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(54) **FOOT COVERING**

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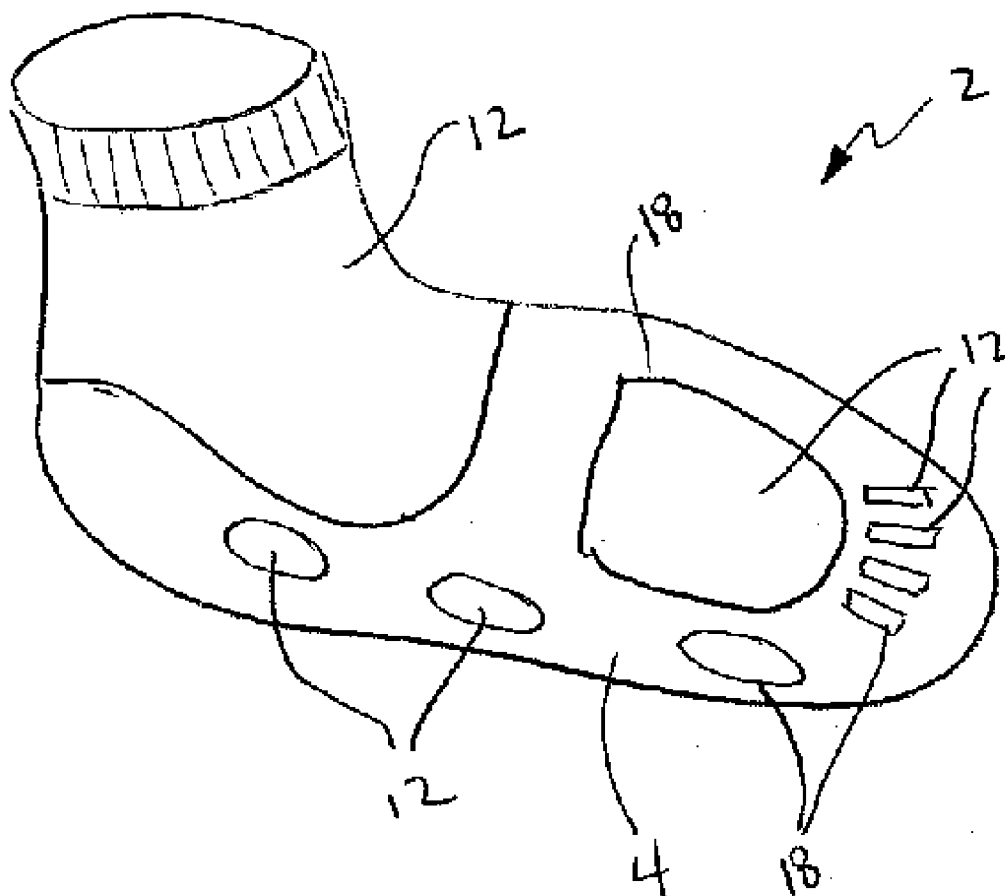
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(57) **ABSTRACT**

A foot covering comprising a three dimensional molded portion formed of an elastomeric material molded onto a fabric

material, wherein the molded portion is molded seamlessly 360° about the foot covering. The molded portion also preferably includes openings or perforations within the area of the molded portion for breathability

The foot covering is manufactured by placing a sock comprising a fabric material in the form of at least a portion of a foot and bringing at least one second mold part into molding engagement with the first mold part to create a cavity with the fabric material on the first mold part within the cavity. The elastomeric material is then injected into the cavity to form a molded portion, wherein the elastomeric material is injected on the side of the fabric material opposite the first mold part. Once the molded portion is formed, the second mold part is disengaged from the first mold part and the fully formed foot covering is removed from the first mold part.



