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(54) **GRIP APPLICATION FOR CLOTHING**

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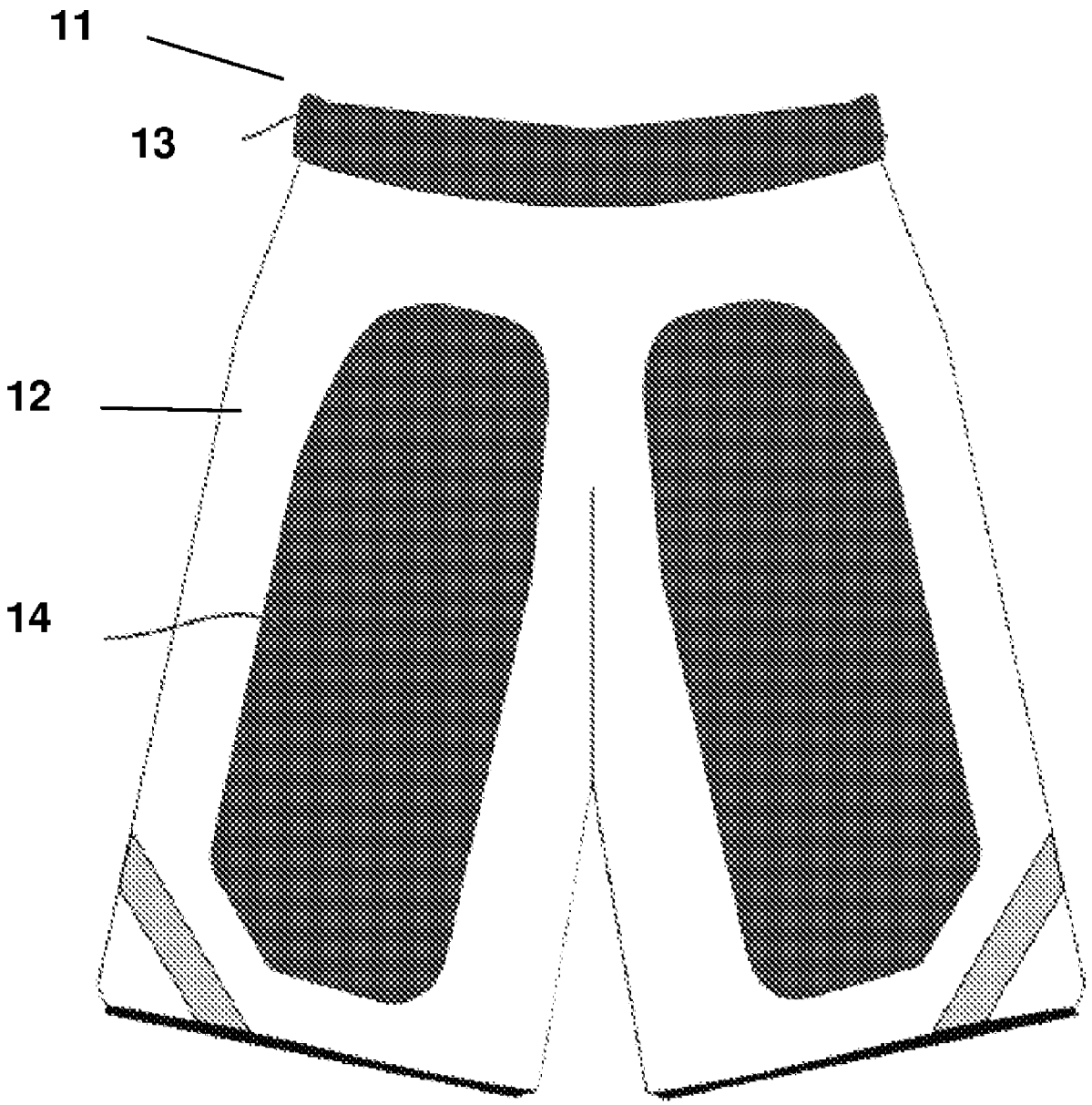
(57) **ABSTRACT**

Garments and patches for garments incorporating a grip surface at contact points between the garment and a surface.



