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(54) **Physical training implement for exercising abdominal muscles**

Übungsgerät für Training der Bauchmuskulatur

Dispositif de musculation abdominale

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## Description

### BACKGROUND OF THE INVENTION

[0001] The present invention relates to a physical training implement for exercising abdominal muscles.

[0002] Gymnastic implements are already known which comprise a bearing base, slanted with respect to the floor, which base is provided for supporting an user desiring to perform training exercises for strengthening his/her abdominal muscles.

[0003] Prior gymnastic implements of the above mentioned type conventionally comprise a bearing frame, a resting or supporting base as well as a pair of cross supporting elements.

[0004] The implement construction comprises moreover a pedestal which is firmly anchored to the floor.

[0005] One of the advantages of the above mentioned prior implements which has caused a quick diffusion thereof is that they allow to perform physical exercises inside a comparatively small size closed room.

[0006] As stated, the provided physical exercising is of a type involving a strengthening of the abdominal muscles.

[0007] On the other hand, the above mentioned prior implements have the drawback that they do not allow to exercise some muscles involved in a twisting movement of the abdomen.

[0008] In particular, these abdominal muscles operate, for example, in a case in which the bearing base of the implement would not be in a perfect equilibrium condition with respect to the floor.

[0009] Moreover, in such a condition, also other body muscles would operate in different manners to allow the user to perform complex exercises. The document US 5308306 discloses a training implement according to the preamble of claim 1.

### SUMMARY OF THE INVENTION

[0010] Accordingly, the aim of the present invention is to overcome the above mentioned drawbacks, by providing a physical training implement, specifically designed for gymnastic applications, allowing to exercise all the muscles operating for holding the implement in an equilibrium condition on an unstable base.

[0011] Within the scope of the above mentioned aim, a main object of the present invention is to provide such a physical training implement which is also suitable to exercise those muscles which, in conventional training implements, would not be involved in the gymnastic exercises such as, for example, the side abdominal muscles.

[0012] Yet another object of the present invention is to provide such a physical training implement which is very safe and reliable in operation.

[0013] Yet another object of the present invention is to provide such a physical training implement which can

be also used in small rooms such as, for example, apartment rooms and palestra rooms.

[0014] According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a physical training implement, for exercising abdominal muscles, according to claim 1.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0015] Further characteristics and advantages of the physical training implement according to the present invention will become more apparent hereinafter from the following detailed disclosure of some preferred, though not exclusive, embodiments thereof, as illustrated, by way of an indicative, but not limitative example, in the figures of the accompanying drawings, where:

Figure 1 is a perspective view illustrating a first embodiment of the physical training implement according to the present invention, in which the supporting means comprise a pair of curved elements coupled at the bottom to the structure of the implement;

Figure 2 is a further perspective view illustrating a second embodiment of the physical training implement according to the invention, in which the supporting means comprise a curved supporting element, connected to the bottom of the structure of the implement;

Figure 3 is yet another perspective view illustrating a third embodiment of the subject physical training implement, analogous to that shown in figure 1, in which the pair of curved elements are directly formed in the pedestal of the implement structure;

Figure 4 is yet a further perspective view illustrating a fourth embodiment of the subject physical training implement, including means for limiting the swinging movement of the implement;

Figure 5 is yet a further perspective view illustrating a modified embodiment of the invention, including different means for limiting the swinging movement of the implement;

Figure 6 is yet a further perspective view illustrating a further embodiment of the subject physical training implement, the supporting means being shown in exploded form;

Figure 7 is a further perspective view illustrating a modified embodiment of the subject implement;

Figure 8 is a further perspective view illustrating a further embodiment of the subject implement;

Figure 9 is a further perspective view illustrating a further modified embodiment of the subject implement, in which the supporting means comprise resilient means;

Figure 10 is a further perspective view illustrating yet another embodiment of the subject implement; Figure 11 is a further perspective view illustrating a

further modified embodiment of the subject implement, in which the supporting means allow the implement to swing both in a longitudinal direction and in a cross direction;

Figure 12 is a side elevation view illustrating a detail related to the pedestal of the implement shown in figure 11;

Figure 13 is a front elevation view illustrating a detail related to the pedestal of the implement shown in figure 11; and

Figure 14 illustrates the pedestal or supporting base of the implement shown in figure 11, as seen from the bottom.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

**[0016]** With reference to the number references of the above mentioned figures, the physical training implement according to the present invention, comprises an implement structure 1, including a supporting frame 2, a bearing base 3 and a pair of cross supporting elements 4.

**[0017]** The bearing base 3 and pair of cross supporting elements 4 are connected to the supporting frame 2.

**[0018]** Actually, the implement construction of figure 1 is substantially analogous to prior physical training implements for exercising abdominal muscles.

**[0019]** Differently from conventional physical training implements, however, in the implement according to the present invention, the structure 1 comprises supporting means specifically designed for allowing, as the implement is used, the structure 1 to swing in a longitudinal and/or cross middle plane thereof.

**[0020]** As clearly shown in figure 1, said supporting means can comprise a pair of curved elements 5a and 5b which are coupled, at respective end portions thereof, to the bottom portion of the pedestal 6 of the structure 1 and being arranged transversely of the longitudinal middle plane of the structure 1.

**[0021]** In particular, the two curved elements 5a and 5b are arranged parallel to one another and are spaced from one another along the longitudinal extension of the structure 1.

**[0022]** More specifically, the two curved elements 5a and 5b bear, by the curved sides thereof, on the floor so as to allow, as the implement is used, the structure 1 to swing transversely of the longitudinal middle plane thereof.

