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(54) Title: WATER SPORTS HAND COVER

(57) Abstract: The invention provides a hand cover (10) for use in water sporting activities wherein a sports person grips a piece of equipment (6), such as a boom of a said windsurf. The hand cover comprises a wrist enclosing section, two side sections (2) and a main section (3), the two side sections and/or main section being shaped such that the hand cover has a pre-curled shape having a finger enclosing region. The wrist enclosing section, side sections and main sections together define an open section (4) of the hand cover through which part of a user’s palm and fingers are exposed for making a bare-skin grip on the boom to mitigate against forearm fatigue that can be caused by over-gripping. The hand cover additionally comprises a biasing means (1) for urging the finger enclosing region of the hand cover to contact and fit against the boom, when gripped by a wearer of the hand cover, for aiding the hand cover in sealing around the wearer’s hand and the part of the equipment being gripped.

FIGURE 2
Declarations under Rule 4.17:

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WATER SPORTS HAND COVER

TECHNICAL FIELD
The present invention relates to a water sports hand cover and particularly, but not exclusively, to a water sports hand cover that is generally pre-curved and/or shaped to follow the shape of a user's hand in a gripping position; that is flexible enough to allow a wearer of the hand cover to move their hand into a relaxed, non-gripping position; and that comprises a means for biasing a finger enclosing region of the hand cover to form around a wearer's fingers and contact equipment gripped by a wearer of the hand cover. The invention finds advantageous application in water sporting activities such as windsurfing, sailing and the like.

BACKGROUND
People engaged in water sports in colder temperatures, typically 0°C to 12°C usually need to wear some form of hand wear, gloves or mittens, to keep their hands within a comfortable temperature range. However, typical five finger gloves and fully enclosed mittens wrap a user's hand and fingers in a layer of insulating and waterproof material. Whilst this protects against the cold, a user's hand has to strain against the material of the glove or mitten in order to force the glove or mitten to adopt a gripping position. Additionally, having a layer of material on the underside of the fingers and hand palm can cause other problems for the water sports person. For example, in dinghy sailing, a loss of dexterity resulting from the presence of a glove or mitten may make it difficult to grab, feed and/or grip ropes, spinnaker poles, and tillers. In windsurfing and/or kite surfing applications, feedback from the sail or kite is passed to the surfer via his grip on the boom or bar of the windsurf and this feedback can become distorted and/or muffled by the presence of a mitten. This can result in the surfer gripping tighter to collect that feedback and tighter gripping typically results in forearm fatigue, aching and cramps. In canoeing and paddle boarding, a user's gloved grip on a paddle is less comfortable and less reliable than that of a bare hand grip. Again this can result in over-gripping and subsequent forearm fatigue, aching and cramps.

To partially reduce the problems associated with enclosed gloves and mittens, sportspersons have been using "palm-less" mittens wherein a hole in the mitten to exposes a palm of the user's hand and in some instances a section of the four fingers. However, so that such mittens stay in position over the end of a user's finger tips, these mittens rely on a layer of material, provided on the underside of the four fingers, running from the tips and then going between 30% and 80% along the fingers towards the palm of the user's hand. This means that there is still a layer of material between the user's finger tips and the
equipment they are handling and since much of the feedback is detected via the fingertips and since the finger tips are key to a secure grip, over-gripping and/or loss of feedback can still occur even with palm-less gloves or mittens.

In US 5,072,459 to Kogler a permanently pre-curved palmless mitten is disclosed in which the mitten is generally permanently pre-shaped to follow the natural contour of a curled hand and which provides a bore space to allow a user of the mitten to transmit, substantially undiminished, hand exerted gripping force to a hand holdable rod such as a boom on a windsurf sail. Whilst this mitten mitigates against some of the aforementioned problems, disadvantageously the region of the mitten that encloses the four fingers of the user's hand together in a common cavity does not always provide a good seal around the ends of the user's fingers and the mitten being permanently pre-curved can make it difficult for a user to comfortable relax their hand and fingers into a straight position to rest the hand when it is not gripping a boom.

The present invention seeks to provide an improvement in the field of hand covers for water sporting and similar activities by providing a water sports hand cover that insulates the hand from wind chill and water spray but gives the sports person a completely or a substantially bare hand grip on a piece of equipment, such as a rope, a boom, a bar, a tiller or a paddle (herein referred to collectively and generically as "bar"). The invention may be utilised in applications other than for water sports where the user's hand temperature and the user's ability to grip and maintain sensitivity to feedback are key considerations.