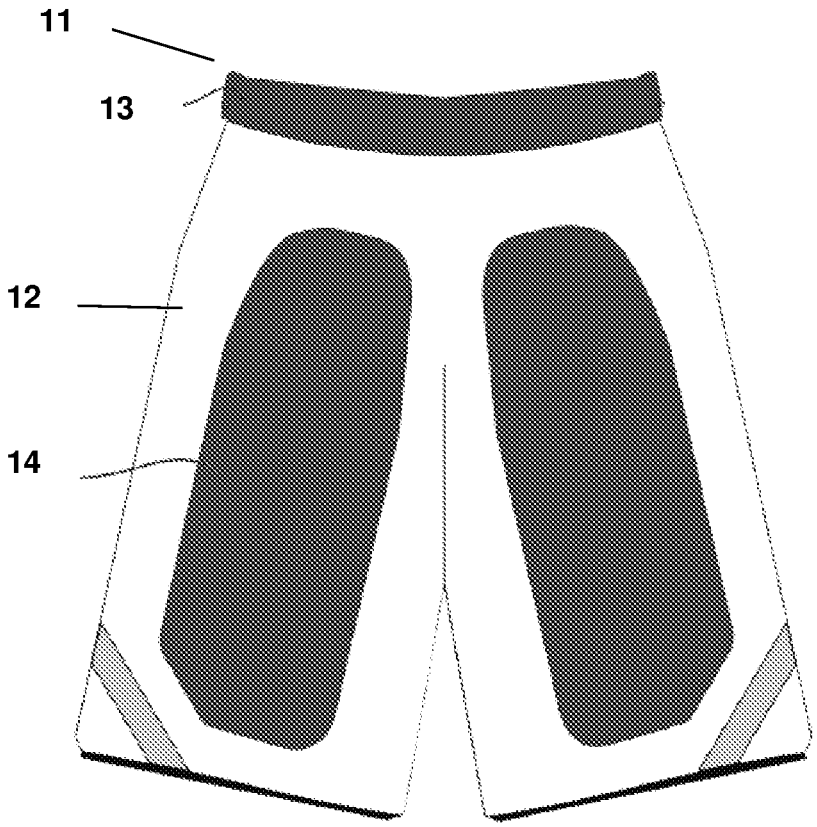


FIG. 1

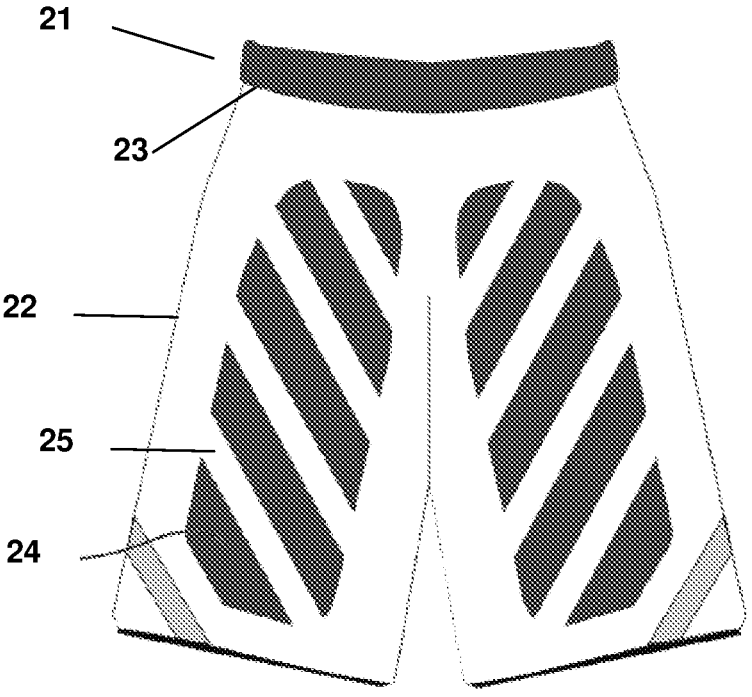


FIG. 2

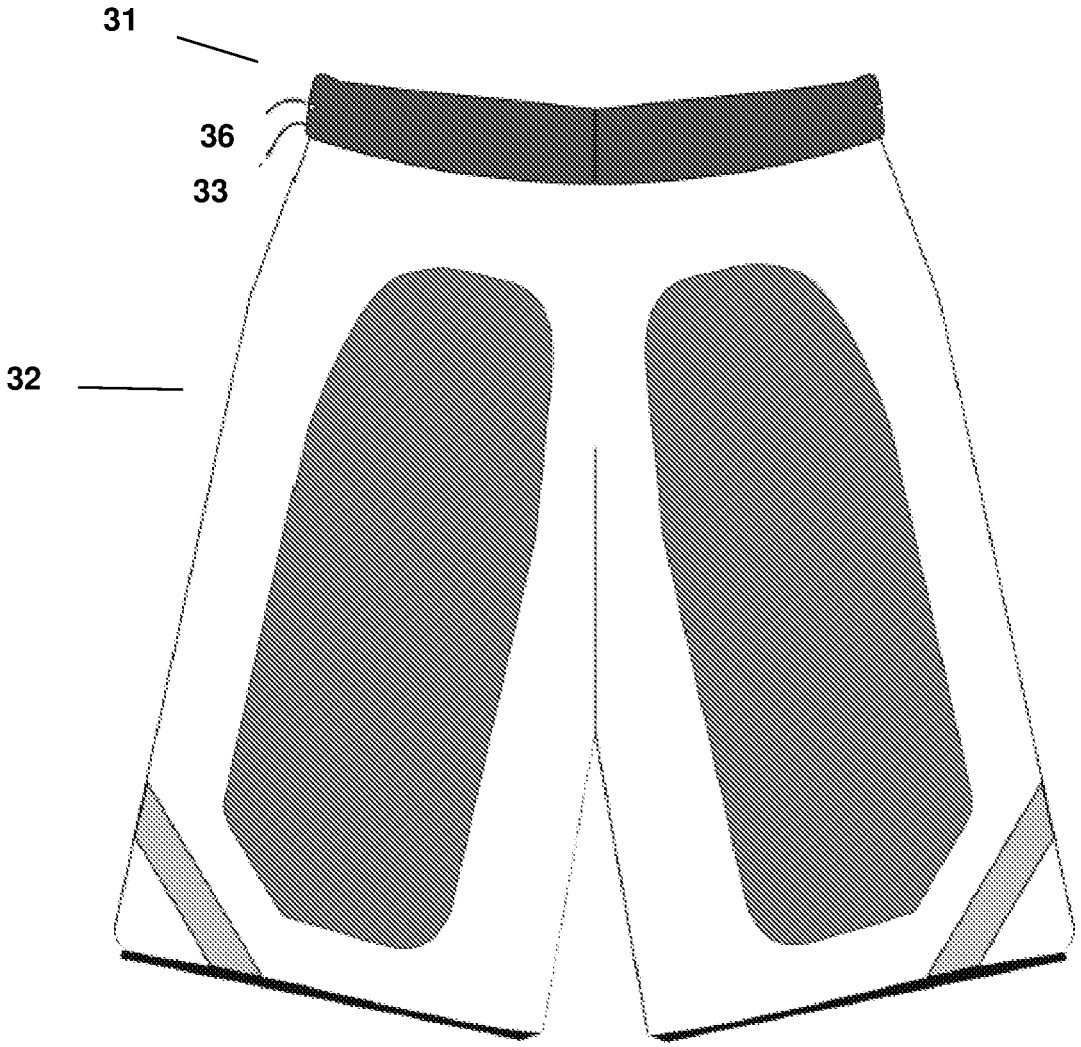


FIG. 3

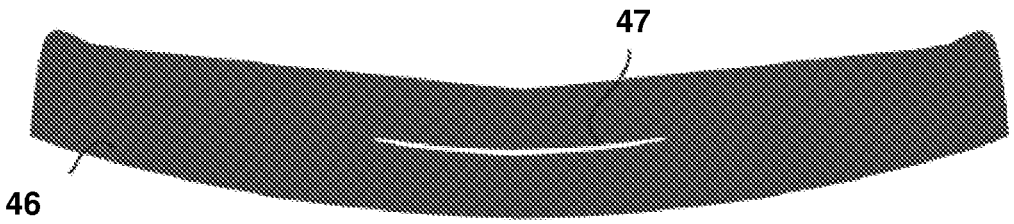


FIG. 4

