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(54) FOOTWEAR ITEM-SKATE WITH MULTIPLE INTERCHANGEABLE BLADES FOR ICE AND SKATING RINKS

(57) Footwear item-skate with multiple interchangeable blades for ice and skating rinks, of the type of footwear items made up by a boot (1) made of a sole (2) comprising a first plurality of channels (3a) and a second plurality of channels (3b) aligned with and parallel to each other, arranged in a "T" section in the area of the sole and in the area of the heel, with at least one small recess (11) transversal to each area; a first and a second preformed metal plate (5a, 5b) comprising a series of first and second guides (6a, 6b), arranged in a "T" section and in a similar number to the plurality of channels (3a, 3b) of the area of the sole and of the area of the heel of the sole, each of them attaching to the guides by means of a transversal small bushing (12) housing a retractable bolt (7) with a retainer, and a set of metal blades in a "T" section, of two different lengths (8) and (9).

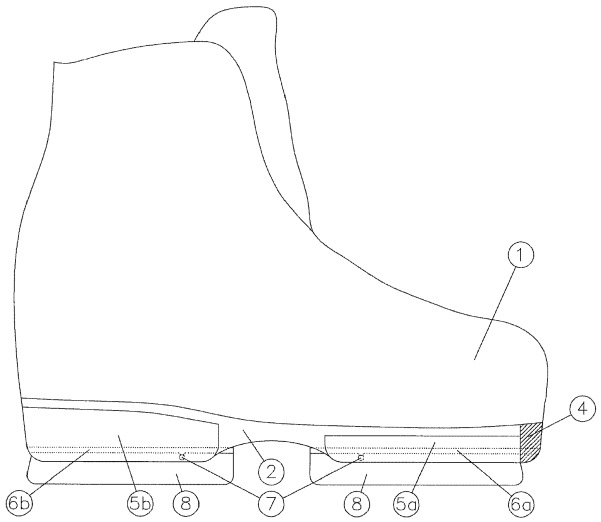

FIG.5

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Description

OBJECT OF THE INVENTION

[0001] The present invention refers to a footwear item-skate with multiple interchangeable blades for ice and skating rinks, designed to allow a person to slide on a flat, sliding surface, with the footwear item-skate based on a functional structure with interchangeable metal blades, comprising a boot, which has the advantages of sports footwear items in regards to its comfort and flexibility, and providing very good stability thanks to its multiple metal blades arranged in parallel and at a minimum distance from the ground.

BACKGROUND OF THE INVENTION

[0002] As is commonly known, the leisure activity of skating on ice or sliding surfaces is growing among the population thanks to the appearance of rinks made of synthetic materials. The drawback of the danger it entails for people with little training, who often fall on the rinks risking several types of serious bodily injuries, prevents this fun sport from being practised not only by children but also by elderly people, as well as by the parents or tutors of children, which often stops them from joining them in the skating rinks.

[0003] This is due to the complex conditions of stability and balance demanded by sliding on an ice skate with a conventional blade; making the inexperienced ice skater feel insecure as the very narrow support, such as the edge of a single blade, rises sufficiently over the ground in order to change their balance, since their usual centre of gravity changes by about 10 cm, approximately, from the ground.

[0004] Currently there are accessories that attempt to make skating easier for beginners. These include support skates, or more specifically the double bladed bases that can be adapted to the normal footwear.

[0005] However, these double bladed bases used to skate on ice rinks are secured to the footwear item of the user by means of straps, just as the first inventions of the roller skates with an extensible base in order to adapt them to different sizes of footwear items, which eventually became obsolete in the market as roller skate boots incorporating their own wheels became predominant, since these types of bases secured by straps are not very safe and long lasting as the straps fastened to the footwear can become loose due to the movements of the skater; causing instability and making them impractical for skating, which renders them into sports accessories and not footwear items on their own right.

[0006] Although it is true that the physical principles of pressure and sliding prove that single blade ice skates are an invention that maximises said laws in order to achieve certain speeds and turns, the truth is that leisure activities practised by amateurs require a new type of footwear item with its own stability, which is suited to provide balance both in stationary positions as well as when moving, helping skaters to move on sliding surfaces more naturally and safely, allowing them to enjoy themselves and progressively get better at skating, which is the aim of these leisure activities.

DESCRIPTION OF THE INVENTION

[0007] The invention described below eliminates the aforementioned drawbacks since it provides great stability by giving users a comprehensive footwear item for skating, provided of several interchangeable metal blades at a minimum height of, for example, approximately 3 cm from the surface, arranged in a parallel series in order to place the skate on the surface of the rink.

[0008] For this purpose, the footwear item-skate with multiple interchangeable blades for ice and skating rinks comprises a thick enough resistant synthetic sole, that can be manufactured by means of injection moulding, provided with a first plurality of channels in the area of the sole and a second plurality of channels in the area of the heel, preferably three and arranged in a "T" section, with at least one small transversal recess running across the plurality of channels.

[0009] The aforementioned first and second plurality of channels of the sole and the heel of the sole are open on the outer side in relation to the toe cap and the heel, as well as on the inner side in relation to the shank of the sole.

