**10**) is made by injection molding, and is shaped by a sole mold (**40**), and may be transparent, and has a basal layer (**11**) and a wall (**12**). The mold (**40**) is metal and has a chamber for receiving plastic or rubber material in injection molding to form a plastic or rubber product.

[0019] The basal layer (**11**) has a top surface, a bottom surface, a toe part, a heel part and two side parts. The top surface of the basal layer (**11**) may be printed with a mark or pasted with a mark paster. The bottom surface of the basal layer (**11**) is opposite to the top surface of the basal layer (**11**). Because the base (**10**) is transparent, the mark on the top surface is visible from the bottom surface of the basal layer (**11**). The heel part is thicker than the toe part and protrudes from the bottom surface of the basal layer (**11**) and may be shaped as a blunt heel or a tapered heel. The wall (**12**) protrudes from the top surface and is formed around the basal layer (**11**), and has an outer surface, a front wall (**120**), two side walls (**121**) and a back wall (**122**). The front wall (**120**) is formed on and protrudes from the top surface of the toe part of the basal layer (**11**). The side walls (**121**) are respectively formed on and protrude from the top surface of the side parts of the basal layer (**11**). The back wall (**122**) is formed on and protrudes from the top surface of the heel part of the basal layer (**11**).

[0020] With further reference to FIG. **3**A, the fabric layer (**20**) is mounted on the bottom surface of the basal layer (**11**) and the outer surface of the wall (**12**) of the base (**10**) and is embedded partially or completely in the base (**10**). The fabric layer (**20**) may be woven. The plastic of the bottom surface of the basal layer (**11**) and the outer surface of the wall (**12**) of the base (**10**) permeate through the weave by injection molding to connect the base (**10**) and the fabric layer (**20**) securely. The fabric layer (**20**) may be a thin fabric or translucent fabric to make the mark on top surface of the basal layer (**11**) visible and be colorful, patterned, decorative to enhance the integration and the aesthetic effect of the shoe sole without using glue and paint and the fabric layer (**20**) can be kept from falling off from the base (**10**).

[0021] The at least one grip (**30**) is formed on and protrudes from the bottom surface of the basal layer (**11**) of the base (**10**) and is mounted on and permeates through the fabric layer (**20**) by injection molding and may have at least one protruding unit shaped as a circle (**31**), a tapered undulant rib (**32**) and an undulant rib (**33**) by the sole mold (**40**).

[0022] Furthermore, to manufacture the shoe sole, 3D pictures of the sole mold (**40**) of the shoe sole may be designed by computer. The sole mold (**40**) is formed according the shape of the designed shoe sole. The colors and patterns of the fabric layer (**20**) are designed. The fabric layer (**20**) is spread taut and placed in the sole mold (**40**). The plastic material is injected into the sole mold (**40**) to shape the base (**10**), and permeates into the fabric layer (**20**) to connect the base (**10**) and the fabric layer (**20**) securely, and permeates through the fabric layer (**20**) to shape the at least one grip (**30**). The sole mold (**40**) is removed to take out the shoe sole. Excess fabric layer (**20**) is cut and the shoe sole is done.

[0023] The shoe sole in accordance with the present invention has a colorful fabric layer (**20**) to enhance variety and aesthetic appeal of the shoe sole without using paint having heavy metal and poisonous composition for improved environmental considerations. The at least one grip (**30**) protrudes from the base (**10**) and permeates through and is mounted on the fabric layer (**20**) to provide excellent connection and skidproof effect and prevent splitting and falling off. The manufacturing process of the shoe sole may connect the base (**10**) and the fabric layer (**20**) together and inject the at least one grip (**30**) at one time to simplify the manufacturing process and reduce the manufacturing cost.

[0024] Even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only. Changes may be made in detail, especially in matters of shape, size and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

What is claimed is:

1. A shoe sole comprising:
- a base made by injection molding and having
  - a basal layer having
    - a top surface; and
    - a bottom surface opposite to the top surface; and
  - a wall protruding from the top surface of the basal layer, formed around the basal layer and having an outer surface;
- a fabric layer mounted on and embedded in the bottom surface of the basal layer and the outer surface of the wall; and
- at least one grip formed on and protruding from the bottom surface of the basal layer and mounted through the fabric layer by injection molding.

2. The shoe sole as claimed in claim **1**, wherein
the basal layer has a toe part; and
the wall has a. front wall formed on and protruding from the toe part of the basal layer.

3. The shoe sole as claimed in claim **1**, wherein
the basal layer has a heel part; and
the wall has a back wall formed on and protruding from the heel part of the basal layer.

4. The shoe sole as claimed in claim **1**, wherein
the basal layer has two side parts; and
the wall has two side walls respectively formed on and protruding from the side parts of the basal layer.

5. The shoe sole as claimed in claim **1**, wherein
the basal layer has a toe part, a heel part and two side parts; and
the wall has
- a front wall formed on and protruding from the toe part of the basal layer;
- a back wall formed on and protruding from the heel part of the basal layer; and
- two side walls respectively formed on and protruding from the side parts of the basal layer.

6. The shoe sole as claimed in claim **1**, wherein
the basal layer is transparent and further has a mark on the top surface.

7. The shoe sole as claimed in claim **5**, wherein
the basal layer is transparent and further has a mark on the top surface.

8. The shoe sole as claimed in claim **1**, wherein
the at least one grip has at least one protruding unit shaped as a circle.

9. The shoe sole as claimed in claim **7**, wherein
the at least one grip has at least one protruding unit shaped as a circle.

10. The shoe sole as claimed in claim **1**, wherein
the at least one grip has at least one protruding unit shaped as a tapered undulant rib.

11. The shoe sole as claimed in claim **7**, wherein
the at least one grip has at least one protruding unit shaped as a tapered undulant rib.

12. The shoe sole as claimed in claim **1**, wherein
the at least one grip has at least one protruding unit shaped as an undulant rib.

13. The shoe sole as claimed in claim **7**, wherein
the at least one grip has at least one protruding unit shaped as an undulant rib.

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