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[Continued on next page]

(54) Title: LOWER LEG GARMENT

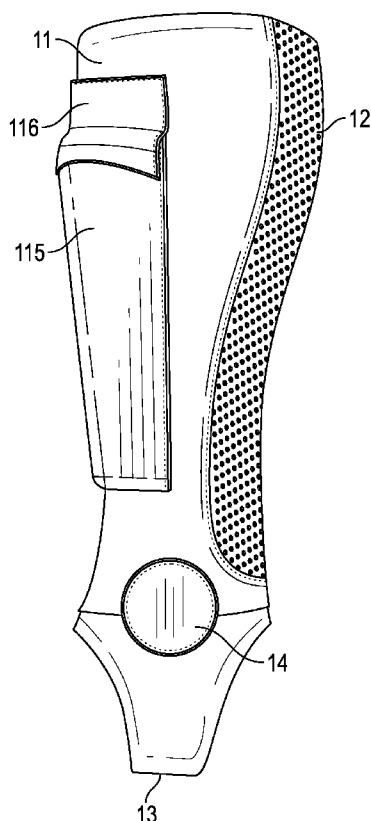


FIG. 2

(57) Abstract: A lower leg garment comprises a tubular leg portion (10) having a longi-
tudinally- extending front region (11) formed of a first neoprene material and a longi-
tudinal- extending rear region (12) formed of a thinner second neoprene material
which is breathable, the garment further comprising a foot strap (13) which extends
between opposite side edges of the lower end of the leg portion (10). One or more
pockets e.g. (115) may be provided on the front region (11) for receiving respective
shin-pads. In use, the front and rear regions (11, 12) of neoprene material act to re-
spectively protect and support the wearer's shin and calf. The material of the rear re-
gion (12) also allows the wearer's leg to breathe and avoids the garment from causing
excess sweating.



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LOWER LEG GARMENT

This invention relates to a lower leg garment and more particularly but not solely to a lower leg garment for use when participating in certain contact sports.

Many people sustain injuries to their lower leg when playing contact sports, such as association football, rugby league and rugby union. Such injuries can be to the rear of the lower leg (i.e. the calf), the front of the lower leg (i.e. the shin) or the ankles. It is well known for players of association football and some other contact sports to wear shin guards to protect their shins from injury. Known shin guards comprise relatively rigid pads of plastics material, which are held in-situ by straps.

10

A problem with known shin guards is that they are uncomfortable to wear and do not protect the other parts of the lower leg or provide support.

With the foregoing in mind, I have now devised a lower leg garment.

15

In accordance with the present invention, there is provided a lower leg garment comprising a tubular leg portion having a longitudinally-extending front region formed of a first neoprene material and a longitudinal-extending rear region formed of a different second neoprene material which is breathable, the garment further comprising a foot portion provided at the lower end of the leg portion, the foot portion comprising a strap which extends between opposite side edges of the lower end of the leg portion.

20

In use, when the garment is donned, the front and rear regions of neoprene material act to respectively protect and support the wearer's shin and calf. The material of the rear region also allows the wearer's leg to breathe and avoids the garment from causing excess sweating.

25

It is intended that a wearer will select a size of garment which has to be stretched to be donned. Neoprene is a resiliently deformable material which is easily stretched and which advantageously enables the garment to act as a compression garment.

30

The foot portion extends under the wearer's foot and helps to hold the leg portion correctly in-situ.

35

Preferably the first neoprene material also extends, at least partially, around opposite side regions of the leg portion.

5 Preferably the material of the front region extends around the rear of the leg portion, at least at a lower end thereof under the wearer's calf muscle.

Preferably the first neoprene material is thicker and/or denser than the second, so that more protection and support is provided at the front of the garment.

10 Preferably the garment comprises a pair of lower side regions of neoprene material disposed on respective opposite sides of the leg portion at the lower end thereof, the lower side regions being thicker and/or denser than the material of the front region. These side regions act to protect the wearer's ankles and may be circular or substantially circular in shape.

