



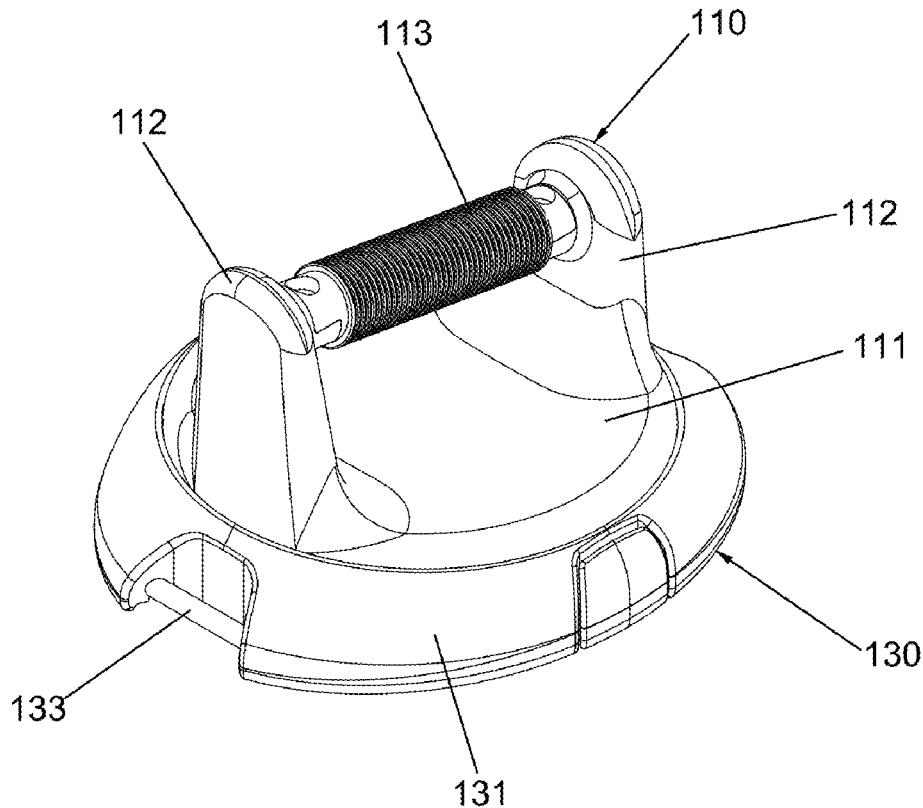
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(19) **United States**(12) **Patent Application Publication**
Chang(10) **Pub. No.: US 2019/0143168 A1**(43) **Pub. Date: May 16, 2019**(54) **MULTI-FUNCTIONAL EXERCISE DEVICE**(71) Applicant: **Chung-Fu Chang**, Changhua County
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(2013.01); *A63B 23/03508* (2013.01); *A63B*
23/1236 (2013.01)

(57)

ABSTRACT

A multi-functional exercise device includes an upper part and a lower part. The upper part has a base. The base includes two side walls extending from two sides thereof, a grip member mounted between the two side walls, and an elastic engaging hook beneath the base. The lower part includes a support disc having a central engaging hole for the elastic engaging hook to be engaged therein, at least one mounting portion at a lower end of the support disc, and at least one rolling element mounted to the mounting portion. The elastic engaging hook of the upper part is engaged with the engaging hole of the lower part so that the upper part and the lower part are connected together. The upper part is applied with a force to drive the lower part to move along the direction of the applied force for the user to do exercises.



