



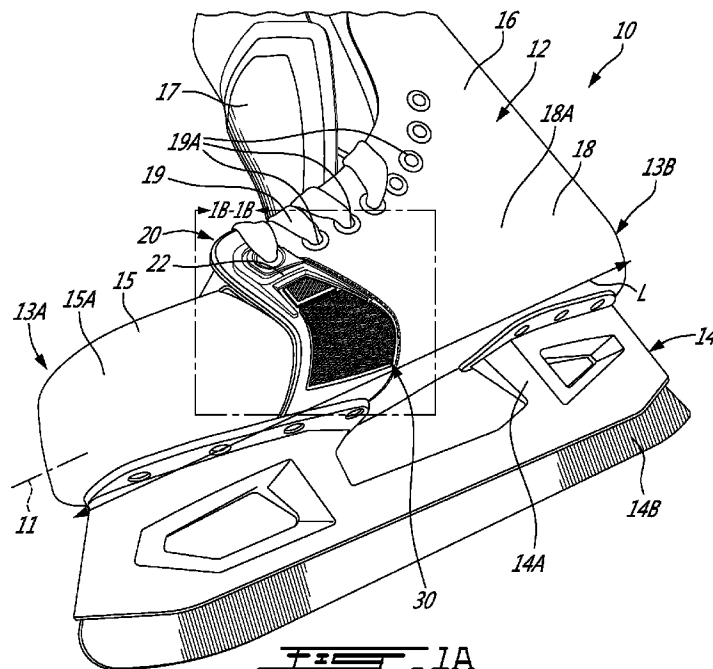
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(54) Title: GOALIE SKATE



(57) **Abrégé/Abstract:**

A goalie skate includes a boot having an upper portion positioned above a lower portion. The lower portion has a medial side and a lateral side extending between a toe end and a heel end. A grip is positioned to form an outer surface of a boot of the goalie skate. The grip has a grip coefficient of friction that is greater than a coefficient of friction of a portion of the boot adjacent the grip. The grip is positioned on the boot at a location thereon corresponding to a widest portion of the boot and adjacent to the toe cap.



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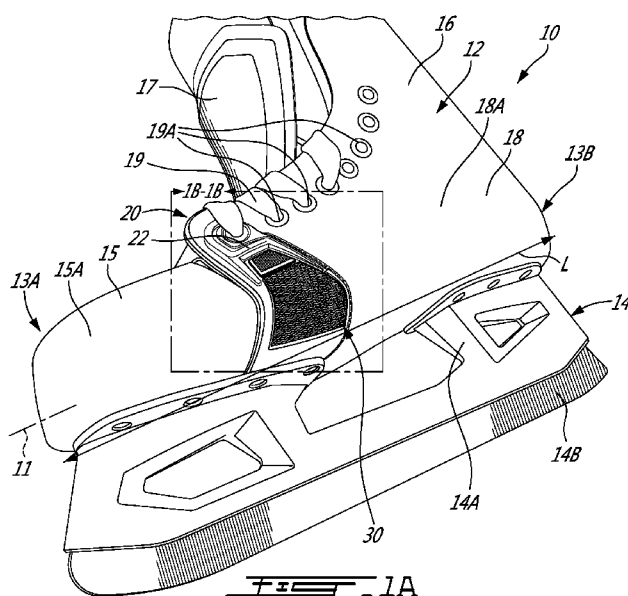
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(54) Title: GOALIE SKATE



(57) **Abstract:** A goalie skate includes a boot having an upper portion positioned above a lower portion. The lower portion has a medial side and a lateral side extending between a toe end and a heel end. A grip is positioned to form an outer surface of a boot of the goalie skate. The grip has a grip coefficient of friction that is greater than a coefficient of friction of a portion of the boot adjacent the grip. The grip is positioned on the boot at a location thereon corresponding to a widest portion of the boot and adjacent to the toe cap.

[Continued on next page]

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GOALIE SKATE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to U.S. patent application no. 62/831,918 filed April 10, 2019, the entire contents of which are incorporated by reference herein.

TECHNICAL FIELD

[0002] The application relates generally to ice skates and, more particularly, to goalie skates.

BACKGROUND

[0003] The forefoot of a skate is considered to be the widest zone of the skate in a bottom portion thereof. As the widest zone of the skate, it is also one of the areas of the skate that is most sensitive to abrasion when skating, which may cause damage to the skate. Furthermore, as the widest zone of the skate, it is the first portion of the skate boot to touch the ice when the skate is angled relative to the ice during a turning or skating movement. In some instances, contact of the widest zone of the skate with the ice can create a pivot point which may cause the blade to lose contact with the ice such that the player will slip. In order to address some of these issues, the widest zone of the skate may be provided with a protective piece, known as vamping.

SUMMARY

[0004] There is accordingly provided, a goalie skate boot extending between a toe end and a heel end, the goalie skate boot comprising: a toe cap attached to the toe end; and a grip defining part of an outer surface of the goalie skate boot and having a grip coefficient of friction being greater than a coefficient of friction of a portion of the outer surface adjacent the grip, the grip positioned on the goalie skate boot at a location thereon corresponding to a widest portion of the goalie skate boot and adjacent to the toe cap.

[0005] The goalie skate boot as defined herein may also comprise, in whole or in part, and in any combination, one or more of the following features.

[0006] The grip overlies an element on the outer surface of the goalie skate boot, the element overlying the widest portion of the goalie skate boot.

[0007] A vamping that is disposed on one or both of the medial and lateral sides at a location thereon corresponding to the widest portion, the grip positioned on an outer surface of the vamping.

[0008] The grip includes a grip texture occupying at least part of an area of the grip and forming the outer surface.

[0009] The grip texture has a grip height and a grip length, the grip texture having a plurality of protrusions spaced apart along the grip height, and grooves disposed between adjacent protrusions.

[0010] The location of the grip is at least on the medial side of the goalie skate boot.

[0011] There is also provided a goalie skate comprising: a boot having an upper portion positioned above a lower portion, the lower portion having a medial side and a lateral side extending between a toe end and a heel end, the lower portion having a vamping disposed on one or both of the medial and lateral sides of the lower portion at a location thereon corresponding to a widest portion of the lower portion between the medial and lateral sides; a grip positioned on the vamping and forming an outer surface of the vamping, the grip having a grip coefficient of friction being greater than a coefficient of friction of a portion of the boot adjacent the vamping; and a blade holder connected to the lower portion of the boot, and a blade attached to the blade holder.

[0012] The goalie skate as defined herein may also comprise, in whole or in part, and in any combination, one or more of the following features.

[0013] The grip is composed of a grip material selected from the group consisting of rubber, plastic, and fabric.

[0014] The grip includes a grip texture occupying at least part of an area of the grip and forming the outer surface.

[0015] The grip texture has a grip height and a grip length, the grip texture having a plurality of protrusions spaced apart along the grip height, and grooves disposed between adjacent protrusions.

[0016] The grip texture includes wave protrusions spaced apart along the grip height, each wave protrusion having opposed maxima and minima spaced apart in a direction parallel to the grip length.

[0017] The vamping includes a vamping material selected from the group of materials including synthetic leather, plastic, and composite material.

[0018] The vamping has a peripheral edge delimiting a vamping body, the grip occupying less than an entirety of a surface area of the vamping body.

[0019] The vamping extends along a vamping height between an upper end and a lower end, the vamping having an eyelet at the upper end thereof.

[0020] The vamping is curved along the vamping height between the upper and lower ends.

[0021] The location of the vamping on one or both of the medial and lateral sides of the lower portion is closer to the toe end of the lower portion than to the heel end.

[0022] There is further provided a method of forming a goalie skate, comprising: providing a boot having an upper portion positioned above a lower portion, the lower portion having a medial side and a lateral side extending between a toe end and a heel end; providing the boot with a vamping disposed on one or both of the medial and lateral sides of the lower portion at a location thereon corresponding to a widest portion of the lower portion between the medial and lateral sides; and providing the vamping with a grip to form at least part of an outer surface of the vamping, the grip having a grip coefficient of friction being greater than a coefficient of friction of a portion of the boot adjacent the vamping.