**[0023]** As is shown in figure 3, the curved elements which, in this figure, have been indicated by the reference numbers 7a and 7b, can be directly formed on the same pedestal or supporting base 6 as the structure 1.

**[0024]** Figure 2 illustrates another embodiment of the subject implement in which the supporting means of the structure 1, which allow, likewise to the embodiments shown in figures 1 and 3, the structure 1 to swing transversely of the longitudinal middle plane thereof, com-

prise a curved supporting element 8, bearing its curved side against the floor and being coupled to the bottom portion of the pedestal 6.

**[0025]** Thus, in the embodiment shown in figure 2, the swinging of the structure 1, instead of being provided by using a pair of curved elements 5a, 5b or 7a, 7b, is provided by continuous type of curved surface, the curvature axis thereof substantially lays on the longitudinal middle plane of the structure 1.

**[0026]** The pedestal 6 preferably comprises a pair of cross elements 9a, 9b spaced from one another in a parallel relationship, along the longitudinal extension of the structure 1 and being coupled at a central portion thereof, by a longitudinal middle beam 10.

**[0027]** In the embodiment shown in figure 6, the supporting means comprise a cap element 11 the base of which is coupled to the bottom portion of the plate 12 in turn coupled under the pedestal 6.

**[0028]** The cap element 11 is preferably coupled to a central region of the pedestal 6 of the implement structure, so as to allow said structure to swing in any desired direction.

**[0029]** In figure 7, the supporting means comprise a pair of cap elements 13a and 13b which are coupled to the bottom portion of the pedestal 6 and are spaced from one another along the longitudinal extension of the implement.

**[0030]** In figure 8, the pedestal 6 is pivoted to bearing foot elements 14a and 14b, about a pivot axis 15, which extends substantially horizontally, and lays in the longitudinal middle plane of the structure 1, so as to allow the structure 1 to swing about said pivot axis 15.

**[0031]** Figure 9 shows yet another embodiment, in which the swinging movement of the structure 1, both in a longitudinal direction, and in a cross direction, as well as in a composite manner with respect to said two swinging directions, is obtained by four resilient bearing foot elements, comprising springs 16 which are spaced from one another, from the longitudinal middle plane as well as from the cross middle plane of the structure 1.

**[0032]** Figure 10 illustrates yet another embodiment, like that shown in figure 2, in which the supporting means still comprise a curved supporting element 17 which, in this case, includes a curvature or bending axis perpendicular to the longitudinal middle plane of the structure 1.

**[0033]** Figures 11 to 14 show yet another embodiment of the subject implement, in which the supporting means comprise a pair of curved supporting elements 18 and 19 which are diagonally fixed to the bottom portion of the pedestal 6 so as to provide two curved bearing surfaces for the pedestal 6.

**[0034]** Said curved supporting elements 18 and 19, in particular, cross one another at a central vertical axis of the structure 1 and define two curved bearing surfaces having bending or curvature axes respectively parallel and perpendicular to the longitudinal middle plane of the structure 1, so as to allow said structure 1 to swing both

on its longitudinal middle plane and on its cross plane.

**[0035]** The implement according to the invention comprises moreover means for limiting the amplitude of the swinging movement of the structure 1.

**[0036]** These swinging limiting means, in particular, can simply comprise, as shown in figure 3, side extensions of the cross elements 9a and 9b of the pedestal 6, or they can be also constituted by suitable extensions 20, 21 coupled to the end portions of the cross elements 9a and 9b of the base 6, as shown in figures 4 and 8.

**[0037]** In figure 5, in addition to the extensions 20, are moreover provided side bearing foot elements 22, which are coupled to said extensions 20 and project from the bottom thereof.

**[0038]** The foot element 22, in a vertical equilibrium condition of the implement structure 1, will be spaced from the floor and they can be of a head adjustable type, in order to vary the amplitude of the swinging movement of the structure 1.

**[0039]** In the embodiment shown in figure 8, moreover, springs 23 are furthermore provided, for counter-biasing the swinging movement in a set direction, or in the other direction, of the structure 1 about the pivot axis 15.

**[0040]** From the above disclosure and the observation of the figures of the accompanying drawings it should be apparent that the invention fully achieves the intended aim and objects.

**[0041]** In particular, the fact is to be pointed out that a physical training implement has been provided which, owing to its capability of swinging in a longitudinal direction, in a cross direction or in a composite manner along both directions, will allow an user to properly exercise all of his/her abdominal muscles, the side abdominal muscles included.

**[0042]** While the invention has been disclosed and illustrated with reference to preferred embodiments thereof, it should be apparent that the disclosed embodiments are susceptible to several modifications and variations all of which will come within the scope of the appended claims.

## Claims

1. A physical training implement (1) for exercising the abdominal muscles, comprising a frame (2) consisting of two beam portions, which are rigidly connected to each other at one end, thereby defining substantially two sides of a vertical triangle, each beam portion being attached at the other end to the middle of a horizontal cross beam pedestal (6), one of the beam portions supporting a flat user bearing base (3) and the other beam portion having a mutually opposite pair of horizontal cross supporting elements, **characterized in that** said implement further comprises swing means (5a, 5b, 7a, 7b, 8, 11, 13a, 13b) connected to the underside of the hori-

zontal cross beam pedestals (6), which swing means allow the device to swing relative to the floor.

