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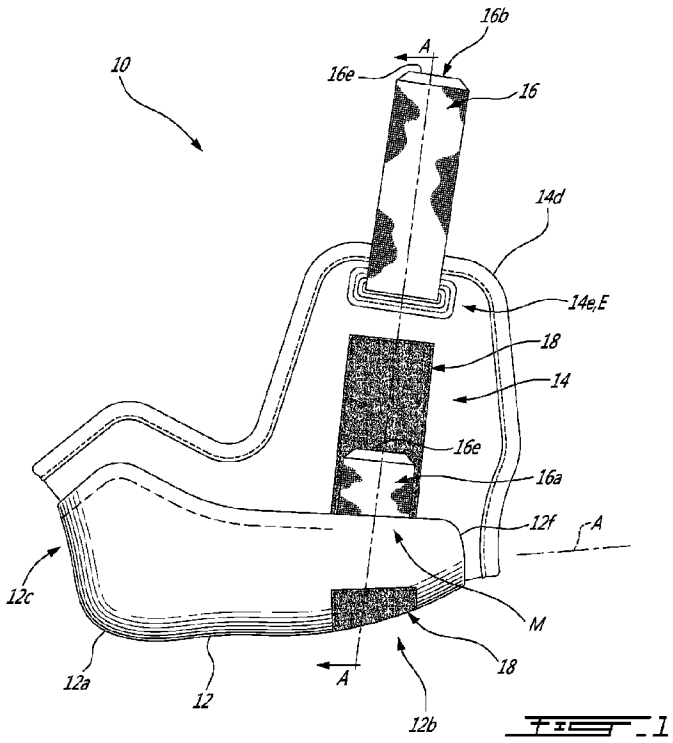


Fig. 1

(57) Abrégé/Abstract:
There is disclosed a protective pad having: a liner including a first extremity and a second extremity moveable relative to the first extremity to vary a size of a gap therebetween; and a strap having a first end secured to the liner at a first location between the first and second extremities of the liner and a second end secured to the liner at a second location, the second location including an outer side of the protective member, an outer side of the liner and/or an outer side of the strap, the strap extending through an opening defined through the liner proximate the first extremity, the strap having a first section extending from the first fastening location to the opening and a second section extending from the opening to the second location, the first section of the strap overlapping the liner from the first location to the second extremity.

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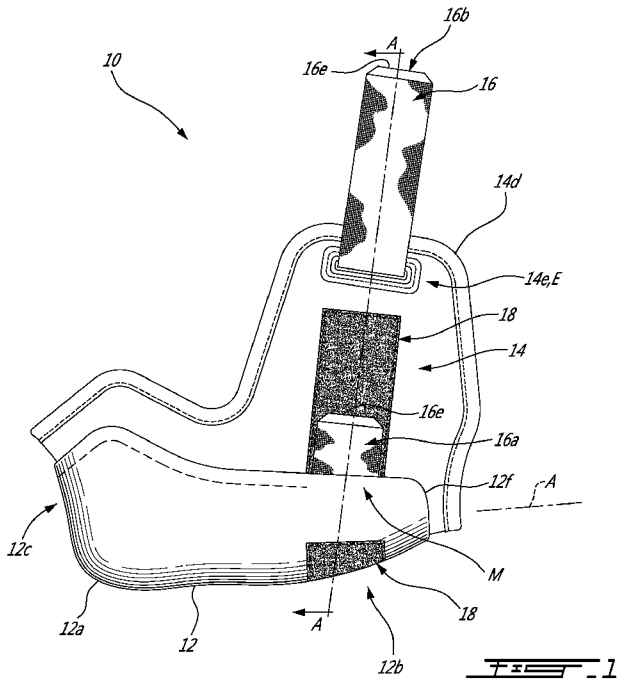


Fig. 1

(57) Abstract: There is disclosed a protective pad having: a liner including a first extremity and a second extremity moveable relative to the first extremity to vary a size of a gap therebetween; and a strap having a first end secured to the liner at a first location between the first and second extremities of the liner and a second end secured to the liner at a second location, the second location including an outer side of the protective member, an outer side of the liner and/or an outer side of the strap, the strap extending through an opening defined through the liner proximate the first extremity, the strap having a first section extending from the first fastening location to the opening and a second section extending from the opening to the second location, the first section of the strap overlapping the liner from the first location to the second extremity.

[Continued on next page]

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LIMB PROTECTOR

TECHNICAL FIELD

[0001] The application relates generally to protective wear and, more particularly, to wear configured for protecting body parts such as an elbow or another limb of a hockey player.

BACKGROUND OF THE ART

[0002] Existing protective gear or padding worn for playing certain sports, such as elbow pads worn by hockey players for example, typically use straps for attachment to an arm of a wearer. However, depending on size of the wearer's arm, the strap may be too long and the excess length may become cumbersome during use; alternatively, the strap may be too short, thereby preventing the wearer to effectively secure the pads around his arm. Moreover, the strap is mainly used to bring in proximity two edges of a liner of the pad. This has the effect of decreasing a circumference of the pad until the pad becomes tightly fitted around the arm. Usually, the strap is more resistant to elongation than the liner. Therefore, the elbow pad may loosen during use, which is undesirable. Consequently, there is room for improvement.

SUMMARY

[0003] In one aspect, there is provided a protective pad for protecting a limb of a wearer comprising: a liner configured to wrap around a portion of the limb of the wearer and having a first lateral liner extremity and a second lateral liner extremity moveable relative to the first lateral liner extremity to vary a size of a gap therebetween for adjusting the protective pad on the limb of the wearer; a protective member secured to an outer side of the liner; and a fastening strap having a first strap end secured to the liner at a first fastening location between the first and second lateral liner extremities and a second strap end secured to the liner at a second fastening location, the second fastening location including an outer side of the protective member, an outer side of the liner and/or an outer side of the fastening strap, the fastening strap extending through an opening defined through the liner proximate the first lateral liner extremity, the

fastening strap having a first section extending from the first fastening location to the opening and a second section radially outward of the first section and extending from the opening to the second fastening location, the first section of the fastening strap overlapping the liner from the first fastening location to the second lateral liner extremity.

[0004] In a particular embodiment, the first section of the fastening strap overlaps a portion of the liner diametrically opposed to the gap.

[0005] In a particular embodiment, the protective member overlaps the first section of the fastening strap.

[0006] In a particular embodiment, the fastening strap extends between the liner and the protective member.

