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(54) SHOE WITH SLIP-RESISTANT, FLOCKED FABRIC OUTSOLE

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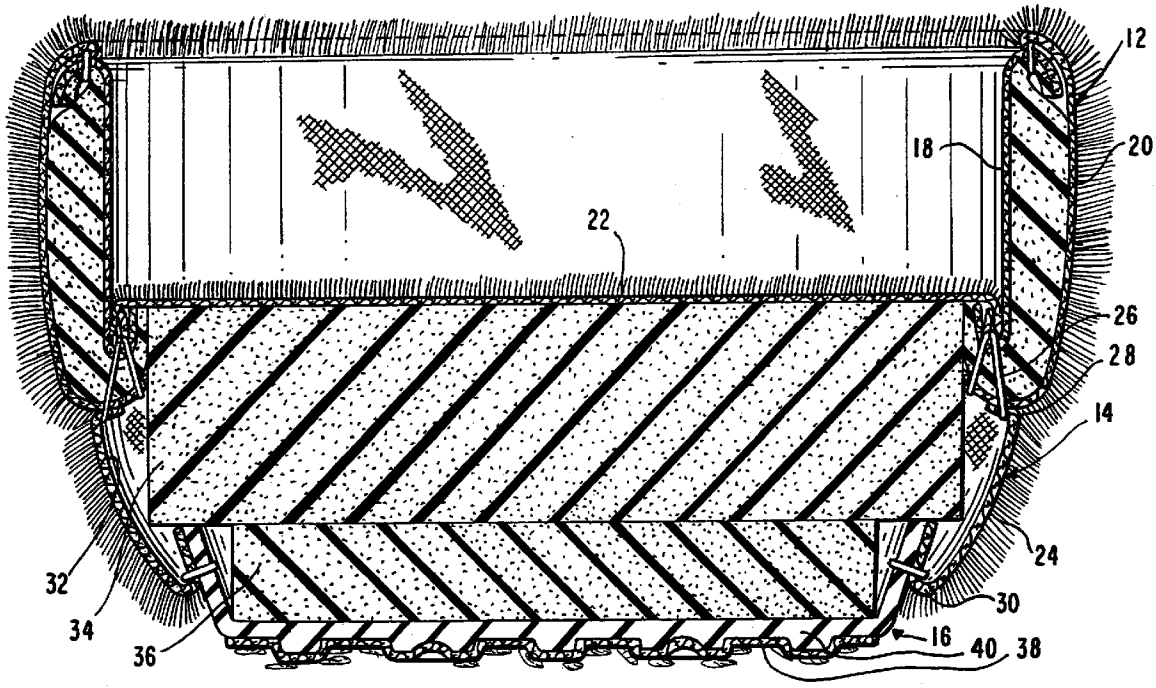
(57) **ABSTRACT**

An outsole for a shoe has a backing layer constituted of a shape-retaining, moldable material and a multitude of fibers flocked thereon to provide the outsole with increased slip resistance and quieter usage. The fibers are resistant to removal during wear.