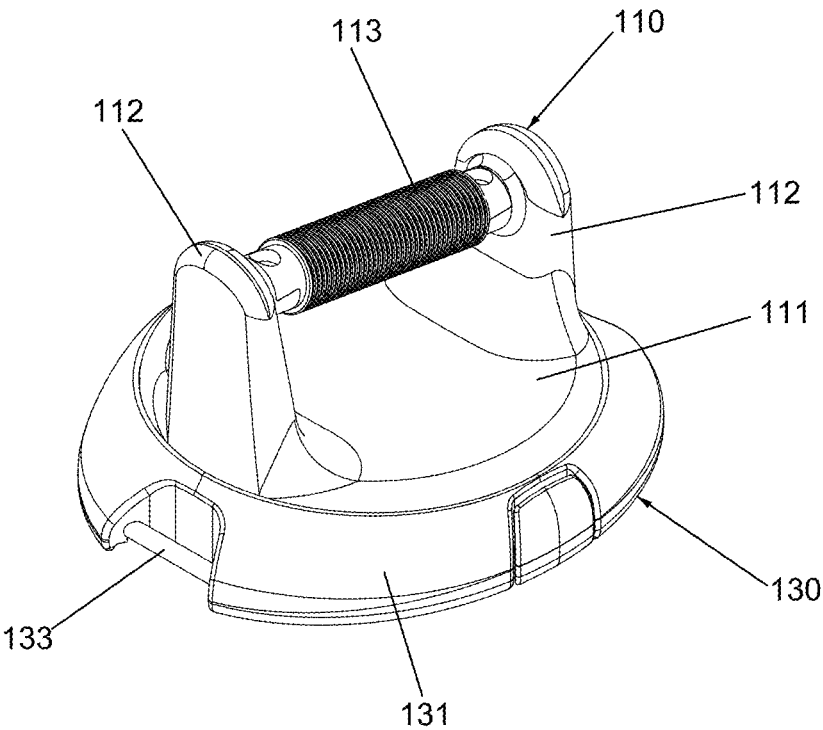


FIG.1

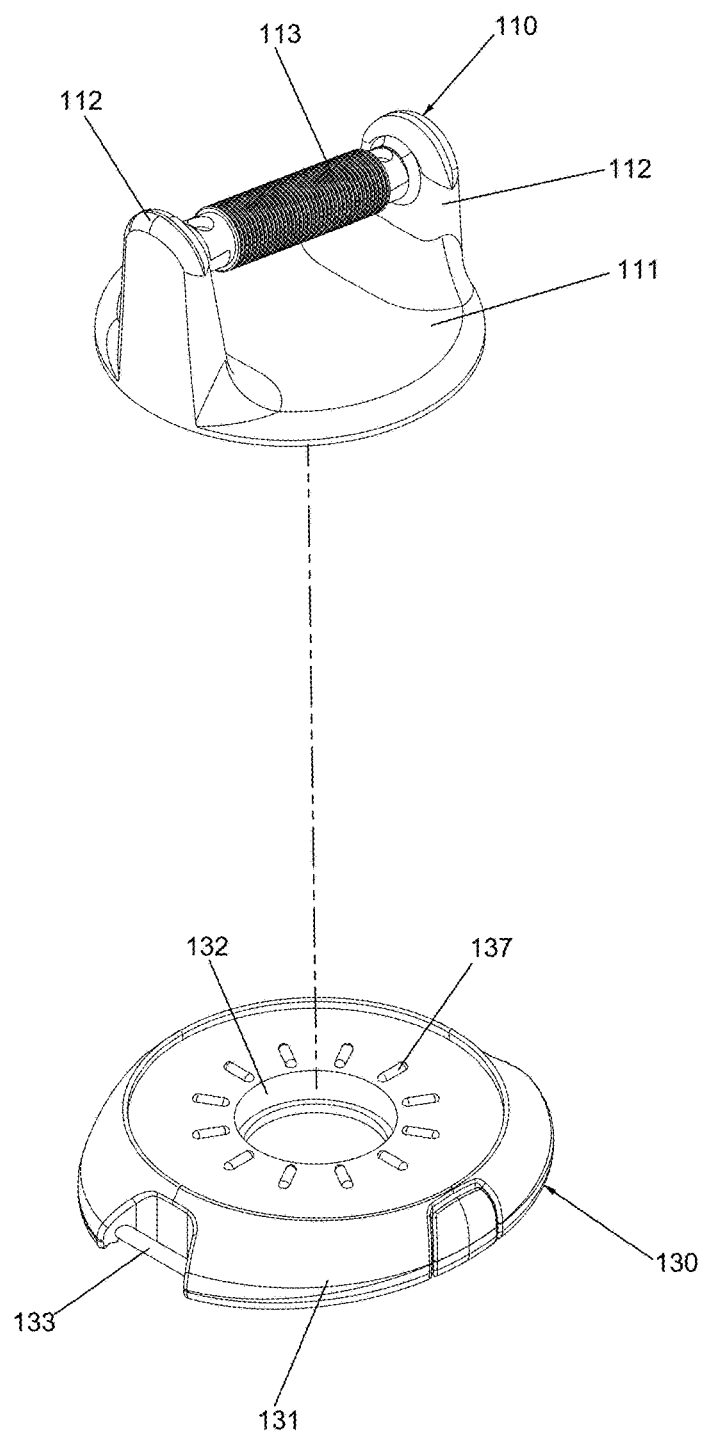


FIG.2

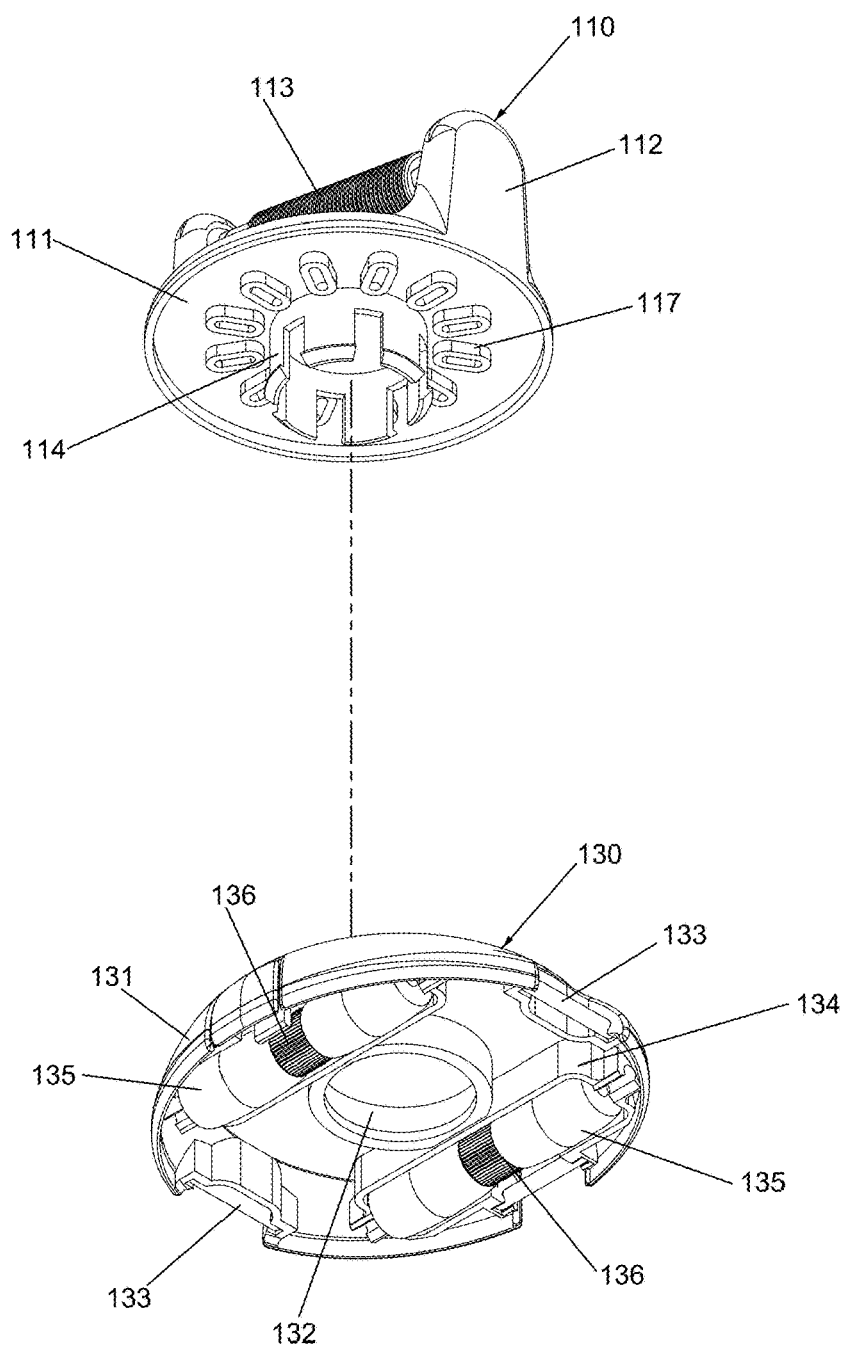


FIG.3

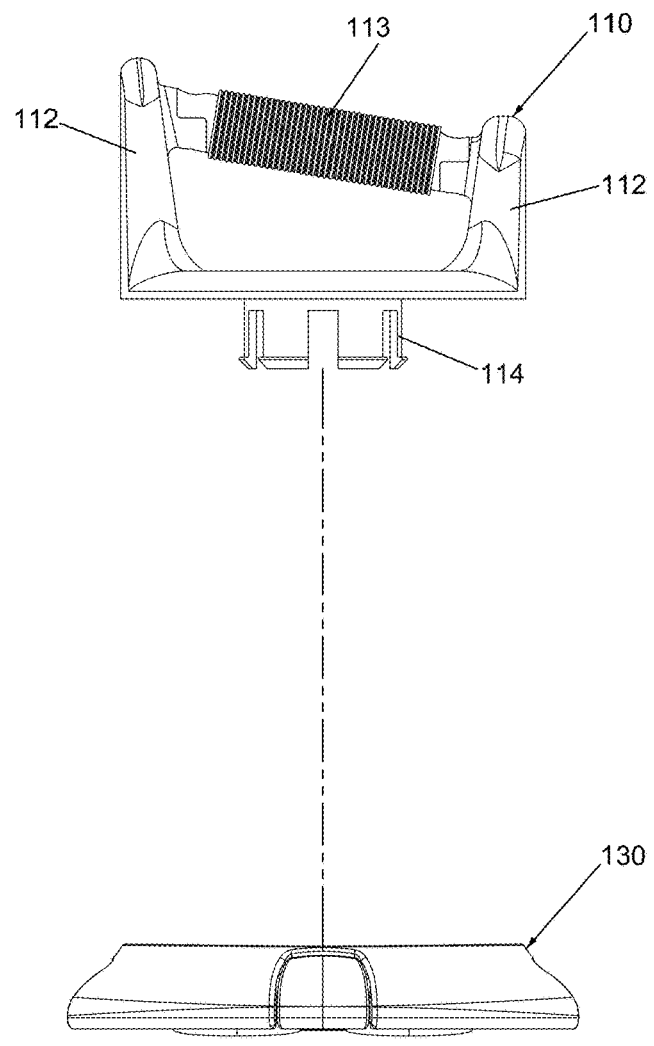


FIG.4

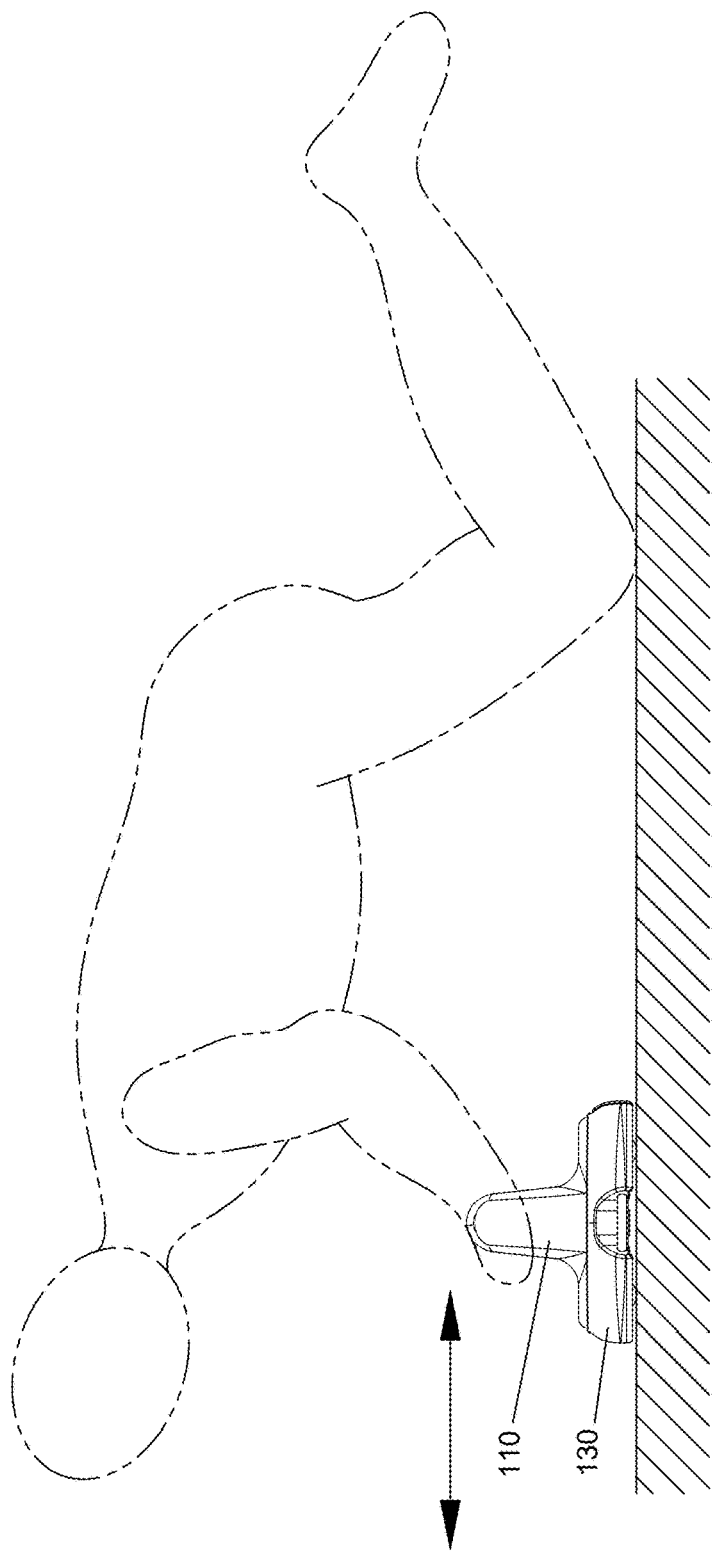


FIG.5

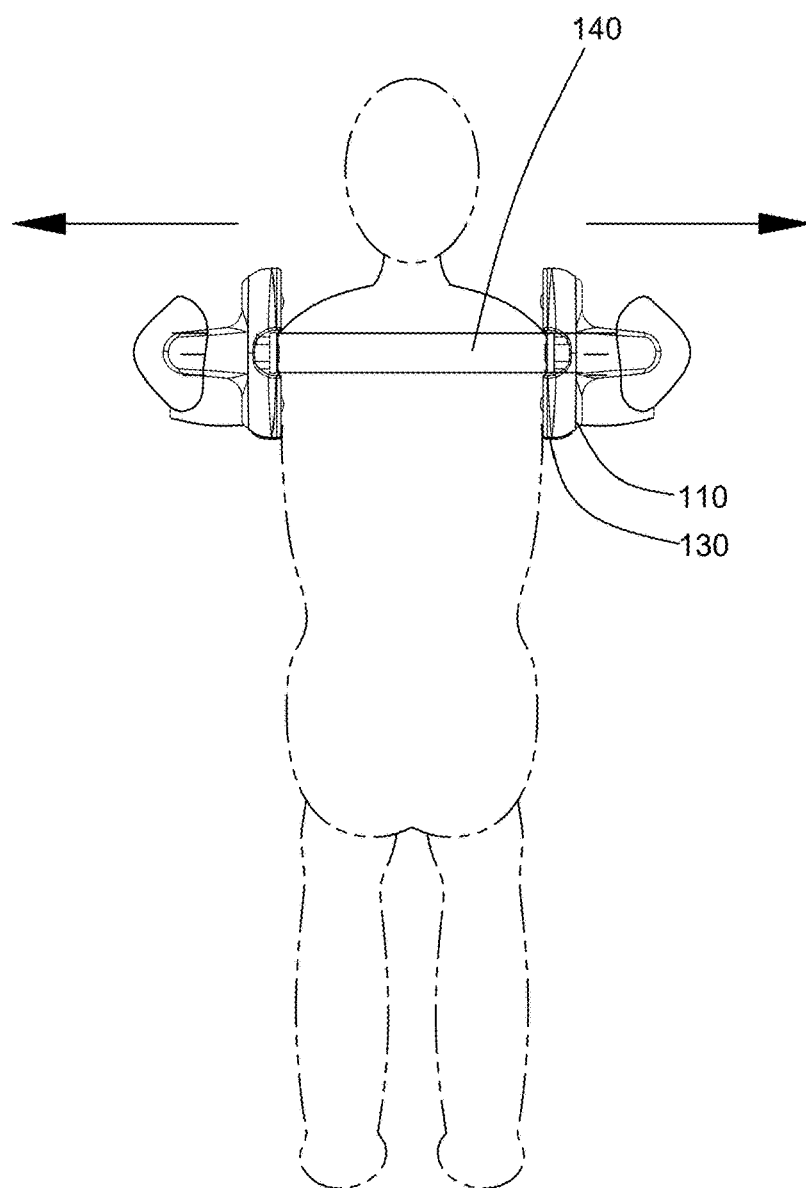


FIG.6

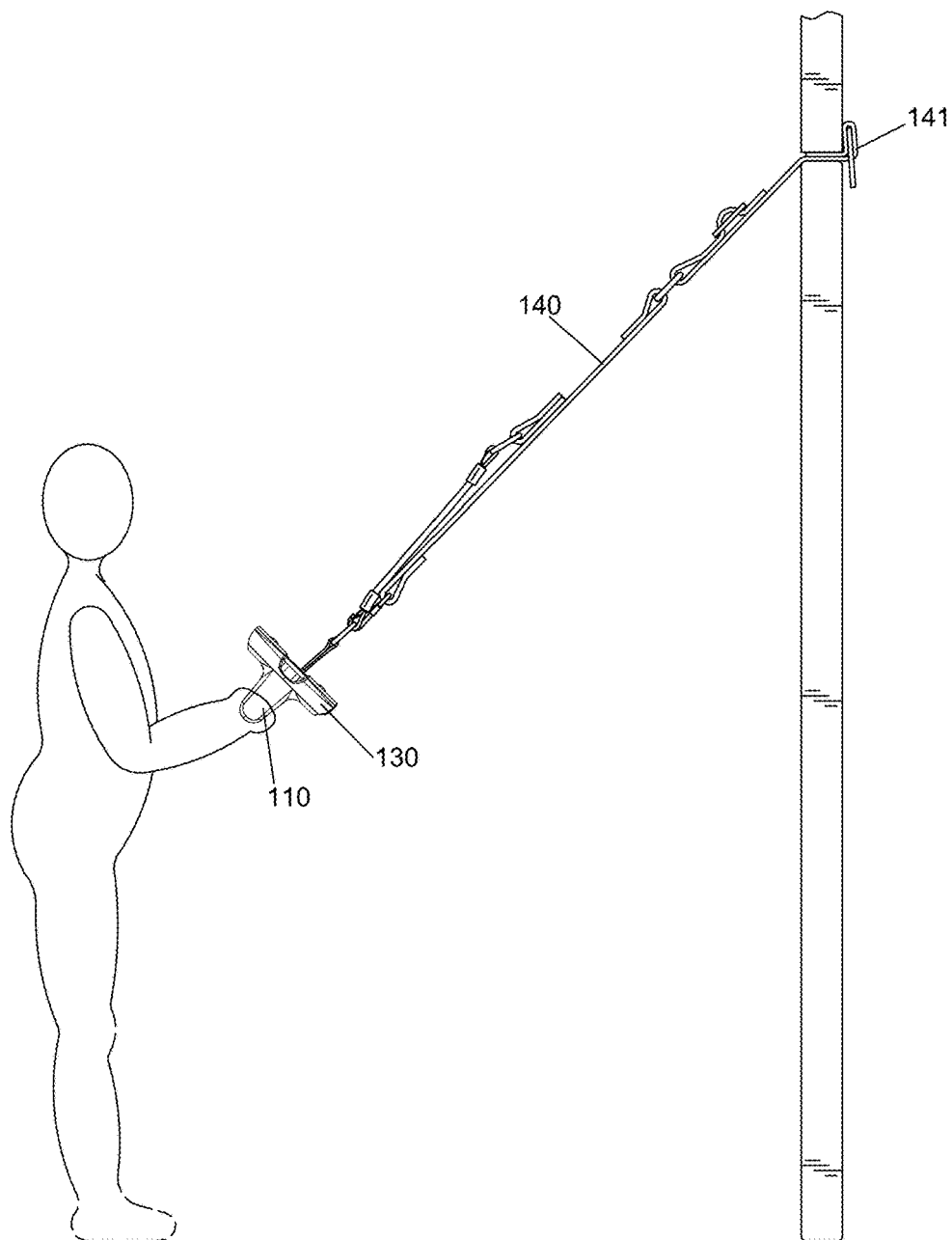


FIG.7

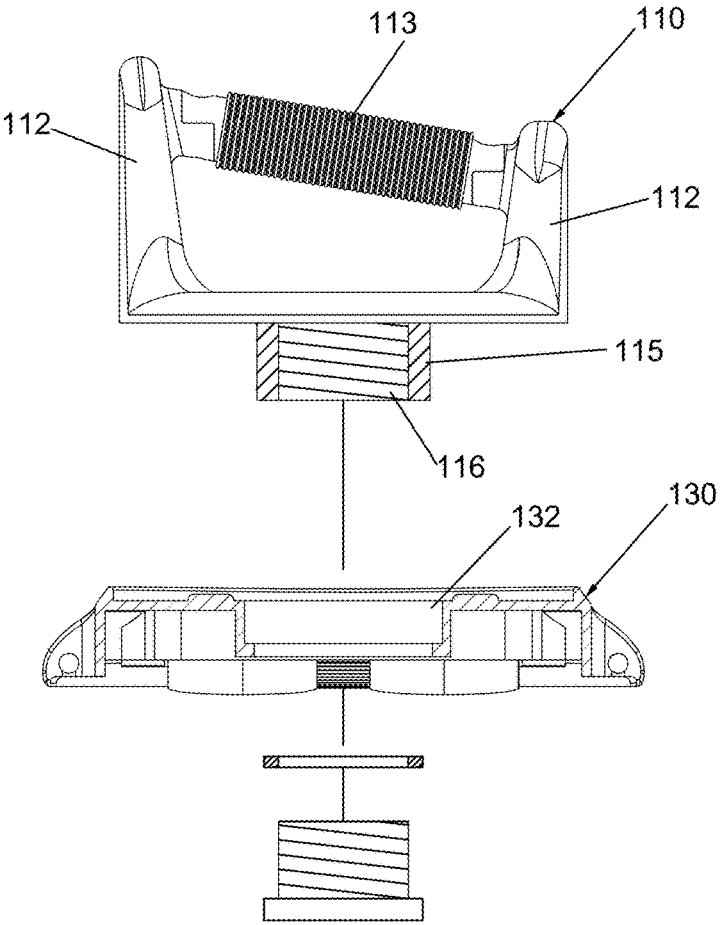


FIG.8

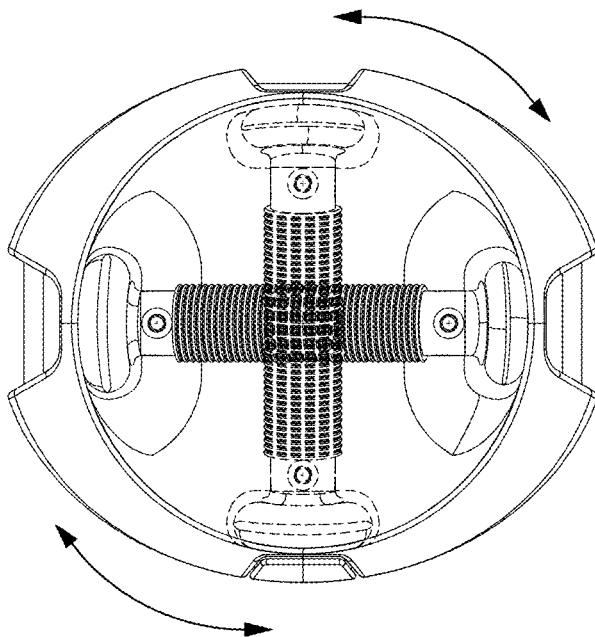


FIG.9

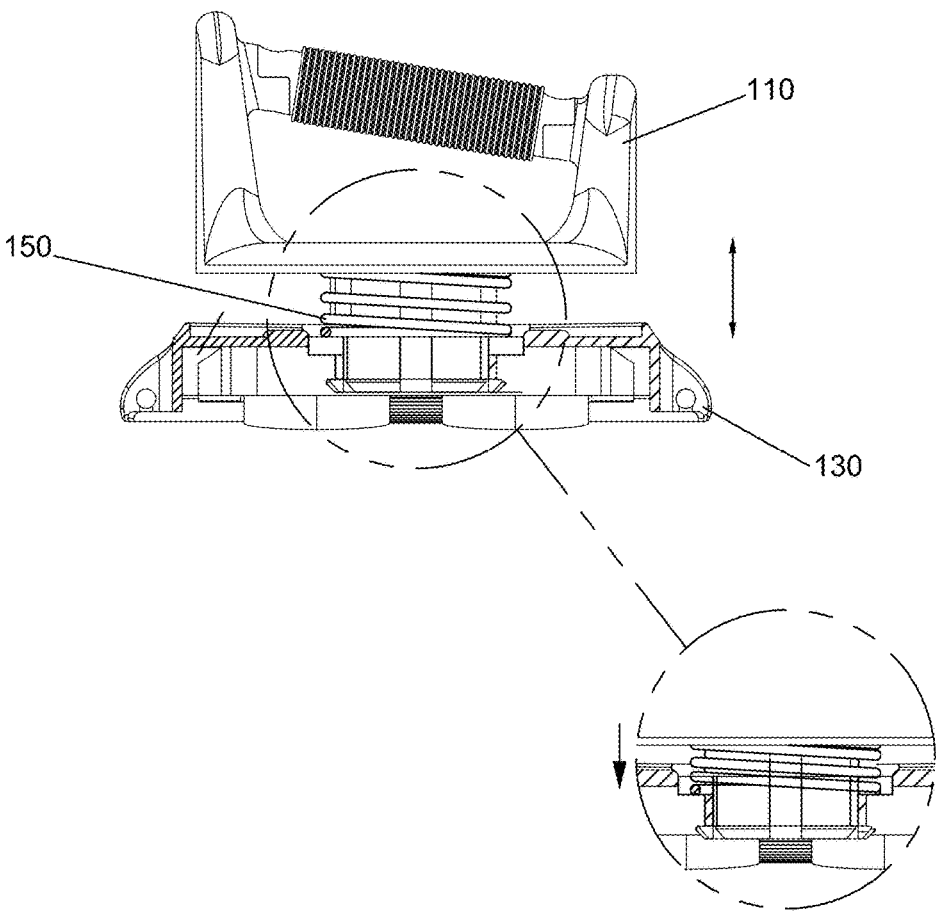


FIG10

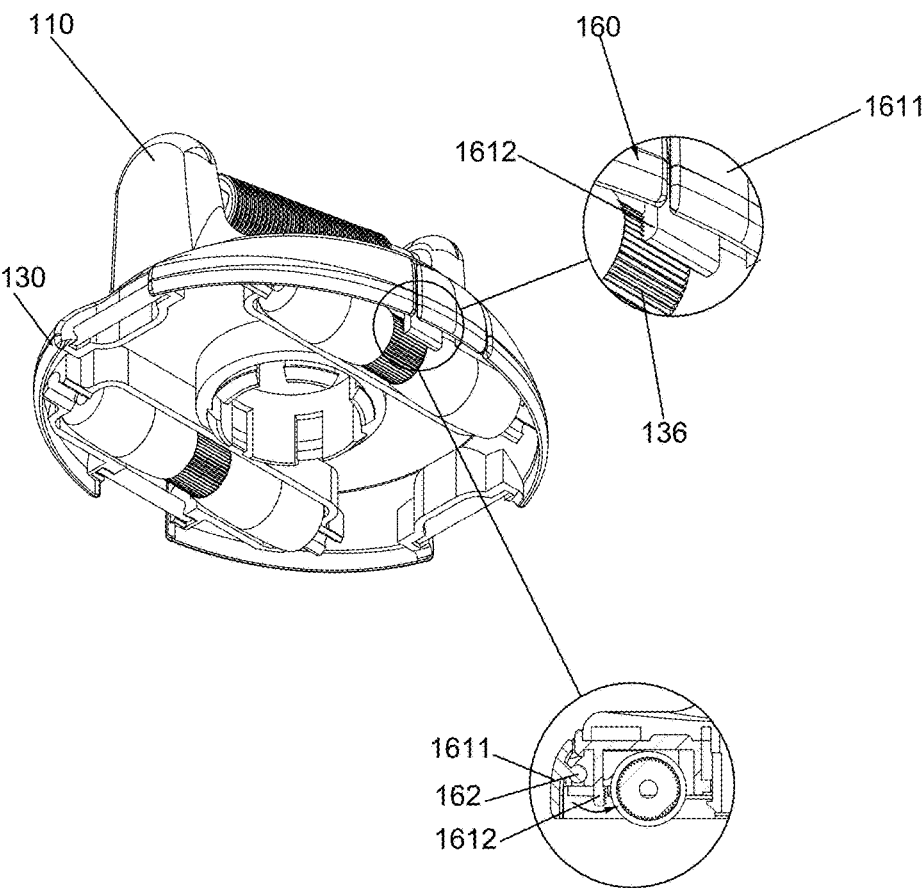


FIG.11

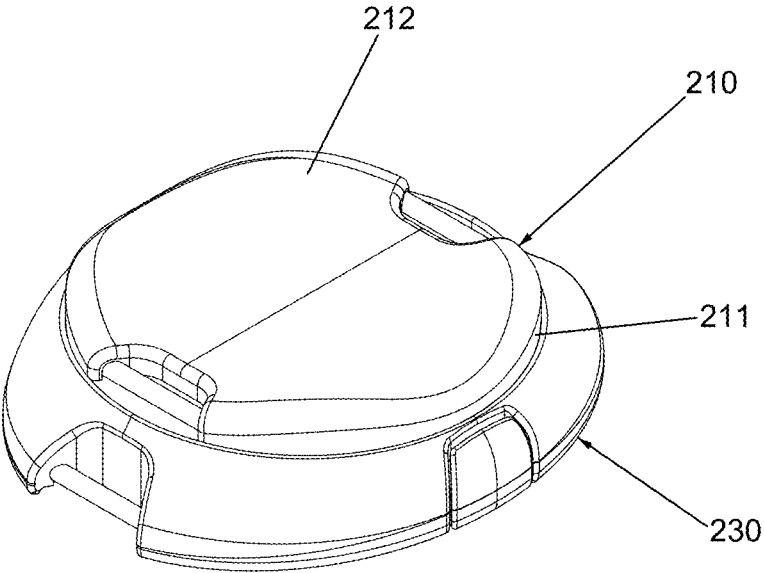


FIG.12

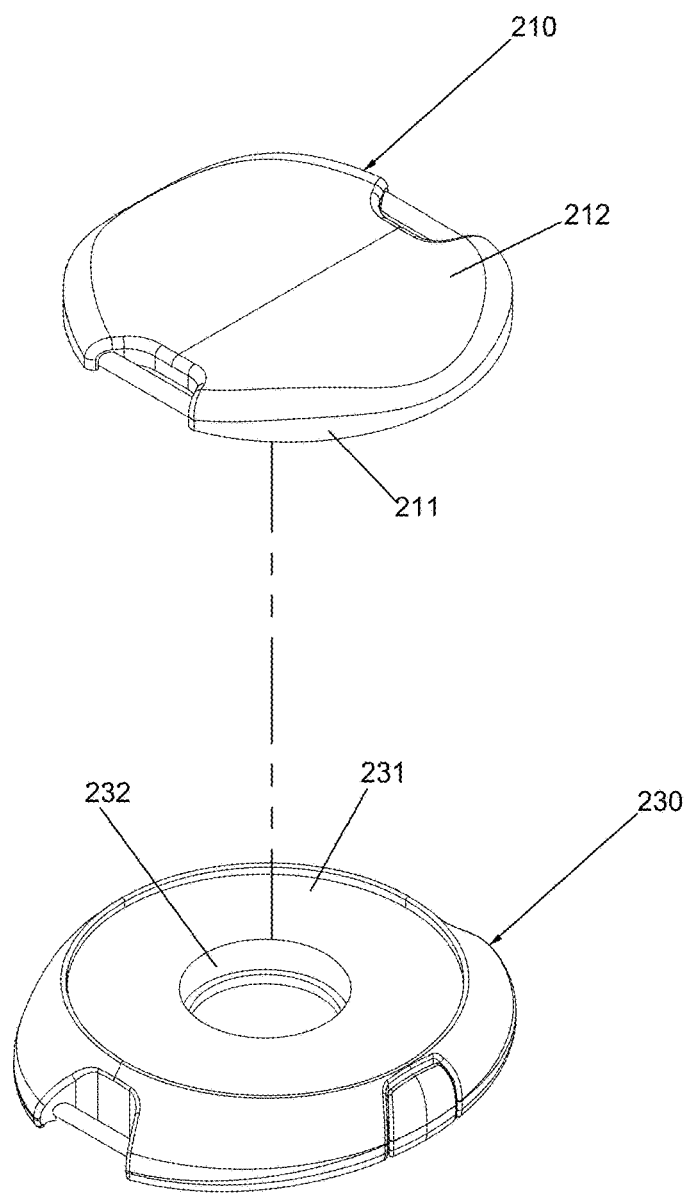


FIG.13

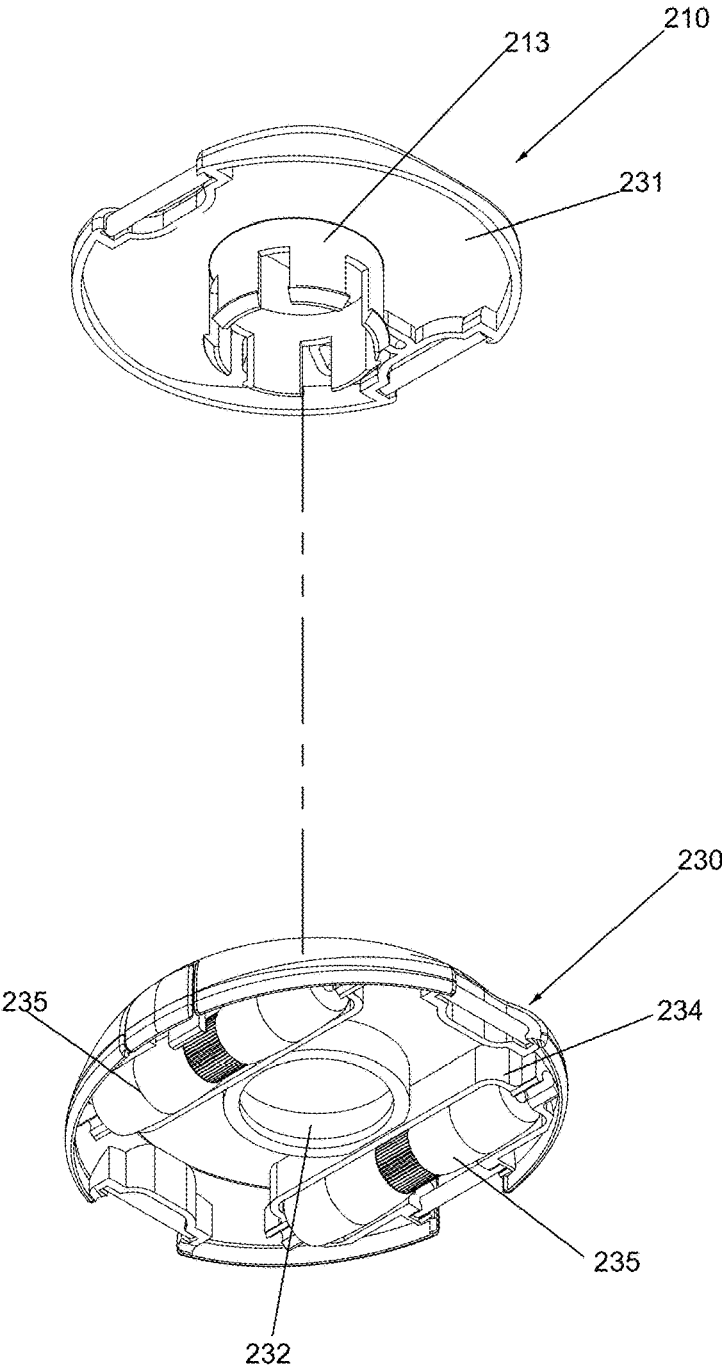


FIG.14

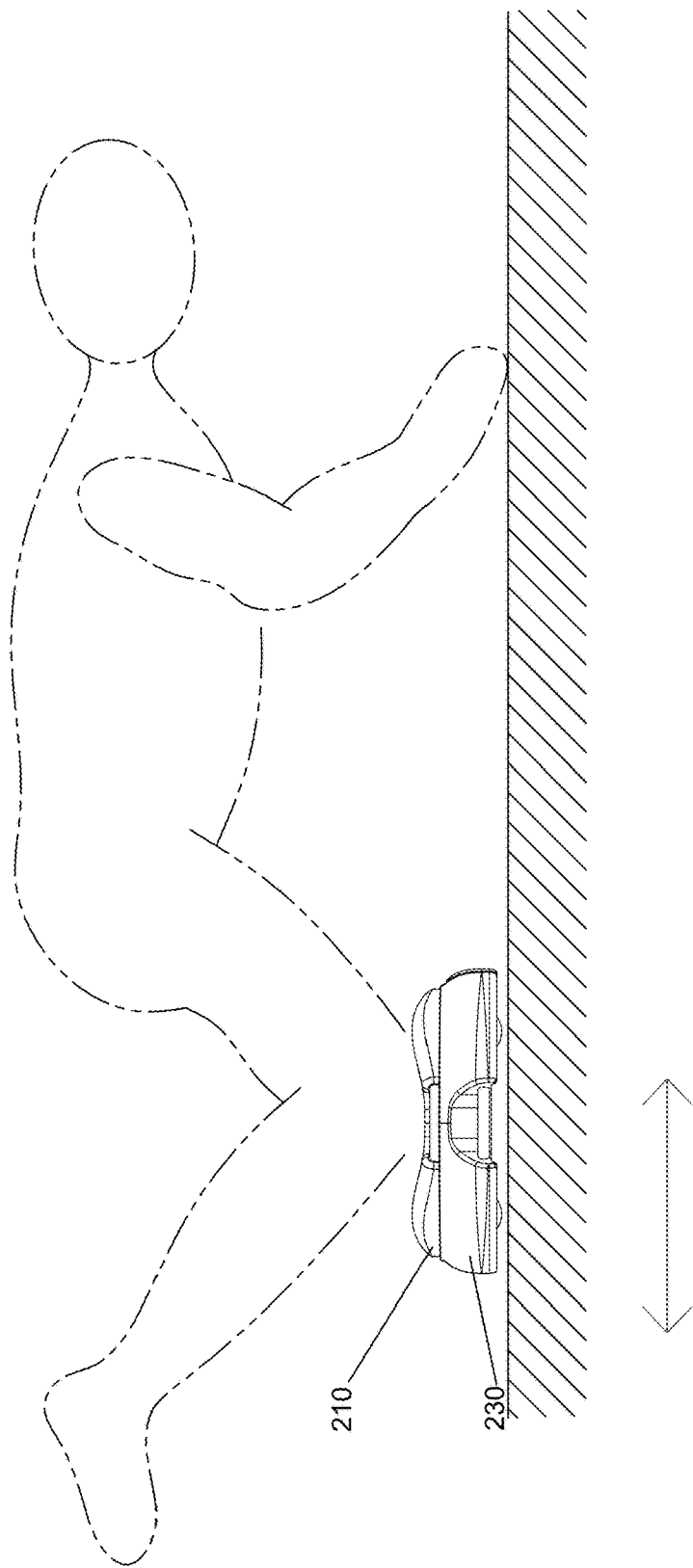


FIG.15

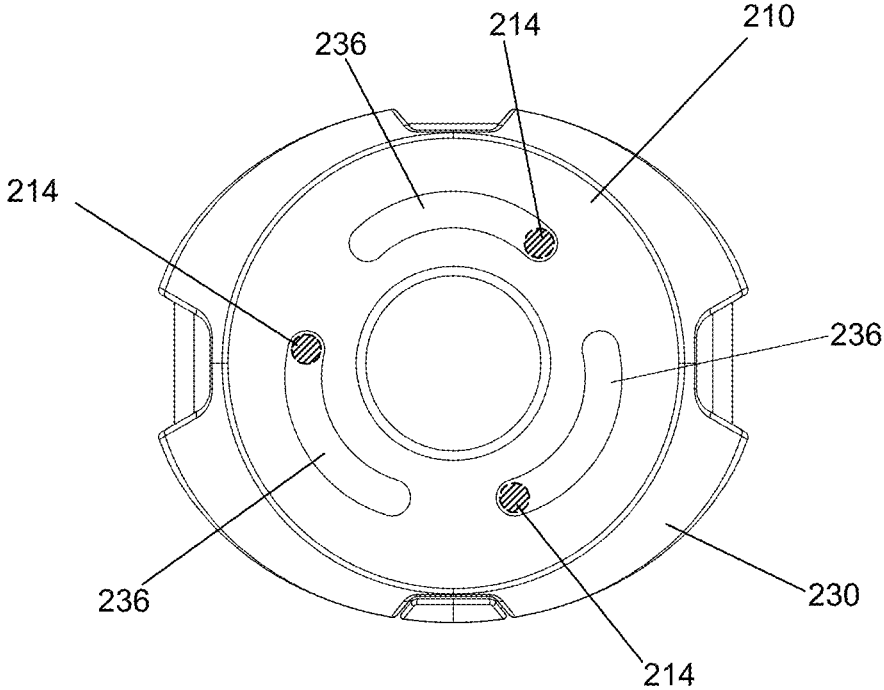


FIG.16

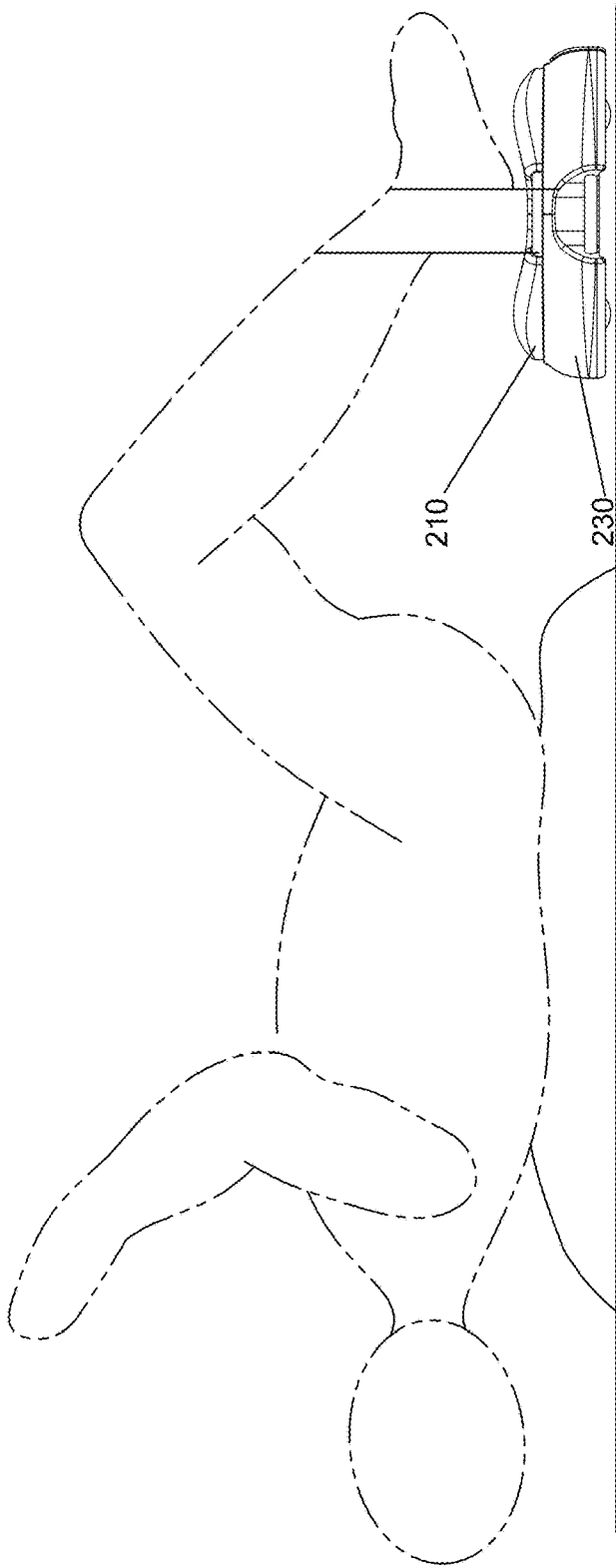


FIG.17

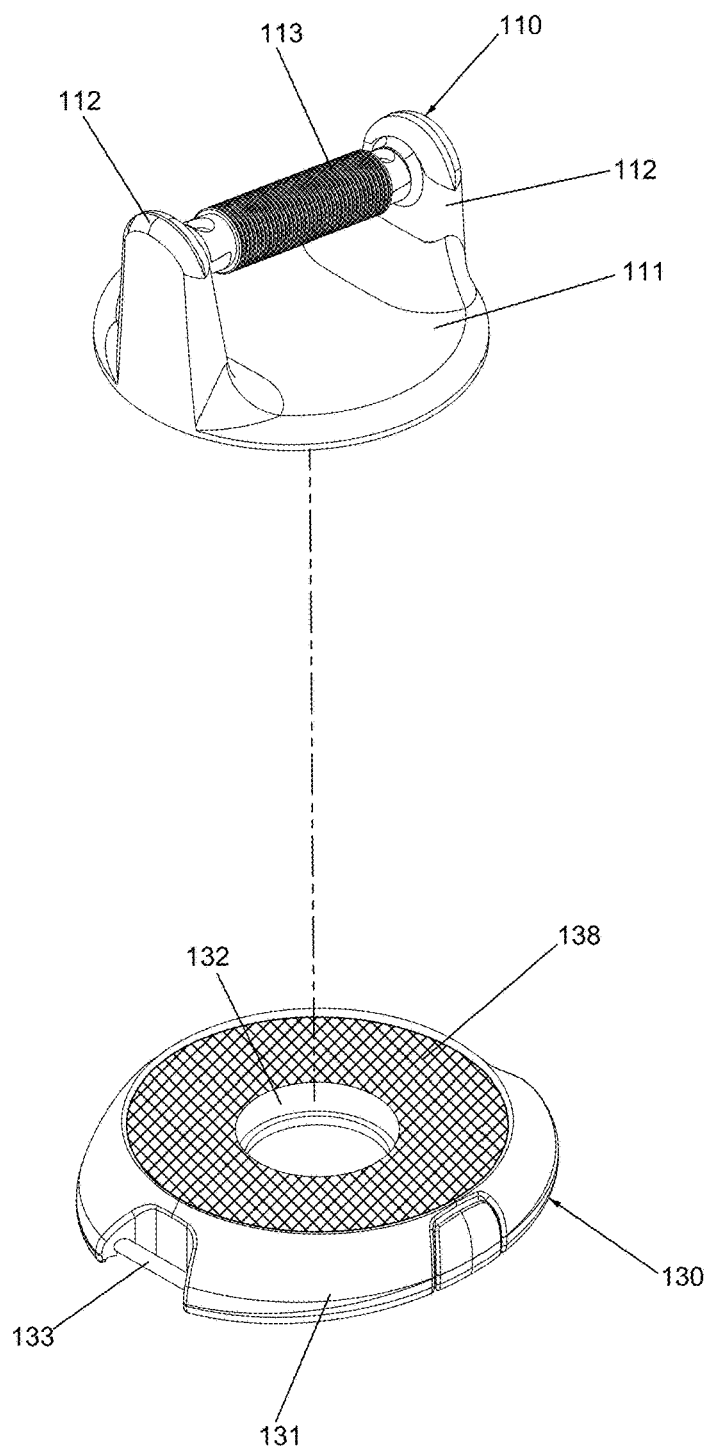


FIG.18

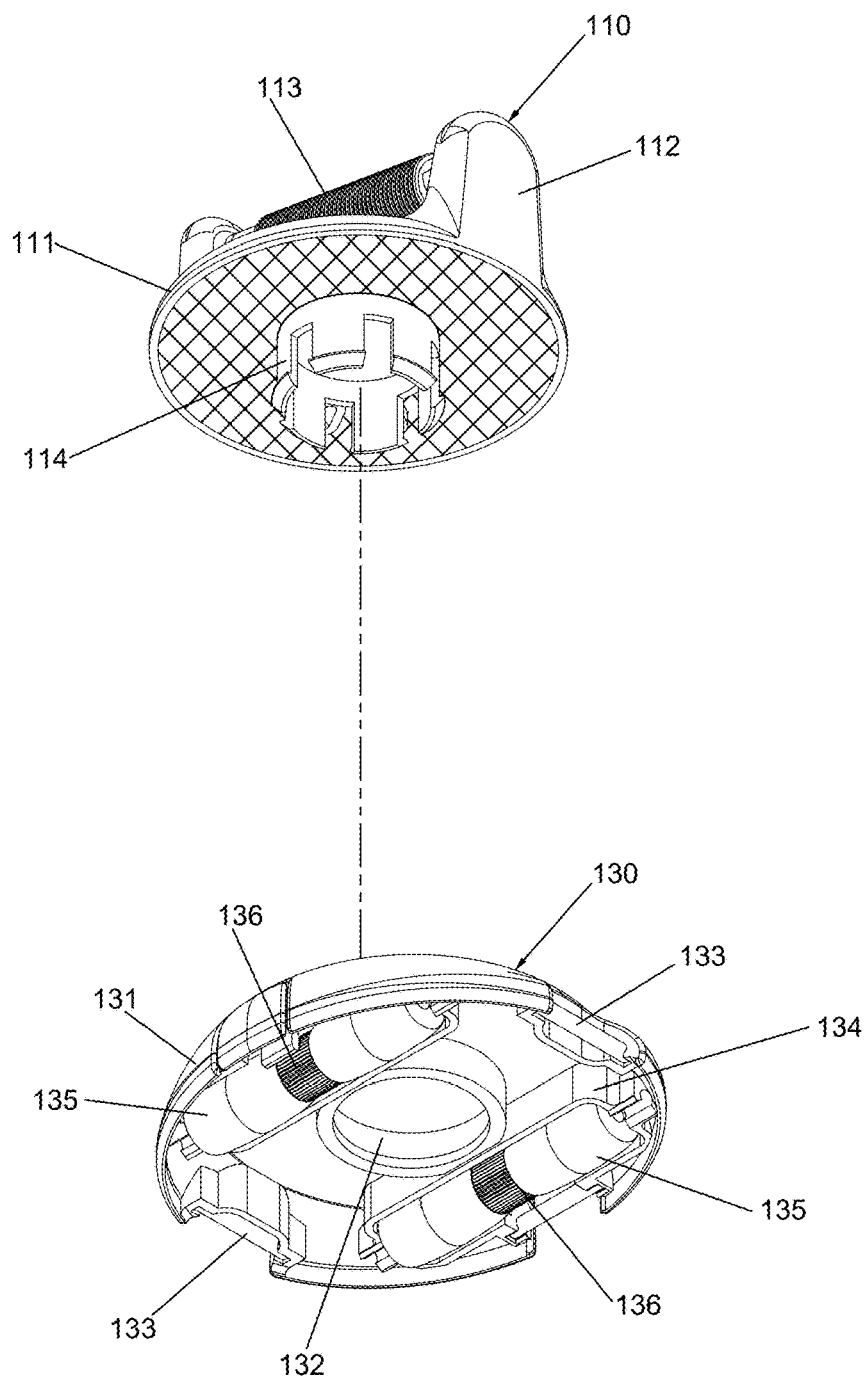


FIG.19

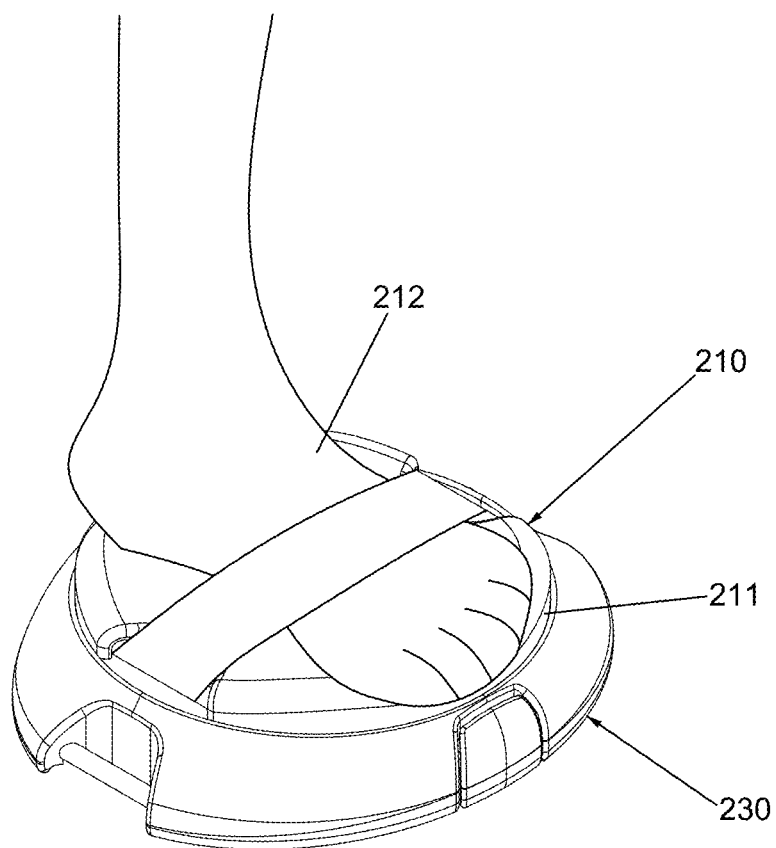


FIG.20

MULTI-FUNCTIONAL EXERCISE DEVICE

FIELD OF THE INVENTION

[0001] The present invention relates to a multi-functional exercise device, and more particularly, to an exercise device that is used to train the limbs of the human body.

BACKGROUND OF THE INVENTION

[0002] Exercise machines, such as treadmills, rope pulling machines and the like, are used to train specific parts of the human body. For example, most of the treadmills are used to train the users' legs, which can improve the leg muscles and improve respiratory efficiency, promote blood circulation, and other effects. A conventional rope pulling machine is provided with two grips at two ends of a spring. The user can stretch the rope pulling machine for the workout of the pectorals, biceps and other body parts. In addition to the workout, it also has the effect of shaping the body, making the user's body shape beautiful.