[0007] In a particular embodiment, a cooperation of the liner and the fastening strap extends around a full periphery of a volume configured for containing the portion of the limb of the wearer.

[0008] In a particular embodiment, the first strap end is removably securable to the liner.

[0009] In a particular embodiment, the second strap end is removably securable to the outer side of the protective member.

[0010] In a particular embodiment, the protective pad includes a guiding member for limiting movements of the fastening strap along a direction transversal to the a longitudinal axis of the strap.

[0011] In a particular embodiment, the guiding member is a spacing between the protective member and the liner, the protective member being free of connection with the liner at the spacing.

[0012] In a particular embodiment, the protective member and the liner define a space therebetween, the fastening strap extending through the space.

[0013] In a particular embodiment, the liner is secured to the protective member at a peripheral edge of the protective member.

[0014] In a particular embodiment, the fastening strap is located adjacent the outer side of the liner.

[0015] In another aspect, there is provided a limb protector comprising: a liner configured to wrap around a portion of a limb of a wearer, the liner having lateral liner extremities circumferentially displaceable relative to each other; a protective member secured to the liner; and a fastening strap having first and second strap ends, the first strap end secured to the liner at a securing point on an outer side of the liner, the fastening strap extending, over the outer side of the liner, in a first circumferential direction from the securing point, past one of the lateral liner extremities to an opening located proximate the other of the lateral liner extremities, through the opening, and extending from the opening in a second circumferential direction opposed to the first circumferential direction, the second strap end removably securable to one or more of an outer side of the protective member, the outer side of the liner and an outer side of the fastening strap, the fastening strap having a liner engaging section located between the first strap end and the opening, the liner engaging section of the fastening strap overlapping the liner and being in engagement with the liner between the securing point and the other of the lateral liner extremities.

[0016] In a particular embodiment, the protective member overlaps the liner engaging section of the fastening strap.

[0017] In a particular embodiment, the fastening strap extends between the liner and the protective member.

[0018] In a particular embodiment, a cooperation of the liner and the fastening strap extends around a full periphery of a volume configured for containing the portion of the limb of the wearer.

[0019] In a particular embodiment, the first strap end is removably securable to the liner.

[0020] In a particular embodiment, the second strap end is removably securable to the outer side of the protective member.

[0021] In a particular embodiment, the limb protector includes a guiding member for limiting movements of the fastening strap along a direction transversal to the a longitudinal axis of the strap.

[0022] In a particular embodiment, the guiding member is a spacing between the protective member and the liner, the protective member being free of connection with the liner at the spacing.

[0023] In a particular embodiment, the protective member and the liner define a space therebetween, the fastening strap extending through the space.

[0024] In a particular embodiment, the liner is secured to the protective member at a peripheral edge of the protective member.

[0025] In a particular embodiment, the fastening strap is located adjacent the outer side of the liner.

[0026] In yet another aspect, there is provided a limb protector comprising: a liner configured to be disposed around at least a portion of a limb of a wearer, the liner having opposed lateral liner extremities circumferentially displaceable one relative to the other to decrease a volume adapted for receiving the limb of the wearer; a protective member secured to the liner; and a fastening strap having a strap length, the fastening strap having a strap engaging section corresponding to a portion of the strap length, the strap engaging section being in engagement with the liner along at least a portion of a liner length of the liner defined between the opposed lateral liner extremities.

[0027] In a particular embodiment, the protective member and the liner engaging section of the fastening strap overlap each other.

[0028] In a particular embodiment, the liner engaging section of the fastening strap is located between the liner and the protective member.

[0029] In a particular embodiment, a cooperation of the liner and the fastening strap extends around a full periphery of the volume.

[0030] In a particular embodiment, the fastening strap has first and second strap ends both being removably securable to the liner, the strap, and/or the protective member.

[0031] In a particular embodiment, the limb protector includes a guiding member for limiting movements of the fastening strap along a direction transversal to the fastening strap.

[0032] In a particular embodiment, the guiding member is at least one spacing between the protective member and the liner being free of connection with the liner.

[0033] In a particular embodiment, the protective member and the liner define a space therebetween, the liner engaging section of the fastening strap extending through the space.

[0034] In still yet another aspect, there is provided a limb protector for protecting a limb of a wearer, comprising: a liner configured to be disposed around at least a portion of the limb, the liner having opposed lateral liner extremities circumferentially displaceable one toward the other to narrow a gap defined between the lateral liner extremities; a protective member secured to the liner, the liner having a circumferential length extending at least partially around a volume configured for receiving the limb of the wearer; and a mean for exerting a force on a portion of the circumferential length of the liner for biasing the liner against the limb of the wearer.

BRIEF DESCRIPTION OF THE DRAWINGS

[0035] Reference is now made to the accompanying figures in which:

[0036] Fig. 1 is a schematic side-elevation view of a limb protector in accordance with one embodiment;

[0037] Fig. 2 is a cross-sectional view of the limb protector of Fig. 1 taken along line A-A; and

[0038] Fig. 3 is another cross-sectional view of the limb protector of Fig. 1 showing a strap thereof in another position.

DETAILED DESCRIPTION

[0039] Referring to Figs. 1-3, an articulation protector or protective pad, also referred to as a limb protector, which is depicted as an elbow pad, is shown at 10. The protector 10 includes a protective member, also referred to as a cap, 12 for protection of a wearer's limb. In the embodiment shown, the protective member 12 defines a corner 12a that is configured for mating with the limb of the wearer, or a portion of the limb of the wearer.

[0040] In the embodiment shown, the protective member 12 defines a fore arm protector 12b and an upper arm protector 12c both being joined at the corner 12a. The fore arm protector 12b and the upper arm protector 12c may be monolithic as they may be made from a sole piece of material. A length of the fore arm protector 12b may be greater than that of the upper arm protector 12c to allow some movements of the upper arm relative to the fore arm. It is understood that the protector 10 may be configured for protecting another part of a human body. Hence, a configuration and shape of the protector 10 may change to cater to the part of the human body meant to be protected.

[0041] The protective member 12 has an inner side 12d, which is configured to be oriented toward the wearer's limb, and an opposed outer side 12e. The protective member outer side 12e is facing away from the wearer's limb and corresponds to the side that might be subjected to impact during use. A peripheral edge 12f of the protective member 12 is designed to follow natural curves of the wearer's arm. The peripheral edge 12f includes two lateral edges $12f_1$ that extend such as they might protect sides of the wearer's arm.