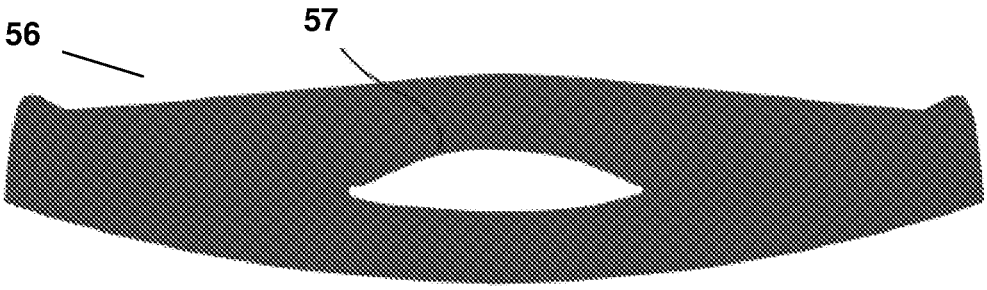


FIG. 5

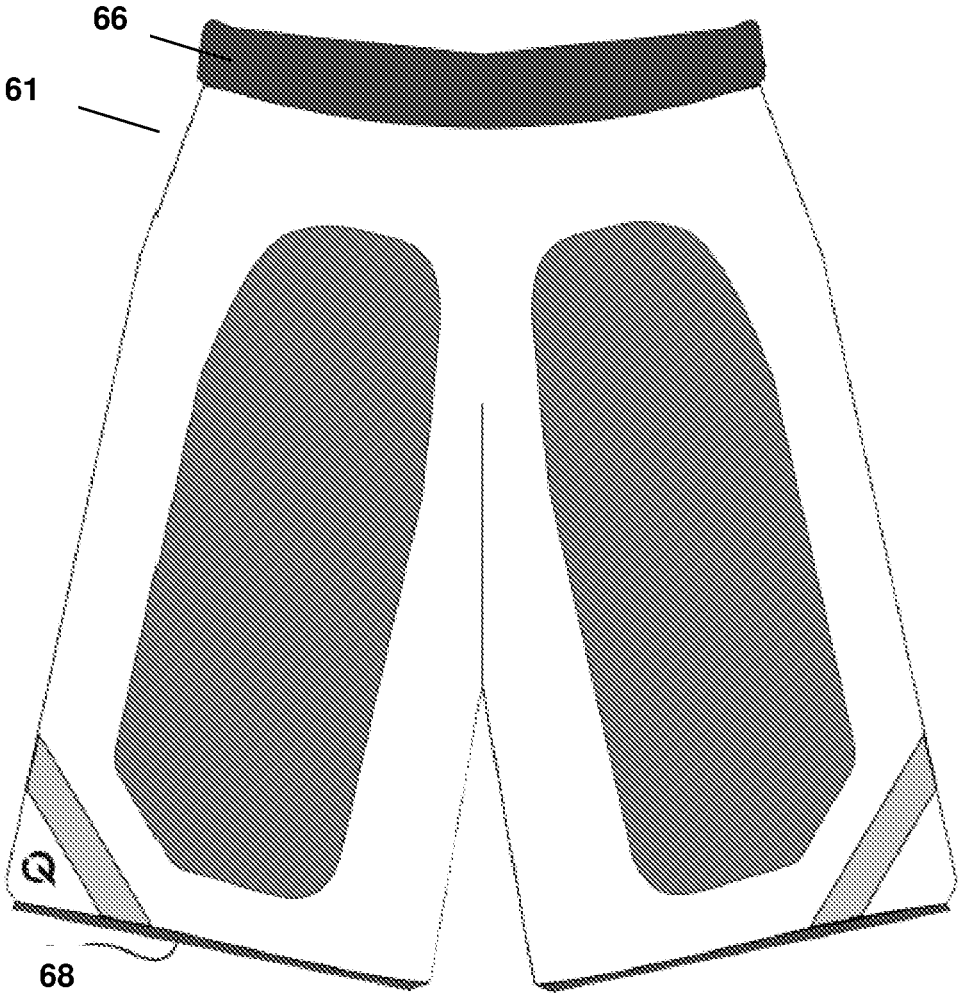


FIG. 6

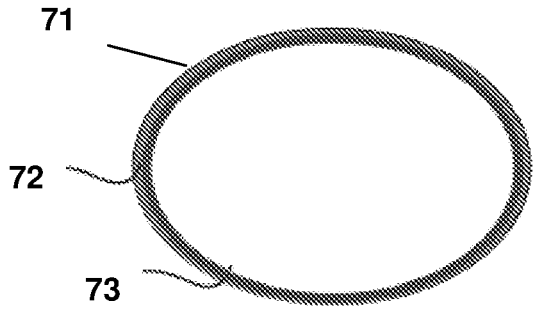


FIG. 7

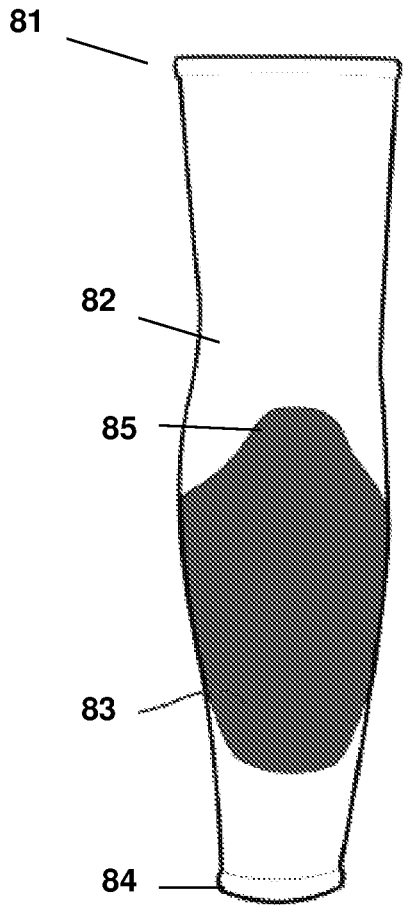


FIG. 8A

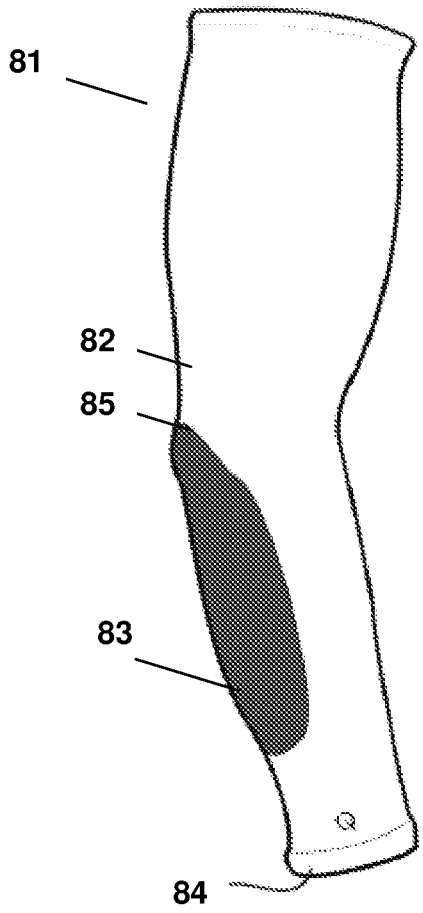