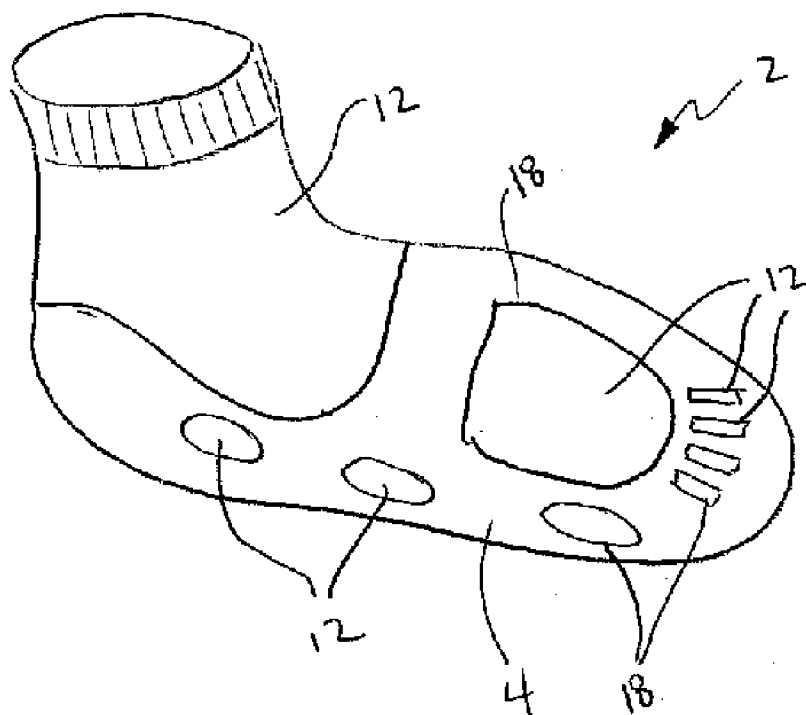


FIGURE 1

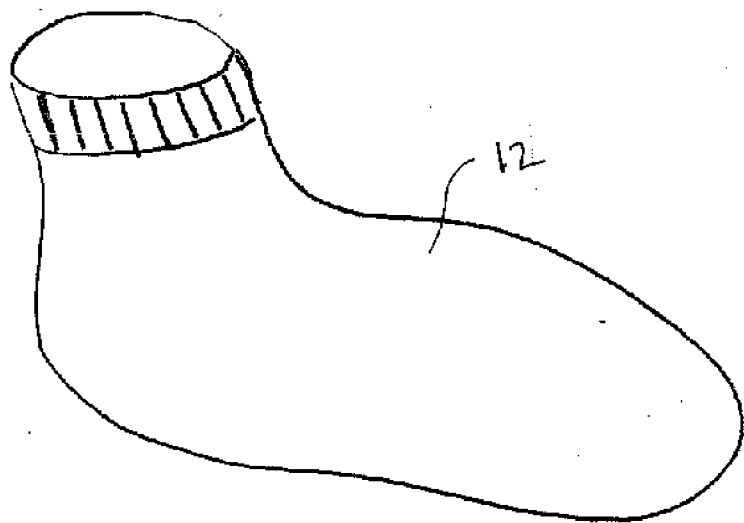
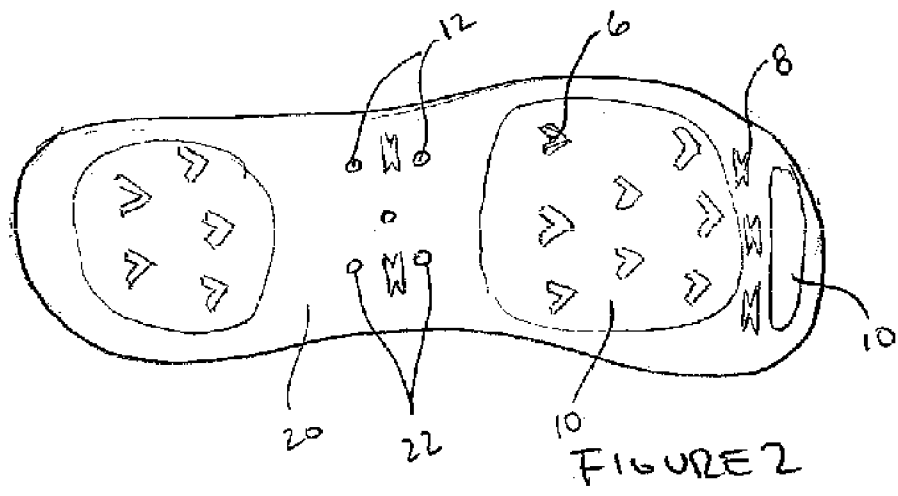


