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(54) **LATTICED ELASTIC SHOE COVER WITH CLEATS**

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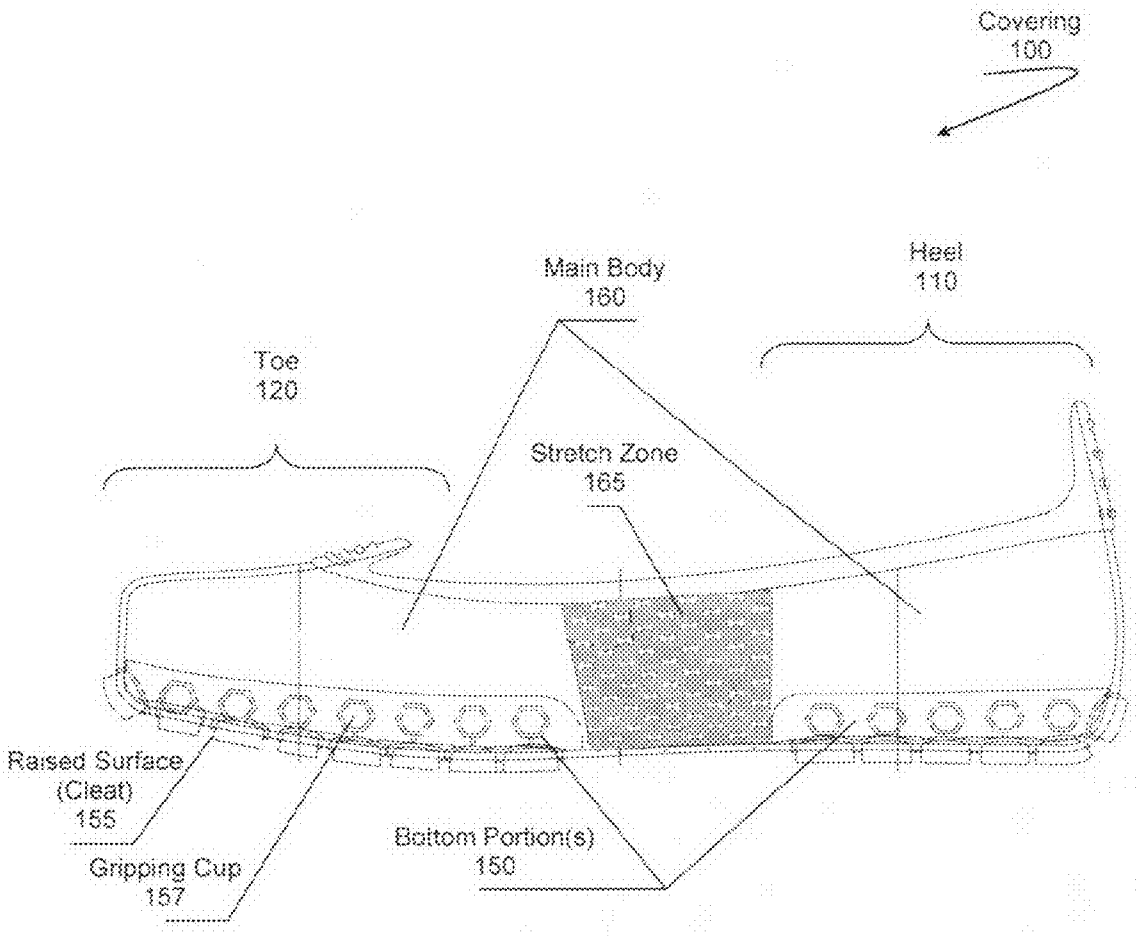
(52) **U.S. Cl.** ..... **36/7.3**; 36/59 R

(57) **ABSTRACT**

Slip resistant covers are presented. An especially preferred slip-resistant cover includes an elastic shoe cover comprising a latticed surface that allows the shoe cover to stretch further than would ordinarily be possible if the shoe cover had a uniform thickness. Contemplated shoe covers can also comprise cleats on the bottom surface to provide slip resistance.



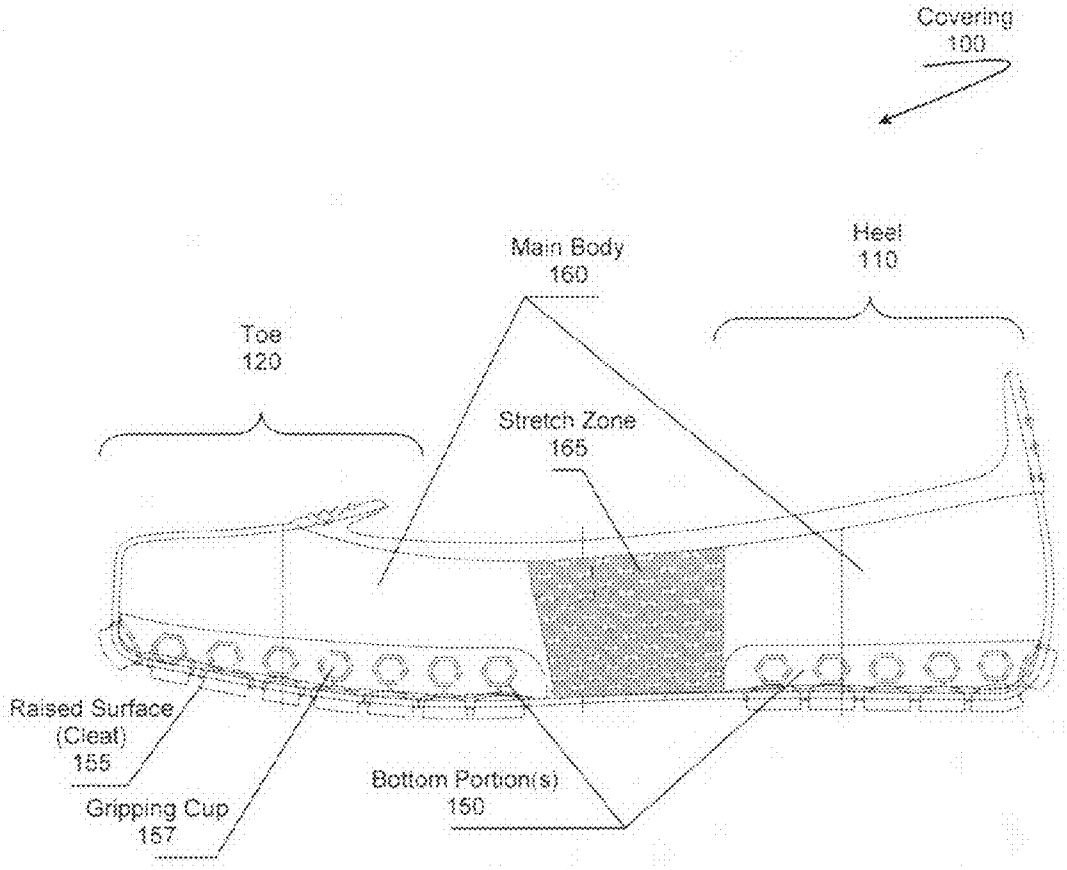

Covering
100
Main Body
160
Heel
110
Toe
120
Stretch Zone
165
Raised Surface
(Cleat)
155
Gripping Cup
157
Bottom Portion(s)
150

