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Description

FIELD OF THE INVENTION

[0001] The invention relates to a fitness equipment based on the principles of a pilates reformer.

[0002] Using spring resistance and movement control with focus on postural alignment, the invention is naturally low impact, core-forming and engaging.

[0003] Designed to promote strength, tone, balance and mobility, the invention is a highly effective full body workout with immediate results. The invention can be used by athlete, persons recovering from an injury, pre/post natal mums, or persons who have just discovered their love for fitness. It is fun, effective, unique, inclusive, versatile, comfortable and safe.

[0004] Document EP2946816 describes a reformer exercise apparatus having a generally rectangular frame. The reformer exercise apparatus has rail portions, a foot bar support assembly, and a pair of tubular risers.

[0005] Document US7803095 describes an exercise machine that enables a user to perform a variety of repetitive exercises in reclined, sitting and standing positions. The machine permits a user to perform exercises not possible on a traditional pilates reformer machine.

[0006] Document US9022909 describes an apparatus and methods of use pertaining to an adaptive, multi-functional exercise device. The exercise device includes a split carriage formed of separate carriage platforms that may optionally be used in a unified mode, in which the carriage platforms move in unison, or in a split mode, in which the carriages move independently.

[0007] Document US6371895 describes an exercise apparatus comprising a generally rectangular extruded aluminum frame having a head end and a foot end and including a pair of spaced apart parallel track members wherein the head end, the foot end, and the track or rail members are each formed from the same metal extrusion material and have the same cross sectional shape.

[0008] Document US2018/207469 describes an exercise apparatus having a frame comprising a first end, a second end and two generally horizontal frame members extending from the first end to the second end, a carriage supported by the horizontal frame members, the carriage being configured to translate along at least a portion of a length of the horizontal frame members and having a planar support surface.

SUMMARY

[0009] The terms "invention", "the invention", "this invention" and "the present invention" used in this patent are intended to refer broadly to all of the subject matter of this patent and the patent claims below. Statements containing these terms should be understood not to limit the subject matter described herein or to limit the meaning or scope of the patent claims below. Embodiments of the invention covered by this patent are defined by the

claims below, not this summary. This summary is a high-level overview of various aspects of the invention and introduces some of the concepts that are further described in the detailed description section below. This summary is not intended to identify key or essential features of the claimed subject matter, nor is it intended to be used in isolation to determine the scope of the claimed subject matter. The subject matter should be understood by reference to appropriate portions of the entire specification of this patent, any or all drawings and each claim.

[0010] More specifically, the invention relates to a fitness according to claim 1 which comprises:

- a base support which is fixed,
- a carriage on which can lay on the upper portion of the body of a user, the carriage being slidably coupled to the base support,
- two stops mounted on the carriage against which the shoulders of the user can abut,
- at least one spring mounted between the fixed base support and the carriage, and
- a foot bar,

so that when the user pushes with his legs on the foot bar, the carriage moves away from its rest position while the spring counteracts the force applied by the user and when the user releases the force applied on the foot bar, the carriage moves back to its rest position by spring effect.

[0011] According to one embodiment, the carriage further comprises an elevated cushioned head rest.

[0012] According to one embodiment, the carriage further comprises a curved head bar.

[0013] The foot bar mechanism is designed to unhinge the foot bar and adjust the angular position of the foot bar.

[0014] The foot bar mechanism comprises a foot pad and a linkage mechanism, said linkage mechanism comprising a connecting rod having one extremity coupled to the foot pad and another extremity coupled to an arm having a protruding end inserted within a slot along a plurality of slots made within an adjusting part, each of the arm and the foot pad being rotatably coupled to the base support.

[0015] According to one embodiment, the plurality slots are made within the outer periphery of the adjusting part.

[0016] According to one embodiment, the adjusting part is jointly linked in rotation with an axis of the support of the foot bar.

[0017] According to one embodiment, at least one spring is mounted between the foot pad and the base support to provide resistance to unlocking foot bar mechanism.

[0018] According to one embodiment, the fitness equipment further comprises a platform and a platform opening mechanism comprising a slow motion hinge mechanism to lift the platform when adjusting the spring below.

