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(54) Quick closing system for a safety boot

(57) Apparatus and associated methods may relate to a boot having independently adjustable first and second straps with the first strap located at an ankle portion of the boot and the second strap located at an instep portion of the boot. In an illustrative example, the first and second straps may each be routed through one or more eyelets in a zig-zag configuration. In some embodiments, each strap may be routed through an adjustment buckle permitting a wearer to secure the boot by simply tugging each strap's free end. In some embodiments, the dual strap-fasteners may be removably installed to a boot. In an exemplary embodiment, the removable fastener may have both an ankle strap circumscribing the boot near a wearer's lower ankle and a stirrup strap looping under the outsole. In various examples, the boot may be comfortably secured to a wearer's foot in an easy and quick manner.

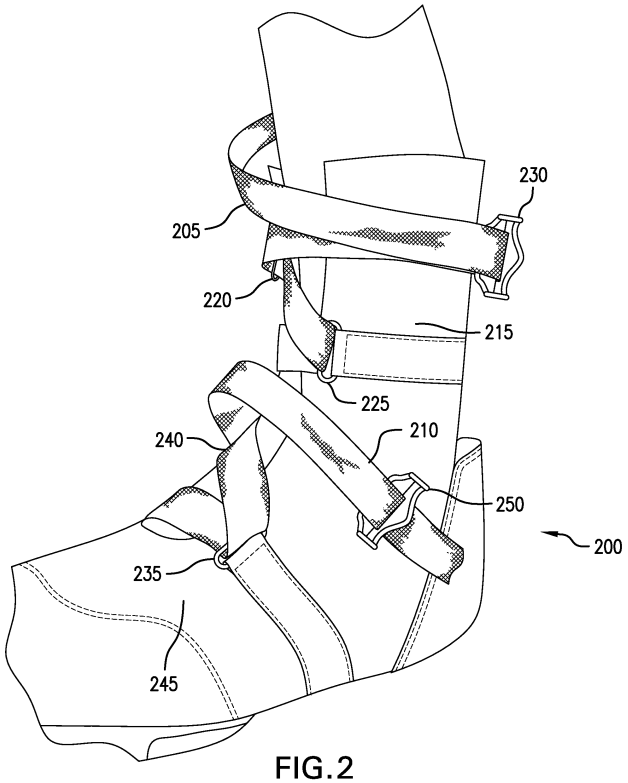

FIG. 2

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Description

TECHNICAL FIELD

[0001] Various embodiments relate generally to articles of footwear.

BACKGROUND

[0002] Some occupations require a person to put on apparel very quickly. Other occupations require the donning and doffing of apparel very frequently. In both such scenarios, an employer is facilitated in these activities if the apparel can be put on easily and quickly. One such occupation requiring quick donning of apparel is that of a firefighter. When a fire alarm is sounded, the firefighters have little time to dress themselves in their fire protection outerwear. Shoes can be most difficult to put on as it requires a person to bend over or kneel on one knee. And the damage that is ultimately wreaked upon a burning structure is often a function of the time it takes for the fire department to respond. A slip-on boot could reduce the time required for donning, but the fit of such a boot may be so loose as to easily come off the foot. Good fit is required for firefighters to practice their craft with energy and mobility.

[0003] In occupations that require a person to put on and take off apparel frequently, shoes which require lacing and tying can be not only time-consuming, but expensive to the employer in terms of salary and wages spent on the activity of putting them on. People change their shoes when they are required to go from hot climates to cold ones, such as when employers have walk-in refrigerators or freezers. Some industries require different apparel when going to and from clean and dirty environments or rooms. Still other employers require safety boots when working in dangerous environments but not in offices.

[0004] Still other individuals simply have a handicap or find it difficult to put on or tie one's own shoes. Perhaps some elderly people find themselves similarly challenged when facing the task of putting on shoes, which able-bodied people take for granted. Even small children often are unable to dress themselves because of the difficulty presented by the ordinary shoe. Thus, myriad reasons for these difficulties in putting on shoes arise from a multiplicity of concerns.

SUMMARY

[0005] Apparatus and associated methods may relate to a boot having independently adjustable first and second straps with the first strap located at an ankle portion of the boot and the second strap located at an instep portion of the boot, wherein each of the straps may be routed through eyelets in a zig-zag configuration. In an illustrative example, each strap may be routed through an adjustment buckle permitting a wearer to secure the boot by simply tugging each strap's free end. In some embodiments, the dual strap-fasteners may be removably installed to a boot. In an exemplary embodiment, the removable fastener may have both an ankle strap circumscribing the boot near a wearer's lower ankle and a stirrup strap looping under the outsole. In various examples, the boot may be comfortably secured to a wearer's foot in an easy and quick manner.

[0006] Various embodiments may achieve one or more advantages. For example, some embodiments may provide for great comfort due to the use of wide straps instead of laces, as the straps present an greater surface area than that presented by laces thereby increasing the pressure distribution one the ankle or foot. In some embodiments, the greater surface area of straps permits the use of fewer eyelets to be used. Because the straps permit the use of fewer eyelets combined with lower strap eyelet friction, some exemplary embodiments permit easy tightening and loosening. In some exemplary embodiments, the dual adjustments may permit the boots to be secured to a wearer's foot quickly. In some examples, the straps may slide through the eyelets more freely than do laces, permitting a wearer to easily secure the boot. In an illustrative embodiment, the dual adjustment mechanisms may permit a wearer to tighten his/her ankle independently of the tightness of the foot. In an illustrative embodiment, the location of the lower buckle below and to the rear of the malleolus of the wearer's foot provides optimum fit and comfort. In some embodiments, the lower strap is approximately equal distance both below and behind the malleolus of the foot.