[0042] The protective member 12 is made of any suitable material known in the art of protective gear. It is understood that any material that is able to offer the required protection to the wearer's limb may be used without departing from the scope of the present disclosure. In the embodiment shown, the protective member 12 is made of injection molded polyethylene and covered by a fabric made of polyester.

[0043] The protective member 12, by itself, is quite hard and as such may be uncomfortable to wear on its own. In the embodiment shown, the protector 10 includes a base liner, referred to herein below as a liner 14. The liner 14 may be disposed within a concave portion of the protective member 12 such that it may be located between the wearer's limb and the protective member 12 when worn by the wearer. The liner 14 may follow a shape of the inner side 12d of the protective member 12. The liner 14 has an inner side 14a and an opposed outer side 14b. The protective member 12 may be secured to the outer side 14b of the liner 14. The inner side 14a of the liner 14 may be configured for facing the limb; it is understood that the inner side 14a of the liner 14 may be configured for facing also at least part of the limb of the wearer. More generally, the liner 14 should not be limited as having to face any particular body part of a wearer.

[0044] The liner 14 might offer a layer of damping material between the protective member 12 and the limb that might damp the impacts. In other words, the liner 14 might offer a layer of protection and damping between the wearer's limb and the protective member 12. The liner 14 is made of any suitable material, such as, polyethylene foam laminated with polyester fabrics. In a particular embodiment, the protective member 12 may be located between the wearer's limb and the liner 14. A cushioning material may be located between the protective member 12 and the wearer's limb for comfort. Other configurations are contemplated.

[0045] As shown, the liner 14 defines an arm receiving volume V that is configured for receiving therein a portion of the wearer's limb. The arm receiving volume V may have a substantially cylindrical shape. In the embodiment shown, once the limb protector 10 is fitted to the wearer's limb, a shape of the arm receiving volume V may correspond to a shape of the wearer's limb. Stated otherwise, a peripheral surface of the arm receiving volume V may be configured to follow the natural curves of the wearer's limb. As illustrated, a lower portion of the arm receiving volume is covered by both the protective member 12 and the liner 14. More details about this configuration are presented herein below.

[0046] The liner 14 is used to secure the limb protector 10 to the wearer's limb. To do so, the liner 14 is sized such as to wrap around at least a portion of the limb that is not protected by the protective member 12. More specifically, the liner 14 may define a

wing 14c that may be used to cover at least part the limb that is free of protection by the protective member 12. The wing 14c may be flexible in such a way that it may be bent to cover at least part of the upper portion of the limb that is not protected by the protective member 12. In a particular embodiment, and depending of a size of the wearer's limb, the wing 14c extends away from one of the lateral edges $12f_1$ of the protective member 12 and may be configured to be located proximate the other of the lateral edges $12f_1$ of the protective member 12 when the limb protector 10 is worn by the wearer. In the depicted embodiment, the liner 14 has opposed lateral liner extremities 14g, namely a first lateral liner extremity $14g_1$ and a second lateral liner extremity $14g_2$. A gap G may be located between the liner extremities 14g. It is understood that the gap G may have a positive value when there is no overlap between the two lateral liner extremities 14g and a negative value when an overlap is present between the two lateral liner extremities 14g. In other words, the gap G need not define an opening of the arm receiving volume V.

[0047] An element E located proximate the first lateral liner extremity $14g_1$ of the liner 14 defines an opening 14e. In the embodiment shown, the element E corresponds to a portion of the liner 14 such that the opening 14e extends through the liner 14. Alternatively, the element E may be a member secured to the liner 14. The element E may be, for instance, a buckle.

[0048] As illustrated, the liner 14 extends beyond the peripheral edge 12f of the protective member 12. In a particular embodiment, this limits rubbing between the protective member peripheral edge 12f and the wearer's limb and limits rubbing-induced injuries compared to a configuration where the liner 14 does not extend beyond the protective member peripheral edge 12f. Alternatively, a rub-protection material may be located at the peripheral edge 12f of the protective member 12. Other configurations are contemplated. In a particular embodiment, having the liner 14 extending beyond the peripheral edge 12f of the protective member 12 allows to extend or create fastening surfaces that might be used for positioning other fastening means.

[0049] The limb protector 10 further includes a strap 16 that is configured for securing or tightening the liner 14 to the wearer's limb. As the protective member 12 is secured to the liner 14, tightening of the liner 14 on the limb with the strap 16 secures the

protective member 12 to the limb. The strap 16 cooperates with the liner 14 for wrapping around the limb of the wearer. Stated otherwise, once the protector 10 is secured to the wearer's limb, the liner 14 in cooperation with the strap 16 may extend around a full periphery of the wearer's limb and 360 degrees around said limb. The limb protector 10 may enclose the arm receiving volume V. The strap 16 and the liner 14 may form a full perimeter wrap that extends fully around the arm receiving volume V and hence around the wearer's limb.

[0050] The strap 16 has two ends, namely first and second strap ends, 16a, 16b. The strap ends 16a, 16b may extend along portions of a length of the strap 16; the length of the strap 16 extending from one of end edges 16e of the strap 16 to the other.

[0051] In the depicted embodiment, the first strap end 16a is secured to the liner 14 at a securing point, also referred to as a first fastening location, P1 between the extremities 14g of the liner 14. It is understood that the first fastening location P1 may extend along a portion of an area of the liner 14.

[0052] The strap 16 extends in a first circumferential direction D1 around at least a portion of the limb of the wearer from the first strap end 16a to the opening 14e. The strap 16 extends through the opening 14e and extends from the opening 14e in a second circumferential direction D2, opposed to the first circumferential direction D1. As illustrated, the first and second circumferential directions D1, D2 are circumferential directions relative to an axis A being parallel to the limb of the wearer. In other words, and in the embodiment shown in Fig. 2, the strap 16 extends from the first strap end 16a to the opening 14e in a counter clockwise direction and from the opening 14e to the second strap end 16b in a clockwise direction.

[0053] Referring more particularly to Figs. 2-3, the strap 16 has a liner engaging section 16d located between the first strap end 16a and the opening 14e. The liner engaging section 16d of the strap 16 overlaps the liner 14 and is in engagement with the liner 14 between the first fastening location P1 and the other of the liner extremities 14g. Herein, "in engagement" intends to mean that the strap engaging section 16d of the strap biases the liner 14 against the limb. The biasing may be done by pushing the liner 14 in a radial direction relative to the axis A. Alternatively, the biasing may be done

by pulling the liner 14 in the radial direction. In other words, "in engagement" means that a force exerting area F between the strap 16 and the liner 14 is present. This force exerting area F is defined by the liner engaging section 16d. By being in engagement with the liner 14, the liner engagement section 16d is able to exert a force field 20 on the liner 14; the force field 20 including a plurality of force vectors applied at a plurality of respective points along directions normal to the liner 14.