2. A physical training implement, according to Claim 1, **characterized in that** said swing means (5a, 5b, 7a, 7b) comprise a pair of curved elements (5a, 5b, 7a, 7b) each of said pair of curved elements (5a, 5b, 7a, 7b) being arranged on the underside of one of the horizontal cross beam pedestals (6, 9a, 9b).
3. A physical training implement, according to Claims 1 or 2, **characterized in that** said pair of curved elements (5a, 5b) is directly formed on said pedestal beams (6).
4. A physical training implement, according to Claim 1, **characterized in that** said swing means (8) comprise a curved supporting element (8) coupled to said cross pedestal beams (9a, 9b).
5. A physical training implement, according to claim 1, **characterized in that** said swing means (11) comprise a cap element (11) having a base coupled at a central region between said pedestal beams.
6. A physical training implement, according to one or more of the preceding claims 1-3, **characterized in that** said swing means (13a, 13b) comprise two cap elements, said cap elements (13a, 13b) having respective base portions thereof coupled to said pedestal beams.
7. A physical training implement, according to claim 1, **characterized in that** said structure is pivoted to bearing foot elements (14a, 14b) about a horizontal pivot axis.
8. A physical training implement, according to claim 1, **characterized in that** said supporting means comprise a pair of swing means (18, 19), curved at bottom portions thereof, and coupled to said bottom portion of said structure, said supporting elements crossing at a central vertical axis of said structure, said curved supporting elements defining two bearing curved surfaces having respective curvature axes respectively parallel and perpendicular to a longitudinal middle plane.
9. A physical training implement, according to one or more of the preceding claims, **characterized in that** said implement comprises moreover limit means for limiting a swinging movement amplitude of said structure.
10. A physical training implement, according to claim 9, **characterized in that** said limit means comprise side extensions (20) of said pedestal beams.

11. A physical training implement, according to Claim 11, **characterized in that** said side extensions (20) are provided with bearing foot elements (22) which, in a vertical equilibrium condition of said structure, are spaced above said floor and have an adjustable height. 5
12. A physical training implement, according to claims 1-7, **characterized in that** said implement comprises moreover resilient means (23) hindering the swinging movement of said structure about said pivot axis. 10
13. A physical training implement, according to claim 1, **characterized in that** said structure is provided, at a bottom portion thereof, with resilient bearing foot elements (16), said resilient foot elements (16) being spaced, on opposite sides, from said longitudinal middle plane and from a cross middle plane of said structure. 15
14. A physical training implement, according to Claim 14, **characterized in that** said resilient bearing foot elements (16) comprises spring elements (16) coupled to a bottom portion of said pedestal cross beams. 20 25

#### Patentansprüche

1. Körpertrainingsgerät (1) zum Trainieren der Bauchmuskulatur, mit einem Rahmen (2), der zwei Trägerabschnitte aufweist, die an einem Ende starr miteinander verbunden sind und so im wesentlichen zwei Seiten eines vertikalen Dreiecks definieren, wobei jeder Trägerabschnitt an dem anderen Ende in der Mitte eines horizontalen Querträgeruntergestells (6) befestigt ist, wobei einer der Trägerabschnitte eine flache Benutzer-Trägerbasis (3) trägt und der andere Trägerabschnitt ein einander gegenüberliegendes Paar horizontaler Querträgerelemente aufweist, **dadurch gekennzeichnet, daß** das Gerät weiterhin mit der Unterseite der horizontalen Querträgeruntergestelle (6) verbundene Schwingmittel (5a,5b,7a,7b,8,11,13a,13b) aufweist, wobei die Schwingmittel ein Schwingen der Vorrichtung im Verhältnis zum Boden ermöglichen. 30 35 40 45
2. Körpertrainingsgerät nach Anspruch 1, **dadurch gekennzeichnet, daß** die Schwingmittel (5a,5b,7a,7b) ein Paar gekrümmter Elemente (5a,5b,7a,7b) umfassen, wobei jedes der Paare gekrümmter Elemente (5a,5b,7a,7b) auf der Unterseite eines der horizontalen Querträgeruntergestelle (6,9a,9b) angeordnet ist. 50 55
3. Körpertrainingsgerät nach den Ansprüchen 1 oder 2, **dadurch gekennzeichnet, daß** das Paar gekrümmter Elemente (5a,5b) direkt auf den Untergestellträgern (6) ausgebildet ist.
4. Körpertrainingsgerät nach Anspruch 1, **dadurch gekennzeichnet, daß** die Schwingmittel (8) ein mit den Querträgeruntergestellen (9a,9b) verbundenes, gekrümmtes Trägerelement (8) umfassen.
5. Körpertrainingsgerät nach Anspruch 1, **dadurch gekennzeichnet, daß** die Schwingmittel (11) ein Deckelement (11) mit einer in einem Zentralbereich zwischen den Untergestellträgern verbundenen Basis aufweisen.
6. Körpertrainingsgerät nach einem oder mehreren der vorangegangenen Ansprüche 1 bis 3, **dadurch gekennzeichnet, daß** die Schwingmittel (13a,13b) zwei Deckelemente umfassen, wobei jeweils Basisabschnitte der Deckelemente (13a,13b) mit den Untergestellträgern verbunden sind.
7. Körpertrainingsgerät nach Anspruch 1, **dadurch gekennzeichnet, daß** die Struktur an tragenden Fußelementen (14a,14b) um eine horizontale Drehachse drehbar gelagert ist. 30
8. Körpertrainingsgerät nach Anspruch 1, **dadurch gekennzeichnet, daß** die Trägermittel ein Paar von Schwingmitteln (18, 19) umfassen, die an ihren Bodenabschnitten gekrümmt und mit dem Bodenabschnitt der Struktur verbunden sind, wobei sich die Trägerelemente auf einer zentralen vertikalen Achse der Struktur kreuzen, wobei die gekrümmten Trägerelemente, die die zwei tragenden gekrümmten Flächen definieren, jeweils Krümmungsachsen aufweisen, die jeweils parallel und senkrecht zu einer mittleren Längsebene verlaufen. 35 40 45
9. Körpertrainingsgerät nach einem oder mehreren der vorangegangenen Ansprüche, **dadurch gekennzeichnet, daß** das Gerät darüber hinaus Begrenzungsmittel zum Begrenzen einer Schwingungsbewegungsbandbreite der Struktur aufweist. 50
10. Körpertrainingsgerät nach Anspruch 9, **dadurch gekennzeichnet, daß** die Begrenzungsmittel Seitenverlängerungen (20) der Untergestellträger umfassen. 55
11. Körpertrainingsgerät nach Anspruch 11, **dadurch gekennzeichnet, daß**

die Seitenverlängerungen (20) mit tragenden Fußelementen (22) versehen sind, die in einem vertikalen Gleichgewichtszustand der Struktur über dem Boden beabstandet sind und eine einstellbare Höhe aufweisen.

