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(54) **WEIGHT-TRAINING APPARATUS, WEIGHT ADJUSTMENT DEVICE, METHOD FOR ADJUSTING WEIGHT ON A WEIGHT-TRAINING APPARATUS, AND WEIGHT ADJUSTMENT RING**

(57) This invention relates to a bodybuilding apparatus (2) comprising a profile (100) provided with a coupling course (100A) in which a weight element (1) is selectively slidable along its length, the coupling course (100A) of the profile (100) being directly pivotable by a user in relation to any point of the bodybuilding apparatus (2) for the performance of an exercise. This invention also relates to a weight adjustment device (1), a bodybuilding apparatus (2) provided with a weight adjustment device (1), a method for adjusting weight on a bodybuilding apparatus (2), and a weight adjustment ring (90) for use in a weight element (1).

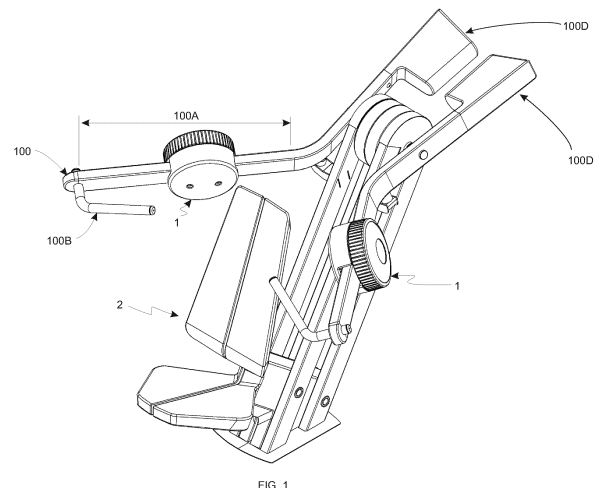


FIG. 1

Description

[0001] This invention refers to a bodybuilding equipment or line of bodybuilding equipment that have a simple construction, comprising few elements, and allows the practical adjustment of its exercise load, while occupying a substantially reduced space in relation to the equipment for conventional bodybuilding because there is no need to use weight towers or weight plates.

[0002] The present invention also contemplates a weight adjustment device applicable to a bodybuilding equipment that promotes simplicity and practicality in its use, reduction of space and cost necessary for the implementation of the equipment, as well as greater precision and flexibility in the adjustment of the load of the equipment.

[0003] The present invention further relates to a bodybuilding equipment that makes use of the afore mentioned device, a method for weight adjustment of an equipment, and a weight adjustment ring applicable to a weight element.

Description of the Prior art

[0004] It is known from the prior art bodybuilding equipment that make use of weight towers integrally associated with said equipment to allow the increment/adjustment of the weight to be worked on in the various series of exercises possible for that equipment. The weight towers integral to the equipment usually comprise columns within which multiple weights are aligned (for example, metal bars), and the adjustment is generally carried out by fixing a portion of these weights in a metal rod (usually through pins) accompanied by metal cables and pulleys that transfer the load of these weights to a portion of the equipment that is handled by the user.

[0005] That said, the way in which the desired weight is regulated in prior art bodybuilding equipment requires the user to manually insert or remove pins from the tower until reaching the desired weight, which is inconvenient from a practical point of view, considering the need for manipulation of the pin, which is an additional element and separate from the turret assembly itself. The situation is aggravated when a user is accompanied by another on the same equipment, alternating the exercises to be performed, and one uses a different load from the other, which requires constant manipulation of the tower pins during the relay.

[0006] Additionally, it is observed that the prior art equipment occupies a considerable space inside the establishment (gym) due to the weight towers, and their manufacture/implementation/maintenance implies high costs due to their existence of the tower, whose construction is relatively complex and involves multiple elements (cables, individual weights, rods, pins, etc.).

[0007] Another parallel problem is that, if the bodybuilding equipment makes use of weight plates (or weight rings), several support stations for rings are needed throughout the place where the machines are used, so that users can store the rings that are not in use or look for rings to complement the desired weight.

[0008] Still considering the problems of the prior art relating to rings, it is known that rings known from the prior art also present multiple problems in their application and use, particularly with regard to the fact that their insertion in the profiles of the bodybuilding equipment are made or by their insertion in the longitudinal axis of the equipment by one of its longitudinal ends (which implies discomfort and difficulty in its insertion into the profile) or by stacking it in a cross section of the profile (which implies a substantial change in the geometric axis of the profile, thus bringing a load imbalance that can cause damage to the equipment, especially in cases where the exercise is based on the rotation of the profile in relation to a fixed point of the equipment).

[0009] Furthermore, the prior art reveals some attempts to overcome the problems mentioned above, but without absolute success. Document WO2006023179 reveals a bodybuilding equipment that contains a pivotable profile in relation to any point of the equipment that can be slid along the profile to adjust the load felt by the user, allowing weight adjustment through the adjustment of the moment acting on the profile. However, such equipment makes use of weights that are manually inserted and fixed by the user in a kind of sliding base, which substantially hinders the adjustment of the exercise load and, therefore, does not solve the inconvenience of the prior art. Furthermore, such equipment from WO2006023179 makes use of cables, pulleys and a large number of bars to allow the transmission of the user's action in movement of the weight profile, which implies a high complexity of manufacturing, maintenance and implementation of the equipment as a whole.

[0010] Another document that can be mentioned is US 2015/014.8200, which discloses a bodybuilding equipment comprising a resistance element applied to the pivotable profile of the equipment which is slidable along the profile to increase the difficulty of the exercise. However, it is observed that the weight that gives rise to the exercise load of the equipment revealed in this document is fully disposed in the weight tower, that is, the equipment in the document in question still requires the use of a weight tower for its correct functioning and does not propose to eliminate the weight tower itself, presenting the same prior art problems mentioned above.

Objectives of the invention

[0011] A first objective of the invention is to provide a bodybuilding equipment that does not make use of a weight tower to allow the adjustment of the exercise load.

[0012] A second objective of this invention is to provide a bodybuilding equipment whose space required for its assembly and use is substantially smaller than the space required by conventional equipment.

[0013] A third objective of this invention is to provide a bodybuilding equipment that can be used safely and ergonomically, including in open spaces, with reduced space required for installation and use.

[0014] A fourth objective of this invention is to provide a weight adjustment device that eliminates the need to use weight towers in bodybuilding equipment.

[0015] A fifth objective of this invention is to provide a weight adjustment device whose adjustment is made in a simplified and practical way, requiring few movements and little effort.

[0016] A sixth objective of this invention is to provide a weight adjustment device that allows to reduce the space and costs involved in the implementation of bodybuilding equipment in an establishment.

[0017] A seventh objective of this invention is to provide a set of rings that can be associated with a weight adjustment device transversely and without stacking, maintaining a balance of the center of gravity of the equipment profile and preventing damage to it, while allows an easy and practical complement of the device's weight.

[0018] An eighth objective of this invention is to present an equipment or a line of bodybuilding equipment that makes use of the afore mentioned device.

[0019] A ninth objective of this invention is to present a method for regulating a bodybuilding equipment.

[0020] A tenth objective of this invention is to present a weight adjustment ring for use in combination with other weight elements or with the afore mentioned adjustment device.

Brief Description of the Invention

[0021] This invention deals with a bodybuilding equipment comprising a profile with a coupling course in which a weight element is selectively slidable along its linearity, the coupling course of the profile being directly pivotable by a user in relation to any point on the strength equipment to perform an exercise.

[0022] In a possible embodiment, the direct pivoting of the profile by the user is configured through at least one support means.

[0023] This invention also contemplates a bodybuilding equipment characterized by the fact that it comprises a profile on which a weight element rests, the weight element being selectively attachable to the profile through the performance, by the user, of an action that moves at least a portion of the weight element.

[0024] In a possible embodiment, the weight element is selectively detachable from the profile by repeating the action, or by performing the action in an inverse direction to the direction of carrying out the action to attach the weight element to the profile.

[0025] This invention also contemplates a weight regulating device applicable to a configured bodybuilding equipment to be selectively slidable along the linearity of a coupling course of an equipment profile, the profile being pivotable in relation to any point of the equipment, the device being configured to selectively fix itself along the linearity of the coupling course through a fastening element.

[0026] In a possible embodiment, the fastening element is at least one fastening means configured to immovably associate the device with the course of coupling the profile of the bodybuilding equipment along its linearity.

[0027] In another possible embodiment, the selective fixation of the device to the profile coupling course is configured through a rotation movement of the device in relation to the profile.

[0028] In another possible embodiment, the device comprises a lever concentrically and rotatably associated with a support, and an eccentric plate and rotatably associated with the support, the lever being selectively rotatable, the lever being configured to, through its own rotation, rotate the plate, the plate being configured to, through its own rotation, attach or detach the means of attachment to the profile of a bodybuilding equipment.

[0029] In another possible embodiment, the device comprises a central body comprising a first longitudinal end and a second end opposite the first end, each end comprising a support, the device comprising a lever concentrically and rotatably associated with each support, at least one plate being eccentrically and rotatably associated with each support, each lever being selectively rotated at the command of a user, each lever being configured to, through its own rotation, rotate its respective plate, each plate being configured to, through its own rotation, fix or unpin the means of attachment to a profile of a strength equipment.

[0030] In another possible embodiment, the support is fixedly associated with a plate, the association between the support and the plate configuring an interface, the interface being configured for receiving a profile.

[0031] In another possible embodiment, the lever comprises at least one protrusion configured to displace a contact portion of the plate upon rotation of the lever.

[0032] In another possible embodiment, the support comprises at least one opening configured for the crossing of at least part of the contact portion of the plate.

[0033] In another possible embodiment, the device comprises a steering wheel fixedly associated with the lever, the steering wheel being configured to be selectively rotated by a user and configuring, through its own rotation, the rotation of the lever.

[0034] In another possible embodiment, the device comprises a spring element associated with the support by one of its ends and associated with the plate by its other opposite end.

[0035] This invention further contemplates a strength equipment provided with a weight regulating device, comprising at least one profile associated with at least one device, the device being as defined in any one of the preceding claims.

[0036] This invention also contemplates a method for regulating the weight of a bodybuilding equipment, the method comprising the steps of:

- selectively attaching or detaching the weight element of a coupling course of a profile of the bodybuilding equipment through a device fastening element.

[0037] In a possible embodiment, the method comprises still the steps of:

- manipulating the weight element in relation to a profile (100) of the equipment for detaching the weight element from the profile (100);
- moving the weight element along the linearity of the profile coupling course; and
- manipulating the weight element in relation to a profile of the equipment for fastening the weight element in the linearity of the profile coupling course through a weight element fastening element.

[0038] In another possible embodiment, the method comprises the steps of:

- rotating at least one lever of a weight regulating device in a first direction to detach at least one plate of the device from at least one profile of the equipment and allow longitudinal sliding of the device over the linearity of the profile's coupling course;
- moving the device along the linearity of the profile coupling course; and
- turning the lever in a second direction to fasten the device in the linearity of the profile coupling course through a fastening element of the device.

[0039] This invention further contemplates a weight regulator ring for association with a weight element, the ring comprising a hollow internal portion whose geometry is analogous to the external geometry of the weight element, the hollow internal portion being configured to house at least part of the weight element inside.

[0040] In a possible embodiment, the ring comprises at least a first and a second portions associable with each other, the association between the first and second portions configuring the portion hollow interior.

[0041] In another possible embodiment, at least a portion of the ring comprises a recess for fitting the profile of the bodybuilding equipment.

Brief Description of Drawings

[0042] This invention will be described in more detail below, based on an example of execution represented in the drawings. The figures show:

Figure 1 - is a perspective view of the bodybuilding equipment of this invention in a preferred configuration and provided with the device of the present invention in a preferred configuration (equipment for exercising shoulder/trapezius muscles, called "shoulder press");

Figure 2 - is a perspective view of the bodybuilding equipment of the present invention in a possible embodiment (equipment for exercising the pectoral muscles, called bench press or "chest press") and provided with the device of the present invention in a configuration preferred;

Figure 3 - is a perspective view of the bodybuilding equipment of the present invention in another possible embodiment (equipment for exercising biceps, called "biceps curl") and provided with the device of this invention in a preferred embodiment;

Figure 4 - is a perspective view of the bodybuilding equipment of the present invention in another possible embodiment (equipment for exercising biceps, called "biceps curl") and provided with the device of the present invention in a preferred embodiment;

Figure 5 - is a first exploded perspective view of the device of the present invention in a preferred embodiment;

Figure 6 - is a second exploded perspective view of the device of the present invention in a preferred embodiment;
 Figure 7 - is a front sectional view of the device of the present invention in its preferred configuration locked to a profile of the bodybuilding equipment;

Figure 8 - is a front sectional view of the device of the present invention in its preferred embodiment unlocked from the profile of the bodybuilding equipment, indicating the unlocking rotation in a first direction;

Figure 9 - is a sectional front view of the device of the present invention in its preferred configuration unlocked from the profile of the bodybuilding equipment, indicating its longitudinal movement on the profile;

Figure 10 - is a sectional front view of the device of the present invention in its preferred configuration locked in the profile of the bodybuilding equipment, indicating the locking rotation in a second direction;

Figure 11 - is a perspective view from below of the device of the present invention in its preferred configuration unlocked from the support of the bodybuilding equipment, indicating the unlocking rotation in a first direction;

Figure 12 - is a perspective view from below of the device of the present invention in its preferred embodiment locked in the support of the bodybuilding equipment;

Figure 13 - is a perspective view of the bodybuilding equipment of the present invention in an alternative configuration (equipment for exercising legs, called "LegPress") and provided with the device of the present invention in an alternative embodiment;

Figure 14 - is a perspective view of the equipment bodybuilding of the present invention in another possible embodiment and provided with the device of the present invention in an alternative embodiment;

Figure 15 - is a perspective view of the bodybuilding equipment of the present invention in another possible embodiment (equipment for exercising the gluteal muscles, called "glute press") and provided with the device of the present invention in an alternative embodiment;

Figure 16 - is an exploded perspective view of the device of the present invention in an alternative embodiment;

Figure 17 - is a perspective view of the device of the present invention in its alternative embodiment and locked in the profile of the bodybuilding equipment;

Figure 18 - is a perspective view of the device of the present invention in its alternative embodiment and unlocked from the profile of the bodybuilding equipment, indicating the unlocking turn to a first direction;

Figure 19 - is a perspective view of the device of the present invention in its alternative configuration and unlocked from the profile of the bodybuilding equipment, indicating the movement of the device on the profile;

Figure 20 - is a perspective view of the device of the present invention in its alternative embodiment and locked in the profile of the bodybuilding equipment, indicating the locking turn to a second direction;

Figure 21 - is an illustrative figure of a user with his hand supported on the device of the present invention in its alternative embodiment and locked in the profile of the bodybuilding equipment;

Figure 22 - is an illustrative figure of a user manipulating the device of the present invention in its alternate embodiment. for unlocking the profile of the bodybuilding equipment, indicating the unlock turn to a first direction;

Figure 23 - is an illustrative figure of a user manipulating the device of the present invention in its alternative embodiment for moving the device along the profile of the bodybuilding equipment, indicating the movement of the device on the profile;

Figure 24 - is an illustrative figure of a user manipulating (releasing) the device of the present invention in its alternative embodiment for locking the device in the profile of the bodybuilding equipment, indicating the locking rotation to a second direction;

Figure 25 - is a perspective view from below of the device of the present invention in its alternative embodiment and unlocked from the support of the bodybuilding equipment, indicating the unlocking turn to a first direction; and

Figure 26 - is a perspective view from below of the device of the present invention in its alternative embodiment and locked in the support of the bodybuilding equipment.

Figure 27 - is a top view of a possible embodiment of the equipment of the present invention (equipment for exercising biceps, called "biceps curl");

Figure 28 - is a top view of a prior art equipment (equipment for exercising biceps);

Figure 29 - is a front view of a possible embodiment of the equipment of the present invention (equipment for exercising biceps);

Figure 30 - is a front view of a prior art equipment (equipment for exercising biceps);

Figure 31 - is a top view of a possible embodiment of the equipment of the present invention (equipment for exercising the gluteal muscles, called "glute press");

Figure 32 - is a top view of a prior art equipment (equipment "glute press");

Figure 33 - is a front view of a possible embodiment of the equipment of the present invention (equipment "glute press");

Figure 34 - is a front view of a prior art equipment (equipment "glute press");

Figure 35 - is a top view of a possible embodiment of the equipment of the present invention (equipment for exercising legs, called "LegPress");

Figure 36 - is a top view of a prior art equipment ("LegPress" equipment);
 Figure 37 - is a front view of a possible embodiment of the equipment of the present invention ("LegPress" equipment);
 Figure 38 - is a front view of a prior art equipment ("Leg press" equipment);
 Figure 39 - is a top view of a possible embodiment of the equipment of the present invention ("pull down" equipment);
 5 Figure 40 - is a top view of a prior art equipment (pull down equipment);
 Figure 41 - is a front view of a possible embodiment of the equipment of the present invention ("pull down" equipment);
 Figure 42 - is a front view of a prior art equipment ("pull down" equipment);
 Figure 43 - is a top view of a possible embodiment of the equipment of the present invention (equipment for exercising
 shoulder/trapezius muscles, called "shoulder press");
 10 Figure 44 - is a top view of a prior art equipment (equipment "shoulder press");
 Figure 45 - is a front view of a possible embodiment of the equipment of the present invention ("shoulder press"
 equipment);
 Figure 46 - is a front view of a prior art equipment (equipment "shoulder press");
 Figure 47 - is a top view of a possible embodiment of the equipment of the present invention (equipment for exercising
 15 the pectoral muscles, called bench press or "chest press");
 Figure 48 - is a top view of a prior art equipment ("chest press" equipment);
 Figure 49 - is a front view of a possible embodiment of the equipment of the present invention ("chest press"
 equipment);
 Figure 50 - is a front view of a prior art equipment (equipment for bench press);
 20 Figure 51 - is a perspective view of the device of the present invention in its preferred embodiment detailing the
 extra rings for optional use in a possible embodiment, illustrating its dissociated parts; and
 Figure 52 - is a perspective view of the device of the present invention in its preferred embodiment detailing the
 extra rings for optional use in a possible embodiment, illustrating its associated parts.
 Figure 53 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 25 possible embodiments ("chest press" equipment), in a first stage of the exercise movement;
 Figure 54 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 possible embodiments ("chest press" equipment), in a second stage of the exercise movement;
 Figure 55 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 possible embodiments (equipment "shoulder press"), in a first stage of the exercise movement;
 30 Figure 56 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 possible embodiments (equipment "shoulder press"), in a second stage of the exercise movement;
 Figure 57 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 possible embodiments ("leg press" equipment), in a first stage of the exercise movement;
 Figure 58 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 35 possible embodiments ("leg press" equipment), in a second stage of the exercise movement;
 Figure 59 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 possible embodiments ("pull down equipment"), in a first stage of the exercise movement;
 Figure 60 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 possible embodiments ("pull down equipment"), in a second stage of the exercise movement;
 40 Figure 61 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 possible embodiments (equipment "glute press"), in a first stage of the exercise movement;
 Figure 62 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 possible embodiments (equipment "glute press"), in a second stage of the exercise movement;
 Figure 63 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 45 possible embodiments, in a first stage of the exercise movement;
 Figure 64 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 possible embodiments, in a second stage of the exercise movement;
 Figure 65 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 possible embodiments (equipment "biceps curl"), in a first stage of the exercise movement;
 50 Figure 66 - It is an illustrative representation of a user using the equipment of the present invention in one of its
 possible embodiments (equipment "biceps curl"), in a second stage of the exercise movement.

Detailed Description of the Figures

55 **[0043]** Figures 1 to 4 reveal the equipment of the present invention in an embodiment considered preferred and some
 of its other possible embodiments. Figures 5 to 12 show the device of the present invention in its preferred embodiment.
 Figures 13 to 15 show the equipment of the present invention in an alternative embodiment and other possible config-
 urations thereof. Figures 16 to 26 show the device of the present invention in its alternate configuration. Figures 27 to

50 show several possible embodiments of the equipment 2 of the present invention for certain types of exercises, paired with prior art equipment known for this same type of exercise, for comparison. Figures 45 and 46 show the weight adjustment ring in an embodiment considered preferred. Figures 53 to 66 show illustrative representations of a user making use of the equipment of the present invention in multiple possible embodiments thereof.

5 **[0044]** Initially, it should be noted that the term "preferred" should not be understood as mandatory or imperative, and only characterizes an embodiment of particular efficiency of the invention.

[0045] The present invention contemplates a bodybuilding equipment that has a simple and practical construction and use, equipped with a reduced number of elements, which can be easily operated by the user through a single movement, including with a single hand, and does not require a weight tower or column to adjust your exercise load, the adjustment being performed on the profile on which the weight rests, that is, on the same profile that generates the exercise load performed by the user.

10 **[0046]** That said, the bodybuilding equipment 2 comprises a profile 100 provided with a coupling course 100A in which an element of weight 1 is selectively slidable along its linearity. The profile 100 can have any shapes where at least a portion of its longitudinal extension is able to receive a weight element 1, for example, a tube of any transverse shape (square, round, etc.), which may or may not have angled portions. It should be noted that the equipment 2 and its components can be comprised of a wide range of materials, and particularly stainless steel and injected concrete, materials that are suitable even for outdoor application.

15 **[0047]** Said coupling course 100A can be understood as at least a portion of the profile 100 able to receive an element of weight 1. In one possible embodiment, the coupling course embodiment 100A may be a portion of the profile 100 whose outer surface is linear and flat and which allows the weight element 1 to slide along its length. The weight element 1 can be any element capable of exerting a transverse load on the coupling course 100A when resting on the latter. For example, weight element 1 may be device 1 as further described, or any other devices or elements capable of exerting a load on profile 100 as described above.

20 **[0048]** It should be noted that the support of the weight element 1 on the profile 100 can be carried out directly or indirectly. For example, the weight element 1 can be directly supported on the surface of the coupling course 100A of the profile 100, or it can be supported on another element (for example, a nylon or rubber cover) which in turn supports or covers the profile 100.

25 **[0049]** For clarification, the term "linearity" can be understood as "longitudinal extension", "linear length" or other synonyms. Also by way of clarification, the term "selectively sliding" should be understood as sliding through a deliberate action, command or manipulation of weight element 1 by a user. For example, the user can move weight element 1 transversely with one or both hands along profile 100. The use of mechanical and electrical elements to promote sliding is also possible.

30 **[0050]** That said, the 100A coupling course of the profile 100 is directly pivotable by a user in relation to any point of the bodybuilding equipment 2 to perform an exercise. In this sense, the term "directly pivotable" should be understood as pivotable due to a direct user action on profile 100, that is, the user exerts a force directly on profile 100 without the use of cables, pulleys, rods etc. Such action can be performed in multiple ways, for example transverse, radial, rotational movement etc. Such action may also involve an indirect user command, whether electrical or mechanical in nature (for example, a button press that generates an electrical command or a manipulation of a rod that generates a movement of mechanical parts), possibly involving mechanisms or not contained in weight element 1.

35 **[0051]** It should also be noted that profile 100 can be articulated to exert an angular movement in relation to any point of association between itself and equipment 2, whether it is a structural point of the equipment (for example, a beam, column, etc.) or any other point of its construction. Furthermore, the selective sliding of the weight element 1 along the linearity of the coupling course 100A in a first or second direction respectively configures an increase or decrease in the pivoting load of the profile 100. In this way, the sliding of the weight element 1 for, for example, a point on the coupling course 100A that is furthest from the pivot point of the profile 100 will result in an increase in the load required for the pivoting of the profile 100, and the sliding of the weight element 1 to a closer point. of the pivot point of the profile 100 decreases the load required for the pivoting of the profile 100. This allows the adjustment of the exercise load felt by a user from the simple sliding of a single weight 1 element along the profile 100 in one or in the other direction, without the need to adjust a weight tower by means of pins, for example.

40 **[0052]** In order to facilitate the pivoting of the profile 100 by the user, it is possible to use a support means 100B whose objective is simply to facilitate the user's access to the profile 100. For example, the support means 100B can be a handle or a support projection that projects from profile 100. However, it should be noted that the means of support 100B transmits the force exerted by the user directly to the profile 100, thus not being configured by cables, pulleys or sets of rods.

45 **[0053]** This is because the equipment 2, in this way, allows the profile 100 on which the weight element 1 rests and slides to allow the adjustment of the exercise load to be the same profile 100 that is directly actuated by the user during the performance of its exercise, thus ensuring that the equipment 2 is absolutely compact and allows both its adjustment and its use to carry out the exercise without the use of weight towers, pulleys, cables, trusses, etc. That is, a pile of

metal weights arranged in a tower is replaced by a single element that uses the distance between its position and the pivotable axis for load adjustment, advantageously reducing the cost and complexity of the equipment, among other advantages.

[0054] It is important to note that the equipment 2 of the present invention has a substantially reduced size compared to currently known bodybuilding equipment. The non-necessity of using weight towers and rings allows to considerably reduce the space occupied by the equipment 2 of the present invention, with a reduction of between 10% and 40% of the occupied space being observed, and particularly reductions between 20% and 30%, and more particularly reductions of 25% to 35%. For exercise equipment commonly known as "Yaw Pull," for example, reductions of approximately 35% have been observed. For exercise equipment commonly known as the "Shoulder Press", reductions of approximately 28% were observed.

[0055] In order to exemplify the size reduction allowed by the equipment 2 proposed here, figures 27 to 50 reveal several possible embodiments of the equipment 2 of the present invention for certain types of exercises, paired with the equipment of the space. technique known for this same type of exercise, by way of comparison. Figures 27 to 50 show the overall dimensions of length A, width B and height C of each possible illustrated embodiment of the apparatus 2 of the present invention compared to the same overall dimensions of length A', width B' and height C' taken from the apparatus of the prior art, as more fully defined for each figure in the table below (in centimeters):

EQUIPAMENT	A	A'	B	B'	c	c'
Biceps Curl (figures 27 to 30)	1378	1509	918	1346	1691	1707
Glute press (figures 31 to 34)	1413	1510	1045	1329	1344	1709
Leg Press (figures 35 to 38)	1925	2337	1101	1398	1392	2157
Pull down (figures 39 to 42)	1863	1693	954	1591	1849	1887
Shoulder (figures 43 to 46)	1659	2096	1371	1529	1165	1710
Bench (figures 47 to 50)	1845	2134	1240	1529	764	1710

[0056] It is observed that the embodiments of the equipment 2 of the present invention are always smaller in one or more dimensions compared to the previous ones, which proves the weight reduction guaranteed by it.

[0057] Optionally, the equipment 2 may further comprise at least one counterweight 100D that is arranged on the profile 100 to assist in the movement of said profile 100 during exercise. Counterweight 100D can be an integral portion of profile 100 (single piece), or an element associable with profile 100 in any suitable way, for example by snapping. The 100D counterweight can be arranged at any point of the 100 profile that is suitable for compensating for the weight of the weight element 1 and facilitating the user's movement of the profile 100. For example, the counterweight 100D can be arranged at a longitudinal end of the profile 100 that opposes the longitudinal portion of the profile 100 in which the device 1 is willing. Examples of application of the 100D counterweight in equipment 2 can be seen in figures 1 and 3.

