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(54) **UV PROTECTED ARM SLEEVES**

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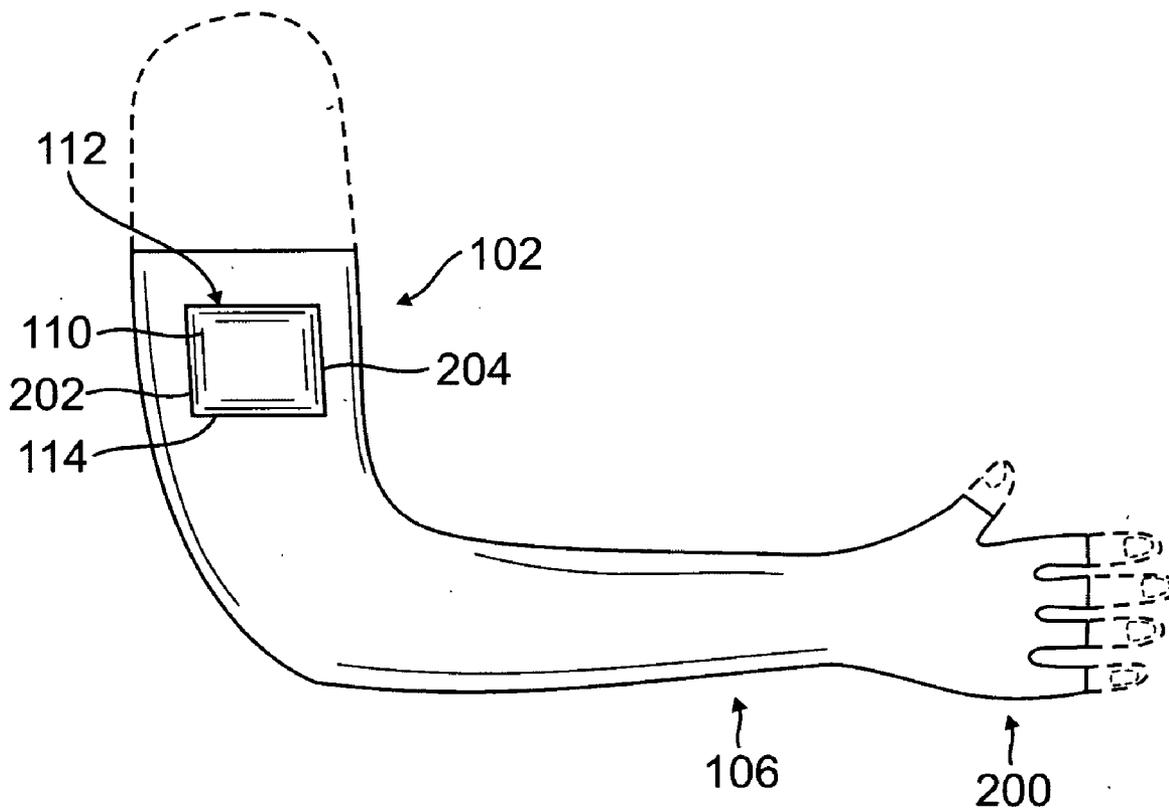
(57) **ABSTRACT**

An arm sleeve comprising an upper arm portion, a lower arm portion, and a pocket, wherein the arm sleeve provides protection against harmful ultraviolet rays. The arm sleeve may be made out of spandex or a combination of spandex and any one or more of bamboo, polyester, nylon, hemp, maize, lyocell, or other wood pulp based fabric, or other synthetic or natural knitted or woven fabric. The arm sleeve may also have a fastener to attach two or more arm sleeves together.