[0010] In addition, a first and second preformed metal plates are attached to the area of the sole and the heel of the sole comprises a first and second plurality of channels by means of a series of guides in a similar number to the first and second plurality of channels of the sole and the heel, equally arranged in a "T" section, on which at least one small bushing housing a retractable bolt with a retainer is placed perpendicular to the series of guides connecting with the preformed metal plates, and said small bushings are set in relation to the transversal recesses of the first and second plurality of channels of the sole and the heel of the sole.

[0011] The preformed metal plates covering the surface relative to the plurality of channels of the sole and of the heel extend on the lateral surface of the sole, in the manner of a cover, so that the metal plate of the sole does not cover the grooved toe cap.

[0012] Additionally, the first and second plurality of channels of the sole and of the heel are aligned with each other and, logically, when the first and second preformed metal plates are assembled on the footwear item-skate, the guides of both are also aligned with each other forming a single body, giving the footwear item-skate flexibility at the shank just like with any kind of trainers, boots or conventional shoes.

[0013] In addition, the series of guides of the preformed metal plates can house respective metal blades, which are generally arranged in a "T" section, with perfect tongue-and-groove couplings without any kind of loose-

ness, with said metal blades being secured and attached to the guides of the preformed metal plates with the help of the respective retractable metal bolts, which enter a through hole on the vertical side of the blades arranged in a "T" section, which can be interchanged by activating the mechanism of the retractable metal bolt in order to release the metal blades of the footwear item-skate.

[0014] In order to remove the metal blades it is necessary to press on the lateral surface of the sole in order to activate the retaining mechanism of the bolts, in the manner of a retractable pen.

[0015] The metal blades have two different lengths so that the short ones are placed, independently, on the corresponding guides of the metal plates of the sole and the heel, while the long ones are placed along the length of the corresponding guides in the same line of both metal plates.

[0016] The end of the toe cap of the synthetic sole is stretched in order to be used to break and to stop from sliding, so that, when the footwear item-skate has no blades equipped, the user can move without slipping since the metal blades can be removed and the footwear item-skate can be used without them, so the user can walk safely without damaging the unprotected pavement outside the skating rink.

[0017] The user can choose the arrangement of the metal blades of the footwear item-skate in order to aid in the learning process of skating, being able to retain flexibility of the footwear item so that changing the number and arrangement of the blades makes it possible to place several blades in parallel, arranged on the series of guides of both metal plates.

[0018] In this way, according to a preferred embodiment of the invention in which the sole and preformed metal plates have three channels and three guides, the metal blades can be mounted so that, for example, in beginner skating two smaller metal blades can be arranged in parallel in the respective lateral guides of the first preformed metal plate of the sole and another two metal blades can be placed equally on the respective lateral guides of the second metal plate of the part of the heel aligned with those of the first plate of the sole, so that they are all secured and attached by means of their respective retractable metal bolt.

[0019] According to another practical execution the footwear item-skate can incorporate two of the long blades, fitted into each of the two aligned lateral guides of both preformed metal plates, being inserted at the toe cap and secured by means of a retractable bolt.

[0020] In another embodiment, as learning progresses, the footwear item-skate may incorporate a single metal blade of a long length in the central guide of both preformed metal plates, in the traditional way.

[0021] Therefore, given the features of the invention, this footwear item can be assembled in several ways depending on the needs and skills of users as they learn to skate.

DESCRIPTION OF THE DRAWINGS

[0022] Hereinafter, a description of the drawings representing an embodiment of the invention is detailed alongside the present description in order to give a better understanding of the object of the invention, and this representation is for illustration purposes and without limitation, any details thereof may be amended insofar as the essential features thereof are not altered.

Figure 1. Lateral elevation view showing the footwear item and resistant synthetic sole of the footwear item-skate with multiple interchangeable blades for ice and skating rinks.

Figure 2. Plan view of the resistant synthetic sole of the previous drawing.

Figure 3. Lateral elevation view of the footwear item-skate with multiple interchangeable blades for ice and skating rinks, with added preformed metal plates.

Figure 4. Plan view of the previous figure.

Figure 5. Lateral elevation view of the footwear item-skate with multiple interchangeable blades for ice and skating rinks, with at least one metal blade of a smaller length mounted on the respective aligned guide of both metal plates, retaining the flexibility of the sole of the footwear item-skate.

Figure 6. Plan view of the sole of the footwear item-skate of the previous figure in which, specifically, two metal blades have been mounted on the lateral guides of both preformed plates, which are secured by means of a retractable bolt.

Figure 7. Lateral elevation view of the footwear item-skate, which shows how at least one metal blade, of the long length, is mounted straddling both metal plates.

Figure 8. Plan view of the sole of the footwear item-skate of the previous figure in which, specifically, two of the long metal blades have been mounted straddling both preformed plates.