[0058] This invention also contemplates a bodybuilding equipment 2 comprising a profile 100 on which a weight element 1 is supported, the weight element 1 being selectively attachable to the profile 100 upon the user performing an action that moves at least a portion of weight element 1.

[0059] The user action that moves a portion of the weight element 1 can be any action that allows to move a portion, part or element of the weight element 1, for example a transverse, radial, rotational movement etc. Such action may also involve an indirect user command, whether electrical or mechanical, involving or not mechanisms possibly contained in the weight element 1. The movement of at least a portion of weight element 1 is a function of the action performed by the user. For example, a rotation action may generate the rotation of a portion of the weight element 1, which in turn will configure the selective fixation of the weight element 1 on the profile 100.

[0060] It is important to note that the user action is performed on a portion of the weight element 1, and not on any other component unrelated to the weight element 1. This is because, through a user action directly on a portion of the weight element. weight 1, the adjustment of the load of equipment 2 is allowed to be carried out in a compact, simple and practical way, with a simple and quick movement, and can even be performed with a single hand, without requiring intermediate elements such as weight towers, sets in bars, cables, pulleys or others. To exemplify the use of equipment 2 in its multiple possible embodiments, figures 53 to 66 bring representative illustrations of the use of equipment 2 by a user in several of its possible embodiments, in the first and second stages of the respective exercise.

[0061] In a possible embodiment, the weight element 1 is selectively detachable from the profile 100 by repeating the action, or by performing the action in a direction inverse to the direction of carrying out the action for fixing the weight element 1 on the profile 100. For example, the action performed by the user for selectively fastening the weight element 1 on the profile 100 can be a button press. In this case, the action performed to detachdetach the weight element 1 in

the profile 100 could be a new button press, that is, a repetition of the original action. In another example, the action for clamping could be a rotation of a portion of weight element 1 in a first direction, and the action for unclamping could be a rotation of that same portion in a reverse direction. Other forms of detachment action can be used, the above being just possible examples.

[0062] Furthermore, the profile 100, and more particularly the coupling course 100A, may comprise at least one type of visual marking in its linearity to allow identification of the position of the weight element 1 along the profile 100. For example, tags can be position tags represented numerically, by distance units (cm, mm, etc.) or any other suitable visual representation. Such markings are intended to allow the user to identify the position of weight element 1 in the 100 profile of equipment 2, which is useful for the user to follow the progression of their exercise or ensure that, if equipment 2 has more than a 100 profile (for example, two profiles 100, each to be manipulated by one of the user's arms), the user is able to adjust appropriately position each element of weight 1 to set identical loads on each profile 100.

[0063] That said, Figure 1 reveals the equipment 2 of the present invention in its preferred configuration, being it associated with a pair of devices 1 of the present invention also in its preferred configurations. The form of the equipment 2 shown in Figure 1 is just an example of embodiment of a bodybuilding equipment in which the device 1 of the present invention can be applied, it is not imperative that the form or function of the equipment 2 is the one shown. A technician in the field will understand that device 1 can be applied to multiple different equipment dedicated to different types of exercises. A person skilled in the art will further understand that the device 1 is just an example of a weight element 1 applicable to the equipment 2 of the present invention, and the equipment can be implemented using other types of weight elements 1.

[0064] Nevertheless, the device 1 of the present invention is configured to be selectively slidable along the linearity of a coupling course 100A of a profile 100 of the equipment 2, the profile 100 being pivotable with respect to any point of the equipment 2, device 1 being configured to selectively clamp along the linearity of the coupling course 100A via a clamping element.

[0065] That is, the device 1 is configured to selectively attach or detach from any longitudinal portion of a profile 100 of a bodybuilding equipment 2 through friction between a fastening element of the device 1 and the profile 100. In this sense, the term "longitudinal portion" is to be understood as any portion of at least one surface of the profile 100 that is capable of being contacted by at least one element of the device 1. By way of example, a profile 100 of a bodybuilding equipment 2 may comprise a substantially rectangular geometry (for example, as seen in figures 1 to 4). In this exemplary case, the device 1 can be configured to attach to or detach from any of the four transverse surfaces of the rectangular profile 100. In one possible embodiment, the device 1 can be configured to attach to or detach from a pair of opposite transverse surfaces, or even to three or four of the surfaces of the profile 100. Of course, other attachment configurations are possible depending on the desired application, not limited to this example above.

[0066] As to the fastening element of the device 1, this can be any element suitable for fastening at least a part of the device 1 to the profile 100. Possible embodiments of the fastening element are, for example, elements that generate friction between a part of the device 1 and profile 100, elements that generate magnetic fields for magnetic attraction between a part of the device 1 and the profile 100, and any other elements that can selectively fix a part of the device 1 and the profile 100, whether or not they are aided by other elements such as combinations of holes and pins. Other embodiments of the fastening element will be described later.

[0067] In this sense, at first, it is clarified that the device 1 of the present invention is capable of fixing at any point of the profile 100 of the bodybuilding equipment 2 without restrictions with respect to the fixation point, advantageously in relation to the prior art. This is mainly due to the fixation or detachment carried out through the fixation element between an element of the device 1 in relation to the profile 100, which eliminates the need to use pins or holes in the profile 100 for setting the weight adjustment. In this way, a user is able to easily detach device 1 from equipment 2 and move it along profile 100 to adjust the moment acting in profile 100 and, consequently, of the load felt during the exercise.

[0068] It is also clarified that this adjustment is promoted by the simple handling of device 1 with equipment 2, without the need to add/change rings or manipulation of pins/weights, which facilitates and makes the adjustment of the equipment by the user. Furthermore, it eliminates the need to use weight towers in conjunction with the weight equipment, which not only reduces the space needed to implement the equipment in gyms, but also reduces the cost of the equipment as a whole. However, the use of extra rings can optionally complement the application of device 1, as will be explained later.

[0069] In a possible embodiment, the attachment or detachdetachment of the device 1 in relation to the profile 100 can be configured through a rotation movement of the device 1 in relation to the profile 100. Furthermore, in another possible embodiment, the detachment of the device 1 in relation to the profile 100 allows the longitudinal sliding of the device 1 in relation to the profile 100, and the fixing of the device 1 in the profile 100 interrupts this sliding freedom.

[0070] That said, figures 5 and 6 reveal exploded views of device 1 of the present invention in its preferred configuration, which is applied to equipment 2 as shown in figures 1 to 4. As can be seen, in a possible embodiment, device 1 comprises a support 10 being, in one possible embodiment, sheet-shaped and with a substantially circular profile. There is also a lever 20 concentrically and rotatably associated with the support 10 and at least one plate 30 eccentrically and rotatably associated with the support 10. In a possible embodiment, the support 10 comprises associated with it a pair of plates 30.

[0071] The association between support 10 and lever 20 or pair of plates 30 can be carried out, for example, by means of axes or fixing pins. In a possible embodiment, the pair of plates 30 is associated with the support 10 through pins 30', and the lever 20 is associated with the support 10 through a central axis 20', which can be assisted by concentric pins or any other suitable element for fastening. Preferably, lever 20 comprises a pair of folds 22 disposed at its longitudinal ends and configured to at least partially engage with a pair of slots 12 of support 10. Furthermore, pair of folds 22 can slide within the pair of slots. 12 by rotating lever 20, and the pair of slots 12 serves as a stop for rotation of lever 20. Preferably, each plate 30 comprises a cylindrical portion 32 for receiving a pin, shaft or any other element for fastening to support 10, and a flat or contact portion 31 associated with this cylindrical portion 32 for other purposes that will be detailed below.

[0072] Lever 20 is selectively rotatable. As already clarified, the term "selectively" should be understood as "achievable through the action, manipulation or command of a user, control system or any other entity", that is, a certain action (in this case, the rotation of lever 20) is carried out in a selective, commanded manner. Preferably, the selectivity of rotation of lever 20 is configured through manipulation of lever 20 by the user in a first or second rotation direction, as will be seen in more detail below.

[0073] Additionally, the lever 20 is configured to, upon its own rotation, rotate the plate 30. In a possible configuration, the plate 30 or the pair of plates 30 are arranged adjacent to the lever 20 so that, upon rotation of the lever 20, at least a portion of the pair of plates 30 is pushed by at least a portion of the lever 20. The association of the plates 30 being eccentric to the center of the support 10, the rotation movement configured by the plates 30 is also eccentric.

[0074] The plate 30 is configured to, through its own rotation, attach itself to or detach from a profile 100 of a bodybuilding equipment. In this sense, in a possible configuration, the fastening element of the device 1 is a plate 30 comprising at least one fastening means 33 configured to fix the plate 30 to a profile 100 of an equipment 2. Preferably, but not imperatively, multiples fastening means 33 are used. Such fastening means 33 are preferably any suitable means that are able to fasten to the profile 100. In a first example, such that the fastening between the plate 30 and the profile 100 can take place by means of friction between the fastening means 33 and the profile 100. More preferably, the fastening means 33 are composed of material capable of generating high friction on any portion of the surface of the profile 100. For example, if the profile 100 is composed of metallic material or is coated with flexible material like rubber, the fastening means 33 may be composed of rubber. Nevertheless, the fastening means 33 can be, for example, a set of elements capable of generating a magnetic field to configure a magnetic attraction between the fastening means 33 and the profile 100. A person skilled in the art will understand that other forms of means fixings 33 can be used for fixing with the profile 100, as long as they allow an immovability between the device 1 and the profile 100.

[0075] Even more preferably, the fastening means 33 are a combination between a pin and a set of friction elements composed of material that generates high friction on a surface of the profile 100, such as rubber. More preferably, the fastening of the fastening means 33 to the profile 100 is carried out through a combination of fitting the pin into a hole 101 of the profile 100 (as seen in the figures. 11 and 12, for example) and friction between a surface of the profile 100 and the friction elements. The use of pins is absolutely preferential and can optionally be used to complement the fixation of device 1 to profile 100. It is also important to note that the hole 101 here suggested is not necessarily a through hole, as the fixation pin eventually used is a complementary rather than a primary form of fixation. Therefore, the use of an orifice that encompasses only one of the surfaces of the profile 100 (nonthrough) is sufficient to allow the proper fixation of the fastening means 33 to the profile 100.

[0076] Still preferably, the profile 100 of the equipment 2 is of the type that comprises a thin longitudinal format, such as an arm or rod to support the device 1. A person skilled in the art will understand that other embodiments of friction elements are possible to achieve the objectives of the present invention, not being limited to the possible configuration described above.

[0077] In a possible embodiment, the attachment or detachment of the plate 30 to the profile 100 is done by rotating the plate 30, which in turn is configured by the rotation of the lever 20. In this sense, as best seen in figures 7 to 10, and particularly in Figure 8, the lever 20 pushes, upon rotation by the user in a first direction, the pair of plates 30, which in turn also rotate, but eccentrically to the support 10. This rotation of the pair of plates 30 (or, alternatively, a single plate 30) detaches the plates 30 from the profile 100. In this preferred configuration, the rotation of the pair of plates 30 lifts the pin and friction means, disconnecting them from the surfaces 102 and holes 101 of the profile. 100. Again, the use of pins and holes for attaching device 1 to profile 100 is absolutely optional.

[0078] The detachment of the plates 30 of the profile 100 allows the displacement device 1 along the profile 100, as seen in figure 9. The fixation of the plates 30 to the profile 100 is performed by rotating the lever 20 (and, consequently, of the plates 30) in a second direction, as shown in figure 10, the which lowers the fastening means and forces its reconnection to the profile 100 and locking the device 1. Figure 11 shows the unlocking of the device 1 in a lower perspective, while Figure 12 shows the device 1 locked on the support 100 in a lower perspective, for better understanding.

[0079] Figures 13 to 15 reveal an alternative configuration of the present invention and other possible embodiments where the device 1 is associated with a bodybuilding equipment 2 in which there are two profiles 100 arranged parallel to each other. In this configuration, and according to figure 16, the device 1 comprises a central body 1A provided with

a first longitudinal end 1B and a second end 1C opposite the first end 1B. Each of the ends 1B, 1C comprises or is associated with a support 10. In this sense, it is clarified that each of the sides or ends 1B, 1C of the device 1 will be associated with one of the profiles 100 of the equipment 2 of this alternative configuration, such as that each side of device 1 in this alternative configuration will be of similar construction to device 1 of the preferred configuration. More specifically, device 1 of this preferred configuration comprises a lever 20 concentrically and rotatably associated with each support 10 and at least one plate 30 eccentrically and rotatably associated with each support 10. Furthermore, each lever 20 is selectively rotated upon command of a user, and each lever 20 is configured to, through its own rotation, rotate its respective plate 30. Additionally, each plate 30 is configured to, through its own rotation, attach or detach from one of the profiles 100 of the equipment 2. In this configuration, equipment 2 can further comprise the minus one spring element 100C that connects to device 1 and a portion of profile 100. Preferably, two spring elements 100C are used, one for each profile 100 and each connected to one of the longitudinal ends of device 1. Such spring element 100C is configured in such a way as to allow greater ease of sliding the device 1 along the profiles 100 when moving in an upward direction, thus facilitating the adjustment of the exercise load when moving the device 1 to up.

[0080] That said, it makes it clear that the construction of device 1 in its alternative configuration is similar to that of device 1 in its preferred construction, with the difference being that the preferred configuration of device 1 is "replicated" for both sides of central body 1A to allow its association to two profiles 100 instead of just one. Figures 18 to 24 reveal the locking and unlocking procedure of device 1 in its alternative configuration on profiles 100, which is similar to the procedure used for the preferred configuration, with the difference that the rotation for unlocking performed by the user acts on both levers 20 simultaneously, allowing the unlocking of both plates 30 of profiles 100.

[0081] Below, some other possible embodiments that can be applied to device 1 are described.

[0082] In a possible embodiment, the support 10 is fixedly associated with a plate 40, and the association between the support 10 and the plate 40 configures an interface 50 for receiving the profile 100. As seen in figures 5 and 16, the device 1 comprises a plate 40 which is associated with the support 10 by means of, preferably, fixing axes 41, and more preferably axes arranged in the upper and lower parts of the plate 40. As seen in the figures 11, 12 and 25, 26, the association between the plate 40 and the support 10 sets up a spacing between these two elements, that is, an interface 50. This interface 50 is configured to receive or house the profile 100 of the equipment 2, allowing that the device 1 is supported by the profile 100. Preferably, the support of the device 1 on the profile 100 is made by inserting the profile 100 between the upper and lower fixing axes 41. The fixing shafts 41 can, in a possible embodiment, comprise bearing elements (such as bushings, bearings themselves or any other suitable element) arranged along their length to facilitate the sliding of the device 1 on the profile 100.

[0083] In another possible embodiment, the lever 20 comprises at least one protrusion 21 configured to displace a contact portion 31 of the plate 30 upon rotation of the lever 20. In this sense, the protrusion 21 is preferably arranged on the lever 20 so that hold adjacent to the contact portions 31 of the plate 30. The protrusions 21 may be composed of bushings protruding from the tabs of the lever 20, or any other possible configuration that allows the protrusion 21 to effectively push the contact portion 31 of its corresponding plate 30.

[0084] In another possible configuration, the support 10 comprises at least one opening 11 configured for the crossing of at least part of the contact portion 31 of the plate 30. As best seen in figures 11, 12 and 25, 26, the portion of contact 31 of the plates 30 extend or pass their respective supports 10 through the openings 11, so that each plate 30 is associated with its respective support 10 by its external face, and each lever 20 is associated with its respective support 10 by its inner face. This allows the interaction of the contact portion 31 of the plate 30 with the profile 100 of the equipment 2 while keeping the assembly compact.

[0085] In another possible configuration, the device 1 comprises a handwheel 60 fixedly associated with the lever 20, the handwheel 60 being configured to be selectively rotated by a user and configuring, through its own rotation, the rotation of the lever 20. In this sense, the association of the handwheel to the lever 20 can be accomplished through an axis, and particularly through the central axis 20', such that the rotational movement of the handwheel 60 is transmitted to the lever 20. For the alternative configuration of the present invention, the wheel 60 is arranged in the central body 1A, such that its rotation configures the rotation of the two levers 20 simultaneously.

[0086] Furthermore, in another possible embodiment, the device 1 comprises a spring element 70 associated with the support 10 by one of its ends and associated with the plate 30 by its other opposite end. The spring element 70 is intended to force the return of the plate 30 to a locking position of the profile 100 after the user unlocks and moves the device 1, eliminating the need for a rotational movement to lock the device 1 in the profile 100.

[0087] Preferably, the device 1 further comprises a cover 80 associated with the plate 40 for closing the assembly of the device 1. The cover 80 further comprises a hollow opening 81 for the passage of the profile 100 of the equipment 2.

[0088] From the clarifications provided above, it is clear that the present invention has multiple advantages compared to devices and equipment of the prior art. Firstly, the use of weight towers for adjustment is eliminated, it being enough that the position of device 1 is adjusted in profile 100 of equipment 2 so that the moment/torque necessary for movement/lifting of profile 100, modifying thus the load of exercise. Furthermore, the adjustment of device 1 in the length of the profile 100 is made in an extremely simple way, requiring only a user action (in the preferred embodiment, a rotation

of the lever 20 in a first direction) to unlock the assembly and allow the sliding and position adjustment of the device 1 on the profile 100. It is important to note that the construction of equipment 2 is advantageously simpler and, therefore, less costly when manufacturing, implementing and maintaining it, since it requires fewer parts for its operation (absence of weight towers, rings towers, cables, pulleys, etc.) and it is substantially reduced in size compared to prior art equipment.

Particularly with respect to the manufacture of equipment 2 as a whole, savings of 30% to 40% of the total costs are estimated in relation to conventional equipment of the prior art. Furthermore, if necessary, the exchange of weight element 1 (device 1) is necessary, such exchange can be carried out very simply, without the need to remove weight towers, pulleys, cables, rods, etc.

[0089] It is further noted that device 1 and equipment 2 of the present application are advantageously suitable for outdoor applications, i.e. outdoor bodybuilding facilities. This is because the non-necessity of using towers allows, as already explained, reduced size and great practicality of use, characteristics that are advantageous for outdoor applications. At the same time, the possibility of vandalism or theft of loose elements such as rings and pins is reduced, since the device and equipment of the present invention do not necessarily make use of these elements. In this sense, the fact that equipment 2 does not have loose parts (rings or cables, pulleys, etc.) allows its proper application in free areas, avoiding both vandalism and loss and damage to the equipment's construction. Another feature that allows the advantageous application in free areas is the fact that the equipment has a number of adjustment possibilities.

[0090] In addition, it is important to note that the equipment 2 of the present invention may comprise, in a possible embodiment, a locking element such as a stop or limit switch disposed at any point of the longitudinal extension of its profile 100 configured to limiting the sliding course of the device 1 so as to prevent the device 1 from being removed from the device 2 unduly. The locking element can implement any specific means or tools for its removal, to allow maintenance of the device 1 as needed.

[0091] It is also important to note that the device 1 of the present invention is easily applicable to any existing bodybuilding equipment, strictly speaking no special adaptation of the equipment is necessary, provided that it comprises a profile 100 for receiving the device 1, profile 100 which is commonly present in many equipment known from the prior art. More than that, the device 1 of the present invention can reduce the size of existing equipment, since, after its implementation, the removal of any additional elements (weight towers, rods, pulleys, etc.) is possible.

[0092] In accordance with the device and equipment embodiments described above, this invention further provides a method for weight adjustment of a bodybuilding equipment 2 through a regulator device 1 comprising the steps of:

- selectively fixing or unfastening the weight element 1 of a coupling course 100A of a profile 100 of the bodybuilding equipment 2 by means of a fastening element of the device 1.

[0093] In a possible embodiment, the method also provides for the steps of:

- manipulating the weight element 1 in relation to a profile 100 of the equipment for detaching the weight element 1 from the profile 100;
- moving the weight element 1 along the linearity of the coupling course 100A of the profile 100; and
- manipulating the weight element 1 in relation to a profile (100) of the equipment for fastening the weighing element 1 to the linearity of the coupling course 100A of the profile 100 through a fastening element of the weighing element 1.

[0094] In another possible embodiment, the method also provides for the steps of:

- turning at least one lever 20 of a weight regulating device 1 in a first direction to detach at least one plate 30 of device 1 from at least one profile 100 of equipment 2 and allow longitudinal sliding of device 1 over the linearity of the coupling course 100A of the profile 100;
- moving the device 1 along the linearity of the coupling course 100A of the profile 100; and
- rotating, or just releasing, the lever 20 in a second direction for fastening the device 1 in the linearity of the coupling course 100A of the profile 100 through a fastening element of the device 1.

[0095] In another possible embodiment, the method also provides for the steps of:

- turning lever 20 of device 1 through a steering wheel 60 in a first sense; and
- turning the lever 20 of the device 1 through a spring element 70 in a second direction.

[0096] It is important to note that the rotation of the lever 20 in a second direction to fix the plate 30 to the profile 100 does not necessarily need to be performed by the user. Turning the lever 20 to this second direction can be carried out, for example, through the traction exerted by the spring element 70 on the lever 20 in this second direction to return the profile 100 to an initial position, as already explained above.

[0097] More specifically, and preferably, turning the lever 20 in a first direction by the user's action exerts tension on the spring element 70 which is associated with the support 10 and the lever 20 itself. The spring element 70 extends and sets up a pull reaction on the lever 20, generating a moment in a second direction of rotation. This moment is initially compensated by the user while he keeps the lever 20 in an unlocked position. When the user reaches a desired point for the device on the profile 100 and releases the lever 20, the spring element 70 exerts its traction on the lever 20, generating a moment in a second direction that returns the support 10 to its original position, again locking the device 1 over profile 100.

[0098] In addition to device 1 and equipment 2 described above, the present invention also contemplates a weight regulator ring 90 for application to a weight regulator device 1. Said ring comprises a hollow inner portion 93 whose geometry is analogous to the outer geometry of the device 1, the hollow inner portion 93 being configured to house at least part of the device 1 in its interior.

[0099] The term "analogous geometry" should be understood as a geometry of the hollow inner portion 93 capable of allowing the accommodation of the device 1 inside the hollow inner portion 93 of the ring 90. It should be noted that, as will remain clear to a technician in the matter, the hollow inner portion 93 does not need to have a geometry absolutely identical to the external geometry of the device 1, it is enough, for example, that part of the geometry is similar to ensure a proper fit between both elements.

[0100] In a possible embodiment, the ring 90 comprises at least a first and a second portion 91, 92 associable with each other, the association between the first and second portions 91, 92 configuring the hollow inner portion 93. In this case, the ring 90 is formed by at least two parts that can be fitted together. Optionally, one of the portions 91, 92 of the ring may comprise the integrity of the geometry of the hollow inner portion 93 analogous to the external geometry of the device 1, or each portion of the ring 91, 92 may comprise a part of the geometry of the inner portion. hollow 93.

[0101] In another possible embodiment, at least a portion 91, 92 of the extra ring 90 comprises a recess 910 for fitting in the profile 100 of the bodybuilding equipment 2. Said recess 910 comprises geometry analogous to at least part of the geometry of the profile 100 to allow its proper engagement in this element. Recess 910 can be formed in only one of the portions 91, 92, or it can be formed by joining smaller recesses contained in the portions 91, 92.

[0102] In another possible embodiment, the first and second portions 91, 92 are configured to fit transversely to the profile 100 of the bodybuilding equipment 2. In this case, the fitting of the portions 91, 92 of the ring 90 in the device 1 and in the profile 100 is made transversely to facilitate its assembly in the equipment 2, without the need for longitudinal association, which would require insertion of a first part, subsequent insertion of the device and then inserting the second part of the grommet. In this transverse snapping configuration, snapping of portions 91, 92 takes place simultaneously (as seen in Figures 51, 52).

[0103] The use of ring 90 allows complementing the maximum exercise load originally allowed by device 1 when needed. serious. However, it is important to point out that the use of the ring 90 together with the device 1 and equipment 2 of the present invention is optional, being a possible choice, but not an imperative one, depending on the needs of the specific application.

[0104] Additionally, the ring 90 as proposed here is able to allow an adequate balance of weight and geometric center of the profile 100, as it does not require transverse or longitudinal stacking in its application. Furthermore, its association with device 1 is performed quickly and conveniently by simultaneous transversal fitting, avoiding discomfort when adding weight, as is typical of conventional rings.

[0105] Having described an example of preferred embodiment, it should be understood that the scope of this invention encompasses other possible variations, being limited only by the content of the appended claims, including possible equivalents.

Claims

1. Bodybuilding equipment (2) **characterized by** the fact that it comprises a profile (100) provided with a coupling course (100A) on which a weight element (1) is associated in selectively slidable manner along its linearity, the coupling course (100A) of the profile (100) being directly pivotable by a user in relation to any point of the bodybuilding equipment (2) to perform an exercise.
2. Bodybuilding equipment (2), according to claim 1, **characterized by** the fact that the direct pivoting of the profile (100) by the user is configured through at least one support means (100B).
3. Bodybuilding equipment (2) **characterized by** the fact that it comprises a profile (100) on which a weight element (1) rests, the weight element (1) being selectively attachable to the profile (100) by means of an action, by the user, that moves at least a portion of the weight element (1).