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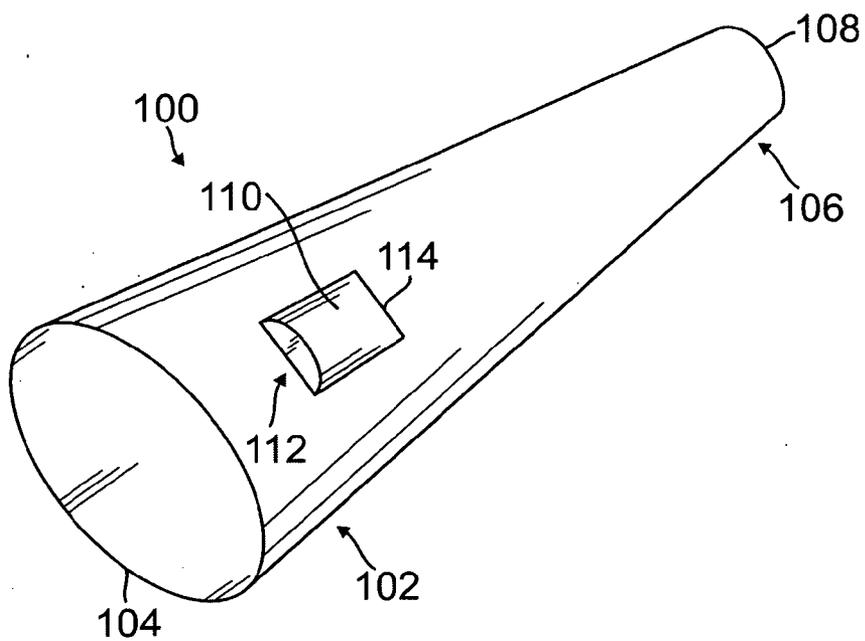