[0054] In the depicted embodiment, the strap 16 is able to exert a radial force relative to the axis A on the limb of the wearer along a portion of a circumferential length of the liner 14 for biasing the liner 14 against the limb of the wearer. The force field 20 may be exerted by any suitable means, such as, elastic or non-elastic straps, clips, fasteners, tape, line, and the like.

[0055] Herein, two elements are overlapping when one of the two elements covers, or is covered by, the other of the two elements. The two elements may extend concurrently along a surface and are disposed one after the other in a transversal direction being normal to the surface. In a particular embodiment, one of the two overlapping elements is able to exert a force on the other of the two overlapping elements along an area of the overlap. The strap 16 might therefore be able to exert the force field 20 directly on the liner 14 to bias the liner 14 toward the wearer's limb. The force field 20 may be oriented toward a center C of the arm receiving volume V that is enclosed by the strap 16 and the liner 14. In other words, the strap 16, via the force exerting area F, may be able to exert forces that are oriented substantially perpendicularly to the liner 14 and that are distributed along at least the portion of the liner 14. This portion of the liner 14 may be covered by the protective member 12.

[0056] In the depicted embodiment, the force exerting area F extends around at least a portion of the protective member 12 and the liner 14. The force exerting area F is operable to bring the liner 14, and the protective member 12 secured thereto, toward the wearer's limb. The force exerting area F of the strap 16 may extend between the first strap end 16a of the strap 16 and the opening 14e of the wing 14c. As shown, the force exerting area F may push the liner 14 at a portion of its perimeter that is covered by the protective member 12. The force exerting area F may be located at the portion of the liner 14 that is covered by the protective member 12.

[0057] This might provide a unique tightening effect because the strap 16 is not solely used to bridge the gap G defined between extremities of the liner 14. In the disclosed protector 10, both the strap 16 and the liner 14 may exert forces toward the center C of the arm receiving volume V. In a particular embodiment, this allows for a more secured fit around the wearer's fore arm. In a particular embodiment, and from the wearer's perspective, the cooperation of the disclosed liner 14 and strap 16 feels as if the limb protector 10 is hugging his/her limb. In a particular embodiment, the hugging of the limb prevents the protector 10 from slipping along the user's limb during use. In a particular embodiment, the adjustability of the strap 16 prevents the protector 10 allows user to adapt the protector 10 to get the ideal tension around his/her limb for optimal retention.

[0058] In the embodiment shown, a space S is defined between the liner 14 and the protective member 12. The strap 16 may extend within the space S such that the strap 16 is located adjacent the outer side 14b of the liner 14. In the embodiment shown, the liner 16, the protective member 12, and the strap 16 overlap each other. As illustrated, the liner 14 is stitched to the protective member 12, but any other suitable method of joining the liner 14 to the protective member 12 may be used. The stitches may follow the peripheral edge 12f of the protective member 12.

[0059] In the depicted embodiment, the peripheral edge 12f of the protective member 12 is free of stitches at two locations at the lateral edges $12f_1$. These two locations are free of stitches to allow the strap 16 to penetrate in the space S between the protective member 12 and the liner 16. These locations free of connection between the protective member 12 and the liner 14 may define a guiding member M (Fig. 1) for limiting movements of the strap 16 along a direction transversal to a longitudinal axis of the strap 16. Alternatively, the guiding member M may be one or more loops defined by the protective member 12 and/or by the liner 14. Other configurations are contemplated.

[0060] In the embodiment shown, the first strap end 16a is securable to the outer side 14b of the liner 14 and the second strap end 16b is securable to an outer side 12e of the protective member 12. In the depicted embodiment, both of the first and second strap ends 16a, 16b of the strap 16 are removably securable to the liner 14 and or to the protective member 12. In a particular embodiment, one of the first and second strap ends 16a, 16b may be removably securable to the strap 16 itself.

[0061] In the embodiment shown, hook-and-loop fasteners (e.g., Velcro™) are used to secure the strap 16 to the liner 14 and to the protective member 12. The strap 16 may define a plurality of hooks 16c and both the outer side 14b of the liner 14 and the outer side 12e of the protective member 12 may have fastening surfaces 14f ,12g disposed thereon; each of the fastening surfaces 14f, 12g being covered with loops 18 configured to be engaged by the hooks 16c of the strap 16. It is understood that the hooks 16c may be defined on the liner 14 and on the protective member 12 and the loops 18 on the strap 16 without departing from the scope of the present disclosure. Any suitable fastening means may be used without departing from the scope of the present disclosure.

[0062] When worn by the wearer, the strap 16 extends through the opening 14e that is defined in the liner wing 14c. In the embodiment shown, the strap 16 extends from the first strap end 16a that is secured to the liner 14, extends along the outer side 14b of the liner 14 and within the space S between the protective member 12 and the liner 14 and passes through the opening 14e from the inner side 14a of the liner 14 to the outer side 14b thereof. Then, the second strap end 16b of the strap 16 may be secured at a second fastening location P2. In the embodiment shown, the second fastening location P2 is located on the outer side 12e of the protective member 12. In the embodiment shown, the second strap end 16b of the strap 16 is fastened to the outer side 12e of the protective member 12 via the fastening surface 12g. For tightening the protector to the wearer's arm, the second end 16b of the strap is pulled away from the wing opening 14e and toward the first end 16a along the protective member outer side 12e.

[0063] The second fastening location P2 may include one or more of the outer side 12e of the protective member, the outer side 14b of the liner 14 and an outer side 16f of the fastening strap 16.

[0064] Referring more particularly to Fig. 3, the strap 16 has a first section 16g extending from the first fastening location P1 to the opening 14e and a second section 16h extending from the opening 14e to the second fastening location P2. In the embodiment shown, the second section 16h of the strap 16 is located radially outwardly of the first section 16g of the strap 16 relative to the axis A. The first section 16g of the strap 16 overlaps the liner 14 from the first fastening location P1 to the second liner

extremity $14g_2$. In the depicted embodiment, the first section 16g of the fastening strap 16 overlaps a portion of the liner 14 that is diametrically opposed to the gap G.

