(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 027 894 A1**

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
25.02.2009 Bulletin 2009/09

(21) Application number: **08162640.0**

(22) Date of filing: **19.08.2008**

(51) Int Cl.:
A63C 1/24 *(2006.01)* ***A63C 17/02*** *(2006.01)*
A63C 17/06 *(2006.01)* ***A43B 13/18*** *(2006.01)*
A63B 25/10 *(2006.01)*

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR
Designated Extension States:
AL BA MK RS

(30) Priority: **20.08.2007 CN 200720138941 U**

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(54) Multi-function shoe

(57) A shoe includes a first part wore by wearers and a second part which includes a C-shaped resilient plate which is fixed to an underside of the first part by its top. A first pin and a second pin are respectively connected to the front end and the rear end of the resilient plate. A base includes a front end which is pivotably connected to the first pin on the resilient plate and two lugs extend from the top of the rear end of the base. Each lug has an elongate slot and the second pin is movably engaged with the two elongate slots of the two lugs. The resilient plate is moved up and down when the second pin is moved within the elongate slots of the base.

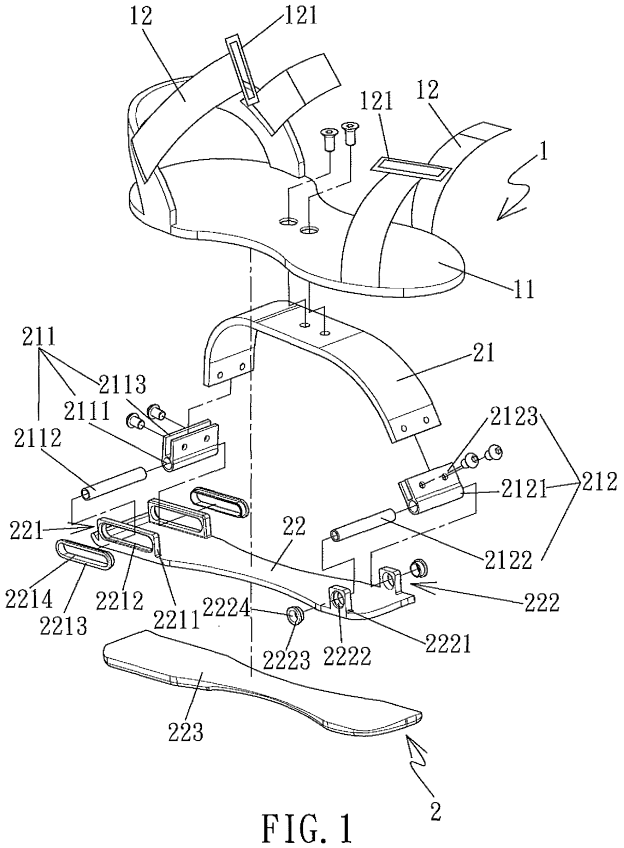

FIG. 1

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Description

[0001] The present invention relates to a shoe with a curved resilient plate connected to an underside thereof and a rear end of the resilient plate is moved back and forth by the load of the wearer to provide comfortable wearing feature.

[0002] Conventional shoes are designed for a specific purpose, such as tennis shoes, in-line skates or ice skates, which are totally different in structure and functions. In other words, the wearers have to prepare many pairs of shoes for different types of use.

[0003] The present invention intends to provide a shoe that can be cooperated with different components to have different functions and includes a curved resilient plate which provides shock absorbing feature.

[0004] The present invention relates to a shoe that comprises a first part which is wore by wearers and a second part which has a C-shaped resilient plate and a top of the resilient plate is fixed to an underside of the first part. A first connection unit is connected to a front end of the resilient plate and a second connection unit is connected to a rear end of the resilient plate. A first pin and a second pin are connected to the first and second connection units respectively. A base has a front end thereof pivotably connected to the first pin of the first connection unit and two lugs extend from a top of a rear end of the base. Each lug has an elongate slot defined therethrough and the second pin is movably engaged with the two elongate slots of the two lugs.

[0005] The present invention will become more obvious from the following description when taken in connection with the accompanying drawings which show, for purposes of illustration only, an embodiment in accordance with the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006]

Fig. 1 is an exploded view to show the first embodiment of the shoe of the present invention;

Fig. 2 is a perspective view to show the first embodiment of the shoe of the present invention wherein the second pin moves backward in the elongate slots;

Fig. 3 is a perspective view to show the first embodiment of the shoe of the present invention wherein the second pin moves forward in the elongate slots;

Fig. 4 is an exploded view to show the second embodiment of the shoe of the present invention, wherein four rollers are connected to the first and second pins;

Fig. 5 is a perspective view of the second embodiment of the shoe of the present invention, wherein rollers on the rear end move backward;

Fig. 6 is a perspective view of the second embodiment of the shoe of the present invention, wherein rollers on the rear end move forward;

Fig. 7 shows a vamp is connected to the first part of the first embodiment of the shoe of the present invention;

Fig. 8 shows a vamp is connected to the first part of the second embodiment of the shoe of the present invention;

Fig. 9 is an exploded view to show the third embodiment of the shoe of the present invention;

Fig. 10 is a perspective view to show the third embodiment of the shoe of the present invention wherein the second pin moves backward in the elongate slots;

Fig. 11 is a perspective view to show the third embodiment of the shoe of the present invention wherein the second pin moves forward in the elongate slots;

Fig. 12 shows a vamp is connected to the first part of the third embodiment of the shoe of the present invention;

Fig. 13 is an exploded view to show the fourth embodiment of the shoe of the present invention;

Fig. 14 is a perspective view to show the fourth embodiment of the shoe of the present invention wherein the second pin moves backward in the elongate slots;

Fig. 15 is a perspective view to show the fourth embodiment of the shoe of the present invention wherein the second pin moves forward in the elongate slots;

Fig. 16 shows a vamp is connected to the first part of the fourth embodiment of the shoe of the present invention, and

Fig. 17 is an exploded view to show the fifth embodiment of the shoe of the present invention.

[0007] Referring to Fig. 1, the shoe of the present invention comprises a first part 1 which includes a sole 11 and two fastening units 12 are connected to the front end and the rear end thereof. Each of the fastening units 12 includes a buckle 121 for fastening the wearer's foot to the first part 1.

[0008] A second part 2 includes a C-shaped resilient plate 21 and a top of the resilient plate 21 is fixed to an underside of the first part 1. The resilient plate 21 can be made by glass fibers, carbon fibers, plastic or metal strip. A first connection unit 212 is connected to a front end of the resilient plate 21 and a second connection unit 211 connected to a rear end of the resilient plate 21. The first connection unit 212 includes two clamping plates 2123 between which the first end of the resilient plate 21 is securely connected. A first tubular portion 2121 is connected to the two clamp plates 2123 and a first pin 2122 extends through the first tubular portion 2121. The second connection unit 211 includes two clamping plates 2113 between which the second end of the resilient plate 21 is securely connected. A second tubular portion 2111 is connected to the two clamp plates 2113 and a second

pin 2122 extends through the second tubular portion 2111.

[0009] A base 22 includes two lugs 2221 extending from the top of the front end 222 of the base 22 and each lug 2221 includes a hole 2222 defined therethrough. Two bushes 2223 are engaged with the two holes 2222 and each bush 2223 includes a through hole 2224. The first pin 2122 pivotably extends through the two through holes 2224 of the two bushes 2223 in the two lugs 2221. Two lugs 2211 extend from the top of a rear end 221 of the base 22 and each lug 2211 has an elongate slot 2212 defined therethrough. Two bushes 2213 are engaged with the two elongate slots 2212 and each bush 2213 includes an elongate slot 2214. The second pin 2112 movably extends through the two elongate slots 2214 of the two bushes 2213 in the two lugs 2211. An outsole 223 is attached to an underside of the base 22.

[0010] As shown in Figs. 2 and 3, when the wearer walks, the weight of the wearer presses the resilient plate 21 to move the second pin 2112 back and forth in the elongate slots 2214 of the bushes 2213, the resilient plate 21 moves up and down to absorb the shocks transferred from the ground. When the shoe is lifted from the ground, the resilient plate 21 bounces and the second pin 2112 moves forward.

[0011] Fig. 4 shows that two pairs of rollers 23 are rotatably connected to two ends of each of the first pin 2122 and the second pin 2112 by four respective bolts 231. As shown in Figs. 5 and 6, when the wearer rolls the rollers 23 against the ground, the weight of the wearer presses the resilient plate 21 to move the second pin 2112 back and forth in the elongate slots 2214 of the bushes 2213. The rollers 23 on the back of the second part 2 move backward and generate a forward force so that the wearer move forward. When the shoe is lifted from the ground, the resilient plate 21 bounces and the second pin 2112 moves forward.

[0012] Fig. 7 shows that the first part 1' can be made directly as a shoe with a sole 11' and a vamp 12' connected to the sole 11'. The user can easily wear the shoe. When cooperated with rollers 23, the first part 1' can also be made directly as a shoe with a sole 11' and a vamp 12' connected to the sole 11'.

[0013] Fig. 9 shows that the shoe can be used as an ice stake wherein the first part is the same as the first embodiment in Fig. 1 and the second part 3 includes a blade 322 extending from an underside of the base 32. Two ridges 321 extend from the top of the base 32 of the second part 3 and include two holes 3212 and two elongate slots 3211 defined therethrough in the front end and the rear end of the two ridges 321. The top of the C-shaped resilient plate 31 is fixed to the underside of the first part 1 and a first connection unit 312 is connected to the front end of the resilient plate 31 and a second connection unit 311 is connected to the rear end of the resilient plate 31. The first connection unit 312 includes two clamping plates 3123 between which the first end of the resilient plate 31 is securely connected. A first tubular portion 3121 is connected to the two clamp plates 323 and the first pin 3122 extends through the first tubular portion 3121. The second connection unit 311 includes two clamping plates 3113 between which the second end of the resilient plate 31 is securely connected. A second tubular portion 3111 is connected to the two clamp plates 3113 and a second pin 3122 extends through the second tubular portion 3111.