FIG. 1A

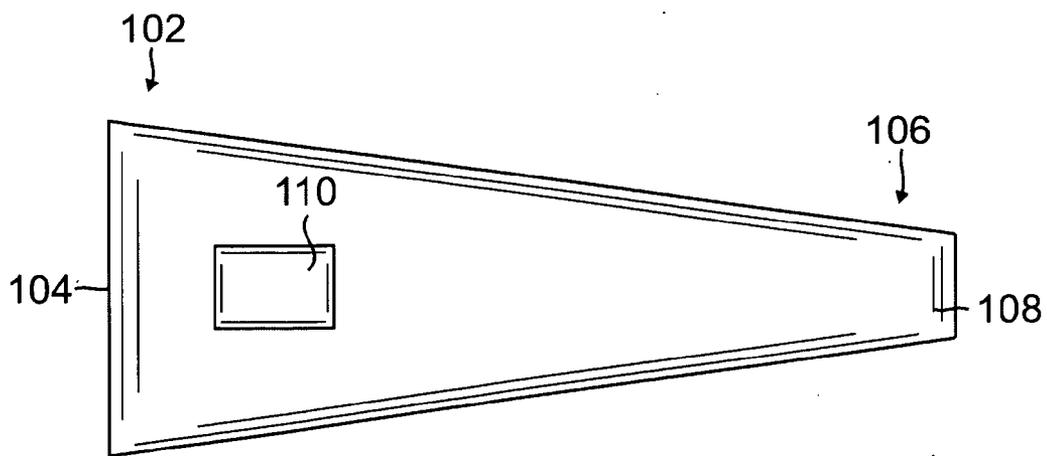


FIG. 1B

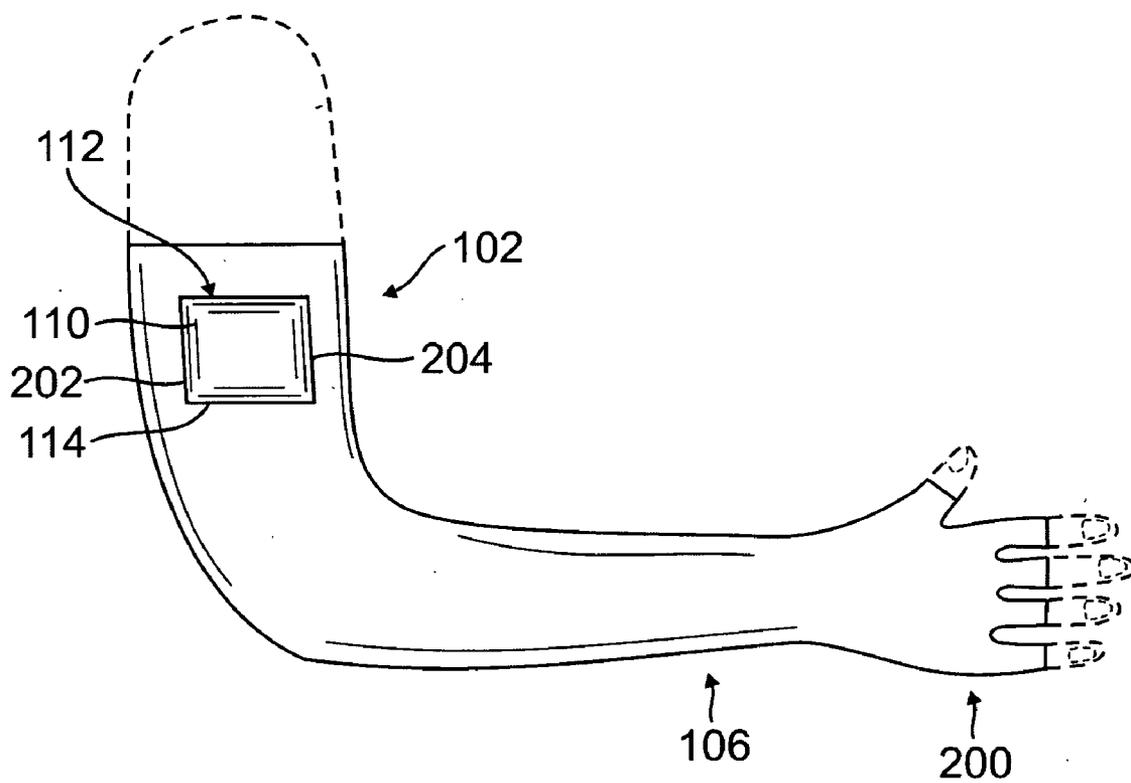


FIG. 2

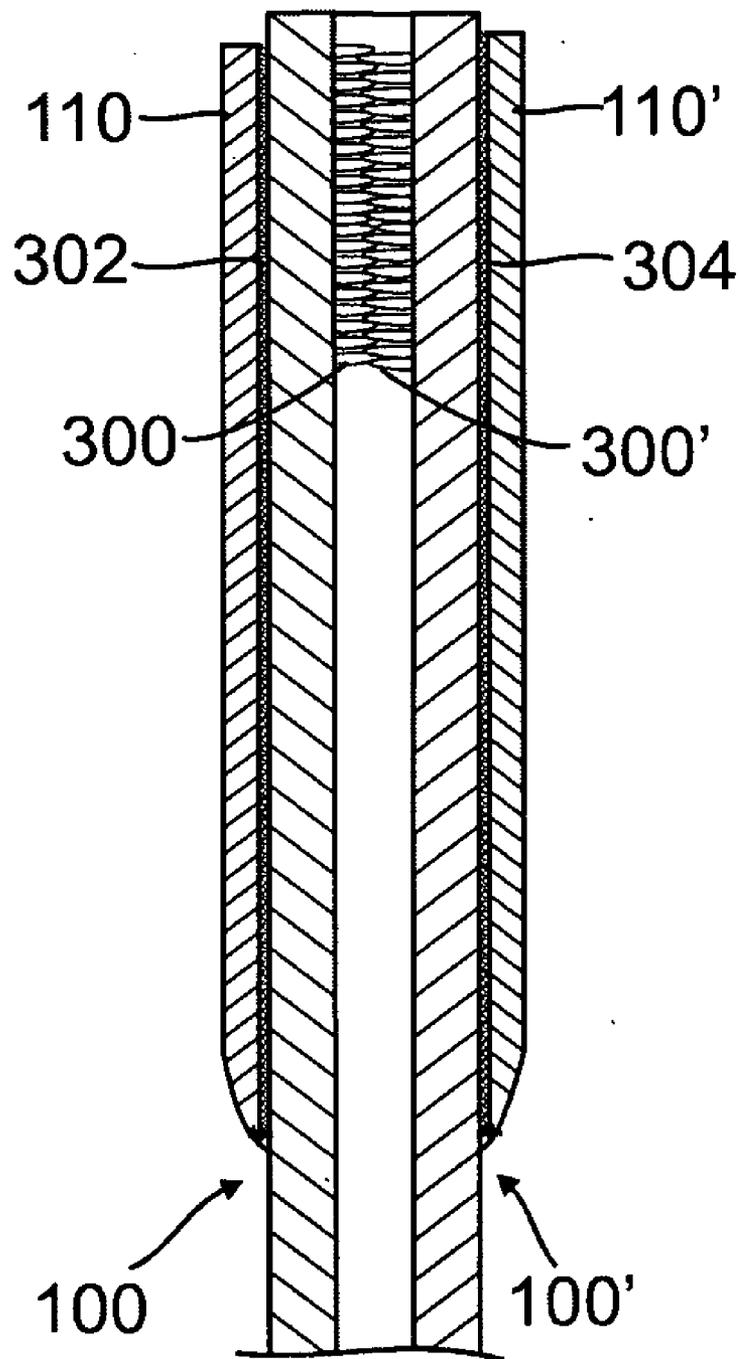


FIG. 3

UV PROTECTED ARM SLEEVES

TECHNICAL FIELD

[0001] This invention relates to garments to protect the limbs from harmful ultraviolet rays.

BACKGROUND

[0002] Those who enjoy the great outdoors are constantly battling the harmful ultraviolet (“UV”) rays of the sun. Current protection includes covering up or applying sunscreen. Sunscreen leaves the hands and body feeling sticky and uncomfortable. It also requires reapplication from time to time. Covering up usually means wearing long sleeve shirts which can be bulky, get hot, and retain water.

[0003] An alternative to wearing long sleeve shirts are arm sleeves. Current arm sleeves, however, still utilize fabric material that can be bulky, trap heat, and/or retain water. Furthermore, the arm sleeves are plain and do not meet the needs of our current high paced, digital society.

[0004] Outdoor enthusiasts are now able to listen to music, news, and books on digital recording devices, such as the iPod, without carrying bulky electronic devices. Accessories or pockets, however, are still required to carry such items. Some outdoor enthusiasts try to minimize the amount of accessories they carry.

[0005] Thus, there is still a need for protective arm sleeves that provide protection from the dangerous UV rays, while providing comfort and versatility to meet the demands of society.

SUMMARY OF THE INVENTION

[0006] The present invention is directed to an arm sleeve with pockets that provides protection from the harmful UV rays of the sun, is made of a unique blend of material that is elastic, comfortable and light, and has a pocket to hold various accessories.

BRIEF DESCRIPTION OF DRAWINGS

[0007] FIG. 1A shows a perspective view of an embodiment of the present invention;

[0008] FIG. 1B shows a side view of another embodiment of the present invention;

[0009] FIG. 2 shows a side view of another embodiment of the present invention in use; and

[0010] FIG. 3 shows a front view of two flattened arm sleeves connected together with a fastener.

DETAILED DESCRIPTION OF THE INVENTION

[0011] The detailed description set forth below in connection with the appended drawings is intended as a description of presently-preferred embodiments of the invention and is not intended to represent the only forms in which the present invention may be constructed or utilized. The description sets forth the functions and the sequence of steps for constructing and operating the invention in connection with the illustrated embodiments. It is to be understood, however, that the same or equivalent functions and sequences may be accomplished by different embodiments that are also intended to be encompassed within the spirit and scope of the invention.