[0065] In the embodiment shown, having features enabling the first and second strap ends 16a, 16b to be removably securable to the limb protector 10 may allow the strap 16 to be moved relative to both the liner 14 and the protective member 12 in any of the first and second circumferential directions D1, D2 described herein above. In the depicted embodiment, the two removably securable strap ends 16a, 16b allows the strap 16 to move relative to both the protective member 12 and the liner 14 within the space S. As such, the strap 16 may be adjusted to cater to a wide variety of limb sizes while avoiding one of the two strap ends 16a, 16b to float around. More specifically, the smaller the limb, the more of the fastening surface 14f on the liner 14 is covered by the strap 16.

[0066] It is understood that the principles of the disclosed limb protector 10 may be used for any articulation protector (e.g., knee protector) that is configured for facing an articulation and at least part of a limb of the wearer.

[0067] Embodiments disclosed herein include:

[0068] A. A protective pad for protecting a limb of a wearer comprising: a liner configured to wrap around a portion of the limb of the wearer and having a first lateral liner extremity and a second lateral liner extremity moveable relative to the first lateral liner extremity to vary a size of a gap therebetween for adjusting the protective pad on the limb of the wearer; a protective member secured to an outer side of the liner; and a fastening strap having a first strap end secured to the liner at a first fastening location between the first and second lateral liner extremities and a second strap end secured to the liner at a second fastening location, the second fastening location including an outer side of the protective member, an outer side of the liner and/or an outer side of the fastening strap, the fastening strap extending through an opening defined through the liner proximate the first lateral liner extremity, the fastening strap having a first section extending from the first fastening location to the opening and a second section radially outward of the first section and extending from the opening to the second fastening

location, the first section of the fastening strap overlapping the liner from the first fastening location to the second lateral liner extremity.

[0069] B. A limb protector comprising: a liner configured to wrap around a portion of a limb of a wearer, the liner having lateral liner extremities circumferentially displaceable relative to each other; a protective member secured to the liner; and a fastening strap having first and second strap ends, the first strap end secured to the liner at a securing point on an outer side of the liner, the fastening strap extending, over the outer side of the liner, in a first circumferential direction from the securing point, past one of the lateral liner extremities to an opening located proximate the other of the lateral liner extremities, through the opening, and extending from the opening in a second circumferential direction opposed to the first circumferential direction, the second strap end removably securable to one or more of an outer side of the protective member, the outer side of the liner and an outer side of the fastening strap, the fastening strap having a liner engaging section located between the first strap end and the opening, the liner engaging section of the fastening strap overlapping the liner and being in engagement with the liner between the securing point and the other of the lateral liner extremities.

[0070] C. A limb protector comprising: a liner configured to be disposed around at least a portion of a limb of a wearer, the liner having opposed lateral liner extremities circumferentially displaceable one relative to the other to decrease a volume adapted for receiving the limb of the wearer; a protective member secured to the liner; and a fastening strap having a strap length, the fastening strap having a strap engaging section corresponding to a portion of the strap length, the strap engaging section being in engagement with the liner along at least a portion of a liner length of the liner defined between the opposed lateral liner extremities.

[0071] D. A limb protector for protecting a limb of a wearer, comprising: a liner configured to be disposed around at least a portion of the limb, the liner having opposed lateral liner extremities circumferentially displaceable one toward the other to narrow a gap defined between the lateral liner extremities; a protective member secured to the liner, the liner having a circumferential length extending at least partially around a volume configured for receiving the limb of the wearer; and a mean for exerting a force

on a portion of the circumferential length of the liner for biasing the liner against the limb of the wearer.

[0072] Embodiments A, B, C, and D may include any of the following elements, in any combinations:

[0073] Element 1: the first section of the fastening strap overlaps a portion of the liner diametrically opposed to the gap. Element 2: the protective member overlaps the first section of the fastening strap. Element 3: the fastening strap extends between the liner and the protective member. Element 4: a cooperation of the liner and the fastening strap extends around a full periphery of a volume configured for containing the portion of the limb of the wearer. Element 5: the first strap end is removably securable to the liner. Element 6: the second strap end is removably securable to the outer side of the protective member. Element 7: a guiding member for limiting movements of the fastening strap along a direction transversal to the a longitudinal axis of the strap. Element 8: the guiding member is a spacing between the protective member and the liner, the protective member being free of connection with the liner at the spacing. Element 9: the protective member and the liner define a space therebetween, the fastening strap extending through the space. Element 10: the liner is secured to the protective member at a peripheral edge of the protective member. Element 11: the fastening strap is located adjacent the outer side of the liner.

[0074] The above description is meant to be exemplary only, and one skilled in the art will recognize that changes may be made to the embodiments described without departing from the scope of the invention disclosed. Still other modifications which fall within the scope of the present invention will be apparent to those skilled in the art, in light of a review of this disclosure, and such modifications are intended to fall within the appended claims.

CLAIMS:

1. A protective pad for protecting a limb of a wearer comprising: a liner configured to wrap around a portion of the limb of the wearer and having a first lateral liner extremity and a second lateral liner extremity moveable relative to the first lateral liner extremity to vary a size of a gap therebetween for adjusting the protective pad on the limb of the wearer; a protective member secured to an outer side of the liner; and a fastening strap having a first strap end secured to the liner at a first fastening location between the first and second lateral liner extremities and a second strap end secured to the liner at a second fastening location, the second fastening location including an outer side of the protective member, an outer side of the liner and/or an outer side of the fastening strap, the fastening strap extending through an opening defined through the liner proximate the first lateral liner extremity, the fastening strap having a first section extending from the first fastening location to the opening and a second section radially outward of the first section and extending from the opening to the second fastening location, the first section of the fastening strap overlapping the liner from the first fastening location to the second lateral liner extremity.

2. The protective pad of claim 1, wherein the first section of the fastening strap overlaps a portion of the liner diametrically opposed to the gap.

3. The protective pad of claim 1, wherein the protective member overlaps the first section of the fastening strap.

4. The protective pad of claim 1, wherein the fastening strap extends between the liner and the protective member.

5. The protective pad of claim 1, wherein a cooperation of the liner and the fastening strap extends around a full periphery of a volume configured for containing the portion of the limb of the wearer.

6. The protective pad of claim 1, wherein the first strap end is removably securable to the liner.

7. The protective pad of claim 1, wherein the second strap end is removably securable to the outer side of the protective member.

8. The protective pad of claim 1, further comprising a guiding member for limiting movements of the fastening strap along a direction transversal to the a longitudinal axis of the strap.

9. The protective pad of claim 8, wherein the guiding member is a spacing between the protective member and the liner, the protective member being free of connection with the liner at the spacing.