[0014] As shown in Figs. 10 and 11, when the wearer skates, the weight of the wearer presses the resilient plate 31 to move the second pin 3112 back and forth in the elongate slots 3211 in the ridges 321 so that the wearer moves forward. When the shoe is lifted from the ground, the resilient plate 31 bounces and the second pin 2112 moves forward.

[0015] Fig. 12 shows that the first part 1' can be made directly as a shoe with a sole 11' and a vamp 12' connected to the sole 11' while the second part 3 is the same as the embodiment as shown in Fig. 9.

[0016] Fig. 13 shows that the shoe is used as an in-line skate wherein the first part 1 is the same as the embodiment in Fig. 1 and the second part 4 includes four in-line rollers 422 connected to an underside thereof. Two ridges 421 extend from the top of the base 42 of the second part 4 and include two holes 4212 and two elongate slots 4211 defined therethrough in the front end and the rear end of the two ridges 421. The top of the C-shaped resilient plate 41 is fixed to the underside of the first part 1 and a first connection unit 412 is connected to the front end of the resilient plate 41 and a second connection unit 411 is connected to the rear end of the resilient plate 41. The first connection unit 412 includes two clamping plates 4124 between which the first end of the resilient plate 41 is securely connected. The first connection unit 412 includes two extensions 4121 and one of the in-line rollers 422 is located between the two extensions 4121. Each extension 4121 has a first tubular portion 4122 and the first pin 3122 extends through the first tubular portions 4121. The second connection unit 411 includes two clamping plates 4114 between which the second end of the resilient plate 41 is securely connected. The second connection unit 411 includes two extensions 4111 and one of the in-line rollers 422 is located between the two extensions 4111. Each extension 4111 has a second tubular portion 4112 and the second pin 4113 extends through the second tubular portions 4112.

[0017] Figs. 14 and 15 show that when the wearer skates, the weight of the wearer presses the resilient plate 41 to move the second pin 4113 back and forth in the elongate slots 4211 in the ridges 421 so that the wearer moves forward. When the shoe is lifted from the ground, the resilient plate 41 bounces and the second pin 4113 moves forward.

[0018] Fig. 16 shows that the first part 1' can be made directly as a shoe with a sole 11' and a vamp 12' connected to the sole 11' while the second part 4 is the same as the embodiment as shown in Fig. 13.

[0019] Fig. 17 shows that the shoe 5 of the present invention comprises a first part 51 having a vamp and an open bottom defined by a peripheral wall. A second part 52 has a peripheral wall 521 which defines an open top, the peripheral wall of the first part 51 is fixed to an inside of the peripheral wall 521 of the second part 52. A support unit 6 includes a resilient plate 61 which is received in the second part 52 and an insole 63 is put on the resilient plate 61. The resilient plate 61 includes a backward bent portion 614 extending from an underside of a front end thereof and a flexible protrusion 611 extending from the underside of the rear end of the resilient plate 61. A pin 613 extends through the flexible protrusion 611. A fixed plate 62 is connected to an inner end of the second part 52 and includes two lugs 621 extending from a top of a rear end thereof. Each lug 621 has an elongate slot 622 and the pin 613 movably extends through the elongate slots 622 of the two lugs 621. The backward bent portion 614 contacts the top of the front end of the fixed plate 62 so that the rear end of the resilient plate 61 moves up and down by movement of the pin 613 in the elongate slots 622.

[0020] When the wear walks, as shown in Figs. 18 and 19, the weight of the wearer presses the resilient plate 61, the underside of the backward bent portion 614 is pushed against the inner end of the second part 52 and the rear end of the flexible plate 61 is lowered so that the flexible protrusion 611 is pivoted to move the pin 613 backward in the elongate slots 622 to absorb the load of the wearer's weight. When the shoe is lifted from the ground, the resilient plate 61 and the flexible protrusion 611 bounce and the pin 613 moves forward.

[0021] While we have shown and described the embodiment in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.

Claims

1. A shoe comprising:

a first part which is adapted to be wore by wearers;
a second part having a C-shaped resilient plate and a top of the resilient plate fixed to an underside of the first part, a first connection unit connected to a front end of the resilient plate and a second connection unit connected to a rear end of the resilient plate, a first pin and a second pin connected to the first and second connection units, and
a base having a front end thereof pivotably connected to the first pin of the first connection unit and two lugs extending from a top of a rear end of the base, each lug having an elongate slot defined therethrough and the second pin movably engaged with the two elongate slots of the two lugs.

2. The shoe as claimed in claim 1, wherein an outsole is attached to an underside of the base.

3. The shoe as claimed in claim 1, wherein the first part includes a sole and two fastening units connected thereto.

4. The shoe as claimed in claim 1, wherein the first part includes a sole and a vamp is connected to the sole.

5. The shoe as claimed in claim 1, wherein two lugs extend from the top of the front end of the base and each lug includes a hole defined therethrough, the first pin pivotably extends through the two holes of the two lugs.

6. The shoe as claimed in claim 1, wherein two pairs of rollers are rotatably connected to two ends of each of the first pin and the second pin.

7. The shoe as claimed in claim 1, wherein the second part includes a blade extends from an underside thereof.

8. The shoe as claimed in claim 1, wherein the second part includes four in-line rollers connected to an underside thereof.

9. A shoe comprising:

a first part which is adapted to be wore by wearers and includes a peripheral wall;
a second part having a peripheral wall which defines an open top, the peripheral wall of the first part being fixed to an inside of the peripheral wall of the second part;
a resilient plate received in the second part and including a backward bent portion extending from an underside of a front end thereof and a flexible protrusion extending from the underside of the rear end of the resilient plate, a pin extending through the flexible protrusion, and
a fixed plate connected to an inner end of the second part and including two lugs extending from a top of a rear end thereof and each lug having an elongate slot, the pin movably extending through the elongate slots of the two lugs, the backward bent portion contacting the top of the front end of the fixed plate so that the rear end of the resilient plate moves up and down by movement of the pin in the elongate slots.

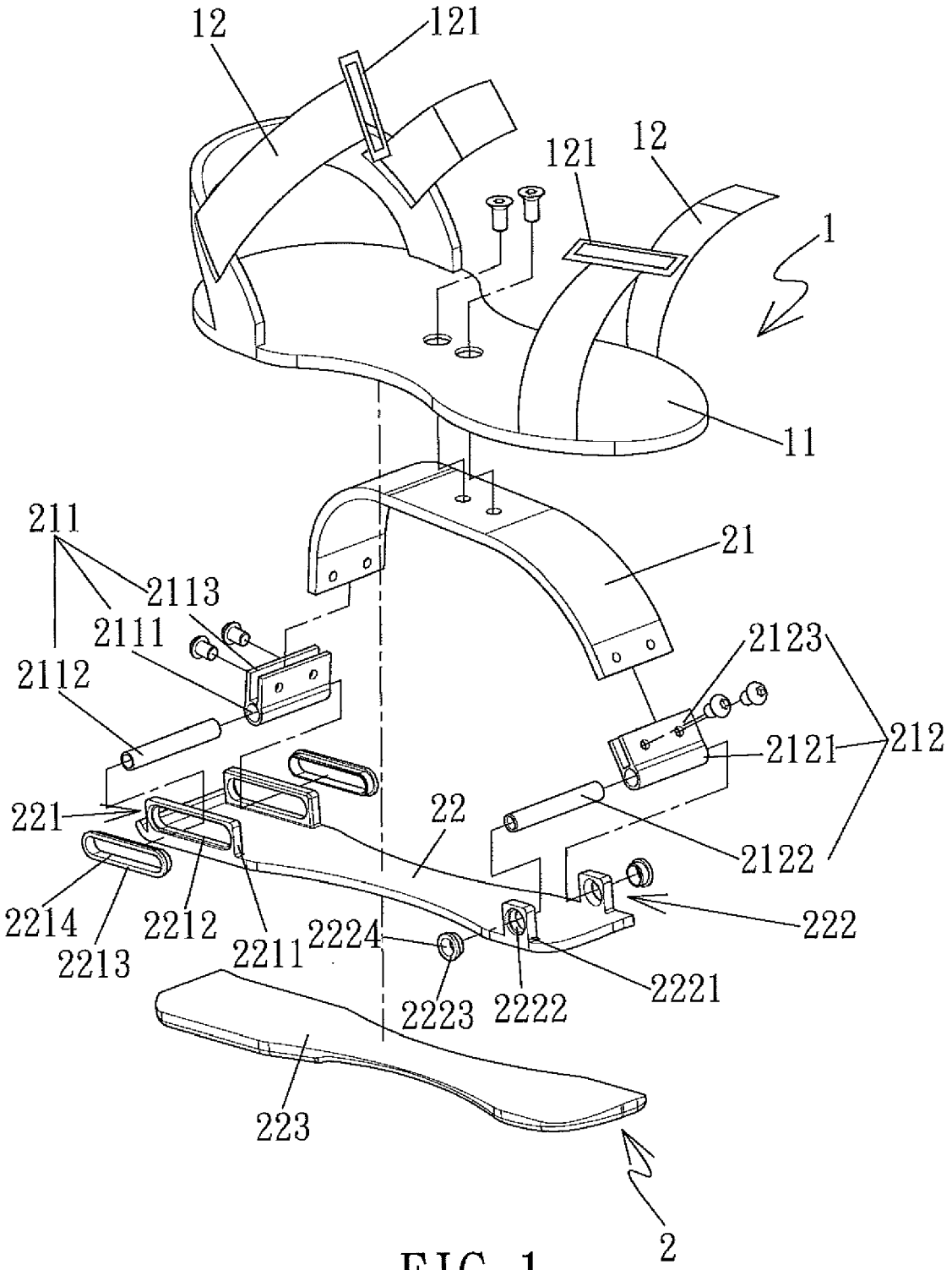
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FIG. 1