**12. Körpertrainingsgerät nach den Ansprüchen 1 bis 7, dadurch gekennzeichnet, daß**

das Gerät darüber hinaus federnde Mittel (23) aufweist, die die Schwingbewegung der Struktur um die Drehachse hemmen.

**13. Körpertrainingsgerät nach Anspruch 1, dadurch gekennzeichnet, daß**

die Struktur an ihrem Bodenabschnitt mit federnden, tragenden Fußelementen (16) versehen ist, wobei die federnden, tragenden Fußelemente (16) auf gegenüberliegenden Seiten von der mittleren Längsebene und von einer mittleren Querebene der Struktur beabstandet angeordnet sind.

**14. Körpertrainingsgerät nach den Anspruch 14, dadurch gekennzeichnet, daß**

die federnden, tragenden Fußelemente (16) mit einem Bodenabschnitt der Untergestell-Querträger verbunden sind.

### Revendications

1. Dispositif d'entraînement physique (1) pour exercer les muscles abdominaux, comprenant un cadre (2) consistant en deux parties de rayon, qui sont connectées de manière rigide l'une à l'autre par une extrémité, de ce fait définissant sensiblement deux côtés d'un triangle vertical, chaque partie de rayon étant attachée à l'autre extrémité au milieu d'un appui de rayon transversal horizontal (6), l'une des parties de rayon supportant une base de support (3) plate pour l'utilisateur et l'autre partie de rayon possédant une paire mutuellement opposée d'éléments de support transversaux, **caractérisé en ce que** ledit dispositif comprend en outre des moyens de balancement (5a, 5b, 7a, 7b, 8, 11, 13a, 13b) connectés en dessous des appuis de rayon transversaux horizontaux (6), cesdits moyens de balancement permettent au dispositif de balancer par rapport au sol.
2. Dispositif d'entraînement physique, selon la revendication 1, **caractérisé en ce que** lesdits moyens de balancement (5a, 5b, 7a, 7b) comprennent une paire d'éléments courbés (5a, 5b, 7a, 7b) chacune de cesdites paires d'éléments courbés (5a, 5b, 7a, 7b) étant disposés en dessous d'un des appuis de rayon transversaux horizontaux (6, 9a, 9b).
3. Dispositif d'entraînement physique, selon les revendications 1 ou 2, **caractérisé en ce que** ladite paire d'éléments courbés (5a, 5b) est directement formé sur les rayons d'appui (6).
4. Dispositif d'entraînement physique, selon la revendication 1, **caractérisé en ce que** ledit élément de balancement (8) comprend un élément de support courbé (8) couplé audits rayons d'appui transversaux (9a, 9b).
5. Dispositif d'entraînement physique, selon la revendication 1, **caractérisé en ce que** ledit élément de balancement (11) comprend un élément supérieur (« cap element ») (11) présentant une base couplée à la région centrale entre lesdits rayons d'appui.
6. Dispositif d'entraînement physique, selon la revendication 3, **caractérisé en ce que** lesdits éléments de balancement (13a, 13b) comprennent deux éléments supérieurs, lesdits éléments supérieurs (13a, 13b) présentant des parties de base respectives couplées audits rayons d'appui.
7. Dispositif d'entraînement physique, selon la revendication 1, **caractérisé en ce que** ladite structure est pivotable grâce à des éléments de pieds de support (14a, 14b) autour d'un axe de pivot horizontal.
8. Dispositif d'entraînement physique, selon la revendication 1, **caractérisé en ce que** lesdits moyens de support comprennent une paire de moyens d'oscillation (18, 19), courbée aux parties inférieures de celle-ci, et couplée à la partie inférieure de ladite structure, lesdits éléments de supports traversant à un axe vertical central de ladite structure, lesdits éléments de support courbés définissant deux surfaces courbées de support présentant respectivement des axes de courbure respectivement parallèles et perpendiculaires à un plan médian longitudinal.
9. Dispositif d'entraînement physique, selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit dispositif comprend de plus des moyens de limite pour limiter une amplitude du mouvement de balancement de ladite structure.
10. Dispositif d'entraînement physique, selon la revendication 9, **caractérisé en ce que** ledit moyen de limite comprend des extensions de côté (20) sur lesdits rayons d'appui.
11. Dispositif d'entraînement physique, selon la revendication 11, **caractérisé en ce que** les extensions de côté (20) sont munies d'éléments de pieds de support (22) qui, dans une condition d'équilibre vertical de ladite structure, sont espacés dudit sol et

présentent une hauteur réglable.