**SUMMARY OF THE INVENTION**

Accordingly, aspects of the disclosure provide a hand cover to shield a hand from wind, rain and water spray and thereby help keep the hand warm during a surface water sport activity but which also provides a bare skin grip on a boom, bar, tiller, rope and/or paddle by leaving the hand palm and under side of the four fingers completely exposed to make contact with that boom, bar, tiller, rope and/or paddle.

By making the hand cover out of a rubber neoprene or similar material and being shaped in the clenched fist or bar grip hand posture, the cover may provide a substantially wind and spray proof seal against the boom, bar, tiller, rope and/or paddle all the way around the edge of the hands grip thereof.
By making the hand cover out of a rubber or neoprene or similar material the hand cover may flex and stretch away from its natural clenched fist shape to allow the fingers to straighten, as it does so, by virtue of the hand cover's natural clenched fist shape, a block of material running along the finger tips will be pulled underneath the finger tips ensuring that the cover is held firmly in place during hand manoeuvres.

Instead of simply having a wall of material, the hand cover has a block of soft rubber or neoprene or similar material running along the finger tips and the finger tips will partially sink into that block of material, but not to the extent that the block interferes with the grip, and thereby provides the user with control of the hand cover when the hand is gripping the boom, bar, tiller, rope and/or paddle.

By making the hand cover out of a rubber or neoprene or similar material, a single shaped, sized hand cover may flex and stretch to create a substantially wind and spray proof seal against a range of booms, bars, tillers, ropes and/or paddles of different diameters.

According to one aspect of the invention for which protection is sought, there is provided a hand cover for use in water sporting activities wherein a sports person grips a piece of equipment, such as a boom or bar. The hand cover may comprise a wrist enclosing section, two side sections and a main section. The two side sections and/or main section are shaped such that the hand cover has a pre-curled shape having a finger enclosing region. The wrist enclosing section, side sections and main sections together define an open section of the hand cover through which part of a user’s palm and fingers are exposed for making a bare-skin grip on the piece of equipment, for example, the boom or bar. Advantageously, the hand cover comprises a biasing means for urging the finger enclosing region of the hand cover to contact and fit against the piece of equipment when gripped by a wearer of the hand cover for aiding the hand cover in sealing around the wearer's hand and the part of the equipment being gripped.

Optionally, the biasing means comprises a block of material. Optionally, the block of material has at least one curved side and is attached to the main section of the hand cover along that curved side.

The block of material may be formed from two or more layers of material that are bonded together.

The block of material may be formed from two or more layers which each may have at least one curved side edge. The two or more layers may be bonded together such that the curved side edges are stacked in flush alignment.
Optionally, the other side edge of each layer also has a curved shape and each layer may have the same width such that the other curved side edges are also stacked in flush alignment.

5 Optionally, the hand cover is formed from an elastomer foam with a waterproof lining and optionally the biasing means is formed from an elastomer foam with or without a waterproof lining that has a thickness that is equal to or greater than the thickness of the elastomer foam with a waterproof lining from which the hand cover is formed.

The hand cover and/or the biasing means may be formed from neoprene rubber.

10 The hand cover may additionally comprise a thumb enclosing section.

Optionally, the hand cover comprises two main parts: a first part and a second part, wherein the second part fits partially within the first part and wherein the relative position of the first and second parts is adjustable such that an overall length of the hand cover and/or the position of one or both side sections and/or the position of the biasing means can be adjusted. The adjustment can take place in-situ, i.e. once the two parts have been assembled together and then placed onto a user's hand. Beneficially therefore the hand cover can be adjusted once the wearer is "on the water" and therefore adjusted in response to the wearer's grip on a piece of equipment being used.

Optionally, the first part provides the wrist enclosing section and a thumb enclosing section and the second part may provide the side sections, main section and biasing means.

Optionally, the hand cover further comprises an attachment means for attaching the first and second parts for mitigating against complete separation of the first and second parts without interfering with the adjustment of the relative positioning of the first and second parts.

The second part of the hand cover may comprise an adjustment section which can be grasped by a user of the hand cover for adjusting the position of the second part relative to the first part. The adjustment section may be tapered and the first and second parts may be held together by a friction fit.

Within the scope of this application it is expressly intended that the various aspects, embodiments, examples and alternatives set out in the preceding paragraphs, in the claims and/or in the following description and drawings, and in particular the individual features thereof, may be taken independently or in any combination. That is, all embodiments and/or features of any embodiment can be combined in any way and/or combination, unless such features are incompatible. The applicant reserves the right to change any originally filed
claim or file any new claim accordingly, including the right to amend any originally filed claim to depend from and/or incorporate any feature of any other claim although not originally claimed in that manner.