[0019] According to one embodiment, the fitness equipment comprise raisers having pulleys attached with ropes, so that the action of pulling on the ropes which are attached to the carriage moves the carriage.

[0020] According to one embodiment, the fitness equipment comprises a wheel mechanism to move the carriage back and forth.

[0021] According to one embodiment, the foot bar comprises a slight curve.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022] The invention will be better understood on reading the following description and examining the Figures that accompany it. These Figures are provided by way of illustration only and are in no way limiting on the invention.

Figure 1 shows a perspective view of the fitness equipment according to the invention;

Figure 2 shows a top view of the fitness equipment according to the invention;

Figure 3 shows a side view of the fitness equipment according to the invention;

Figure 4 shows a general view of the foot bar mechanism according to the invention;

Figure 5 shows a detailed view of the foot bar mechanism according to the invention.

[0023] Similar elements shown on the drawings keep the same reference number.

DETAILED DESCRIPTION

[0024] The subject matter of embodiments of the present invention is described here with specificity to meet statutory requirements, but this description is not necessarily intended to limit the scope of the claims. The claimed subject matter may be embodied in other ways, may include different elements or steps, and may be used in conjunction with other existing or future technologies. This description should not be interpreted as implying any particular order or arrangement among or between various steps or elements except when the order of individual steps or arrangement of elements is explicitly described.

[0025] Figures 1 to 3 show a fitness equipment 1 comprising a base support 2 extending horizontally which is fixed. A carriage 4 is slidably coupled to the base support 2. To this end, a wheel mechanism 6 is installed to move the carriage 4 back and forth.

[0026] The upper portion of the body of the user can lay on the carriage 4. Two stops 8 against which the shoulders of the user abuts are mounted on the carriage

4. These stops 8 are separated from each other by a distance slightly inferior to the distance between the user's shoulders.

[0027] Preferably, the carriage 4 further comprises an elevated cushioned head rest 10 as illustrated on Figure 3. A curved head bar 12 fits the form of the top of the head for improved comfort.

[0028] At least one spring 14 is mounted between the fixed base support 2 and the carriage 4. In the embodiment shown, the equipment 1 comprises seven springs 14 in parallel. However, the number of springs 14 may vary. It depends on the application and particularly on the spring force to be generated during the physical exercise.

[0029] It further comprises a platform 18 and a platform opening mechanism 19 comprising a slow motion hinge mechanism to lift the platform 18 when adjusting the springs 14 below. The mechanism 19 keeps the platform 18 in place instead of falling back down.

[0030] A foot bar 16 is positioned at one longitudinal extremity of the base support 2. As it is shown in Figures 4 and 5, a foot bar mechanism 20 is designed to unhinge the foot bar 16 and adjust safely the angular position of the foot bar 16.

[0031] More specifically, the foot bar 16 rotates into different angular positions by pressing down on a foot pad 21 accessible from either side of the equipment which activates a linkage mechanism 22.

[0032] The linkage mechanism 22 comprises a connecting rod 23 having one extremity rotatably coupled to the foot pad 21 and another extremity rotatably coupled to an arm 25 having a protruding end 26 inserted inside a slot 27 along a plurality of slots 27 made within an adjusting part 30. The arm 25 and the foot pad 21 are rotatably coupled to the base support 2.

[0033] The adjusting part 30 has for example the form of a portion of a disc and the plurality of slots 27 are made within the outer periphery of the adjusting part 30. The adjusting part 30 is jointly linked in rotation with an axis 31 of a support of the foot bar 16. Each slot 27 corresponds to an angular position of the foot bar 16. Four slots 27 corresponding to four position are provided here. However, the number of slots 27 can vary depending on the number of desired positions for the equipment. Resistance to unlocking the foot bar mechanism 20 is obtained by the use of compression springs 32 on both sides. Each spring 32 is mounted between a corresponding foot pad 21 and the base support 2.

[0034] The equipment 1 may also comprise raisers 33 having pulleys attached with ropes (not shown). Pulling on the ropes which are attached to the carriage does consequently move the carriage.