[0007] The details of various embodiments are set forth in the accompanying drawings and the description below. Other features and advantages will be apparent from the description and drawings, and from the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008]

Figure 1 depicts a sketch of a field implementation of an exemplary Quick Closing System for a Safety Boot (QCSSB) used in an emergency situation.

Figure 2 depicts a perspective view of an exemplary QCSSB.

Figure 3 depicts a close-up view of the ankle region of an exemplary QCSSB.

Figure 4 depicts a side view of an exemplary aftermarket QCSSB which has been affixed to a boot.

Figure 5 depicts a close-up perspective view of an exemplary aftermarket QCSSB.

Figures 6a-6c depict various exemplary buckles for adjusting the tension of the straps used in QCSSBs.

[0009] Like reference symbols in the various drawings indicate like elements.

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

[0010] Figure 1 depicts a sketch of a field implementation of an exemplary Quick Closing System for a Safety Boot (QCSSB) used in an emergency situation. In figure 1, a firefighter 100, who is responding to an alarm, is depicted as he is urgently putting on his boots 105. The firefighter 100 is wearing an exemplary Quick Closing System for a Safety Boot (QCSSB) 110. In this exemplary QCSSB 110, a lower strap 115 has already been tightened, securing the firefighter's foot. The tightening of the lower-strap was accomplished by pulling the strap through a lower strap adjustment buckle 120. The lower strap 115 has been routed through lower-strap eyelets 125, 127 in a zig-zag configuration, permitting the foot to be secured along a significant portion of the lower boot. The firefighter is depicted as he is tightening an upper strap 130 which may secure the firefighter's ankle. The tightening of the upper strap 130 is performed by pulling the upper strap 130 through an upper strap adjustment buckle 135. The upper strap of this exemplary QCSSB has been routed through upper strap eyelets 140, 142 in a zig-zag configuration, which permits the ankle to be secured along a significant portion of the upper boot. In such an exemplary fashion, the firefighter 100 has secured his boots 105 with a quick tug of each strap 115, 130.

[0011] Figure 2 depicts a perspective view of an exemplary QCSSB. In this figure, the exemplary QCSSB 200 is shown depicted with two straps, an upper strap 205 and a lower strap 210. The upper strap 205 is affixed to an upper region 215 of the QCSSB 200. Is this exemplary embodiment, the upper strap 205 is threaded through two eyelets 220, 225, which are attached to the upper region 215 of the boot. The upper strap 205 is shown threaded through the eyelets 220, 225 in a zig-zag fashion. In this example, the upper strap 205 is threaded through an upper-strap adjustment buckle 230, which facilitates the tightening and loosening of the upper strap 205. When the upper strap 205 is tightened, the upper region 215 of the boot is secured to the ankle of the wearer. The lower strap 210 of this exemplary QCSSB 200 is threaded through two eyelets 235, 240, which are attached to a lower region 245 of the boot. The lower strap 210 is shown threaded through the eyelets 235, 240 in a zig-zag fashion. In this example, the lower strap 210 is threaded through a lower-strap adjustment buckle 250, which facilitates the tightening and loosening of the lower strap 210. When the lower strap 210 is tightened, the lower region 245 of the boot is secured to the foot of the wearer.

[0012] Figure 3 depicts a close-up view of the ankle region of an exemplary QCSSB. In this exemplary figure, the ankle-strap adjustment buckle 300 is depicted. An upper strap 305, in this example, is looped through an aperture 310 in the buckle 300, around a sliding bar 315, and then back through the buckle aperture 310 leaving a free end 320 of the upper strap 305. As the free end 320 of the upper strap 305 is pulled tight, the tension of the upper strap 305 pulls the sliding bar 315 in the direction of the tension, causing the sliding bar 315 to pinch the upper strap 305 between the sliding bar 315 and the buckle 300. This pinch of the upper strap 305 secures the boot to a wearer's ankle and/or lower leg.

[0013] To release the upper portion of the boot from the wearer's ankle, a tab 325 of the buckle 300 may be pulled against the direction of the tension so as to permit the sliding bar 315 to move away from the pinched portion of the upper strap 305.

[0014] Figure 4 depicts a side perspective view of an exemplary aftermarket QCSSB which has been affixed to a boot. In this figure, a boot 400, having a top-foot region 405, an outsole 410 and a heel 415, is shown with an exemplary aftermarket QCSSB device 420 attached to it. The aftermarket QCSSB 420 has an ankle strap 425 and a stirrup strap 430. The ankle strap 425 goes around the entire boot at approximately about the lower ankle region of a wearer's foot. The ankle strap 425 and the stirrup strap 430 are connected at the connection point 435. Another connection point 440 connects the stirrup strap to the ankle strap on the opposite side of the boot 400. As depicted, the stirrup strap 430, which is connected to the ankle strap 425 on both sides of the boot, loops underneath the outsole 410 of the boot. A stirrup-strap adjustment buckle 445 permits the tightening of the stirrup strap, and an ankle-strap adjustment buckle 450 permits the tightening of the ankle strap. The stirrup-strap adjustment buckle 445 has a tightening mechanism which may or may not be similar to the buckle mechanism described in figure 3. The ankle strap has a top-foot portion 455, which is that portion of the strap that goes from the two connection points 435, 440 over the top-foot region 405 of the boot. The ankle strap has a heel portion 460, which is that portion of the strap that goes from the two connection points 435, 440 around the heel 415 of the boot 400. In this example, when the ankle strap 425 and the stirrup strap 430 are both tightened the boot 400 may be secured to a wearer's foot.