4. Bodybuilding equipment (2), according to claim 3, **characterized by** the fact that the weight element (1) is selectively detachable from the profile (100) by repeating the action, or by performing the action in a reverse direction to the direction of carrying out the action for fixing the weight element (1) on the profile (100).
- 5 5. Weight adjustment device (1) applicable to a bodybuilding equipment (2) **characterized by** the fact that it is configured to be selectively slidable along the linearity of a coupling course (100A) of a profile (100) of the equipment (2), the profile (100) being pivotable in relation to any point of the equipment (2), the device (1) being configured to selectively attach itself along the linearity of the coupling course (100A) through an attachment element.
- 10 6. Weight adjustment device (1), according to claim 4, **characterized by** the fact that the attachment element is at least one attachment means (33) configured to immovably associate the device (1) to the coupling course (100A) of the profile (100) of the bodybuilding equipment (2) along its linearity.
- 15 7. Weight adjustment device (1) according to claim 5, **characterized by** the fact that the selective attachment of the device (1) to the coupling course (100A) of the profile (100) is configured through a rotation movement of the device (1) in relation to the profile (100).
- 20 8. Weight adjustment device (1) according to claim 6, **characterized by** the fact that it comprises a lever (20) concentric and rotatably associated with a support (10), and a plate (30) eccentric and rotatably associated with the support (10), the lever (20) being selectively rotatable, the lever (20) being configured to, through its own rotation, rotate the plate (30), the plate (30) being configured to, through its own rotation, attach or detach the fastening means (33) to or from the profile (100) of a bodybuilding device (2).
- 25 9. Weight adjustment device (1), according to claim 7, **characterized by** the fact that it comprises a central body (1A) comprising a first longitudinal end (1B) and a second end (1C) opposite the first end (1B), each end (1B, 1C) comprising a support (10), the device (1) comprising a lever (20) concentrically and rotatably associated with each support (10), at least one plate (30) being eccentrically and rotatably associated to each support (10), each lever (20) being selectively rotated upon command of a user, each lever (20) being configured to, upon its own rotation, rotate its respective plate (30), each plate (30) being configured to, through its own rotation, attach or detach the fastening means (33) to or from a profile (100) of a bodybuilding equipment (2).
- 30 10. Weight adjustment device (1), according to any one of the preceding claims, **characterized by** the fact that the support (10) is fixedly associated with a plate (40), the association between the support (10) and the plate (40) configuring an interface (50), the interface (50) being configured to receive a profile (100).
- 35 11. Weight adjustment device (1), according to any one of the preceding claims, characterized the fact that the lever (20) comprises at least one protrusion (21) configured to displace a contact portion (31) of the plate (30) by rotating the lever (20).
- 40 12. Weight adjustment device (1), according to any one of the preceding claims, **characterized by** the fact that the support (10) comprises at least one opening (11) configured for the crossing of at least part of the contact portion (31) of the plate (30).
- 45 13. Weight adjustment device (1), according to any one of the preceding claims, **characterized by** the fact that it comprises a steering wheel (60) fixedly associated with the lever (20), the steering wheel (60) being configured to be selectively rotated by a user and configuring, by means of its own rotation, the rotation of the lever (20).
- 50 14. Weight adjustment device (1), according to any one of the preceding claims, **characterized by** the fact that it comprises a spring element (70) associated with the support (10) at one of its ends and associated with the plate (30) by its other opposite end.
- 55 15. Bodybuilding equipment (2) provided with Weight adjustment device (1), the equipment (2) being **characterized by** the fact that it comprises at least one profile (100) associated with at least one device (1), the device (1) being as defined in any one of the preceding claims.
16. Method for adjusting the weight of a bodybuilding equipment (2), the method being **characterized by** the fact that it comprises the steps of:

- selectively attaching or detaching a weight element (1) from a coupling course (100A) of a profile (100) of the bodybuilding equipment (2) through an attachment element of the device (1).

5 17. Method for adjusting the weight of a bodybuilding equipment (2), according to claim 12, **characterized by** the fact that it comprises the steps of:

- manipulating the weight element (1) in relation to a profile (100) the equipment for detachdetaching the weight element (1) from the profile (100);
- moving the weight element (1) along the linearity of the coupling course (100A) of the profile (100); and
- 10 - manipulating the weight element (1) in relation to a profile (100) of the equipment for attaching the weight element (1) in the linearity of the coupling course (100A) of the profile (100) through an attachment element of weight (1).

15 18. Method for adjusting the weight of a bodybuilding equipment (2), according to claim 12, **characterized by** the fact that it comprises the steps of:

- turning at least one lever (20) of a weight adjustment device (1) in a first direction to detachdetach at least one plate (30) of the device (1) from at least one profile (100) of the equipment (2) and allow the device (1) to slide longitudinally over the linearity of the coupling course (100A) of the profile (100);
- 20 - moving the device (1) along the linearity of the coupling course (100A) of the profile (100); and
- turning the lever (20) in a second direction to fasten the device (1) in the linearity of the coupling course (100A) of the profile (100) through a fastening element of the device (1).

25 19. Weight adjustment ring (90) for association with a weight element (1), the ring (90) being **characterized by** the fact that it comprises a hollow inner portion (93) whose geometry is analogous to the external geometry of the weight element (1), the hollow inner portion (93) being configured to house at least part of the weight element (1) therein.

30 20. Weight adjustment ring (90) according to claim 16, **characterized by** the fact that it comprises at least a first and a second portions (91, 92) associable with each other, the association between the first and second portions (91, 92) configuring the hollow inner portion (93)

35 21. Weight adjustment ring (90) according to claim 17, **characterized by** the fact that at least a portion (91, 92) of the ring (90) comprises a recess (910) for fitting into the profile (100) of the (2) bodybuilding equipment.