[0035] An example of use of the equipment 1 according to the invention is described hereafter. First, the user can put his back against the carriage 4 and his shoulder against the stops 8. When the user pushes with his legs on the foot bar 16, the carriage 4 moves away from its rest position while the spring 14 opposes the forces ap-

plied by the user. When the user releases the force applied on the foot bar 16, the carriage 4 moves back to its rest position by spring effect. The user may also pull the ropes of the raisers 33 during the physical exercise.

[0036] In order to adjust the angular position of the foot bar 16, the user may press down the foot pad 21, so that the springs 32 are compressed and the protruding end 26 of the arm 25 is disengaged from the slot 27. The user can then rotate the foot bar 16 in the desired position for performing the exercises.

[0037] By releasing the foot pad 21, the springs 32 are decompressed so that the arm 25 automatically engages, via its protruding end 26, the slot 27 corresponding to the desired position of the foot bar 16.

[0038] A hand grip 16' corresponding to the foot bar 16 can be provided at another extremity of the base support 2. The hand grip 16' is also associated to a mechanism 20 allowing to adjust its angular position.

[0039] Different arrangements of the components depicted in the drawings or described above, as well as components and steps not shown or described are possible. Similarly, some features and sub-combinations are useful and may be employed without reference to other features and sub-combinations. Embodiments of the invention have been described for illustrative and not restrictive purposes, and alternative embodiments will become apparent to readers of this patent. Accordingly, the present invention is not limited to the embodiments described above or depicted in the drawings, and various embodiments and modifications may be made without departing from the scope of the claims below.

Claims

1. Fitness equipment (1) comprising:

- a base support (2) which is fixed,
- a carriage (4) on which can lay on the upper portion of the body of a user, the carriage (4) being slidably coupled to the base support (2),
- two stops (8) mounted on the carriage (4) against which the shoulders of the user can abut,
- at least one spring (14) mounted between the fixed base support (2) and the carriage (4), and
- a foot bar (16),

so that when the user pushes with his legs on the foot bar (16), the carriage (4) moves away from its rest position while the spring (14) counteracts the force applied by the user and when the user releases the force applied on the foot bar (16), the carriage (4) moves back to its rest position by spring effect,

- a foot bar mechanism (20) being designed to unhinge the foot bar (16) and adjust the angular position of the foot bar (16),

characterized in that the foot bar mechanism (20)

comprises a foot pad (21) and a linkage mechanism (22), said linkage mechanism (22) comprising a connecting rod (23) having one extremity coupled to the foot pad (21) and another extremity coupled to an arm (25) having a protruding end (26) inserted within a slot (27) along a plurality of slots (27) made within an adjusting part (30), each of the arm (25) and the foot pad (21) being rotatably coupled to the base support (2).

2. Fitness equipment according to claim 1, **characterized in that** the carriage (4) further comprises an elevated cushioned head rest (10).

3. Fitness equipment according to claim 1 or 2, **characterized in that** the carriage (4) further comprises a curved head bar (12).

4. Fitness equipment according to claim 1, **characterized in that** the plurality slots (27) are made within the outer periphery of the adjusting part (30).

5. Fitness equipment according to claim 1 or 4, **characterized in that** the adjusting part (30) is jointly linked in rotation with an axis (31) of the support of the foot bar (16).

6. Fitness equipment according to any of the claims 1 to 5, **characterized in that** at least one spring (32) is mounted between the foot pad (21) and the base support (2) to provide resistance to unlocking foot bar mechanism (20).

7. Fitness equipment according to any of the claims 1 to 6, **characterized in that** it further comprises a platform (18) and a platform opening mechanism (19) comprising a slow motion hinge mechanism to lift the platform (18) when adjusting the spring (14) below.

8. Fitness equipment according to any of the claims 1 to 7, **characterized in that** it comprises raisers (33) having pulleys attached with ropes, so that the action of pulling on the ropes which are attached to the carriage (4) moves the carriage (4).

9. Fitness equipment according to any of the claims 1 to 8, **characterized in that** it comprises a wheel mechanism (6) to move the carriage (4) back and forth.

10. Fitness equipment according to any of the claims 1 to 9, **characterized in that** the foot bar (16) comprises a slight curve.