Figure 1

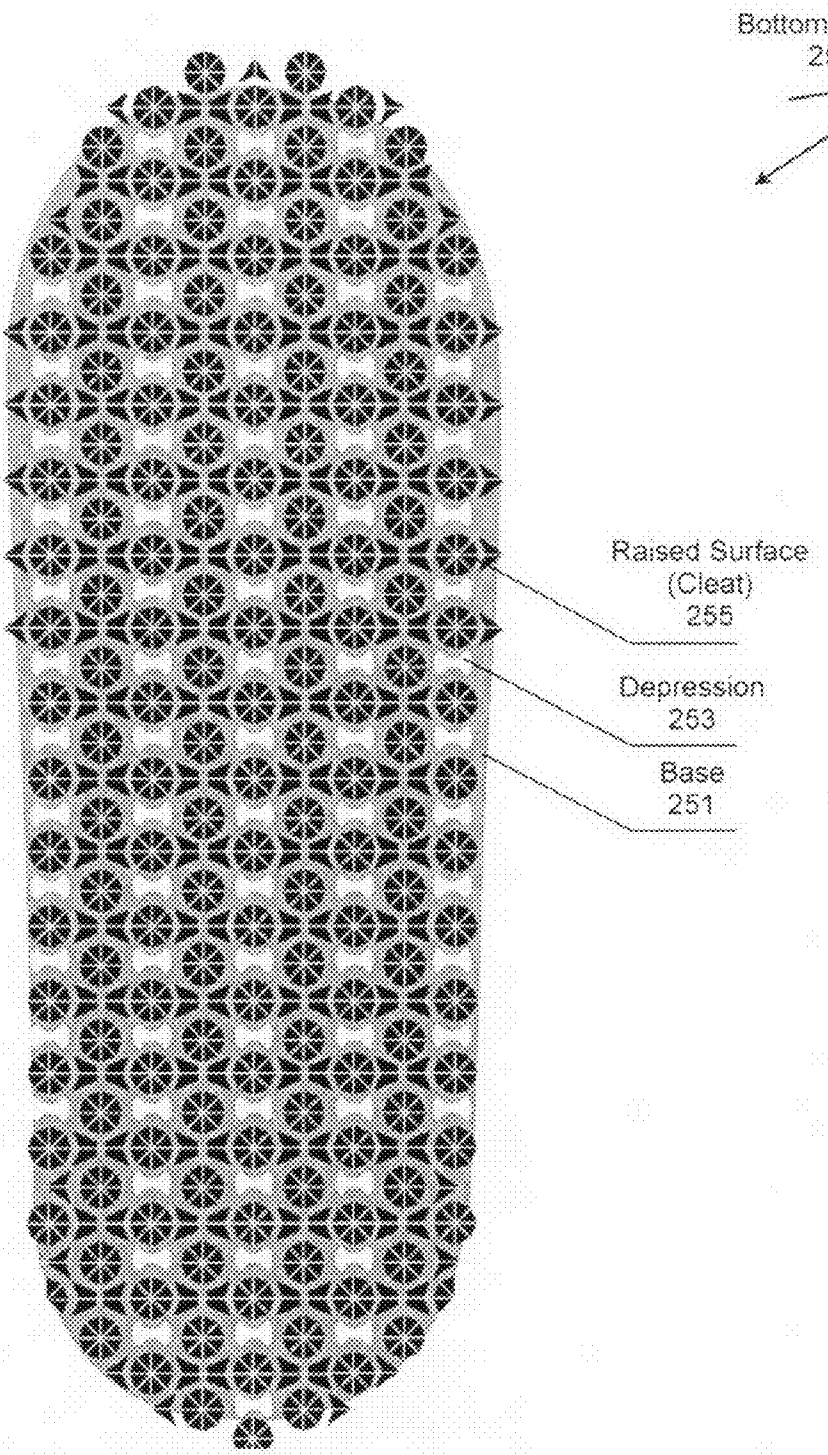

Bottom Portion
250
Raised Surface
(Cleat)
255
Depression
253
Base
251

Figure 2

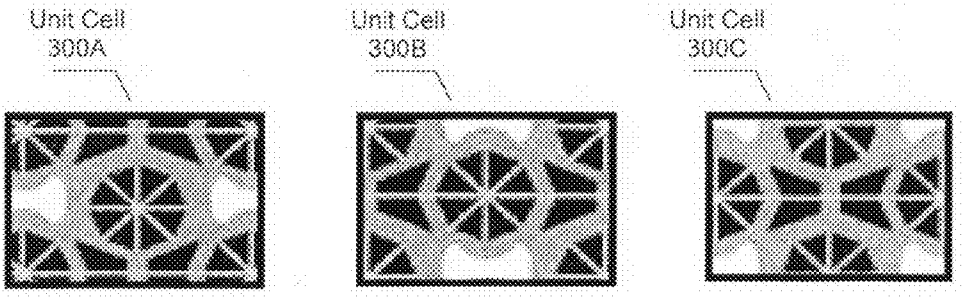


Figure 3A

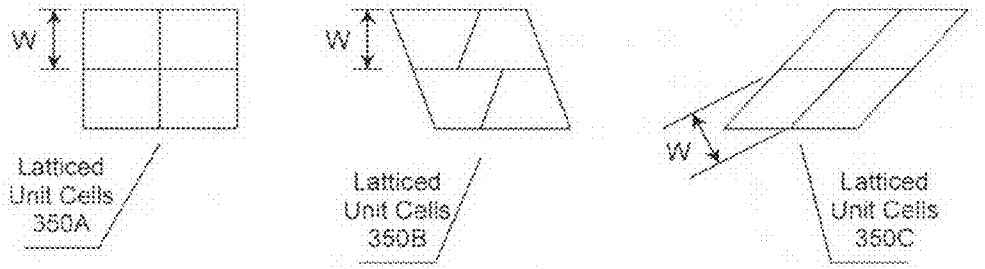


Figure 3B

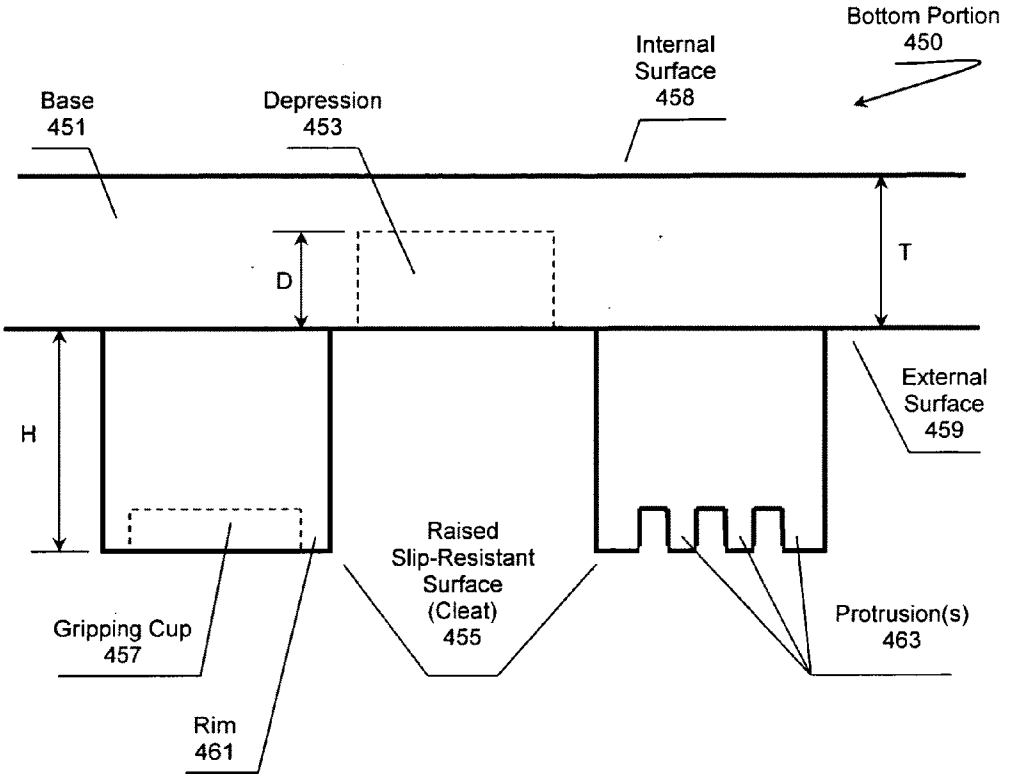

Bottom Portion
450
Internal
Surface
458
Base
451
Depression
453
T
D
H
External
Surface
459
Raised
Slip-Resistant
Surface
(Cleat)
455
Gripping Cup
457
Protrusion(s)
463
Rim
461