[0015] Some exemplary embodiments of an aftermarket QCSSB may have an anti-slip material or coating on the heel portion 460 of the ankle strap 425. This anti-slip coating or material may provide a large coefficient of static friction between the heel portion 460 of the ankle strap 425 and the heel 415 of the boot 400. The location of the connection points 435 440 relative to the wearer's foot in some exemplary embodiments may be below and behind the malleolus of the foot. In some exemplary embodiments, the strap width may be made large to present itself over a large surface area of the boot which may then provide a tight and secure fit to the wearer's foot. In accordance with an exemplary embodiment, the top-foot region 405 of the ankle strap 425 may widen over the top-foot portion of the boot. In some embodiments, for example, the top-foot portion of the strap may split into two or more separate straps to provide increased surface

area for tensioning.

[0016] Figure 5 depicts a close-up perspective view of an exemplary aftermarket QCSSB. In this figure, an exemplary aftermarket QCSSB 500 is shown unattached from a boot. A connection location 505 is depicted in this example as being manufactured in the shape of the letter 'T' with three limbs 510, 515, 520. This exemplary connection 505 has an ankle-strap adjustment buckle 525, an ankle clasp 530, and a stirrup-strap adjustment buckle 535 attached to each of its three limbs 510, 515, 520, respectively. A stirrup strap 540 has a free end 545 which passes through the stirrup-strap adjustment buckle 535. The stirrup strap 540 has an outsole region 550 that loops underneath the outsole of a boot. In some embodiments, this outsole region 550 may be composed of rubber. In some exemplary embodiments, the outsole region 550 may be made from plastic. An ankle strap 555 is shown with a free end 560 which passes through the ankle-strap adjustment buckle 525.

[0017] Figures 6a-6c depict various exemplary buckles for adjusting the tension of the straps used in QCSSBs. In figure 6a, an exemplary strap buckle 600 is shown. A strap threading arrow 605 shows the path of the strap through this exemplary strap buckle 600. An attachment aperture 610 may used to affix the buckle 600 to a QCSSB. After a strap is threaded through the buckle 600, the free end may be tugged or pulled for adjusting the tension of the strap. In figure 6b, an exemplary sliding bar buckle 615 is shown. A strap threading arrow 620 shows the path of a strap through this exemplary sliding bar buckle 620. An attachment aperture 625 may be used to affix the buckle 615 to a QCSSB. After a strap is threaded through the buckle 620, the free end may be tugged or pulled for adjusting the tension of the strap. In figure 6c, an exemplary double ring buckle 630 is shown. A strap threading arrow 635 shows the path of a strap through this exemplary sliding bar buckle 630. An attachment strap 640 may be used to affix the buckle 630 to a QCSSB. After a strap is threaded through the buckle 630, the free end may be tugged or pulled for adjusting the tension of the strap

[0018] Although various embodiments have been described with reference to the figures, other embodiments are possible. For example, in some embodiments, the adjustment buckles may also provide the functionality of a clasp, which permits the strap to be opened and closed. In such embodiments, a separate clasp may not be used.

[0019] In various embodiments, apparatus and methods may involve different types of clasps or buckles, which are well known to those skilled in these arts. In an exemplary embodiment, the two adjustment buckles may be located on the lateral side of the wearer's boot. In other exemplary embodiments, the two adjustment buckles may be located on opposite sides of the boot. In this way, a wearer may tighten the boot very quickly by simultaneously pulling both straps.

[0020] In accordance with another embodiment, the zig-zag pattern of an exemplary QSCCB may consist of a single zig or a single directional turn of the strap. In accordance with another embodiment, the zig-zag pattern of an exemplary QCSSB may consist of two or more strap directional turns.

[0021] A number of implementations have been described. Nevertheless, it will be understood that various modification may be made. For example, advantageous results may be achieved if the steps of the disclosed techniques were performed in a different sequence, or if components of the disclosed systems were combined in a different manner, or if the components were supplemented with other components. Accordingly, other implementations are within the scope of the following claims.

Claims

1. An article of footwear configured to receive a wearer's foot and ankle, the article comprising:

   a boot comprising an upper region configured to receive the wearer's ankle and a lower region configured to receive the wearer's foot;
   an upper strap having a fixed end attached to the upper region of the boot and an adjustable end;
   an upper-strap eyelet through which the upper strap is configured in a zig-zag fashion;
   an upper-strap adjustment buckle which connects the adjustable end of the upper strap to the upper region of the boot, the upper adjustment buckle permitting the tightening and loosening of the upper strap;
   a lower strap having a fixed end attached to the lower region of the boot and an adjustable end;
   a lower-strap eyelet through which the lower strap is configured in a zig-zag fashion; and
   a lower-strap adjustment buckle which connects the adjustable end of the lower strap to the lower region of the boot, the lower adjustment buckle permitting the tightening and loosening of the lower strap.

2. The article of Claim 1, wherein the article comprises at least one more upper-strap eyelet through which the upper strap is configured in a zig-zag fashion.

3. The article of Claim 1, wherein the article comprises at least one more lower-strap eyelet through which the lower strap is configured in a zig-zag fashion.

4. The article of Claim 1, wherein the upper-strap adjustment buckle is affixed to the upper region of the boot on the lateral side of the boot.

5. The article of Claim 1, wherein the lower-strap adjustment buckle is affixed to the lower region of the boot on the lateral side of the boot.

6. The article of Claim 1, wherein the upper and lower straps comprise a belt material having a width and a thickness, the width being at least ten times greater than the thickness.

7. The article of Claim 1, wherein the lower-strap adjustment buckle is affixed to the lower region of the boot on the posterior side of the malleolus of the wearer's ankle.

8. The article of Claim 1, wherein the lower-strap adjustment buckle is affixed to the lower region of the boot beneath the malleolus of the wearer's ankle.