BRIEF DESCRIPTION OF THE DRAWINGS

One or more embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

FIGURE 1 is a underside (palm-side) view of a clenched hand covered by a hand cover according to a first embodiment of the disclosure, the user wearing the hand cover has their hand in a first position gripping a piece of water sporting equipment, in this case a boom, (obscured portions of the user's hand including the thumb, finger nails and upper-sides of the fingers and finger tips, as well as obscured portions of the boom are shown in dashed line);

FIGURE 2 is a side view of the hand cover of Figure 2;

FIGURE 3 is a front (palm-side) view of the hand cover according to the first embodiment of the disclosure shown being worn by a user whose hand is in a second relaxed (non-gripping) position (the user's hand is shown in dotted outline);

FIGURE 4 is a side view of the hand cover of Figure 3;

FIGURE 5 is a perspective view from above of the side and back-side of a first-part (wrist-part) of a hand cover according to a second embodiment of the disclosure;

FIGURE 6 is a perspective view from above of the side and back-side of a second-part (finger-part) of the hand cover according to the second embodiment of the disclosure;

FIGURE 7 is a perspective view from above of the side and back-side of the second-part of Figure 6 being interconnected with the first-part of Figure 5 in forming a two-part hand cover having an adjustable fit;

FIGURE 8 is a perspective view from side of the two-part hand cover of Figure 7 in an interconnected state;
FIGURE 9 is a view of the front (palm-side) of a user's hand wearing the two-part adjustable fit hand cover of Figure 7, wherein the user's hand is in a second non-gripping stretched out position;

FIGURE 10 is a perspective view from the side of the user's hand wearing the two-part adjustable fit hand cover of Figure 7, wherein the user's hand is moving out of the second non-gripping position and into a gripping position;

FIGURE 11 is a view from the side of the user's hand wearing the two-part adjustable fit hand cover of Figure 7, wherein the user's hand is moving into a first gripping position;

FIGURE 12 is a view from the side of the user's hand wearing the two-part adjustable fit hand cover of Figure 7, wherein the user's hand is in the first gripping position;

FIGURE 13 is the view of Figure 12 wherein the user's hand is shown in dotted outline and the position of an internal fingertip block is shown; and

FIGURE 14 is a perspective view of the palm-side of a user's hand in the first gripping position holding a piece of equipment (bar), wherein the part of the bar that is obscured from view has been drawn in dotted outline.

DETAILED DESCRIPTION OF EMBODIMENTS
Detailed descriptions of specific embodiments of the hand covers of the present invention are disclosed herein. It will be understood that the disclosed embodiments are merely examples of the way in which certain aspects of the invention can be implemented and do not represent an exhaustive list of all of the ways the invention may be embodied. Indeed, it will be understood that the hand covers described herein may be embodied in various and alternative forms. The figures are not necessarily to scale and some features may be exaggerated or minimised to show details of particular components. Well-known components, materials or methods are not necessarily described in great detail in order to avoid obscuring the present disclosure. Any specific structural and functional details disclosed herein are not to be interpreted as limiting, but merely as a basis for the claims and as a representative basis for teaching one skilled in the art to variously employ the invention.

In Figures 1 to 4, there is shown a hand cover 10 that is formed from a waterproof or water resistant material, such as but not limited to neoprene rubber. Optionally, the hand cover 10
is formed from two or more sections that are joined together to form an overall one-piece
hand cover 10. The two or more sections are optionally joined together by being stitched,
with the seams sealed using adhesive or other suitable means. In the present embodiment it
can be seen that the hand cover 10 comprises: two wall sections 2; a main section 3 which
is for covering the back of a wearer's hand and the finger nail side of the wearers four
fingers; an open section 4 which leaves a substantial palm section and at least part of the
fingertip side of the wearers four fingers exposed; a thumb covering section 7; and an
underside section 5 which wraps around the underside of the wearer's wrist and which
terminates in an edge or cut-off line 8.

The wall sections 2 are optionally similarly shaped and sized, albeit as mirror images of one
another, and as can be seen in Figure 2 are generally "J"-shaped or hock-shaped to provide
the pre-shaping. The wall sections 2 are preferably formed from a resiliency flexible and
slightly elastic material and in the illustrated arrangement are formed from rubber neoprene,
though in other arrangements another similar material may be suitable. In this way, the wall
sections 2 of the hand cover 10 can flex and stretch away from a clenched fist, gripping
shape (as shown in Figure 2) to allow the wearer to straighten and relax their fingers, as
shown in Figure 4.