[0003] Most of the conventional treadmills and rope pulling machines have a single function. For example, the user can only run, and it is impossible to do other exercises through the treadmill. The use of a rope pulling machine is quite monotonous. After a period of use, the user may feel bored and have no interest in using the rope pulling machine. Accordingly, the inventor of the present invention has devoted himself based on his many years of practical experiences to solve these problems.

SUMMARY OF THE INVENTION

[0004] The primary object of the present invention is to provide a multi-functional exercise device. The exercise device is composed of an upper part and a lower part. The upper and lower parts can be used separately after disassembled, or the upper and lower parts can be used after assembled.

[0005] Another object of the present invention is to provide a multi-functional exercise device that provides multiple functions for the users to do different exercises, such as push-ups, abdominal workout, back workout, rope pulling and the like. The use is changeable, not monotonous.

[0006] A multi-functional exercise device according to a first embodiment of the present invention comprises an upper part and a lower part. The upper part has a base. The base includes two side walls extending from two sides thereof, a grip member mounted between the two side walls, and an elastic engaging hook beneath the base. The lower part includes a support disc having a central engaging hole for the elastic engaging hook to be engaged therein, at least one mounting portion at a lower end of the support disc, and at least one rolling element mounted to the mounting portion. The elastic engaging hook of the upper part is engaged with the engaging hole of the lower part so that the upper part and the lower part are connected together.