Figure 4

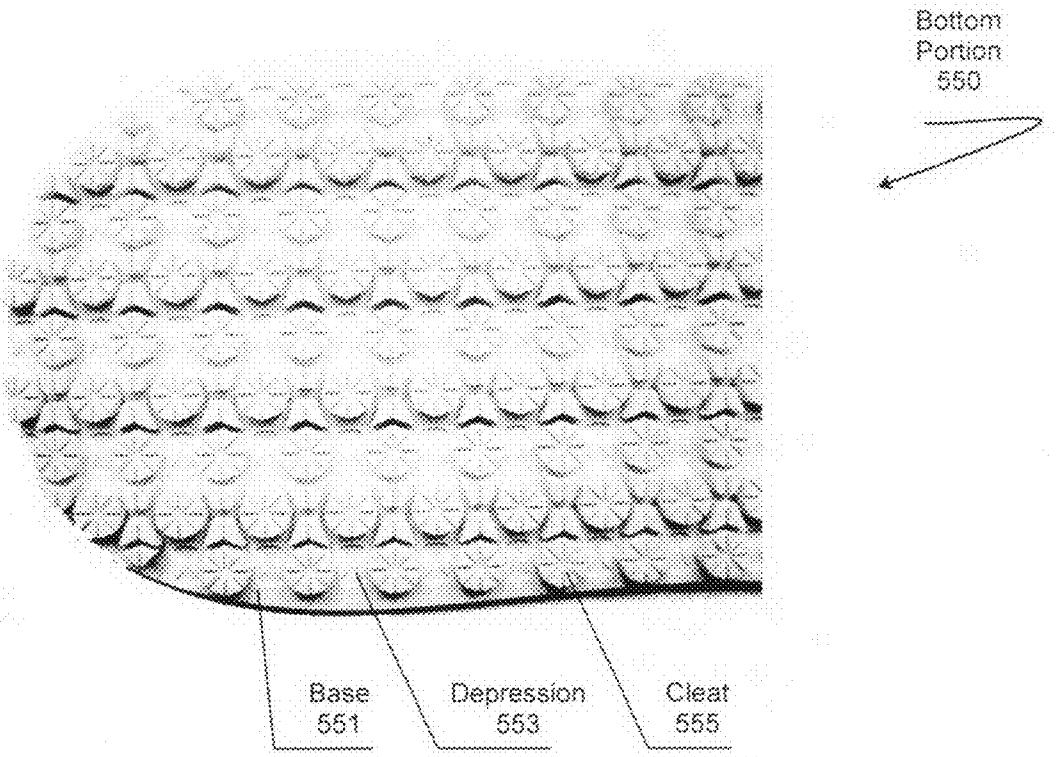


Figure 5

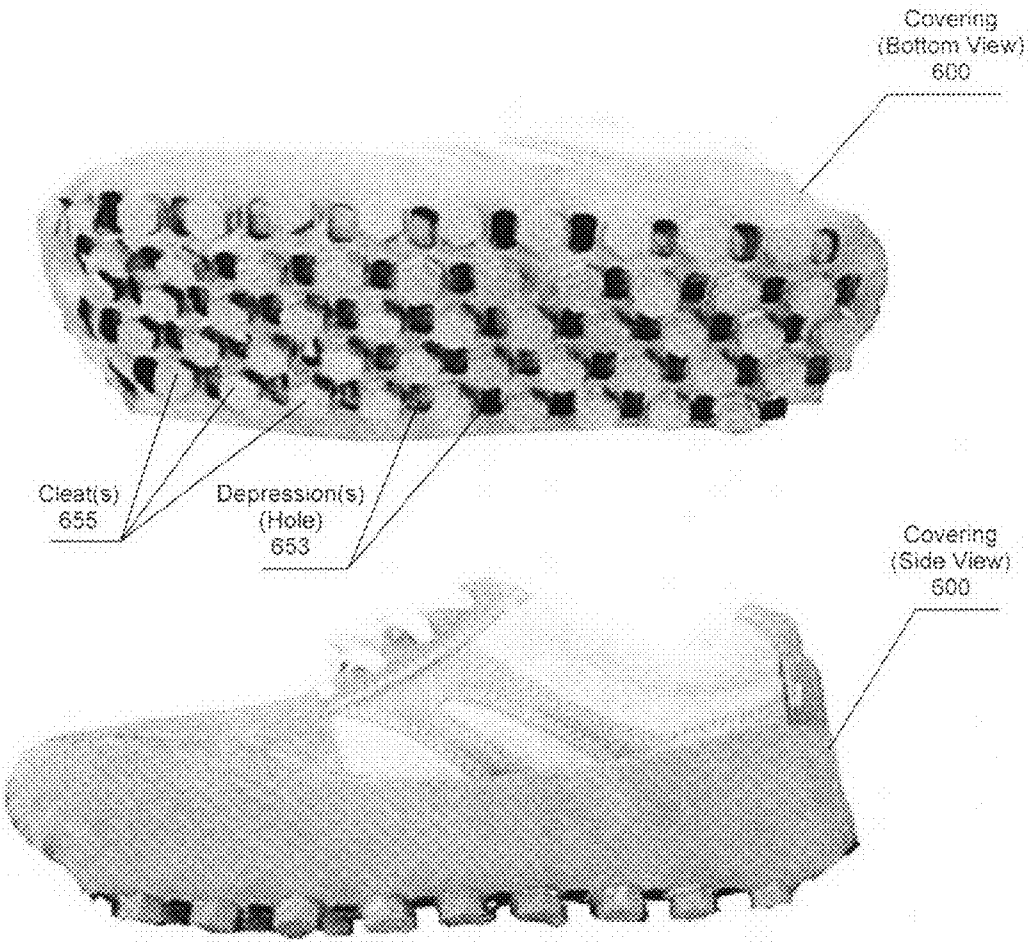

Covering
(Bottom View)
600
Cleat(s)
655
Depression(s)
(Hole)
653
Covering
(Side View)
600

Figure 6

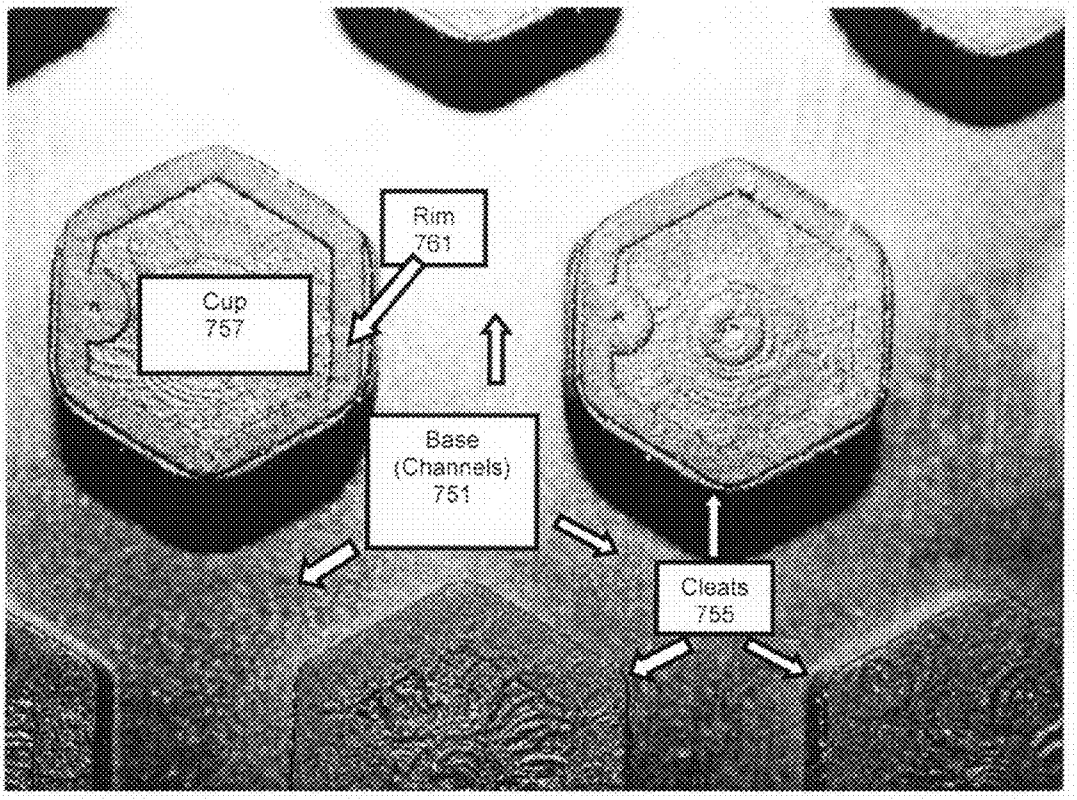

Rim
761
Cup
757
Base
(Channels)
751
Cleats
755
Bottom
Portion
750

Figure 7

LATTICED ELASTIC SHOE COVER WITH CLEATS

[0001] This application claims priority to the following U.S. provisional applications: U.S. provisional application having Ser. No. 61/040568 filed on Mar. 28, 2008; U.S. provisional application having Ser. No. 61/047959 filed on Apr. 25, 2008; U.S. provisional application having Ser. No. 61/077060 filed on Jun. 30, 2008; and U.S. provisional application having Ser. No. 61/087962 filed on Aug. 11, 2008. These and all other extrinsic materials discussed herein are incorporated by reference in their entirety. Where a definition or use of a term in an incorporated reference is inconsistent or contrary to the definition of that term provided herein, the definition of that term provided herein applies and the definition of that term in the reference does not apply.

FIELD OF THE INVENTION

[0002] The field of the invention is slip resistant coverings.