The main section 3 of the hand cover 10 may be formed of a similar or different material and
in this illustrated arrangement, is also formed from rubber neoprene. The main section 3 is
joined to each wall section 2 and as such has a (neutral) cross-sectional shape that follows
the general "J"-shape of the wall sections 2. In this way the hand cover 10 adopts a pre-
curled shape that will naturally follow the shape of a hand in a gripping position (as shown in
Figures 1 and 2) whilst also enabling the hand cover 10 to stretch relatively easily so that a
wearer can relax their hand and straighten their fingers as shown in Figures 3 and 4.

The open section 4 of the hand cover 10 leaves a sufficient portion of the palm of the hand
of the wearer exposed and without cover to enable the wearer to make a bare skin contact
with a piece of equipment, such as a bar 6. In addition and in contrast to the prior art, the
open section 4 is sized and arranged such that a substantial portion or all of the fingertip
side of the wearer's four fingers is also exposed to make a bare skin contact with a piece of
equipment 6. In Figures 3 and 4 it can be seen that the finger tips are disposed behind or
within a finger enclosing region substantially defined by an upper part of the main section 3
and upper parts of the wall sections 2. However, in the gripping position (see Figures 1 and
2) it can be seen that a substantial part of the pads of the wearers four fingers are within the
open section and are not covered by material. As best seen in Figure 2, the hand cover 10
terminates right at the tips of the fingers by the finger nails, leaving nearly the entire
underside (fingertip side) of the four fingers and a section of the palm of the hand exposed and bare.

The thumb covering section 7 completely encloses the wearer's thumb and permits the covered thumb to wrap around the bar 6 in the opposite direction to the path the four fingers take whilst being fully protected against water spray and wind chill.

The termination of the open section 4 along the palm is defined by the cut off line 8. The position of this cut-off line 8 may be selected in dependence upon the intended use of the hand cover 10. In the present arrangement, the hand cover 10 is intended for use in windsurfing where the sportsperson will grip a boom 6 (also referred to as "bar") of the windsurf. It is whilst windsurfing is being undertaken and the hands are in contact with the boom 6 that wind chill and water spray can cause considerable discomfort, (to the point of the windsurfer having to stop the activity), to a user not wearing any gloves or other hand protection. The hand cover 10 of the present disclosure is intended to act as a barrier to that wind chill and water spray ("the external environment") by enclosing the wearer's hand around the boom 6. As such, the position of the cut-off line 8 may be selected in consideration of the general diameter of windsurfing booms 6 and so that the cut-off line 8 is positioned just between the user's palm and the boom 6 (rather than below the boom 6 which would expose palm). In Figure 1, the cut-off line 8 cannot be seen because it is disposed just behind the boom 6 and as such material of the hand cover 10 extends up to the bar 6 enclosing the user's palm.

It will be appreciated that the hand cover 10 is shaped, configured and/or formed to cover over all of the exposed aspects of the sportsperson's hand when the hand is in a clenched position gripping onto a bar 6 or other water sporting apparatus 6. It can be appreciated that in a gripping position (as shown in Figures 1 and 2), the underside of a user's hand, including the part of the palm that is in contact with the boom 6 and the underside of the four fingers are bare and in direct contact with the boom 6 or bar 6. This bare contact is beneficial to prevent over-gripping and to allow sensitive feedback between the sports equipment and the sportsperson, but does not itself contribute greatly to hand chill and therefore discomfort. This is because the main cause of hand chill is the wind and water spray that would otherwise contact the exposed knuckle side of the fingers, the back of the hand and edges of the forefinger and little-finger, thumb and wrist. The wall sections 2 on either side of the hand cover 10 create the pre-curved or generally clenched fist shape of the hand cover 10, but also provide a substantially wind and spray proof seal around the bar 6 being held.

Of further beneficial advantage, the hand cover 10 additionally comprises a biasing means 1 positioned in a finger enclosing region of the hand cover 10. The biasing means 1 is
provided to urge the finger enclosing region to curl so that it fits well around a user's gripping hand. The biasing means 1 is also provided to urge the finger enclosing region of the hand cover 10 to return and curl around to such an extent that it "snaps" against and snugly fits against the boom 6. This results in a secure positioning of the hand cover 10 and a good seal around the user's hand. Additionally, this natural resilience of the hand cover 10 to adopt a good sealing position against the boom 6 makes the hand cover 10 easy to wear and use without the user having to try and specifically position the hand cover 10 so that it fits against the boom 6 in order to achieve good sealing. In this way the positioning of the hand cover 10 around a user's hand and its positioning against the boom 6 is improved compared to gloves and mittens of the prior art.