FIG. 8B

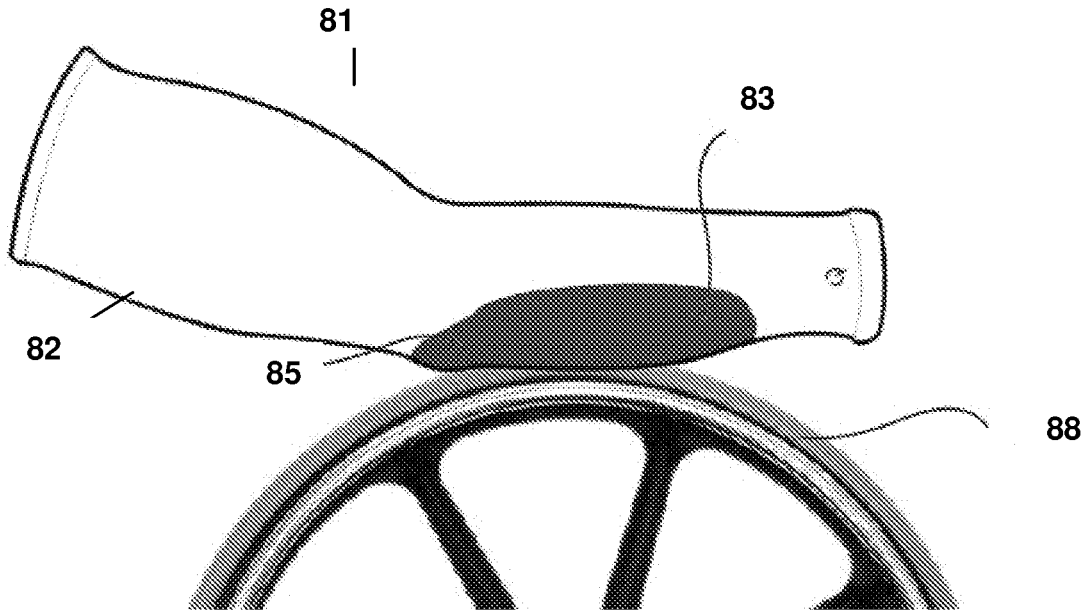


FIG. 8C

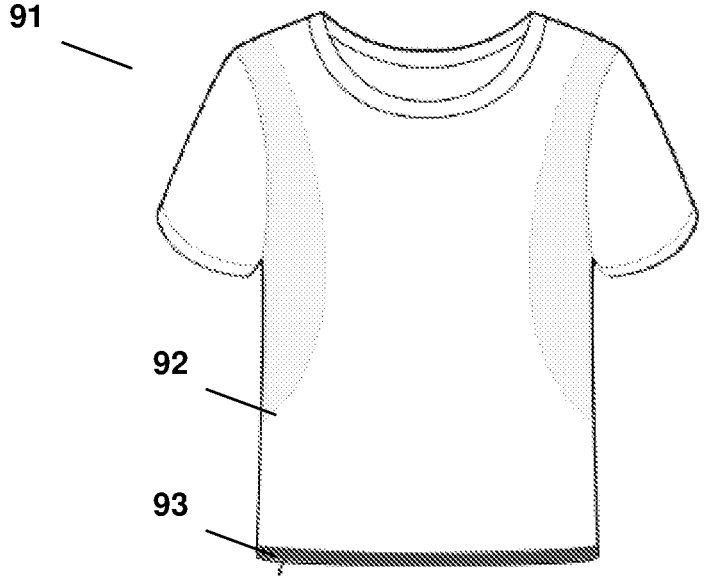


FIG. 9A

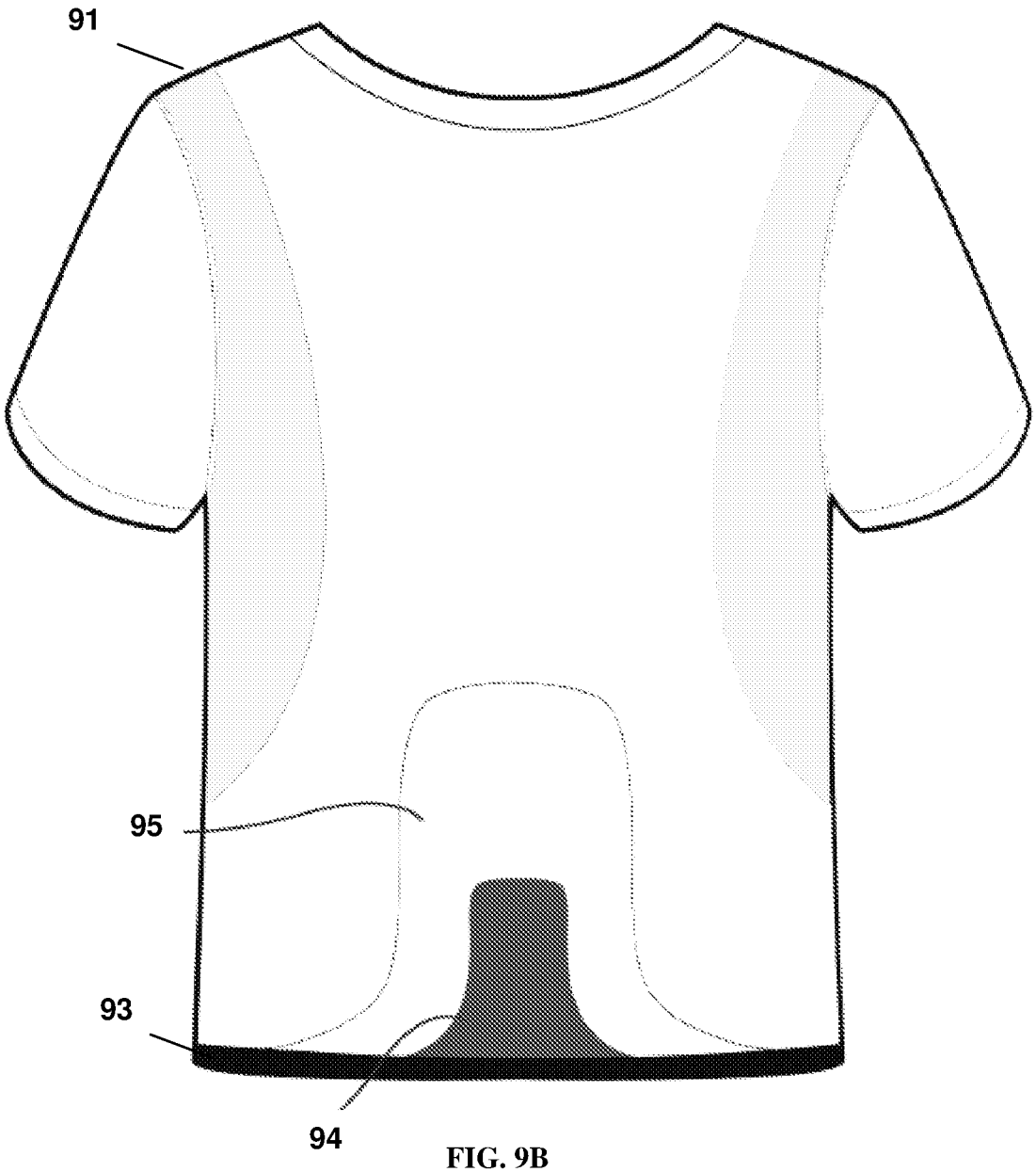


FIG. 9B

GRIP APPLICATION FOR CLOTHING

[0001] This application claims priority to U.S. Provisional Application No. 62/716,582, filed Aug. 9, 2018, and entitled "Grip Application For Clothing", the entire contents of which are incorporated herein be reference.