9. A boot securing device configured to receive a wearer's foot and ankle, the device comprising:

an ankle strap configured to circumscribe the wearer's lower ankle, the ankle strap having a heel region and a top-foot region;
an ankle-strap adjustment buckle which permits the tightening and loosening of the ankle strap;
a stirrup strap configured to loop under the outsole of the wearer's boot, the stirrup strap attached to the ankle strap near the medial malleolus of the wearer's foot; and
a stirrup-strap adjustment buckle attached to the ankle strap near the lateral malleolus of the wearer's foot, the stirrup-strap adjustment buckle permitting the tightening and loosening of the stirrup strap.

10. The device of Claim 9, further comprising an ankle-strap clasp, which permits the opening and closing of the ankle strap.

11. The device of Claim 9, wherein the stirrup strap comprises rubber.

12. The device of Claim 9, wherein the stirrup strap comprises plastic.

13. The device of Claim 9, wherein the ankle strap comprises a belt material having a width and a thickness, the width being at least ten times larger than the thickness.

14. The device of Claim 9, wherein the heel region of the ankle strap has an anti-slip surface which makes contact with a portion of the heel of the wearer's boot.

15. The device of Claim 9, wherein ankle strap increases in width over the top-foot region of the wearer's boot.

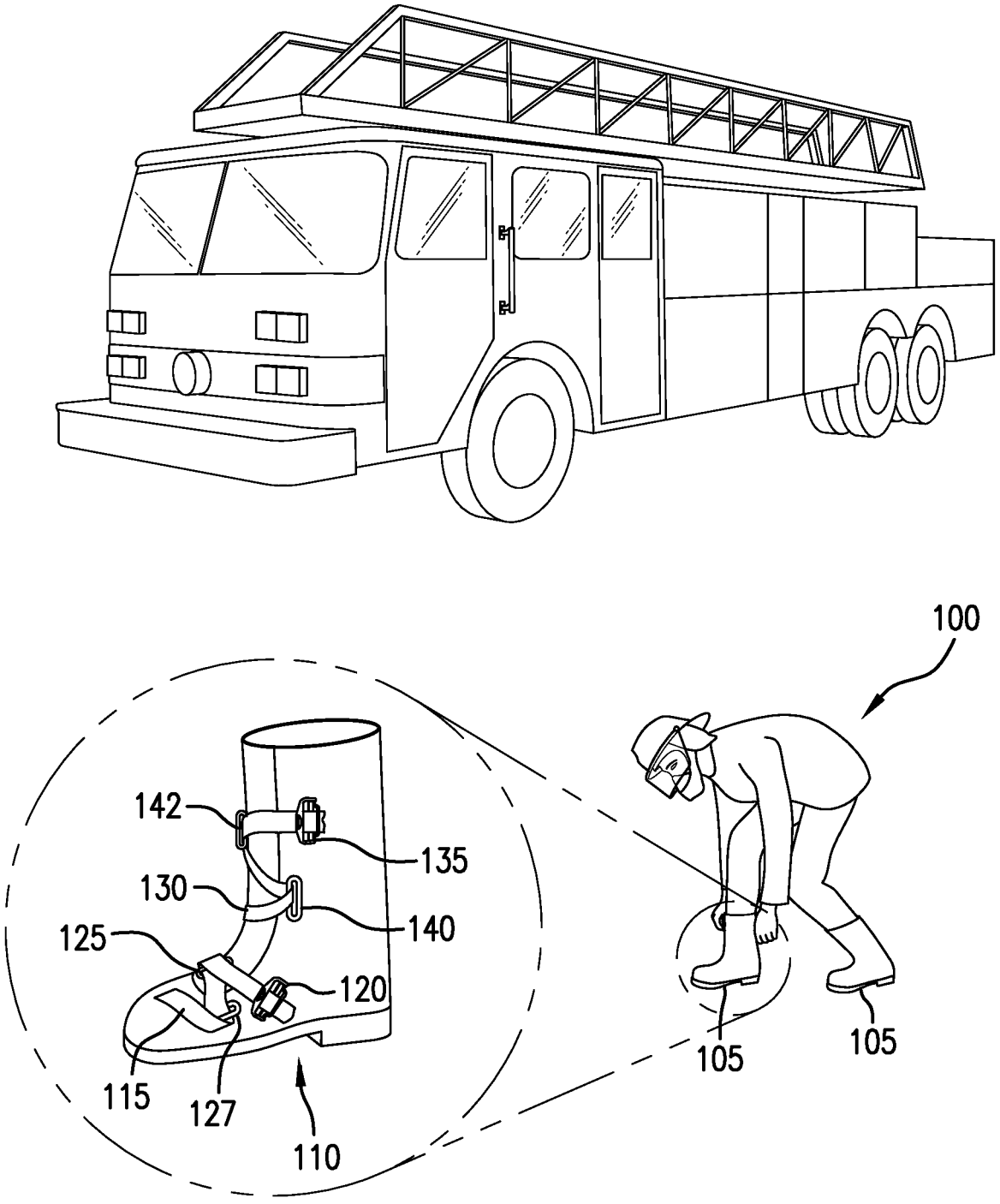

FIG. 1

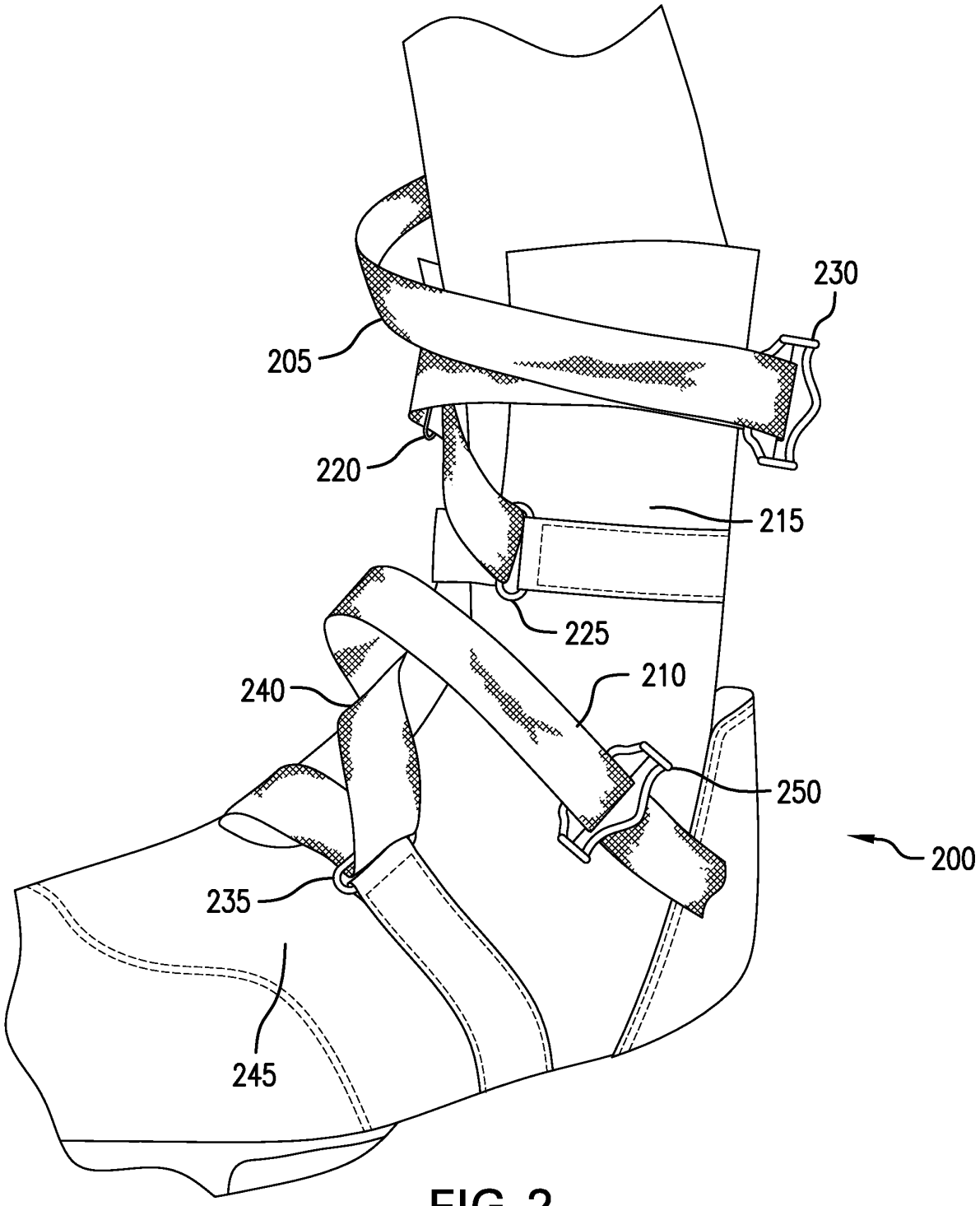

FIG.2

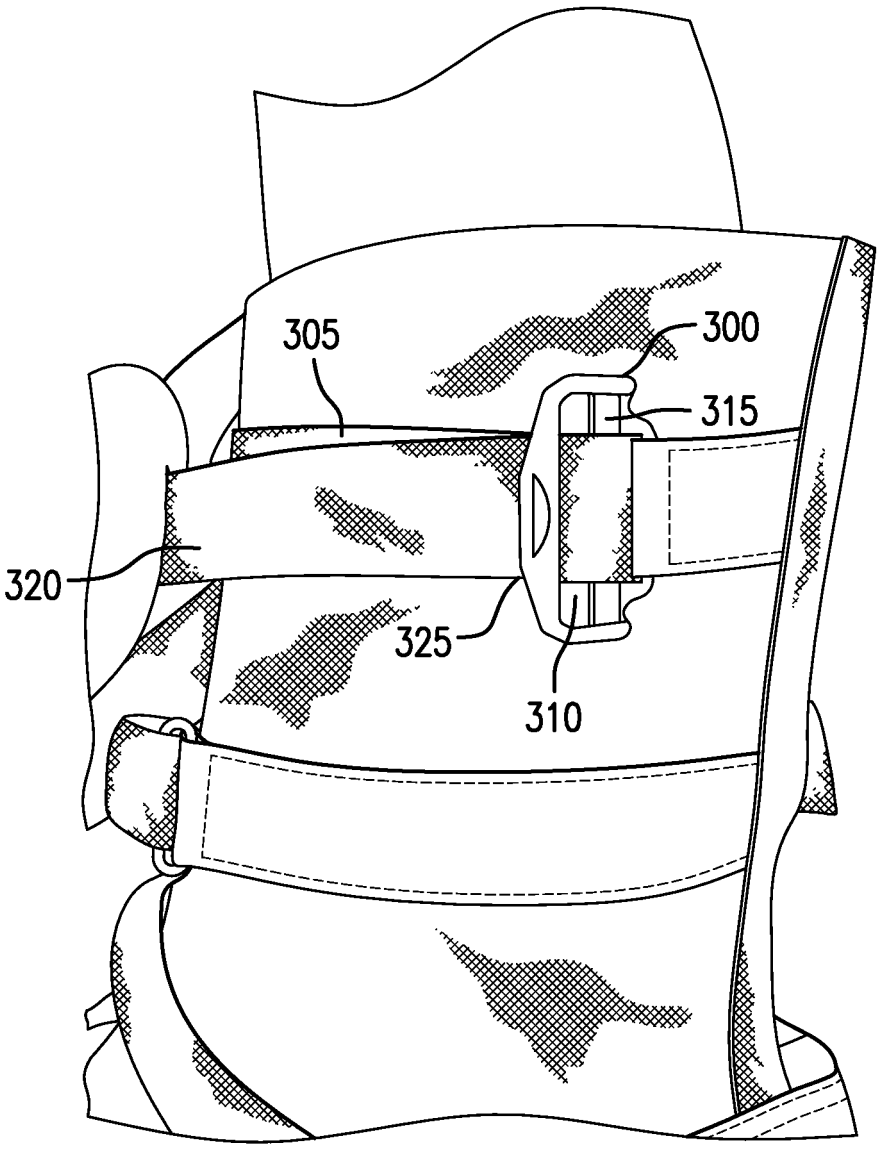

FIG.3

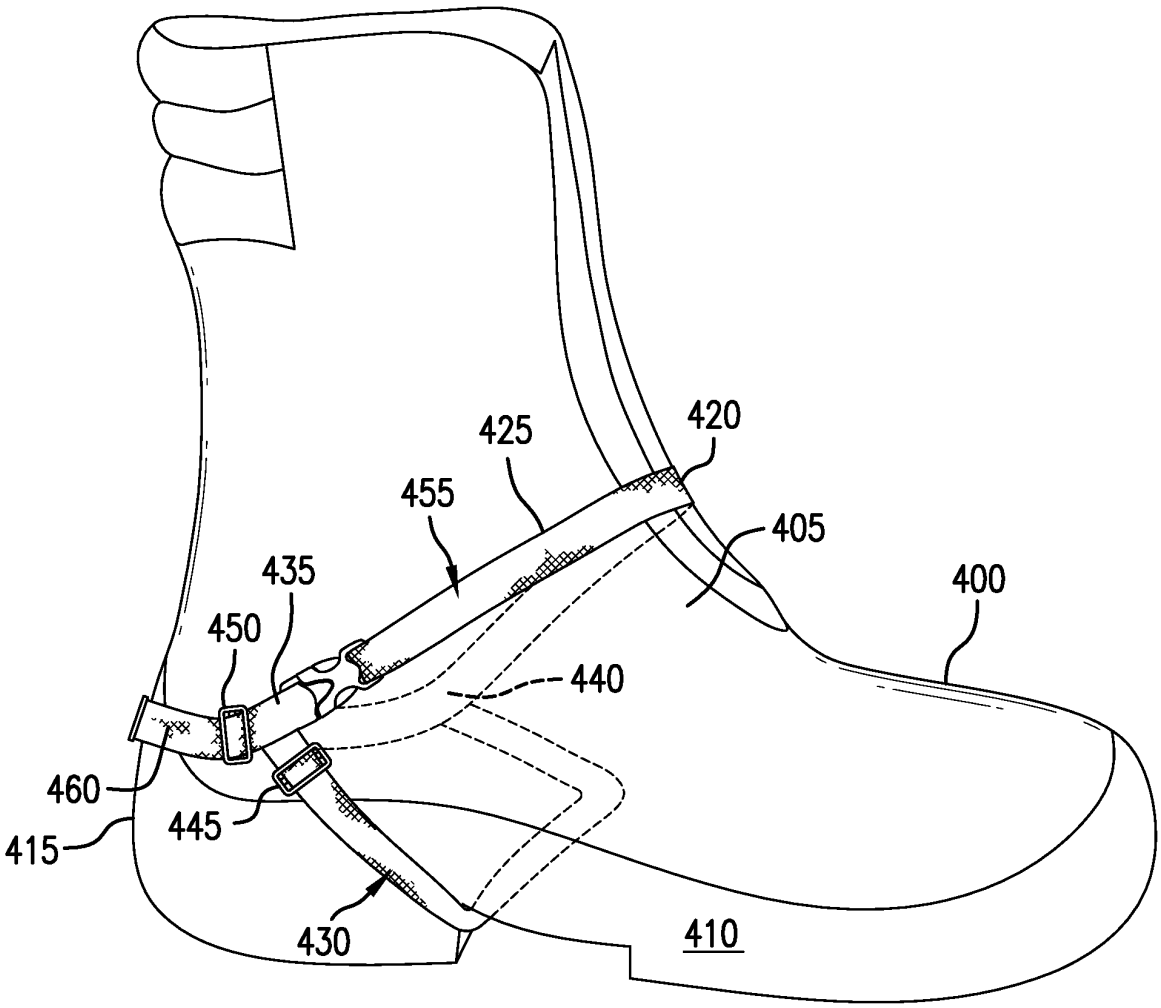

FIG.4

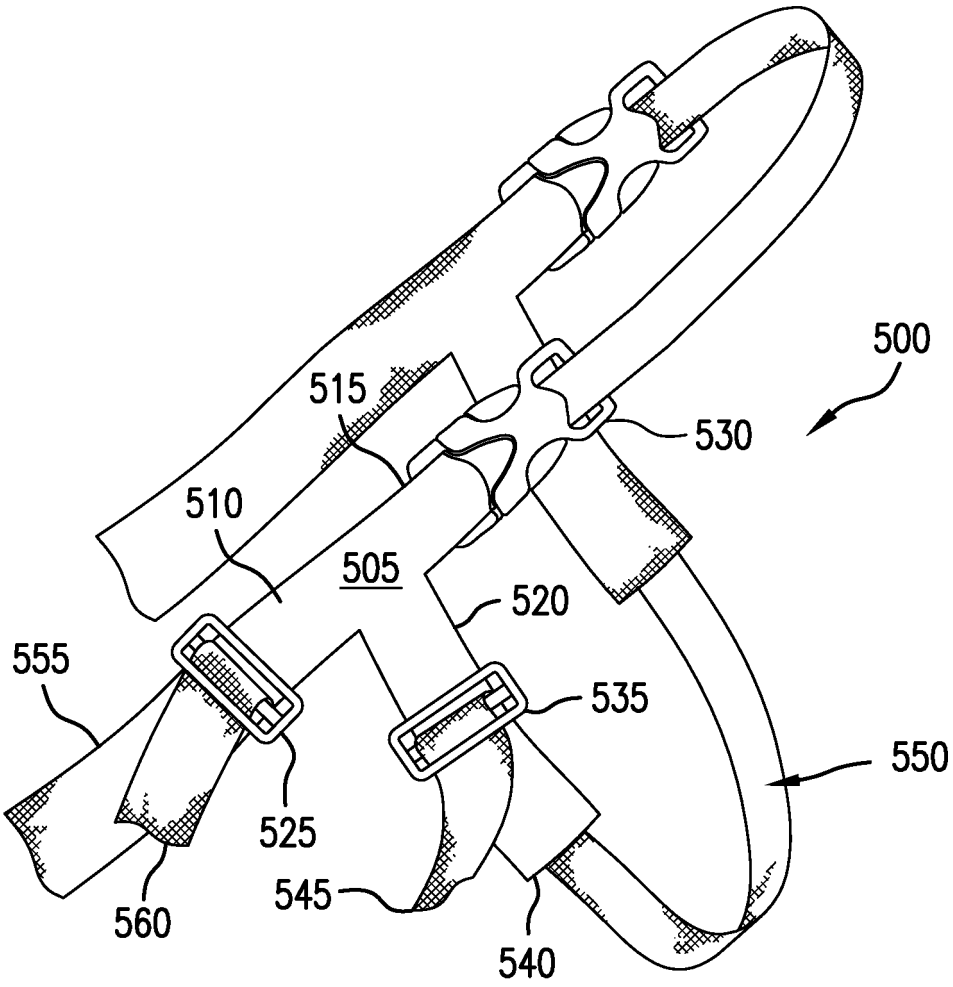

FIG.5