[0023] The method as defined herein may also comprise, in whole or in part, and in any combination, one or more of the following additional features and/or steps.

[0024] Providing the vamping with the grip includes providing the vamping with the grip made of grip material selected from the group consisting of rubber, plastic, and fabric.

[0025] Providing the vamping with the grip includes providing the grip with a grip texture occupying at least part of an area of the grip and forming the outer surface.

[0026] Providing the boot with the vamping includes providing the vamping with a peripheral edge delimiting a vamping body, and providing the vamping with the grip includes providing the grip over less than an entirety of a surface area of the vamping body.

[0027] There is further still provided a goalie skate comprising: a boot having an upper portion positioned above a lower portion, the lower portion having a medial side and a lateral side extending between a fore end and an aft end, the fore end defining an outer surface of the boot abutable against an ice surface; a grip positioned on the fore end to define at least part of the outer surface thereof, the grip having a grip coefficient of friction being greater than a coefficient of friction of a portion of the boot adjacent the grip; and a blade holder connected to the lower portion of the boot, and a blade attached to the blade holder.

[0028] The goalie skate as defined herein may also comprise, in whole or in part, and in any combination, one or more of the following features.

[0029] The grip is composed of a grip material selected from the group consisting of rubber, plastic, and fabric.

[0030] The grip includes a grip texture occupying at least part of an area of the grip and forming the outer surface.

[0031] The grip texture has a grip height and a grip length, the grip texture having a plurality of protrusions spaced apart along the grip height, and grooves disposed between adjacent protrusions.

[0032] The grip texture includes wave protrusions spaced apart along the grip height, each wave protrusion having opposed maxima and minima spaced apart in a direction parallel to the grip length.

[0033] The grip is curved along a height of the fore end.

[0034] In accordance with alternate aspects, there is alternately provided a goalie skate, comprising: a boot having an upper portion positioned above a lower portion, the lower portion having a medial side and a lateral side extending between a toe end and a heel end, the lower portion having a vamping disposed on one or both of the medial and lateral sides of the lower portion at a location thereon corresponding to a widest portion of the lower portion between the medial and lateral sides; a grip positioned on the vamping and forming an outer surface of the vamping, the grip having a grip coefficient of friction being greater than a coefficient of friction of a portion of the boot adjacent the vamping; and a blade holder connected to the lower portion of the boot, and a blade attached to the blade holder.

[0035] There is also alternately provided a method of forming a goalie skate, comprising: providing a boot having an upper portion positioned above a lower portion, the lower portion having a medial side and a lateral side extending between a toe end and a heel end; providing the boot with a vamping disposed on one or both of the medial and lateral sides of the lower portion at a location thereon corresponding to a widest portion of the lower portion between the medial and lateral sides; and providing the vamping with a grip to form at least part of an outer surface of the vamping, the grip having a grip coefficient of friction being greater than a coefficient of friction of a portion of the boot adjacent the vamping.

[0036] There is further alternately provided a goalie skate, comprising: a boot having an upper portion positioned above a lower portion, the lower portion having a medial side and a lateral side extending between a fore end and an aft end, the fore end defining an outer surface of the boot abutable against an ice surface; a grip positioned on the fore end to define at least part of the outer surface thereof, the grip having a grip coefficient of friction being greater than a coefficient of friction of a portion of the boot adjacent the

grip; and a blade holder connected to the lower portion of the boot, and a blade attached to the blade holder.

[0037] There is further still alternately provided a goalie skate boot extending between a toe end and a heel end, the goalie skate boot comprising: a toe cap attached to the toe end; and a grip defining part of an outer surface of the goalie skate boot and having a grip coefficient of friction being greater than a coefficient of friction of a portion of the outer surface adjacent the grip, the grip positioned on the goalie skate boot at a location thereon corresponding to a widest portion of the goalie skate boot and adjacent to the toe cap boot, the widest portion defined between medial and lateral sides of the goalie skate boot.

BRIEF DESCRIPTION OF THE DRAWINGS

[0038] Reference is now made to the accompanying figures in which:

[0039] Fig. 1A is a perspective view of a goalie skate;

[0040] Fig. 1B is an enlarged view of the portion IB-IB in dotted lines in Fig. 1A;

[0041] Fig. 2 is a top view of a lower portion of the goalie skate of Fig. 1A;

[0042] Fig. 3A is a perspective view of the goalie skate of Fig. 1A forming an angle with respect to an ice surface;

[0043] Fig. 3B is a perspective view of the goalie skate of Fig. 1A forming another angle with respect to the ice surface;

[0044] Fig. 4 is a perspective view of a grip of the goalie skate of Fig. 1A;

[0045] Fig. 5 is a perspective view of a vamping of the goalie skate of Fig. 1A;

[0046] Fig. 6 is a side view of part of the goalie skate of Fig. 1; and

[0047] Fig. 7 is a cross-sectional view of the goalie skate of Fig. 1.

DETAILED DESCRIPTION

[0048] Fig. 1A illustrates a goalie skate 10 in accordance with a particular embodiment. The goalie skate 10 in Fig. 1A is to be used by a goaltender in ice hockey. The goalie skate 10 is different from the skates used by players of other positions in ice hockey. The goalie skate 10 is different from these other skates because of the specific functions performed by the goaltender in ice hockey, and because of the specific movements performed by the goaltender. Some of the specific movements performed by the goaltender are described in greater detail below.

[0049] The goalie skate 10 in Fig. 1A has a goalie skate boot 12 and a ground-engaging element 14 connected to the goalie skate boot 12. The boot 12 is shaped to enclose the heel, the upper and lower parts of the Achilles tendon, and the medial and lateral surfaces of the foot of a goaltender wearing the goalie skate 10. The boot 12 has an upper portion 16 which is shaped to enclose an upper portion of the ankle where it meets a lower portion of leg, and lower portion 18. The lower portion 18 is positioned beneath the upper portion 16 and forms the bottom portion of the boot 12. The lower portion 18 encloses the foot, most or all of the ankle, and the toes of the goaltender. The upper and lower portions 16 are contiguous and integrally formed with each other (e.g., monocoque construction).

[0050] The lower portion 18 of the boot 12 has a medial side 18A and a lateral side 18B. The medial side 18A covers and encloses a medially-positioned portion of the foot (i.e. the side of the foot closest to the sagittal plane and the longitudinal axis of the body), and the lateral side 18B covers and encloses a laterally-positioned portion of the foot (i.e. the side of the foot furthest from the sagittal plane and the longitudinal axis of the body). The lower portion 18 and its medial and lateral sides 18A, 18B extend between a toe end 13A of the boot 12 and a heel end 13B of the boot 12. The toe end 13A of the boot 12 defines a fore or front end of the boot, and the heel end 13B defines an aft or rear end of the boot 12. A length L of the boot 12 is defined along a longitudinal axis 11 of the boot 12 extending between the toe and heel ends 13A, 13B.

[0051] Still referring to Fig. 1A, the boot 12 also includes a toe portion 15 at the toe end 13A, shown here with a toe box or toe cap 15A. The toe cap 15A is attached using any suitable technique (mechanical fasteners, adhesive, or a combination of both) to the

medial and lateral sides 18A,18B of the lower portion 18. In Fig. 1A, the toe cap 15A is a separate component from the boot 12 and is joined thereto. The goalie skate 10 further includes a tongue 17. The tongue 17 is located in part within the boot 12, such that the tongue 17 covers the forefoot and the front ankle portion of the foot of the goaltender. The boot 12 includes a lace 19 that extends through lace eyelets 19A in the medial and lateral sides 18A,18B of the boot 12 in a criss-crossing pattern. As such, when the lace 19 is tightened, the lace 19 acts to keep the tongue 17 in place against the goaltender's foot. In Fig. 1A, the ground-engaging element 14 includes a blade holder 14A mounted to the lower portion 18 of the boot 12 and a blade 14B that is disposed in the blade holder 14A. The goalie skate 10 is thus an ice skate in Fig. 1A.