[0012] With reference to FIG. 1A, an arm sleeve 100 of the present invention is tubular in shape and comprises an upper arm portion 102 having a first end 104; a lower arm portion

106 having a second end 108, opposite the upper arm portion 102 and the first end 104, respectively; and a pocket 110 located anywhere on the arm sleeve 100, wherein the arm sleeve 100 is made of an elastic material. The arm sleeve 100 tapers from the first end 104 of the upper arm portion 102 to the second end 108 of the lower arm portion 106. Due to the elasticity, the arm sleeve 100 does not require bends or curves to conform to the shape of an arm.

[0013] To don the arm sleeve 100, the user inserts her hand through the sleeve 100 at the first end 104 and pulls the upper arm portion 102 towards her shoulder until the hand exits the lower arm portion 106 at the second end 108. The upper arm portion 102 substantially covers the upper arm of the user and the lower arm portion 106 substantially covers the lower arm of the user. In addition, since the arm sleeve 100 only covers the arm and not the entire body, the arm sleeve 100 can easily be taken off.

[0014] Due to the elasticity of the arm sleeve 100, the arm sleeve 100 provides a skin tight feel. The skin tight feel provides comfort while reducing excess weight and wind drag and minimizing any interference with surrounding objects. Furthermore, due to the elasticity, additional material such as elastic cuffs, straps, belts, and other means for securing the arm sleeve 100 to an arm is not required, further simplifying the design and ease of use. However, these additional materials or features may be used for other purposes. Thus, the entire arm sleeve 100 can be manufactured as a one-piece material.

[0015] In some embodiments, the arm sleeve 100 may further comprise a fingerless glove portion 200 as a continuous extension of the lower arm portion 106 as shown in FIG. 2. The fingerless glove portion 200 covers the rest of the hand of the user and portions of the finger. For example, the fingerless glove portion 200 may cover up to the proximal or middle phalanges of the fingers. Thus, the fingerless glove portion 200 leaves at least the fingertips open to allow for full finger control during any activity in which the fingertips are of great importance. For example, rock climbers and football players would want their fingertips readily available. In some embodiments, the arm sleeve 100 may comprise a full glove portion in which the entire hands and fingers are covered like a glove.

[0016] The pocket 110 may be located anywhere on the arm sleeve 100. For example, the pocket 110 may be on the upper arm portion 102 or the lower arm portion 106. Preferably, the pocket 110 is on the upper arm portion 102 with the opening 112 of the pocket 110 oriented so as to be proximal to the first end 104. In this orientation, under most conditions, any object placed inside the pocket 110 is less likely to fall out. The pocket 110, however, may be oriented with the opening 112 in any position.

[0017] In some embodiments, the pocket 110 may be positioned with the opening 112 of the pocket 110 adjacent to the upper arm portion 102 or the lower arm portion 106. In either orientation, the arm sleeve 100 may be rolled up from the opposite end towards the base 114 of the pocket 110. The pocket 110 may then be inverted so as to envelope the rolled up arm sleeve 100. The pocket 110 thereby functions as a storage pouch to store the arm sleeve 100 in a compact configuration for easy carrying and storage when not in use.

[0018] The pocket 110 may come in a variety of sizes. In some embodiments, the pocket 110 may be small to carry small items, such as credit cards, money, identification cards, and small electronic devices, such as an iPod or small mobile

phone, for the outdoor enthusiast who wants to travel light. In some embodiments, the pocket 110 may be the full length of the arm sleeve 100. In some embodiments, the pocket 100 may wrap partially or completely around the circumference of the arm sleeve 100. The arm sleeve 100 may have a single pocket or a plurality of pockets. The plurality of pockets may be uniform or of various shapes and sizes.

[0019] In some embodiments, the pocket 110 may further comprise a fastening means, such as a hook-and-loop fastener, buttons, zippers, or the like. The fastening means may allow the opening 112 to fasten directly to the arm sleeve 100 or a flap may be used to close the opening.