15

In one embodiment, the front region of the leg portion comprises a pocket in which a shin guard is mounted, the shin guard being formed of a more resilient material than the first and second materials of the leg portion.

20 In an alternative embodiment, the front region of the leg portion comprises a pocket for removably receiving a shin guard of the above-mentioned type.

Preferably the leg portion comprises a plurality of pockets which respectively mount or are arranged to receive respective shin guards. This provides a comfortable and flexible structure, which allow participants of certain contact sports where shin guards are not normally worn to protect themselves from injury.

25

Preferably the pockets are elongate and extend side-by-side along the front region of the tubular leg portion.

30

Some of the pockets, for example at opposite sides of the front region maybe shorter than others for mounting or receiving shin guards of a complimentary shape.

Preferably the foot portion is formed of neoprene, which is preferably thinner and/or less dense than the material of the front and rear regions of the leg portion.

35

The foot portion may also extend around the rear of the lower side edge of the leg portion.

- 5 Also in accordance with the present invention, there is provided a pair of lower leg garments of the above-mentioned type.

Embodiments of the present invention will now be described by way of examples only and with reference to the accompanying drawings, in which:

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Figure 1 is a side view of an embodiment of lower leg garment in accordance with the present invention; and

15

Figure 2 is a side view of an alternative embodiment of lower leg garment in accordance with the present invention.

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Referring to Figure 1 of the drawings, a lower leg garment in accordance with the present invention comprises a tubular leg portion 10 having a longitudinally-extending front panel 11 formed of a first neoprene material, which is preferably substantially 3.5mm in thickness and stretchable. The tubular leg portion 10 also has a longitudinally-extending rear panel 12 formed of a second and neoprene material, which is preferably substantially 2.5mm in thickness and stretchable. The second material also comprises perforations which render the material breathable.

25

The rear panel 12 substantially corresponds in shape to a wearer's calf muscle and extends downwardly from the rear of the upper side edge of the leg portion 10 to a point adjacent but above the lower side edge of the leg portion 10. The sides of the rear panel 12 extend partially around opposite sides of the leg portion 10.

30

The front panel 11 extends downwardly from the front of the upper side edge of the leg portion 10 to the lower side edge of the leg portion 10. The sides of the front panel 11 extend partially around opposite sides of the leg portion 10. The lower end of the front panel 11 extends around the rear of the leg portion 10 under the rear panel 12. The front and rear panels 11, 12 are joined together, for example by stitching, where they meet.

35

The lower leg garment further comprises a foot panel 13 formed of a third neoprene material, which is preferably substantially 1mm in thickness and stretchable. The foot panel 13 defines a strap which extends between opposite side edges of the lower
5 end of the leg portion 10. The panel 13 also extends rearwardly around the lower side edge of the leg portion 10.

The lower leg garment further comprises a pair of circular lower side members 14 of a fourth neoprene material, which is preferably substantially 7mm in thickness and of
10 a higher density than the first, second and third neoprene material. The lower side members 14 are disposed on respective opposite sides of the leg portion 10 at the lower end thereof and partly overlie the foot panel 13. The lower side members 14 are held in-situ for example by stitching.

15 The front panel 11 comprises a plurality (e.g. six) longitudinally-extending elongate generally parallel pockets 15, which extend downwardly side-by-side from a point adjacent the upper side edge of the leg portion 10. The centrally-disposed pockets 15 extend to a point adjacent the lower side edge of the leg portion 10. The outer
20 pockets 15 are shorter in length to confine them to the front panel 11 in accordance with the curved boundary with the rear panel 12. Each pocket 15 houses a strip-like shin guard member (not shown) of complementary shape. The upper end of each pocket may be open to allow the shin guard members to be removed. The shin guard members are formed of a plastics material which is more resilient than the first and
25 second neoprene materials of the leg portion 10.