Figure 9. Plan view of the footwear item-skate with multiple interchangeable blades for ice and skating rinks, in which short blades have been mounted on the lateral guides of both preformed metal plates.*

Figure 10. Plan view of the footwear item-skate with multiple interchangeable blades for ice and skating rinks, in which a long metal blade has been mounted on the central guides of both preformed metal plates as well as short blades on the lateral guides of both preformed metal plates.**

Figure 11. Cross-section elevation view of the A-A' section of figure 6, showing how the second preformed metal plate hugs the part of the heel of the sole, with the second guides fitted in the plurality of the respective second channels bearing the respective metal blades in the lateral guides.

Figure 12. Plan view of a long metal blade.

Figure 13. Plan view of a short metal blade.

Figure 14. Cross-section elevation view of the B-B' section of the metal blades of figures 12 and 13.

PREFERRED EMBODIMENT OF THE INVENTION

[0023] According to the embodiment represented in the drawings, the footwear item-skate with multiple interchangeable blades for ice and skating rinks is comprised essentially of a sports footwear item, like a boot or similar (1), provided with an injection moulded resistant synthetic sole (2), with a plurality of channels (3a, 3b) arranged in a general "T" section, preferably, three first channels (3a) in the area of the sole and three second channels (3b) in the area of the heel, with a recess (11) transversal to each of them, with a stretched toe cap (4), so that said resistant synthetic sole (2) is attached in the area of the sole to a first preformed metal plate (5a) and in the area of the heel to a second preformed metal plate (5b), with each metal plate (5a, 5b) comprising a series of first and second guides (6a, 6b), preferably three guides in parallel arranged also in a general "T" section.

[0024] Said preformed metal plates (5a, 5b) comprise, in relation to the each of the guides (6a, 6b), a bushing (12) housing a retractable bolt (7) with a retainer, which is arranged transversally.

[0025] As the pair of preformed metal plates (5a, 5b) are mounted on and secured in the area of the sole and heel of the sole (2), the series of guides are fitted in the plurality of channels and the bushings (12) are fitted in their transversal recesses (11). Said assembly is carried out by means of simple pressure, while a glue is used to help secure the attachment creating a single unit.

[0026] In addition, the footwear item-skate incorporates a set of metal blades of different lengths, with the short and the long metal blades (8, 9) being interchangeable, as shown on figures 1-14, so that the shape, materials and dimensions of the invention may vary, as well as in general anything that is accessory and secondary so long as it does not change or modify the essential features of the item described.

[0027] Therefore, the short metal blades (8) are mounted independently on the corresponding guide/s of the preformed metal plates and the long metal blades (9) are mounted straddling the aligned guides of both preformed metal plates.

[0028] The structure of the lower part of the footwear item-skate with multiple interchangeable blades for ice and skating rinks is of special importance, as shown on figures 1-4, that is, the injection moulded resistant synthetic sole (2), with a significantly concave shank, a stretched toe cap (4) and a plurality of channels arranged in a "T" section in order to secure both preformed metal plates, fitting the series of guides of said plates in the plurality of channels of the sole, leaving the shank uncovered in order to retain the flexibility of the flexible footwear item-skate with multiple interchangeable blades for ice and skating rinks, making it easier to skate.

[0029] In this way, the first guides (6a) of the first preformed metal plate of the sole are aligned with the second guides (6b) of the second preformed metal plates of the heel, and when the short metal blades (8) are fitted in the first guides 6a they must be arranged in the same plane and line as the ones fitted in the second guides (6b) of the second preformed metal plate of the heel, as shown on section A-A' of figure 11. Additionally, a series of retractable metal bolts are housed in the small bushings connected to said first guides (6a) and seconds guides (6b), as shown on figures 3 and 4, as methods of fixing the short and long metal blades (8, 9) to the footwear item-skate.

[0030] These short and long metal blades (8, 9) arranged in "T" sections have a perforation (10) on the upper part of their vertical sides, which, when assembled, matches the intersection of their horizontal side, as shown in section B-B' on figure 14, so that said short and long metal blades (8, 9) are introduced as tongue-and-groove couplings through one of the ends of the first and second metal guides (6a, 6b) until they are secured to the flexible footwear item-skate with multiple interchangeable blades for ice and skating rinks by means of the retractable metal bolts (7) housed in the bushings (12) as they enter the through hole (10) of said metal blades, as shown on figure 5-10.

[0031] The invention has a variable number of combinations in which the short and long metal blades (8, 9) can be arranged when they are fitted in the footwear item-skate with multiple interchangeable blades for ice and skating rinks, depending on whether the short blades (8) are fitted individually in the first guides (6a) and second guides (6b), by means of the retractable bolts (7) housed in the bushings (12), retaining the flexibility of the flexible footwear item-skate with multiple interchangeable blades for ice and skating rinks as shown in figures 5, 6 and 9, or whether the long blades (9) that connect together the guides of both preformed metal plates give rigidity to the footwear item-skate with multiple interchangeable blades for ice and skating rinks, which are secured only by the corresponding retractable bolt (7) housed in the bushings (12) of the first preformed metal plate of the heel, as shown in figures 5, 6 and 8.

[0032] In the same way, as shown in figures 5-10, the invention shows different ways of placing the short and long metal blades (8, 9) so that they work together, placing, for example, four short metal blades (8) in each footwear item-skate, two in the respective first lateral guides (6a) of the first preformed metal plate (5a) of the sole and two in the second lateral guides (6b) of the second preformed metal plate (5b) of the heel, providing a double row of blades that retains the flexibility of the resistant sole (2) as shown in figures 5 and 6.