[0020] The pocket 110 may be made of the same material as the arm sleeve 100. Thus, a single material may be used to create the entire arm sleeve 100, including the pockets 110. As such, the pocket 110 may be elastic or inelastic. The elasticity of the pocket 110 also facilitates the inversion of the pocket 110 for storage, as well as maintaining items inside the pocket 110.

[0021] In some embodiments, the arm sleeve 100 may comprise a fastener 300 and a reciprocal fastener 300', such as snaps, hook-and-loop fasteners, ribbons, ties, buttons, magnets, and other types of fasteners to keep pairs of arm sleeves 100 together and facilitate sorting and storing. The fastener 300 and reciprocal fastener 300' may be located on the upper portion 102 or the lower portion 106 of the arm sleeve 100. Preferably the fastener 300 and reciprocal fastener 300' are designed and positioned to maintain an aesthetically pleasing appearance of the arm sleeve 100 when worn. In some embodiments, the fastener 300 and reciprocal fastener 300' may be hidden inside the pocket 110 so as not to be seen when worn. Depending on the type of fastener 300 utilized, when ready for storage the fastener 300 and reciprocal fastener 300' may be pulled out, or in some embodiments, the pocket 110 may be inverted or pulled down to expose the fastener 300 and reciprocal fastener 300'.

[0022] In some embodiments, the pocket 110 may be irreversibly attached to the arm sleeve at one end, for example, the base 114, and reversibly attached at the sides 202, 204, for example, with pocket fasteners 302, 304, such as hook-and-loop fasteners, allowing the pocket 110 to be detached from the arm sleeve 100 except at the base 114. This provides for easy removal of the contents of the pocket 110 as well as exposing any potential fastener 300 and reciprocal fastener 300' that may be inside the pocket 110. Alternatively, the fastener 300 and reciprocal fastener 300' used to fasten two separate arm sleeves 100, 100' may also be the same fastener used to keep the pocket 110 closed.

[0023] In some embodiments, such as those utilizing snap buttons, hook-and-loop fasteners, magnets and the like, the fastener 300 and the reciprocal fastener 300' may be positioned next to each other so that one arm sleeve has both the fastener 300 and the reciprocal fastener 300'. This eliminates the requirement of manufacturing two different arm sleeves, one with the fastener 300 and one with the reciprocal fastener 300'. Placing the fastener 300 next to the reciprocal fastener 300' allows the fastener 300 and the reciprocal fastener 300' to mate when the same sides of the arm sleeves 100, 100' are positioned face to face as shown in FIG. 3. FIG. 3 is not drawn to scale, but rather is drawn to clearly show the proper configuration of an embodiment of the present invention.

[0024] In some embodiments, a second set of fastener 300 and reciprocal fastener 300' may be present on the same arm

portion but on opposite sides of the arm sleeve 100 so that a plurality of arm sleeves can be attached in series.

[0025] The arm sleeve 100 may be made of any type of elastic material that provides a lightweight, skin tight, comfortable feel while blocking out the harmful UV rays, such as UVA and UVB rays. In addition, the arm sleeve may be made from a combination of elastic material and any one or more of a wood pulp based fabric or other synthetic or natural knitted or woven fabrics. Some examples of wood pulp based fabric are bamboo, polyester, nylon, hemp, maize, and lyocell.

[0026] Preferably, the arm sleeve 100 comprises at least approximately 3% spandex by weight. More preferably, the arm sleeve 100 comprises approximately 5% to approximately 30% spandex by weight. The arm sleeve 100 may further comprise at least a second material, such as bamboo, polyester, or nylon, or any combination thereof to provide added durability, protection, and comfort. Additional material may also be added.

[0027] In some embodiments, the arm sleeve 100 comprises approximately 70% to approximately 97% bamboo by weight, and preferably approximately 70% to approximately 95% bamboo by weight. In bamboo containing arm sleeves 100, the arm sleeve 100 preferably comprises approximately 8% spandex by weight and approximately 92% bamboo by weight. The use of bamboo improves the environmental friendliness of manufacturing the arm sleeve 100 because bamboo is (1) petroleum-free, (2) biodegradable in soil, (3) only requires low impact chemical process to breakdown fibers (caustic soda), (4) does not require pesticides to grow, (5) improves the quality of the soil, and (6) grows, regenerates, and spreads rapidly compared to other trees (3 years versus 70 years for most trees). In addition, bamboo inherently contains an agent called bamboo kuhn, which is a natural anti-microbial agent, thereby making the arm sleeves 100 containing bamboo inherently anti-microbial.