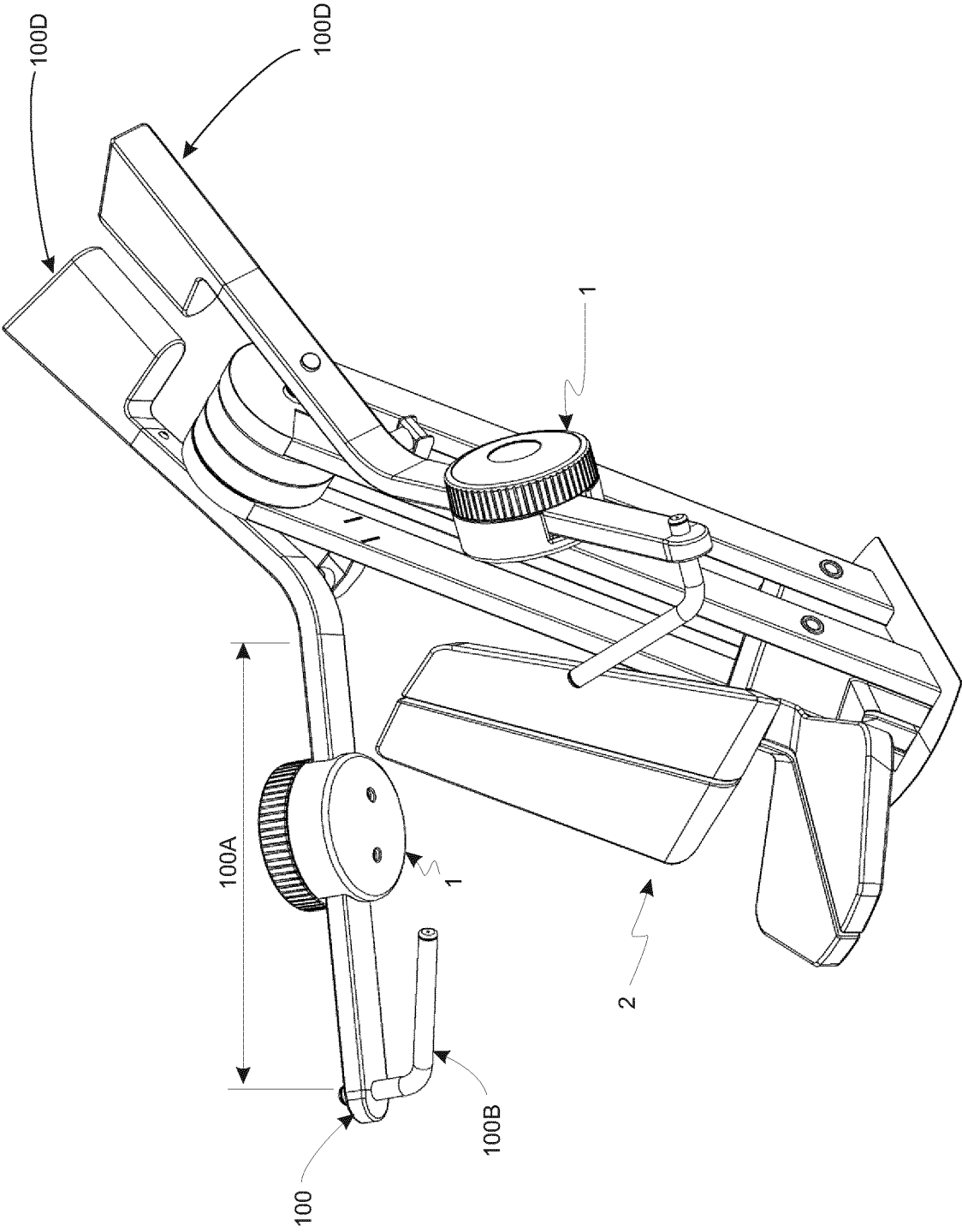


FIG. 1

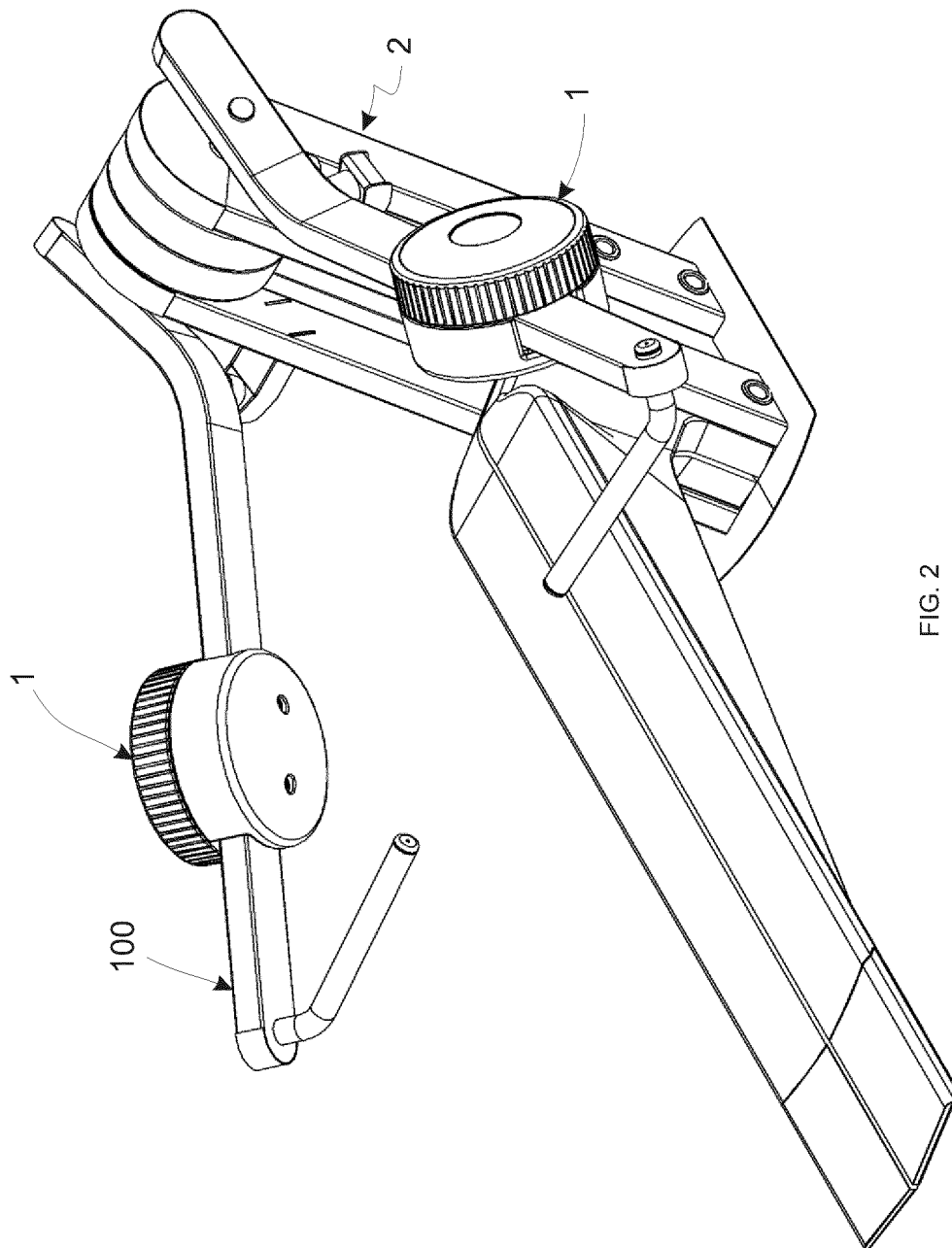


FIG. 2

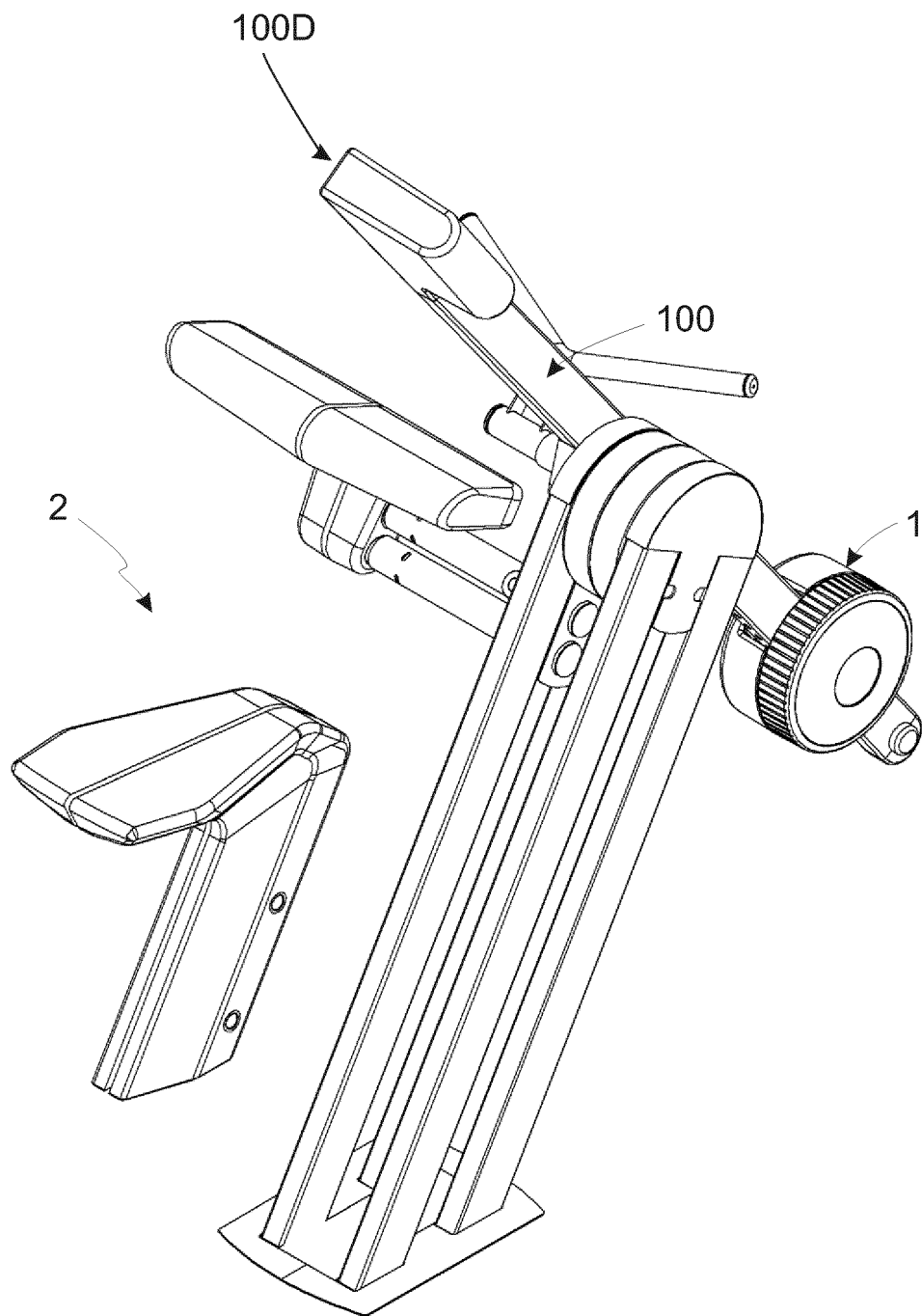


FIG. 3

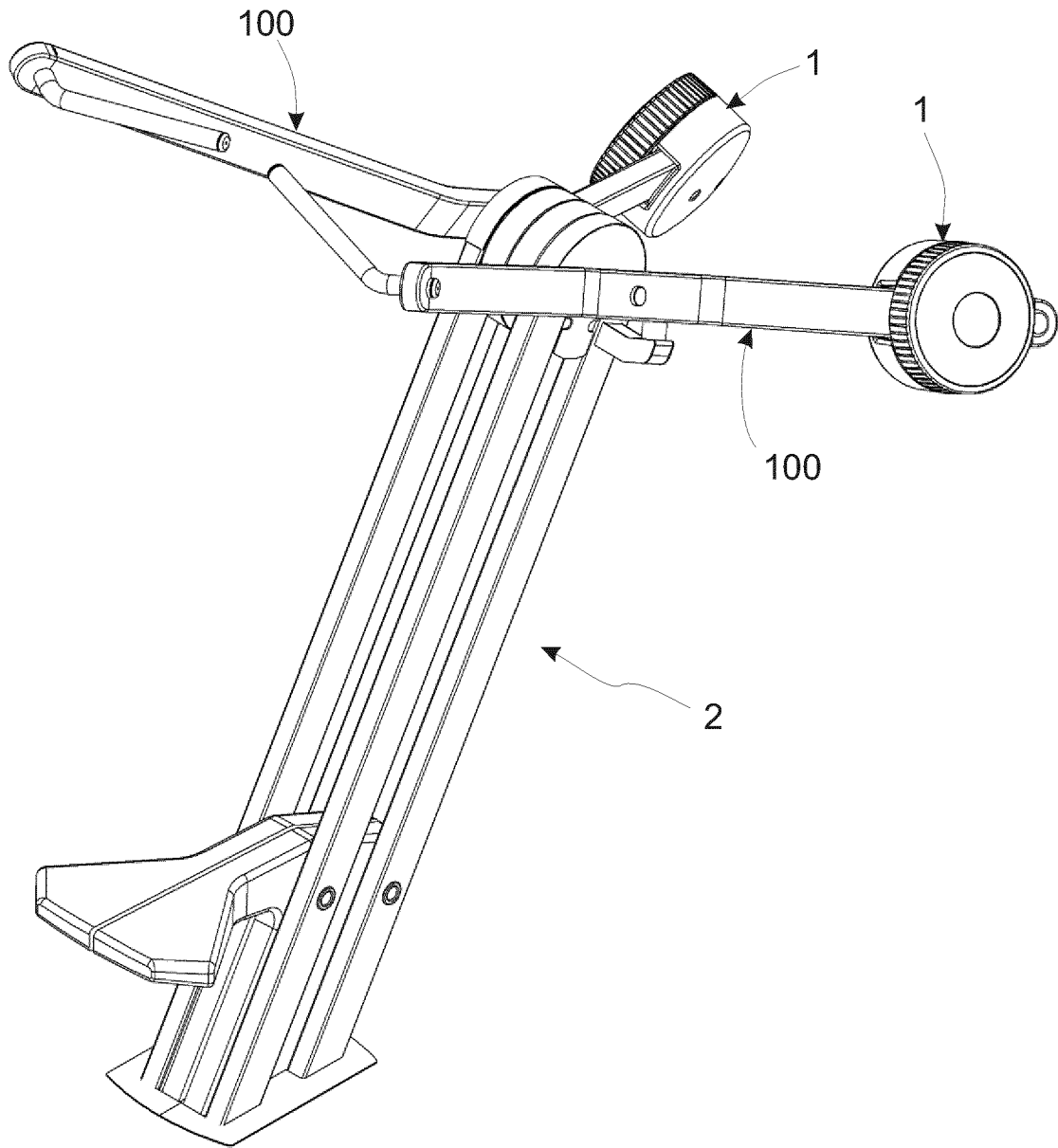


FIG. 4

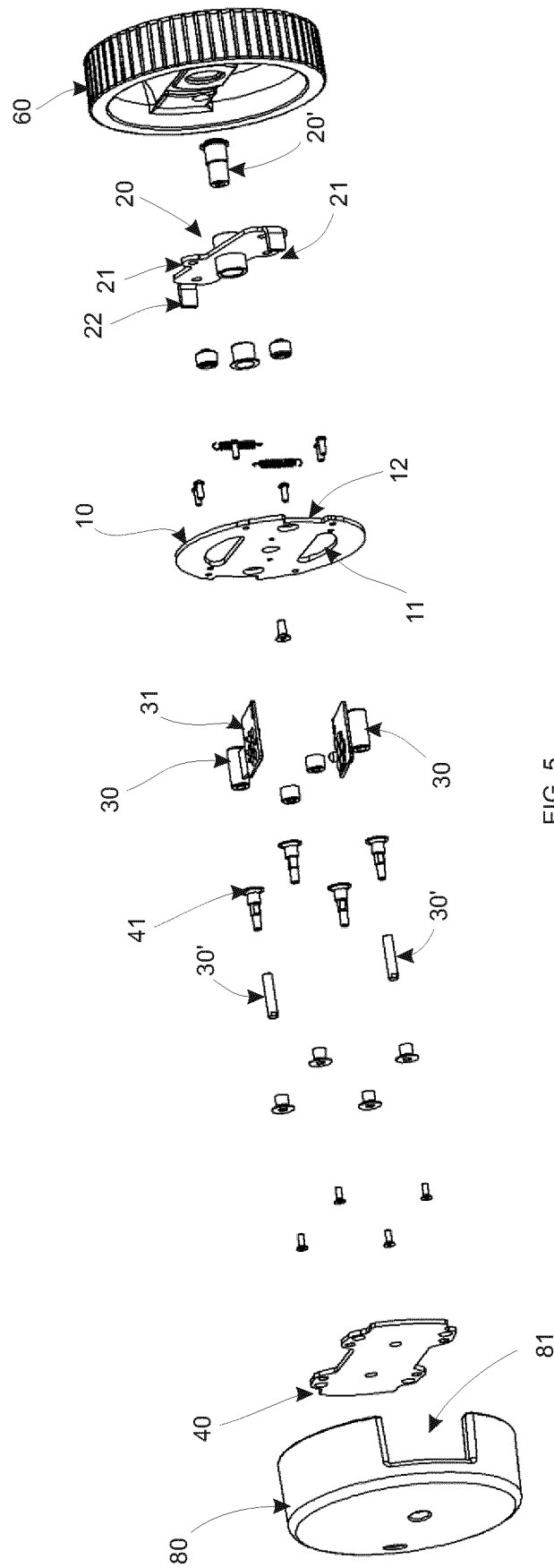


FIG. 5

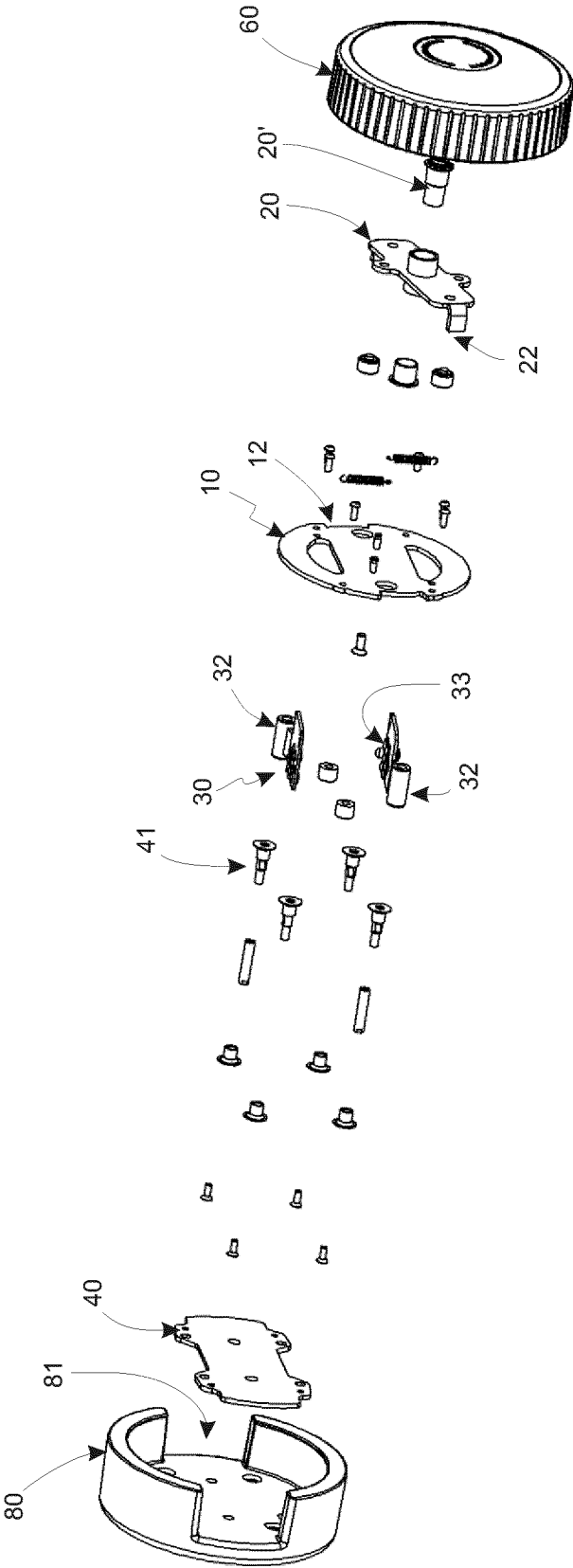


FIG. 6

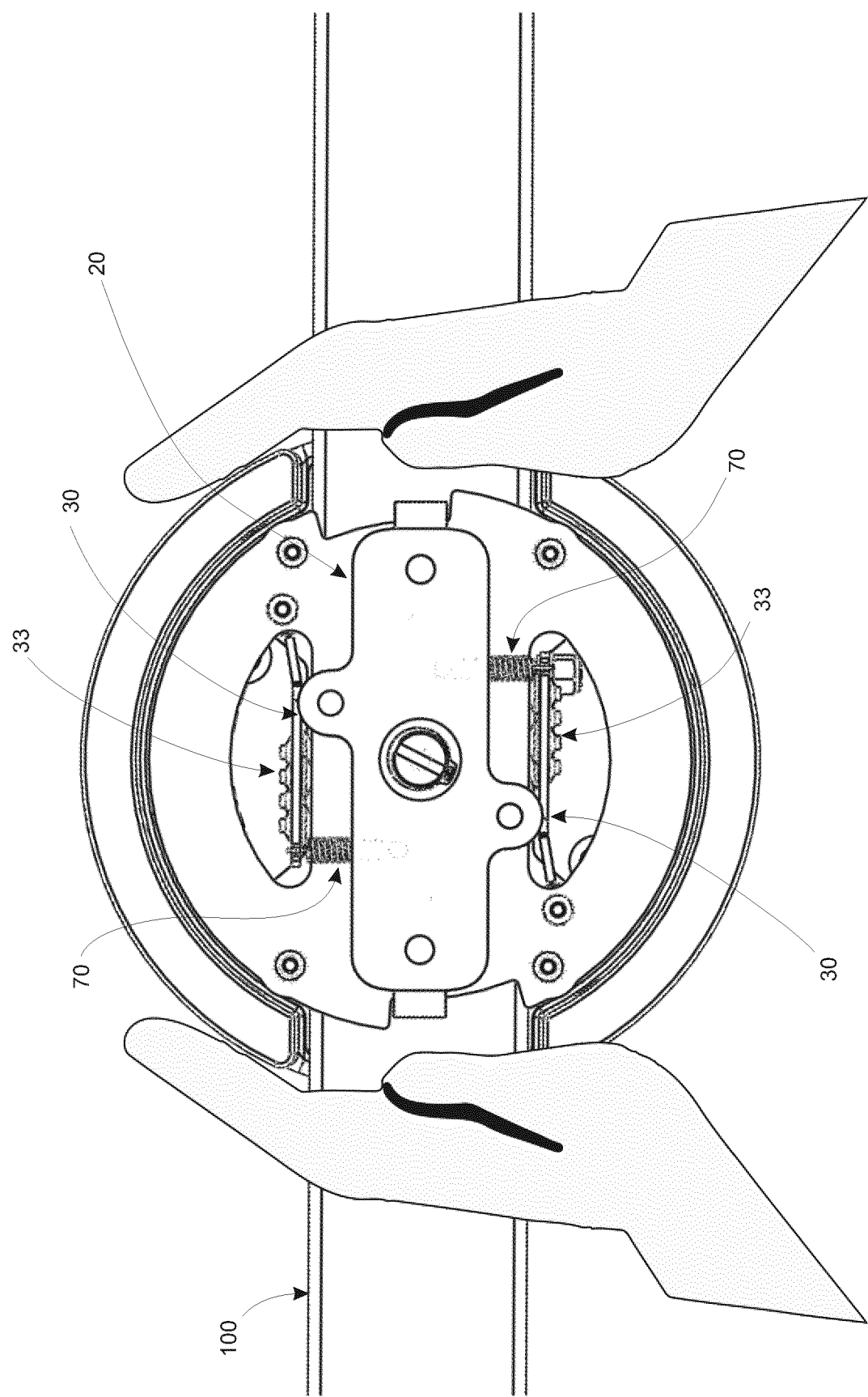


FIG. 7

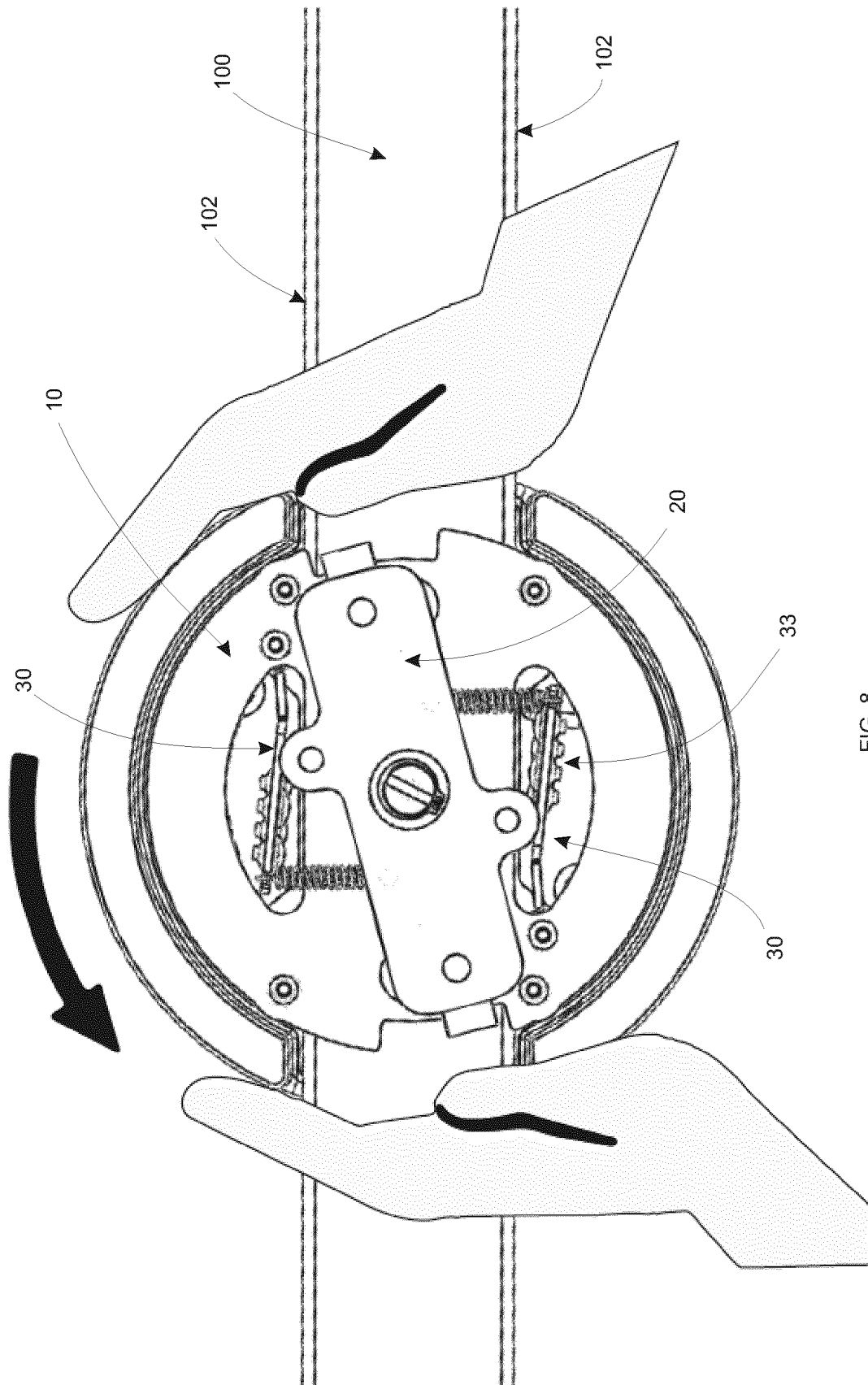


FIG. 8

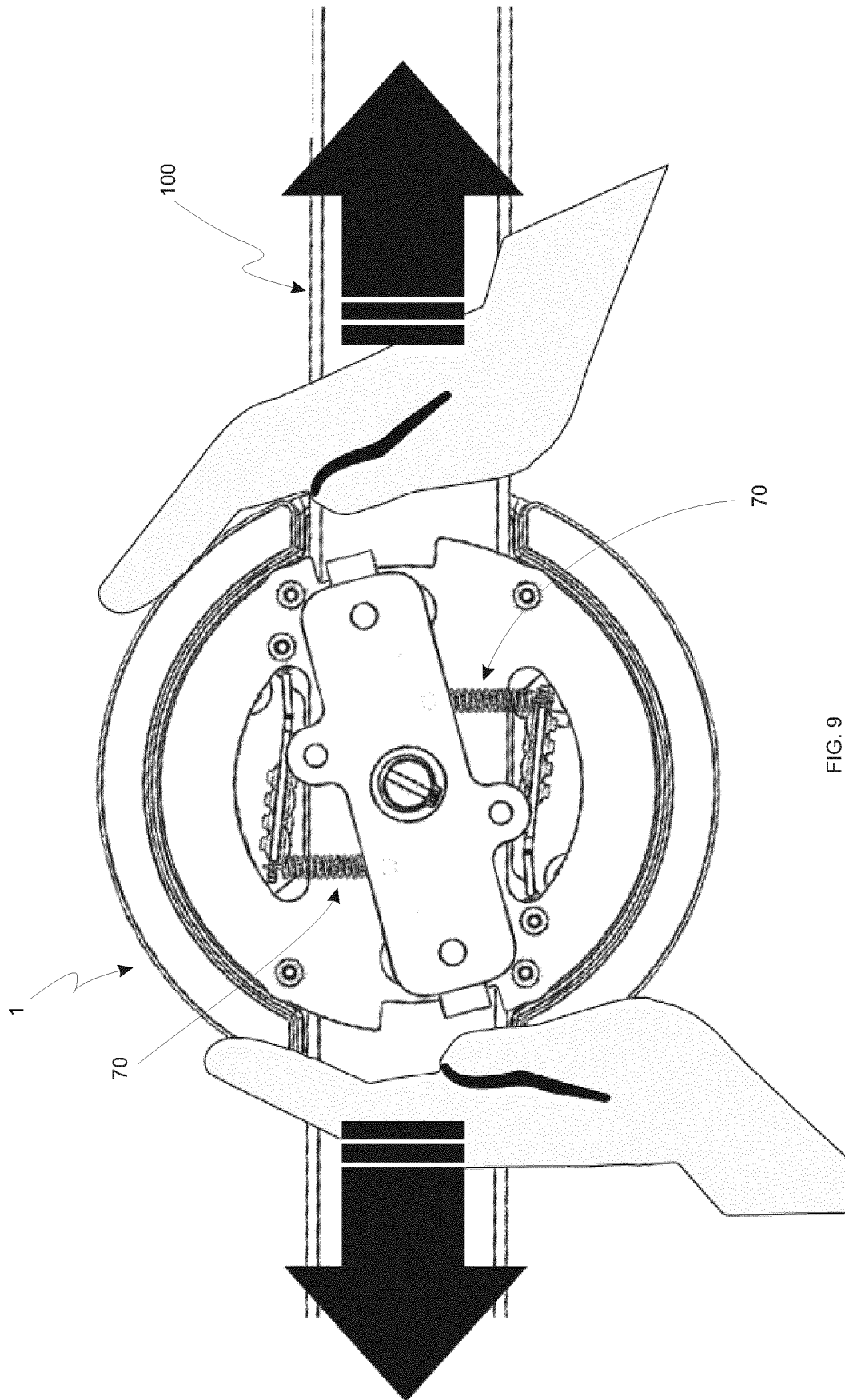


FIG. 9

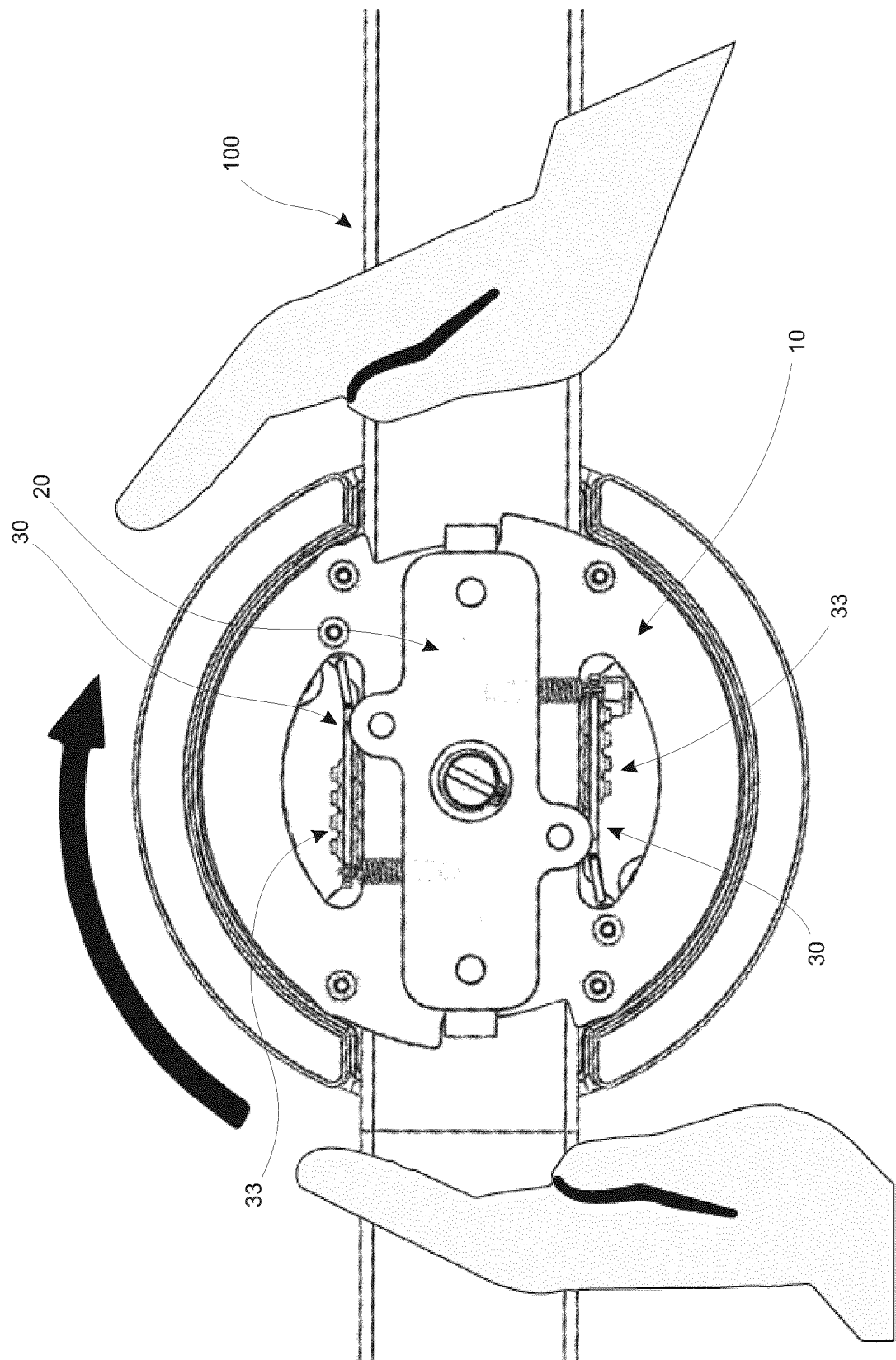


FIG. 10

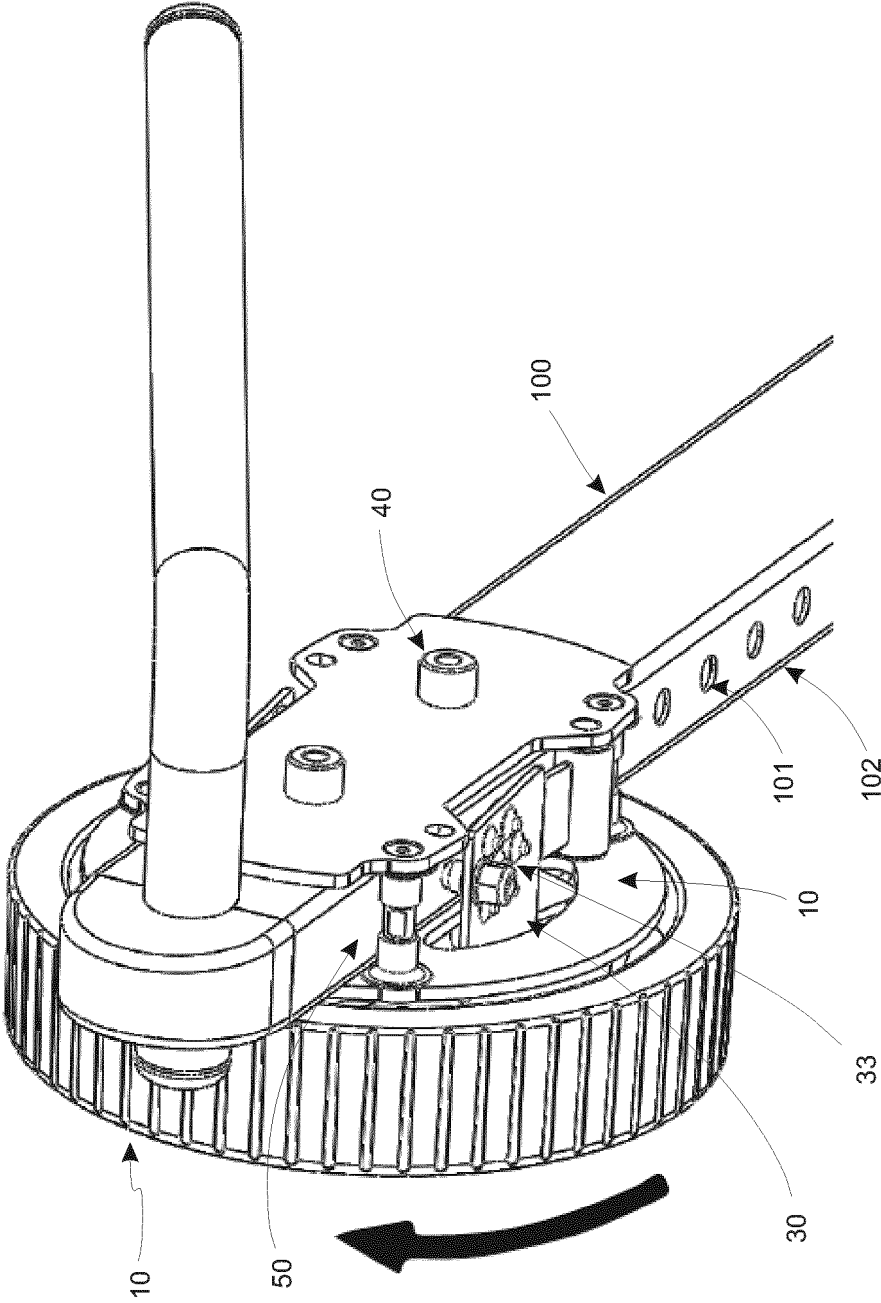


FIG. 11

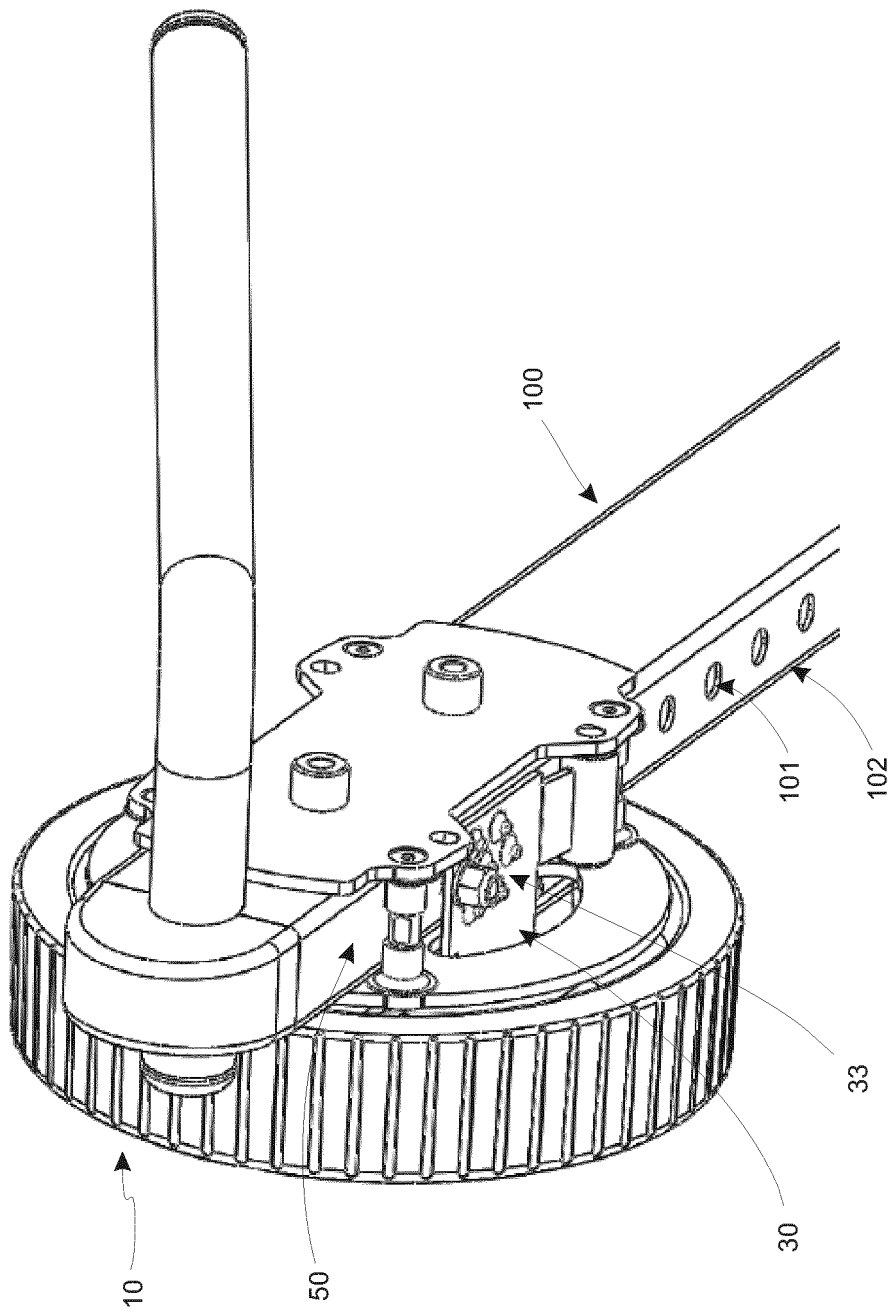


FIG. 12

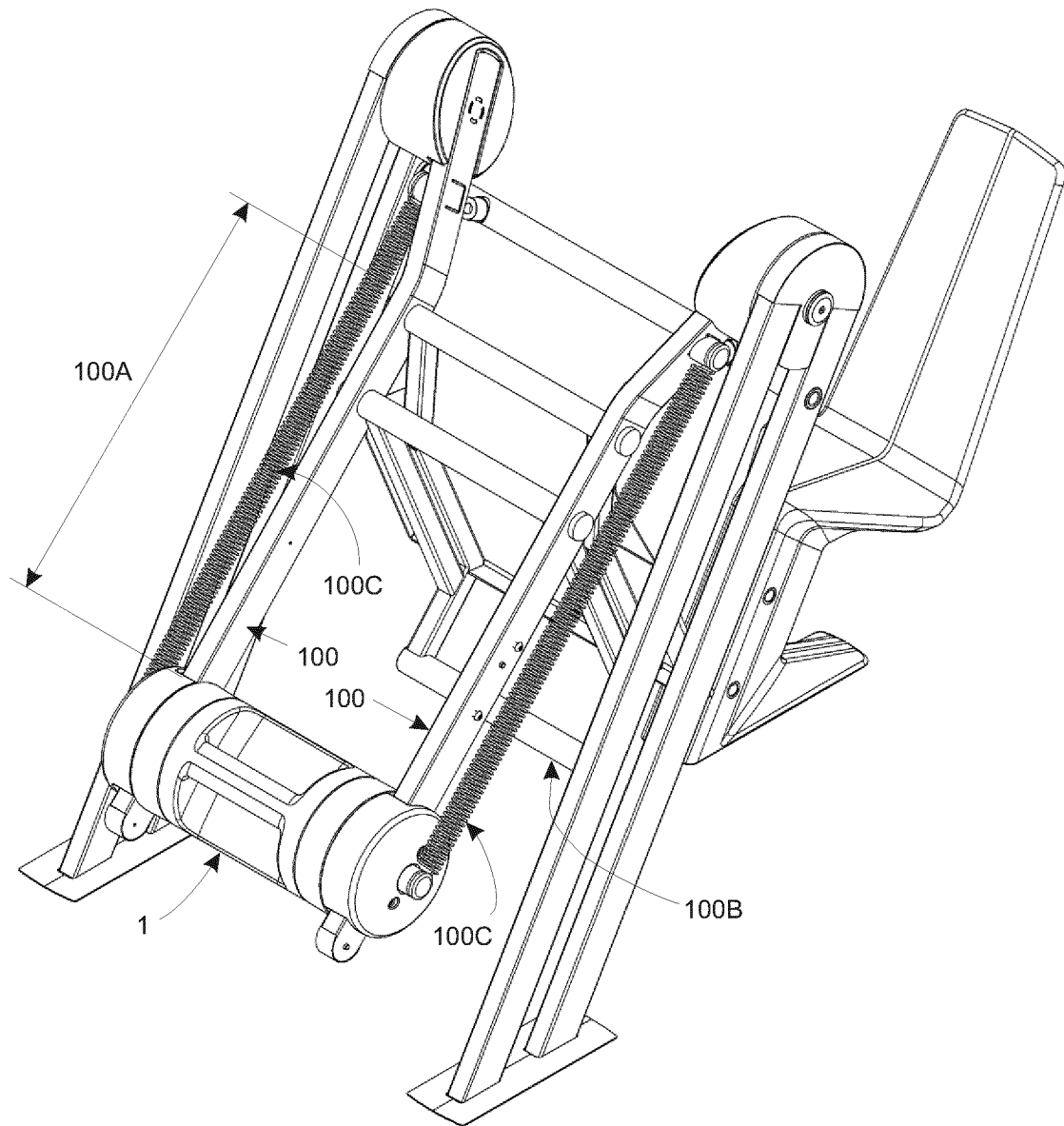
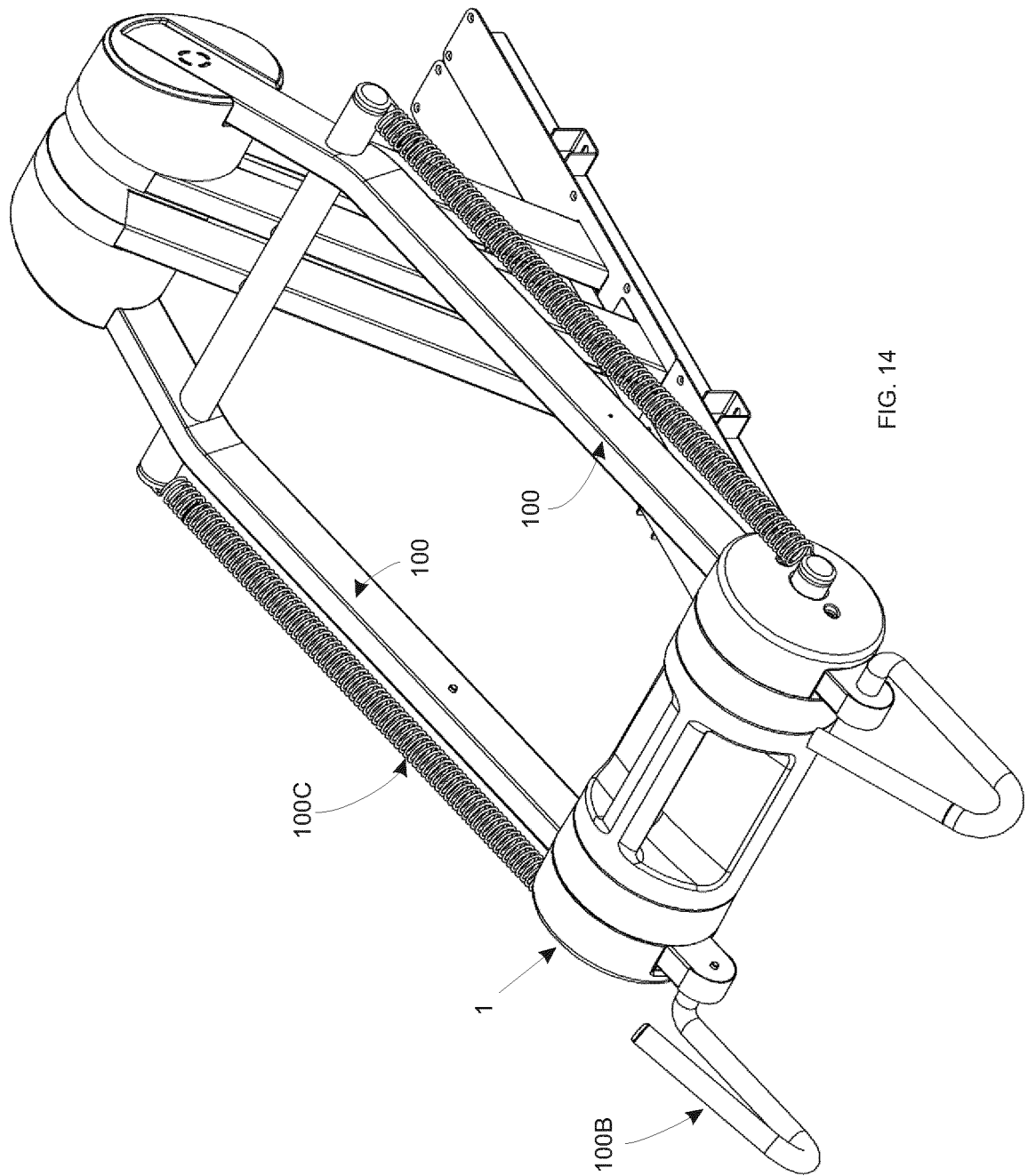