25 In use, a wearer dons a pair of lower leg garments on respective legs, such that the front and rear panels 11, 12 act to respectively protect and support the wearer's shins and calves. The material of the rear panel 12 also allows the wearer's legs to breathe. It is envisaged that the garment may be worn under socks and may help to
30 retain the socks in-situ.

The strip-like shin guard members are readily flexible about their respective transverse axes and so conform to the longitudinal shape of the wearer's leg and do not constrain movement. The regions of the front panel 11 disposed between the

pockets 15 allow the garment to conform to the circumferential shape of the wearer's leg and allow movement.

Referring to Figure 2 of the drawings, there is shown an alternative embodiment of lower leg garment in accordance with the present invention, which is similar to the lower leg garment of Figure 1 and like parts are given like reference numerals. In this embodiment, the longitudinally-extending elongate generally parallel pockets 15 are replaced by a single large pocket 115 adapted to receive a conventional shin-pad (not shown). A flap 116 closes the open top of the pocket to retain the shin-pad in-situ.

It will be appreciated that embodiments of the invention could be provided without pockets or with any number or pockets of any size in any position depending on which sport the invention is intended for.

A of lower leg garment in accordance with the present invention is simple and inexpensive in construction, yet provides improved protection and support for the lower leg.

CLAIMS

1. A lower leg garment comprising a tubular leg portion having a longitudinally-extending front region formed of a first neoprene material and a longitudinal-
5 extending rear region formed of a different second neoprene material which is breathable, the garment further comprising a foot portion provided at the lower end of the leg portion, the foot portion comprising a strap which extends between opposite side edges of the lower end of the leg portion.
- 10 2. A lower leg garment as claimed in claim 1, in which the first neoprene material also extends, at least partially, around opposite side regions of the leg portion.
- 15 3. A lower leg garment as claimed in claim 2, in which the first neoprene material extends around the rear of the leg portion, at least at a lower end thereof under the wearer's calf muscle.
- 20 4. A lower leg garment as claimed in any preceding claim, in which the first neoprene material is denser than the second.
- 25 5. A lower leg garment as claimed in any preceding claim, in which the first neoprene material is thicker than the second.
- 30 6. A lower leg garment as claimed in any preceding claim, comprising a pair of lower side regions of neoprene material disposed on respective opposite sides of the leg portion at the lower end thereof.
- 35 7. A lower leg garment as claimed in claim 6, in which the lower side regions being are denser than the material of the front region.
8. A lower leg garment as claimed in claims 6 or 7, in which the lower side regions being are thicker than the material of the front region.
9. A lower leg garment as claimed in any preceding claim, in which the front region of the leg portion comprises a pocket in which a shin guard is

mounted, the shin guard being formed of a more resilient material than the first and second materials of the leg portion.

- 5 10. A lower leg garment as claimed in claim 9, in which the front region of the leg portion comprises a plurality of pockets in which respective shin guards are mounted.
- 10 11. A lower leg garment as claimed in any of claims 1 to 8, in which the front region of the leg portion comprises a pocket for removably receiving a shin guard.
- 15 12. A lower leg garment as claimed in claim 11, in which the front region of the leg portion comprises a plurality of pockets for removably receiving respective shin guards.
- 20 13. A lower leg garment as claimed in claim 10 or claim 12, in which the pockets are elongate and extend side-by-side along the front region of the tubular leg portion.
- 25 14. A lower leg garment as claimed in claim 13, in which pockets at opposite sides of the front region are shorter than the other pockets.
- 30 15. A lower leg garment as claimed in any preceding claim, in which the foot portion is formed of neoprene.
- 35 16. A lower leg garment as claimed in claim 15, in which the neoprene of the foot portion is less dense than the material of the front and rear regions of the leg portion.
17. A lower leg garment as claimed in claim 15 or 16, in which the neoprene of the foot portion is thinner than the material of the front and rear regions of the leg portion.
18. A lower leg garment as claimed in any preceding claim, in which the foot portion extends around the rear of the lower side edge of the leg portion.