Patentansprüche

1. Fitnessgerät (1) mit:

- einer festen Basisstütze (2),
- einem Schlitten (4), auf dem der obere Teil des Körpers eines Benutzers liegen kann, wobei der Schlitten (4) gleitend mit der Basisstütze (2) verbunden ist;
- zwei am Schlitten (4) angebrachten Anschlüssen (8), an denen die Schultern des Benutzers anliegen können,
- mindestens einer Feder (14), die zwischen der festen Basisstütze (2) und dem Schlitten (4) montiert ist, und
- einer Fußstange (16), so dass, wenn der Benutzer mit seinen Beinen auf die Fußstange (16) drückt, der Schlitten (4) sich von seiner Ruheposition weg bewegt, während die Feder (14) der vom Benutzer ausgeübten Kraft entgegenwirkt, und wenn der Benutzer die auf die Fußstange (16) ausgeübte Kraft freigibt, der Schlitten (4) sich durch Federeffekt in seine Ruheposition zurück bewegt,
- einem Fußstangenmechanismus (20), der dazu ausgebildet ist, die Fußstange (16) auszubauen und die Winkelposition der Fußstange (16) einzustellen;

dadurch gekennzeichnet, dass der Fußstangenmechanismus (20) ein Fußpolster (21) und einen Verbindungsmechanismus (22) umfasst, wobei der Verbindungsmechanismus (22) eine Verbindungsstange (23) mit einem mit dem Fußpolster (21) gekoppelten Ende und einem anderem, mit einem Arm (25) verbundenen Ende umfasst, wobei das vorspringende Ende (26) des Arms in einen Schlitz (27) entlang einer Vielzahl von Schlitzen (27) in einem Einstellteil (30) eingesetzt ist, wobei jeweils der Arm (25) und der Fußpolster (21) drehbar mit der Basisstütze (2) gekoppelt sind.

2. Fitnessgerät nach Anspruch 1, **dadurch gekennzeichnet, dass** der Schlitten (4) ferner eine erhöhte gepolsterte Kopfstütze (10) aufweist.
3. Fitnessgerät nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** der Schlitten (4) ferner eine gekrümmte Kopfstütze (12) aufweist.
4. Fitnessgerät nach Anspruch 1, **dadurch gekennzeichnet, dass** die mehreren Schlitze (27) innerhalb des Außenumfangs des Einstellteils (30) ausgebildet sind.
5. Fitnessgerät nach Anspruch 1 oder 4, **dadurch gekennzeichnet, dass** das Einstellteil (30) drehbar mit einer Achse (31) der Stütze der Fußstange (16) ver-

bunden ist.

6. Fitnessgerät nach einem der Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass** mindestens eine Feder (32) zwischen dem Fußpolster (21) und der Basisstütze (2) angebracht ist, um Widerstand gegen das Entriegeln des Fußstangenmechanismus (20) bereitzustellen.
7. Fitnessgerät nach einem der Ansprüche 1 bis 6, **dadurch gekennzeichnet, dass** es ferner eine Plattform (18) und einen Plattformöffnungsmechanismus (19) mit einem langsamen Scharniermechanismus zum Anheben der Plattform (18) beim Einstellen der Feder (14) darunter umfasst.
8. Fitnessgerät nach einem der Ansprüche 1 bis 7, **dadurch gekennzeichnet, dass** es Hebezeuge (33) mit Seilen befestigten Riemenscheiben umfassen, so dass die Zugwirkung an den am Wagen (4) befestigten Seilen den Wagen bewegt (4).
9. Fitnessgerät nach einem der Ansprüche 1 bis 8, **dadurch gekennzeichnet, dass** es einen Radmechanismus (6) zum Hin- und Herbewegen des Schlittens (4) umfassen.
10. Fitnessgerät nach einem der Ansprüche 1 bis 9, **dadurch gekennzeichnet, dass** die Fußstange (16) eine leichte Krümmung aufweist.