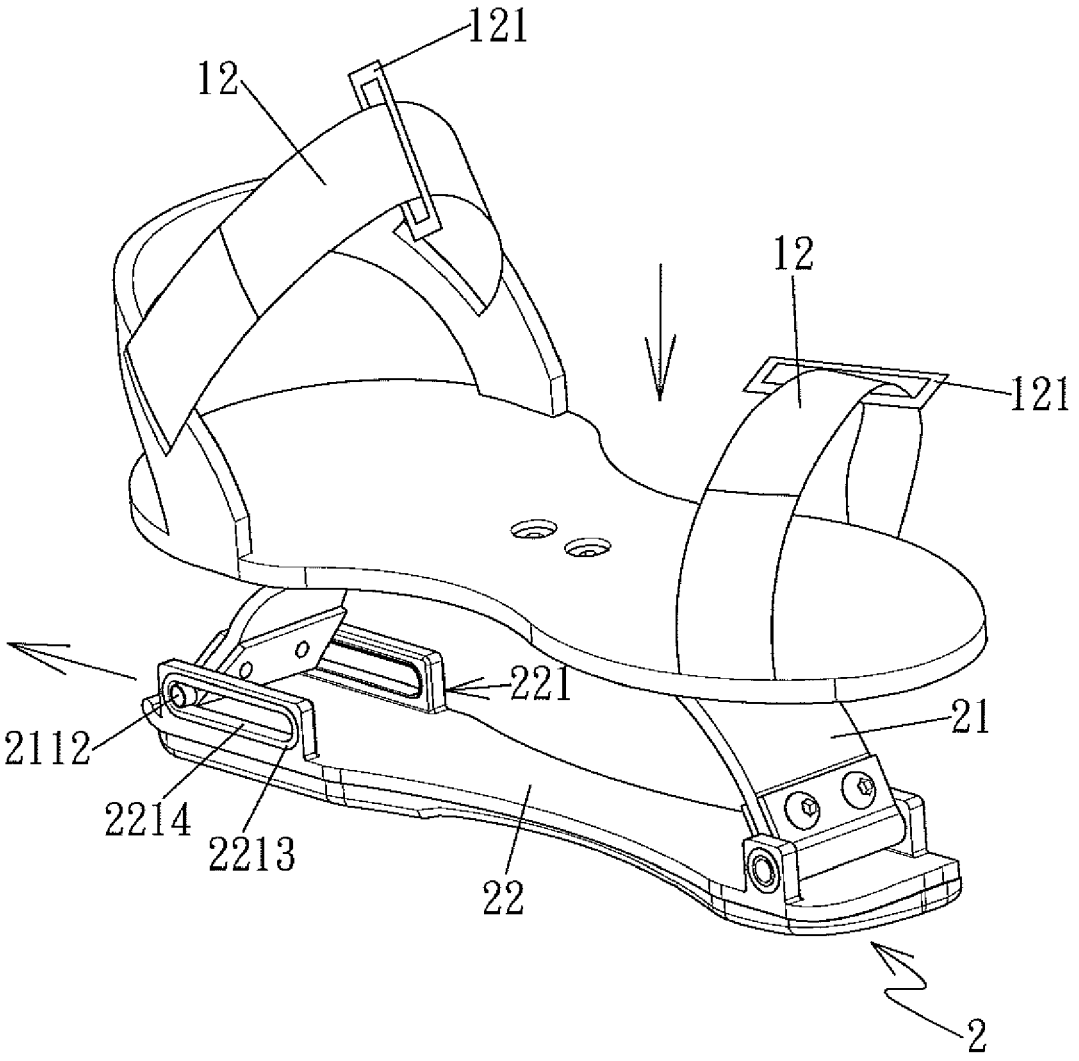

FIG. 2

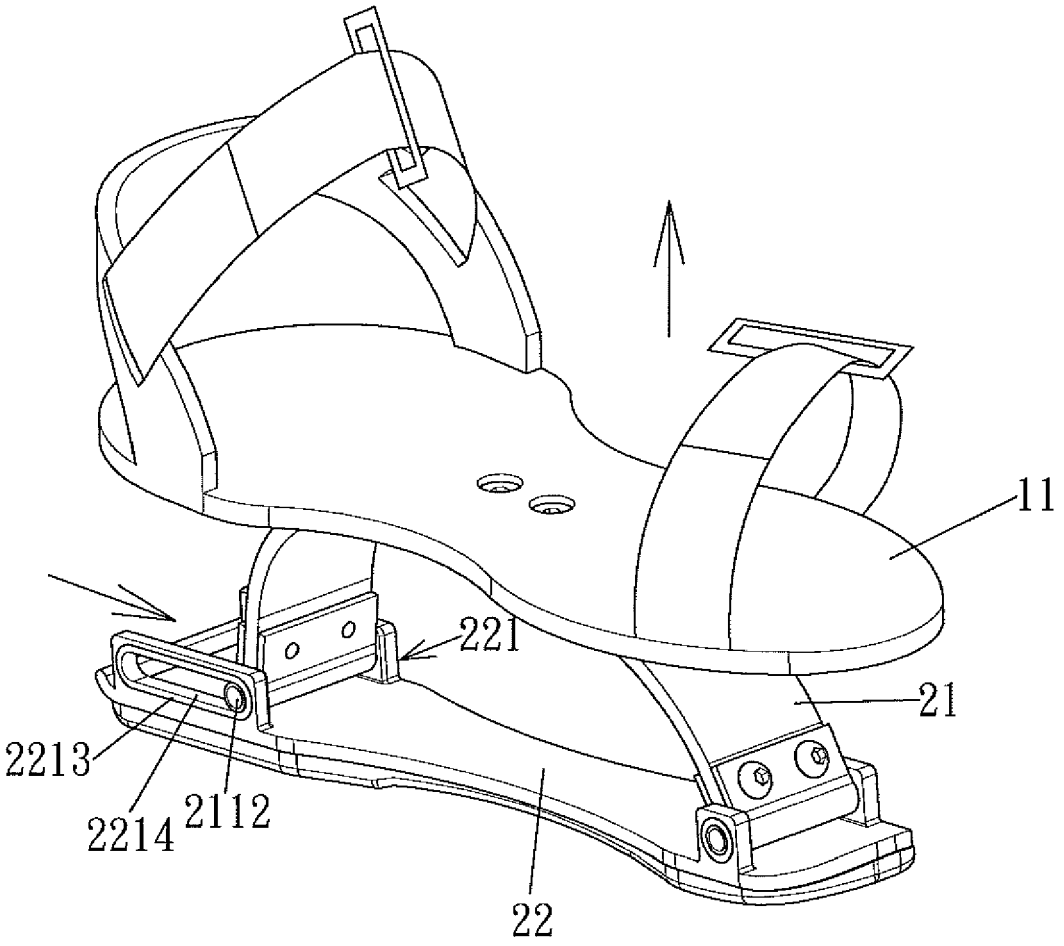

FIG. 3

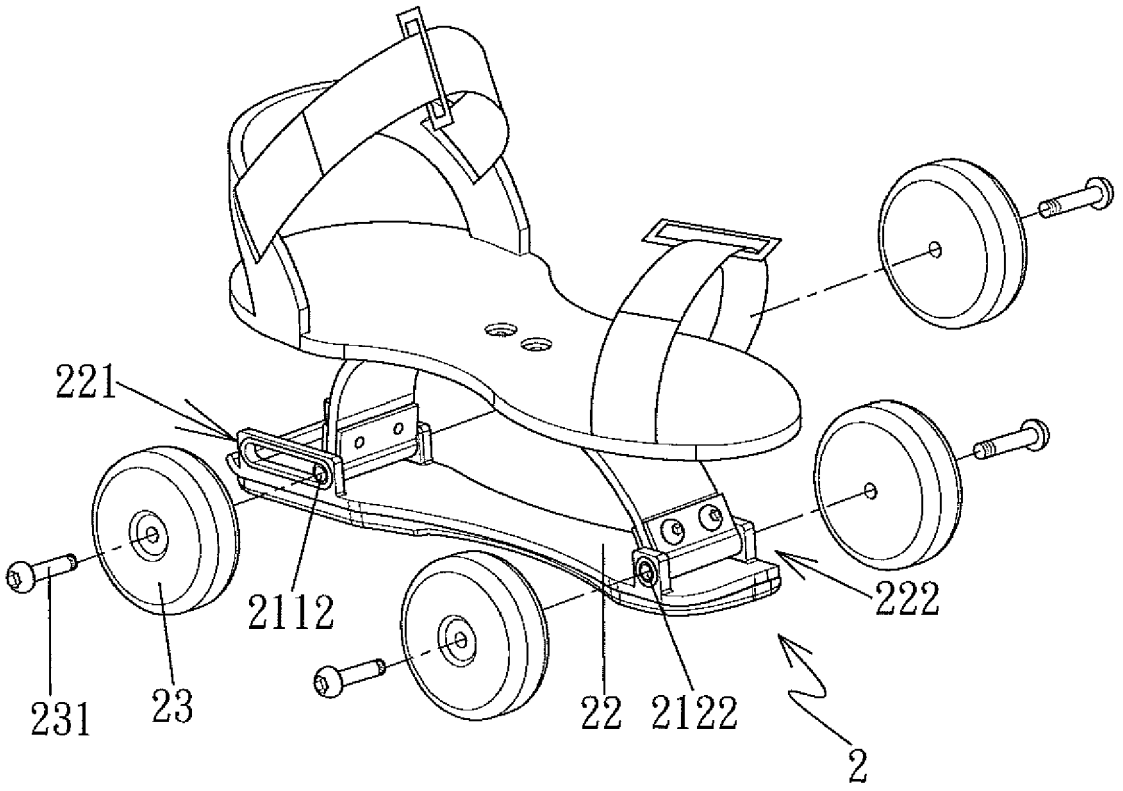

FIG. 4