BACKGROUND

[0002] Many common types of clothing are made from slippery materials or have limited grip. For example, a slippery material may slide easy against another surface when even a small force is applied, such as a shear force. In particular, athletic or leisure clothing may have limited grip, such that the clothing may slip or slide against another surface.

[0003] Certain individuals may benefit from enhanced grip between clothing and surfaces. In particular, individuals who use wheelchairs and those engaged in athletic activity in wheelchairs may appreciate enhanced grip. Some users may have limited ability to control motion, for example to avoid sliding downwards in a chair or wheelchair.

SUMMARY

[0004] The current disclosure provides for garments and for patches for application to garments that include a grip material, especially to provide a grip material on the exterior of the garment where the garment comes in contact with another surface, such as a wheelchair seat.

[0005] In some embodiments of the invention, the garment includes a primary material having at least one contact point, and a grip material. The grip material is positioned to at least partially cover the at least one contact point. The primary material may be the material that forms all or a portion of the article of clothing itself, e.g., the legs of a pair of shorts, the torso of a shirt, and the like. The contact point may be a point which bears weight of a wearer of the garment against a surface. The contact point may be a portion of the garment that, when the garment is worn by the user, forms a point of contact between the user and an external object of interest. If the garment is to be worn in a wheelchair, the contact point may correspond to the point at which the user's body bears upon the wheelchair through the garment. For example, if the garment is a pair of shorts, a contract point may be the portion of the shorts which touch the hamstring area of the leg.

[0006] The grip material may be made from a material that is sufficiently flexible that the garment may be worn comfortably, is safe for contact with skin, and has "grip" or tackiness such that when the grip material is against another surface the grip material tends to maintain position relative to the other surface, i.e., when submitted to a shear force. The grip material may be, e.g., rubber (natural or synthetic), friction polymers, silicone, or polyurethane. Further, the grip material may have a patterned or textured surface to increase the grip, such as tread, ridges, nodules, etc.

[0007] Some embodiments of the invention provide for a grip patch for application to a garment, the grip patch including a grip material, and the grip patch shaped to cover a contact point of the garment.

[0008] Some embodiments of the invention provide for a grip patch kit including a grip patch and a set of instructions including identification of a contact point on an article of clothing and an instruction to apply the grip patch to the contact point. In embodiments, the grip patch kit may have a grip patch that comprises a grip material on an observe side of the grip patch and an adhesive on a reverse side of the grip patch. For example, the grip patch kit may include a grip patch or plurality of grip patches, such as a plurality of grip patches on one or more sheets with an adhesive and a removable backing for example one or more patches die-cut from a sheet of grip material. The instructions may provide an identification of areas on a garment corresponding to the patches. For example, the grip patch kit may include grip patches shaped to correspond to the hamstring area of a pair of shorts and instructions identifying where and how to apply the patches to a pair of shorts to align properly and affix them durably.

[0009] Some embodiments of the invention provide for the garment to be selected from a group consisting of a pair of pants, a pair of shorts, a shirt, a skirt, a dress, a set of sleeves, a set of leg warmers, a pair of gloves, and a hat.

[0010] The grip material patch may be affixed to the garment, e.g., by sewing, by a rivet, by a removable fastener, or by an adhesive. In embodiments, a waistband patch may be provided with an adhesive, such that the waistband patch may be applied to a garment using the adhesive without requiring any additional adhesive, sewing etc. An adhesive as described herein may be a heat activated adhesive, or an adhesive with a removal backing, i.e., a peel-and-stick-type adhesive system.

[0011] A goal of the present garment or garment patch is to provide grip between the wearer and a surface, such as between the wearer and the seat of a wheelchair.

[0012] The present technology may provide particular advantage to athletes who use a wheelchair. Athletic apparel in particular may be highly slippery. Further athletes may especially appreciate an ability to maintain good grip while using light-weight material for greater comfort while exercising.

[0013] Further, exercise may cause increased jolts, bumps, and quick changes in direction that increase the likelihood that a user will experience slipping or sliding in a wheelchair.

[0014] The grip material may provide added safety and comfort for wheelchair users who may be less likely to slip from or within the chair wearing the garment. Further, the grip material may reduce the need for a belt, which may be more comfortable for the user. The garment may assist wearers in maintaining their postures, reducing stress on the body associated with poor posture.

[0015] The present technology may assist wearers while traveling, for example for a business or formal occasion. In particular, since grip material as provided herein may be provided in specific limited areas, the entire garment need not provide grip. Accordingly, the present technology may be employed with business or formal wear and may provide increased safety and comfort level for the wearer.

[0016] The grip may be provided on the arm of a shirt or jacket. In such a configuration, the grip material may improve a wearer's ability to maneuver a wheelchair. This may be useful, for example, if the wearer wishes to have hands free for a sport or other activity, or has limited hand strength.

[0017] Those embodiments in which the grip is provided in a patch may permit application of the patch to any article of clothing. This will permit the user to obtain the advantage of the grip material on clothing that they already own and may provide greater freedom to the user in their clothing

selection by permitting the user to adapt commercially available articles of clothing for increased grip.