FIG. 13



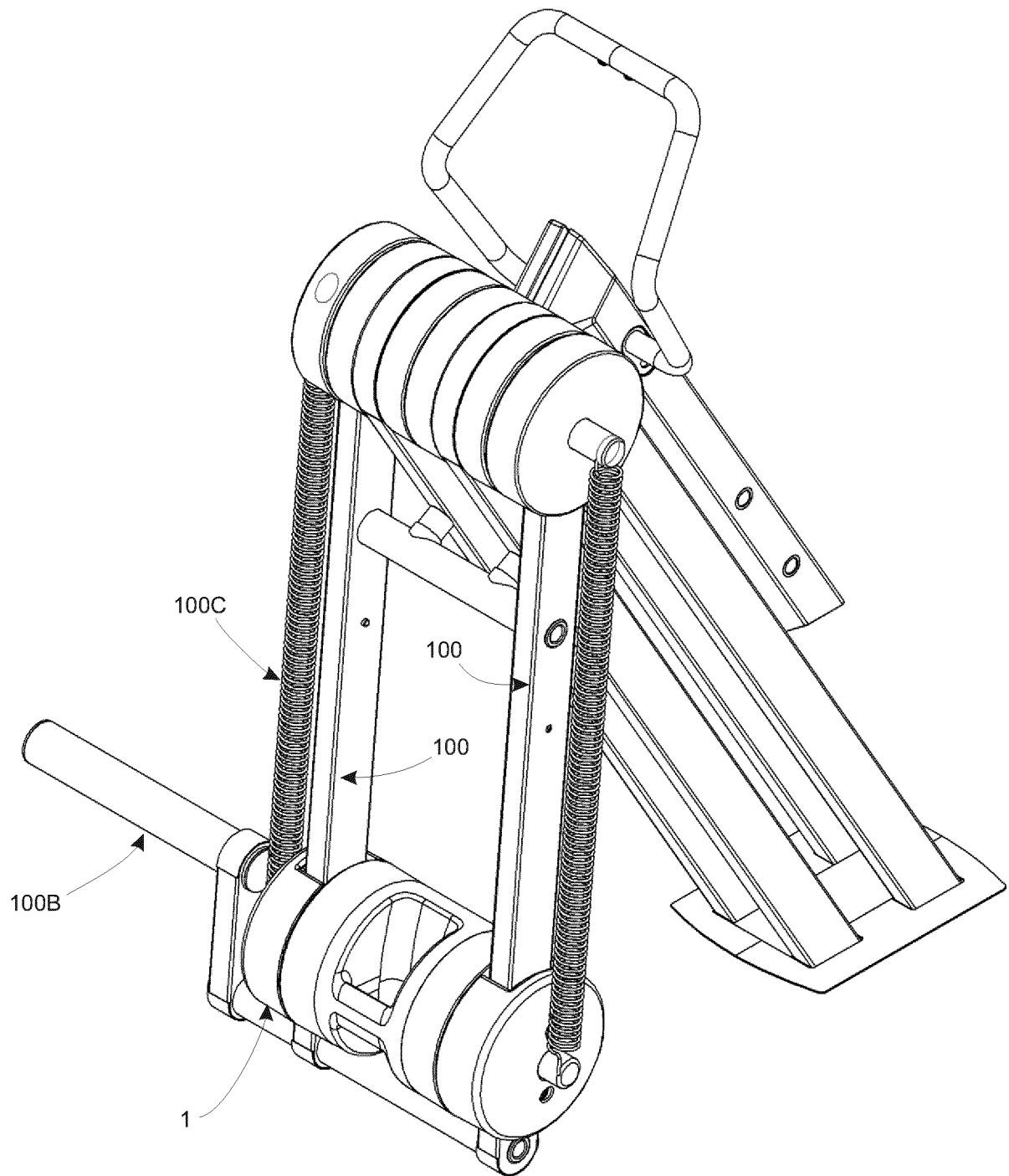


FIG. 15

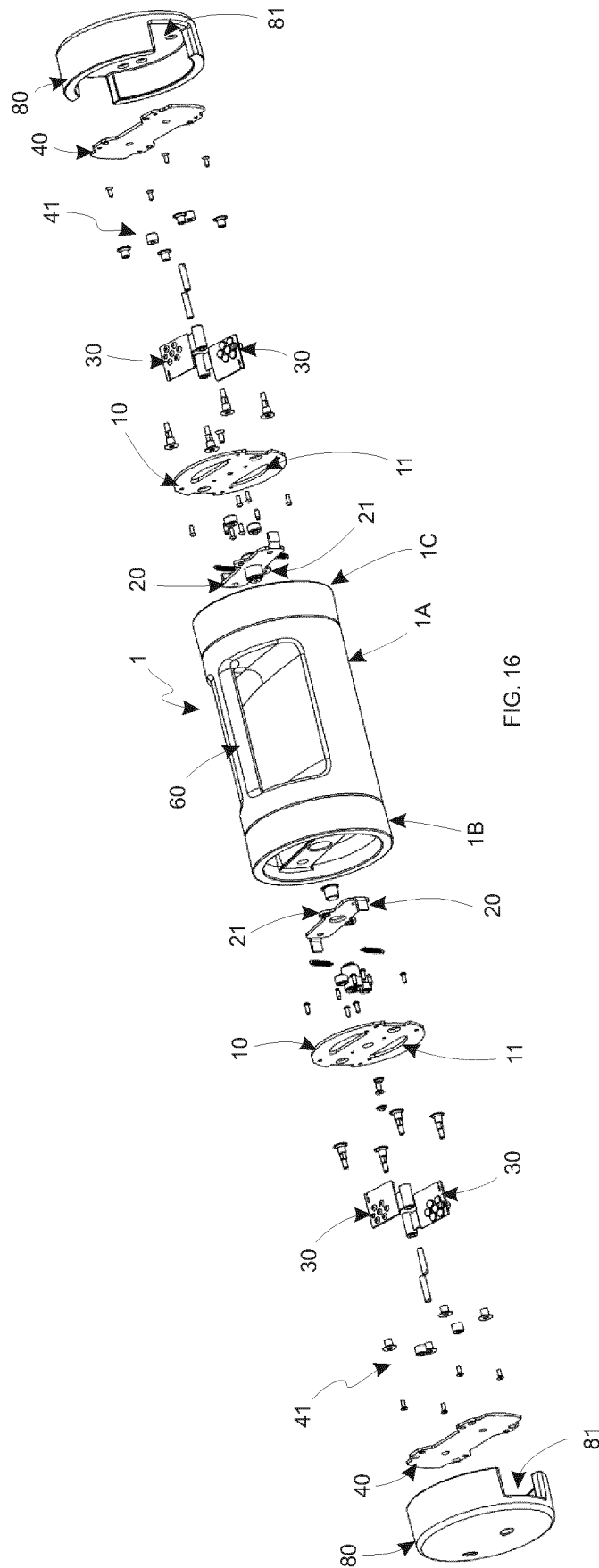
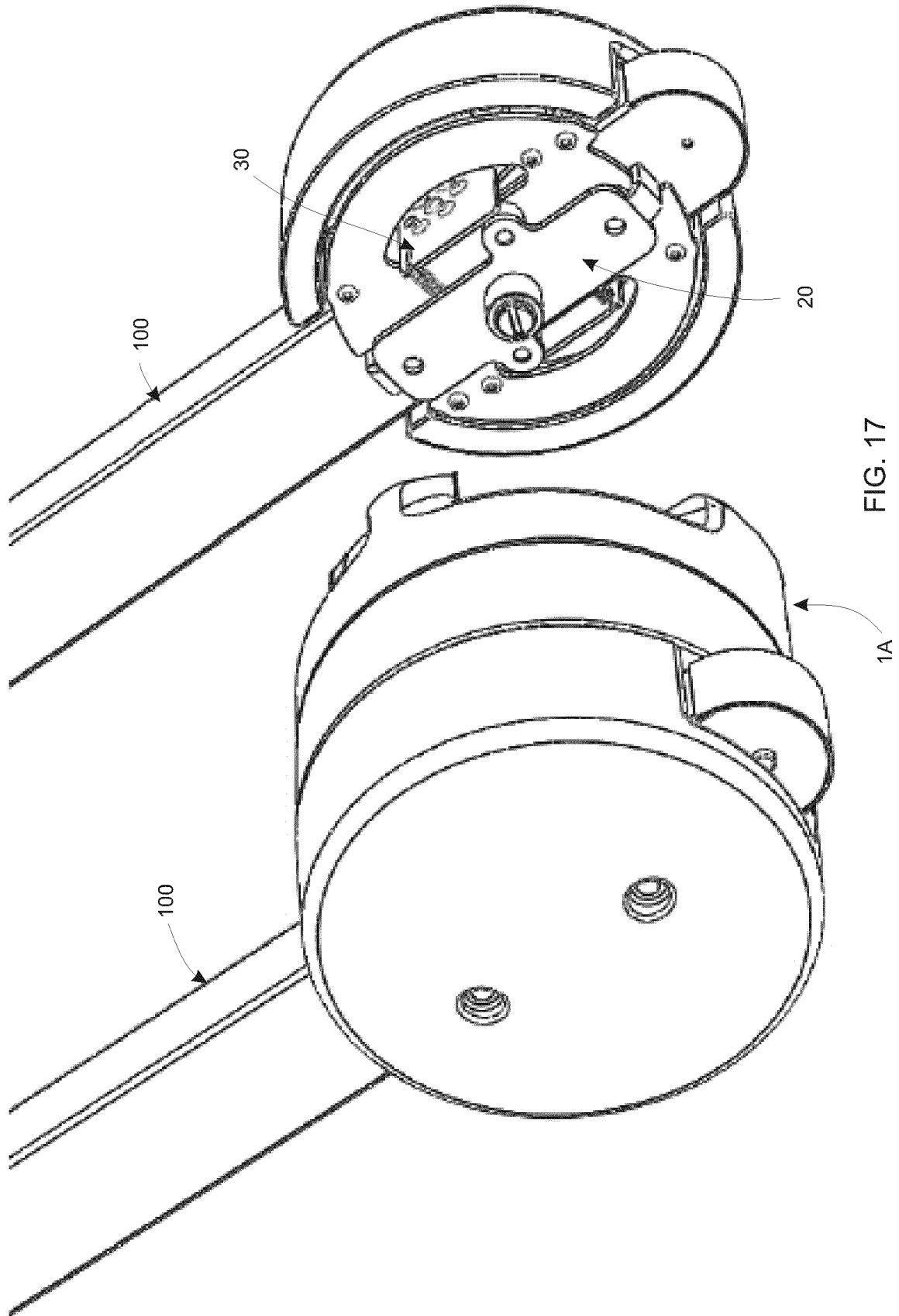
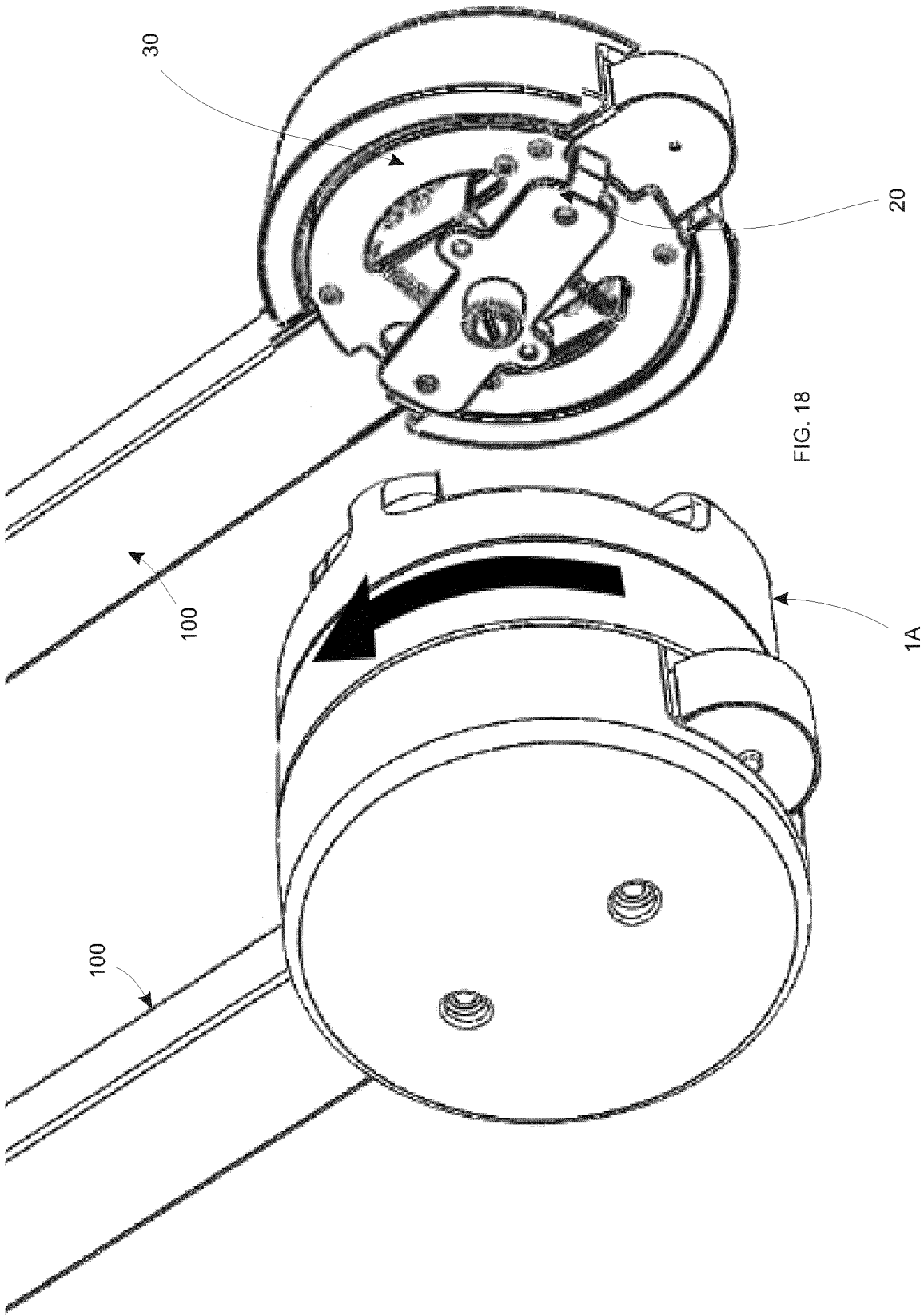


FIG. 16





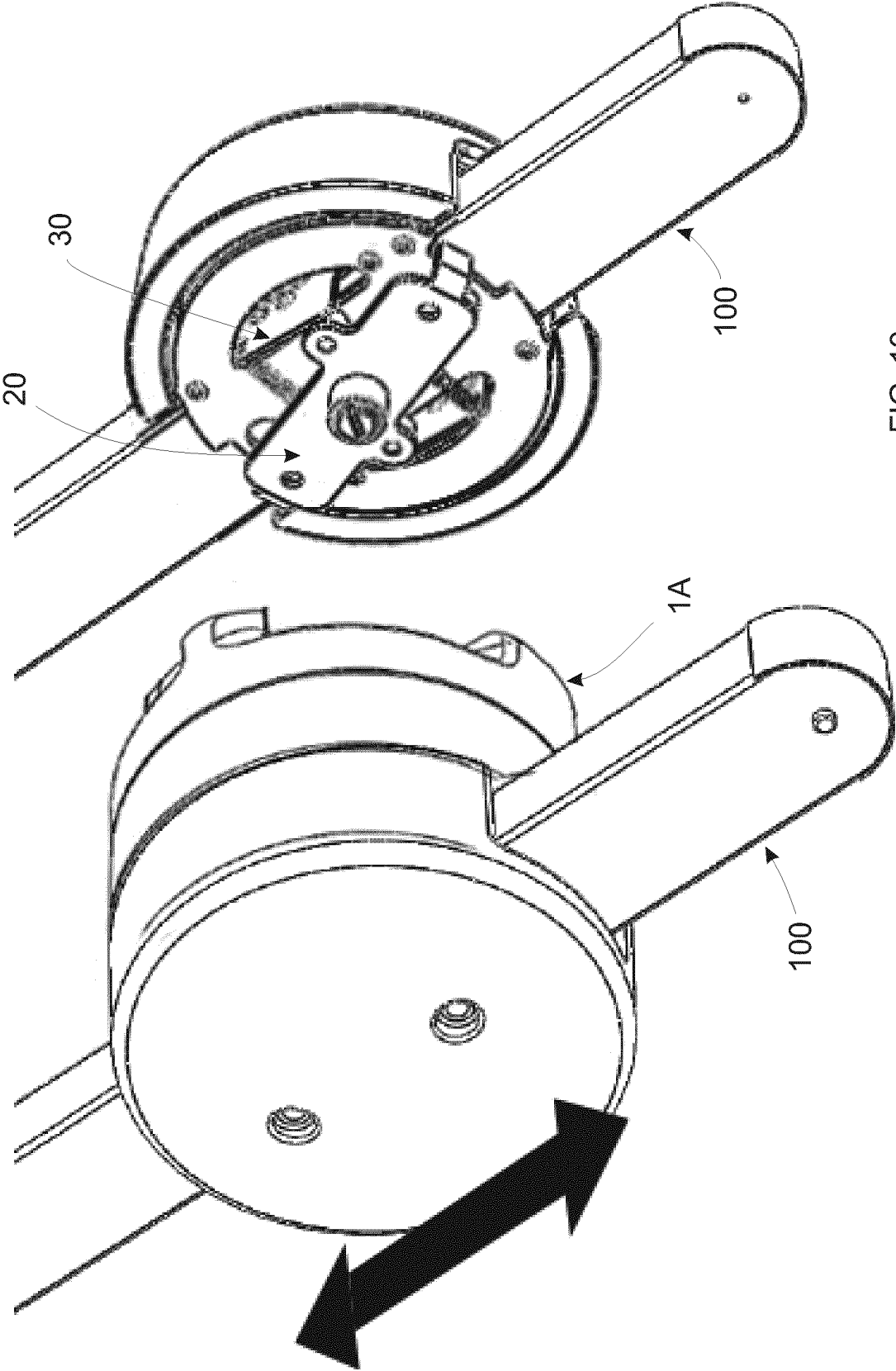
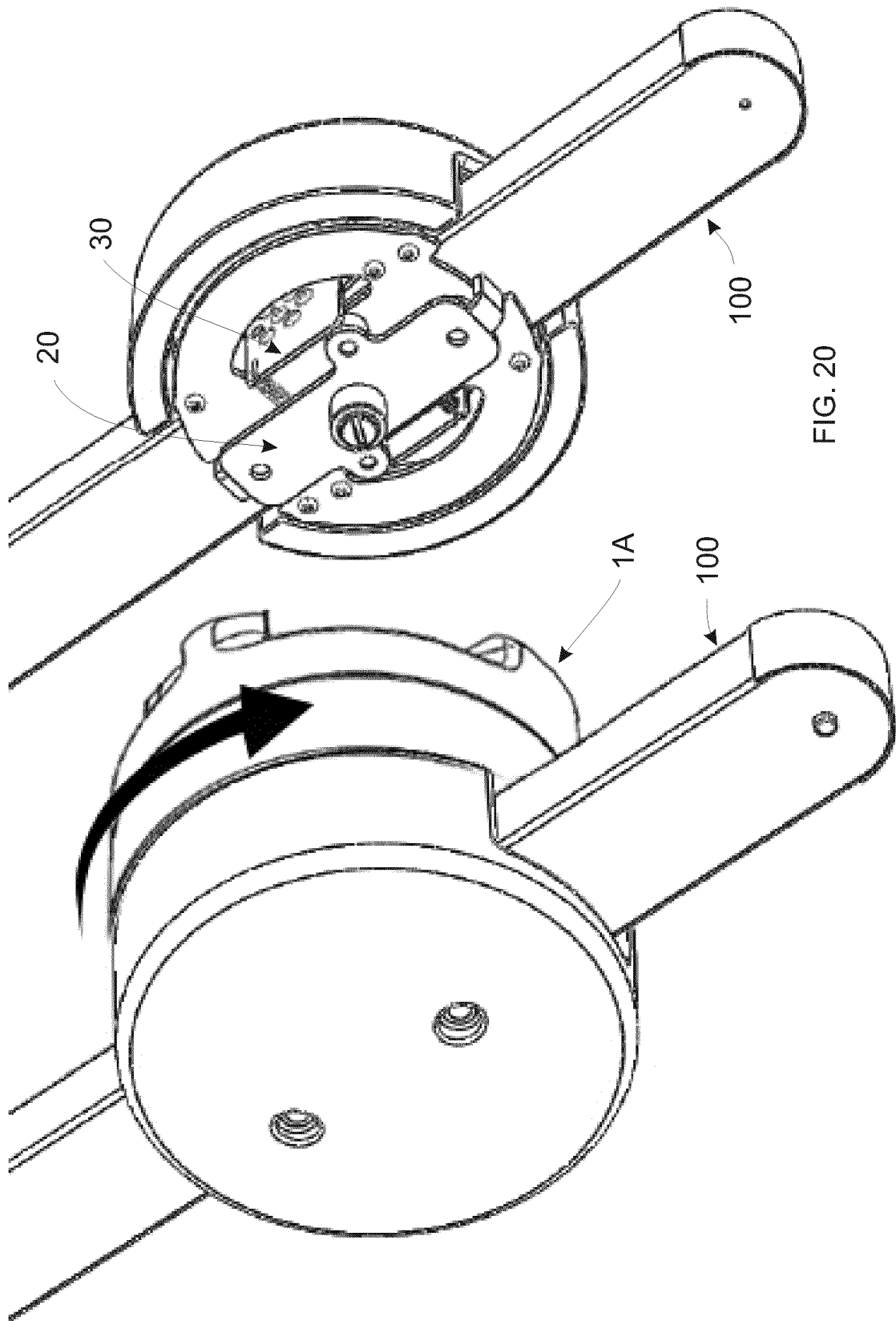