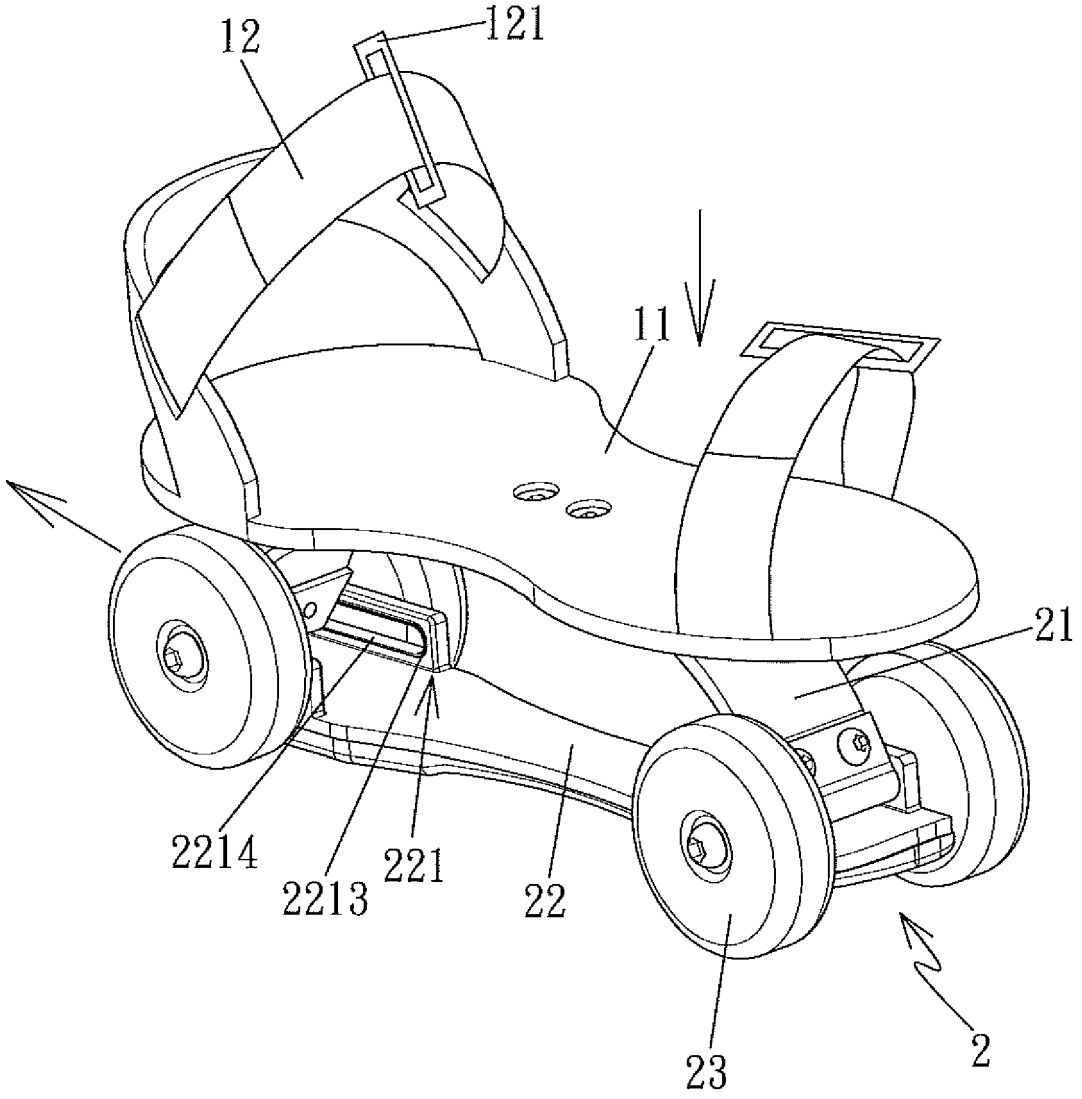

FIG. 5

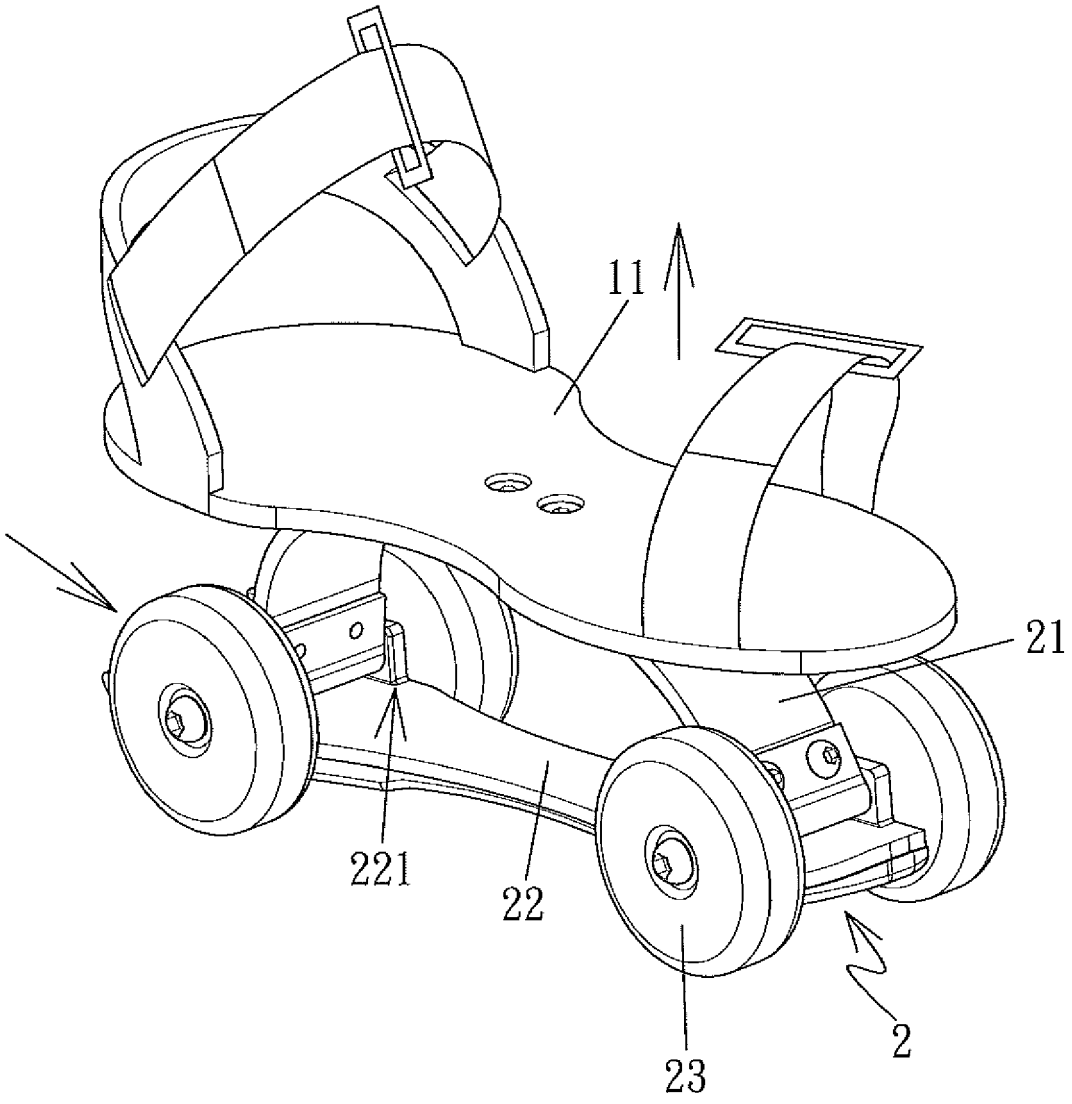

FIG. 6

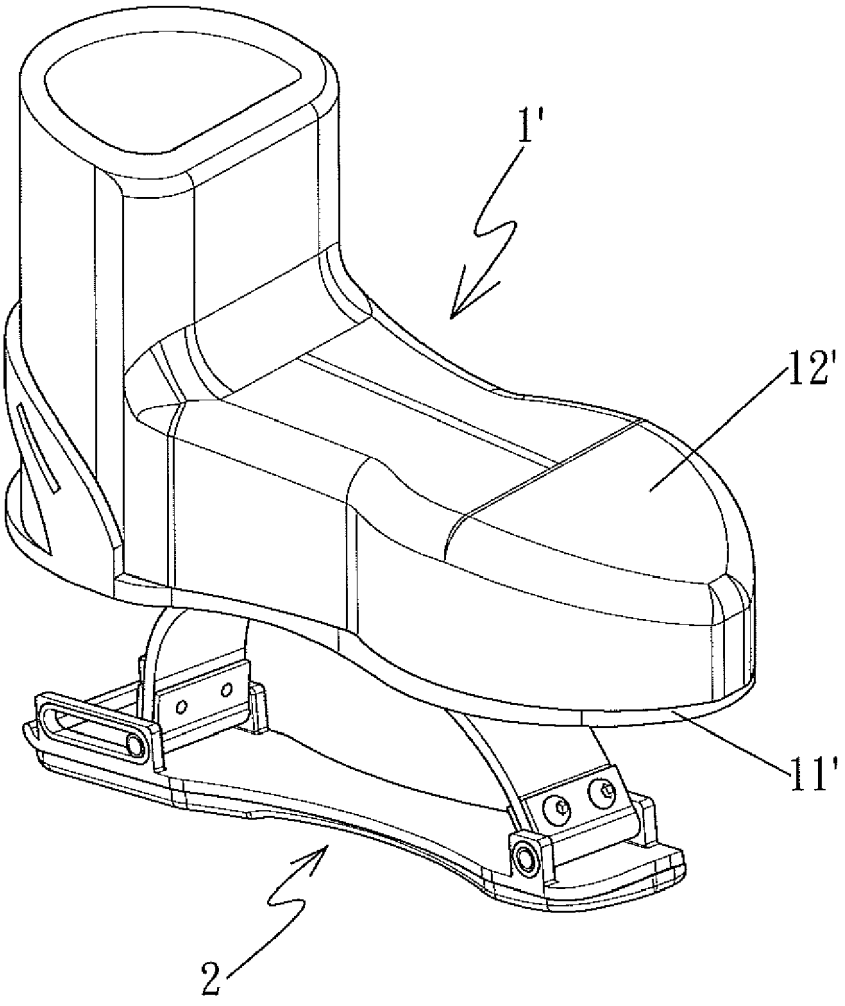

FIG. 7