10. The protective pad of claim 1, wherein the protective member and the liner define a space therebetween, the fastening strap extending through the space.

11. The protective pad of claim 1, wherein the liner is secured to the protective member at a peripheral edge of the protective member.

12. The protective pad of claim 1, wherein the fastening strap is located adjacent the outer side of the liner.

13. A limb protector comprising: a liner configured to wrap around a portion of a limb of a wearer, the liner having lateral liner extremities circumferentially displaceable relative to each other; a protective member secured to the liner; and a fastening

strap having first and second strap ends, the first strap end secured to the liner at a securing point on an outer side of the liner, the fastening strap extending, over the outer side of the liner, in a first circumferential direction from the securing point, past one of the lateral liner extremities to an opening located proximate the other of the lateral liner extremities, through the opening, and extending from the opening in a second circumferential direction opposed to the first circumferential direction, the second strap end removably securable to one or more of an outer side of the protective member, the outer side of the liner and an outer side of the fastening strap, the fastening strap having a liner engaging section located between the first strap end and the opening, the liner engaging section of the fastening strap overlapping the liner and being in engagement with the liner between the securing point and the other of the lateral liner extremities.

14. The limb protector of claim 13, wherein the protective member overlaps the liner engaging section of the fastening strap.

15. The limb protector of claim 13, wherein the fastening strap extends between the liner and the protective member.

16. The limb protector of claim 13, wherein a cooperation of the liner and the fastening strap extends around a full periphery of a volume configured for containing the portion of the limb of the wearer.

17. The limb protector of claim 13, wherein the first strap end is removably securable to the liner.

18. The limb protector of claim 13, wherein the second strap end is removably securable to the outer side of the protective member.

19. The limb protector of claim 13, further comprising a guiding member for limiting movements of the fastening strap along a direction transversal to the a longitudinal axis of the strap.

20. The limb protector of claim 19, wherein the guiding member is a spacing between the protective member and the liner, the protective member being free of connection with the liner at the spacing.

21. The limb protector of claim 13, wherein the protective member and the liner define a space therebetween, the fastening strap extending through the space.

22. The limb protector of claim 13, wherein the liner is secured to the protective member at a peripheral edge of the protective member.

23. The limb protector of claim 13, wherein the fastening strap is located adjacent the outer side of the liner.

24. A limb protector comprising: a liner configured to be disposed around at least a portion of a limb of a wearer, the liner having opposed lateral liner extremities circumferentially displaceable one relative to the other to decrease a volume adapted for receiving the limb of the wearer; a protective member secured to the liner; and a fastening strap having a strap length, the fastening strap having a strap engaging section corresponding to a portion of the strap length, the strap engaging section being in engagement with the liner along at least a portion of a liner length of the liner defined between the opposed lateral liner extremities.

25. The limb protector of claim 24, wherein the protective member and the liner engaging section of the fastening strap overlap each other.

26. The limb protector of claim 24, wherein the liner engaging section of the fastening strap is located between the liner and the protective member.

27. The limb protector of claim 24, wherein a cooperation of the liner and the fastening strap extends around a full periphery of the volume.

28. The limb protector of claim 24, wherein the fastening strap has first and second strap ends both being removably securable to the liner, the strap, and/or the protective member.

29. The limb protector of claim 24, further comprising a guiding member for limiting movements of the fastening strap along a direction transversal to the fastening strap.

30. The limb protector of claim 29, wherein the guiding member is at least one spacing between the protective member and the liner being free of connection with the liner.

31. The limb protector of claim 24, wherein the protective member and the liner define a space therebetween, the liner engaging section of the fastening strap extending through the space.

32. A limb protector for protecting a limb of a wearer, comprising: a liner configured to be disposed around at least a portion of the limb, the liner having opposed lateral liner extremities circumferentially displaceable one toward the other to narrow a gap defined between the lateral liner extremities; a protective member secured to the liner, the liner having a circumferential length extending at least partially around a volume configured for receiving the limb of the wearer; and a mean for exerting a force on a portion of the circumferential length of the liner for biasing the liner against the limb of the wearer.