FIGURE 3

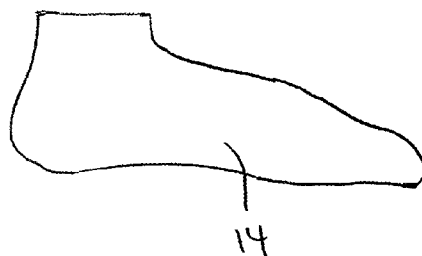


FIGURE 4

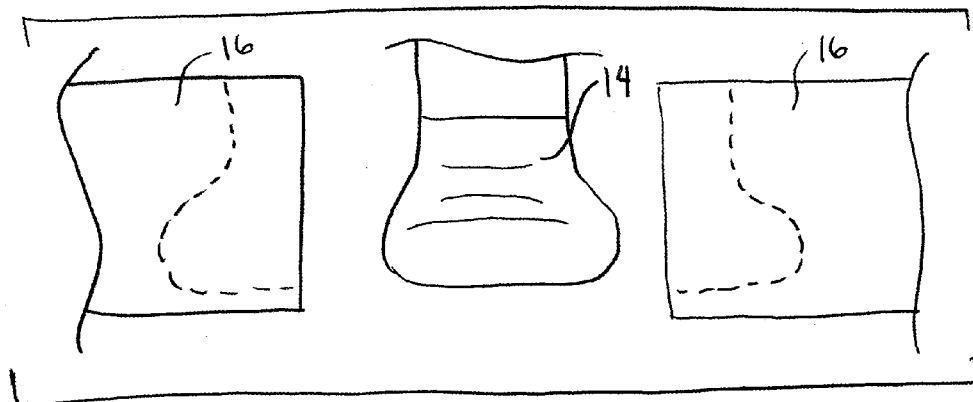


FIGURE 5

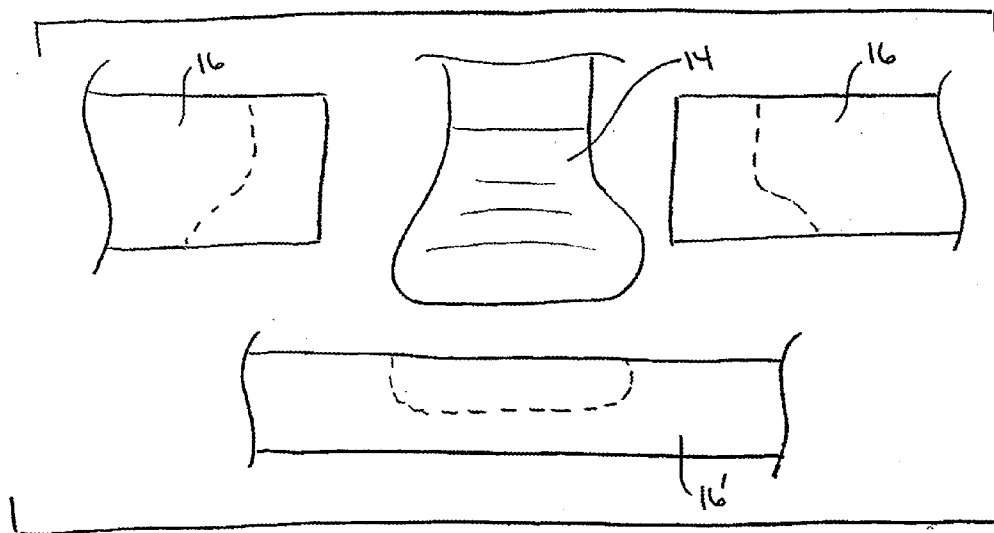


FIGURE 6

FOOT COVERING

FIELD OF THE INVENTION

[0001] The present invention relates to the field of foot coverings, such as socks, slippers, shoes and the like and, more particularly, to foot coverings having elastomeric reinforcements for foot protection, comfort, traction or slip resistance, durability, warmth, and related features.

BACKGROUND OF THE INVENTION

[0002] As a means for standing and physical movement, land mammals generally have feet. The foot bottom or sole provides a surface on which to stand or walk. The sole of the foot, therefore, not only contacts a surface but also provides traction on a surface when moving.

[0003] However, feet are generally considered a sensitive area of the body, with many nerve endings or pain receptors that sense and transmit pain sensation to the brain. Most likely because of the numerous pain receptors in the foot, foot coverings have long been used. Over time, foot coverings have changed to provide additional benefits for the user. Today, foot coverings are available for one or more benefits, including but not limited to foot protection, comfort, traction or slip resistance, durability, warmth, etc.

[0004] Foot coverings for people have developed to vary widely depending on the features thought to be important to the wearer. Foot coverings with reinforced bottoms or soles provide comfort when walking on hard or uneven surfaces. Such bottoms or soles also provide durability, where a reinforced sole will last longer during use over a prolonged period. Generally, such shoes are made by creating sections, including uppers and soles, which are stitched together or otherwise attached to create the foot covering. They may further include insoles and laces or elastic to size and/or retain the foot coverings on the foot.

[0005] Also important, depending on the climate is warmth. This factor may have led to the use of socks as a foot covering. Socks provide warmth within a shoe, but can also be used without a shoe as an alternative to a slipper. However, typical socks for use within shoes generally do not provide suitable traction or durability. This may well have led to the development of slippers, providing warmth and some slip resistance or traction, but generally having less durable soles directed to indoor use.

[0006] As an alternative to slippers, socks have been developed with non-slip elements, such as solid soles stitched or otherwise attached to socks or elastomeric materials attached in sections or a pattern bonded to the soles. One example is found in U.S. Pat. No. 5,617,585, which describes forming a durable sole on a sock by embedding the sock within uncured, liquid latex rubber. Another is found in U.S. Pat. No. 4,728, 538, which describes an apparatus and method for applying dot patterns of a non-slip composition continuously to a plurality of garments, including socks or stockings.

[0007] The purpose of the present invention is to create a foot covering with a seamless reinforcement, preferably an elastomeric material, in one or more zones most subject to abrasion and a seamless member to assist in maintaining the foot covering on a foot. In addition to minimizing the seams, additional material or padding may be provided in areas most subject to abrasion and/or impact, preferably included without seams as well.

[0008] In this regard, depending on the end usage envisioned, it is possible to adjust the amount of elastomeric material, including a natural or synthetic rubber, used in strategic areas to protect against impact and abrasion. Ultimately, the use of such padding provides the end user with a longer lasting, more comfortable foot covering. Additionally, the present invention includes the ability to provide different textures in the elastomeric material at strategic areas, to further provide one or more enhanced traction surfaces.