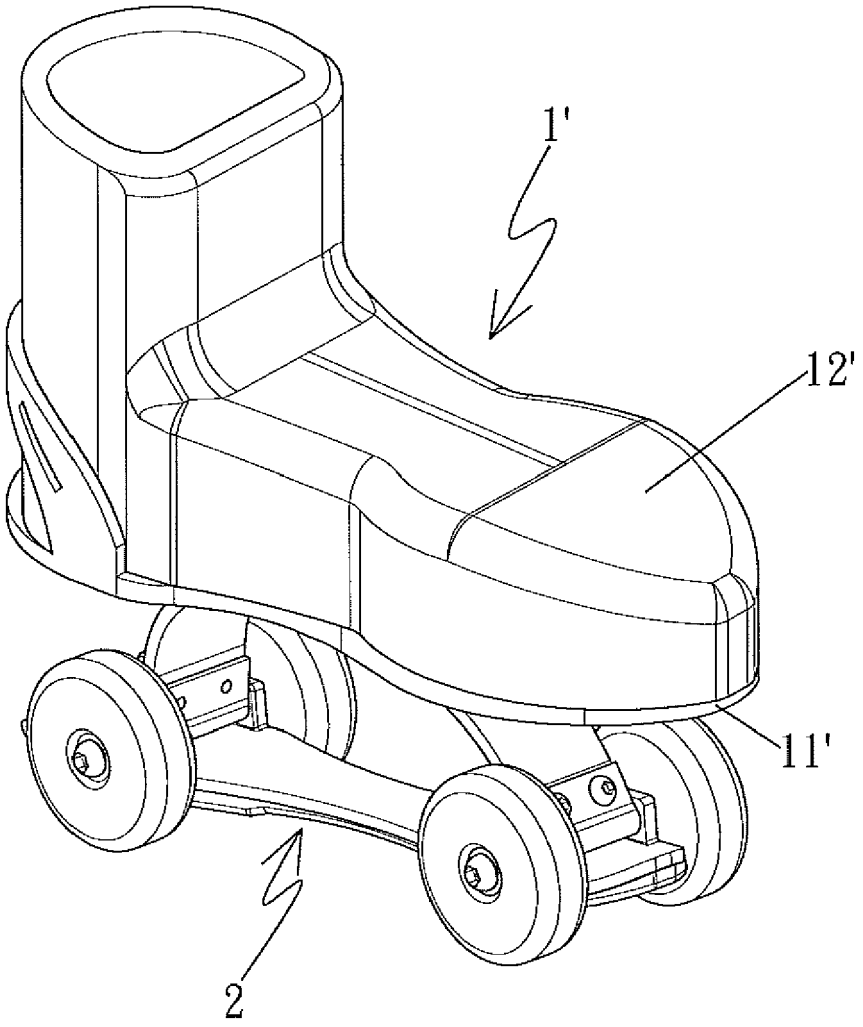

FIG. 8

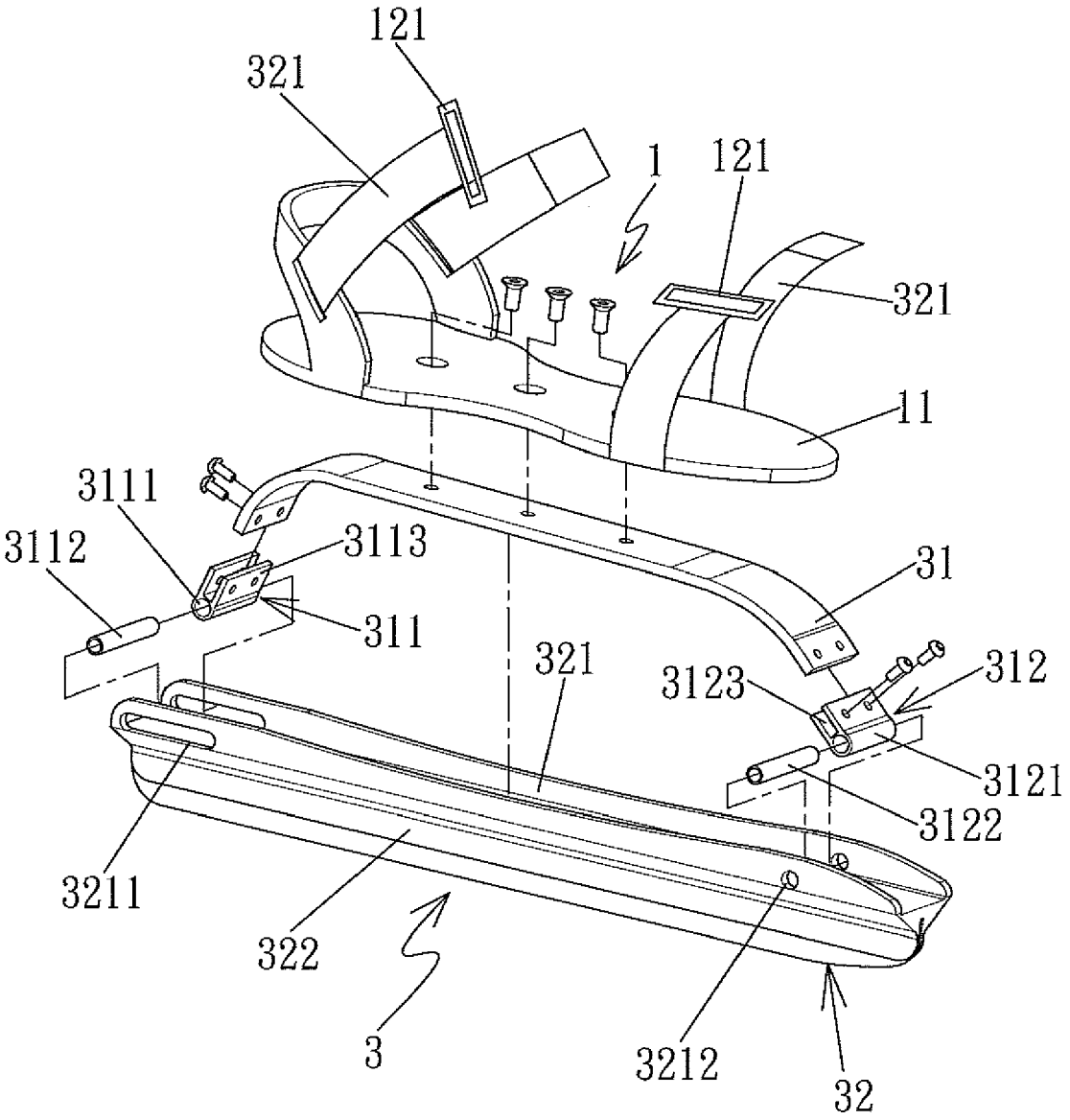
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FIG. 9