In the present embodiment, the biasing means 1 is provided by a block 1 of soft rubber neoprene (or similar material) that runs along the end of the finger tips, substantially alongside the finger nails. The block 1 optionally follows a curved path and has curved side edges. The weight and/or position and/or curved shape of the block 1 may contribute to the biasing effect of the block 1. In a clenched or bar grip position the very end of the finger tips contact and/or partially sink into the block 1 of neoprene but as shown in Figure 2, only to the extent that the pads of the fingers are able to make a bare grip with the boom 6 and without any of the material of the block 1 getting between and interfering with the fingers and their grip on the bar 6. By having the finger tips partially sink into the block 1, the user gains control of the hand cover 10 in that it can be firmly held in place over the user's hand. The block 1 itself is pushed against the bar 6, thereby providing a substantially wind and spray proof seal along the bar 6 when the user's hand is in the gripping position (again see Figures 1 and 2).

In summary and as best illustrated in Figure 2, in a hand grip posture, the wall sections 2 on either side of the hand cover 10 adopt their natural un-stretched shape, wrapping around the bar 6 and holding the block 1 of soft rubber neoprene in a position where it runs along the end of the finger tips. A user's finger tips may partially sink into the block 1 and the user thereby gains control of the hand cover 10 such that the hand cover 10 is held firmly in place over the hand and the block 1 itself is pushed or urged against the bar 6. In this way, the wall sections 2, the block 1 and the underside section 5 combine to create a substantially wind and spray proof seal around the bar 6 and all the way around the hand's grip of the bar 6. The hand's palm and four finger's contact with the bar 6 is a clear bare skin contact, and at no point does material of the hand cover 10 disturb or interfere with that contact. Fatigue and pain caused by over-gripping is thereby avoided and yet a wearer's hand is sufficiently protected against wind chill and water spray that the hand temperature is maintained at a more comfortable level.
In Figure 3, there is shown a view of a sportsperson’s hand with their fingers outstretched, the illustration is looking at the palm of the hand and the underside of the four fingers. The block 1 of soft rubber neoprene is shown having been pulled underneath the finger tips by the two wall sections 2 which are being stretched and relaxed out of their clenched fist shape. The main hand cover section 3 is just visible as it is being stretched over the ends of the finger tips while the fingers are stretched out. The parts of the hand obscured from view by the hand cover are shown in dashed lines. The exposed bare skin of the hand palm and most of the four fingers can be seen through the open section 4 of the hand cover 10.

When a wearer's fingers are relaxed and stretched out straight, the wall sections 2 and main section 3 of the hand cover 10 will stretch and flex, thus allowing the wearer the freedom to relax their hand out of the gripping position and away from the clenched fist “default shape”. As the wearer straightens their fingers, the wall sections 2 on either side and the main section 3 start to pull the block 1, that runs alongside the fingertips, underneath the fingertips and alongside the pads of the fingers, thus ensuring that the hand cover 10 remains firmly in position over the back of the wearer’s hand. In this way the wearer has significant freedom to move and stretch their hand and conduct various hand actions without the finger enclosing region of the hand cover 10 simply falling off the wearer's fingers.

When the hand returns to its grip position the natural weight and/or resilience of the block 1 urges the hand cover to return to its pre-curl ed and clenched fist position with the block running along the fingertips and clear of the underside of the fingers and pads of the fingers to allow for a substantially bare grip on the bar 6. This is also illustrated in Figure 4 which shows a side view of a sportsperson's hand with their fingers outstretched, looking at the side of the fore finger. The wall sections 2 are being stretched out of their natural clenched fist shape to accommodate the straightening of the fingers. The stretched wall sections 2 consequently pull the block 1 of soft rubber neoprene from the ends of the finger tips to run underneath the finger tips thereby ensuring that the hand cover 10 remains firmly over the hand even though the wearer's hand is not in the clenched grip posture. As can be seen, in the stretched state of the hand cover 10, the main section 3 is too long and therefore the hand cover 10 has a slightly baggy and rippled fit while the fingers are straight.

As will be understood, in making the hand cover 10 out of a material having elastic, flexible and waterproof properties, such as but not limited to neoprene rubber, a single shaped and sized hand cover 10 will flex and stretch to create substantially wind and spray proof seal against a range of bars of different diameters.

Referring now to Figures 5 to 14 there is shown an additional embodiment of the hand cover of the present disclosure. In the additional illustrated embodiment, like numerals have, where
possible, been used to denote like parts, albeit with the addition of the prefix "100" to indicate
that these features belong to the additional embodiment.