[0007] In the first embodiment of the present invention, the elastic engaging hook serves as the center of a circle. A periphery of the elastic engaging hook is provided with engaging tenons which are radially arranged. The support disc of the lower part is provided with a plurality of connecting grooves corresponding to the engaging tenons.

[0008] In the first embodiment of the present invention, two sides of the support disc of the lower part are provided with a plurality of connecting portions. The connecting

portion is connected with one end of an elastic pull rope, and the other end of the elastic pull rope is connected to the connecting portion of the lower part of another multi-functional exercise device of the present invention to form a chest expander.

[0009] In the first embodiment of the present invention, the rolling element is in the form of a roller. A middle of the rolling element has a reduced portion. The mounting portion further includes a braking device. The braking device includes an eccentric operating plate and a connecting shaft. The connecting shaft is disposed in a radial direction relative to the rolling element. The eccentric operating plate includes an operating edge and a contact portion. The contact portion is configured to block the reduced portion. The operating edge is used for the user to operate the braking device to brake the rolling element.

[0010] In the first embodiment of the present invention, an outer edge of the elastic engaging hook is sleeved with a compression spring. When the user exerts a force toward the lower part through the grip member, the upper part is displaced toward the lower part. When the user releases the grip member, without exerting a force, the compression spring rebounds and brings the upper part back to its original position.

[0011] In the first embodiment of the present invention, the grip member is in the form of an inclined rod, which helps the user do exercises smoothly.

[0012] In the first embodiment of the present invention, the elastic engaging hook is replaced by a protruding cylinder. The cylinder has an inner threaded portion. The cylinder is mounted in the engaging hole of the lower part. The upper part is coupled to the lower part through a screw and a washer. When in use, the user holds the grip member to pivot the upper part relative to the lower part.

[0013] A multi-functional exercise device according to a second embodiment of the present invention comprises an upper part and a lower part. The upper part has a base. The base includes a soft pad thereon and an elastic engaging hook beneath the base. The lower part includes a support disc having a central engaging hole for the elastic engaging hook to be engaged therein, at least one mounting portion at a lower end of the support disc, and at least one rolling element mounted to the mounting portion. The elastic engaging hook of the upper part is engaged with the engaging hole of the lower part so that the upper part and the lower part are connected together.

[0014] In the second embodiment, a lower end of the upper part is provided with three protruding posts. The lower part is provided with three curved slots corresponding to the posts. The lower part is mounted under the upper part through the elastic engaging hook. The upper part is rotatable relative to the lower part.