Revendications

1. Appareil de fitness (1) comprenant :

- un support de base (2) qui est fixe,
- un chariot (4) sur lequel peut reposer la partie supérieure du corps d'un utilisateur, le chariot (4) étant accouplé de manière coulissante au support de base (2),
- deux butées (8) montées sur le chariot (4) contre lesquelles les épaules de l'utilisateur peuvent venir en appui,
- au moins un ressort (14) monté entre le support de base fixe (2) et le chariot (4), et
- une barre de pied (16), de sorte que, lorsque l'utilisateur exerce une poussée sur la barre de pied (16) avec ses jambes, le chariot (4) s'éloigne de sa position de repos tandis que le ressort (14) s'oppose à la force appliquée par l'utilisateur et, lorsque l'utilisateur relâche la force appliquée sur la barre de pied (16), le chariot (4) revient dans sa position de repos par effet ressort,
- un mécanisme de barre de pied (20) étant conçu pour déverrouiller la barre de pied (16) et régler la position angulaire de la barre de pied (16),

- caractérisé en ce que** le mécanisme de barre de pied (20) comprend une plaquette de pied (21) et un mécanisme de liaison (22), ledit mécanisme de liaison (22) comprenant une tige de raccordement (23) dont une extrémité est accouplée à la plaquette de pied (21) et dont une autre extrémité est accouplée à un bras (25) dont une extrémité saillante (26) est insérée dans une fente (27) le long d'une pluralité de fentes (27) ménagées dans une partie de réglage (30), le bras (25) et la plaquette de pied (21) étant chacun accouplés à rotation au support de base (2). 5 10
2. Appareil de fitness selon la revendication 1, **caractérisé en ce que** le chariot (4) comprend en outre un appui-tête rembourré surélevé (10). 15
3. Appareil de fitness selon la revendication 1 ou 2, **caractérisé en ce que** le chariot (4) comprend en outre une barre de tête incurvée (12). 20
4. Appareil de fitness selon la revendication 1, **caractérisé en ce que** la pluralité de fentes (27) sont ménagées à l'intérieur de la périphérie extérieure de la partie de réglage (30). 25
5. Appareil de fitness selon la revendication 1 ou 4, **caractérisé en ce que** la partie de réglage (30) est reliée de manière rotative à un axe (31) du support de la barre de pied (16) . 30
6. Appareil de fitness selon l'une quelconque des revendications 1 à 5, **caractérisé en ce qu'**au moins un ressort (32) est monté entre la plaquette de pied (21) et le support de base (2) pour fournir une résistance au déverrouillage du mécanisme de barre de pied (20). 35
7. Appareil de fitness selon l'une quelconque des revendications 1 à 6, **caractérisé en ce qu'**il comprend en outre une plate-forme (18) et un mécanisme d'ouverture de plate-forme (19) comprenant un mécanisme de charnière à mouvement lent destiné à soulever la plate-forme (18) lors du réglage du ressort (14) situé au-dessous. 40 45
8. Appareil de fitness selon l'une quelconque des revendications 1 à 7, **caractérisé en ce qu'**il comprend des élévateurs (33) munis de poulies attachées avec des cordes, de sorte que l'action de traction sur les cordes qui sont attachées au chariot (4) déplace le chariot (4). 50
9. Appareil de fitness selon l'une quelconque des revendications 1 à 8, **caractérisé en ce qu'**il comprend un mécanisme à roue (6) destiné à déplacer le chariot (4) d'avant en arrière. 55
10. Appareil de fitness selon l'une quelconque des re-

vendications 1 à 9, **caractérisé en ce que** la barre de pied (16) présente une légère incurvation.