BACKGROUND

[0003] Producing a cost-effective slip resistant shoe covering is difficult due to a number of issues surrounding the manufacturing process, among many other issues. One such issue includes that a manufacturer requires multiple shoe cover molds of different sizes to make shoe different sized shoe covers. To effectively cover a market, a manufacturer must purchase and maintain all the different molds, or corresponding equipment at great expense. Preferably a manufacture should be able to produce shoe covers in a minimal number of sizes (e.g., one or two sizes) that can address the needs in the market. Additionally, a "one sized fits all" approach to shoe covers should not sacrifice shoe protection or slip resistance in exchange for fit.

[0004] One example shoe cover that requires different mold sizes is described in U.S. Pat. No. 6,948,261 to Grasso titled "Supplemental Removable Outersole for Footwear" (September 2005). Grasso contemplates that a removable cleated outersole can be attached to a shoe through the use of an elastic band. Another example of a shoe cover that must be manufactured in incremental sizes includes U.S. patent application publication 2007/0175064 to Culton et al. titled "Waterproof Protective Overshoe for Golf Shoes" (August 2007). Culton's overshoe also includes patterned tread for traction. Both of the above shoe covers require the covers to be manufactured in different sizes for different sized shoes, which can be expensive.

[0005] Others have attempted to provide slip-resistant shoe covers where a cover can fit a range of shoe sizes. For example, U.S. patent application publication 2008/0022555 to Mor et al. titled "Anti-Slip Overshoe" (January 2008) describes an anti-slip overshoe comprising elastic bands that can be adjusted to fit various shoe sizes. Another example includes U.S. patent application publication 2008/0301973 to Lee Tsi titled "Non-Slip Shoe Cover for Various Slippery Conditions Such as Snow, Golf, Fishing and the Like" (December 2008). The Lee Tsai approach provides for a non-slip shoe cover having multiple studs and protrusions where the cover has a large cutout on the sole. Although the Mor and Lee Tsai coverings can fit shoes of different sizes, they fail (1) to provide full coverage over the bottom, sole, or sides of a shoe, and (2) to adequately distribute stresses due to stretching across the covering.

[0006] The above cited references, or other known art, make a sacrifice of protection or slip resistance for fit, or vice versa. What has yet to be appreciated is that shoe coverings can be made without such sacrifices. For example, a shoe covers can comprise a material with a latticed surface having variation in thickness, and that can address the issues described above while also providing many additional advantages. A shoe covering having a latticed surface allows the covering to stretch further than would ordinarily be possible for a surface having substantially uniform thickness. Such a shoe covering produced at a given size can be used to cover a larger range of shoe sizes than a traditional counterpart and can distribute stresses across the latticed surface as opposed to having stresses localized to weak points along the covering. One or two sizes of shoe coverings having latticed material can easily fit a spectrum of shoe sizes within the market while also retaining desired slip resistance or shoe protection.

[0007] Unless the context dictates the contrary, all ranges set forth herein should be interpreted as being inclusive of their endpoints and open-ended ranges should be interpreted to include only commercially practical values. Similarly, all lists of values should be considered as inclusive of intermediate values unless the context indicates the contrary.

[0008] Thus, there is still a need for slip-resistant coverings that provide traction, provide substantial shoe protection, distribute stresses, or that fit shoes having a wide range of dimensions.

SUMMARY OF THE INVENTION

[0009] The inventive subject matter provides apparatus, systems and methods in which a slip-resistant covering can be produced. In one aspect of the inventive subject matter a covering comprises a main body portion configured to elastically couple to a shoe, and a bottom covering portion that covers a bottom surface or sole of the shoe. In a preferred embodiment, the bottom covering portion comprises a lattice of raised surfaces and depressions disposed on an external surface of the shoe cover's bottom portion. The depressions can be extend partially into a base material forming the cover, or can extend completely through the cover to form a hole. The contemplated lattice forms a highly stretchable, slip resistant surface, and allows a single shoe cover to fit a wide range of shoe sizes or shapes. In a preferred embodiment, a single shoe cover can stretch along a linear dimension by up to 400%, or even more preferably up to 900%, without suffering substantial permanent deformation. The ability of the covering to stretch can be further enhanced by including one or more stretch zones located on various sides of the covering (e.g., top, bottom, sides, etc.).

[0010] In some embodiments, the main body and the bottom covering portion can be manufactured from different materials, preferably different elastomeric materials. It is contemplated that the bottom portion can be made of a harder material than that used to make the main body. Providing a harder bottom portion is considered to improve the gripping capability or slip-resistance of the latticed surface. Furthermore, the raised slip-resistant surfaces can be formed from yet another material other than those used to form the remaining portions of the covering. For example, the raised slip-resistant surface could comprise a cleat of a hard nitrile rubber, plastic, metal, wood, or other hard materials.

[0011] As used herein "lattice" is used euphemistically to reference a repeating unit cell that has having variations in thickness in a covering material, preferably including depressions. The repeating unit cell can have a regular or irregular shape as discussed below. However, in a preferred embodiment the repeating structure comprises a substantially regular pattern.

[0012] As used herein, the term "cleat" is used to reference a raised surface or "island" protruding from the bottom surface of the shoe cover surrounded by a base surface. Contemplated cleats can include spikes, studs, pyramids, or other projections. One should note that a cleat can have a regular polygon (e.g., circle, triangle, square, pentagon, hexagon, etc.) head surface, or irregularly shaped head surface.

[0013] Various objects, features, aspects and advantages of the inventive subject matter will become more apparent from the following detailed description of preferred embodiments, along with the accompanying drawing figures in which like numerals represent like components.

BRIEF DESCRIPTION OF THE DRAWING

[0014] FIG. **1** is a schematic of a possible embodiment of a slip resistant shoe cover.

[0015] FIG. **2** is an illustration of possible embodiment of a bottom portion of a slip resistant shoe cover having a lattice of raised slip resistant surfaces and stretchable depressions.

[0016] FIG. **3**A is an illustration of possible unit cells used to form the lattice on the bottom portion of the shoe cover in FIG. **2**.

[0017] FIG. **3**B is a schematic of a few possible configurations of unit cells that can be used to form a lattice.

[0018] FIG. **4** is a schematic of a side, cut view of a bottom portion of a shoe cover showing raised slip resistant surfaces and stretchable depressions.

[0019] FIG. **5** is an illustration of a bottom portion of a prototype shoe cover.

[0020] FIG. **6** is an illustration of a prototype shoe cover disposed on a shoe.