[0018] Embodiments of the present garments or patches may be configured to present increased ventilation or breathability. Breathability may be provided by the choice of material, by incorporating a design with strips of material and gaps, or by incorporating pin-hole apertures or corrugation of the grip material.

[0019] The present disclosure is not intended to be limited to individuals using wheelchairs. Other individuals may also find advantages with these devices. For example, those who drive or sit in a chair for an extended period may appreciate the reduced slipping. Users of exercise equipment who can reduce slipping while, for example, sitting or reclining on weightlifting equipment. Further, the additional grip may assist any exerciser in achieving a safe and effective workout without slipping, for example, while using a weight bench.

BRIEF DESCRIPTION OF THE FIGURES

[0020] FIG. **1** shows a back side view of a pair of shorts as set forth herein.

[0021] FIG. **2** shows a back side view of a patterned pair of shorts as set forth herein

[0022] FIG. **3** shows a back side view of a pair of shorts having an extra strong waistband as set forth herein

[0023] FIG. **4** shows a waistband as set forth herein.

[0024] FIG. **5** shows a waistband as set forth herein

[0025] FIG. **6** shows a back side view of a pair of shorts as set forth herein.

[0026] FIG. **7** shows a flexible band as set forth herein.

[0027] FIG. **8**A shows a bottom view of an armband as set forth herein.

[0028] FIG. **8**B shows a side view of an arm band as set forth herein.

[0029] FIG. **8**C shows an arm band as set forth herein in contact with a wheel.

[0030] FIG. **9**A shows a front view of a shirt as set forth herein

[0031] FIG. **9**B shows a back view of a shirt as set forth herein.

DETAILED DESCRIPTION

[0032] Certain exemplary embodiments will now be described to provide an overall understanding of the principles of the structure, function, manufacture, and use of the devices disclosed herein. One or more examples of these embodiments are illustrated in the accompanying drawings. Those skilled in the art will understand that the devices specifically described herein and illustrated in the accompanying drawings are non-limiting exemplary embodiments and that the scope of the present invention is defined solely by the claims. The features illustrated or described in connection with one exemplary embodiment may be combined with the features of other embodiments. Such modifications and variations are intended to be included within the scope of the present invention.

[0033] FIG. **1** shows a back view of an embodiment in the form of a pair of shorts **11**, which may especially be athletic shorts. The shorts include a primary material **12** which forms the legs of the shorts and a waistband **13**. The shorts also include grip material **14** which is located on the back portion of primary material **12**, which forms backside of shorts **11**. Grip material **14** is positioned on the back of the shorts, such that when a wearer is seated in a chair, the contact point between the wearer and the chair is approximately equivalent to the area occupied by grip material **14**. Accordingly, the action of grip material **14** against the chair will assist in holding the wearer onto the chair. In a further embodiment, waistband **13** may also be made of a grip material to further improve total grip and to improve the stability of a user. Further, the use of a grip material in the waistband may increase the hold between the user and shorts **11**, such that when forth is applied to shorts **11** through the grip **14**, shorts **11** are less likely to shift on the body of a wearer.

[0034] FIG. **2** shows a back view of an embodiment in the form of pair of shorts **21** with a waistband **23** and a primary material **22**. Shorts **21** feature grip material **24** which has a pattern incorporating gaps **25**. Gaps **25** lack grip material. In embodiments, a patterned grip material may be used to increase breathability or ventilation by permitting airflow through the gaps, thereby increasing cooling and evaporation, and providing comfort for the user. In embodiments, the gaps may also increase the flexibility of the shorts; in particular the gaps may be placed near a joint of the wearer in order to increase flexibility at that location. In embodiments, the pattern may incorporate a visual feature, such as a team symbol or mascot.

[0035] FIG. **3** shows a back view of an embodiment in the form of a part of shorts **31** formed from waistband **33** and primary material **32**. Shorts **31** feature a layer of grip **36** material to strengthen waistband **33** and to provide further drip at the user's waist. Embodiments may be provided with grip on the interior portion, exterior portion, or both, such that grip between the wearer and the garment and the garment and an exterior surface are both improved. Improving grip between the wearer and the garment may reduce slipping of the garment when force is applied from grip material located in other portions of the garment.

[0036] FIG. **4** shows a waistband **46**, which is a waistband made of grip material. Waistband **46** also represents an embodiment in which a grip material according to the present disclosure may be available in a patch form so that the user may apply to grip material patch to a garment such as a pair of athletic shorts. The grip material patch may be affixed to the garment, e.g., by sewing, by a rivet, by a removable fastener, or by an adhesive. In embodiments, a waistband patch may be provided with an adhesive, such that the waistband patch may be applied to a garment using the adhesive without requiring any additional adhesive, sewing etc. An adhesive as described herein may be a heat activated adhesive, or an adhesive with a removal backing, i.e., a peel-and-stick-type adhesive system.

[0037] Waistband **46** also features a pull-up notch **47**. Pull-up notch **47** provides a point at which the wearer may pull the garment in order to put on the garment or to adjust the garment while wearing. In particular, pull-up notch **47** may assist the wearer in correcting slippage of the garment during wear.

[0038] FIG. **5** shows waistband **56** with pull-up notch **57**. Pull-up notch **57** is wider, permitting more area to grasp the garment.