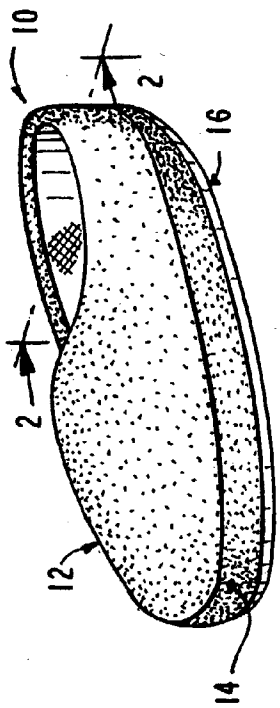


FIG. 1

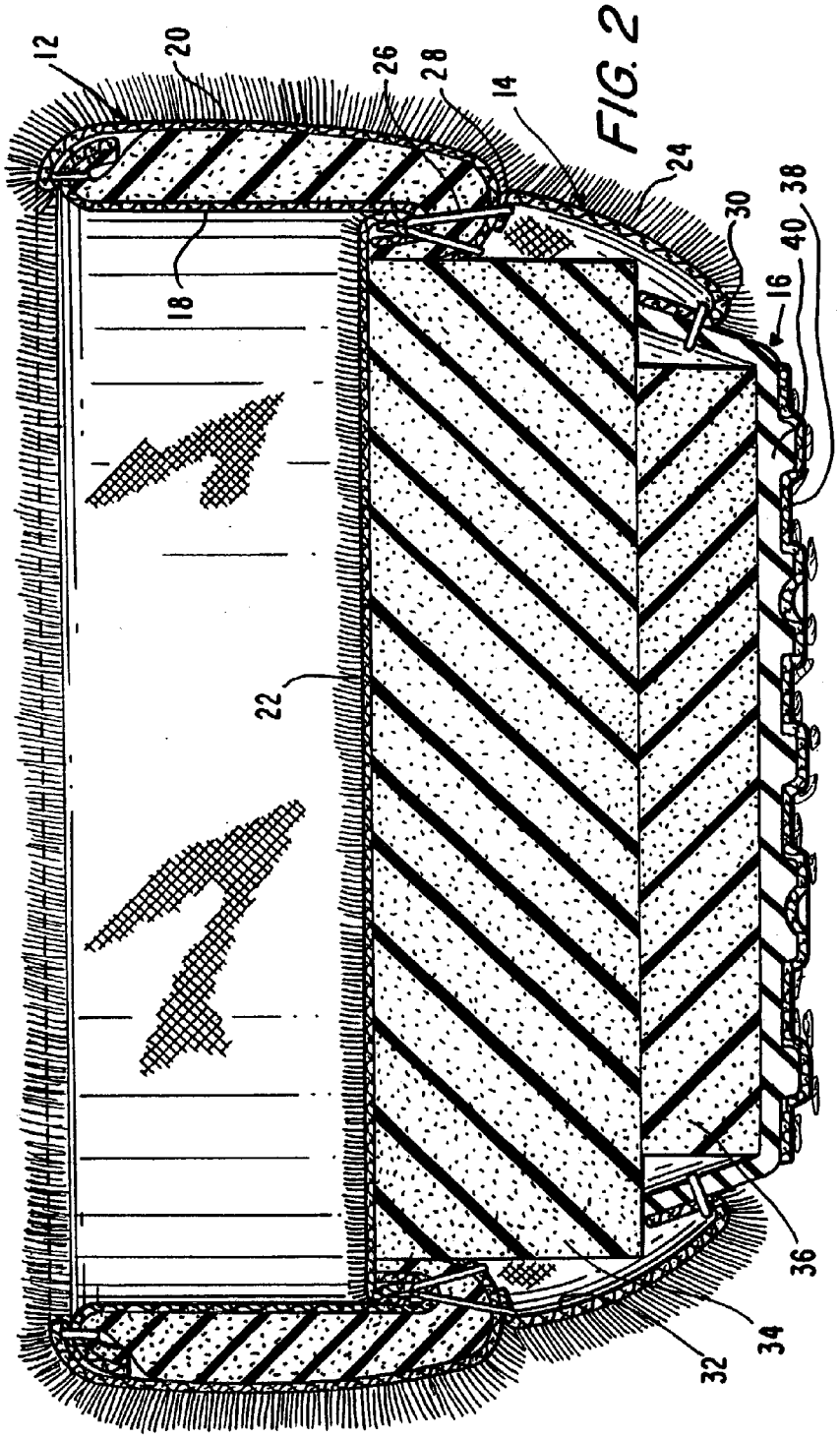


FIG. 2

FIG. 3

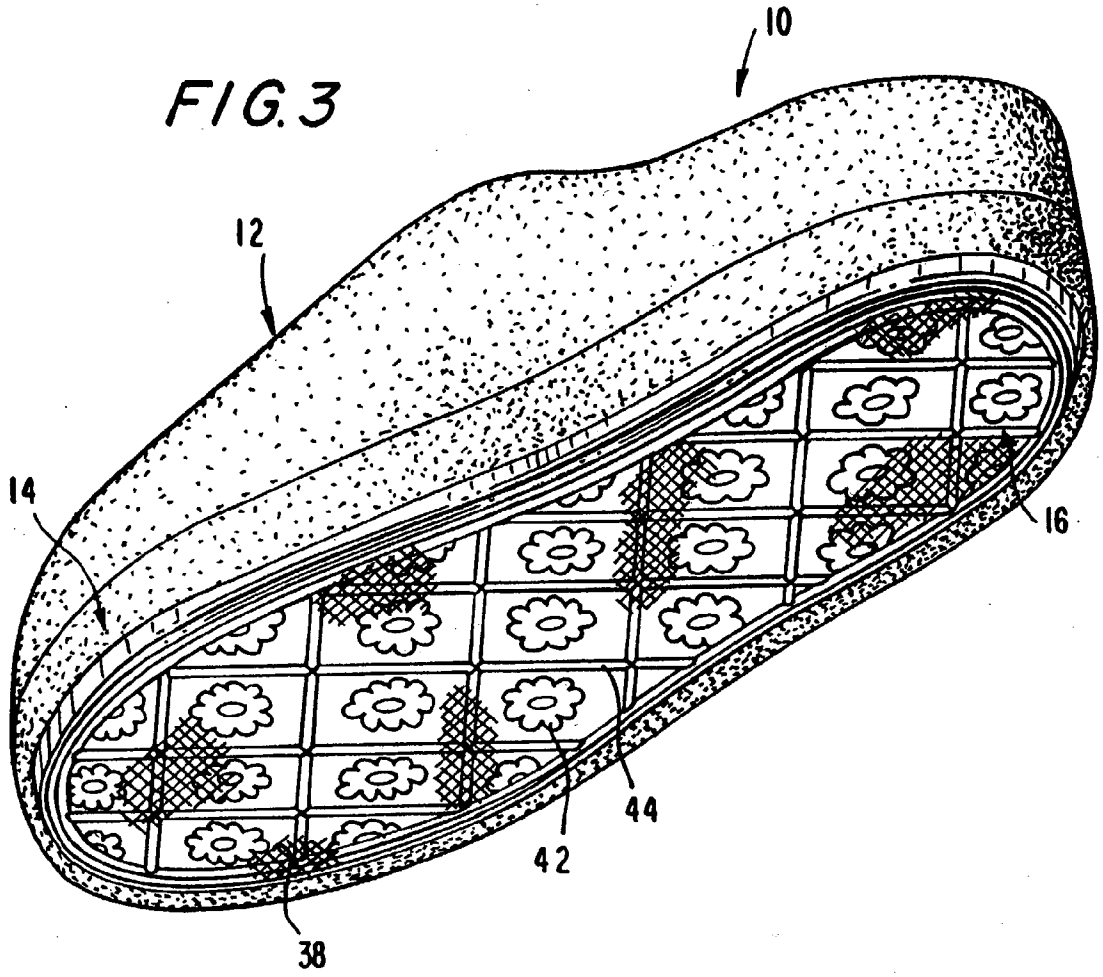
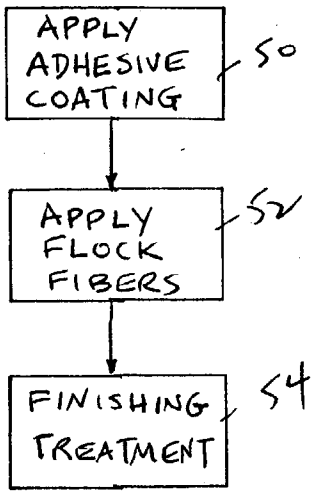

10
12
14
16
38
42
44

FIG. 4


APPLY ADHESIVE COATING
50
APPLY FLOCK FIBERS
52
FINISHING TREATMENT
54

SHOE WITH SLIP-RESISTANT, FLOCKED FABRIC OUTSOLE

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application is a continuation-in-part of U.S. patent application Ser. No. 10/176,430, filed Jun. 19, 2002, now pending.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention generally relates to a shoe having a slip-resistant, flocked fabric outsole.