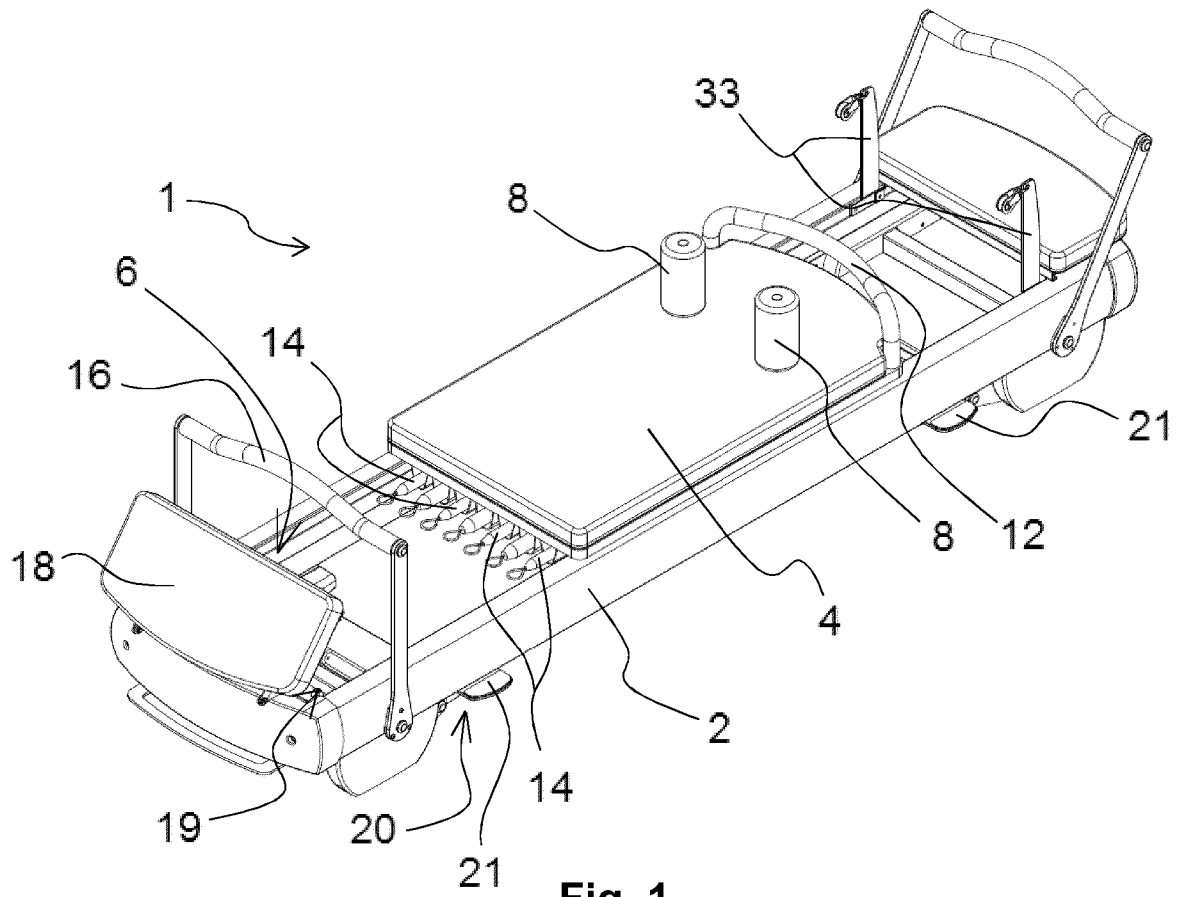


Fig. 1

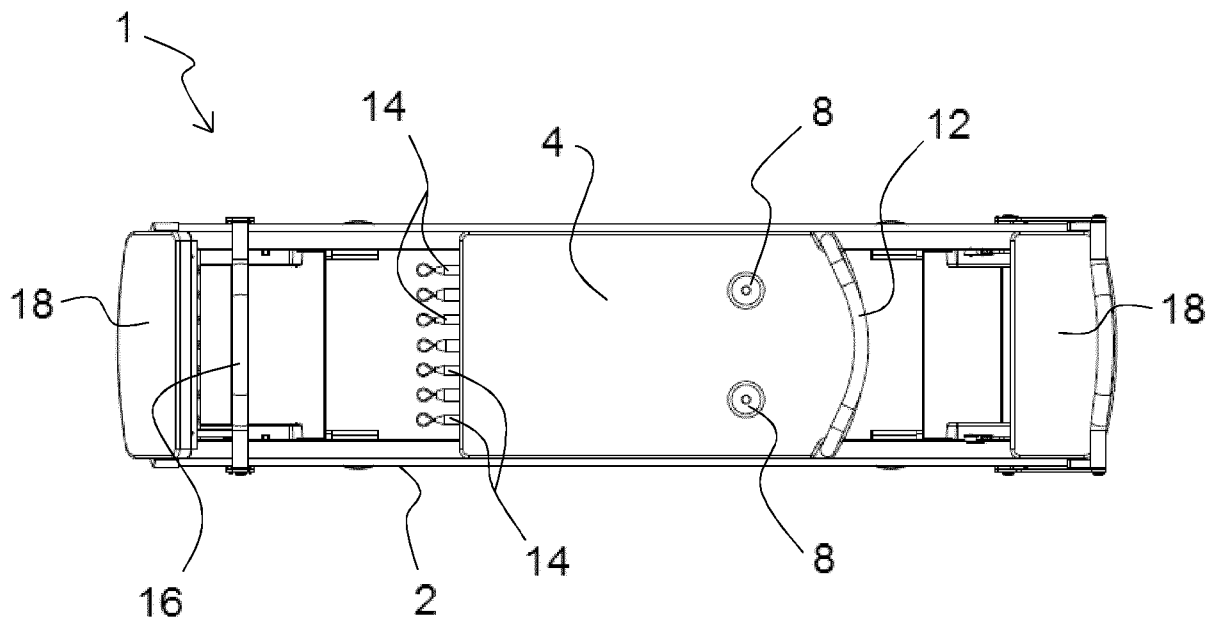


Fig. 2