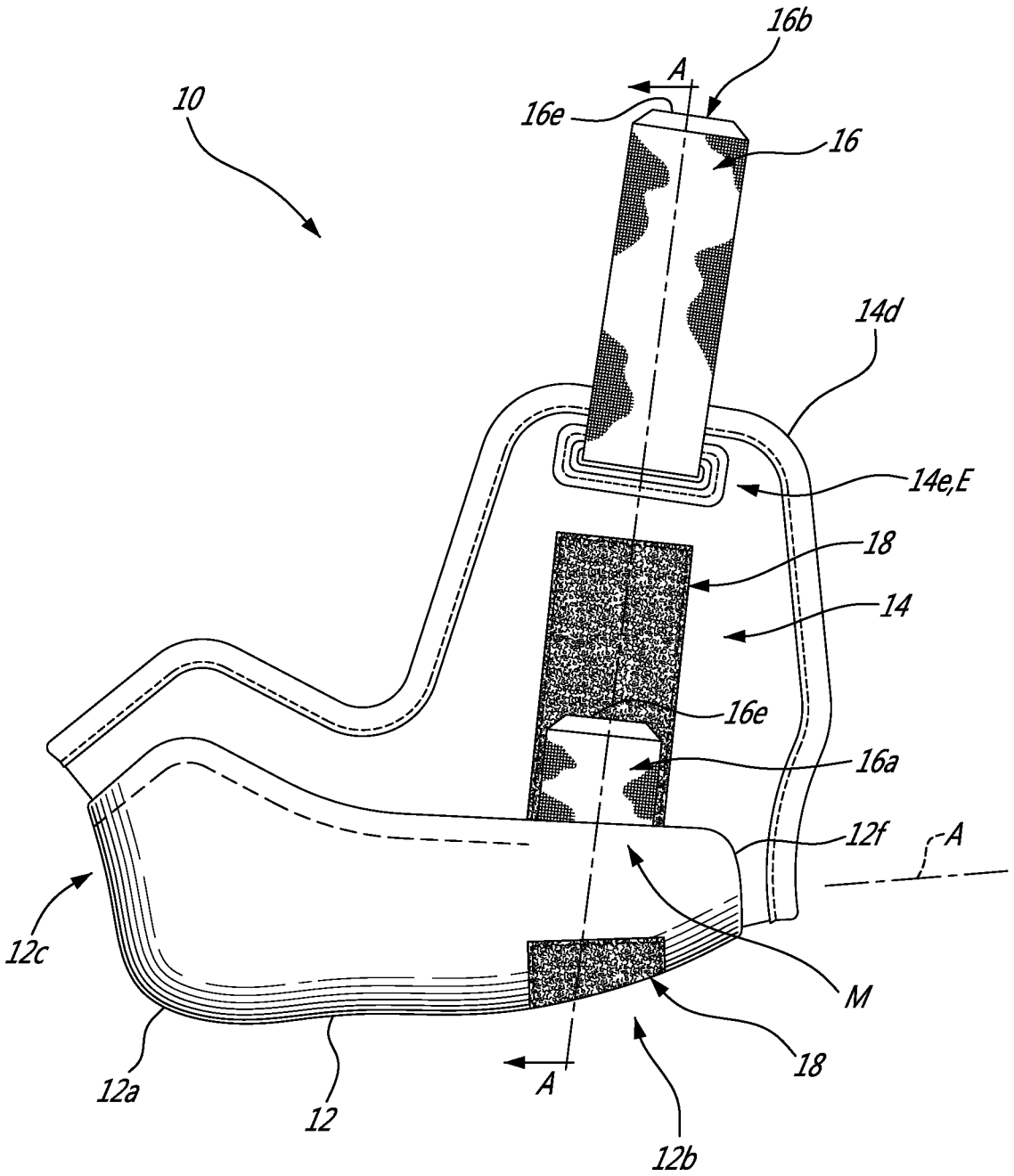


Fig. 1

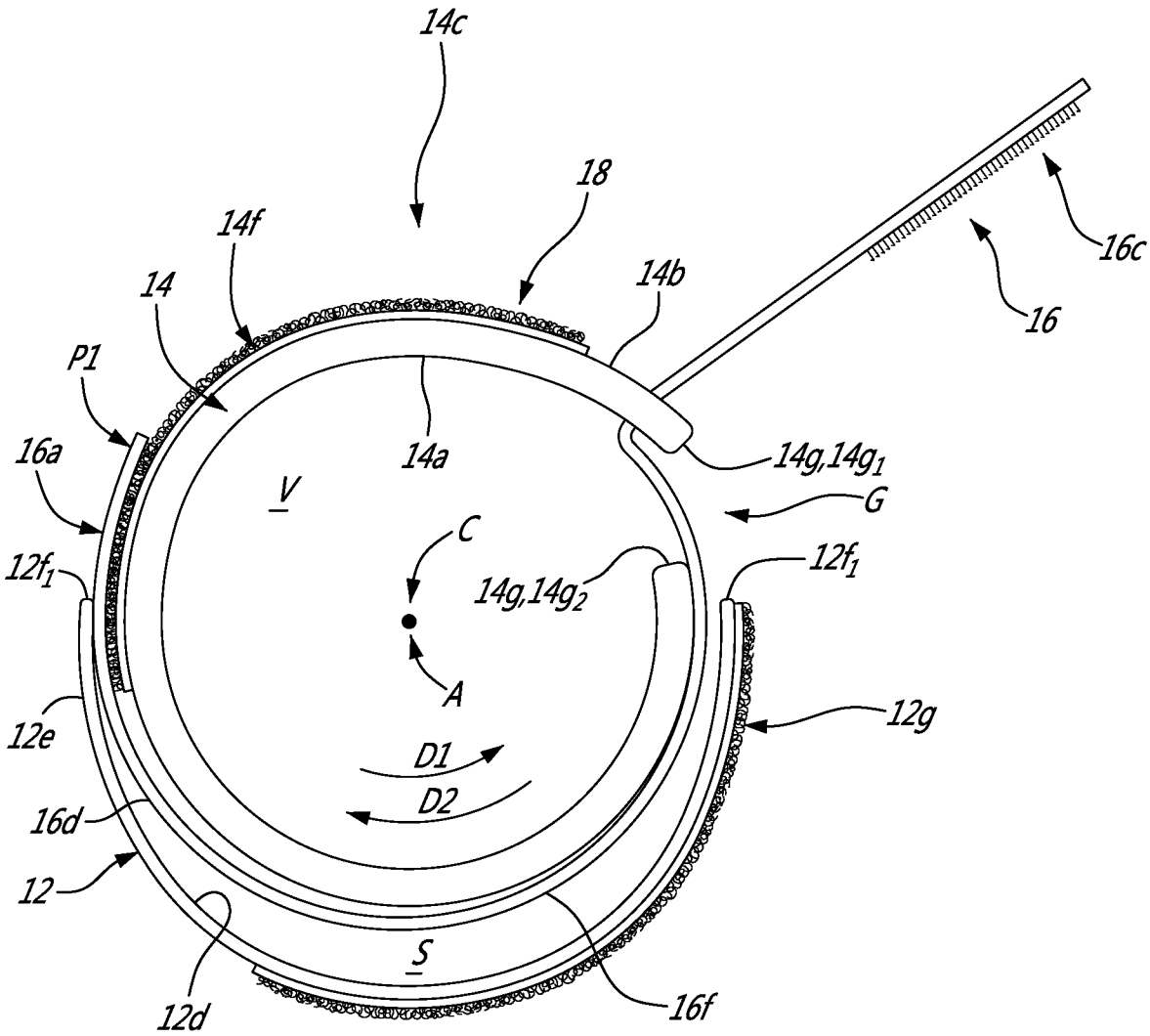

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