[0015] In the second embodiment, a surface of the lower part is provided with at least one Velcro® strip. The user can place the legs on the lower part, and the legs are retained by the Velcro® strip. Through the waist and buttocks to exert a force, the multi-functional exercise device may function as a swing exercise machine for the user to do an exercise.

[0016] In the second embodiment, a lower end of the upper part is provided with a plurality of non-skid protrusions for providing a non-skid effect when the upper part is separately used on the ground. The user can use the upper part for doing push-ups.

[0017] Through the above structure, the effects of the present invention can be summarized hereinafter. The present invention may be used in different ways for the user to do exercises. Each different way can train different parts of the body. Compared with the conventional structure, the use of the present invention is changeable and fun, thereby increasing the user's willingness to use the exercise machine. For users living in the city, the users can exercise at any time. It is very convenient to use the present invention. The structure of the present invention is small in size, portable and space-saving.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] FIG. 1 is a perspective view according to a first embodiment of the present invention;

[0019] FIG. 2 is an exploded view according to the first embodiment of the present invention;

[0020] FIG. 3 is another exploded view according to the first embodiment of the present invention;

[0021] FIG. 4 is an exploded view of the present invention;

[0022] FIG. 5 is a first schematic view according to the first embodiment of the present invention when in use;

[0023] FIG. 6 is a second schematic view according to the first embodiment of the present invention when in use;

[0024] FIG. 7 is a third schematic view according to the first embodiment of the present invention when in use;

[0025] FIG. 8 and FIG. 9 are fourth schematic views according to the first embodiment of the present invention when in use;

[0026] FIG. 10 is a fifth schematic view according to the first embodiment of the present invention when in use;

[0027] FIG. 11 is a sixth schematic view according to the first embodiment of the present invention when in use;

[0028] FIG. 12 is a perspective view according to a second embodiment of the present invention;

[0029] FIG. 13 is an exploded view according to the second embodiment of the present invention;

[0030] FIG. 14 is another exploded view according to the second embodiment of the present invention;

[0031] FIG. 15 is a first schematic view according to the second embodiment of the present invention when in use;

[0032] FIG. 16 is a second schematic view according to the second embodiment of the present invention when in use;

[0033] FIG. 17 is a third schematic view according to the second embodiment of the present invention when in use;

[0034] FIG. 18 is a seventh schematic view according to the first embodiment of the present invention when in use;

[0035] FIG. 19 is an exploded view of FIG. 18 seen from another angle; and

[0036] FIG. 20 is a fourth schematic view according to the second embodiment of the present invention when in use.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0037] Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings.

[0038] Referring to FIG. 1 to FIG. 5, the multi-functional exercise device of the present invention comprises an upper part 110 and a lower part 130.