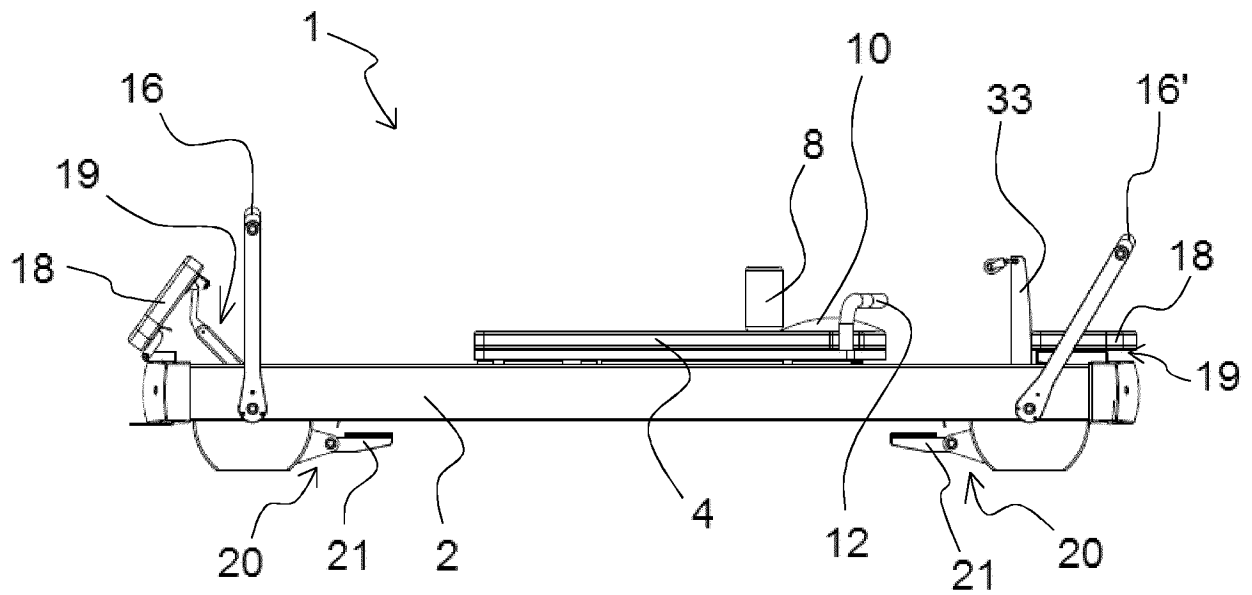


Fig. 3

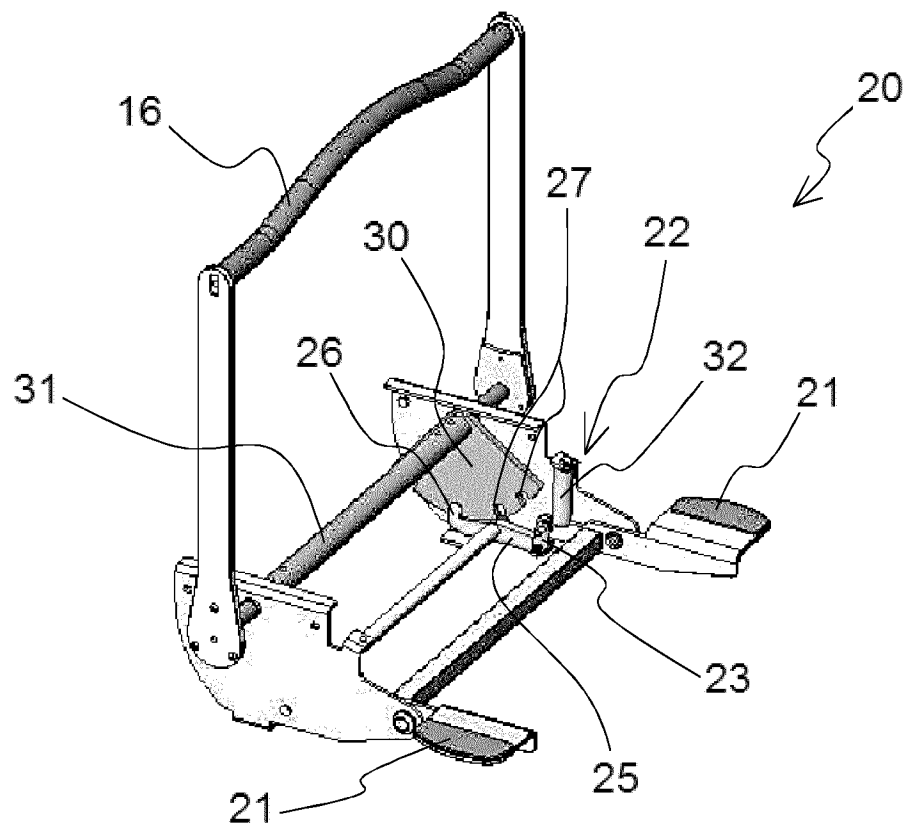


Fig. 4

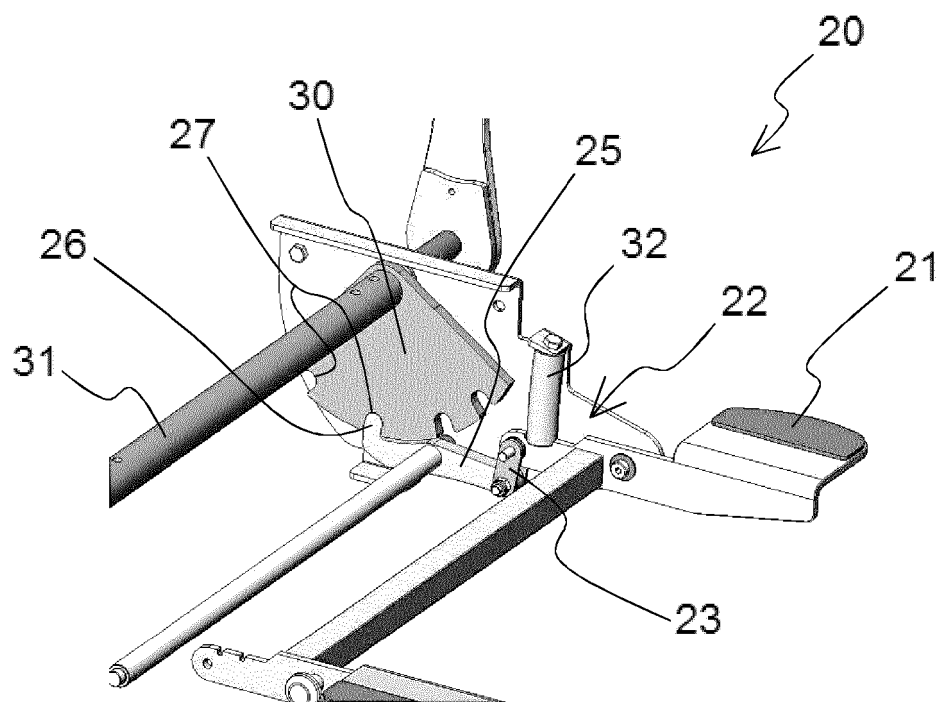


Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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