12. Dispositif d'entraînement physique, selon les revendications 1-7, **caractérisé en ce que** ledit dispositif comprend de plus des moyens élastiques (23) empêchant le mouvement de balancement de ladite structure autour dudit axe de pivot. 5
13. Dispositif d'entraînement physique, selon la revendication 1, **caractérisé en ce que** ladite structure est munie, à la partie inférieure de celle-ci, d'éléments de pieds de support élastiques (16), lesdits éléments de pieds élastiques (16) étant espacés, sur les côtés opposés, à partir dudit plan médian longitudinal et à partir du plan médian transversal de la dite structure. 10 15
14. Dispositif d'entraînement physique, selon la revendication 13, **caractérisé en ce que** les éléments de pieds de support élastiques (16) comprennent des éléments de type ressort (16) couplés à une partie inférieurs desdits rayons d'appui transversaux. 20

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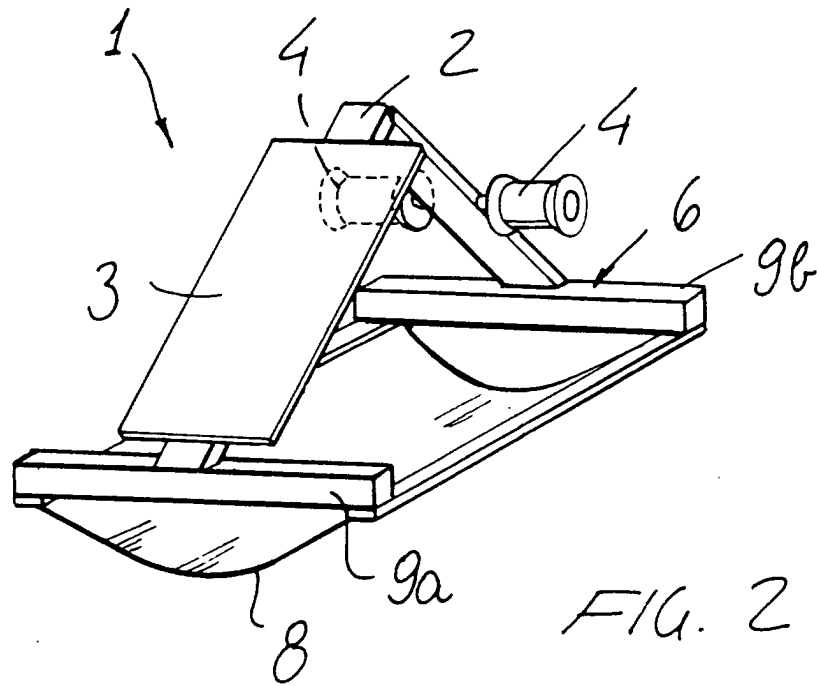
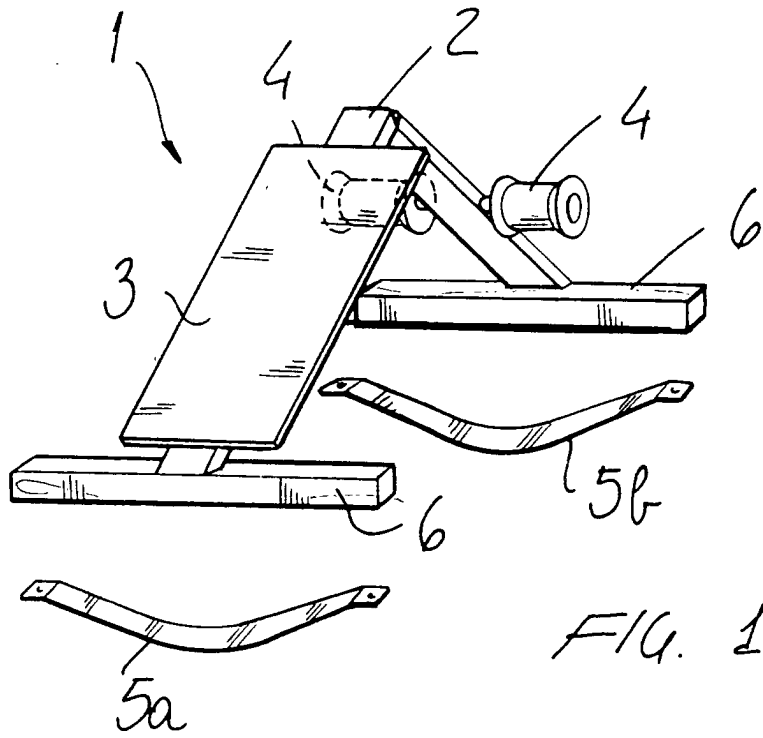
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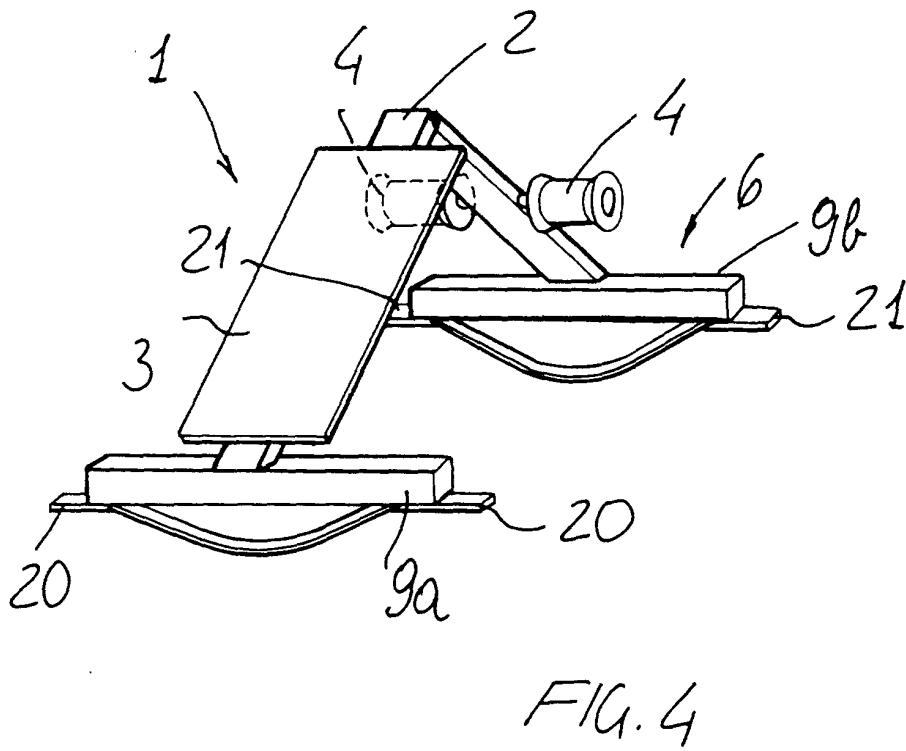
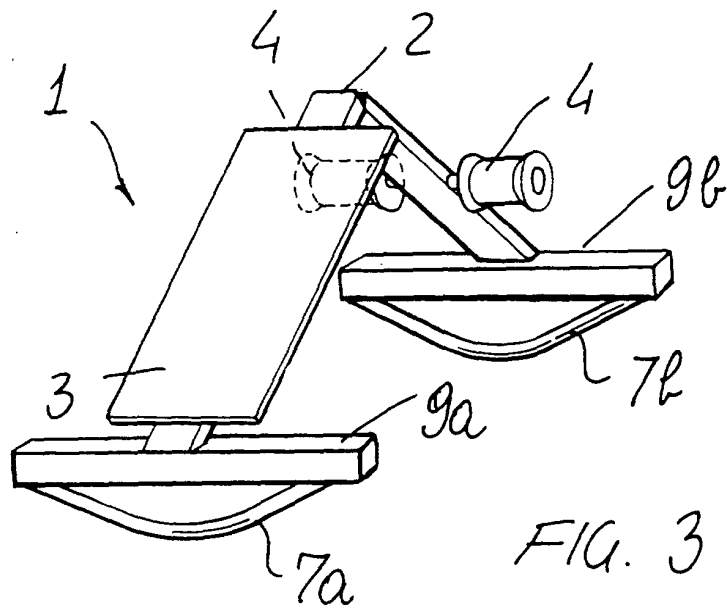
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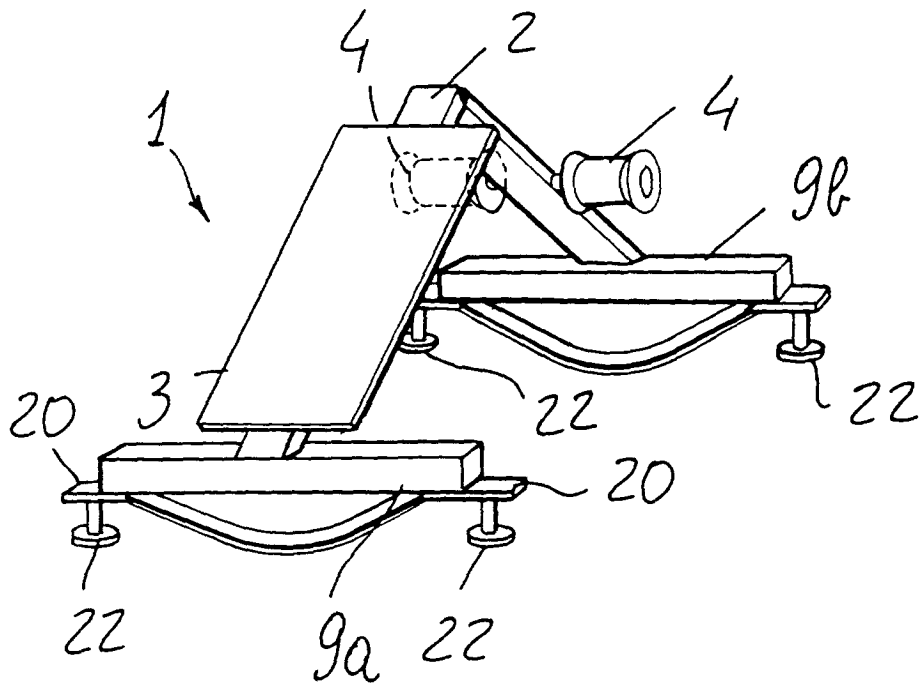