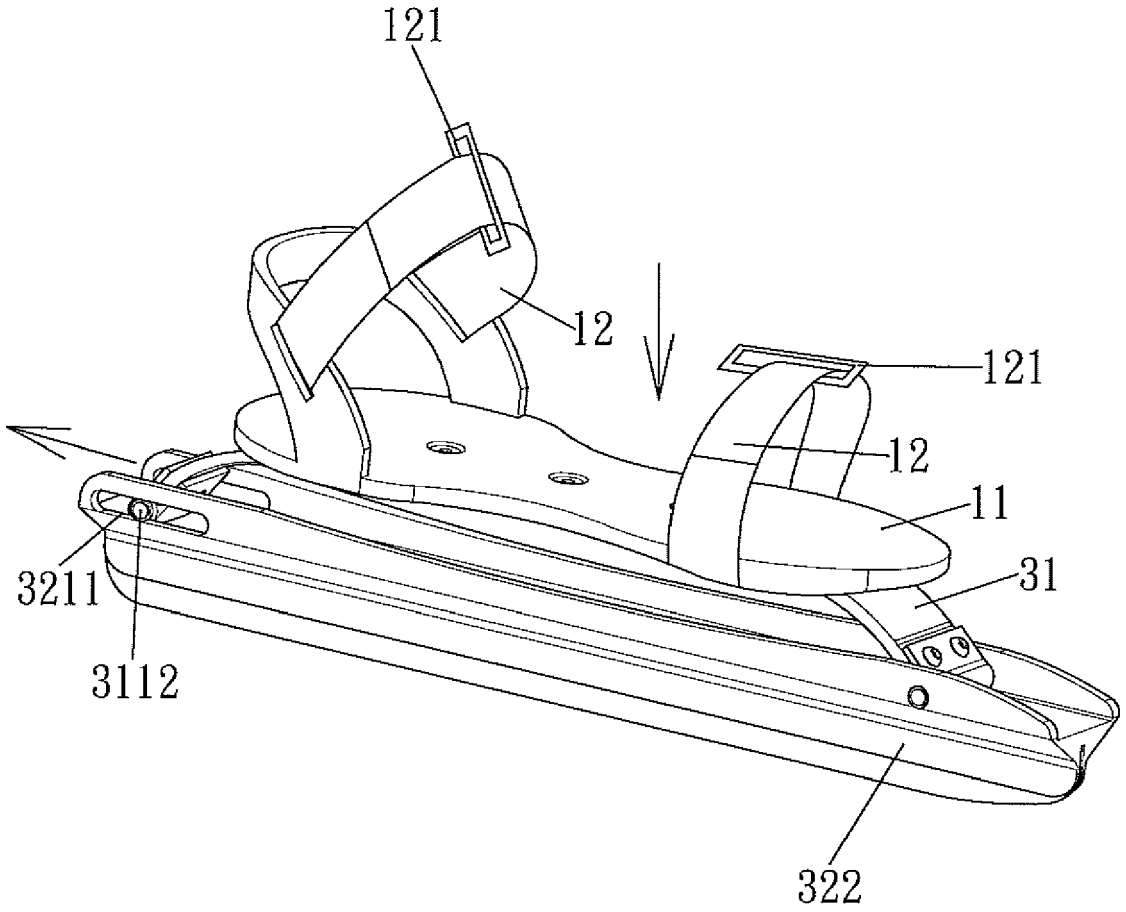

FIG. 10

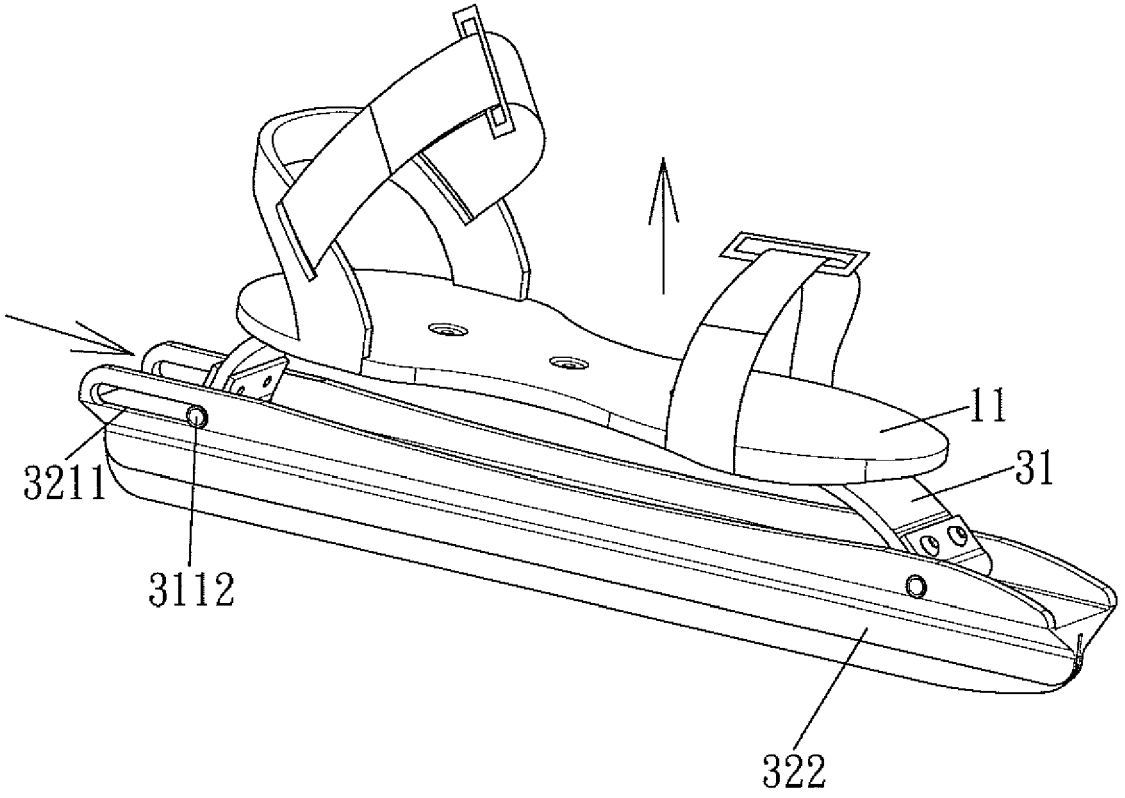

FIG. 11

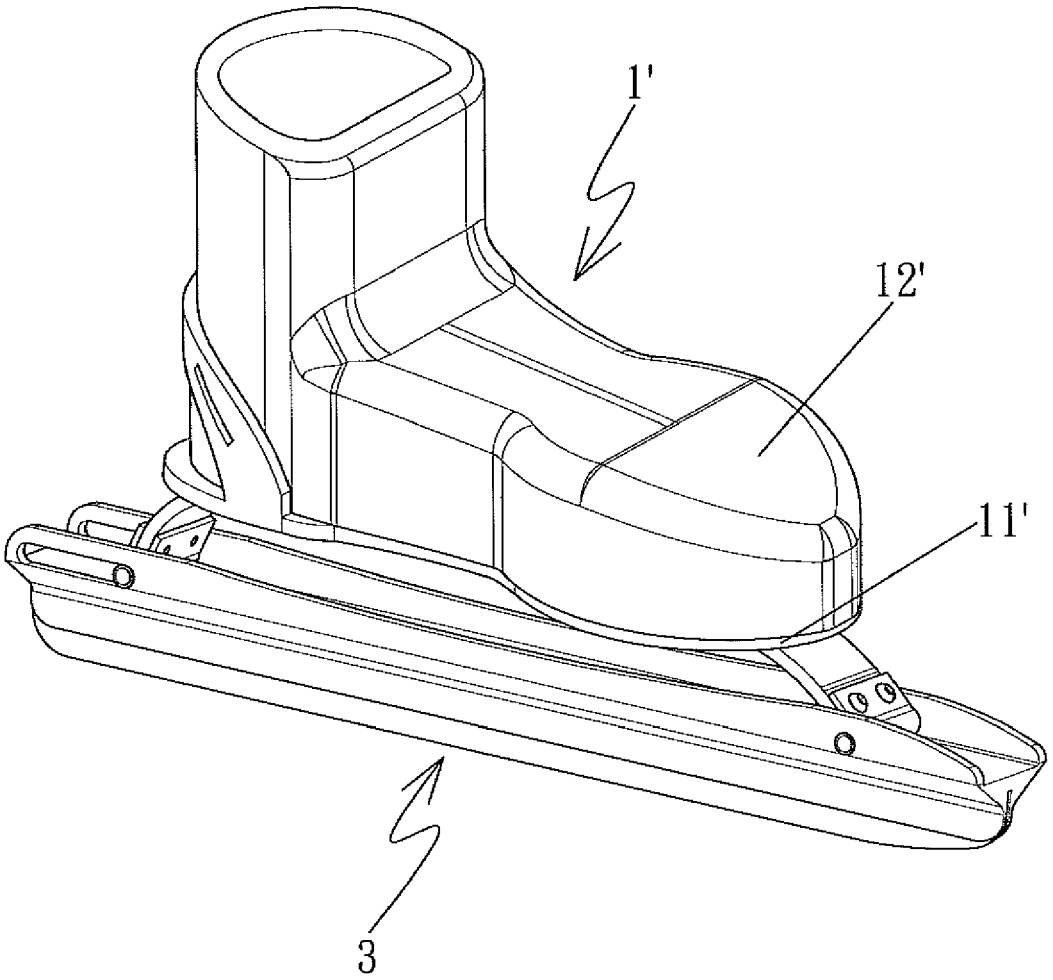

FIG. 12

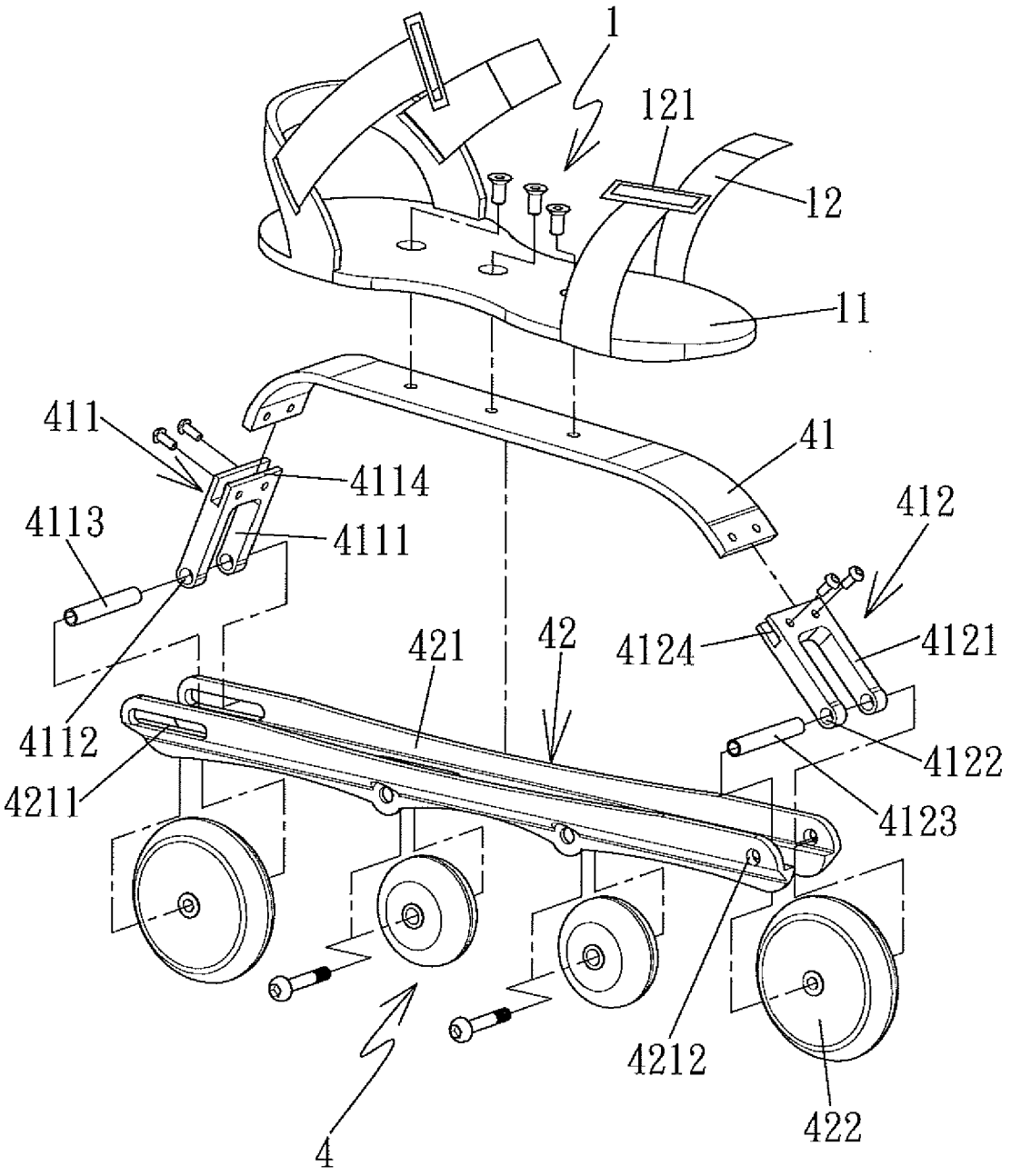
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FIG. 13