[0021] FIG. **7** is an illustration of a close-up view of raised slip-resistant surfaces on a bottom portion of a prototype shoe cover.

DETAILED DESCRIPTION

[0022] The inventive subject matter is presented using an elastic shoe covering as an example. One should appreciate that the inventive concepts, in any combination, can equally apply to other coverings that could require additional traction or slip-resistance. Other coverings that could benefit from disclosed techniques include gloves, socks, floor mats, tires, or other surface covers. In fact, all surfaces are contemplated. In a similar vein, the term "shoe" is used euphemistically to represent any footwear (e.g., boots, sandals, shoe, etc.) and should not be interpreted as limiting the inventive concepts to a shoe per se.

[0023] In FIG. **1**, covering **100** is embodied as a shoe cover. "Covering" and "shoe cover" are used interchangeably within this document. Shoe cover **100** comprises main body **160** coupled to one or more bottom portions **150** that collectively represent a sole of cover **100**. Bottom portion **150** preferably comprises a plurality of raised slip-resistant surfaces **155**, which can be embodied by cleats possibly having gripping cup **157**. For reference purposes, shoe covering **100** includes toe portion **120** consider to be the "front" of the covering, and include heel portion **110** considered to be the "rear" of the covering. Shoe cover **100** can also include one or more stretch zones **165** that can allows shoe cover **100** to accommodate a large range of shoes having different dimensions (e.g., width, length, etc.).

[0024] In a preferred embodiment, shoe cover **100** comprises a single piece design. Shoe cover **100** preferably comprises one or more materials capable of stretching, preferably elastomeric materials.

[0025] Main covering body **160** is preferably formed or molded from a soft, elastomeric material capable of stretching to elastically couple to a shoe, possibly by at least partially enveloping the shoe. Preferred elastomeric materials have one or more of the following properties: can be molded into a desired shape, temperature resistant, water resistant or water proof, or substantially chemically inactive. Acceptable elastomeric materials can include natural rubber, synthetic polyisoprene, polybutadiene, styrene-butadine rubber, or other elastomeric compounds. A preferred embodiment employs a nitrile rubber.

[0026] Main body **160** can also comprise one or more reinforced areas that would allow cover **100** to resist tearing or becoming substantially deformed. For example, a thicker layer of material can be deposited near toe **120** or heel **110**, or another material can be bonded in the various areas that would benefit from reinforcement. It is contemplated that other materials including cloth weaves, plastics, other elastomeric compounds, or other reinforcements can be used. It is also contemplated that toe **120** or heel **110** could include reinforced stretch zones that would provide cover **100** a better hold on a shoe while also providing resistance to tearing.

[0027] Bottom portion **150** can comprise one or more regions on the bottom of covering **100**. In some embodiments, bottom portion **150** is a single region substantially covering the sole of a shoe. However, it is also contemplated that bottom portion **150** could comprise multiple, distinct regions. For example, a first region could be deployed toward the front of covering **100** and a second region could be deployed rearward near heel **110**. Any number of regions can be used to form bottom portion **150**.

[0028] Bottom portion **150** can be formed from similar, if not the same, elastomeric materials as body **160**. In a preferred embodiment, bottom portion **150** comprises a second, different elastomeric material than body **160**, possibly a harder material. Furthermore, raised surfaces **155** can be made of the same material as bottom portion **150**, or a third, alternative material from main body **160** or bottom portion **150**. Raised surface **155** are not required to be formed from an elastomeric material and could comprise metal, plastic, wood, or other material. However, preferred surfaces **155** are of a harder material than the rest of the shoe covering. For example, the cleats can comprise a harder elastomeric material, e.g., a nitrile rubber, while the surrounding material would be a softer version of the rubber, or even a different material all together. The softer rubber provides highly elastic properties so the shoe cover stretches over many different sizes of shoes, while hard raised surfaces **155** increase traction, or decrease wear.

[0029] Shoe cover **100** as contemplated can be manufactured using a suitably shaped mold. The elastomeric materials can be co-vulcanized by disposing one or more initial elastomers in the mold for the raised surfaces **155** (e.g., cleats) followed by disposing additional elastomers in the mold for the bottom covering portion **150** and main covering body **160**.

It is contemplated that the elastomers can be placed in the mold in their raw states. The materials can then be heated in the mold to co-vulcanize them together to from single piece shoe cover **100**. One skilled in the art will recognize that multiple layers or materials can also be used to form the shoe cover while still falling within the scope of the inventive subject matter. Additionally, the material used to form main body **160** can be over-molded or co-molded to raised surfaces **155**. In such an approach the material of main body **160** forms the connecting bonds among raised surfaces **155** and thereby forms or becomes bottom portion **150**.

[0030] It is contemplated that main body **160**, bottom portion(s) **150**, and raised surfaces **155** can all be of the same material, or different materials in any combination. Furthermore, raised surfaces **155** could comprise a heterogeneous mix of materials. For example, in embodiments where surfaces **155** are cleats, the cleats near the front and rear could be made of a harder material than those cleats near the middle of the covering.

[0031] Acceptable manufacturing steps or configurations can also be found in co-owned pending U.S. patent application having Ser. No. 11/867638, titled "Elastic Overshoe with Sandwiched Sole Pads" filed on Oct. 4, 2007.

[0032] Stretch zone **165** preferably includes a region on shoe cover **100**, preferably on main covering body **160**, having an array of depressions within the material used to make cover **100**. Depressions in the material represent spaces where the material is thinner than surrounding areas and allows the base material to stretch further than would otherwise be permitted without the depressions. The depressions can be made to any depth into the material, and can include holes through the material. A preferred embodiment has depressions that are at least half the thickness of the base material. Covers **100** that have non-hole depressions provide additional protection to a shoe, or other footwear, by reducing risk of exposure to water, liquids, chemicals, dust, or other contaminants.

[0033] The depressions within stretch zone **165** can be configured through many difference processes. One example includes molding the depressions into the material during vulcanization. Another example includes cutting holes in the material, possibly after manufacture, to form a stretchable mesh.

[0034] FIG. **1** illustrates that one or more zones **165** can be placed on the sides of the cover **100**. Such a configuration allows cover **100** to stretch in length to fit a wide range of shoe sizes. Stretch zones **165**, possibly in conjunction with the latticed structure of bottom portion **150**, allows cover **100** to stretch up to about 400% in a linear dimension, and more preferably up to about 900% in a linear dimension without suffering permanent deformation. Zones **165** can also be placed in other positions on cover **100** to allow stretching in length, width, depth, or along any other desirable dimensions. It is also specifically contemplated that main body **160** could be configured as a single stretch zone, possibly as a mesh of cut holes.