19. A pair of lower leg garments as claimed in any preceding claim.

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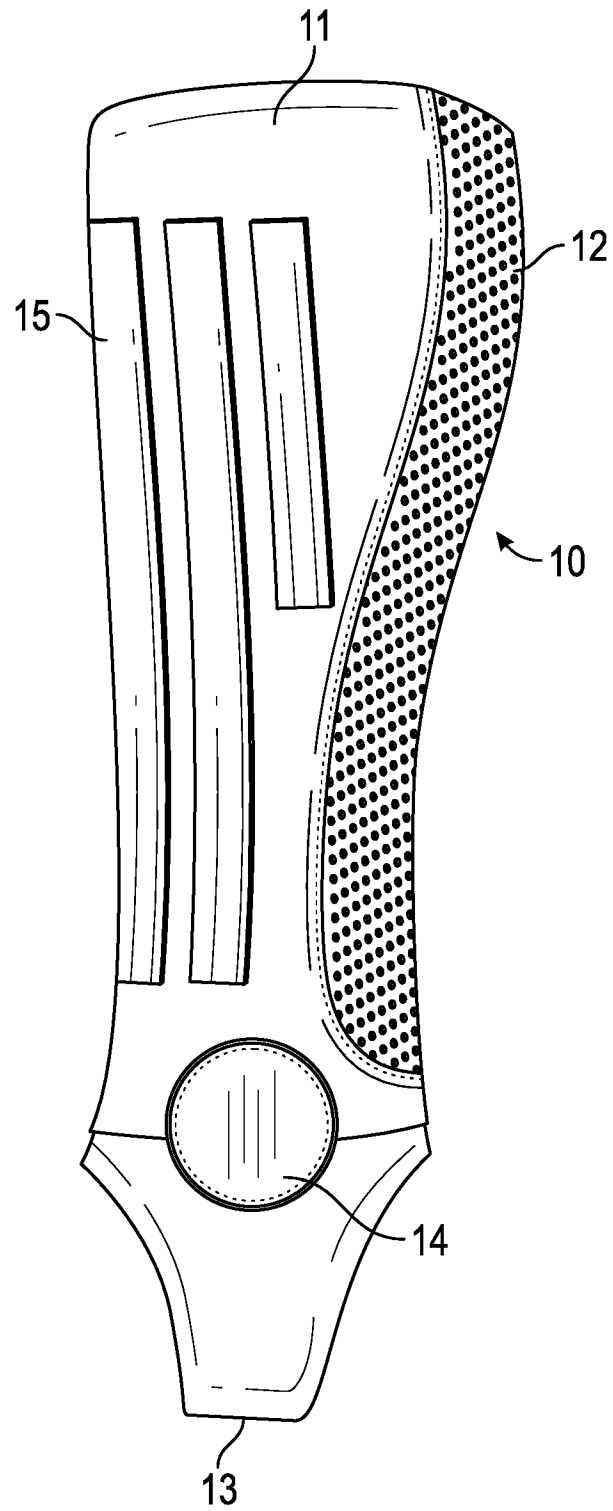