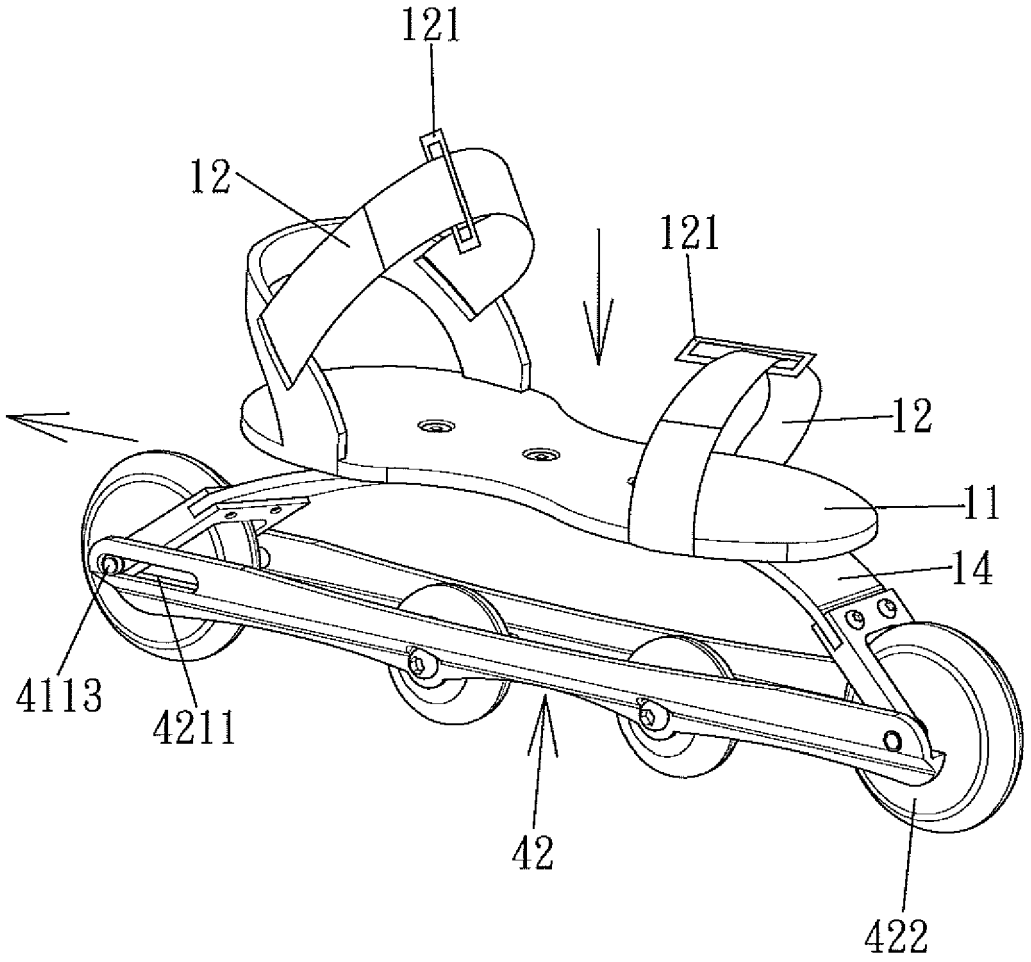

FIG. 14

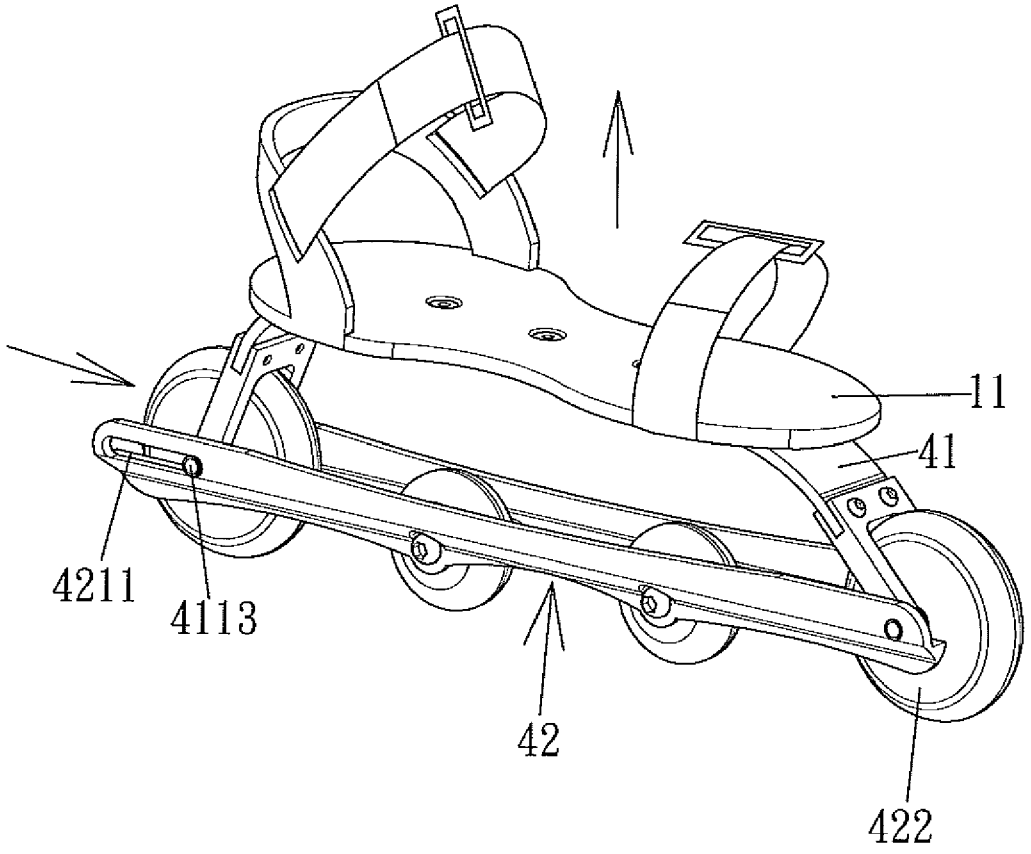

FIG. 15

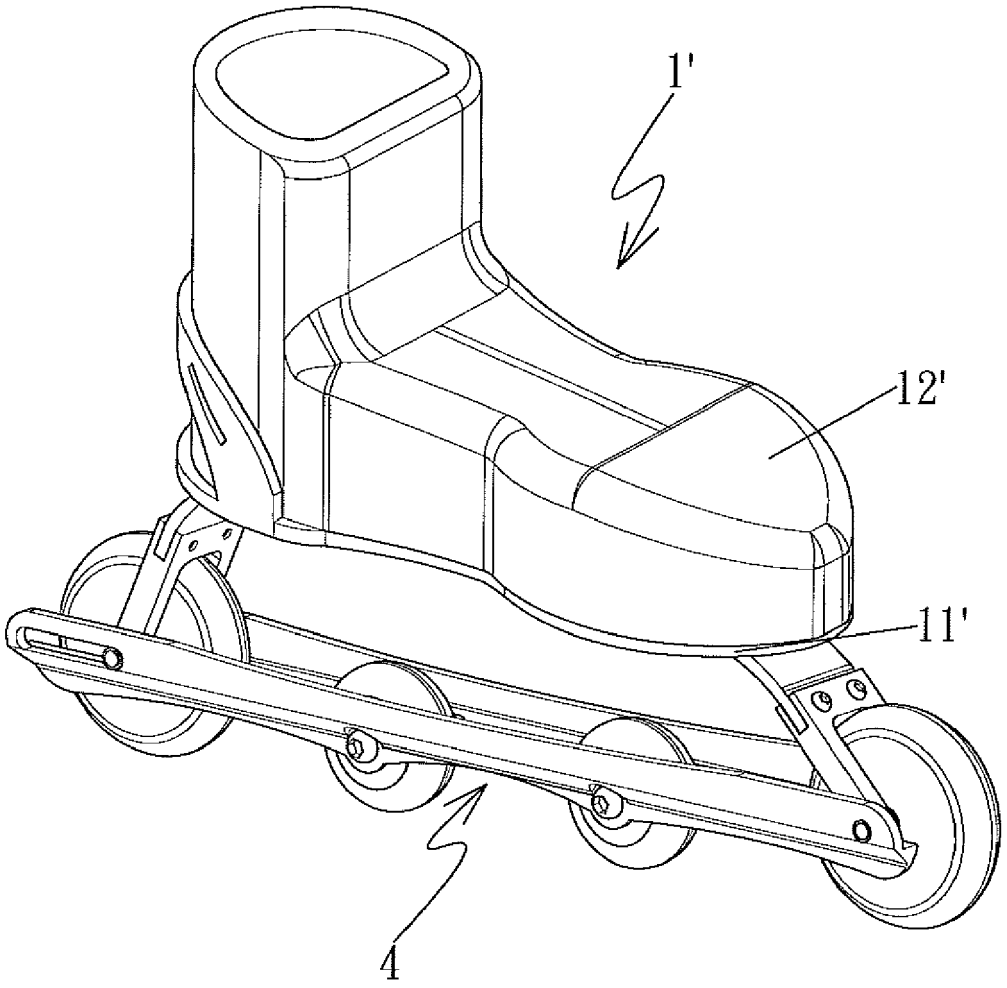

FIG. 16

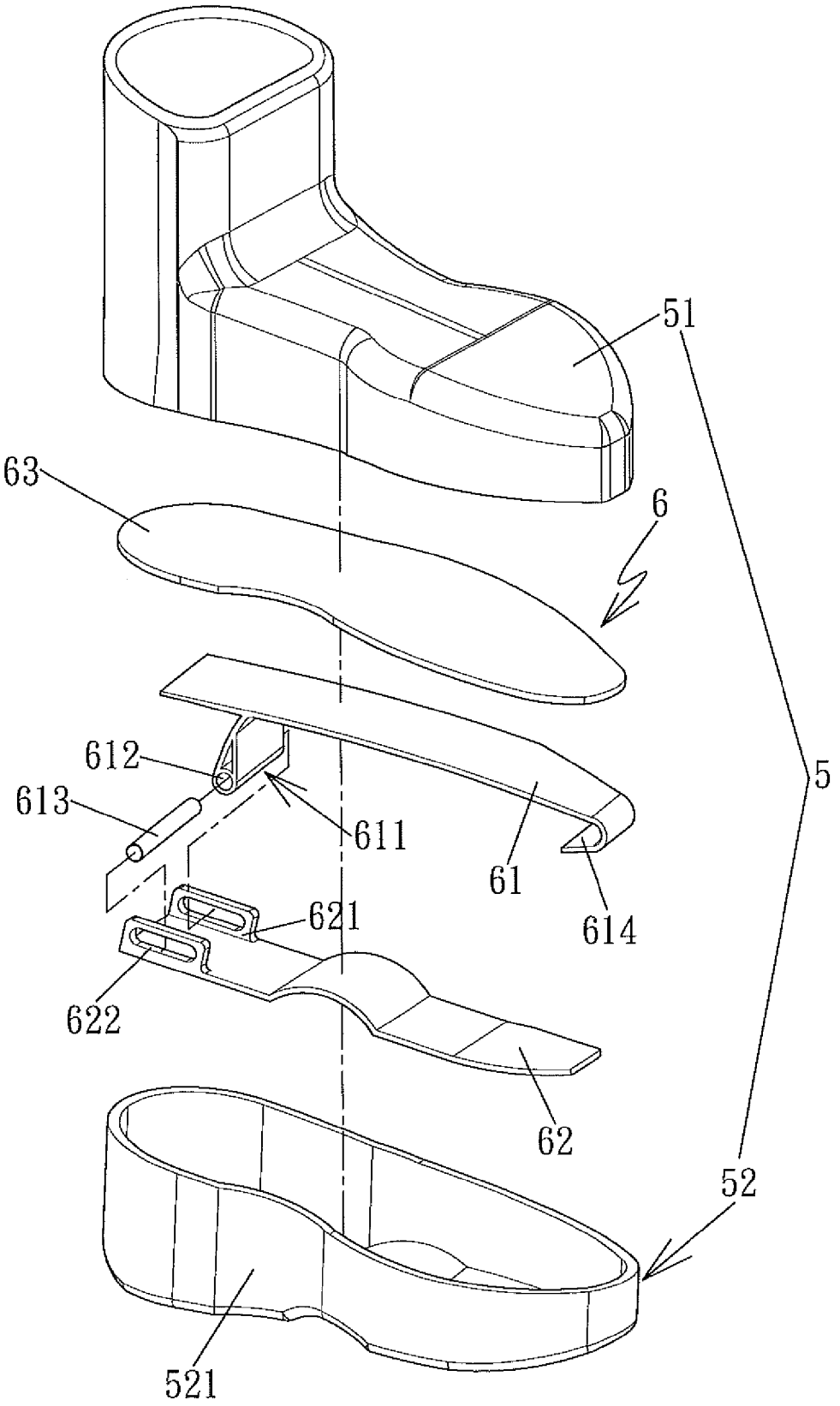

FIG. 17

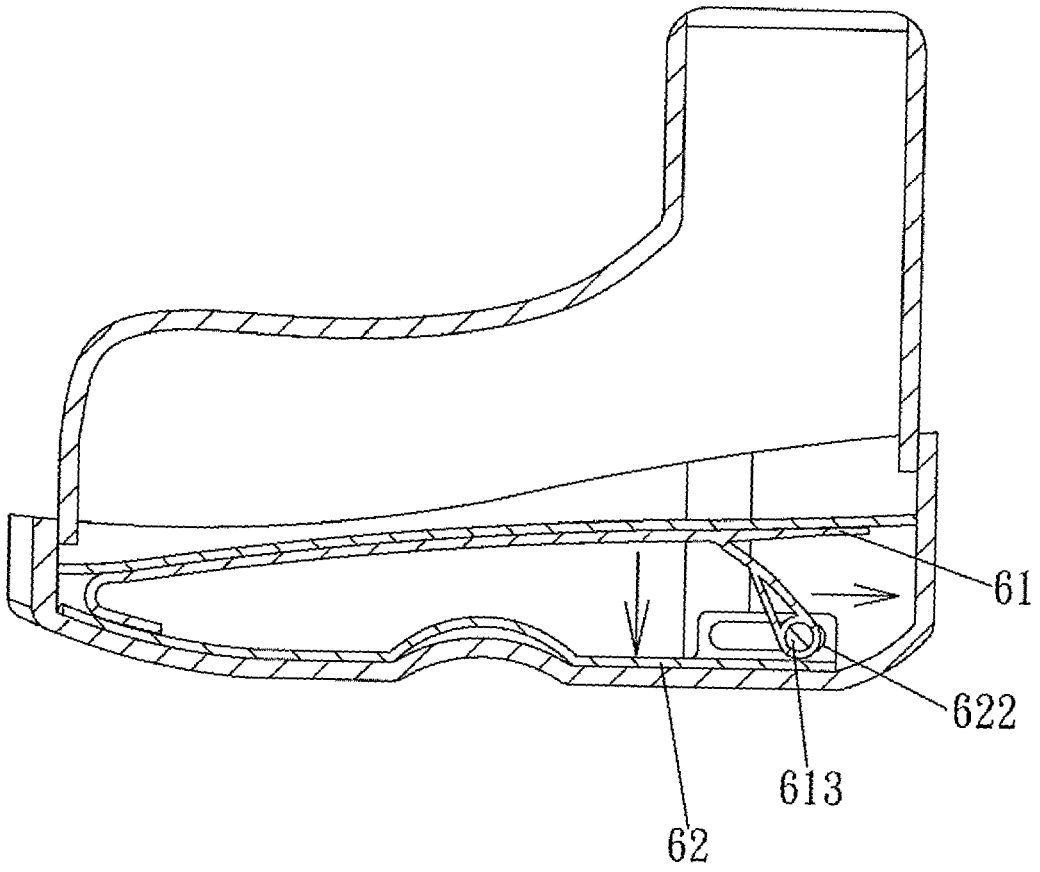

FIG. 18

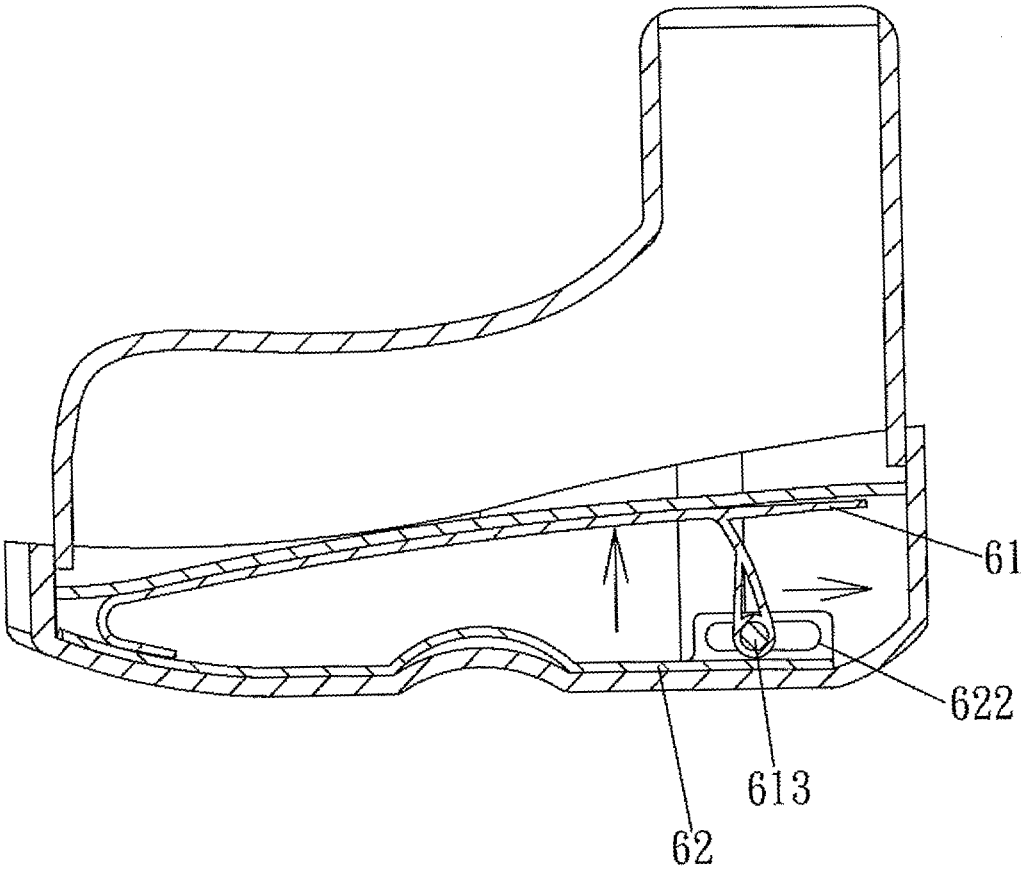

FIG. 19

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EUROPEAN SEARCH REPORT

Application Number
EP 08 16 2640

DOCUMENTS CONSIDERED TO BE RELEVANT

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A	US 6 712 395 B1 (LEE YAN-YEE [TW]) 30 March 2004 (2004-03-30) * figures 1-6 *	6	TECHNICAL FIELDS SEARCHED (IPC) A63C A43B A63B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	19 November 2008	Brunie, Franck

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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19-11-2008

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