[0004] 2. Description of the Related Art

[0005] A house slipper is typically designed for maximum comfort and is usually constructed of soft cushioned materials. The upper of the slipper is generally made with fabric-backed foam, and the lower of the slipper generally has foam inserts. The foam provides the desired comfort.

[0006] The outsole of many house slippers is usually entirely constituted of a fabric material. Although generally satisfactory, a slipper with an all-fabric outsole quickly loses its shape, thereby detracting from its appearance. Sometimes, a midsole board is inserted between the upper and the lower of the slipper. However, the midsole board is an extra component and renders the slipper less comfortable.

[0007] Other house slippers and many shoes have outsoles made from rubber or plastic materials. Although generally satisfactory, a slipper or shoe with an all-rubber/plastic outsole is "noisier" during walking as compared to an all-fabric outsole and also tends to have less slip resistance.

[0008] It is also known to adhere a sheet of fabric material to a lower bottom surface of an outsole of a shoe. Although the fabric provides slip resistance, experience has shown that the fabric sheet tends to delaminate and pull away from the outsole over time, especially when the fabric is exposed to wet environments and like harsh conditions.

SUMMARY OF THE INVENTION

OBJECTS OF THE INVENTION

[0009] Accordingly, it is a general object of this invention to provide an outsole for a shoe that is "quiet" in use, that has an increased slip resistance, and that is durable in use.

FEATURES OF THE INVENTION

[0010] In keeping with the above object and others which will become apparent hereafter, one feature of the present invention resides, briefly stated, in a shoe having an upper, and an outsole attached to the upper, the outsole having an outer layer constituted of a flocked fabric material. Relatively short, finely cut fibers are applied to a lower surface of the outsole. The lower surface was previously coated with an adhesive. In accordance with this invention, the outer flocked fabric layer provides the increased slip resistance and the quieter usage, and the individual fibers are less prone to being removed during wear.

[0011] The novel features which are considered as characteristic of the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] **FIG. 1** is a perspective view on a reduced scale of a slipper having a flocked fabric outsole in accordance with this invention;

[0013] **FIG. 2** is an enlarged, sectional view taken on line **2-2** of **FIG. 1**;

[0014] **FIG. 3** is a perspective view of the slipper of **FIG. 1** as seen from below; and

[0015] **FIG. 4** is a block diagram depicting the flocking of the outsole in accordance with this invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] Reference numeral **10** in **FIG. 1** generally identifies a shoe, especially a slipper, having an upper **12**, a lower **14** attached to the upper **12**, and an outsole **16** attached to the lower **14**.

[0017] As best seen in **FIG. 2**, the upper **12** includes a soft cushioned material, such as a fabric-backed foam **18** at the interior of the shoe for resiliently engaging a wearer's foot, and an exterior cover, such as a high pile fabric **20**, stitched to the fabric-backed foam **18**. The foam **18** and high pile fabric **20** are merely exemplary materials since many other materials can be used to make the upper.

[0018] As also seen in **FIG. 2**, the lower **14** includes a base material **22** at the interior of the shoe for engaging the wearer's foot, and a skirt material **24** at the exterior of the shoe. The base and skirt materials are typically constructed of a fabric, and preferably may be made of the same material as the high pile fabric **20**. An upper portion **28** of the skirt material is stitched to a lower portion of the upper, and is also stitched to opposite sides of the base material **22** along a peripheral seam **26**. A lower portion **30** of the skirt material is stitched to the outsole **16**, thereby forming an internal compartment **32** between the outsole **16** and the base material **22**. One or more foam inserts **34**, **36** are inserted into the compartment **32** to provide cushioning for the wearer's foot. Again, the described choice of materials for the lower is merely exemplary, since many other materials can be used to make the lower.