[0052] Referring to Figs. 1A and 1B, the lower portion 18 has vamping 20. The vamping 20 is intended to provide protection at its location against damage caused by abrasion of the goalie skate 10 against other surfaces (e.g. the ice surface, other skates, sticks, pucks, etc.). The location of the vamping 20 in Fig. 1A is shown closer to the toe end 13A of the lower portion 18 than to the heel end 13B. The location of the vamping 20 in Fig. 1A is shown adjacent to the toe cap 15A. In some instances, and as shown in Figs. 1A and 1B, the vamping 20 has a different visual appearance than the portions of the boot 12 bordering the vamping 20 or adjacent thereto. In other embodiments, the vamping 20 is visually similar to the portions of the boot 12 bordering the vamping 20 or adjacent thereto. In Fig. 1A, the vamping 20 is a component that is distinct from the boot 12 and is attached to the boot 12 with stitching. The vamping 20 may also be attached to the boot 12 with a fastener and/or an adhesive. In another alternate embodiment, the vamping 20 is integrally formed with the boot 12, or is integrally formed with the toe cap 15A. The vamping 20 covers an outer portion of the boot 12 that is prone to damage during use. It will therefore be appreciated that the vamping 20 may be positioned elsewhere than as shown in Fig. 1A. For example, the vamping 20 may be located elsewhere when the toe cap 15A extends rearwardly and covers the wider part of the foot, or where the boot 12 projects forward over such wider part of the foot.

[0053] The vamping 20 is disposed on one or both of the medial and lateral sides 18A,18B of the boot 12. In the goalie skate 10 shown in the figures, the vamping 20 is

disposed on the medial side 18A and on the lateral side 18B (see Fig. 2). The vamping 20 is located on the lower portion 18 at the widest portion WP of the lower portion 18. As best shown in Fig. 2, the widest portion WP of the lower portion 18 is defined between the medial and lateral sides 18A, 18B. The widest portion WP of the lower portion 18 of the boot 12 corresponds to the largest distance between the medial and lateral sides 18A, 18B measured in a plane that is transverse or perpendicular to the longitudinal axis 11 of the boot 12 extending between the toe and heel ends 13A, 13B. The widest portion WP also corresponds to the widest portion of the forefoot of the goaltender when wearing the goalie skate 10.

[0054] The widest portion WP of the lower portion 18 is the first portion of the goalie skate 10 which enters into contact with the ice surface during certain skating manoeuvres. Referring to Figs. 3A and 3B, an angle of attack α is defined between the blade 14B of the goalie skate 10 and the ice surface I. A minimum value of the angle of attack α_{MIN} is shown in Fig. 3B, and is the smallest value the angle of attack α required for the blade 14B to be in contact with ice surface I. When the angle of attack α falls below the minimum value of the angle of attack α_{MIN} , the blade 14B loses contact with the ice surface I. When the angle of attack α falls below the minimum value of the angle of attack α_{MIN} , the only portion of the goalie skate 10 that is in contact with the ice surface I is the vamping 20. It can be appreciated that the contact between the vamping 20 and the ice surface I may create a pivot point, defined by the vamping 20, about which the blade 14B pivots.

[0055] When the angle of attack α is greater than the minimum value of the angle of attack α_{MIN} , as shown in Fig. 3A, the goaltender is able to manoeuvre or push the goalie skate 10 using the blade 14B. However, for some goaltender manoeuvres, the angle of attack α is less than the minimum value of the angle of attack α_{MIN} , and thus the blade 14B may not be in contact with the ice surface I. For example, when the goaltender is in the “butterfly” or “profly” position, the angle of attack α is typically less than the minimum value of the angle of attack α_{MIN} , and the goaltender is no longer able to push or manoeuvre the goalie skate 10 using the blade 14B. For such manoeuvres, the medial sides 18A of the goalie skate 10, and thus the vamping 20 on the medial sides 18A, are in contact with the ice surface I. When the goaltender is in such a position, it may be

necessary for the goaltender to push sideways with the goalie skate 10. Thus, when the vamping 20 is in contact with the ice surface I, it may be important for the vamping 20 to “grip” the ice surface I in order to prevent the goaltender from slipping.

[0056] In order to help the vamping 20 grip the ice surface I, the goalie skate 10 includes a grip 30. Referring to Figs. 1A and 1B, the grip 30 is positioned on top of the vamping 20 to overly some or all of the vamping 20, such that the grip 30 forms some or all of an outer surface 22 of the vamping 20. The outer surface 22 of the vamping 20 is a surface of the goalie skate 10 that is exposed and visible. At least part of the outer surface 22 (the portion of the outer surface 22 defined by the grip 30, for example) of the vamping 20 engages the ice surface I when the goalie skate 10 forms an angle of attack α less than the minimum value of the angle of attack α_{MIN} . The grip 30 is any suitable object which, when positioned on the vamping 20 and forming some or all of the outer surface 22 thereof, is friction-enhancing to increase the purchase of the vamping 20 with the ice surface I. In the depicted embodiment, the grip 30 is a component that is separate from the vamping 20 and attached thereto. In an alternate embodiment, the grip 30 is integrally formed with the vamping 20.

[0057] In the depicted embodiment, the grip 30 is located on an outer portion of the goalie skate 10 that first touches the ice surface I when the angle of attack α dips below the minimum value of the angle of attack α_{MIN} . In Figs. 1A and 1B, the grip 30 is located only on the medial side 18A of the boot 12. It will thus be appreciated that, in the illustrated embodiment, the grip 30 allows the goaltender to manoeuvre along the ice surface I, for example by pushing sideways along a medial side 18A of the goalie skate 10, in circumstances where the angle of attack α results in the blade 14B no longer being in contact with ice surface I.

[0058] Although shown in the depicted embodiment as being located on the vamping 20, the grip 30 in an alternate embodiment is located elsewhere on the goalie skate 10. For example, in goalie skates 10 which are free of vamping 20, or in goalie skates 10 where the part of the goalie skate 10 that first contacts ice surface I when the angle of attack α dips below the minimum value of the angle of attack α_{MIN} is not the vamping 20, the grip 30 is present on this part of the goalie skate 10 that first contacts the ice

surface I. For example, in Figs. 1A and 1B, the grip 30 is located next to or adjacent to the toe cap 15A, and disposed “downstream” therefore in a direction toward the heel end 13B. In an example of the grip 30 being present on a goalie skate 10 which is free of vamping 20, the grip 30 is present over an outer surface of an extension of the toe cap 15A. It will be appreciated that the grip 30 may therefore be located on any outer portion of the goalie skate 10 which first contacts the ice surface I when the angle of attack α falls below the minimum value of the angle of attack α_{MIN} . It will also be appreciated that the grip 30 in an embodiment is present on a boot 12 which does not have a vamping 20.

[0059] The grip 30 enhances the friction of the vamping 20 and of the side of the skate 10 in general. The grip 30 has a grip coefficient of friction μ_G . The grip coefficient of friction μ_G is a value that represents the relationship between the force of friction between the grip 30 and the ice surface I, and a force which is normal to the point(s) of the grip 30 which contact the ice surface I. The grip coefficient of friction μ_G is calculated using the following formula:

$$F_f = \mu_G \times N$$

[0060] Where F_f represents the force of friction between the grip 30 and the ice surface I, and N represents the force which is normal to the point(s) of the grip 30 which contact the ice surface I. The value for the grip coefficient of friction μ_G may vary across the outer surface 22 defined by the grip 30. If desired, an average value for the grip coefficient of friction μ_G may be used.

[0061] The grip coefficient of friction μ_G is thus a measure of the ability of the grip 30, or more generally of the side of the skate 10, to provide frictional engagement with the ice surface I. The value for the grip coefficient of friction μ_G may result from the material of the grip 30. Non-limiting examples of grip materials from which the grip 30 is composed include rubber, plastic, fabric or any other material with a coefficient of friction with the ice surface I that is greater than the coefficient of friction of the other surfaces of the boot 12. The value for the grip coefficient of friction μ_G may result, in addition to the grip material, from the texture of the grip 30, as described in greater detail below. Values for the grip coefficient of friction μ_G are between 0 and 1.