SUMMARY OF THE INVENTION

[0009] It is therefore an object of the invention is to create a foot covering that is an improvement over foot coverings including those formed by connecting component parts, dipping or printing.

[0010] Another object of the invention is to provide additional durability and an ability to have varying sole thicknesses without having to add layers of material to the sole of the foot covering.

[0011] A still further object of the invention is to provide foot coverings with strategically placed padding and/or abrasion resistance zones as well as enhanced traction zones.

[0012] Yet a further object of the invention is to provide sole construction including a solid elastomeric material, which allows for easier cleaning of the foot covering by simply being able to clean the sole with a damp cloth as opposed to being laundered.

[0013] Another object of the invention is to create the maximum protection against abrasion and impact resistance in what typically are areas that require reinforcement, i.e., the ball of the foot, the heel and the bottoms of the toes.

[0014] Another object of the invention is to create a molded component that can be altered to have varying elastomeric materials in different areas to provide for improved characteristics of the foot covering, and most particularly traction and flexibility. For example, softer or thinner elastomeric materials can be used for flexibility in areas less prone to wear and thicker, stronger and/or textured elastomeric materials can be used on in areas related to impact and/or traction.

[0015] A further objective of the invention is to create a foot covering that is maintained on the foot without the need for laces or other attachments, although such other attachments can be incorporated into the foot coverings.

[0016] Still other objects and advantages of the invention will, in part, be obvious and/or apparent from the specification without deviating from the spirit and scope of the invention.

[0017] These and other objects are obtained through the foot covering of the present invention having a continuous molded portion that comprises at least a portion of a sole and strap formed of an elastomeric material molded onto a fabric material.

Preferably, the molded portion includes two or more areas of differing thickness. The molded sole portion may have one or more of thickened areas for abrasion resistance, padded areas for comfort, flex grooves including thinned areas for improved movement, and textured traction areas for improved traction. The molded portion may be formed of different elastomeric materials to take advantage of the different characteristics of the particular materials.

[0018] The foot covering is preferably formed by placing a piece of heat resistant fabric against a first mold part formed in the three dimensional shape of at least a portion of a foot, including a toe portion, a sole portion, a heel portion, and an

arch portion relating to the top of the foot, as well as optionally an ankle portion. One or more, and preferably two corresponding mold parts, are brought into molding relation with the first mold part to form a mold cavity with the fabric therein. The elastomeric material is then injected into the mold cavity between the mold parts on the side of the fabric material opposite the first mold part to form the molded portion.

[0019] It is anticipated that the first mold part in the shape of at least a portion of a foot is formed in different sizes, relative to the foot sizes of the potential users, and that the corresponding second and/or additional mold part or parts include one or more of one or more textured areas, one or more thickened areas, one or more padded areas and one or more flex grooves. Preferably, the heat resistant fabric used in the mold is a knit hydrophilic material to improve absorbance of the elastomeric material.

[0020] Most preferably, the fabric placed on the mold in the shape of at least a portion of the foot is in the form of a sock that is placed over the first mold part in the three dimensional shape of at least a portion of the foot. This contemplates that the fabric corresponds to at least a portion of a sock, such that the fabric is not a swatch of fabric but rather comprises at least a portion with two layers of fabric when placed flat in profile. When the fabric in the form of a sock is placed on the first mold part, the first mold part is inserted into an opening in the fabric formed as at least a portion of a sock with at least one layer on each side of at least a portion of the first mold part.

[0021] The elastomeric material used to form at least a portion of the molded portion is preferably a relatively soft thermoplastic rubber material, with a durometer of from about 10-25 and most preferably a durometer of about 15. When injection molded into a mold cavity in which the fabric resides, the elastomeric material is absorbed into the porous structure of the fabric. This creates a foot covering with an elastomeric molded portion that stretches and is form fitting to the user's foot, fitting snugly and conforming to the foot. Moreover, the process provides different configurations, including the molding of the heel conforming to the heel, individual toes molded onto a sock with individual toes, etc.

[0022] It is also preferred that the thickness of the elastomeric material be controlled, with the thickness of the elastomeric material on the fabric being between from about 0.5 to about 3.0 mm. In this regard, it is preferred that the thickness in the areas intending to flex, i.e., at joints in the toes and optionally at the ankle, be thinned or reduced relative to adjacent areas to create flexibility, even when areas prone to abrasion or in need of cushioning are thicker. The use of such a thin layer of elastomeric material is capable of use only due to the absorption of the elastomeric material into the porous fabric, which maintains the physical integrity of the thin elastomeric material.

[0023] Of course, other steps can be employed to create a finished foot covering, based on the manufacturer's design preference. For example, known process steps such as dipping the foot covering in a material to provide certain additional attributes, such as bacterial resistance or identification may be used, either before or after the molded portion is bonded to the fabric material.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] The present invention will be better understood when considered in view of the attached drawings, in which like reference characters indicate like parts. The drawings,

however, are presented merely to illustrate the preferred embodiment of the invention without limiting the invention in any manner whatsoever.