Figures 5 and 6 show first and second co-operative parts 110a, 110b of a hand cover 130
(see Figures 9 - 14) according to the second illustrated embodiment. The first part 110a
provides the thumb covering section 107 and the underside section 105 which wraps around
the underside of the wearer's wrist and which terminates in an edge or cut-off line 108 (see
Figure 9). Additionally, as an optional feature, a releasable tightening means 'S', optionally in
the form of a strap 'S' is affixed to the first part 110a. The strap 'S' optionally comprises co-
operating parts of an affixing means, such as but not limited to a hook and catch type co-
operating releasable engaging means (not shown), for example Velco®, which provides a
secure fastener by which the hand cover 130 can be tightened onto a user's hand and which
may also serve to hold the first and second parts 110a, 110b together as a unitary hand
cover 130.

The second part 110b comprises the side wall sections 102, that form the shaping of the pre-
curled hand cover 130, which extend alongside the forefinger and little finger of a user's
hand 'H' as well as the main section 103 of the hand cover 130 and the biasing means 101.
In this arrangement, the biasing means 101 is provided by three layers of thick neoprene
foam rubber, each approximately 6mm thick. The three layers are adhered together by
means of adhesive, though other means for adjoining the three layers may be used. Each
layer has curved side edges and optionally the three layers are not of equal width between
the curved side edges. The three layers are, in this arrangement affixed to the main section
103 and provide part of the finger enclosing region of the hand cover 130. The three bonded
layers are affixed together in a stack such that along one side curved edge, the layers are all
flush with one another and on the opposite (innermost side edge), the layers are staggered.
An innermost layer has the lowest width and that the outermost layer has the greatest width,
such that the biasing means 101 provides an approximate 1.8mm deep (thick) curved block
at the finger end of the main section 103, the inner side edge of which is curved and
stepped. The stepped nature of the biasing means 101 may allow for a secure contact
between a user's finger nails and the biasing means 101 as the finger nails partially sink into
the biasing means 101.

At the opposite end to the biasing means 101, the main section 103 terminates in an
adjustment section 115 which is optionally tapered and which may be sized (lengthwise) to
extend beyond the underside section 105 when the two parts 110a, 110b are assembled.
together and is provided for adjusting the relative position of the first and second parts 110a, 110b.

The second part 110b slides into the first part 110a and is optionally held in place by a friction fit. The hand cover 130 is assembled as shown in Figures 7 and 8 by relative sliding of the first and second parts 110a, 110b. In this way the length of the hand cover 130 is adjustable by the user. The user can then practice gripping a bar 6 or can place their hand into a gripping position and can pull on the adjustment section 115 to draw the second part of the hand cover 110b, closer to the first part of the hand cover 110a until a user is satisfied that the side wall sections 102, main section 103, finger enclosing region and biasing means 101 are appropriately positioned for the user's size of hand and for the size of apparatus 6 being gripped by the user. This adjustment process can be carried out "on the water" and enables the wearer to ensure the hand cover 10 is appropriately fitted in-situ; during use.

The degree of adjustment provided for by the two-part hand cover 130 arrangement provides for secure sealing of the hand cover 130 against a piece of apparatus 6 such as a boom of a windsurfing sail, and accommodates for different hand sizes; different positioning of hands on the boom 6; and different sizes and/or shape of boom 6. Once the appropriate relative position of the first and second parts 110a, 110b has been selected, the strap 'S' can be used to tighten the hand cover 130 about the user's wrist and in doing so the first and second parts 110a, 110b are held securely together and in the selected position. To some degree, after tightening of the strap 'S' adjustment may still be possible.

In Figure 9 it is shown how the hand cover 130, once attached to a user's hand, allows a user to stretch their fingers and relax their hand out of a gripping position without having to loosen the strap 'S' about the wrist (and arm 'A'). As the main section 103 and side wall sections 102 are stretched, it can be seen that the biasing means 101 is pulled against the fingertips to keep the hand cover 10 on the wearer's hand. The two curved side edges of the block 101 can be seen in Figure 9 and it can be seen that the user's palm 'P' and four fingers 'F' are exposed for making a bare-skin grip on a piece of equipment 6.