[0033] In another arrangement, each footwear item-skate may have two parallel lines of long metal blades 9 along the first guide (6a) and second guide (6b) aligned with each other, giving rigidity to the footwear item-skate with multiple interchangeable blades for ice and skating rinks as shown in figures 7 and 8.

[0034] In another arrangement with the aim of skating on a single central line, a short blade (8) can be mounted on the first central guide (6a) of the first preformed metal plate of the sole and another short blade (8) can be mounted on the second central guide of the second preformed metal plate of the heel, retaining the flexibility of the sole as shown in figure 9, or alternatively a single long metal blade (9) may be arranged connecting said central guides of both preformed metal plates, giving rigidity to the footwear item-skate with multiple interchangeable blades for ice and skating rinks, just like an ice skate with traditional blades, as shown in figure 10.

[0035] Both the short and the long blades may have different heights.

Claims

1. Footwear item-skate with multiple interchangeable blades for ice and skating rinks, comprising a boot (1), **characterized in that** the boot (1) is made of:

   - a resistant synthetic sole (2) comprising a first plurality of channels (3a) and arranged in a "T" section in the area of the sole and in a second plurality of channels (3b) arranged in a "T" section in the area of the heel, with at least one small recess (11) transversal to each area, the first plurality of channels (3a) and the second plurality of channels (3b) are aligned with and parallel to each other,
   - a first and a second preformed metal plate (5a, 5b) comprising a series of first guides (6a) and a series of second guides (6b), all of them arranged in a "T" section and in a similar number to the plurality of channels (3a, 3b) arranged in a "T" section in the area of the sole and in the area of the heel, with a small bushing (12) housing a retractable bolt (7) with a retainer, attached to the guides, and
   - a set of metal blades in a "T" section, with short blades (8) and long blades (9), all of them comprising a through hole (10) on the upper part of their vertical side,

   such that the preformed metal plates (5a, 5b) are inserted in and secured to the area of the sole and the area of the heel of the sole (2), in the manner of a cover, with their series of guides fitting into the plurality of channels of the sole by means of the small bushings (12) housed in the small transversal recesses (11).

2. Footwear item-skate with multiple interchangeable blades for ice and skating rinks, according to claim 1, **characterized in that** the shank of the resistant synthetic sole (2) is uncovered.

3. Footwear item-skate with multiple interchangeable blades for ice and skating rinks, according to claim 1, **characterized in that** the sole (2) has three first channels (3a) in the area of the sole and three second channels (3b) in the area of the heel, arranged in a "T" section with a transversal small recess (11) on each of them.

4. Footwear item-skate with multiple interchangeable blades for ice and skating rinks, according to claim 1, **characterized in that** the pair of metal plates (5a, 5b) have three first guides (6a) and three second guides (6b), arranged in a "T" section, and each of them is connected to a small bushing (12) housing a retractable bolt (7).

5. Footwear item-skate with multiple interchangeable blades for ice and skating rinks, according to claim 1, **characterized in that** the toe cap (4) of the resistant synthetic sole (2) is stretched.

6. Footwear item-skate with multiple interchangeable blades for ice and skating rinks, according to any of the previous claims, **characterized in that** the metal blades (8, 9) are fitted along their horizontal sides in the corresponding guide/s (6a, 6b) of the preformed metal plates (5a, 5b) by means of tongue-and-groove couplings, and they are secured by means of the corresponding retractable bolt entering their through hole (10).

7. Footwear item-skate with multiple interchangeable blades for ice and skating rinks, according to any of the previous claims, **characterized in that** the set of blades (8, 9) can be removed and assembled in different combinations.

8. Footwear item-skate with multiple interchangeable blades for ice and skating rinks, according to any of the previous claims, **characterized in that** the short metal blades (8) are mounted independently and in line in the corresponding guide/s of the preformed metal plates (5a, 5b) of the area of the sole and of the area of the heel of the sole (2), and the long metal blades (9) are mounted on the corresponding aligned guides of both preformed metal plates.

9. Footwear item-skate with multiple interchangeable blades for ice and skating rinks, according to any of the previous claims, **characterized in that** the metal blades (8, 9) have different heights.