[0025] FIG. 1 shows a perspective view of a foot covering according to the invention;

[0026] FIG. 2 shows a bottom view of the foot covering of FIG. 1;

[0027] FIG. 3 shows a sock used to form the foot covering of FIG. 1;

[0028] FIG. 4 shows a first mold part used to form the foot covering of FIG. 1;

[0029] FIG. 5 shows an exploded view of the mold parts used to form the foot covering of FIG. 1.

[0030] FIG. 6 shows an exploded view of alternative mold parts used to form the foot covering of FIG. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0031] FIG. 1 shows the foot covering **2** of the present invention with a molded portion **4** formed of an elastomeric material bonded to a fabric material. The top portion of the foot covering **2** shown in FIG. 1 also includes a fabric material **12** in the area beyond and preferably within the molded portion **4**, although such a fabric material **12** is not required as a visible element of bottom of the foot covering **2** of the present invention. Notwithstanding, it is preferred that the fabric material **12** beyond the molded portion **4** is the continuation of the fabric material forming the adjacent molded portion **4**.

[0032] FIG. 2 shows a possible configuration of the bottom of the foot covering **2**, including optional grip elements that can take the form of gripping details **6**, debossed flex grooves **8**, and raised areas **10**, as well as optional perforations **12**. In this regard, the molded portion **4** of the embodiment of FIGS. 2 preferably includes raised areas **10** shown as a raised or thickened textured portions at the heel, ball of the foot and toes for better traction, durability and reinforcement.

[0033] Of course, any molded configuration can be formed on the bottom of the foot covering **2**, however, the molded portion **4** is also formed seamlessly about the foot to cover at least a portion of the top of the foot covering **2**. The fabric material **12** on the top portion of the foot covering **2** is preferably formed as part of a sock, including the fabric material **12** within the molded portion **4**. Alternatively, the fabric **12** on the top portion of the foot covering **2** may be sewn to remainder of the foot covering **2**, either to the molded portion **4** directly or to another fabric material **12** on which the molded portion **4** is formed. A closure element **16** may be used, such as a Velcro strap about the ankle or merely an elastic edge on the sock as shown in FIGS. 1 and 3, may be provided to afford a better fit and help keep the fabric portion **12** foot covering **2** securely up on the user's ankle when the fabric portion **12** extends beyond the molded portion **4**.

[0034] The molded portion **4** of the foot covering **2**, is preferably manufactured by using a heat resistant knit hydrophilic fabric for the fabric portion **12**, in the form of at least a portion of a sock as shown in FIG. 3, that can withstand heat of approximately 400 degrees Fahrenheit onto which an elastomeric material is injection molded. Although any suitable knit hydrophilic heat resistant fabric can be used for the fabric, it has been found that fabric material comprising a nylon material is the most suitable for the invention as presently contemplated. Such a nylon knit hydrophilic material

comprises a porous structure for the elastomeric material to bond with the fabric 12 by penetrating and being drawn into the “pores” of the fabric 12.

[0035] Preferably, a mold that comprises a first mold part 14 in the three dimensional shape of at least a portion of a foot, an example of which is shown in FIG. 4, and at least one corresponding second mold part 16, shown in FIG. 5, cooperate to create a mold cavity to form the molded portion 4 of the foot covering 2. An alternative mold arrangement may have first, second, third and fourth mold parts, as shown in FIG. 6, with the second and third mold parts including cavities for forming a portion of the molded portion on the sides of the sock and the fourth mold part including a cavity for forming a portion of the molded portion on the bottom of the sock.

[0036] The heat resistant fabric 12 in the form of a sock, i.e., at least a portion of a sock structure which can receive at least a portion of a foot corresponding to at least the molded portion 4 of the foot covering 2. Alternatively, albeit less preferred, the heat resistant fabric 12 can be cut in the shape of the outlined elastomeric material that forms the molded portion 4 of the foot covering 2, as shown in FIG. 1, which is sewn to a fabric material 12, illustrating an alternative embodiment of the molded portion 4.

[0037] The foot covering 2 of the present invention, however, is most preferably manufactured by placing the sock comprising a fabric material 12 over the first mold part 24 in the form of at least a portion of a foot and bringing at least one second mold part 16 into molding engagement with the first mold part to create a cavity with the fabric material 12 in the form of a sock on the first mold part 14. The elastomeric material is then injected into the cavity to form a molded portion 4, wherein the elastomeric material is injected on the side of the fabric material 12 opposite the first mold part 14. Once the molded portion 4 is formed, the second mold part 16 is disengaged from the first mold part 14 and the fully formed foot covering 2 is removed from the first mold part.

[0038] This method of production allows for the foot covering 2 to be efficiently and economically produced with just the elastomeric material injection molded onto the fabric sock 12. Although other materials and layers can be used, none other are necessary to create a foot covering with the features described.