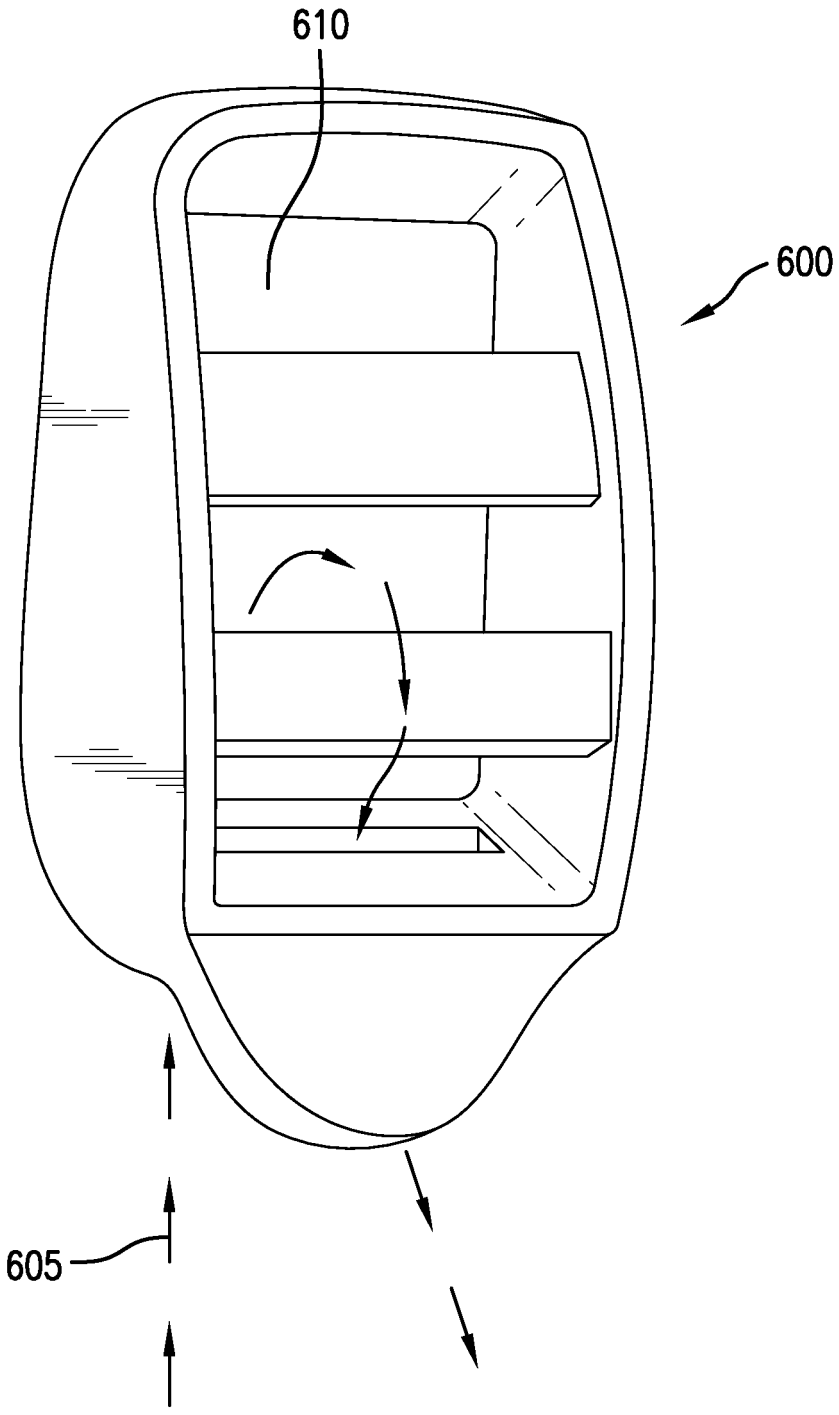

FIG.6A

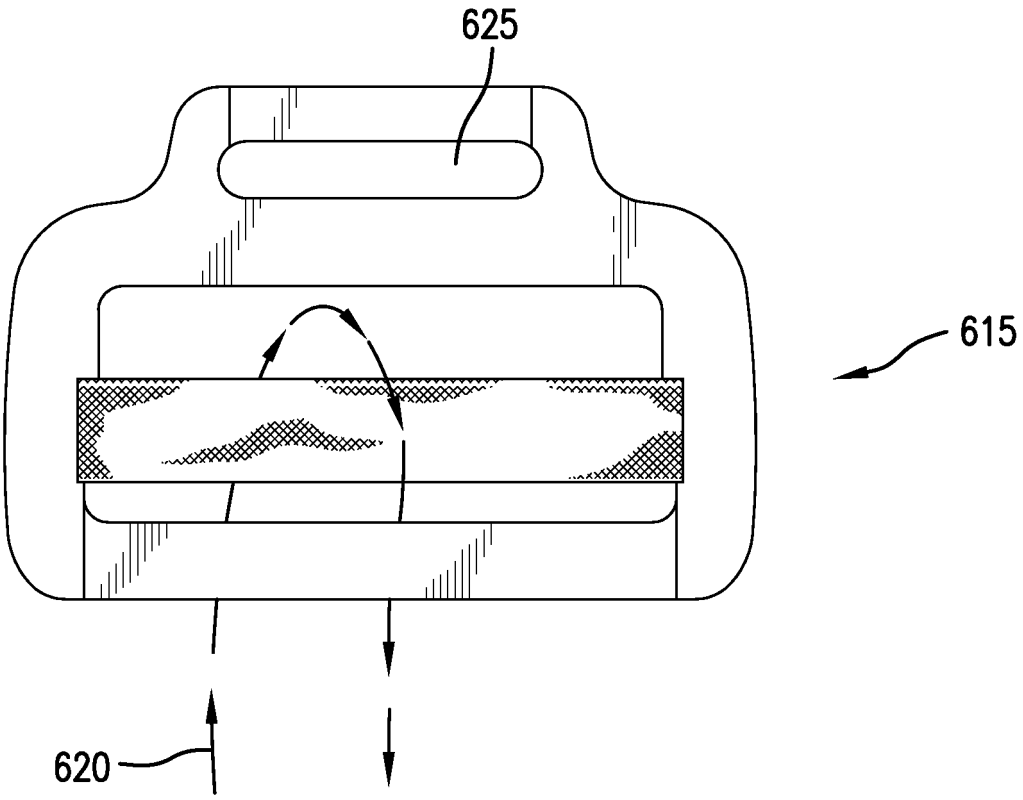

FIG.6B

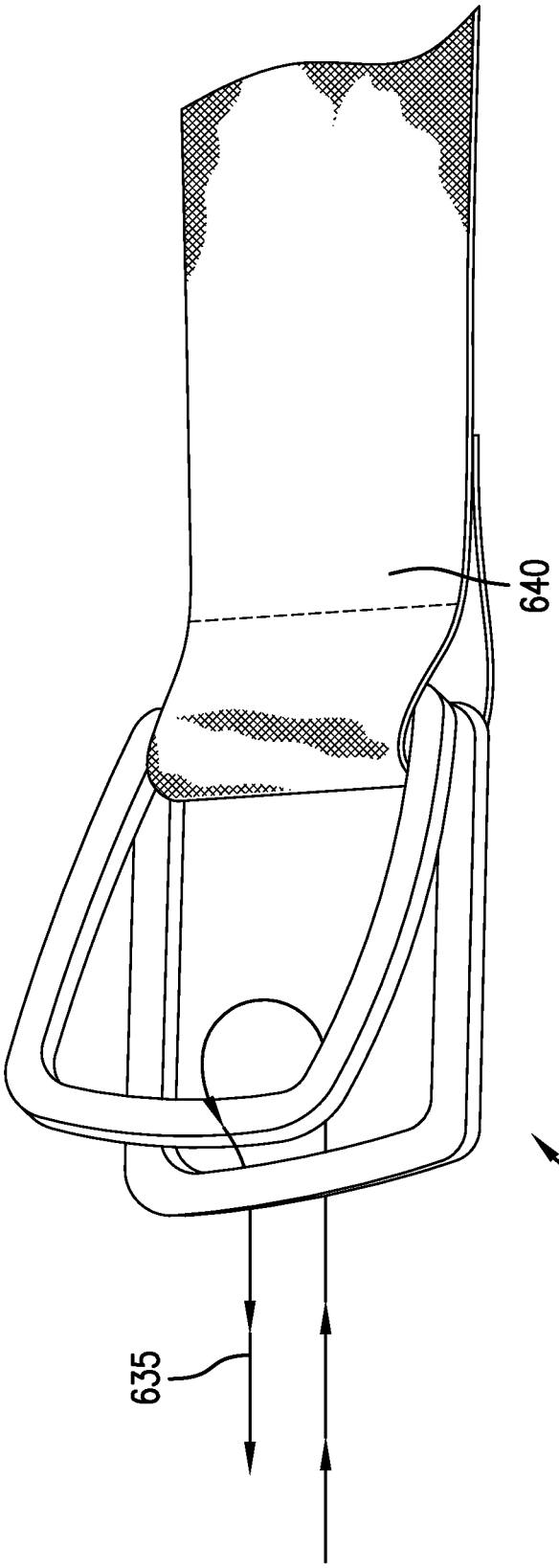

FIG.6C

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EUROPEAN SEARCH REPORT

Application Number
EP 13 17 0178

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	28 October 2013	Claudel, Benoît

CATEGORY OF CITED DOCUMENTS

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