FIG. 19



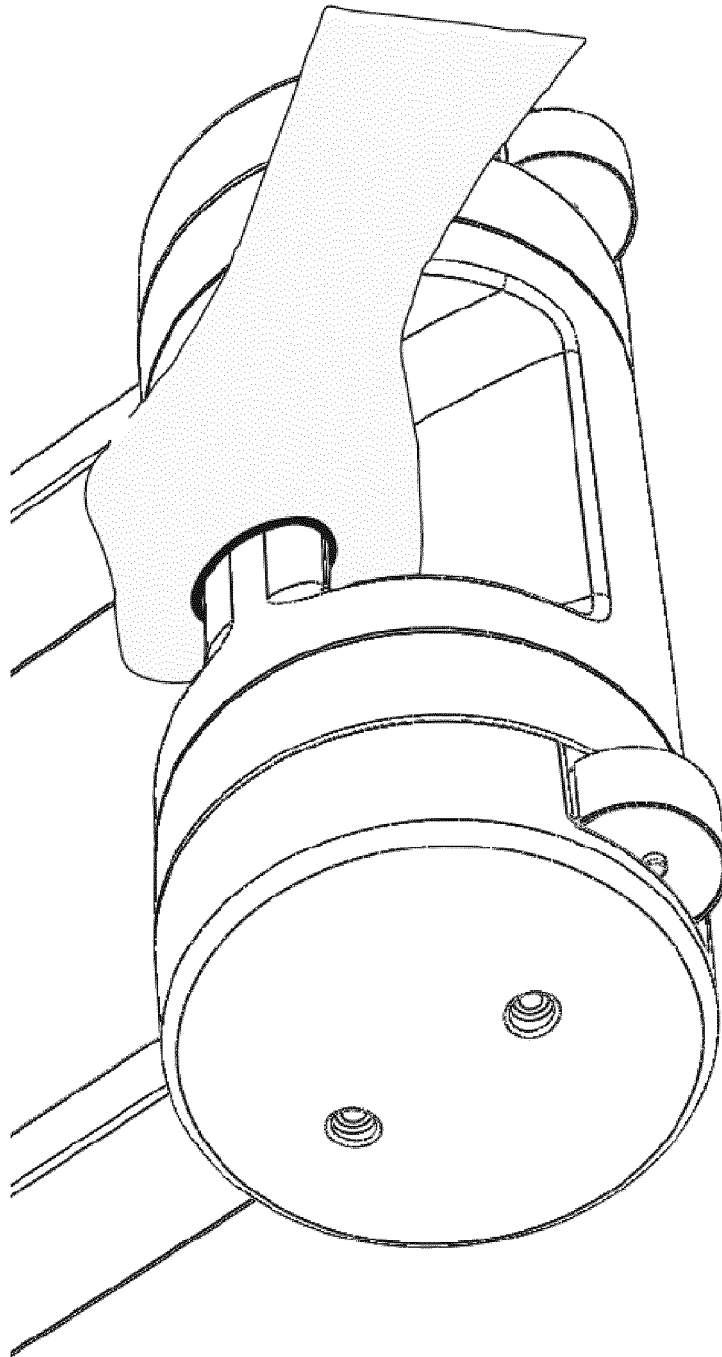


FIG. 21

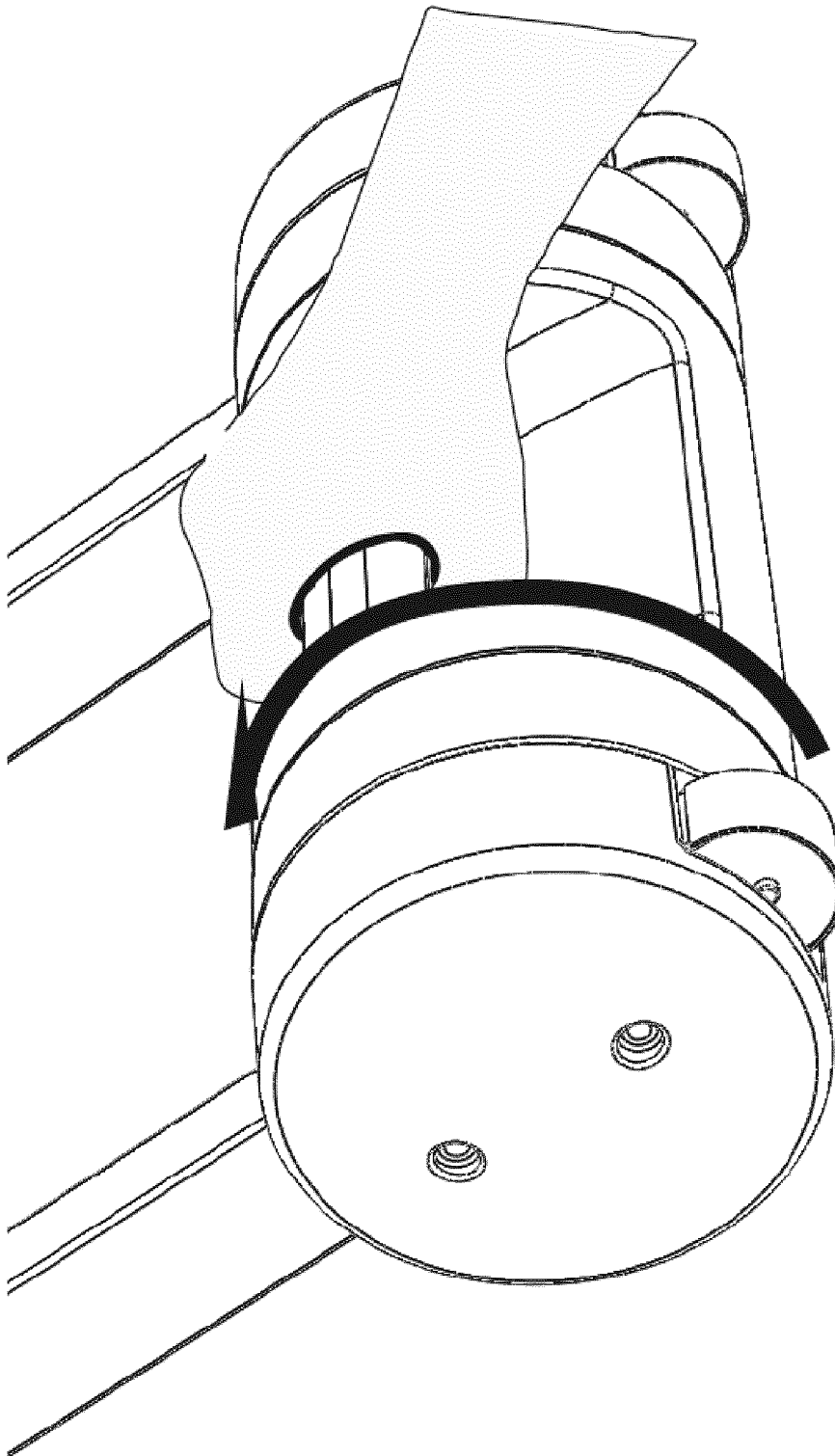


FIG. 22

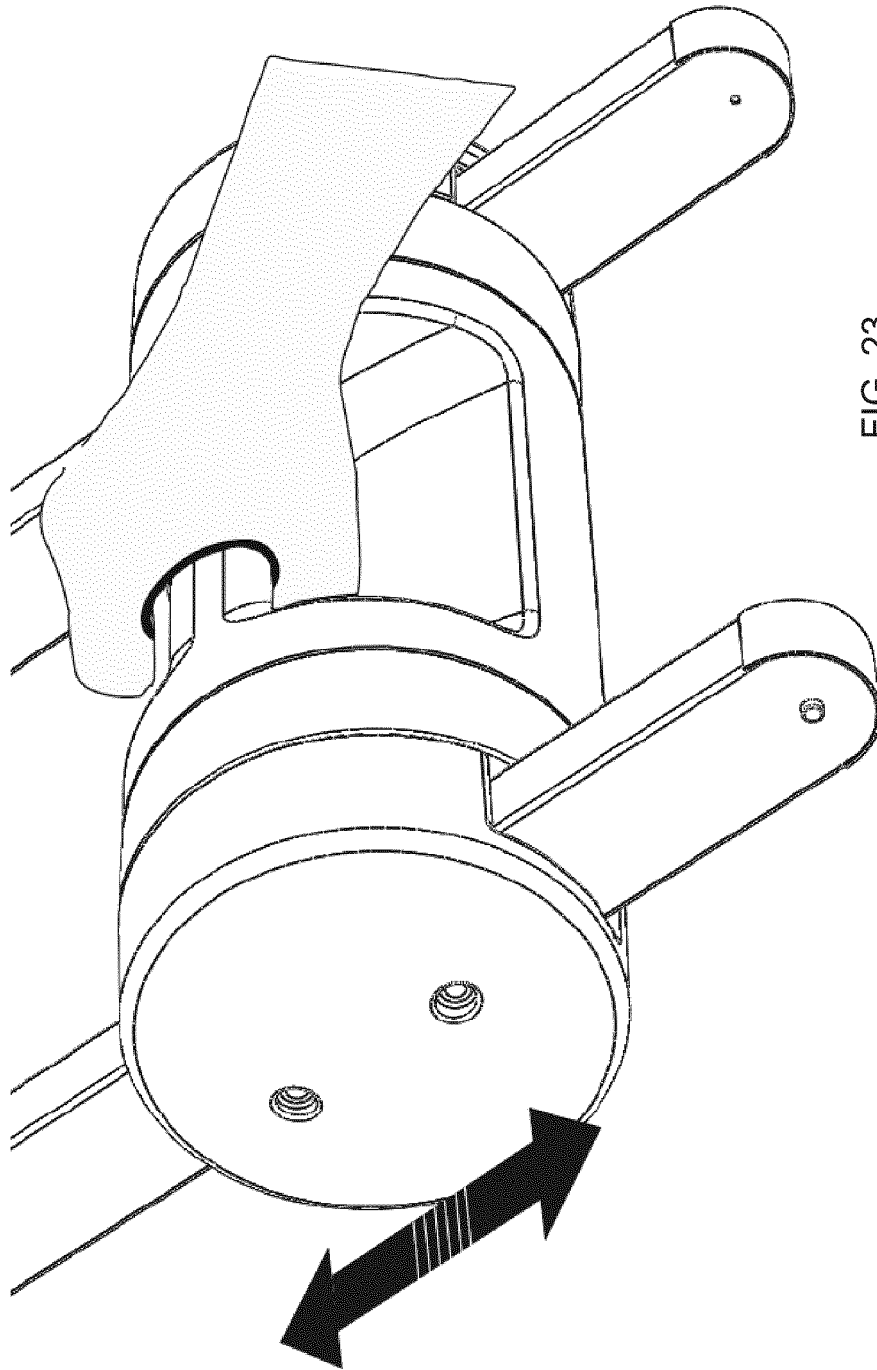


FIG. 23

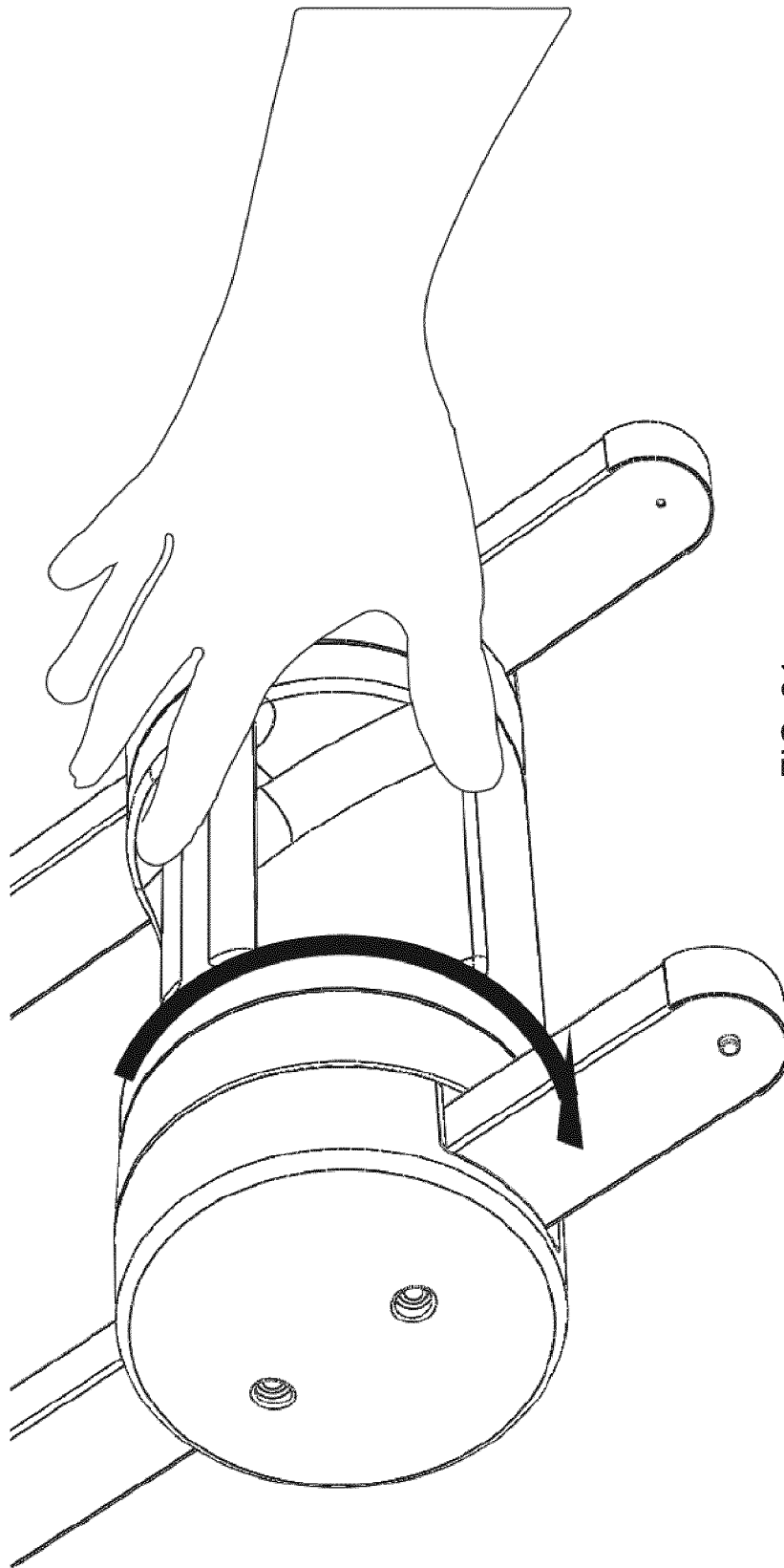


FIG. 24

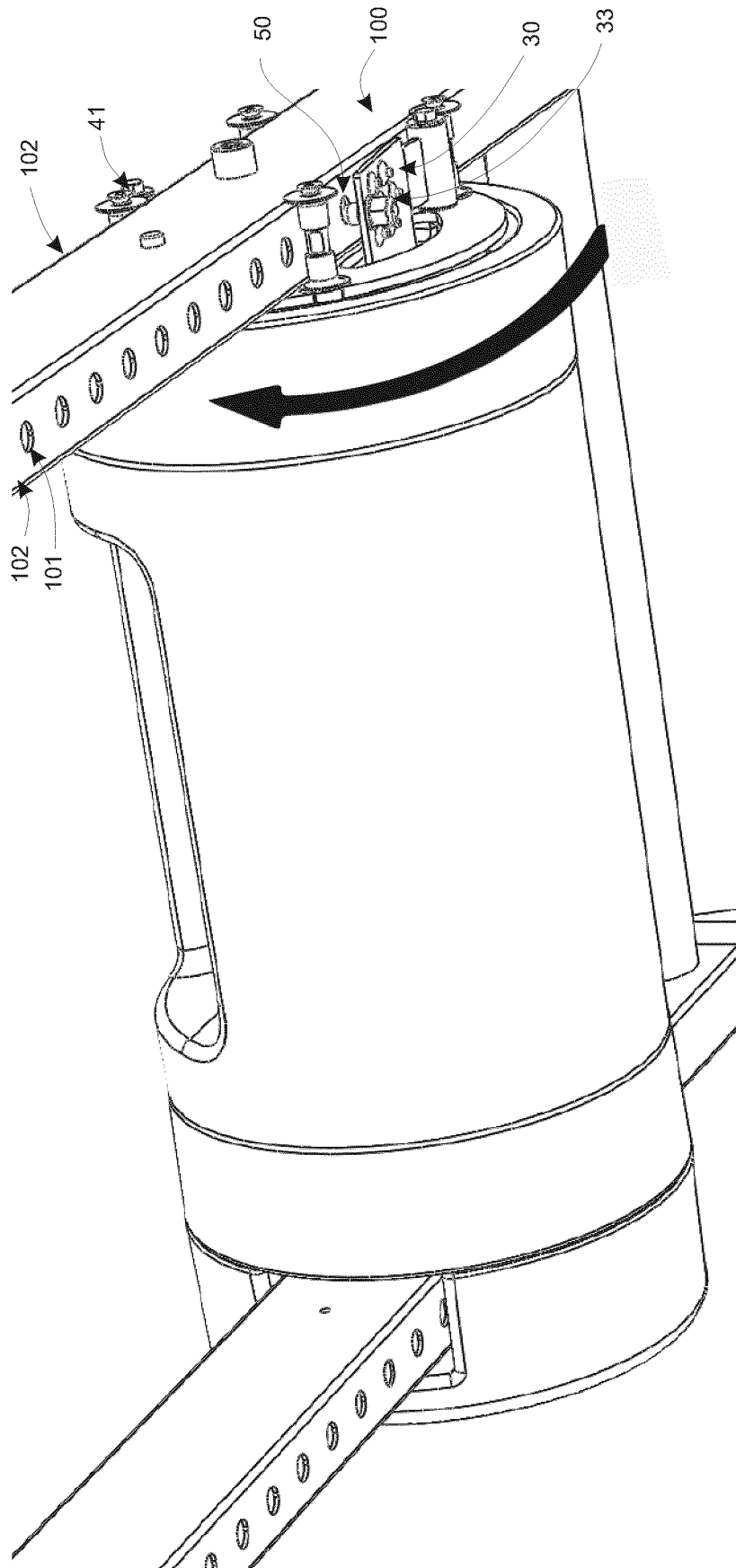


FIG. 25

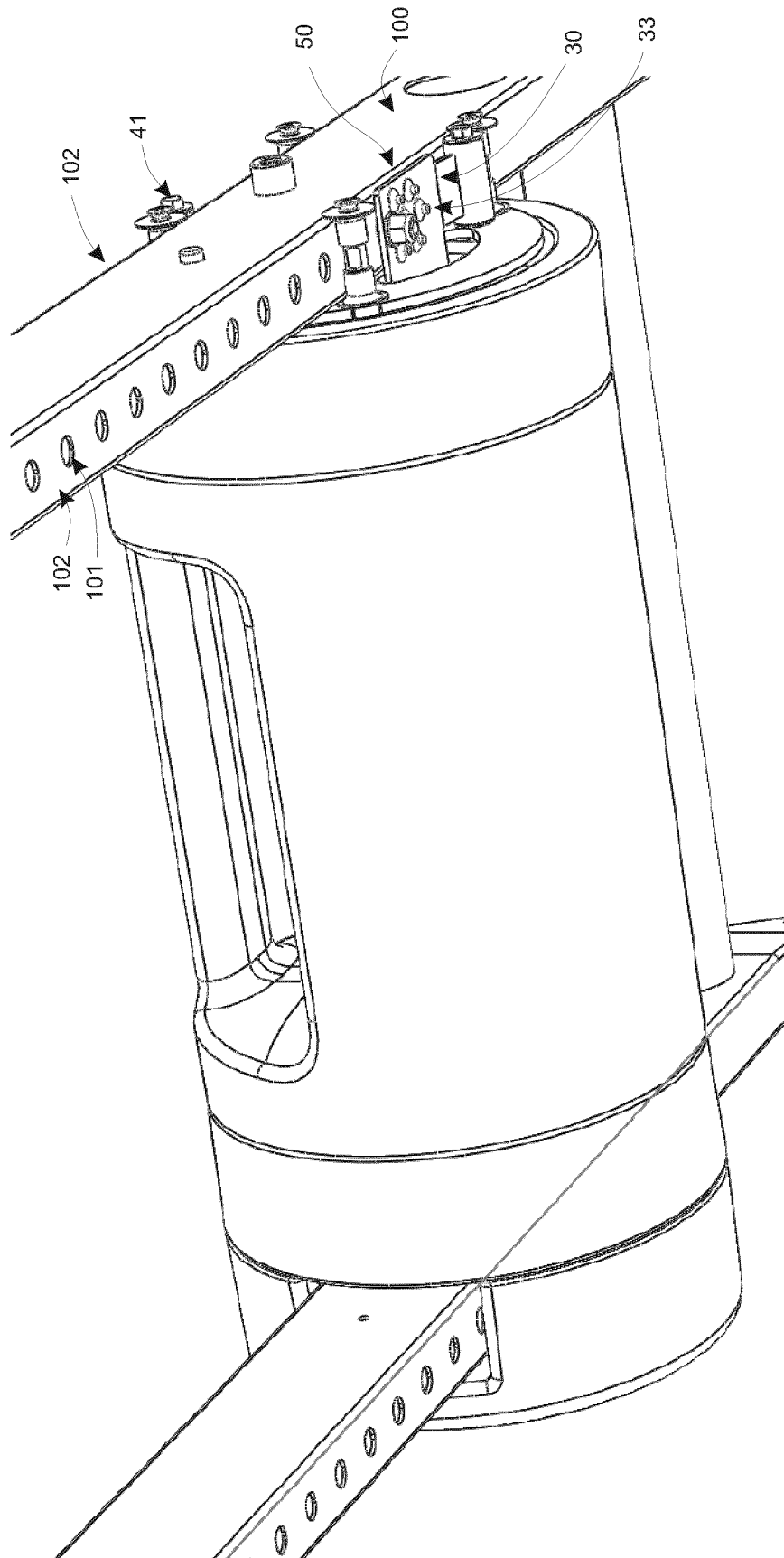


FIG. 26

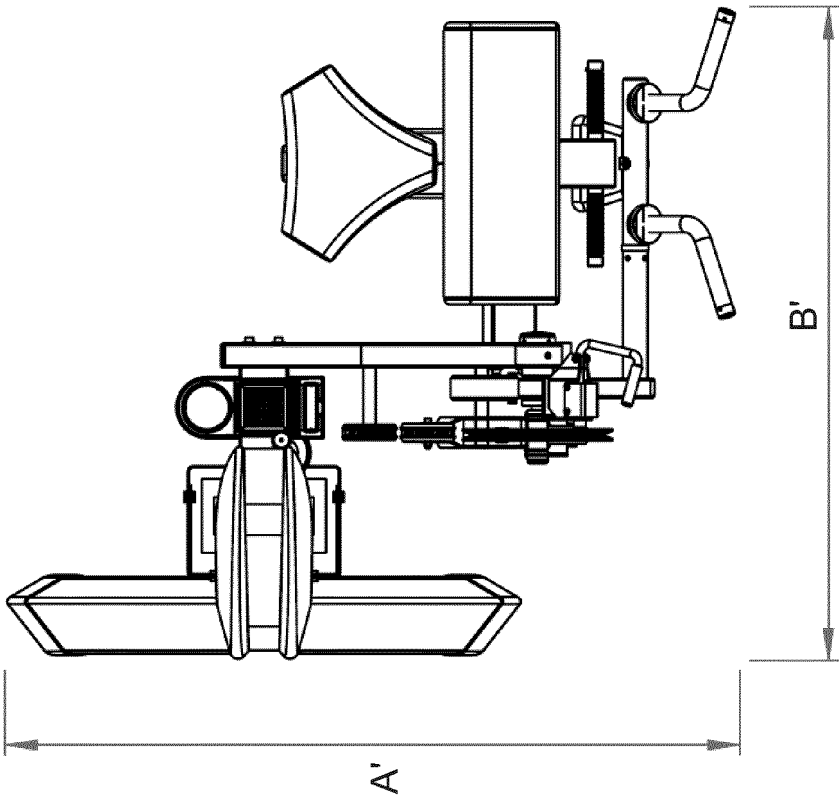


FIG. 28
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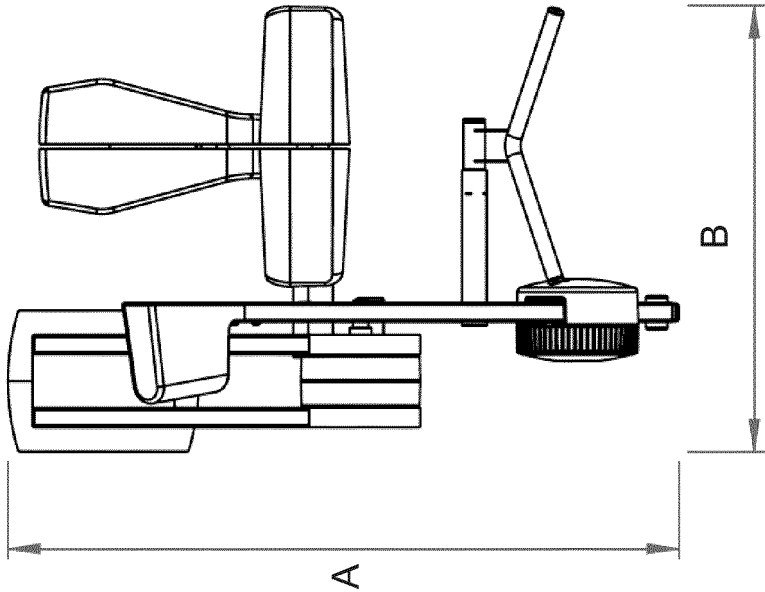


FIG. 27

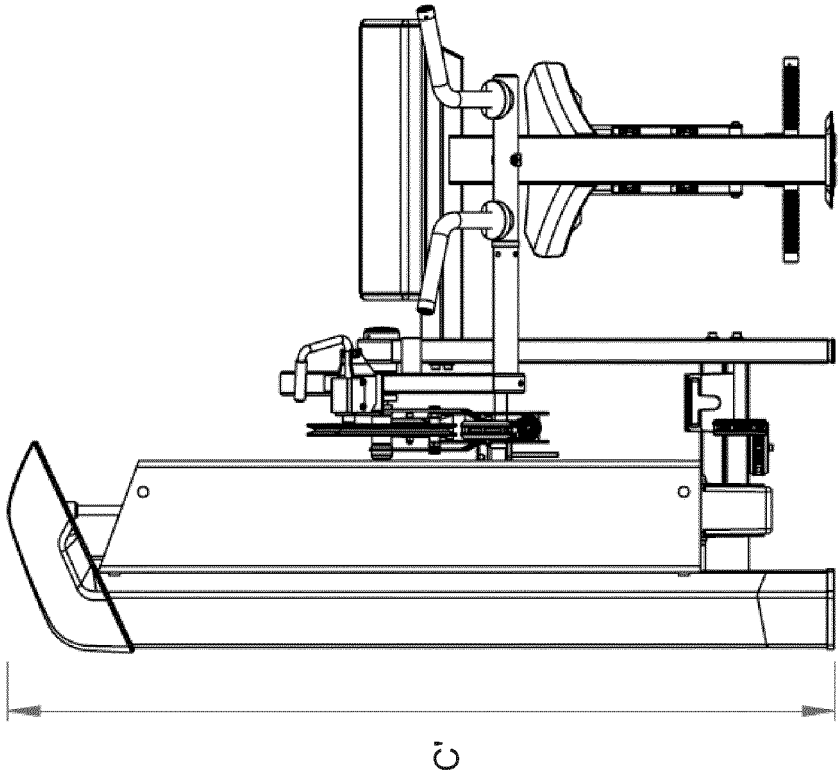


FIG. 30
STATE OF ART

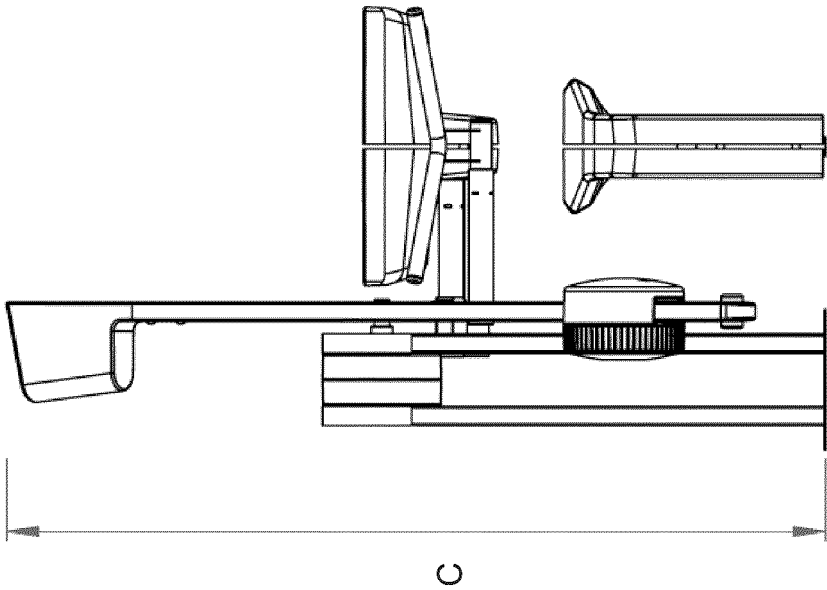


FIG. 29

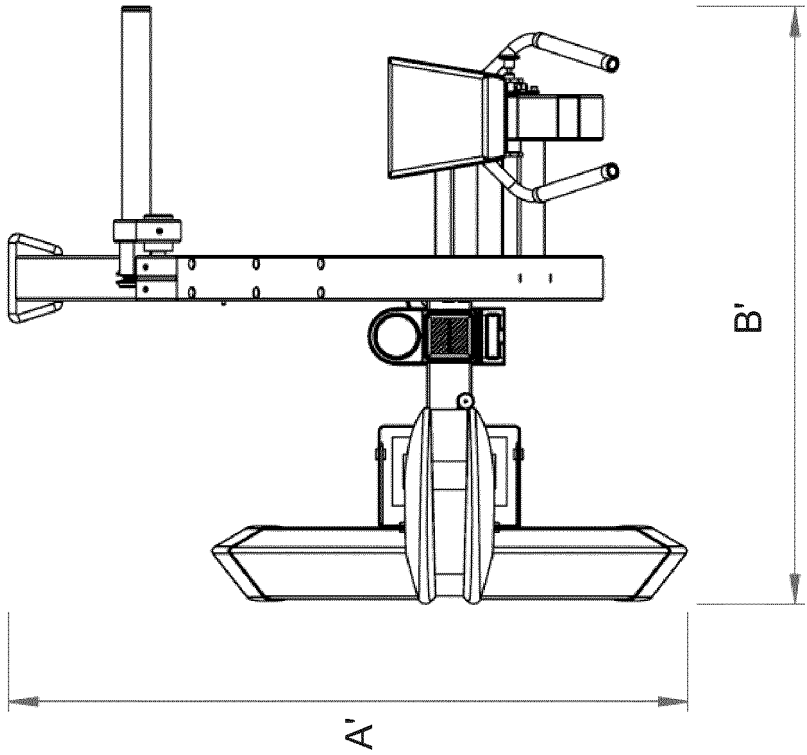


FIG. 32
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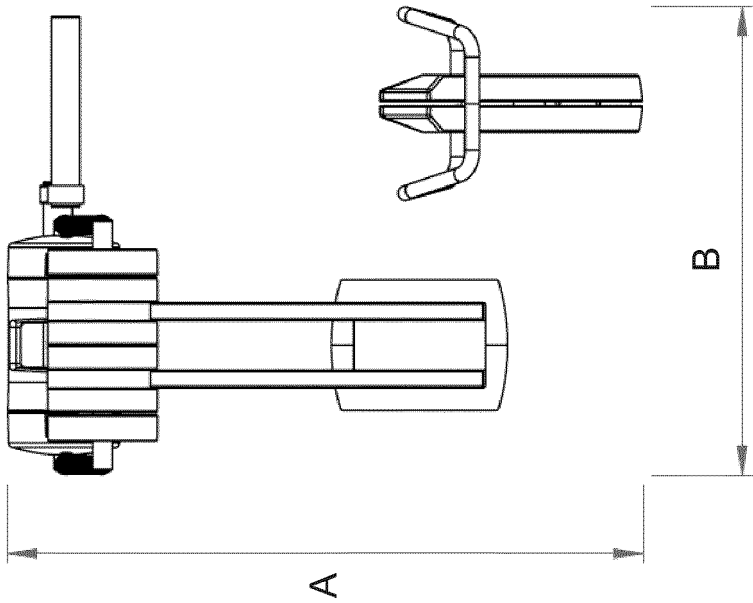