[0039] With respect to the embossed gripping details 6, debossed flex grooves 8, and raised areas 10, as well as perforations 12, dimples, bumps, gnarling and the like, it is preferred that the second mold part 16 is adapted to form these elements in the molded portion 4.

[0040] In the preferred embodiment, where the molded portion 4 extends 360° about the foot without a seam, a second mold part 16 and a third and/or fourth mold part 16 may be brought into molding engagement with the first mold part 14 to create a mold cavity, with a fabric in the form of at least a portion of a sock on the first mold part. It is here contemplated that the second and/or third mold part 16 is adapted to mold at least a portion of one of the left or right side of the foot covering 2 and a fourth mold part 16', if used, is adapted to mold a portion of the bottom of the foot covering 2.

[0041] The method of injection molding of the elastomeric material in the present invention permits the application of the elastomeric material on the top, sides and bottom of the foot covering 2, while selectively leaving open areas 18 on the top of the foot covering 2 without an elastomeric material and leaving the fabric material 12 exposed from the exterior. This

ensures breathability of the foot covering 2, where the open areas 18 without an elastomeric material may have a mesh or other fabric in the opening for user comfort.

[0042] For the three dimensional portion of the mold corresponding to the molded portion, a stay can be inserted that ensures the molded portion 4 is molded to the three dimensional shape of at least a portion of a foot. However, the shaped molded portion 4 of the foot covering 2, are preferably formed by corresponding mold parts, where a first mold part 14 is the three dimensional shape or form of at least part of a foot.

[0043] When using the preferred corresponding mold parts, the elastomeric material is injected on the side of the fabric 12 opposite the first mold part 14 in the shape of at least a portion of the foot to form the molded portion 4 and/or 14 of the foot covering 2.

[0044] In any event, the molded elastomeric material is intended to adhere to all areas of the fabric 12 conforming to the cavity within the mold, preferably including the entire sole, portions of the top and about the front of the toe area, about the heel area and at least a strap over the top of the arch of the foot.

[0045] Optionally, a thin lining material can be inserted between the fabric and the first mold part 14 or as the fabric prior to shooting the elastomeric material, so that whatever portion of the molded portion 4 that would be in contact with the foot of the user would be lined. The sock fabric 12 could then be stitched onto the contour of the molded portion 4 or lining material of the foot covering 2, if desired.

[0046] If the fabric in the molded portion 4 is not in the form of a sock which comprises the entire area of the foot covering 2, the molded portion 4 is then attached to the balance of the foot covering 2, as desired. Preferably, however, the fabric 12 that is visible above and/or within open portions 18 of the molded portion 4, is not stitched, but is a continuation of the fabric 12 bonded to the elastomeric material in the molding process.

[0047] In the embodiment shown, the molded portion 4 is molded about the toes, to form a cap over the toes, preferably including the sides and along the tops of the toes for the purposes of creating as much of a closed construction as possible about the sole. Flex grooves 8 may be placed in the areas of at least some of the more flexible portions of the foot covering, including such areas as the middle of the sole and the joints between the ball of the foot and the toes to provide improved flexibility. Raised portions 10, for abrasion resistance or padding, are preferably included on the sole at the toes, ball of the foot and heel.

[0048] With respect to the elastomeric materials used, different compositions of elastomeric material can be used in the formation of the molded portion 4 or parts thereof. For example, an elastomeric material that is less slippery when wet may be used at the raised portions, allowing the foot covering 2 to be more versatile in wet conditions. Moreover, if abrasion resistance is of particular importance in an area of the molded portion 4, a denser material can be used in that area. Similarly, where impact resistance is of particular importance in an area, such as at the ball of the foot or the heel, a less dense elastomeric material may be preferred. The proper applications of such variations will be well within the design preferences of one skilled in the art.

[0049] Notwithstanding, it has been found that thermoplastic vulcanite (TPV) and thermoplastic rubber (TPR) are preferred materials for forming and serving as the elastomeric

material used for the molded portion 4 of the foot covering 2 of the present invention. If the balance between durability and flexibility of the elastomeric material is to be tilted toward flexibility when using the present invention, i.e., for mostly indoor use as a slipper, an elastomeric material with a shore durometer of from about 15 to about 25, and most preferably about 15, may be preferred. Alternatively, if durability is favored over flexibility, i.e., when an outdoor environment is contemplated, an elastomeric material with a shore durometer of from about 25 to about 35, and most preferably about 35, may be preferred.

[0050] In the embodiment shown, the molded portion 4 preferably covers at least the sole, and preferably extends up along the sides of the foot, including the back of the heel, the sides of the foot and the sides and front of the toes. Of course, the molded portions can have other features that conform the foot covering 2 to a foot, including an inward extending cup about the heel, an arch on the sole and a front that conforms generally to the differences in the length of the toes across the foot. The molded portion 4 also preferably contains embossed gripping details 6, such as textured loops, a gnarled surface, dimples bumps and/or the like, to increase gripping and enhance the protection of the user. The ankle of the foot covering 2 may include a closure element, shown in the form of a stretchable material 18 or an ankle, to provide a snug and comfortable fit while permitting easy insertion and removal of the wearer's foot.