[0035] Cover **100** preferably is able to stretch without suffering substantial permanent deformation, which is considered to mean that cover **100** can return to its initial size or shape within a 5% tolerance after stretching, or more preferably does not tear or rip.

[0036] FIG. **2** present a schematic of an embodiment of a shoe cover's bottom portion **250**. It is contemplated that many alternative patterns are possible. The pattern presented should be considered an example for illustration purposes. Other patterns are also contemplated. A preferred pattern comprises a lattice of repeating unit cells (see discussion below) where each cell has one or more raised slip-resistant surface **255** that protrudes outward from the base **251** material and one or more depressions **253** that extend into the base **251** material. In a preferred embodiment, raised surfaces **255** comprise cleats that are "islands" of raised material surround by base **251**. Additionally, depression **253** can also be a recessed area surrounded by base **25 1**.

[0037] The lattice shown in FIG. **2** is color coded for clarity. Grey is used to represent base **251** that is considered to be of a neutral elevation. Black is used to represent raised surfaces **255** (e.g., cleats) that have a raised surface elevation relative to and protrude outward from grey base **251**. White is use to represent depressions **253** that have a lower surface elevation relative to and extends into grey base **25 1**. Base **251** also represents an external surface bottom portion **250** that is a surface intermediary between raised surface **255** and the surface within depression **253**. Preferably base **251** extends across, and substantially covers, bottom portion **250**. It is also contemplated that base **251** could extend only over the front portion or rear portion of bottom **250**, where an non-latticed section separates the front from the rear portions, possibly accommodating a contour of a user's foot.

[0038] The lattice structure can be deployed over the entire bottom of a shoe cover as shown, or can be disposed within one or more distinct regions on the bottom. For example, in one embodiment, the lattice can be dispose at only at the front and at the rear of the shoe cover. It is also contemplated that the each region could also comprise distinct sub-regions.

[0039] One should note that raised surfaces **255** or depression **253** do not necessarily have to comprises homogeneous shapes. For example, as shown, raises surfaces **255** comprise two types of cleats. A first type of cleat is a roughly circular cleat comprising eight protruding triangles extending outward from the end or head of the cleat (see also FIG. **5**). A second type of cleat is chevron shaped cleat comprising multiple polygons. Depression **253** could also comprise different shapes as opposed to a single shape as shown. In a preferred embodiment, raised surfaces **255** and depressions **253** form a unit cell that is repeated to tessellate a region of bottom portion **250**, where at least one unit cell can be adjacent to another unit cell on all sides.

[0040] FIG. **3**A illustrates several possible unit cells **300**A, **300**B, or **300**C, collectively referred to as cells **300**, of the bottom portion **250** in FIG. **2**. Unit cells **300** represent a small subset of possible unit cells, for the illustrated pattern. Unit cells **300** present different possible unit cells than can be used to tessellate bottom portion **250** of a shoe cover. One should note that even though the unit cells **300** are different, the resulting pattern across the bottom of the cover is the same. Note that unit cell **300**A has depressions at the left and right side, while unit cell **300**B has the depressions at the top and bottom, and yet unit cell **300**C has the depression at the corners.

[0041] Of particular note is that unit cells **300** all have the same ratio of raised surface area (RA) to the area of the depressions (DA). The ratio (RA/DA) is particularity useful as a measure of slip resistance relative to ability to stretch in order to accommodate different sized footwear. Preferred unit cells have a ratio (RA/DA) of more than about 0.5 and less than about 4, and more preferably about 2. Covers that have a ratio less than 0.5 are thought to suffer tears or breaks more

often than desirable, and covers having a ratio greater than four are thought to lack sufficient capacity to stretch to the extent necessary to accommodate a larger range of shoe sizes (e.g., stretch up to 400%, or even up to 900%). The total area of raised and depressed areas (RA+DA) is preferably at least 40%. It is also contemplated that the total area (RA+DA) can be about 50%, 60%, 70%, or even up to 90% of the area of the unit cell.

[0042] FIG. **3**B illustrates that unit cells can be of different sizes and shapes to form lattices **350**A, **350**B, or **350**C, collectively referred to as lattices **350**. Unit cells can be regular polygons (e.g., equilateral triangles, squares, pentagons, hexagons, etc.), irregular polygons (e.g., trapezoids, rhombi, triangles, rectangles, etc.), or other shapes that can tile a surface. For example, lattice **350**A comprises rectangular unit cells; lattice **350**B comprises trapezoid unit cells; and lattice **350**C comprises rhomboid unit cells.

[0043] It is also contemplated that a lattice could comprise two, three, or more different types of polygons to tessellate the bottom portion of a shoe cover. For example, octagons and squares can be used to tile a region. Alternatively, triangles and pentagons can be used to tile a region.

[0044] A unit cell as minimum width, W, as shown in lattices **350**. With respect to a shoe cover, the minimum width of a unit cell is preferably less than two centimeters, and more preferably less than one centimeter, but also preferably greater than 0.25 centimeters. Other types of coverings (e.g., gloves, floor mats, tires, etc.) would likely have different preferred minimum widths. For example, gloves would likely have unit cells with very small widths, possibly less than 0.5 centimeters, or even less than 0.1 centimeters; where a tire might have unit cells having a minimum width greater than 4 centimeters.

[0045] In FIG. **4**, a schematic of a side, cut view of a shoe cover's bottom portion **450** is presented. Bottom portion **450** comprises base **451** extending laterally along the bottom of a shoe cover, where base **451** has a thickness, T. Base **451** has a first, internal surface **458** that would be placed adjacent to a shoe sole and a second, external surface **459** that would be exposed. Raised surfaces **455** protrude outward from external surface **459** by height, H, and depression **453** extends into external surface **459** toward internal surface **458** by a depth, D.

[0046] In a preferred embodiment, thickness, T, for a shoe cover is preferably in the range from about 0.5 millimeters to about 5 millimeters. Depth, D, is preferably greater than about 0.5 T (i.e., one half of the value of T), more preferably greater than 0.7 T, and yet more preferably about 0.9 T. In some embodiments, depth, D, remains less than the thickness T to ensure full protection across the sole of a shoe against undesirable conditions, caustic chemicals for example. In other embodiments where protection is less necessary, but ability to stretch or flex is more important, depth, D, can be equal to T to form a hole through base **451**.