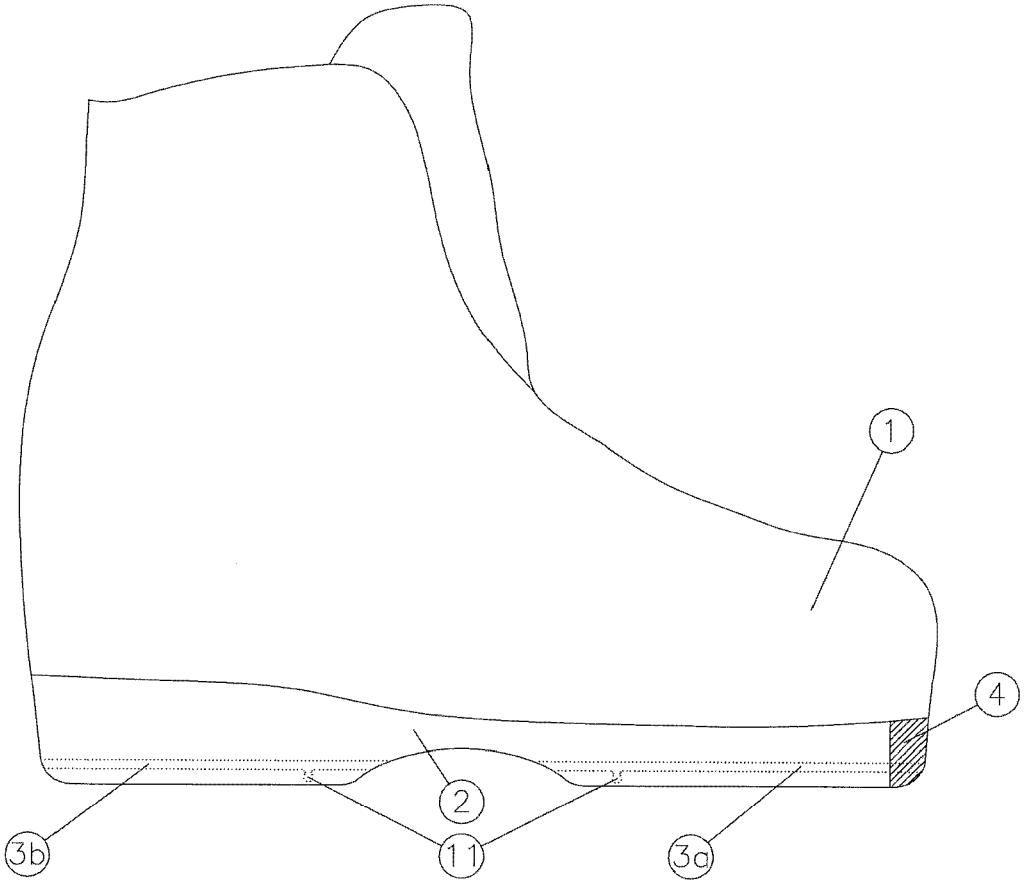

FIG.1

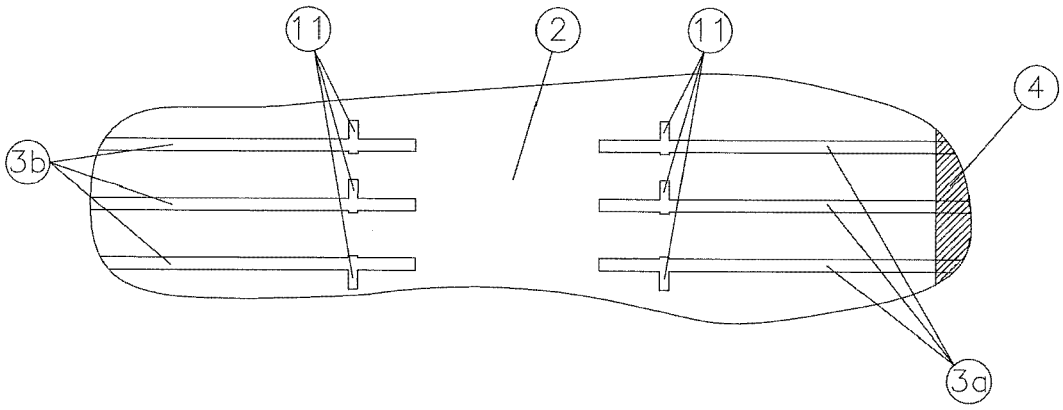

FIG.2

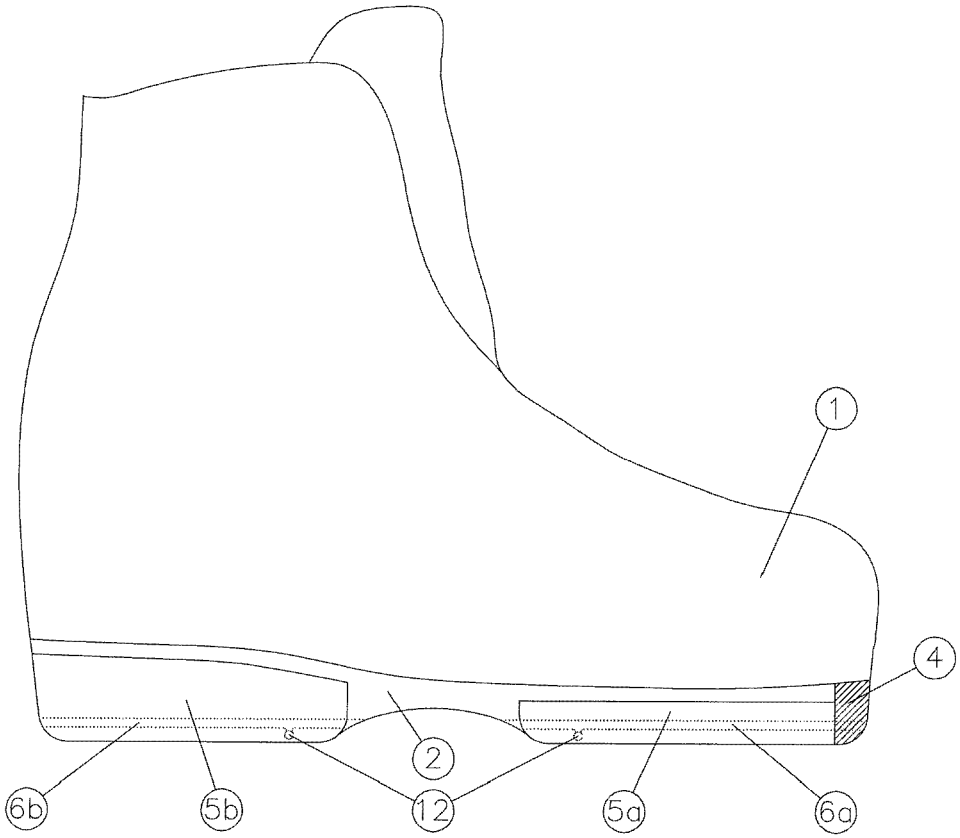

FIG.3

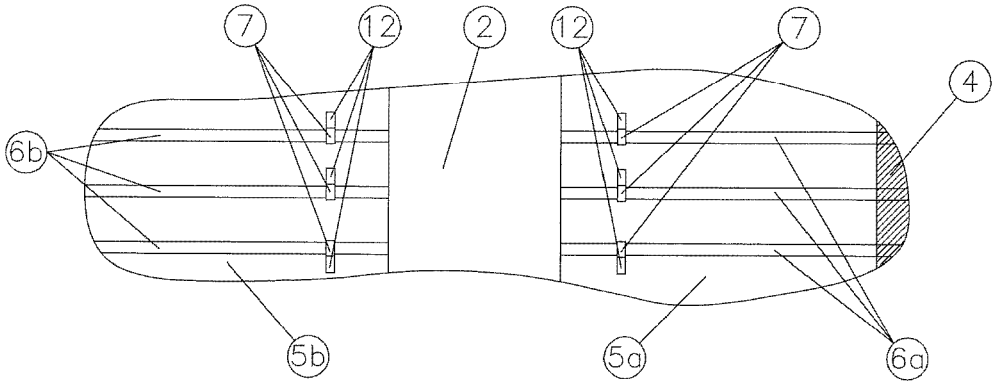

FIG.4

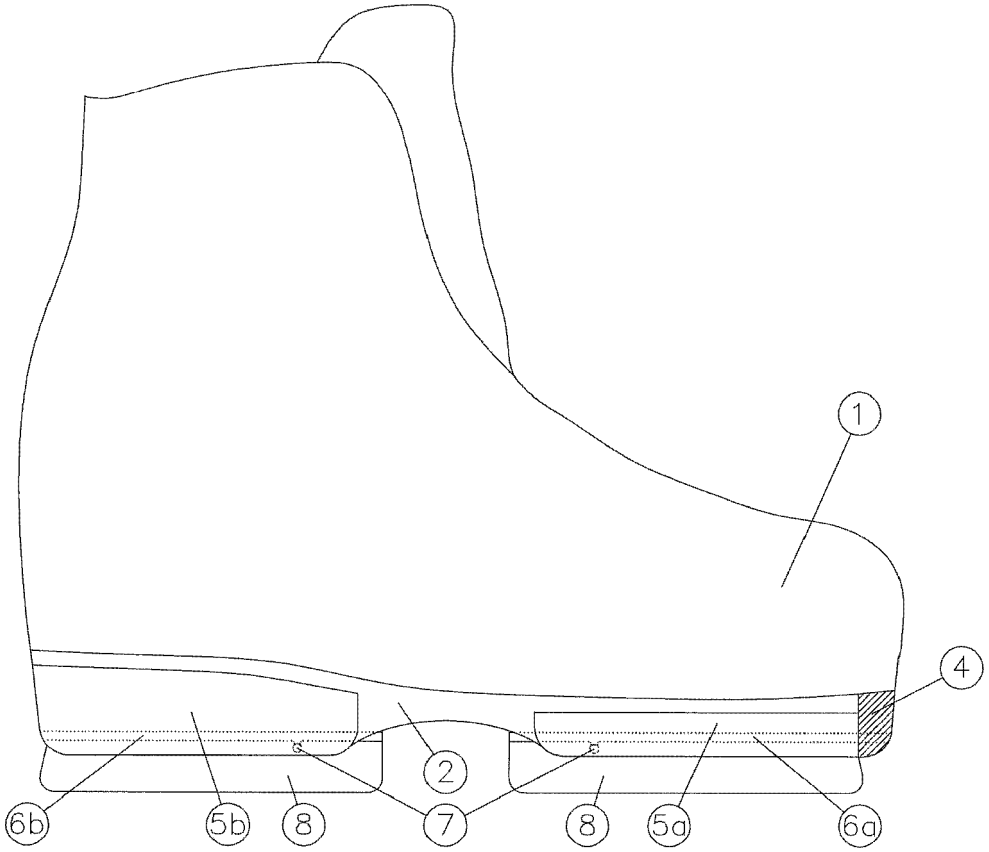

FIG.5