[0028] In some embodiments, the arm sleeve 100 further comprises approximately 70% to approximately 97% polyester by weight, and preferably approximately 70% to approximately 95% polyester by weight. In polyester containing arm sleeves 100, the arm sleeve 100 preferably comprises approximately 88% polyester by weight and approximately 12% spandex by weight. More preferably, the arm sleeve 100 comprises approximately 83% polyester by weight and approximately 17% spandex by weight. The polyester may be a recycled polyester fabric to improve the eco-friendliness of the arm sleeve 100.

[0029] In some embodiments, the arm sleeve 100 comprises approximately 70% to approximately 97% nylon by weight, and preferably approximately 70% to approximately 95% nylon by weight. In nylon containing arm sleeves 100, the arm sleeve 100 comprises approximately 80% nylon by weight and approximately 20% spandex by weight.

[0030] Other materials that may be used in manufacturing the arms sleeves are hemp, lyocell, and polyester-type fabrics derived from corn/maize. Hemp textiles offer superior strength and durability, insulative qualities, and natural UV protection. Additionally, hemp fiber products are naturally mildew-resistant, making hemp an ideal choice for activewear. Hemp is also eco-friendly as it biodegrades in soil and has a low-impact manufacturing process to make.

[0031] Lyocell, such as that manufactured under the trademark TENCEL® is another natural fiber that may be used to

manufacture the arm sleeves **100**. Lyocell is petroleum-free (made from wood pulp) and is naturally anti-microbial and mildew-resistant.

[0032] Polyester-type fabrics derived from corn/maize are also an option, such as those marketed under the trademark INGEO™ by Natureworks LLC. It has all of the properties of petroleum-based polyester with the added benefits of: (1) being petroleum-free; (2) having naturally flame resistant properties, thereby reducing or eliminating the need for the addition of brominated chemicals or other harmful chemicals; and (3) being biodegradable. Furthermore, corn grows well naturally without pesticides or herbicides.

[0033] In embodiments that are not inherently anti-microbial, the arm sleeves **100** may be treated with anti-microbial agents.

[0034] The material used to manufacture the arm sleeves **100** provides additional features besides UV protection. For example, in some embodiments, the arm sleeves **110** may be used for cold weather to retain body heat and provide some protection from the wind. In other embodiments, the arm sleeves **100** may be used in the heat to wick away moisture from the body. In addition, since the material used does not retain water well, the arm sleeves **100** may be worn in the water without creating excess weight. Also, once out of the water, the arm sleeves dry quickly.

[0035] Due to the comfort and versatility of the arm sleeve **100**, the arm sleeve **100** can be used in an unlimited number of applications outdoors and indoors. For example, children who have a tendency to wipe their mouths on the clothes rather than their napkins can comfortably wear the arm sleeves **100** on their arms to wipe their mouths without a napkin and without getting their clothes dirty. In some embodiments, the arm sleeves **100** may be filled with ice and used as an ice pack by tying the ends of the sleeves or tying the ends of the sleeves together around the injured part of the body. In embodiments in which the pockets extend along the length or circumference of the arm sleeve, ice packs can be inserted into the pockets for icing purposes.

[0036] In some embodiments, the arm sleeves **100** may be filled with a heat pack to generate heat to certain parts of the body. The arm sleeve **100** thus provides an easy way of changing the application of heat or cold to a particular part of the body.

[0037] The arm sleeves **100** can be used for numerous other applications. In addition, the arm sleeves can come in sizes to be worn on the legs. In other words, they can be used as leg sleeves.