As a user moves their hand into a gripping position (illustrated in sequence in Figures 10, 11 and 12), the side wall sections 102 and main section 103 are no longer stretched and the hand cover 130 is biased to adopt the pre-curved gripping shape. The biasing means 101 is no longer being pulled and without external force applied to it, the biasing means 101 encourages the hand cover 130 to adopt the pre-curved shape and the biasing means 101 urges against the boom 6. This is illustrated in Figure 13 wherein a user's hand in a gripping
position (shown in dotted outline) and the hand and hand cover and boom 6 are viewed from the side. Solid lines are used to denote the boom 6 and hand cover 130. As such it can be seen that side wall sections 102 of the hand cover 130 seal around the boom 6 leaving no air gaps. Beneficially, the adjustment provided for by the two-part construction allows the user to position the side wall sections against the boom 6 and if required, in dependence upon a user's gripping preference, to pull one side wall section 102 slightly further into the first part 110a than the other side wall section 102. The biasing means 101 contacts the boom 101 sealing along the line of the user's finger tips. As also shown in Figure 14, once the boom 6 is gripped, no part of the user's hand is exposed to the external environment, yet internally, part of the palm 'P' and a the majority of the finger-tip side of the user's four fingers (including the pads of the fingers) can make a bare-skin grip on the boom 6, thus allowing the wearer to keep warm, avoid over-gripping and benefit from being able to sense any feedback being transmitted along the hand-held piece of equipment 6.

It can be appreciated that various changes may be made within the scope of the present invention, for example, in other embodiments of the invention it is envisaged that the biasing means may take other forms from that illustrated herein. Specifically it is envisaged that whilst the biasing means may be a single solid continuous block extending between the side wall sections of the hand cover and depending from the main section of the hand cover, that the biasing means in other embodiments is formed from one or more layers each having the same or different materials, shapes, thicknesses and widths. Optionally the biasing means is formed from the same material as the rest of the hand cover in other embodiments; the biasing means is made entirely or partially from a different type and/or thickness of material. In envisaged arrangements, the biasing means does not extend continuously between the side wall sections of the hand cover and rather is made from two or more adjacent or spaced sections or blocks. The block or blocks of the biasing means may comprise shaping to promote fingertip placement and grip and to improve the ergonomic characteristics of the glove.

Optionally in envisaged arrangements, the biasing means is covered by a piece of material and optionally that piece of material is provided as an extension of the main section or as an extension of one or both of the side sections.

Whereas the illustrations show a left-handed glove, it will be appreciated that a right-handed glove may comprises similar or identical features, albeit the right-handed hand cover will be a mirror-image of the left-handed hand cover.
Some sportspersons may prefer to wear only one hand cover as disclosed herein and sports persons having a prosthetic hand may only have a requirement for a single hand cover. As such the term "hand-cover" as used herein refers to a single hand-cover for either a left or right hand and the term "pair of hand covers" refers to two hand covers: one for a right hand and one for a left hand.

Whereas neoprene rubber has been identified herein as a suitable material from which the wall sections, main sections, thumb enclosing section of the hand cover, first and second parts therefor and/or the biasing means therefor can be constructed, it will be appreciated that other suitable materials may be used instead of or in combination with neoprene rubber in forming the wall sections, main sections, thumb enclosing section of the hand cover, first and second parts therefor and/or the biasing means therefor.

In embodiments where the hand cover comprises first and second parts, the hand cover may further comprise an attachment means for attaching the first and second parts for mitigating against complete separation of the first and second parts. The attachment means does not interfere with the adjustment of the relative positioning of the first and second parts, but may help to prevent loss of one part of the hand cover. Optionally, the attachment means may comprise a length or strip of material or a cord attached at one end to the outer surface of the wrist enclosing section of the first part and at the other end to the inner surface of the adjustment section of the second part. The length of the material or cord is sufficient to ensure that the attachment means does not interfere with the adjustment of the relative positioning of the first and second parts.
CLAIMS

1. A hand cover for use in water sporting activities wherein a sports person grips a piece of equipment, the hand cover comprising a wrist enclosing section, two side sections and a main section, the two side sections and/or main section being shaped such that the hand cover has a pre-curved shape having a finger enclosing region, the wrist enclosing section, side sections and main sections together defining an open section of the hand cover through which part of a user's palm and fingers are exposed for making a bare-skin grip on a piece of equipment, the hand cover comprising a biasing means disposed in the finger enclosing region, the biasing means for urging the finger enclosing region of the hand cover to contact and fit against a piece of equipment when gripped by a wearer of the hand cover for aiding the hand cover in sealing around the wearer's hand and the part of the equipment being gripped and/or the biasing means for preventing the finger enclosing region from slipping off a wearer's hand when the hand is not in a gripping position.

2. A hand cover according to claim 1 wherein the biasing means comprises a block of material.

3. A hand cover according to claim 1 wherein the block has at least one curved side and is attached to the main section of the hand cover along that curved side.

4. A hand cover according to claim 2 or 3 wherein the block of material is formed from a single piece of material or from two or more layers of material that are bonded together.