FIG. 5

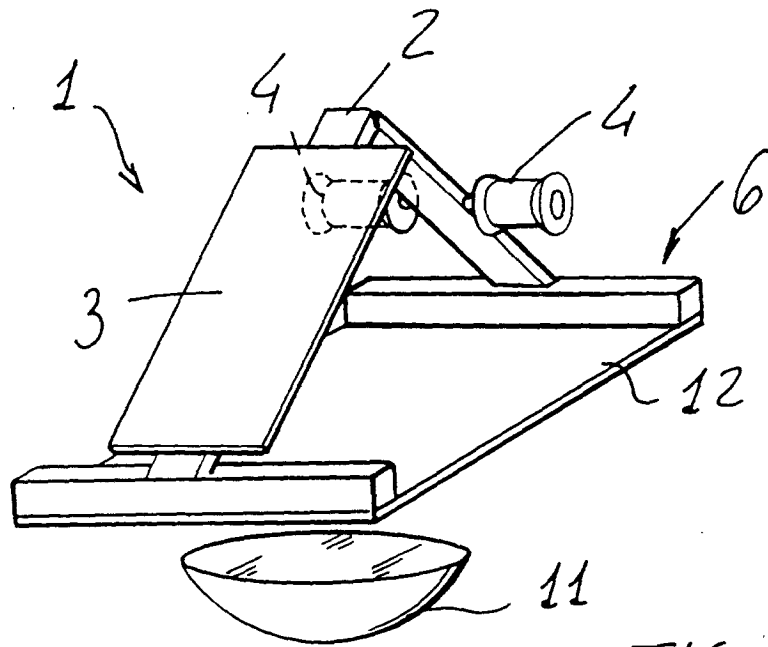
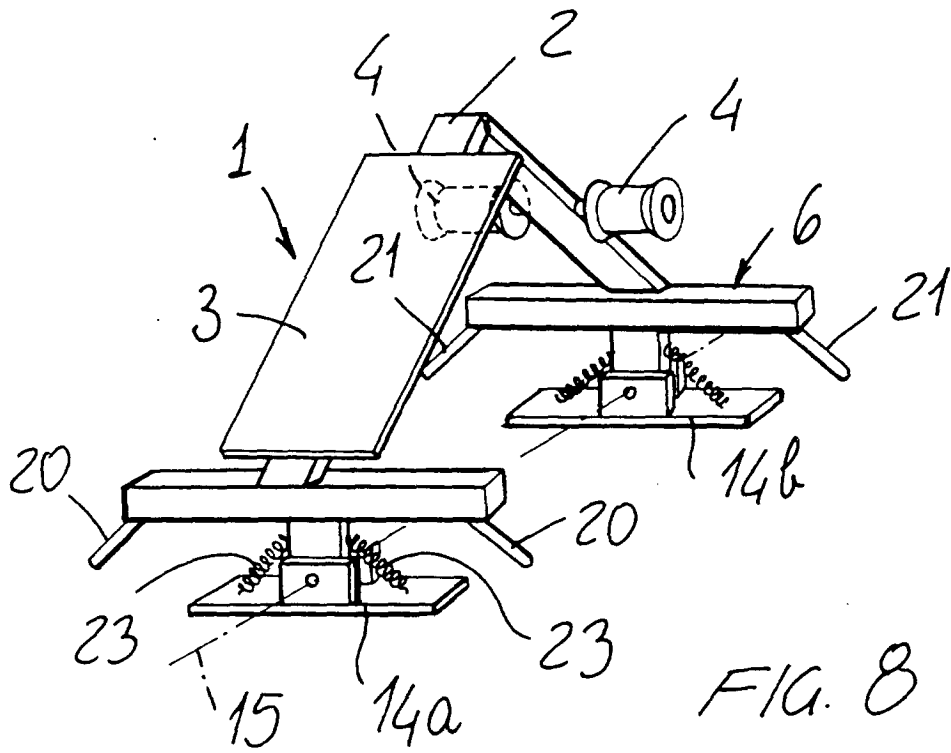
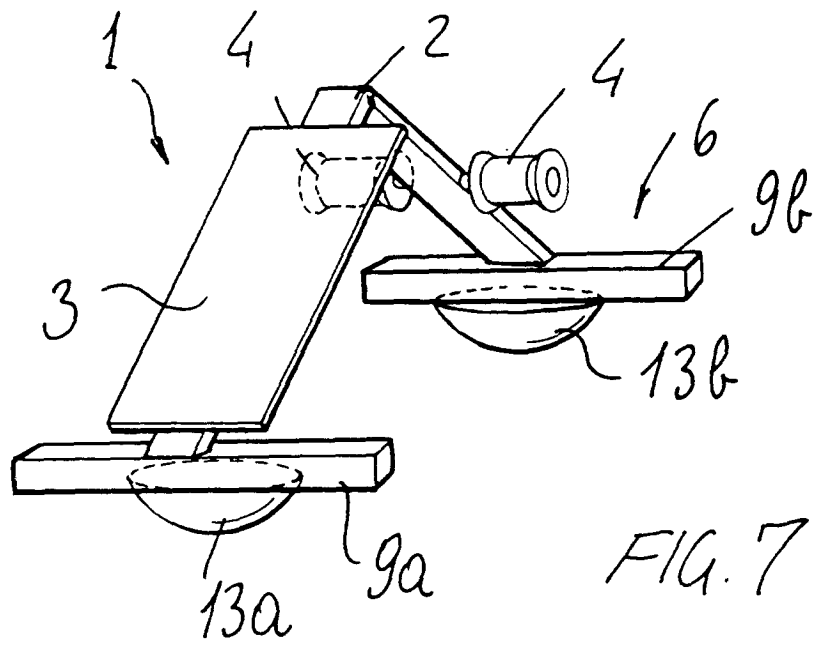
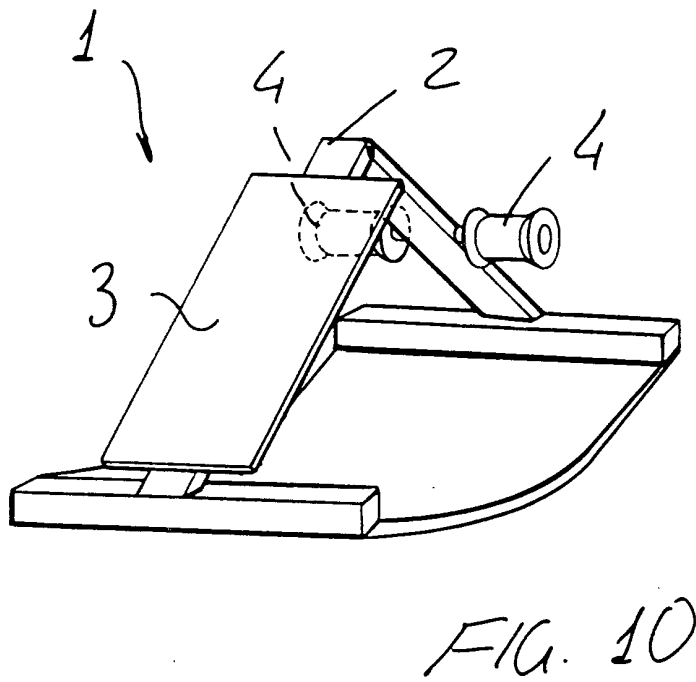
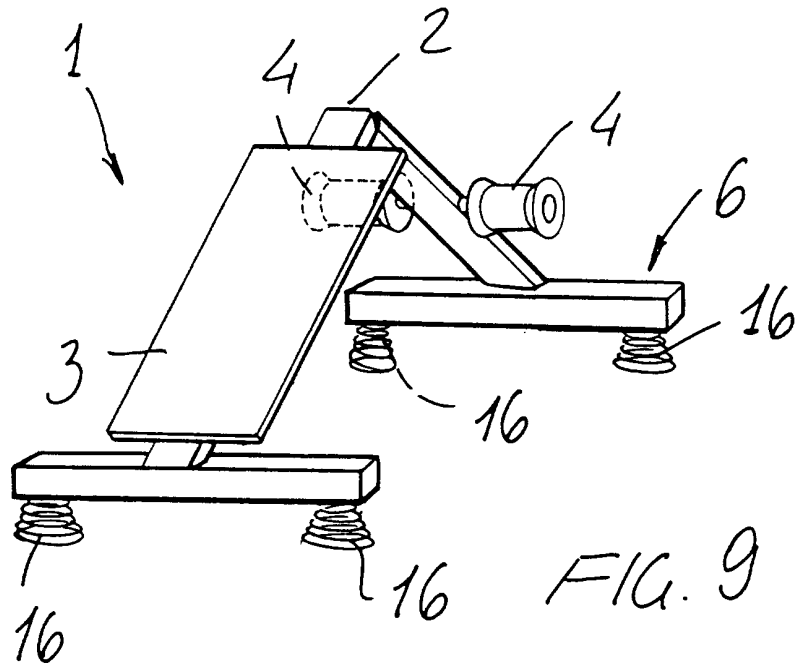