[0039] FIG. **6** shows a pair of shorts **31** with grip material lining **68**. Grip material lining **68** is positioned to provide grip at the wearers knee in order to maintain contact between the shorts and the users knee and to assist in stabilizing the wearer. Shorts **31** also feature reinforced waistband **66**. By

providing grip material at both the waistband **66** and grip material lining **68**, shorts **31** may be affixed to the user with limited shifting.

[0040] FIG. **7** shows flexible band **71** which has a primary material **72** and a grip material **73** located on the interior portion of the band. Flexible band **71** may be affixed to an interior portion of a garment to form a lining similar to grip material liming **68** of FIG. **6**.

[0041] FIG. **8**A shows a front view of an armband or sleeve **81** which includes primary material **82** and grip material **83**. Grip material **83** is located on the portion of armband or sleeve **81** that corresponds to the bottom forearm of the user from the elbow. Specifically, grip material **83** includes an elbow portion **85** proximate or surrounding the area where the user's elbow would be placed. Sleeve **81** also features cuff **84**. In embodiments, cuff **84** may be provided with an interior and/or exterior layer of grip material which may increase grip between the user and the sleeve in order to reduce slippage of the sleeve and to provide grip with an external surface. Grip at this location may particularly assist a user in holding an object in his or her hand. FIG. **8**B shows a side view of armband or sleeve **81**.

[0042] FIG. **8**C shows armband or sleeve **81** in position with wheel **88**, showing that, in use, grip material **83** would bear upon the wheel and/or handrim of wheelchair wheel **88**, permitting the wearer to exert greater force on wheel **88** through armband of sleeve **81**.

[0043] FIG. **9**A shows a front view of shirt **91** according to the present disclosure which features a primary material **92** and grip material **93**. In embodiments, the grip material may be a lining on the interior of the shirt **92**, or may be positioned on the exterior of shirt **92** or both In particular, use of grip material **93** may enhance grip between the user and shirt **91** whereas us of external grip material **93** may enhance the connection between the user and a chair. The use of grip material **93** as positioned within the bottom torso portion of shirt **91** may provide that advantage of increasing the connection between the user and the seat at a position where the user's shirt is proximate the seat while minimizing the total amount of grip material that would be required for a full shift grip material. In particular, a full shirt grip material would be expected to increase the weight of the shirt and reduce ventilation.

[0044] FIG. **9**B show a back view of shirt **91** according to the present disclosure. The back view shows grip material **94** which is an additional portion of grip material positioned at the lower lumbar vertebral area of the wearer, when in use. FIG. **9**B also shows ventilated area **95** positioned around grip material **94**, providing ventilation and cooling near the area of grip material **94**, to increasing drying of sweat and comfort of the user. Grip material **94** provides additional grip between the user and the seat, particularly between the seatback and may further assist in stabilizing the user.

[0045] The patches may also be modified to a particular shape for consistence with the body of an individual. For example, the size of the clothing itself may indicate to a degree the size of the individual, however, different options may be provided within a given size, for example to locate the patch in different portions so that a user may select a preferred type that is preferable given the dimensions and posture of the individual.

[0046] The grip material may be configured to address different scenarios where the user is at risk of sliding forward or backward in their seat, for example to be positioned so that the user may maintain stability will moving and turning during a road race, basketball game, etc. Customizing the location for a given activity may reduce the total amount of grip material needed, improving overall weight and breathability without sacrificing desired grip.

Friction/Wear Resistance

[0047] In an embodiment, the garment may include fabrics and garment integrated with abrasion resistant fabrics and materials to prevent tearing or garments when coming in contact with garments that are worn. For example, a patch may be provided to cover a worn area on a garment and provide reinforcement. The abrasion resistant fabric may connect the grip material to the primary material to reduce wear at the point of connection between the two materials and to strengthen the border between the two and may promote maintaining the individual's contact in the wheelchair, especially when making turns or running into a bump.

[0048] One of ordinary skill in the art will appreciate further features and advantages of the invention based on the above-described embodiments. Accordingly, the invention is not to be limited by what has been particularly shown and described, except as indicated by the appended claims. All publications and references cited herein are expressly incorporated herein by reference in their entirety.

1. A garment comprising

a primary material having at least one contact point, and

a grip material,

wherein the grip material is positioned to at least partially cover the at least one contact point.

2. The garment of claim **1**, wherein the contact point is a point which bears weight of a wearer of the garment against a surface.

3. The garment of claim **2**, wherein the surface is a surface of a wheelchair.

4. The garment of claim **1**, wherein the garment is a garment selected from a group consisting of a pair of pants, a pair of shorts, a shirt, a skirt, a dress, a set of sleeves, a set of leg warmers, a pair of gloves, and a hat.

5. A grip patch for application to a garment, the grip patch comprising a grip material, and the grip patch shaped to cover a contact point of the garment.

6. The grip patch of claim **5**, wherein the contact point is a point which bears weight of a wearer of the garment against a surface.

7. The grip patch of claim **6**, wherein the surface is a surface of a wheelchair.

8. A grip patch kit comprising:

a grip patch,

a set of instructions comprising (i) an identification of a contact point on an article of clothing and (ii) an instruction to apply the grip patch to the contact point.

9. The grip patch kit of claim **8**, wherein the grip patch comprises a grip material on an obverse side of the grip patch and an adhesive on a reverse side of the grip patch.

10. The grip patch kit of claim **8**, wherein the contact point is a point which bears weight of a wearer of the garment against a surface.

11. The grip patch kit of claim **10**, wherein the surface is a surface of a wheelchair.

* * * * *