[0051] Of course, the molded portion 4 of the foot covering 2 is also amenable to molding with any variety of different patterns shapes and designs, including padded or raised portions 10, greater or lesser pre-curling of the arch, flex grooves 8 or textured areas 6. The benefits of these features would similarly be the comfort, cosmetic value, waterproofing, which may be important for some uses, as well as providing padding in critical impact areas, and additional traction and/or abrasion resistance in critical areas of the foot covering 2.

[0052] The foot covering 2 of the present invention can be manufactured with different fabric and elastomeric materials, as described above. In addition to the different materials, the foot covering 2 of the present invention can have different thicknesses, both overall and in different areas of the molded portion 4.

[0053] More particularly, the fabric material used to form the sock 12 of the present invention, preferably a knit hydrophilic fabric, can have any suitable thickness, but is preferably from about 0.4 to about 1.8 mm thick and most preferably about 0.5 to about 0.8 mm thick. Similarly, the elastomeric material can be molded onto the fabric material at any suitable thickness, however, it is preferred that the elastomeric material have a thickness of from about 0.4 to about 10.0 mm. In this regard, the upper limit of the elastomeric material can correspond to the appropriate use, including thicknesses of up to about 4.0, about 5.0, about 6.0 about 7.0 and about 10.0 mm for uses requiring such characteristics. As such, the thickness of the molded portion, with the elastomeric material bonded to the fabric material, would have a preferred thickness of from about 0.8 to about 10.8 mm.

[0054] Notwithstanding, for more common utility uses, it is preferred that the thickness of the elastomeric material in the molded portion 4 be from about 0.5 to about 3.0 mm thick, with from about 0.5 to about 1.7 being most preferred. Using these thicknesses, the overall thickness of the preferred foot covering 2 in the molded portion 4, including the elastomeric material bonded to the fabric material, is from about 0.8 to

about 3.1 mm thick and most preferably from about 1.0 to about 2.3 mm thick when configuring the foot covering 2 for an indoor environment.

[0055] Also incorporated in this embodiment are raised portions 10 and flex grooves 8 having stepped thicknesses to maximize flexibility, wear and cushioning. Most preferably, the areas of the embodiment of FIG. 1 forming the molded first area 20, shown as the sole, sides and strap exclusive of the raised areas 10, is formed of an elastomeric material that is from about 0.4 to about 1.0 mm, and preferably from about 0.5 to about 0.8 mm. Used with a fabric of about 0.5 to about 0.6 mm, the total thickness of the molded portion 4 in the molded first area 20 is preferably from about 1.0 to about 1.6 mm. This provides maximum flexibility for the user in the molded first areas 20.

[0056] The molded raised areas 10 of the embodiment of FIG. 1 are generally in the area of the heel, the ball of the foot and the toes, corresponding to the portions of the sole that generally contact the surface that the user is walking on. The molded second areas 22 are formed of an elastomeric material that is from about 1.2 to about 1.6 mm, and preferably about 1.4 mm. Used with a fabric of about 0.5 to about 0.6 mm, the total thickness of the molded portion 4 in the raised areas 10 is preferably from about 1.7 to about 2.2 mm. This provides additional durability for wear and extra protection without sacrificing feel.

[0057] Significantly, the present invention provides the heretofore unknown benefit of a foot covering 2 with a molded portion 4 that can utilize a molded elastomeric material of down to about a 15 shore durometer at a thickness down to about 0.4 mm, and preferably about 0.5 mm, provided it is backed with a suitable fabric 12 used in the molding process. This advance in the formation and flexibility permits the use as a molded portion 4 of a foot covering, where the user requires excellent flexibility with good durability.

[0058] Most preferably, the embodiment of FIG. 1 provides a foot covering 2 with a molded portion 4 that seamlessly extends up to and including 360° about the foot, preferably having openings 18 to permit airflow and, therefore, breathability to the foot covering 2. For example, as shown in FIG. 1, the molded portion 4 surrounds open fabric portions 18 on the top of the foot covering 2 for breathability, especially in the toe area. Such fabric portions 12 without elastomeric material encompassed by molded portion 4 can likewise be incorporated into the sole of the foot covering 2, with perforations 22 or other shapes, as desired.

[0059] Of course, as described above, the elastomeric material that is used for the molded portion 4 in the various areas such as the first molded area 20 and the raised areas 10, or different raised areas 10, may have different physical characteristics. These include differences in density, tackiness, flexibility, etc.

[0060] Also as shown in FIG. 1, the molded portion 4 of the foot covering 2 may include perforations 22 that extend thorough the elastomeric material. These perforations 22 not only provide ventilation between the interior and exterior of the foot covering 2, enhancing user comfort, but may provide drainage openings.