[0039] The upper part 110 has a base 111. The base 111 includes two side walls 112 extending from two sides thereof, a grip member 113 mounted between the two side walls 112, and an elastic engaging hook 114 beneath the base 111.

[0040] The lower part 130 includes a support disc 131 having a central engaging hole 132 for the elastic engaging hook 114 to be engaged therein, at least one mounting portion 134 at a lower end of the support disc 131, and at least one rolling element 135 mounted to the mounting portion 134. The elastic engaging hook 114 of the upper part 110 is engaged with the engaging hole 132 of the lower part 130 so that the upper part 110 and the lower part 130 are connected together.

[0041] Referring to FIG. 5, after assembled, the present invention can form an exercise device for training back muscles or abdominal muscles. The user can grasp the grip member 113 of the upper part 110 to push the lower part 130 such that the rolling element 135 rolls to move the multi-functional exercise device along the direction of the applied force. When the multi-functional exercise device is moved back and forth, the user may train the arms, pectorals, and abdominal muscles. The grip member 113 is in the form of an inclined rod, which helps the user stand up quickly when doing push-ups or core workout.

[0042] As shown in FIG. 2 and FIG. 3, the elastic engaging hook 114 serves as the center of a circle, and the periphery of the elastic engaging hook 114 is provided with engaging tenons which are radially arranged. The support disc 131 of the lower part 130 is provided with a plurality of connecting grooves 137 corresponding to the engaging tenons 117. Thereby, the upper part 110 and the lower part 130 of the present invention can be buckled tightly.

[0043] As shown in FIG. 18 and FIG. 19, the upper part 110 and the lower part 130 are connected through a friction plate 138 so that the upper part 110 and the lower part 130 can generate a pivot action.

[0044] As shown in FIG. 6, in the first embodiment of the present invention, two sides of the support disc 131 of the lower part 130 are provided with a plurality of connecting portions 133. The connecting portion 133 is connected with one end of an elastic pull rope 140, and the other end of the elastic pull rope 140 is connected to the connecting portion 133 of the lower part 130 of another multi-functional exercise device of the present invention to form a chest expander.

[0045] As shown in FIG. 7, in the first embodiment of the present invention, one end of the elastic pull rope 140 has a connecting hook 141. The other end of the elastic pull rope 140 is connected to the connecting portion 133 of the lower part 130. The connecting hook 141 is fixed to a flat surface. In this way, the present invention may form a rope pulling exercise device, which can be used according to the desired space and the user's needs.

[0046] Referring to FIG. 8 and FIG. 9, the elastic engaging hook 114 can be replaced by a protruding cylinder 115. The cylinder 115 has an inner threaded portion 116. The cylinder 115 is mounted in the engaging hole 132 of the lower part 130. The upper part 110 is coupled to the lower part 130 through a screw and a washer. The user may hold the grip member 113 to pivot the upper part 110 relative to the lower part 130 for doing a wrist exercise.

[0047] As shown in FIG. 10, the outer edge of the elastic engaging hook 114 is sleeved with a compression spring

150. When the user exerts a force toward the lower part **130** through the grip member **113**, the upper part **110** is displaced toward the lower part **130**. When the user releases the grip member **133**, without exerting a force, the compression spring **150** rebounds and brings the upper part **110** back to the original position. Through the present embodiment, the user can stand up quickly when doing push-ups or core workout.

[0048] As shown in FIG. **11**, when the user wants to do push-ups or core workout, the user operates a braking device **160** for the rolling element **135** to be stuck. The rolling element **135** is in the form of a roller. The middle of the rolling element **135** has a reduced portion **136**. The mounting portion **134** further includes a braking device **160**. The braking device **160** includes an eccentric operating plate **161** and a connecting shaft **162**. The connecting shaft **162** is disposed in a radial direction relative to the rolling element **135**. The eccentric operating plate **161** includes an operating edge **1611** and a contact portion **1612**. The contact portion **1612** is configured to block the reduced portion **136**. The operating edge **1611** is used for the user to operate the braking device **160** to brake the rolling element **135**.

[0049] The eccentric operating plate **161** may be an eccentric protruding block or eccentric engaging detent or the like that has the same function as the eccentric operating plate **161**.

[0050] FIGS. **12** to **14** illustrate a second embodiment of the present invention. The multi-functional exercise device in accordance with the second embodiment of the present invention comprises an upper part **210** and a lower part **230**. The upper part **210** has a base **211**. The base **211** includes a soft pad **212** thereon and an elastic engaging hook **213** beneath the base **211**. The lower part **230** includes a support disc **231** having a central engaging hole **232** for the elastic engaging hook **213** to be retained therein, at least one mounting portion **234** at a lower end of the support disc **231**, at least one rolling element **235** mounted to the mounting portion **234**. The elastic engaging hook **213** of the upper part **210** is engaged with the engaging hole **232** of the lower part **230** so that the upper part **210** and the lower part **230** are connected together. In the second embodiment, the user's knees and legs rest on the upper member **210** to exercise the lower body through the thighs, buttocks and the waist to apply a force.

[0051] As shown in FIG. **15**, in the second embodiment, the user's knees and legs rest on the soft pad **212** of the upper part **210** to displace the lower part **230** through the applied force of the thigh, buttocks and waist to exercise the lower body.

[0052] As shown in FIG. **16**, the lower end of the upper part **210** is provided with three protruding posts **214**. The lower part **230** is provided with three curved slots **236** corresponding to the posts **214**. Through the elastic engaging hook **213**, the lower part **230** is mounted under the upper part **210**. The upper part **210** is rotatable relative to the lower part **230**. The user can exercise the wrist and the hand through this embodiment.

[0053] As shown in FIG. **17**, two sides of the lower part **230** have connecting portions, respectively. At least one Velcro® strip is mounted on the connecting portions. The user can place the legs on the soft pad **212** of the upper part **210**, and the legs are retained by the Velcro® strip. Through the waist and buttocks to exert a force, the multi-functional exercise device may function as a swing exercise machine

for the user to do an exercise. Alternatively, as shown in FIG. **20**, the Velcro® strip can be used to retain the foot. When the user holds a support member, such as an armrest, he/she may swing the foot to drive the lower part **230** to generate a slide action like skating.

[0054] Through the above structure, the effects of the present invention can be summarized hereinafter. The present invention may be used in different ways for the user to do exercises so as to train not only one part of the body. The present invention can increase the user's willingness to use the exercise device. For users living in the city, the users can exercise at any time. It is very convenient to use the present invention.

[0055] Although particular embodiments of the present invention have been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the spirit and scope of the present invention. Accordingly, the present invention is not to be limited except as by the appended claims.

What is claimed is:

1. A multi-functional exercise device, comprising:
 - a an upper part, the upper part having a base, the base including two side walls extending from two sides thereof, a grip member mounted between the two side walls, and an elastic engaging hook beneath the base;
 - a a lower part, the lower part including a support disc having a central engaging hole for the elastic engaging hook to be engaged therein, at least one mounting portion at a lower end of the support disc, and at least one rolling element mounted to the mounting portion; the elastic engaging hook of the upper part being engaged with the engaging hole of the lower part so that the upper part and the lower part are connected together.
2. The multi-functional exercise device as claimed in claim 1, wherein the elastic engaging hook serves as the center of a circle, a periphery of the elastic engaging hook is provided with engaging tenons which are radially arranged; and the support disc of the lower part is provided with a plurality of connecting grooves corresponding to the engaging tenons.
3. The multi-functional exercise device as claimed in claim 1, wherein the rolling element is in the form of a roller, a middle of the rolling element has a reduced portion, the mounting portion further includes a braking device, the braking device includes an eccentric operating plate and a connecting shaft, the connecting shaft is disposed in a radial direction relative to the rolling element, the eccentric operating plate includes an operating edge and a contact portion, the contact portion is configured to block the reduced portion, and the operating edge is used for the user to operate the braking device to brake the rolling element.
4. The multi-functional exercise device as claimed in claim 3, wherein the eccentric operating plate is one of an eccentric protruding block and an eccentric engaging detent.
5. The multi-functional exercise device as claimed in claim 1, wherein an outer edge of the elastic engaging hook is sleeved with a compression spring, when the user exerts a force toward the lower part through the grip member, the upper part is displaced toward the lower part, when the user releases the grip member, without exerting a force, the compression spring rebounds and brings the upper part back to its original position.

6. The multi-functional exercise device as claimed in claim 1, wherein the elastic engaging hook is replaced by a protruding cylinder, the cylinder has an inner threaded portion, the cylinder is mounted in the engaging hole of the lower part, the upper part is coupled to the lower part through a screw and a washer, when in use, the user holds the grip member to pivot the upper part relative to the lower part.

7. A multi-functional exercise device, comprising:

an upper part, the upper part having a base, the base including a soft pad thereon and an elastic engaging hook beneath the base;

a lower part, the lower part including a support disc having a central engaging hole for the elastic engaging hook to be engaged therein, at least one mounting portion at a lower end of the support disc, and at least one rolling element mounted to the mounting portion; the elastic engaging hook of the upper part being

engaged with the engaging hole of the lower part so that the upper part and the lower part are connected together.

8. The multi-functional exercise device as claimed in claim 7, a lower end of the upper part is provided with three protruding posts, the lower part is provided with three curved slots corresponding to the posts, the lower part is mounted under the upper part through the elastic engaging hook, and the upper part is rotatable relative to the lower part.

9. The multi-functional exercise device as claimed in claim 7, wherein a surface of the lower part is provided with at least one Velcro® strip.

10. The multi-functional exercise device as claimed in claim 7, wherein a lower end of the upper part is provided with a plurality of non-skid protrusions.

* * * * *