FIG. 31

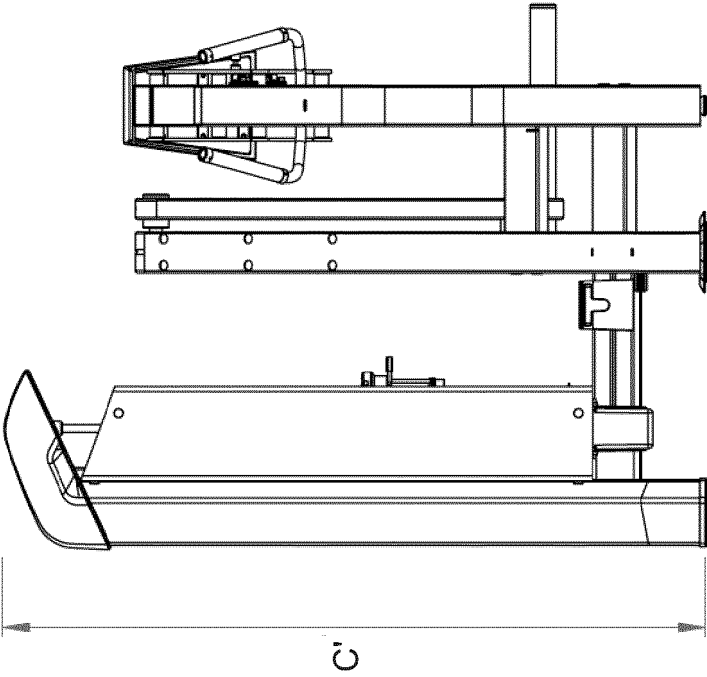


FIG. 34
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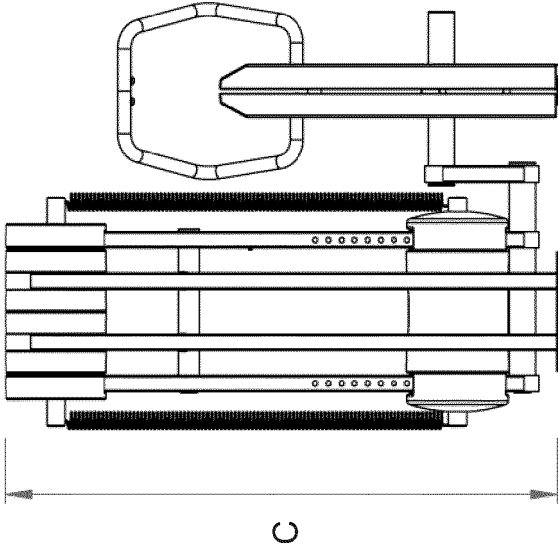


FIG. 33

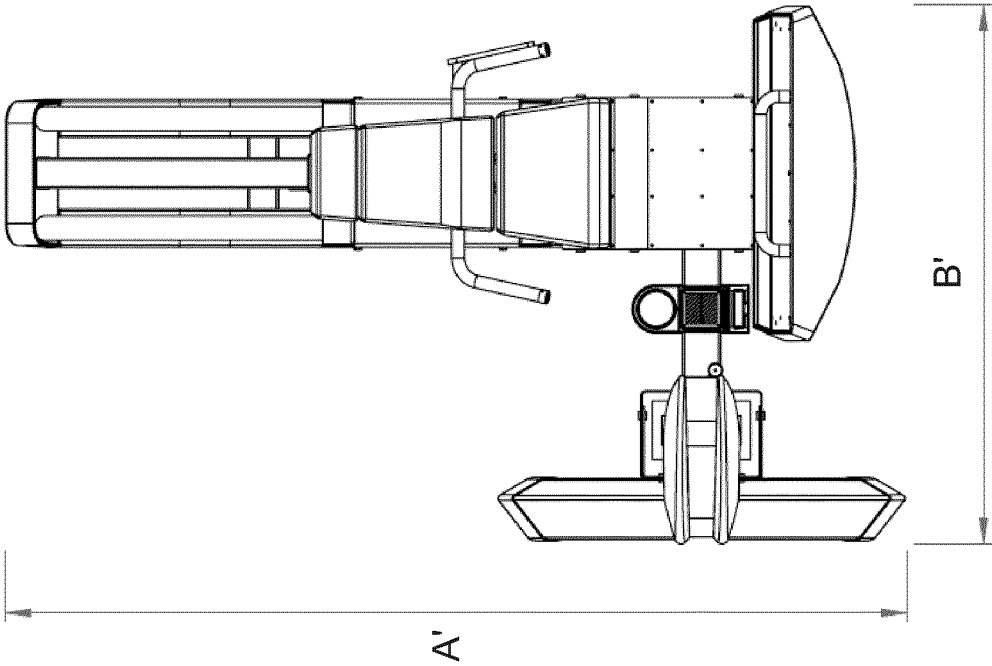


FIG. 36
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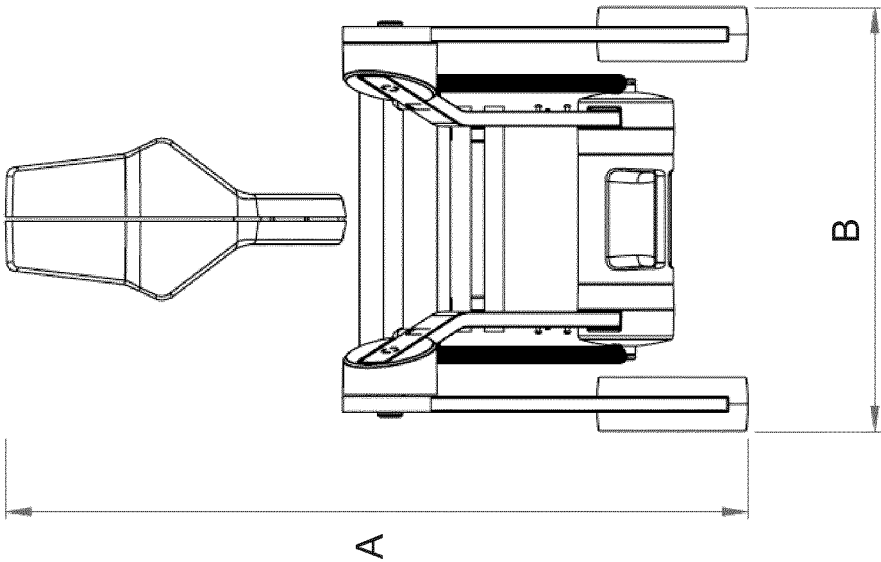


FIG. 35

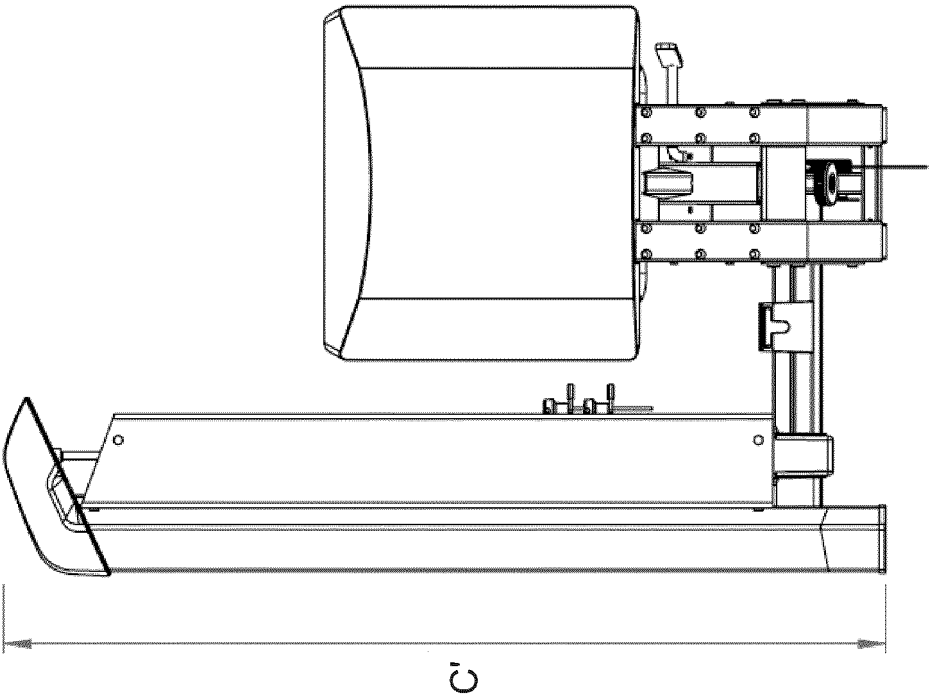


FIG. 38
STATE OF ART

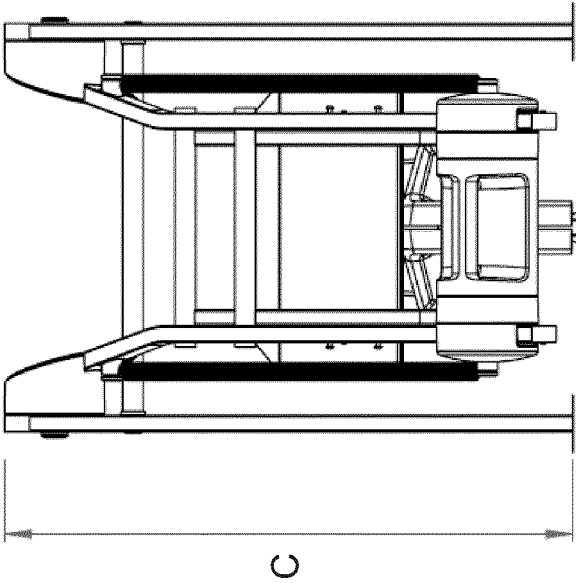


FIG. 37

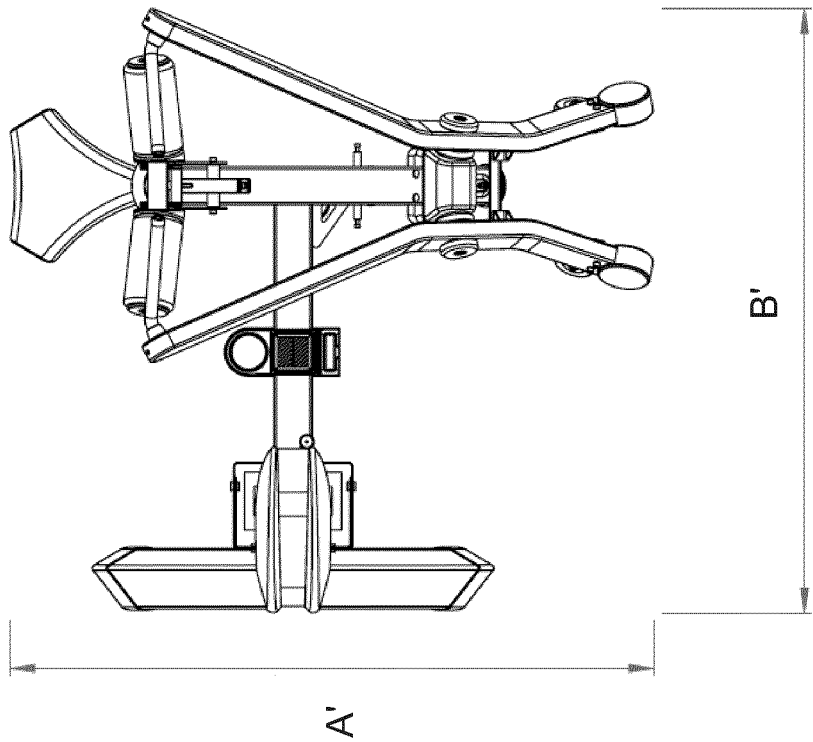


FIG. 40
STATE OF ART

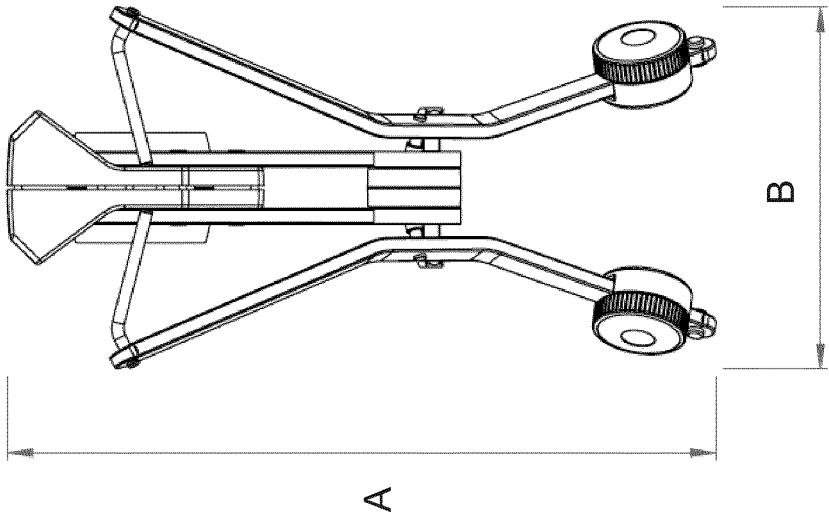


FIG. 39

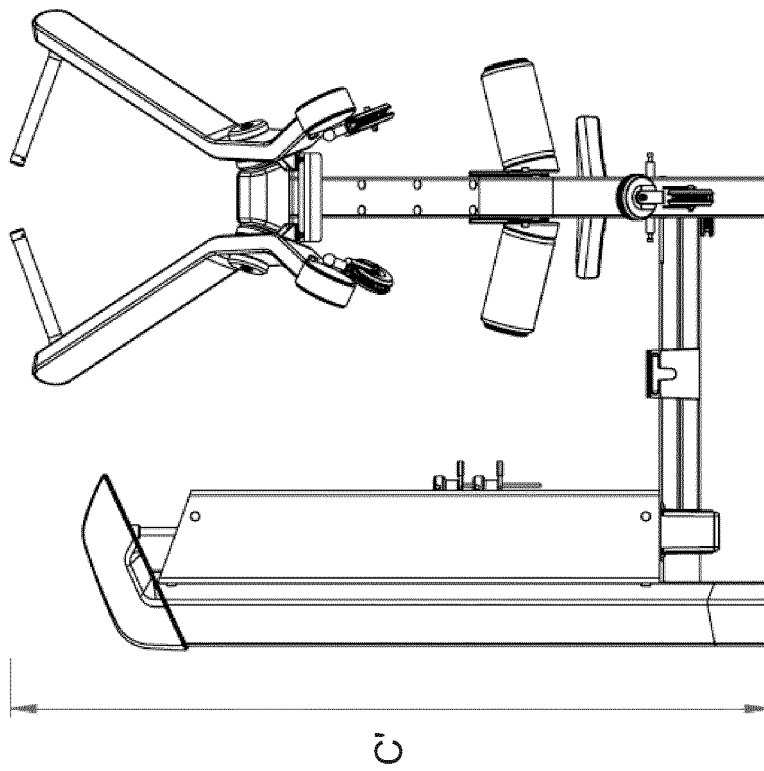


FIG. 42
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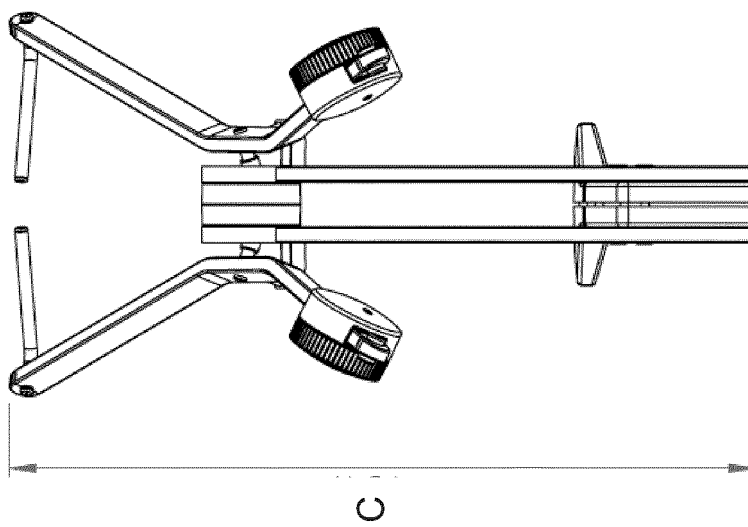


FIG. 41

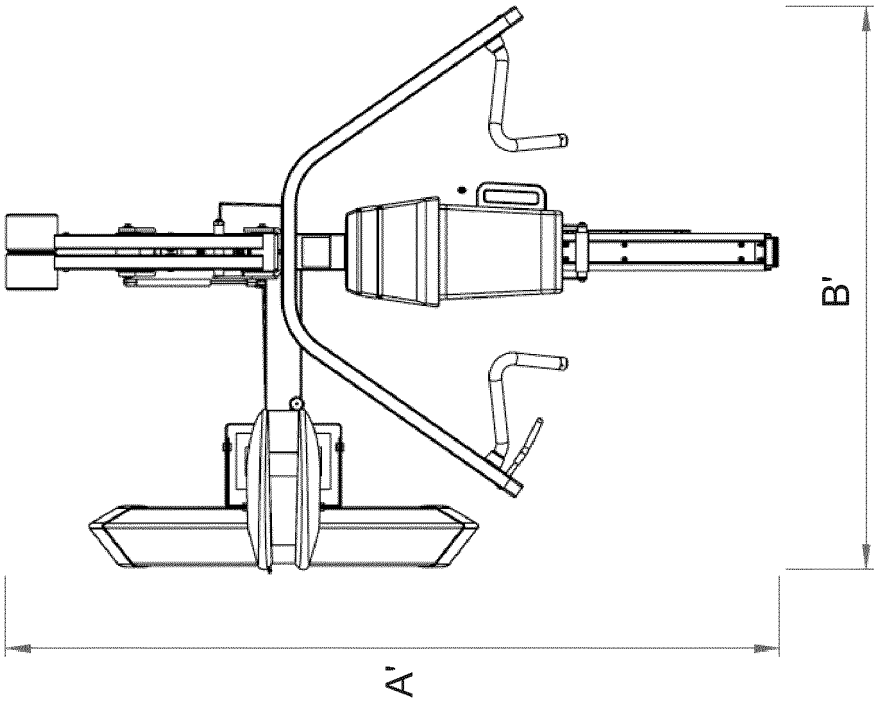


FIG. 44
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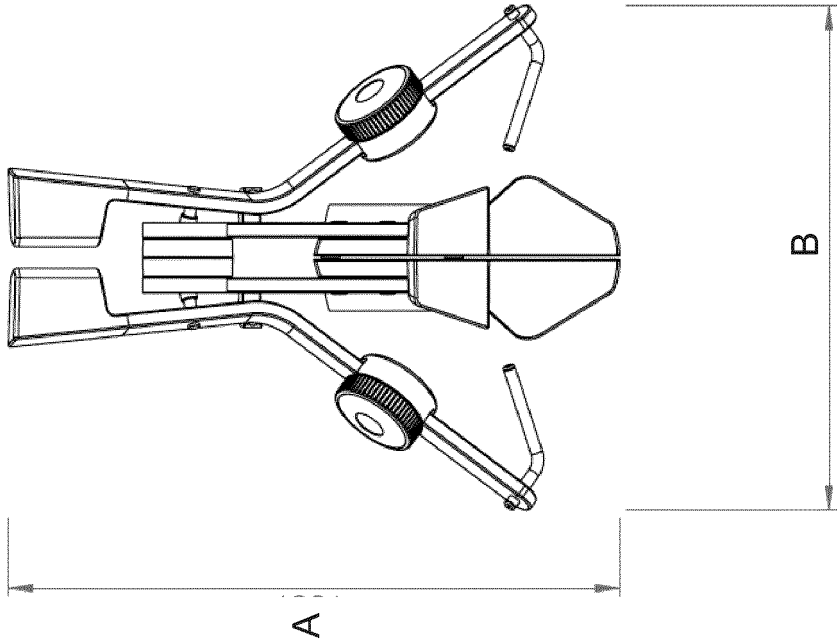