[0047] Raised surface **455**, shown as a cleat, can extend from external surface **459** by height, H, as necessary. H is preferably at least one millimeter. Although any height can be used to fit the target use of the cover. In this instance, and where other bounding limits are not expressly stated, the reader should infer a reasonable bounding limit. In this instance, for example, a commercially reasonable upper limit is about for height, H, is about one centimeter for a shoe cover.

[0048] It is also contemplated that raised surface **455** could comprises further surface features at the end or head of surfaces **455** that could enhance their slip-resistant natures. For example, the surface features located at the head portion of surfaces **455** could include protrusions **463** or cup **457**. Alternative surface features could include textures, studs, or the like.

[0049] In embodiments with gripping cup **457**, cup **457** preferably has a depression surrounded by a raised rim **461**, possibly a molded bead that at least partially surrounds cup **457**. In some embodiments, cup **457** has an approximately concave surface. Cup **457** has a preferred depth of about or less than 1 mm for a shoe cover, although all depths are contemplated. One should appreciate that the depression-rim structure of gripping cup **457** forms a suction cup-like structure. As a person walks, rim **461** squeegees liquid away from cup **457** while cup **457** grips the contacting surface.

[0050] FIG. **5** depicts a prototype bottom portion **550** of a shoe cover having a pattern similar to that illustrated in FIG. **2**. Bottom portion **550** comprises a nitrile rubber having cleats **555** with depressions **553** intermixed among cleats **555**. Note depressions **553** do not extend through the base **551**, but rather are thinner than the thickness of base **551**. Furthermore cleats **553** are surround by external surface of base **551**. Cleats **555** are configured with additional surface features protruding from the head end of the cleats. The surface features comprise wedge shape areas separated from each other by thin gaps. The thin gaps are considered to allow cleats **555** some ability to stretch.

[0051] FIG. **6** presents a side and a bottom view of a shoe having an example shoe cover **600** that employs many of the techniques disclosed above. Shoe cover **600** has a lattice structure comprising cleats **655** and depressions **653** (e.g., holes) on the bottom. The lattice provides the necessary stretch while the cleats provide slip resistance. Note that depressions **653** are holes through the base material.

[0052] FIG. **7** presents yet another embodiment showing a close-up view of bottom portion **750** detailing cleats **755**. In the illustrated embodiment, cleats **755** comprise a gripping end having a gripping cup **757** defined by rim **761**. Base **751** surrounds cleats **755** and forms channels for liquid to flow away from cleats **755**. Note that cleats **755** can also include a textured surface within cup **757**, which can further enhance the slip-resistance properties of a shoe cover.

[0053] The dimensions disclosed above with respect to a shoe covering have been found to be effective for the various possible embodiments of a shoe cover, and are not mere design choices. However, the various dimensions can be adjusted as necessary to fit the functionality for other types coverings. For example, a glove having the contemplated covering would likely have raised slip-resistant surfaces that are 1 mm or less in height. A floor mat or tire would likely have larger dimensions.

[0054] It should be apparent to those skilled in the art that many more modifications besides those already described are possible without departing from the inventive concepts herein. The inventive subject matter, therefore, is not to be restricted except in the spirit of the appended claims. Moreover, in interpreting both the specification and the claims, all terms should be interpreted in the broadest possible manner consistent with the context. In particular, the terms "comprises" and "comprising" should be interpreted as referring to elements, components, or steps in a non-exclusive manner, indicating that the referenced elements, components, or steps may be present, or utilized, or combined with other elements, components, or steps that are not expressly referenced. Where

the specification claims refers to at least one of something selected from the group consisting of A, B, C . . . and N, the text should be interpreted as requiring only one element from the group, not A plus N, or B plus N, etc.

What is claimed is:

1. A slip-resistant shoe cover, comprising:

a main covering body configured to elastically couple to a shoe;

a bottom covering portion coupled to the main body, and configured to elastically cover a bottom surface of the shoe; and

wherein an external surface of the bottom portion comprises a lattice of (a) raised slip-resistant surfaces protruding outward from the external surface and (b) stretchable depressions recessed into the external surface, where the depressions are intermixed among the raised surfaces.

2. The shoe cover of claim **1**, wherein the main covering body comprises a first elastomeric material.

3. The shoe cover of claim **2**, wherein the bottom covering portion comprises at least a second elastomeric material.

4. The shoe cover of claim **3**, wherein the second elastomeric material is different than the first elastomeric material.

5. The shoe cover of claim **3**, wherein the second elastomeric material is harder than the first elastomeric material.

6. The shoe cover of claim **3**, wherein the second elastomeric material comprises a nitrile rubber.

7. The shoe cover of claim **1**, wherein the raised surface includes a cleat.

8. The shoe cover of claim **7**, wherein the cleat comprises a gripping cup.

9. The shoe cover of claim **7**, wherein the cleat is configured to stretch.

10. The shoe cover of claim **7**, wherein the cleat comprises a material other than that used to form the bottom covering portion.

11. The shoe cover of claim **1**, wherein at least a portion of the main covering body comprises a stretch zone.

12. The shoe cover of claim **11**, wherein the stretch zone comprises an array of depressions.

13. The shoe cover of claim **12**, wherein the depressions comprise holes through a material forming the main covering body.

14. The shoe cover of claim **11**, wherein the stretch zone is located on a side of the main covering body.

15. The shoe cover of claim **1 1**, wherein the cover comprises multiple stretch zones located on at least two sides of the cover.

16. The shoe cover of claim **1**, wherein the bottom covering portion has a base thickness, T, and where the depressions extend into the bottom covering portion to a depth, D, that is at least 0.5 T.

17. The shoe cover of claim **16**, wherein the depth, D, is at least 0.7 T.

18. The shoe cover of claim **17**, wherein the depth, D, is at least 0.9 T.

19. The shoe cover of claim **18**, wherein the depressions are holes through the bottom covering portion.

20. The shoe cover of claim **16** wherein T is in the range of about 0.5 millimeters to about five millimeters, inclusively.

21. The shoe cover of claim **1**, wherein the lattice comprises a regular, repeating pattern having a unit cell with a smallest dimension of less than two centimeters.

22. The shoe cover of claim **21**, wherein the unit cell has a shape other than a rectangle.

23. The shoe cover of claim **1**, wherein the cover is configured to stretch along a linear dimension up to 900% without substantially deforming the cover.

24. The shoe cover of claim **23**, wherein the cover is configured to stretch along the linear dimension up to 400% without substantially deforming the cover.

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