[0062] Whatever it may be, the value of the grip coefficient of friction μ_G is greater than a value of a coefficient of friction μ of a portion of the boot 12 adjacent to the grip 30, or adjacent to the vamping 20. The grip coefficient of friction μ_G is greater than the coefficient of friction μ of the portions of the boot 12 surrounding the grip 30, or surrounding the vamping 20. It can therefore be appreciated that the grip 30 is less “smooth” than the portion of the boot 12 around it, and thus more capable of increasing the frictional engagement with the ice surface I when compared to these portions of the boot 12. The grip coefficient of friction μ_G may also be greater than the coefficient of friction μ of portions of the vamping 20 surrounding the grip 30, such that grip 10 is less “smooth” than a remainder of the vamping 20.

[0063] The greater value of the grip coefficient of friction μ_G of the grip 30 positioned on the widest portion WP of the goalie skate 10 may allow the goaltender to better “grip” the ice surface I when the blade 14B is no longer in contact with the ice surface I, and when the goalie skate 10 forms an angle of attack α less than the minimum value of the angle of attack α_{MIN} . Since the grip 30 is able to better grip the ice surface I, the goaltender may be able to apply loads against the ice surface I via the grip 30 to manoeuvre along the ice surface I, such as when moving into or out of the butterfly position. Since a goaltender assumes different positions, many of them requiring the goaltender to be on their knees, the grip 30 may facilitate on-ice recoveries which require on-ice push off with the sides of the goalie skate 10.

[0064] Many configurations and embodiments of the grip 30 are possible to achieve such functionality. One possible configuration is described with respect to Figs. 1B and 4. The grip 30 includes a grip texture 32 occupying at least part of an area of the grip 30 and forming part of the outer surface of the boot 12. The grip texture 32 is any feature or geometry which changes the feel, appearance, or consistency of the grip 30. The grip texture has a grip height GH extending in a direction along the height of the goalie skate 10, and a grip length GL measured in a direction along the length L. The grip texture 32 has multiple protrusions 34 which are elongated raised surfaces in the depicted embodiment extending along the grip length GL, and which are spaced apart from each other along the grip height GH. Grooves 36 are disposed between two adjacent protrusions 34. This orientation and configuration of the protrusions 34 and the

grooves 36 may allow the grip 30 to better frictionally engage the ice surface I during a butterfly manoeuvre of the goaltender, for example, or whenever the goaltender needs to recover to a stand-up position from a position in which the widest portion WP of the goalie skate 10 is engaged with the ice surface I. Each separate and spaced-apart protrusion 34 and groove 36 may “bite” into the ice surface I and help provide the goaltender with purchase thereon. It will be appreciated that the geometry and the arrangement of the protrusions 34 may vary. Non-limiting examples of other types of protrusions 34 include steps and spikes.

[0065] Still referring to Figs. 1B and 4, the grip texture 32 includes wave protrusions 34A spaced apart along the grip height GH. The wave protrusions 34A form part of the outer surface of the boot 12 defined in part by the grip 30 and have a wave or undulating form. Each wave protrusion 34A has opposed maxima and minima spaced apart in a direction parallel to the grip length GL. Wave-shaped grooves are disposed between adjacent wave protrusions 34A. This orientation and configuration of the wave protrusions 34A may allow the grip 30 to better frictionally engage the ice surface I during a butterfly manoeuvre of the goaltender, for example, or whenever the goaltender needs to recover to a stand-up position from a position in which the widest portion WP of the goalie skate 10 is engaged with the ice surface I. Each separate and spaced-apart wave protrusion 34A may “bite” into the ice surface I and help provide the goaltender with purchase thereon.

[0066] Referring to Figs. 1B and 4, the grip texture 32 includes a plurality of ridges or steps 35 arranged one next to the other along the grip height GH. In one particular embodiment, these ridges or steps 35 may be substantially parallel to each other, each extending transversely across the grip. The steps 35 are slabs of the grip texture 32 that form part of the outer surface of the boot 12 defined in part by the grip 30 and protrude outwardly like shingles (see Fig. 6). Each step 35 has a width extending in a direction parallel to the grip length GL, and a height extending in a direction parallel to the grip height GH. Each step 35 has one or more wave protrusions 34A and their corresponding grooves. The grooves formed between each of the waves in the wave patterned protrusions 34A may form sipes, similar to the sipes formed in tires which are configured to improve grip on slippery surfaces such as snow and ice. Although wave-

shaped patterns are shown formed in the grip texture 32 in the depicted embodiment, it is to be understood that other shaped patterns may alternately be used, including for example chevron shaped, angled slits or slots, pin grips, etc. The grip 30 in Fig. 4 thus has a “stepped” and “wave” design. This orientation and configuration of the steps 35 may allow the grip 30 to better frictionally engage the ice surface I during a butterfly manoeuvre of the goaltender, for example, or whenever the goaltender needs to recover to a stand-up position from a position in which the widest portion WP of the goalie skate 10 is engaged with the ice surface I. Each separate step 35 may act to “bite” into the ice surface (i.e. provide a local increase in friction grip with the ice surface I) and thus help provide the goaltender with purchase thereon.

[0067] The vamping 20 is shown in isolation in Fig. 5. The vamping 20 includes a vamping material, and non-limiting examples of the vamping material include synthetic leather, plastic and composite material. These materials may help the vamping 20 to provide abrasion resistance, in addition to its gripping functionality. The vamping 20 has a peripheral edge 24 delimiting a vamping body 26. The peripheral edge 24 defines the periphery or outer contour of the vamping 20. The vamping body 26 is disposed within the peripheral edge 24. The vamping body 26 may have portions having different colours or made from different materials, as shown in Fig. 5. In Fig. 5, the grip 30 occupies less than an entirety of the surface area of the vamping body 26. The portions of the outer surface 22 formed by the grip 30 are designated with the reference number 22A and 22B in Fig. 5, and the portions of the outer surface 22 formed by the remainder of the vamping body 26 are designated with the reference number 22C in Fig. 5. The vamping 20 extends along a vamping height VH between an upper end and a lower end. The vamping 20 has one or more of the lace eyelets 19A at the upper end thereof. The lace eyelet 19A is positioned between the uppermost extremity of vamping body 26 and the grip 30. As better shown in Figs. 1A and 1B, the vamping 26 is curved along the vamping height VH between the upper and lower ends. The vamping 26, and thus the grip 30 positioned thereon, have a curvature to follow the contours of medial side of foot of the goaltender.

[0068] The curvature of the vamping 20 is shown in Figs. 3A and 6. The vamping body 26 is curved such that it extends along the side 18A, 18B of the boot 12, and wraps

underneath the boot 12 by extending underneath the boot 12 to the blade holder 14A. The grip 30 in Figs. 3A and 6 does not extend as far as the vamping 20 underneath the boot 12. It may only be necessary for the grip 30 to extend over the portion of the vamping 20 which contacts the ice surface I when the angle of attack α_{MIN} is reached.

[0069] Referring to Fig. 5, the portion 22A of the outer surface 22 formed by the grip 30 includes the steps 35 and the wave protrusions 34A. This portion 22A is curved such that it extends along the side 18A, 18B of the boot 12, and wraps partly underneath the boot 12. The portion 22B of the outer surface 22 includes a grip texture 32 different from the grip texture 32 in the portion 22A. The grip texture 32 in the portion 22B includes raised ribs alternating with corresponding recesses or grooves between the ribs. The portion 22C formed by the remainder of the vamping body 26 serves primarily to provide abrasion resistance, and may also provide some gripping functionality and be made from sand paper. All other portions of the vamping body 26 in Fig. 5 provide very little grip or abrasion functionality, and are primarily cosmetic. In Fig. 5, the grip coefficient of friction μ_G varies along the vamping height VH, with the grip coefficient of friction μ_G being highest in the portion 22A and lowest in the portion 22C. The grip coefficient of friction μ_G along the portion 22B is greater than it is along the portion 22C, and less than it is along the portion 22A. It can thus be appreciated that the grip 30 provides frictional resistance along a direction being parallel to the grip height GH or to the vamping height VH. The directional nature of the friction resistance provided by the grip 30 may allow for the greatest resistance to generally occur in a direction that is perpendicular to the longitudinal axis 11 of the boot 12.