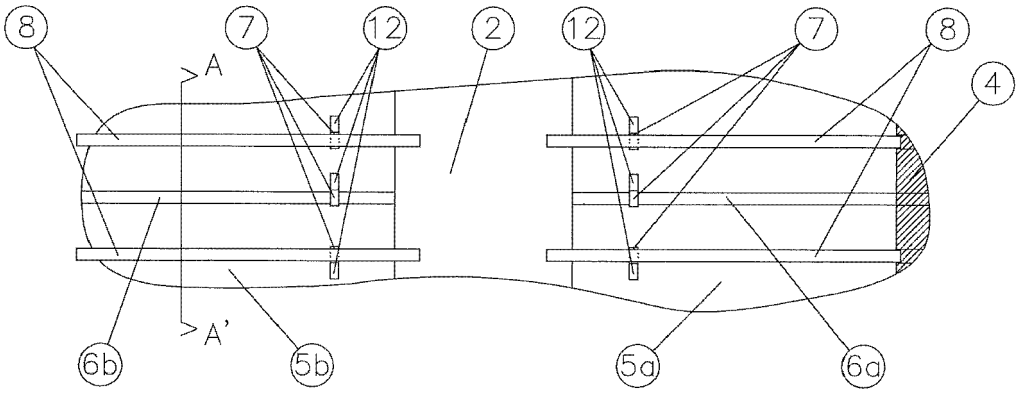

FIG.6

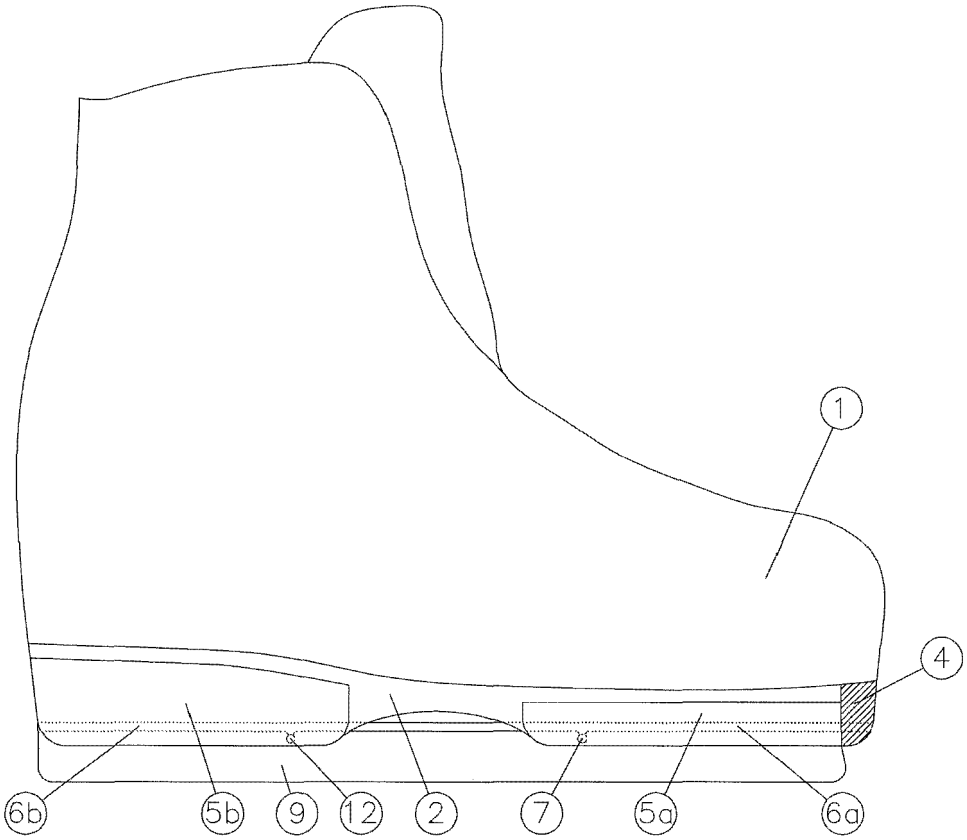

FIG.7

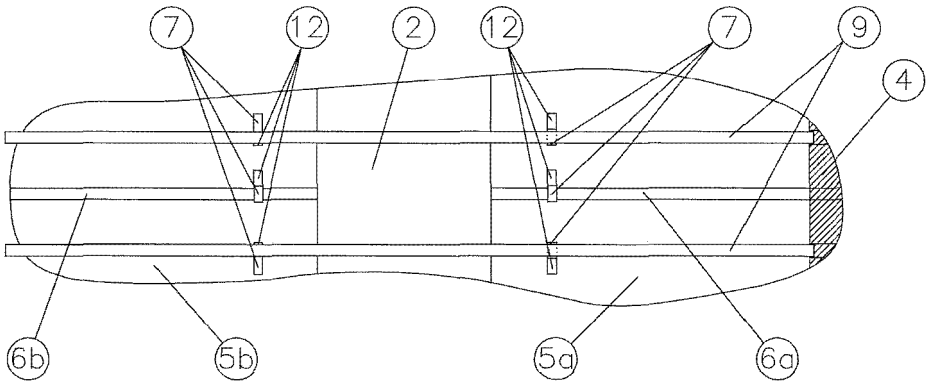

FIG.8

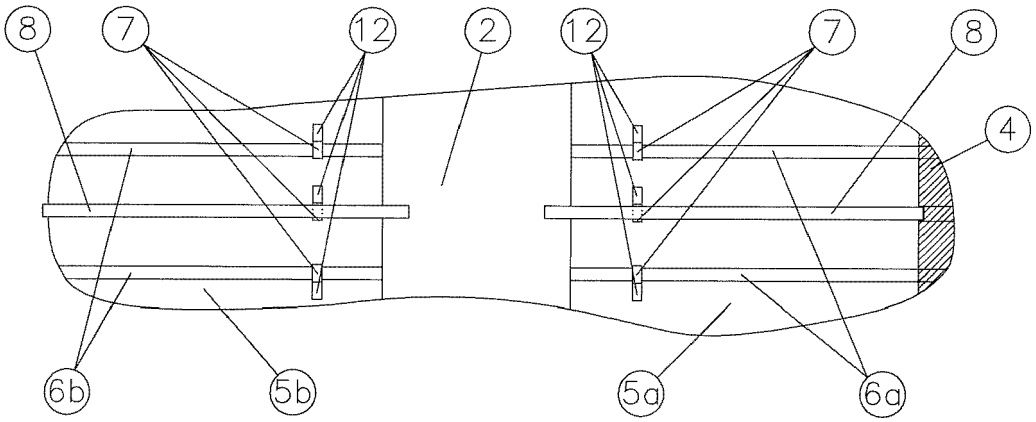

FIG.9

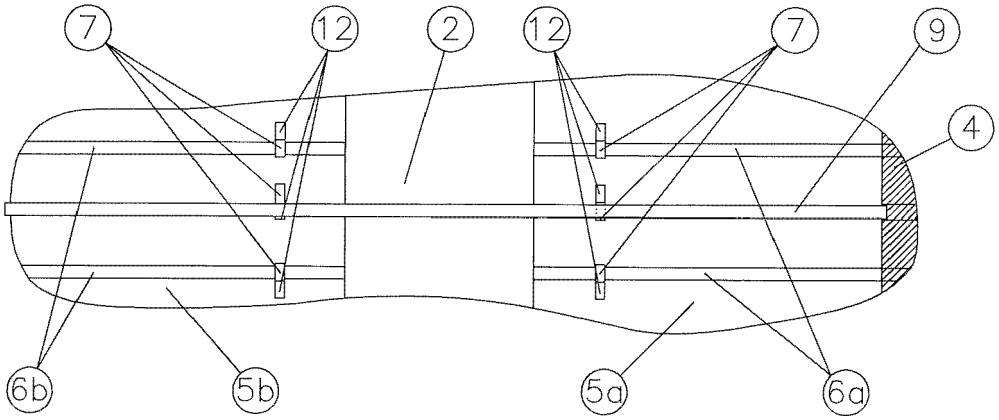

FIG.10