[0038] The foregoing description of the preferred embodiment of the invention has been presented for the purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed. Many modifications and variations are possible in light of the above teaching. It is intended that the scope of the invention not be limited by this detailed description, but by the claims and the equivalents to the claims appended hereto. In addition, the pockets may be filled with ice to serve as an ice pack.

What is claimed is:

1. An arm sleeve, comprising:

- a. an upper arm portion having a first end;
- b. a lower arm portion having a second end, opposite the upper arm portion and the first end, respectively; and
- c. a pocket located on the arm sleeve, wherein the arm sleeve is made of an elastic material.

2. The arm sleeve of claim **1**, wherein the pocket is positioned on the upper arm portion.

3. The arm sleeve of claim **1**, wherein the elastic material comprises at least 3% spandex by weight.

4. The arm sleeve of claim **3**, wherein the elastic material comprises approximately 3% to approximately 30% spandex by weight.

5. The arm sleeve of claim **4**, wherein the arm sleeve further comprises a second material comprising approximately 70% to approximately 97% bamboo by weight.

6. The arm sleeve of claim **5**, wherein

- a. the elastic material comprises approximately 8% spandex by weight; and

- b. the second material comprises approximately 92% bamboo by weight.

7. The arm sleeve of claim **4**, wherein the arm sleeve further comprises a second material comprising approximately 70% to approximately 97% polyester by weight.

8. The arm sleeve of claim **7**, wherein

- a. the elastic material comprises approximately 12% spandex by weight; and

- b. the second material comprises approximately 88% polyester by weight.

9. The arm sleeve of claim **7**, wherein

- a. the elastic material comprises approximately 17% spandex by weight; and

- b. the second material comprises approximately 83% polyester by weight.

10. The arm sleeve of claim **4**, wherein the arm sleeve further comprises a second material comprising approximately 70% to approximately 97% nylon by weight.

11. The arm sleeve of claim **10**, wherein

- a. the elastic material comprises approximately 20% spandex by weight; and

- b. the second material comprises approximately 80% nylon by weight.

12. The arm sleeve of claim **4**, further comprising a fingerless glove portion extending from the lower arm portion.

13. The arm sleeve of claim **4**, further comprising a fastener to reversibly fasten the arm sleeve together with a second arm sleeve for ease of storing and sorting.

14. An arm sleeve, comprising:

- a. an upper arm portion having a first end;

- b. a lower arm portion having a second end, opposite the upper arm portion and the first end, respectively; and

- c. a pocket located on the upper arm portion of the arm sleeve, wherein the arm sleeve is made of an elastic material comprising approximately 3% to approximately 30% spandex by weight and a second material selected from the group consisting of bamboo, polyester, and nylon.

15. The arm sleeve of claim **14**, wherein the second material comprises approximately 70% to approximately 97% bamboo by weight.

16. The arm sleeve of claim **15**, wherein

- a. the elastic material comprises approximately 8% spandex by weight; and

- b. the second material comprises approximately 92% bamboo by weight.

17. The arm sleeve of claim **14**, wherein the second material comprises approximately 70% to approximately 97% polyester by weight.

- 18.** The arm sleeve of claim **17**, wherein
 - a. the elastic material comprises approximately 12% spandex by weight; and
 - b. the second material comprises approximately 88% polyester by weight.
- 19.** The arm sleeve of claim **17**, wherein
 - a. the elastic material comprises approximately 17% spandex by weight; and
 - b. the second material comprises approximately 83% polyester by weight.

- 20.** The arm sleeve of claim **14**, wherein the second material comprises approximately 70% to approximately 97% nylon by weight.
- 21.** The arm sleeve of claim **20**, wherein
 - a. the elastic material comprises approximately 20% spandex by weight; and
 - b. the second material approximately 80% nylon by weight.
- 22.** The arm sleeve of claim **14**, further comprising a fastener to reversibly fasten the arm sleeve to together with a second arm sleeve for ease of storing and sorting.

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