[0070] Fig. 7 is a cross-sectional view of the boot 12 seen in a plane being normal to the longitudinal axis 11 of the boot 12. In this embodiment, the vamping 20 and the grip 30 are provided on both the medial and lateral sides 18A, 18B of the boot 12. However, it is to be understood that the grip 30 may in an alternate embodiment be provided only on the medial side 18A of the boot 12. The vamping body 26 is curved such that it extends along the sides 18A, 18B of the boot 12, and wraps underneath the boot 12 by extending underneath the boot 12 to the blade holder 14A. The grip 30 in Fig. 7 does not extend as far as the vamping 20 underneath the boot 12. The portion 22A of the grip 30 includes the steps 35. This portion 22A is curved such that it extends along the

sides 18A,18B of the boot 12, and wraps partly underneath the boot 12. The portion 22B of the grip 30 includes a grip texture 32 different from the grip texture 32 in the portion 22A. In Fig. 7, the grip coefficient of friction μ_G varies along the vamping height VH, with the grip coefficient of friction μ_G being highest in the portion 22A.

[0071] 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 goalie skate boot extending between a toe end and a heel end, the goalie skate boot comprising:
 - a toe cap attached to the toe end; and
 - a grip defining part of an outer surface of the goalie skate boot and having a grip coefficient of friction being greater than a coefficient of friction of a portion of the outer surface adjacent the grip, the grip positioned on the goalie skate boot at a location thereon corresponding to a widest portion of the goalie skate boot and adjacent to the toe cap.
2. The goalie skate boot as defined in claim 1, wherein the grip overlies an element on the outer surface of the goalie skate boot, the element overlying the widest portion of the goalie skate boot.
3. The goalie skate boot as defined in claim 1 or 2, comprising a vamping disposed on one or both of the medial and lateral sides at a location thereon corresponding to the widest portion, the grip positioned on an outer surface of the vamping.
4. The goalie skate boot as defined in any one of claims 1 to 3, wherein the grip includes a grip texture occupying at least part of an area of the grip and forming the outer surface.
5. The goalie skate boot as defined in claim 4, wherein the grip texture has a grip height and a grip length, the grip texture having a plurality of protrusions spaced apart along the grip height, and grooves disposed between adjacent protrusions.
6. The goalie skate boot as defined in any one of claims 1 to 5, wherein the location of the grip is at least on the medial side of the goalie skate boot.
7. A goalie skate, comprising:
 - a boot having an upper portion positioned above a lower portion, the lower portion having a medial side and a lateral side extending between a toe end and a heel end, the lower portion having a vamping disposed on one

or both of the medial and lateral sides of the lower portion at a location thereon corresponding to a widest portion of the lower portion between the medial and lateral sides;

a grip positioned on the vamping and forming an outer surface of the vamping, the grip having a grip coefficient of friction being greater than a coefficient of friction of a portion of the boot adjacent the vamping; and

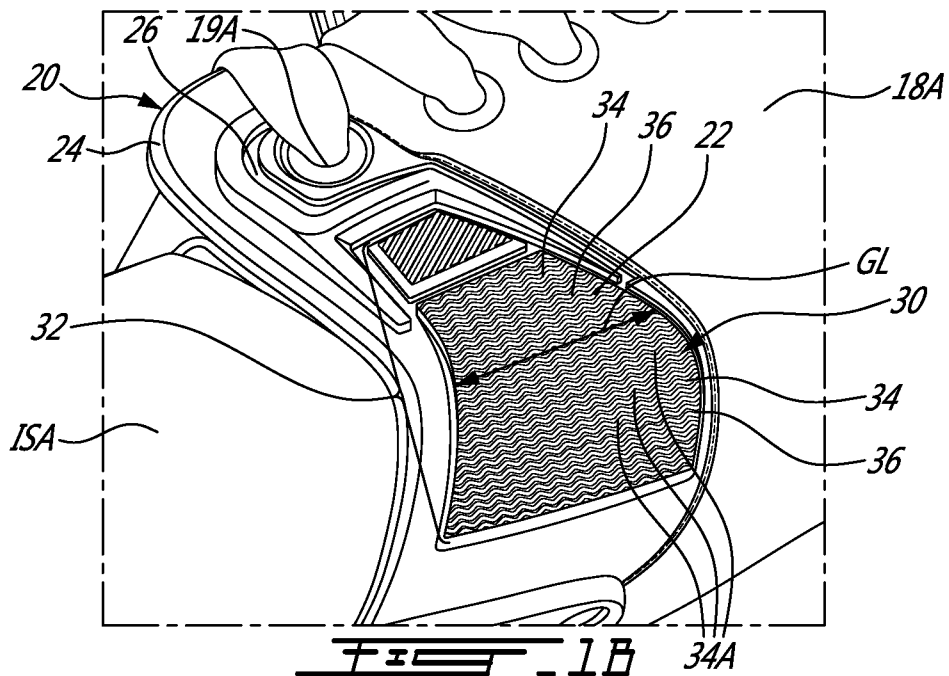
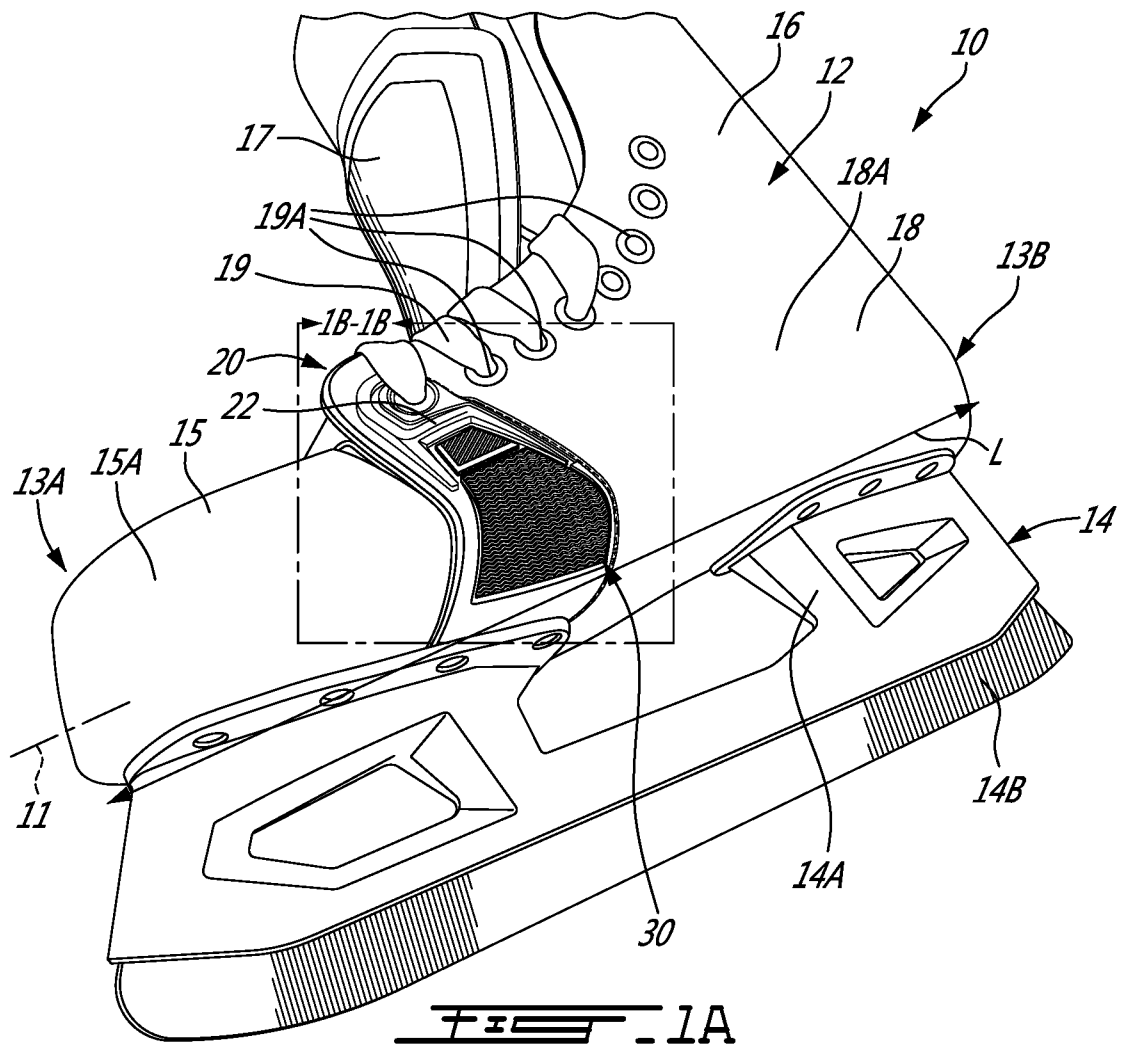
a blade holder connected to the lower portion of the boot, and a blade attached to the blade holder.