FIG. 1

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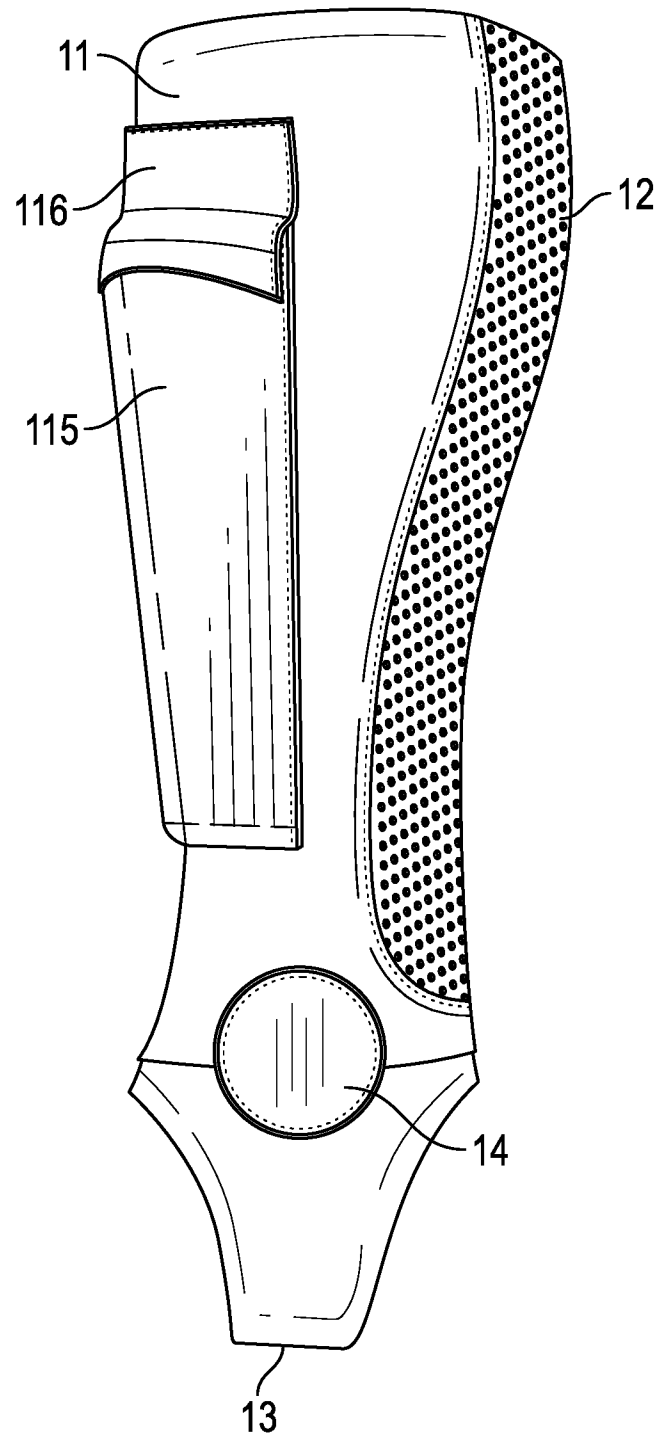


FIG. 2

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2016/054020

A. CLASSIFICATION OF SUBJECT MATTER

INV. A63B71/12

ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A63B A61F D04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 471 664 A (CAWLEY PAUL THOMAS [GB]) 12 January 2011 (2011-01-12)	1,2,4-8, 11,15, 18,19
A	page 2, line 25 - line 31 page 3, line 29 - page 5, line 4; figures 1-2	3,9, 12-14, 16,17
A	----- US 2011/094000 A1 (SHUMATE WENDY [US]) 28 April 2011 (2011-04-28) paragraph [0008] - paragraph [0012]; figure 1	1-19
A	----- DE 27 43 741 A1 (THWAITES JAMES) 13 April 1978 (1978-04-13) figures ----- -/-	1-19



Further documents are listed in the continuation of Box C.



See patent family annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 305 031 B1 (WHITE ANTHONY JOHN [GB]) 23 October 2001 (2001-10-23) figure 1	1-19
A	----- JP 2000 116697 A (ALCARE CO LTD) 25 April 2000 (2000-04-25) figures -----	1-19

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2016/054020

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2471664	A	12-01-2011	NONE
US 2011094000	A1	28-04-2011	NONE
DE 2743741	A1	13-04-1978	AU 2945977 A 12-04-1979 BR 7706727 A 11-07-1978 DE 2743741 A1 13-04-1978 ES 231265 U 16-01-1978 FR 2366809 A1 05-05-1978 NL 7711046 A 11-04-1978
US 6305031	B1	23-10-2001	NONE
JP 2000116697	A	25-04-2000	JP 4151925 B2 17-09-2008 JP 2000116697 A 25-04-2000