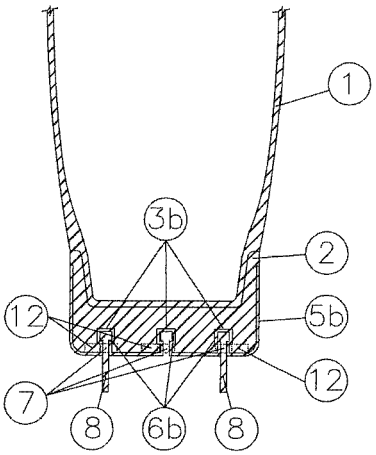

FIG. 11

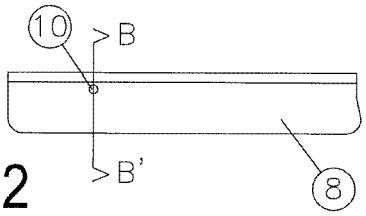

FIG.12

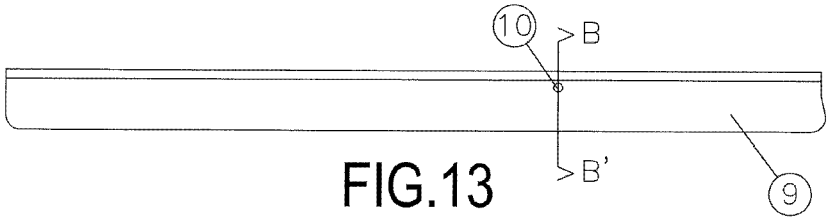

FIG.13

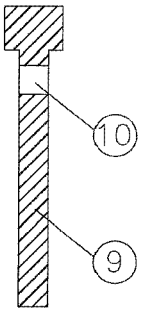

FIG.14

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 17 38 2043

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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Place of search	Date of completion of the search	Examiner
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