FIG. 6





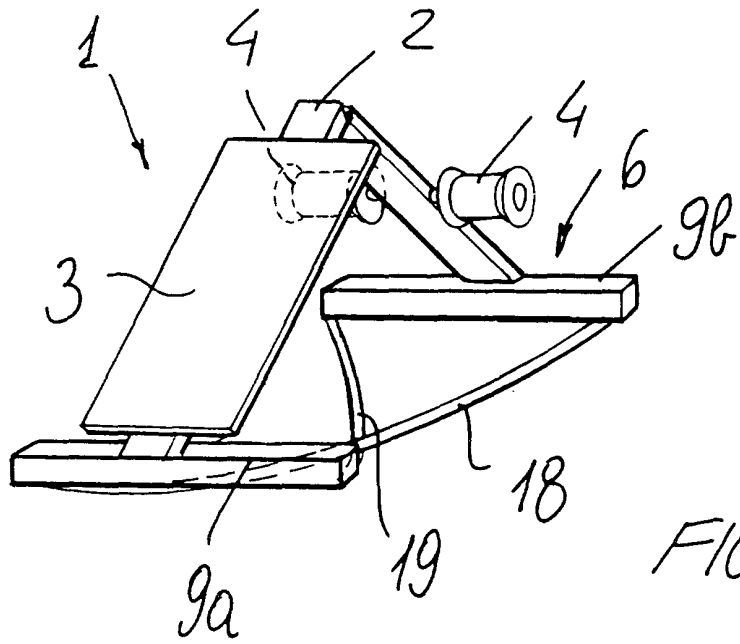


FIG. 11

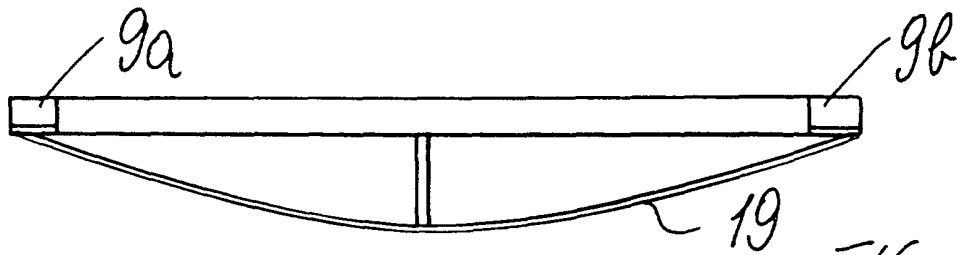


FIG. 12

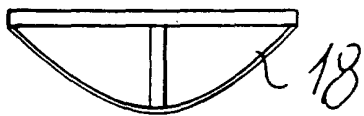


FIG. 13

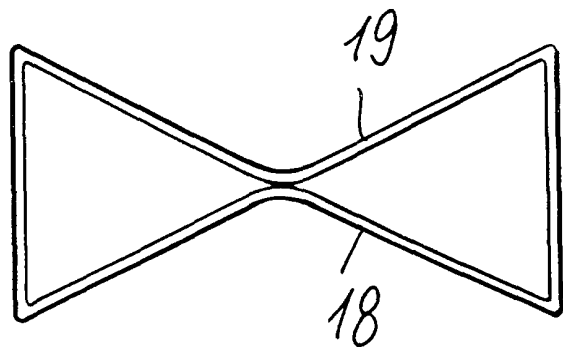


FIG. 14