FIG. 43

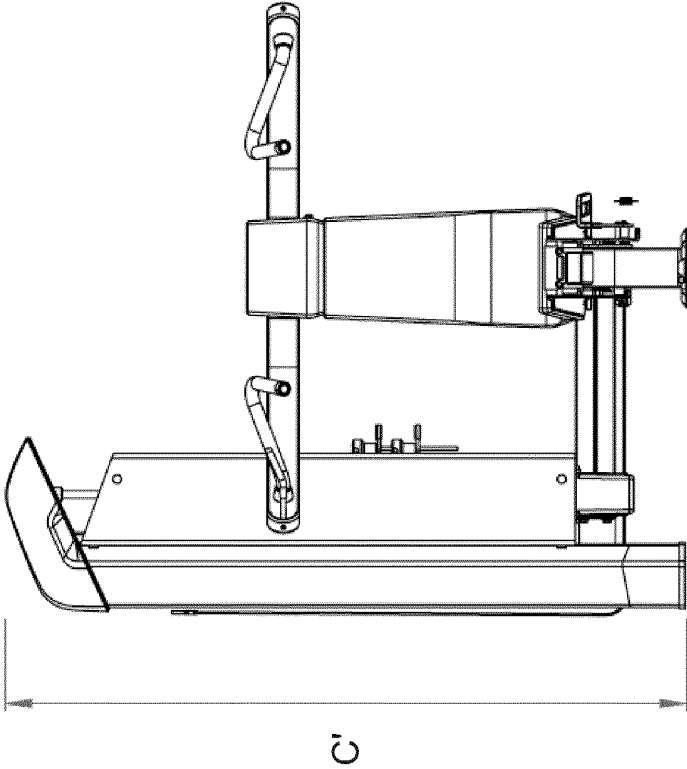


FIG. 46
STATE OF ART

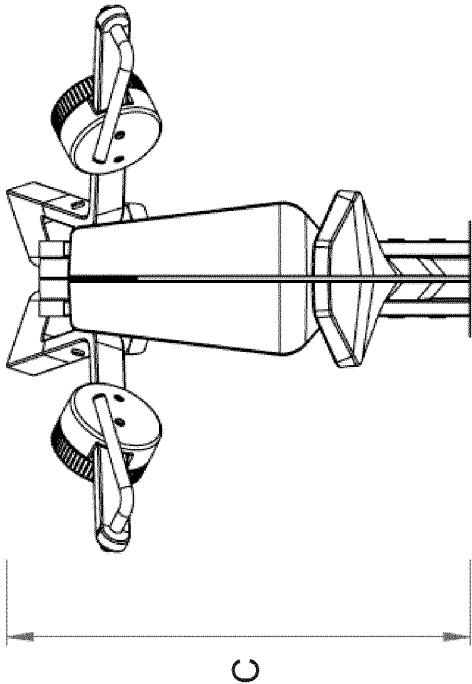


FIG. 45

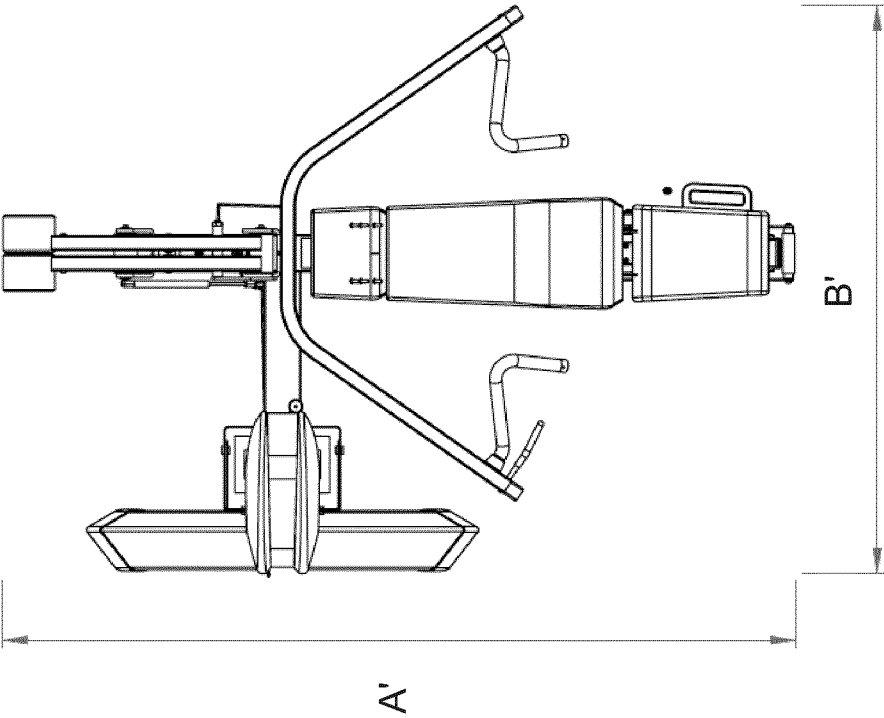


FIG. 48
STATE OF ART

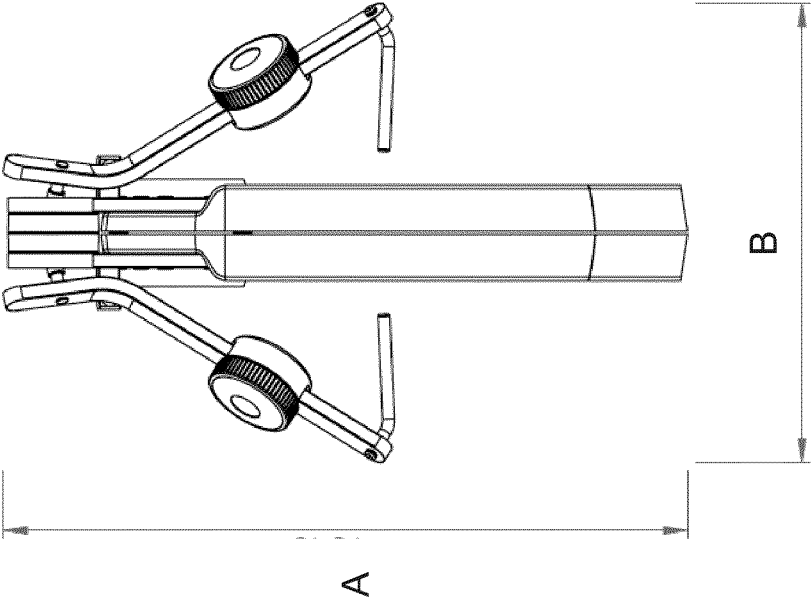


FIG. 47

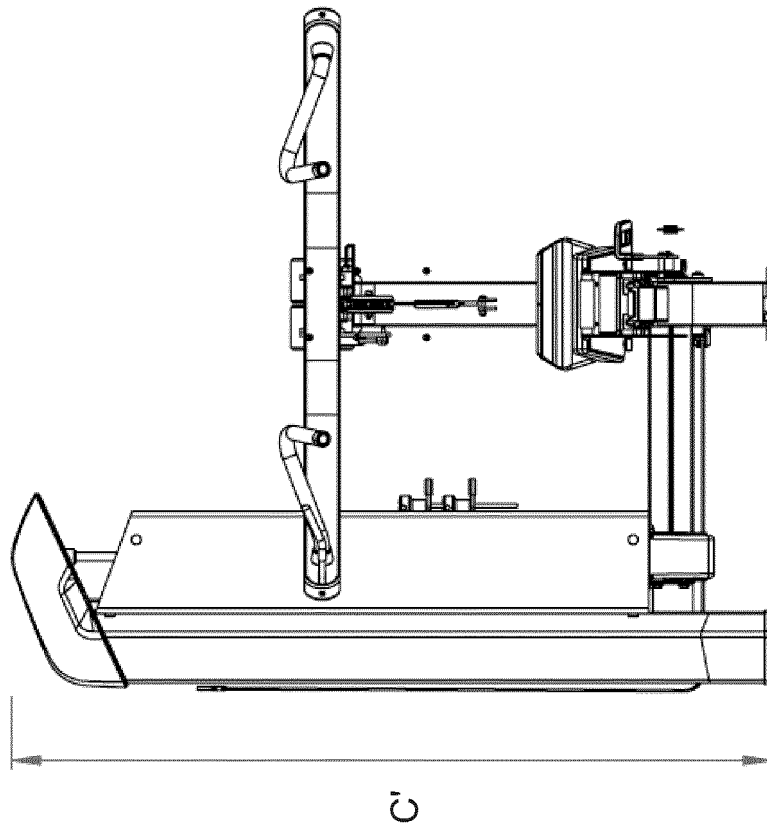


FIG. 50
STATE OF ART

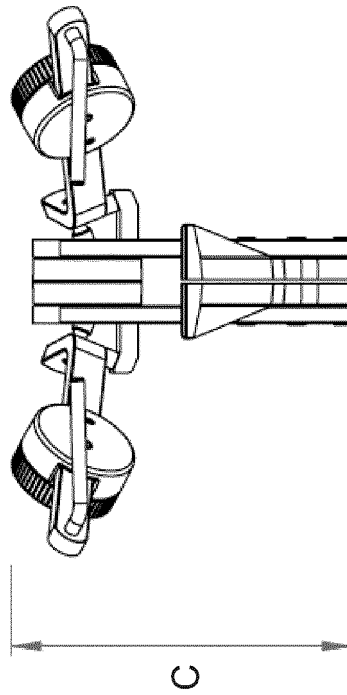


FIG. 49

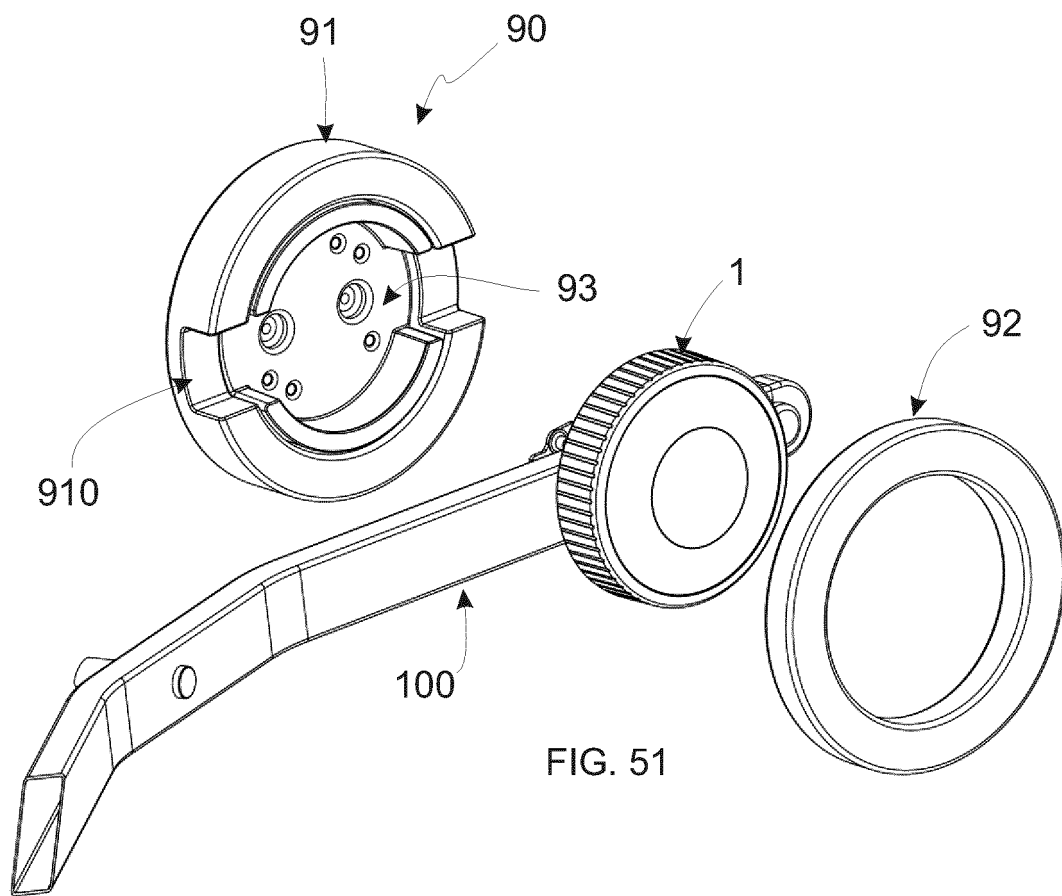


FIG. 51

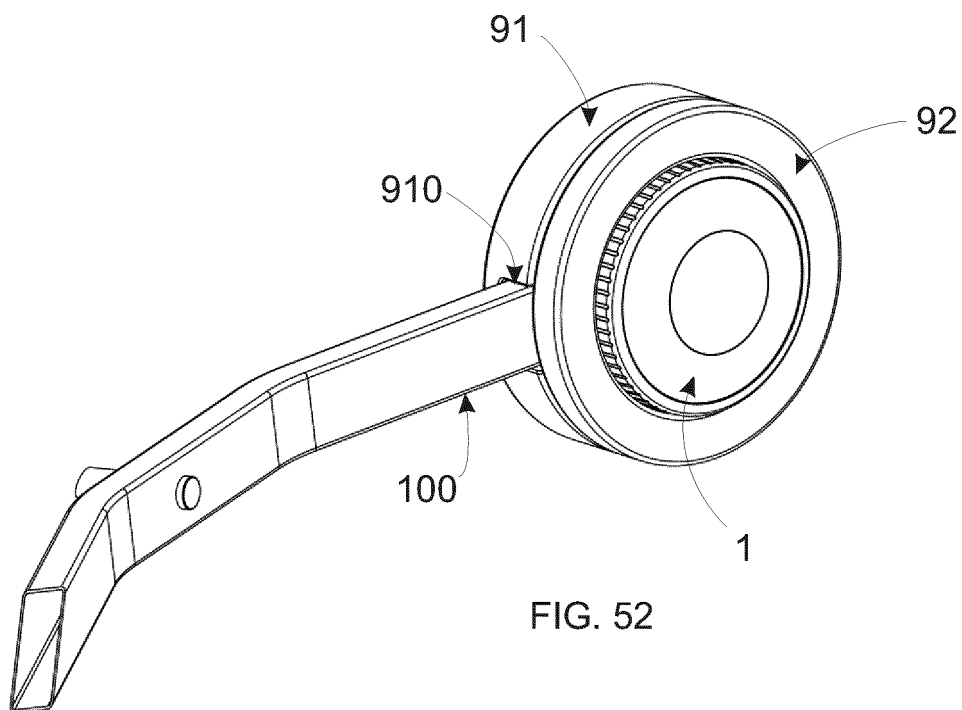


FIG. 52

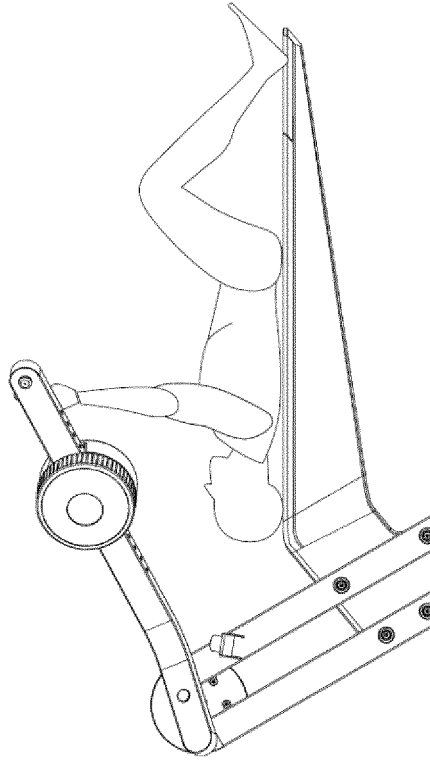


FIG. 54

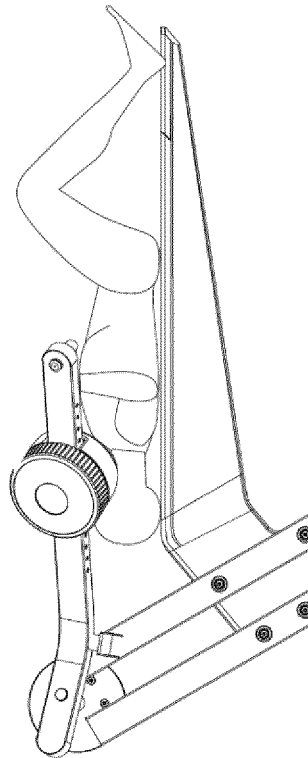


FIG. 53

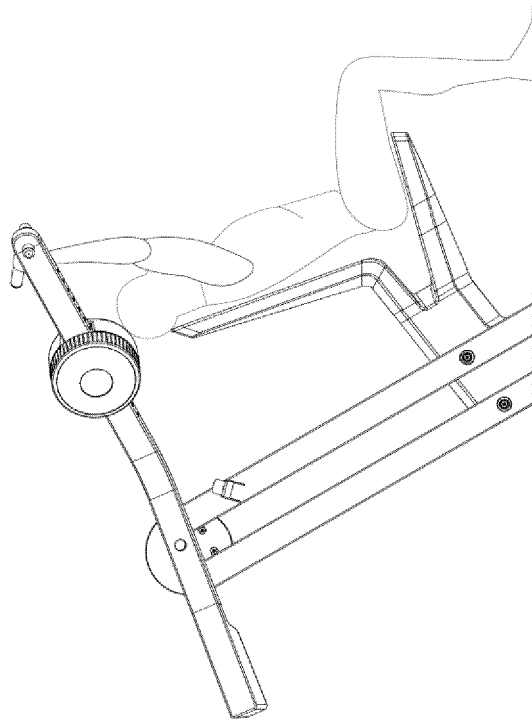


FIG. 56

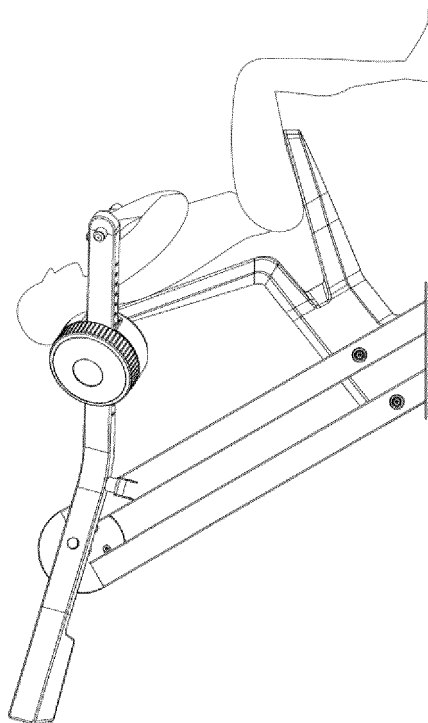


FIG. 55

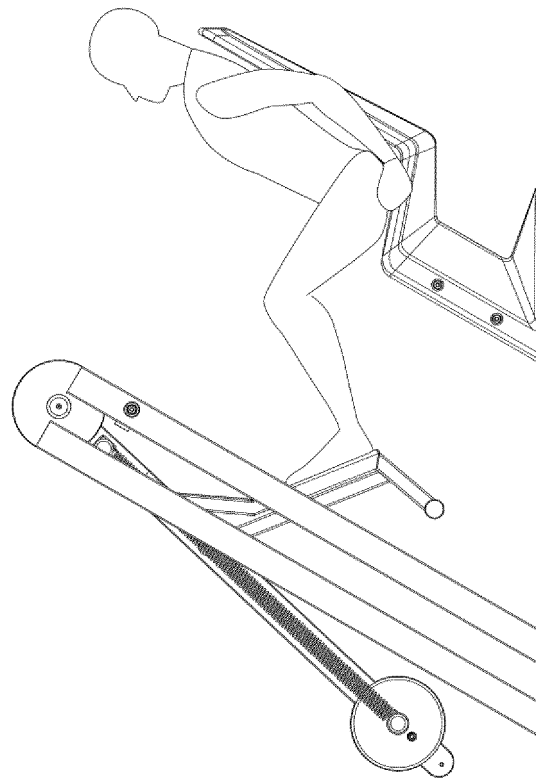


FIG. 60

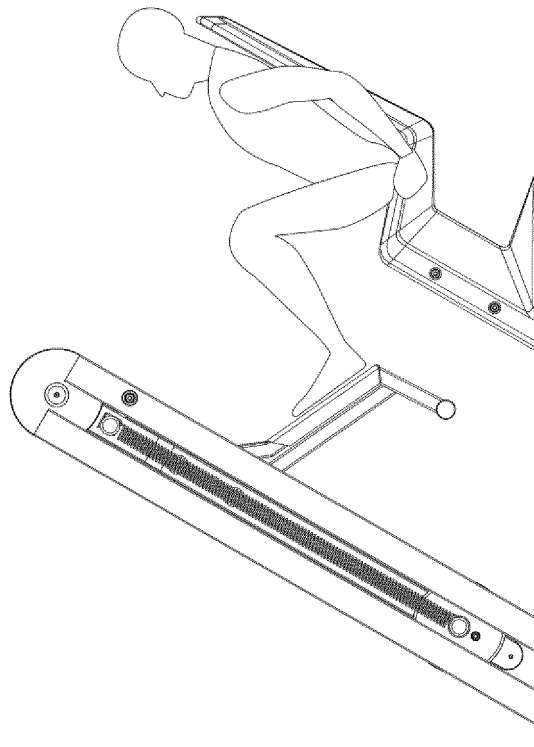


FIG. 59

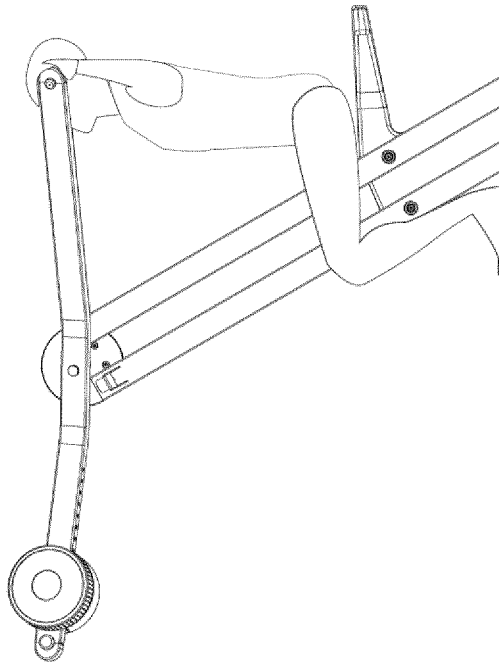


FIG. 58

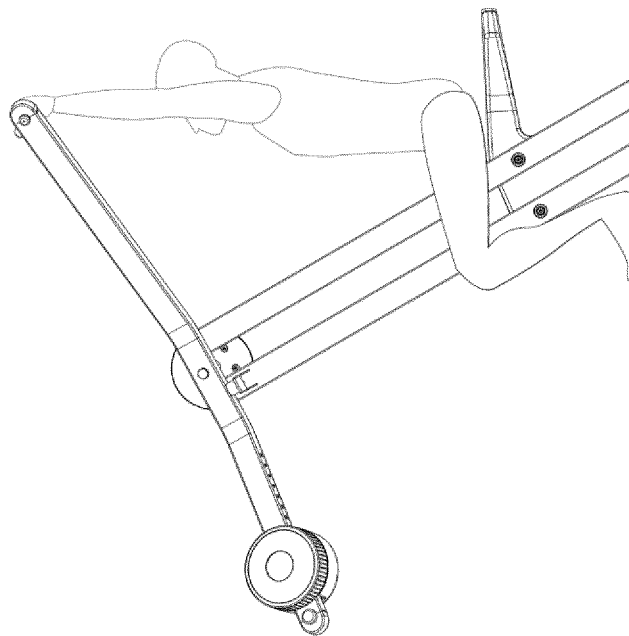


FIG. 57

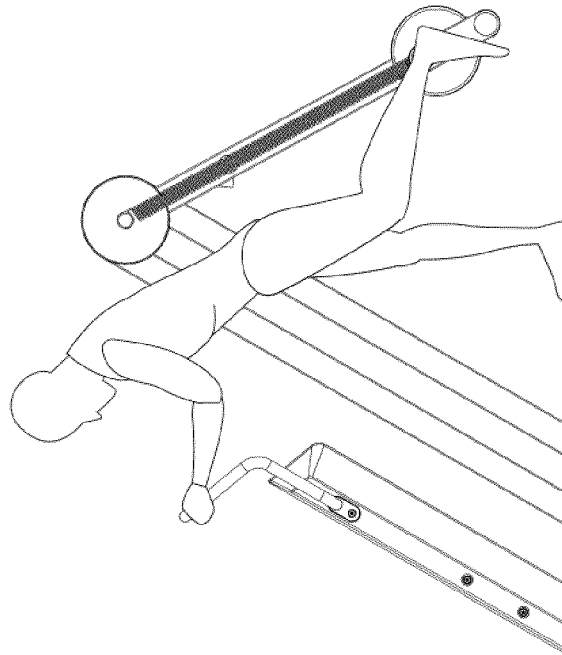


FIG. 62

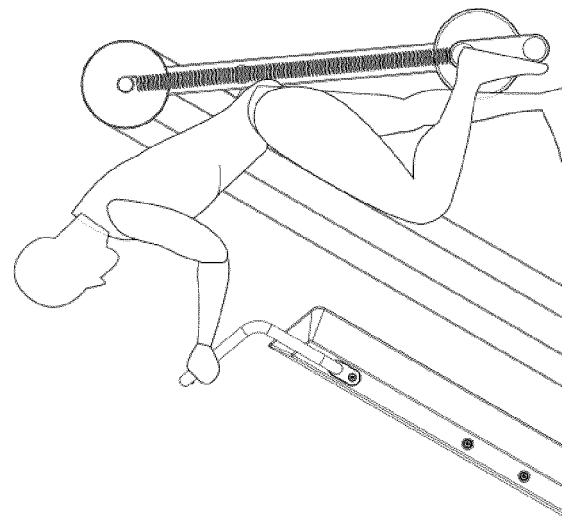


FIG. 61

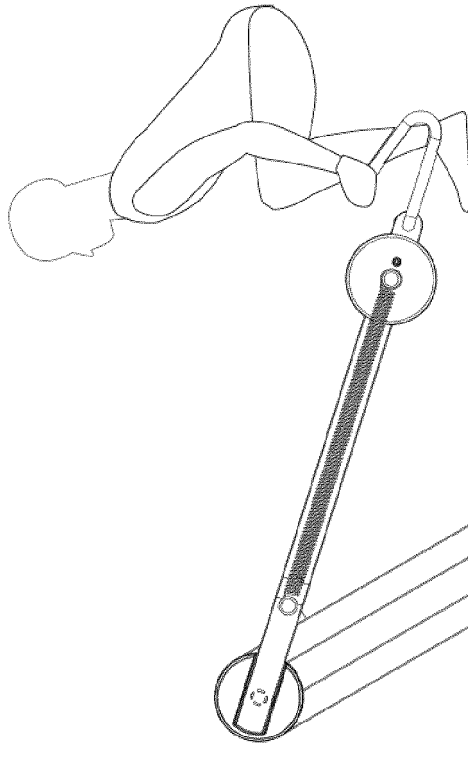


FIG. 64

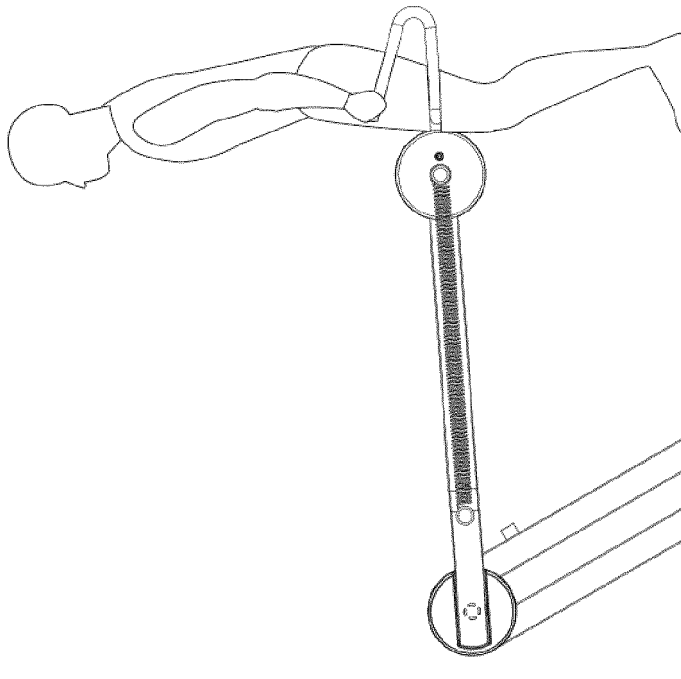


FIG. 63

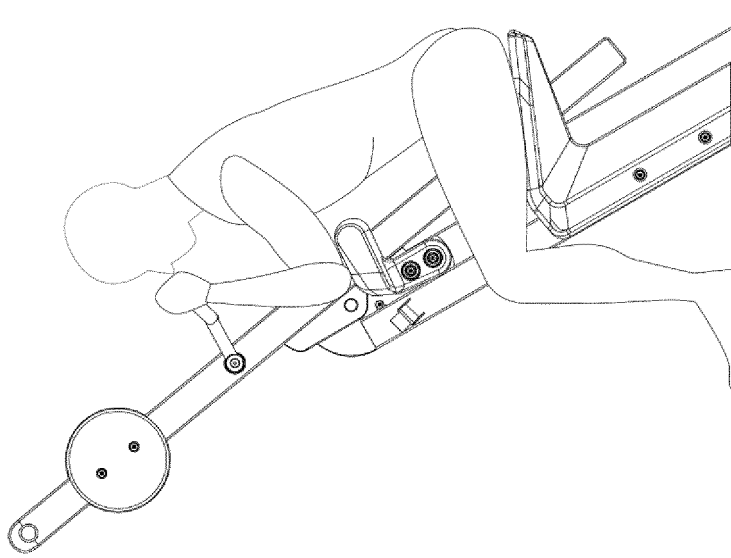


FIG. 66

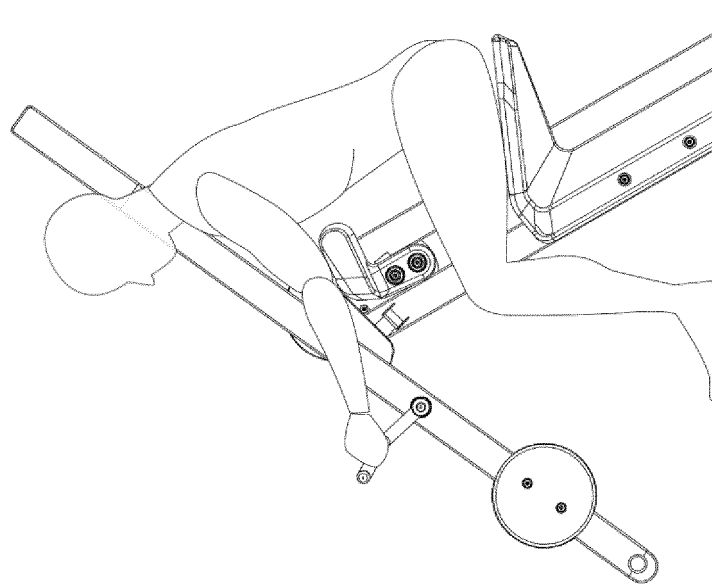


FIG. 65

INTERNATIONAL SEARCH REPORT

International application No.

PCT/BR2020/050513

A. CLASSIFICATION OF SUBJECT MATTER

IPC: A63B21/06 (2006.01), A63B23/035 (2006.01), A63B21/00 (2006.01), A63B21/40 (2006.01)

CPC: A63B21/0616, A63B23/03516, A63B21/00065, A63B21/4047

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A63

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Base de patentes do INPI-BR

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Espacenet, Epodoc

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2017319905 A1 (O CONNOR CHRISTOPHER S [US]) 09 November 2017 (2017-11-09)	1-21
A	US 2017087402 A1 (JOONG CHENN IND CO LTD [TW]) 30 march 2017 (2017-03-30)	1-21
A	US 3364747 A (GABRIEL INDUSTRIES INC) 23 January 1968 (1968-01-23)	1-21
A	WO 2006023179 A2 (INTELLBELL VENTURES INC [US]) 02 March 2006 (2006-03-02)	1-21

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

22 February 2021

Date of mailing of the international search report

09/03/2021

Name and mailing address of the ISA/BR

Authorized officer

Facsimile No.

Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/BR2020/050513

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 2731683 A1 (POWERBLOCK HOLDINGS INC [US]) 21 May 2014 (2014-05-21)	1-21
A	US 2013017932 A1 (TAYEBI SEAN K [US]) 17 January 2013 (2013-01-17)	1-21
A	CN 201899828 U (ALE IND CO LTD) 20 July 2011 (2011-07-20)	1-21

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/BR2020/050513

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		US 9168412 B2	2015-10-27
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CN 201899828 U	2011-07-20	None	

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2006023179 A [0009]
- US 20150148200 A [0010]