[0019] The outsole **16** includes a backing layer **40** constituted of a shape-retaining material, for example, a rubber or a plastic material. The backing layer **40** is preferably an injection-molded part which retains its molded shape.

[0020] The backing layer preferably has a raised and/or recessed tread pattern, as exemplified by the flower-like decorations **42** and diagonal ribs **44** visible on the underside of the shoe in **FIG. 3**. Other tread patterns, are, of course, contemplated by this invention.

[0021] In accordance with this invention, as depicted in **FIG. 4**, an adhesive is applied (step **50**) over a lower, bottom surface of the backing layer **40**. The adhesive can be

continuously applied over the entire bottom surface, or over selected portions thereof. The adhesive can be sprayed-on, roller-coated, or brushed-on.

[0022] Thereupon, a multitude of finely cut, relatively short, flock fibers **38** is applied (step **52**) over the adhesive coating. The flock fibers **38** may be either mechanically or electrostatically applied, or applied by a combination of both techniques. Preferably, the flock fibers are sprayed on in a pneumatic process that propels the flock fibers toward the bottom surface in a stream of air, allowing flocking of contoured shapes. The fibers are oriented in any direction, but primarily in a direction perpendicular to the bottom surface, and are embedded in the adhesive coating. The fibers can be natural or synthetic, especially nylon.

[0023] As opposed to the known technique of glueing a single fabric sheet, which is subject to delamination and peeling, the flocked fibers of this invention are highly resistant to removal since each fiber is individually held in place.

[0024] A finishing treatment (step **54**) may be performed to the flock fibers. The finishing may include printing graphic markings thereon, such as by silk screening, or embossing graphic markings therein. The finishing may include a waterproofing step by spraying a waterproofing material over the fibers, or a pressing step in which heat and pressure are applied over the fibers to obtain a flattened appearance. A flocked finish may impart friction modification, heat insulation, thermal stability, buffing, polishing, cushioning or a decorative, tactile and visual appeal.

[0025] It will be understood that each of the elements described above, or two or more together, also may find a useful application in other types of constructions differing from the types described above. The flocked fabric outsole is applicable to any footwear.

[0026] While the invention has been illustrated and described as embodied in a shoe with slip-resistant, flocked fabric outsole, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

[0027] Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

[0028] What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims.

We claim:

1. A shoe, comprising:

a) an upper; and

b) an outsole attached to the upper, the outsole having a backing layer constituted of a shape-retaining material, and a multitude of fibers flocked over, and adhesively attached to, the backing layer.

2. The shoe of claim 1, wherein the shape-retaining material has a patterned surface over which the fibers are flocked.

3. A method of making a shoe, comprising the steps of:

a) molding a molded shoe outsole with an inner backing part of a shape-retaining, moldable material;

b) applying an adhesive coating over a bottom surface of the outsole;

c) flocking a multitude of fibers of a fabric material over the adhesive coating; and

d) attaching a shoe upper to the molded shoe outsole.

4. The method of claim 3, wherein the flocking step is performed mechanically.

5. The method of claim 3, wherein the flocking step is performed electrostatically.

6. The method of claim 3, wherein the attaching step is performed by adhering the shoe upper to the shoe outsole.

7. The method of claim 3, wherein the attaching step is performed by stitching the shoe upper to the shoe outsole.

8. The method of claim 3, wherein the molding step is performed by molding a tread pattern with raised and recessed areas on the inner backing part.

9. The method of claim 3, and further comprising the step of overlying the outsole with a cushioning element.

10. The method of claim 3, and the step of printing indicia on the fibers.

11. The method of claim 3, and the step of finishing the fibers.

12. A shoe, comprising:

a) an upper;

b) an outsole having an inner backing part constituted of a shape-retaining material, and an outer fabric part secured to and at least partly covering the backing part; and

c) the upper being attached to the outsole at an exposed bare region of the outsole, the bare region being uncovered by the fabric part.

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