8. The goalie skate as defined in claim 7, wherein the grip is composed of a grip material selected from the group consisting of rubber, plastic, and fabric.
9. The goalie skate as defined in claim 7 or 8, wherein the grip includes a grip texture occupying at least part of an area of the grip and forming the outer surface.
10. The goalie skate as defined in claim 9, wherein the grip texture has a grip height and a grip length, the grip texture having a plurality of protrusions spaced apart along the grip height, and grooves disposed between adjacent protrusions.
11. The goalie skate as defined in claim 10, wherein the grip texture includes wave protrusions spaced apart along the grip height, each wave protrusion having opposed maxima and minima spaced apart in a direction parallel to the grip length.
12. The goalie skate as defined in any one of claims 7 to 11, wherein the vamping includes a vamping material selected from the group of materials including synthetic leather, plastic, and composite material.
13. The goalie skate as defined in any one of claims 7 to 12, wherein the vamping has a peripheral edge delimiting a vamping body, the grip occupying less than an entirety of a surface area of the vamping body.
14. The goalie skate as defined in any one of claims 7 to 13, wherein the vamping extends along a vamping height between an upper end and a lower end, the vamping having an eyelet at the upper end thereof.

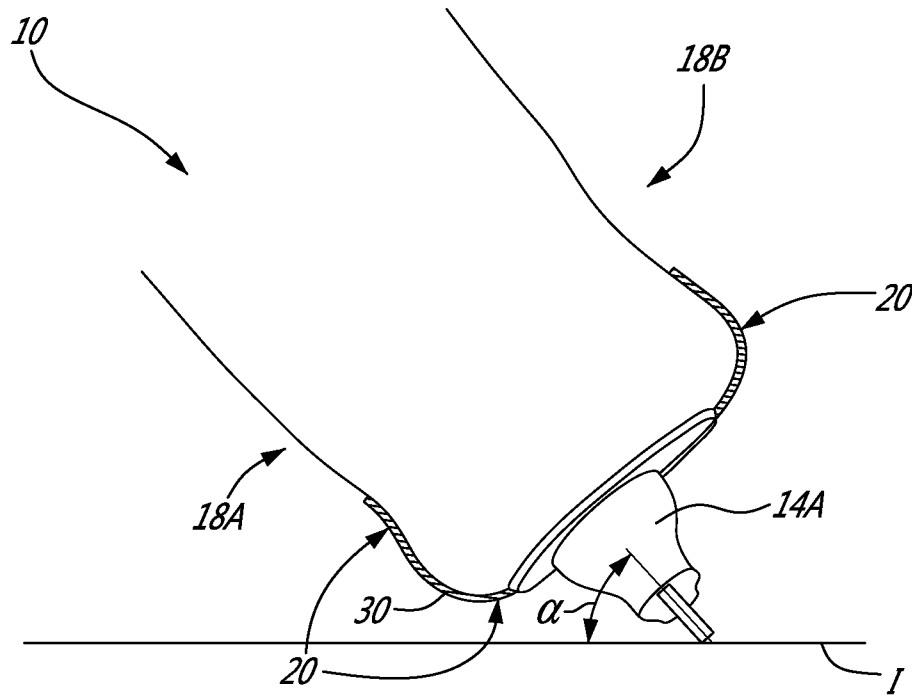
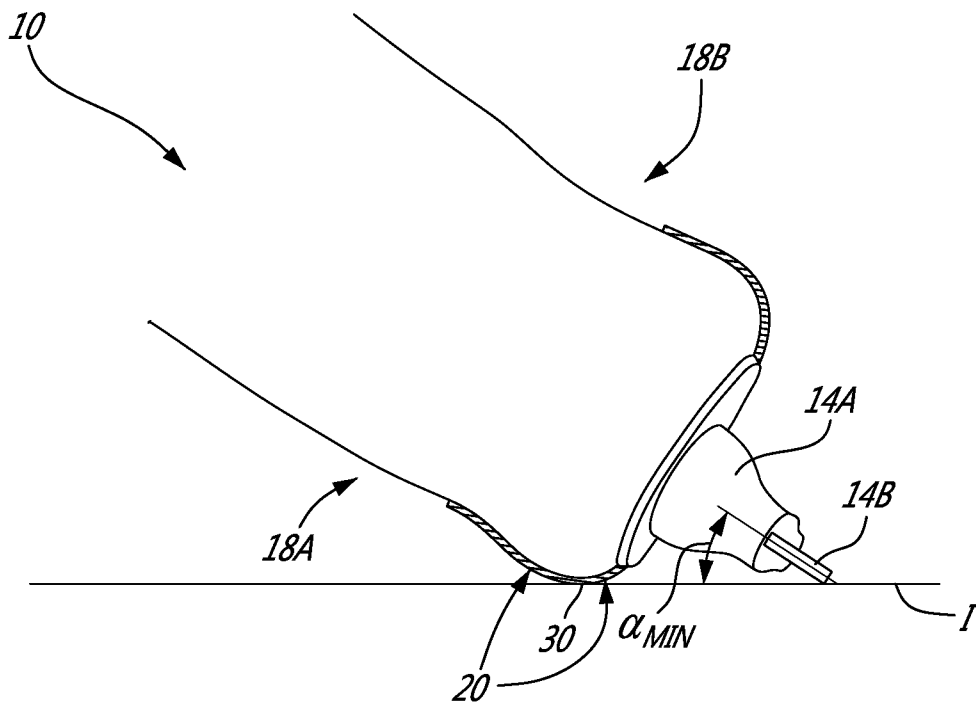
15. The goalie skate as defined claim 14, wherein the vamping is curved along the vamping height between the upper and lower ends.
16. The goalie skate as defined in any one of claims 7 to 15, wherein the location of the vamping on one or both of the medial and lateral sides of the lower portion is closer to the toe end of the lower portion than to the heel end.
17. A method of forming a goalie skate, comprising:
 - providing a boot having an upper portion positioned above a lower portion, the lower portion having a medial side and a lateral side extending between a toe end and a heel end;
 - providing the boot with a vamping disposed on one or both of the medial and lateral sides of the lower portion at a location thereon corresponding to a widest portion of the lower portion between the medial and lateral sides; and
 - providing the vamping with a grip to form at least part of an outer surface of the vamping, the grip having a grip coefficient of friction being greater than a coefficient of friction of a portion of the boot adjacent the vamping.
18. The method of claim 17, wherein providing the vamping with the grip includes providing the vamping with the grip made of grip material selected from the group consisting of rubber, plastic, and fabric.
19. The method of claim 17 or 18, wherein providing the vamping with the grip includes providing the grip with a grip texture occupying at least part of an area of the grip and forming the outer surface.
20. The method of any one of claims 17 to 19, wherein providing the boot with the vamping includes providing the vamping with a peripheral edge delimiting a vamping body, and providing the vamping with the grip includes providing the grip over less than an entirety of a surface area of the vamping body.
21. A goalie skate, comprising:

- a boot having an upper portion positioned above a lower portion, the lower portion having a medial side and a lateral side extending between a fore end and an aft end, the fore end defining an outer surface of the boot abutable against an ice surface;
- a grip positioned on the fore end to define at least part of the outer surface thereof, the grip having a grip coefficient of friction being greater than a coefficient of friction of a portion of the boot adjacent the grip; and
- a blade holder connected to the lower portion of the boot, and a blade attached to the blade holder.
22. The goalie skate as defined in claim 21, wherein the grip is composed of a grip material selected from the group consisting of rubber, plastic, and fabric.
23. The goalie skate as defined in claim 21 or 22, wherein the grip includes a grip texture occupying at least part of an area of the grip and forming the outer surface.
24. The goalie skate as defined in claim 23, wherein the grip texture has a grip height and a grip length, the grip texture having a plurality of protrusions spaced apart along the grip height, and grooves disposed between adjacent protrusions.
25. The goalie skate as defined in claim 24, wherein the grip texture includes wave protrusions spaced apart along the grip height, each wave protrusion having opposed maxima and minima spaced apart in a direction parallel to the grip length.
26. The goalie skate as defined in any one of claims 21 to 25, wherein the grip is curved along a height of the fore end.

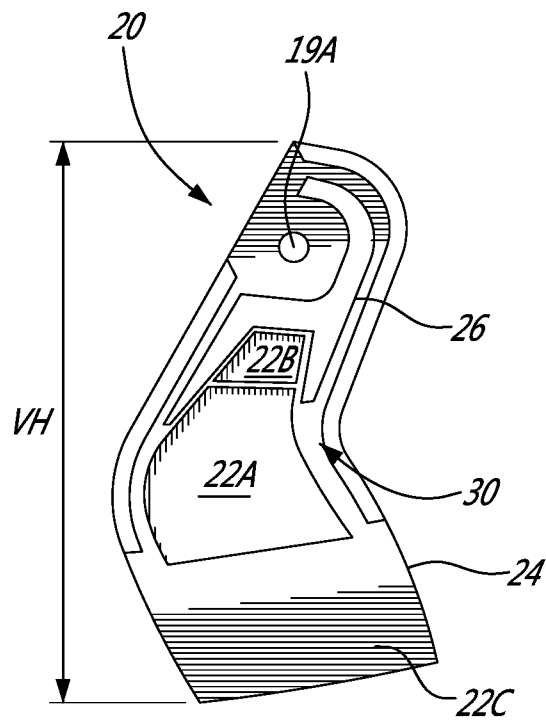
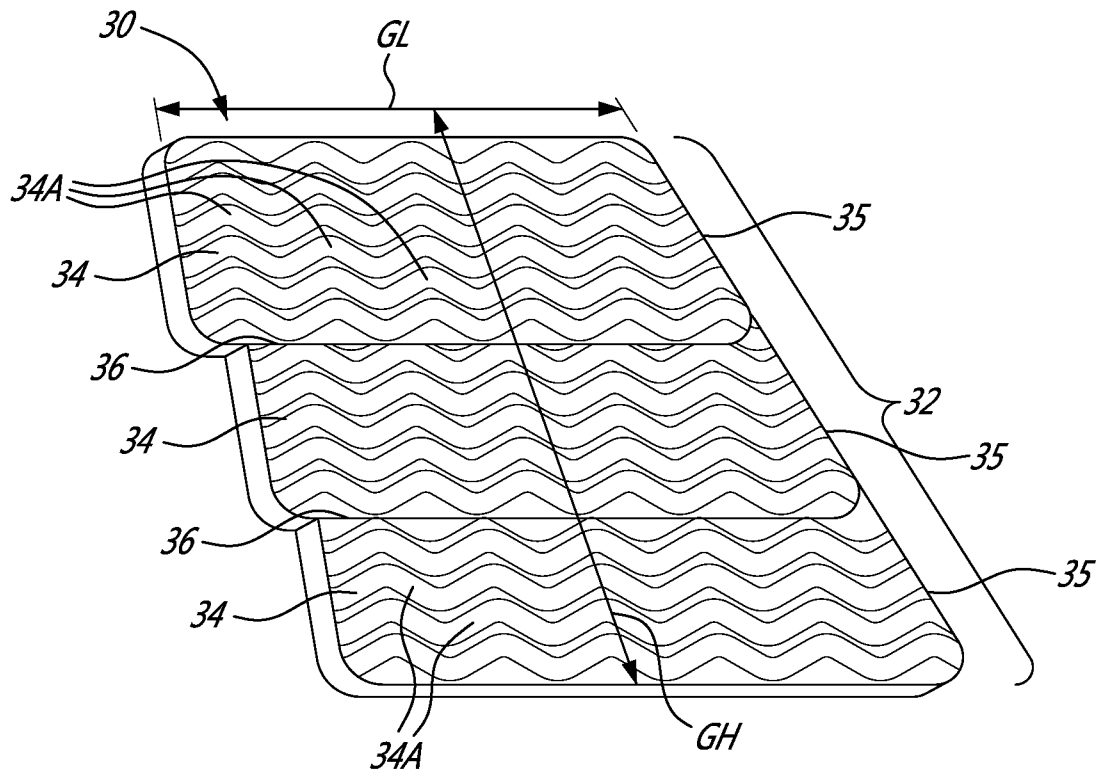
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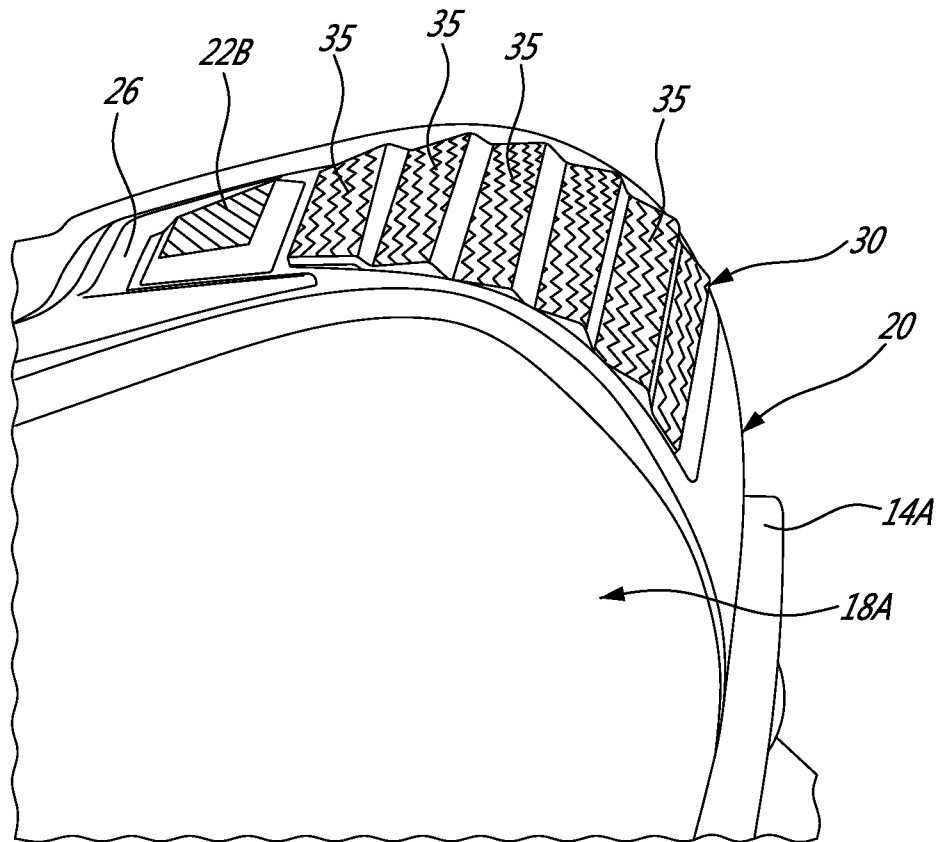
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**FIG. 3A****FIG. 3B**