5. A hand cover according to claim 4 wherein the block of material is formed from two or more layers each having at least one curved side edge and wherein the two or more layers are bonded together such that the curved side edges are stacked in flush alignment.

6. A hand cover according to claim 5 wherein the other side edge of each layer also has a curved shape and wherein each layer has the same width such that the other curved side edges are also stacked in flush alignment.

7. A hand cover according to any preceding claim wherein the hand cover is formed from an elastomer foam with a waterproof lining and wherein the biasing means is formed from an elastomer foam with or without a waterproof lining that has a...
thickness that is equal to or greater than the thickness of the elastomer foam with a waterproof lining from which the hand cover is formed.

8. A hand cover according to claim 7 wherein the hand cover and biasing means are formed from neoprene rubber.

9. A hand cover according to any preceding claim wherein the hand cover additionally comprises a thumb enclosing section.

10. A hand cover according to any preceding claim wherein the hand cover comprises two main parts: a first part and a second part, wherein the second part fits partially within the first part and wherein the relative position of the first and second parts is adjustable such that an overall length of the hand cover and/or the position of one or both side sections and/or the position of the biasing means can be adjusted.

11. A hand cover according to claim 10 wherein the first part provides the wrist enclosing section and a thumb enclosing section and wherein the second part provides the side sections, main section and biasing means.

12. A hand cover according to claim 10 or 11 wherein the hand cover further comprises an attachment means for attaching the first and second parts for mitigating against complete separation of the first and second parts without interfering with the adjustment of the relative positioning of the first and second parts.

13. A hand cover according to claim 11 or 12 wherein the second part of the hand cover comprises an adjustment section for adjusting the position of the second part relative to the first part.

14. A hand cover according to claim 12 wherein the adjustment section is tapered and wherein the first and second parts are held together by a friction fit.

15. A pair of hand covers comprising two hand covers according to any of the preceding claims.

16. A hand cover for use in water sporting activities wherein a sports person grips a piece of equipment, the hand cover comprising a wrist enclosing section, two side sections and a main section, the two side sections and/or main section being shaped such that the hand cover has a pre-curved shape having a finger enclosing region and the wrist enclosing section, side sections and main sections together defining an
open section of the hand cover through which part of a user's palm and fingers are exposed for making a bare-skin grip on a piece of equipment, and the hand cover comprising a block in the finger enclosing region of the hand cover which aids sealing of the hand cover about a gripped piece of equipment and which mitigates against the finger enclosing region slipping off a wearer's hand.

17. A hand cover substantially as described herein with reference to and/or as illustrated by the accompanying Figures.
This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: 1
   because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
   see FURTHER INFORMATION sheet PCT/ISA/210

3. ☐ Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.: 

4. ☑ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 

Remark on Protest
☐ The additional search fees were accompanied by the applicant’s protest and, where applicable, the payment of a protest fee.
☐ The additional search fees were accompanied by the applicant’s protest but the applicable protest fee was not paid within the time limit specified in the invitation.
☐ No protest accompanied the payment of additional search fees.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
INV. A63B71/14 A63B69/00 A63B69/18
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)
A41D A63B B63B

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

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<td>EP 0 143 997 AI (BRUECKNER GEORG F [DE] ) 12 June 1985 (1985-06-12) f i g u r e 1</td>
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<td>A</td>
<td>GB 2 284 536 A (CADDI EMORE GOLF LIMITED [GB]) 14 June 1995 (1995-06-14) f i g u r e s</td>
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Further documents are listed in the continuation of Box C. See patent family annex. 

* Special categories of cited documents:

*A* document defining the general state of the art which is not considered to be of particular relevance

*E* earlier application or patent but published on or after the international filing date

*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

*O* document referring to an oral disclosure, use, exhibition or other means

*P* document published prior to the international filing date but later than the priority date claimed

T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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

A* document member of the same patent family

Date of the actual completion of the international search: 2 October 2014

Date of mailing of the international search report: 21/10/2014

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Authorised officer:
Lundblad, Hampus
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<td>GB 2284536 A</td>
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Continuation of Box II.2

Claims Nos.: 17

Rule 6.2 PCT states that "Claims shall not, except where absolutely necessary, rely, in respect of the technical features of the invention, on reference to the description or drawings. In particular they shall not rely on such references to as: "as described in part ... of the description" or "as illustrated in Figure ... of the drawings." In the claim 17 this is considered necessary and therefore claim 17 does not fulfill the requirements of Rule 6.2 PCT and has therefore not been searched.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the applicant proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guidelines C-IV, 7.2), should the problems which led to the Article 17(2) declaration be overcome.