[0061] Additionally, the molded portion 4 of the foot covering 2 of FIG. 1 includes gripping details 6 in the form of a gnarled surface, dimples, bumps, "v" shaped members and/or "w" shaped members that displace moisture both horizontally and vertically to create improved traction in wet or slippery

conditions. As shown in the drawings, but without limitation, the gripping details 6 may have dimples or other features to further increase traction.

[0062] For example, the foot covering 2 of the present invention preferably includes a molded portion 4 with raised areas 10 having improved traction at the heel, ball of the foot and toes for use in outdoor activities. The raised areas 10 create additional traction resilience. Most preferably, the textured surface on the raised areas 10 of the ball of the foot and toes improve traction.

[0063] Moreover, as will be apparent to those skilled in the art, the foot covering 2 of the present invention can be designed with different combinations of the components described above. For example, the foot covering 2 of FIG. 1 could be fashioned with a Velcro strap about the ankle to ensure that the foot covering 2 stays on the foot.

[0064] It will thus be seen that the objects set forth above, those made apparent from the preceding description, and certain changes in the above constructions may be made without departing from the spirit and scope of the invention, such that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative, and not limiting. In this regard, and without limitation, the various features shown in the several embodiments described can be applied singularly or in any number of combinations without falling beyond the scope of the invention.

[0065] It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

1. A foot covering comprising a three dimensional molded portion formed of an elastomeric material formed on a fabric material, wherein the foot covering includes a sole and a top with the molded portion formed continuously about the foot covering, 360° from the sole to the top, without a seam.

2. The foot covering of claim 1 wherein elastomeric material comprises a material is taken from the group consisting of a thermoplastic vulcanite (TPV) and a thermoplastic rubber (TPR) having a shore durometer of from about 15 to about 35

3. The foot covering of claim 2 wherein the elastomeric material is a TPR having a shore durometer of about 25.

4. The foot covering of claim 1 wherein the molded portion has a thickness of from about 0.8 to about 10.8 mm with the elastomeric material including two or more areas of differing thicknesses within the range of from about 0.4 to about 10.0 mm.

5. The foot covering of claim 4 wherein the fabric material is a knit hydrophilic material having a thickness of from about 0.4 to about 1.8 mm.

6. The foot covering of claim 5 wherein the knit hydrophilic material comprises a nylon material and has a thickness of from about 0.5 to about 0.8 mm.

7. The foot covering of claim 4 wherein the molded portion has a first area in which the elastomeric material has a thickness of from about 0.4 to about 3.0 mm.

8. The foot covering of claim 7 wherein the molded portion has a raised area in which the elastomeric material has a thickness of from about 1.0 to about 5.0 mm

9. The foot covering of claim 8 wherein the raised area includes at least one of a heel area, a ball of the foot area and a toe area.

10. The foot covering of claim 1 wherein different portions of the molded portion are formed with elastomeric materials having different physical characteristics.

11. The foot covering of claim 1 wherein the fabric material extends beyond the molded portion.

12. The foot covering of claim 1 wherein the molded portion surrounds one or more open fabric portions.

13. The foot covering of claim 12 wherein the molded portion surrounds open fabric portions in an area between an arch on the top of the foot and a toe area.

14. A method of manufacturing a foot covering having a three dimensional molded portion for surrounding at least a portion of a foot comprising the steps of:

- a. placing a fabric material in the form of at least a portion of a sock over a three dimensional first mold part in the form of at least a portion of a foot;
- b. bringing a second mold part into molding engagement with the first mold part to create a cavity between the first mold part and the second mold part with at least a portion of the sock on the first mold part within the cavity; and
- c. injecting an elastomeric material into the cavity to form a molded portion, wherein the elastomeric material is injected on the side of the fabric material opposite the first mold part.

- 15. The method of claim 14 further comprising the steps of:
 - d. disengaging the second mold part from the first mold part; and
 - e. removing a fully formed foot covering from the first mold part.

16. The method of claim 14 wherein the second mold part includes elements for forming a molded portion with two or more adjacent elastomeric areas of differing thicknesses.

17. The method of claim 14 wherein the second mold part includes elements for forming a molded portion with one or more textured gripping portions taken from the group consisting of gnarled portions, dimples, bumps, w-shaped members, v-shaped members, textured loops, perforations and embossed gripping details.

18. The method of claim 14 wherein the mold parts create a cavity that extends 360° about at least a portion of the foot covering between the ankle and the toes without a seam.

19. The method of claim 14 wherein the molded portion includes open areas or perforations through the elastomeric material.

20. The method of claim 14 wherein step (b) further comprises bringing a third mold part into molding engagement with the first and second mold parts to create a cavity with the fabric in the form of at least a portion of a sock on the first mold part.

21. The method of claim 20 wherein the second mold part is adapted to mold onto at least a portion of one side of the fabric in the form of at least a portion of a sock and the third mold part is adapted to mold onto at least a portion of the other side of the fabric in the form of at least a portion of a sock.

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