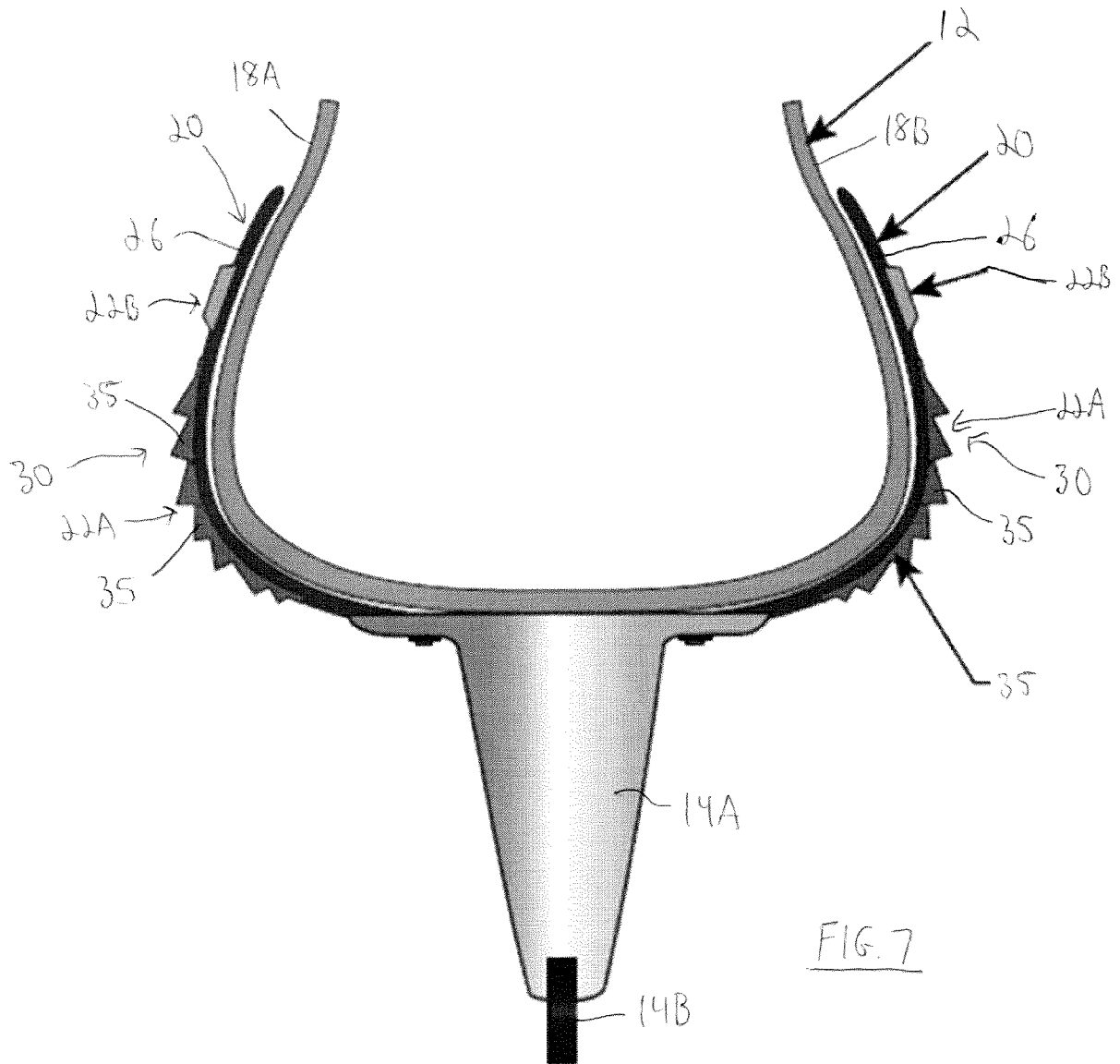
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FIG. 6

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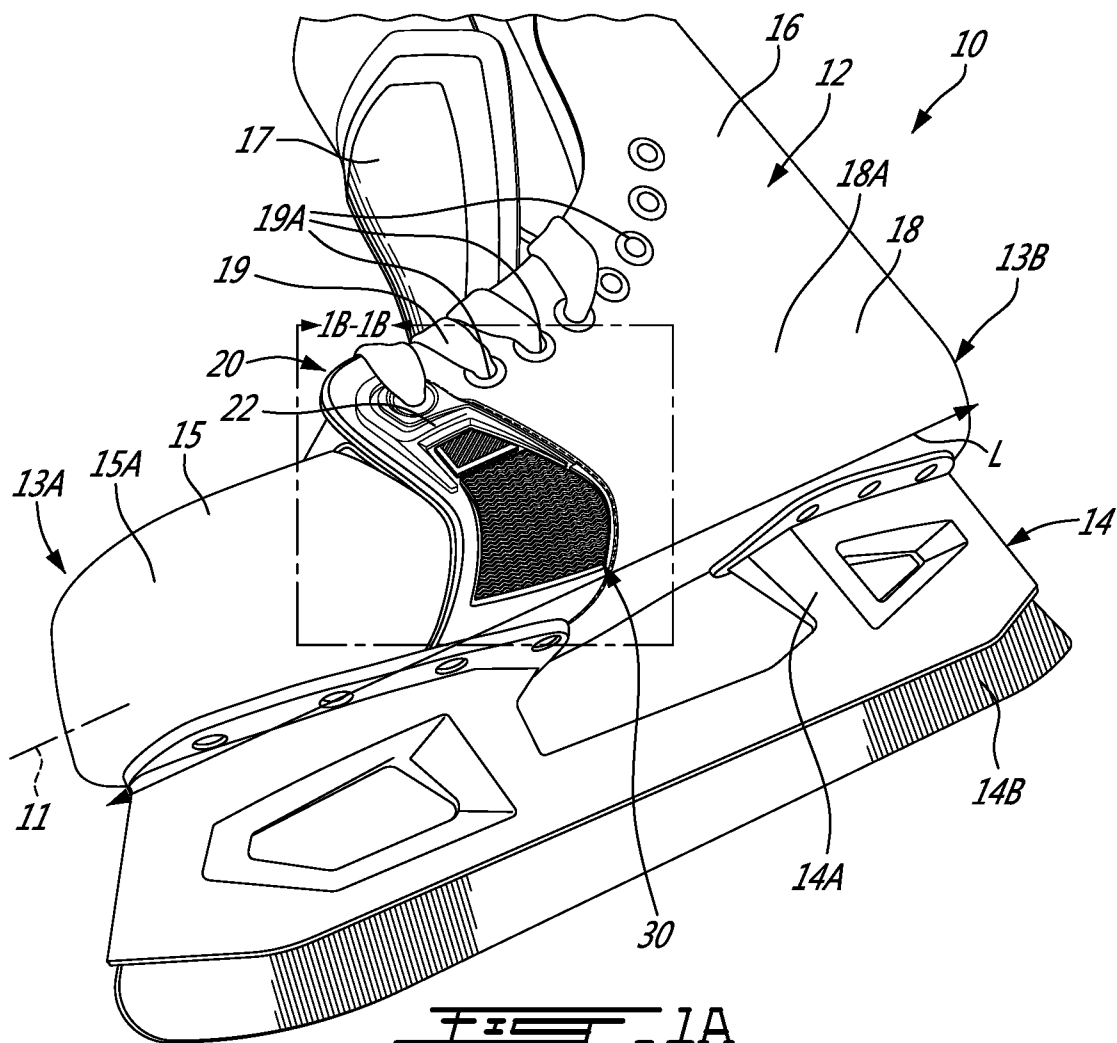


FIG. 1A