Fig. 2

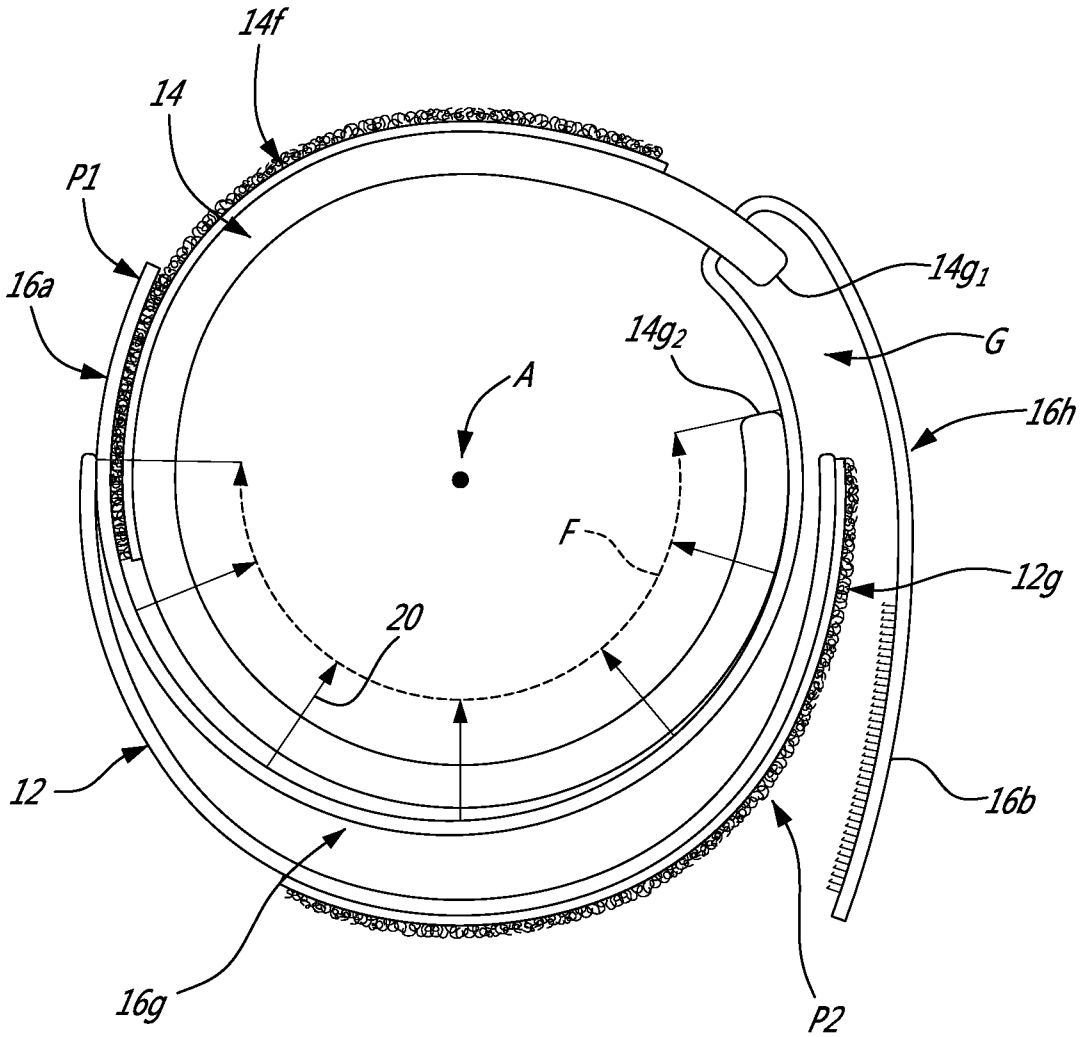


Fig. 3

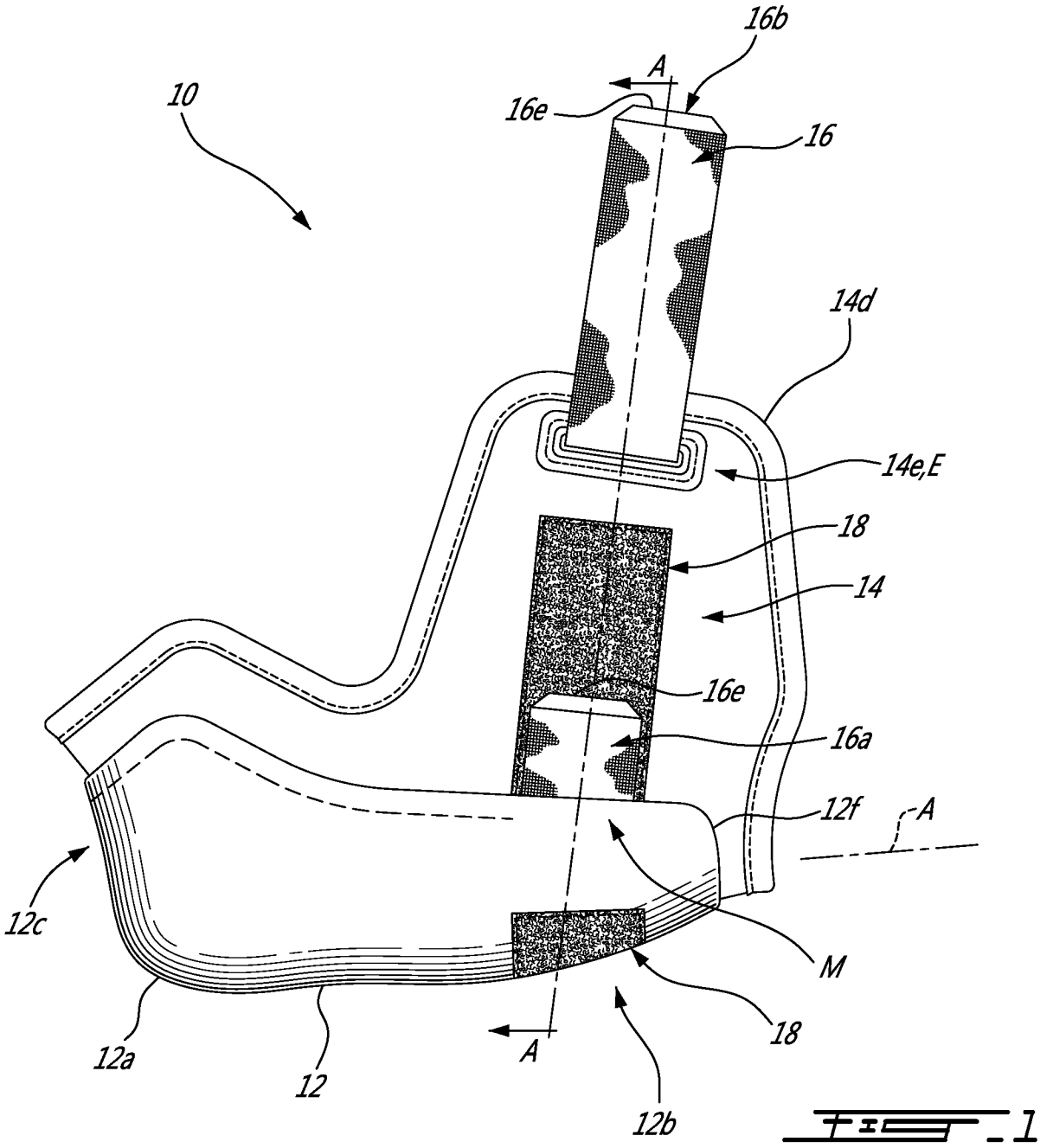


Fig. 1