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(54) **TRANSFORMABLE EXERCISE MACHINE FOR FUNCTIONAL EXERCISING**

(57) The present invention relates to devices for exercising separate portions of the body or entire groups of muscles simultaneously, and can be used for developing the main motor qualities: strength, endurance, flexibility, dexterity and coordination. The exercise machine for functional exercising comprises two bearing loops with handles, a cord and a pulley, a second pulley, two sling ropes, at least two safety hooks, a Tibloc and a spacing bar. Each bearing loop is provided on the handle-side with a second load-carrying loop and a third limiting loop, while the other end of the bearing loop is made in the form of loop for connection to the safety hook; the Tibloc has a safety hook attached thereto and is arranged on the cord having both ends in the form of loops for connection to the safety hook, while the sling ropes are also provided with loop-shaped members for connection to a safety hook and with pouches for attaching the spacing bar having a length corresponding to the shoulder width of the person exercising.

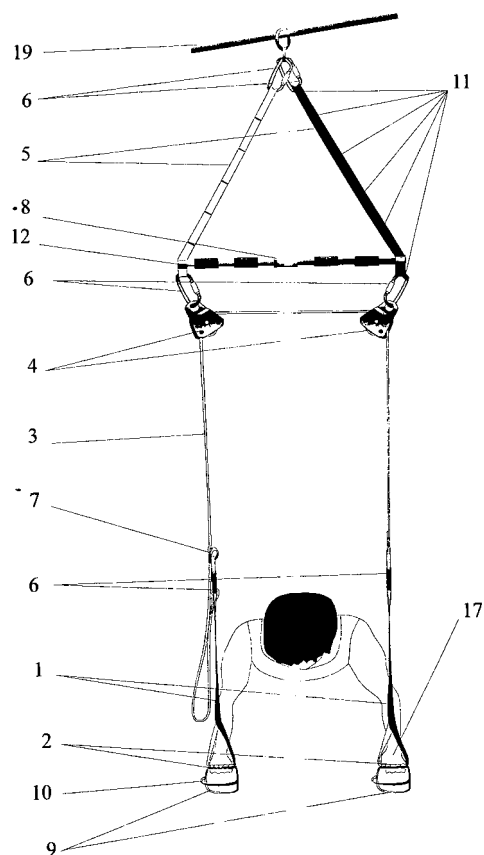


Fig. 1

Description

Technical Field

[0001] The present invention relates to devices for exercising separate portions of the body or entire groups of muscles simultaneously, and can be used for developing the main motor qualities: strength, endurance, flexibility, dexterity and coordination.

Background Art

[0002] The closest prior art 'prototype' of the proposed solution is an exercise machine comprising a handle with an attached flexible bar in the form of cord with a holding bight, an idler pulley with a binding collar, and the handle is made in the form of a rubberized loop (see RU 84 722 U1, cl. A63B 23/00, publ. 20.07.2009, report No. 20).

[0003] Disadvantages of the known device are: a low functionality for dynamic exercises, because when a user exercises with the arms positioned at the shoulder length, the cord hooked on the pulley rubs the body of the exercising person, hindering the progress of training; a low operating capability related to the necessity of attaching thereof to a special hook only, and impossibility of transformation of the prior art device for different training procedures.

[0004] Another disadvantage is an inconvenience of using the prototype, conditioned by fact that, in case of contact of the hand and forearm of the arm grasping the handle with the cord, the latter depresses the wrist and forearm with the bundle being the hardest part of the cord.

[0005] Yet, another disadvantage is impossibility of the prior art device to fix the foot inside the loop, resulting in that the foot, supported by the loop, may move against the handle, and even drop out from the loop, which leads to a decrease of the training effect and is associated with discomfort in the training process. These inconveniences limit applications of the aforementioned prior art device.

[0006] In addition, one of disadvantages of the prior art device is poor hygiene of using thereof, because the same handle is used for hand grasping as well as for foot securing.

[0007] The object of the present invention and its technical effect is to enhance the convenience of use of an exercise machine by means of elimination of rubbing the user's body with the cord during the carrying out of exercises with the user's arms, elimination of a negative impact of the loop with a bundle on the wrist in the training process, increasing the efficiency of using the device for feet training, extension of the application field of the exercise machine by means of making the attachment universal and providing a transformation capacity of the exercise machine, as well as increasing the safety of use of the exercise machine by means of improvement of the hygienic conditions of training.

[0008] This object has been achieved by providing a

functional training exercise machine comprising: two supporting loops with handles; a cord; a first pulley; a second pulley; two straps; at least two carabiners, a TIBLOC (rope clamp, ascender), and a spacing bar. Each aforesaid supporting loop is made of a band and provided on the handle-side with a second load-carrying supporting loop and a third limiting loop, while the other end of the supporting loop is made in the form of loop for connection to the carabiner; the TIBLOC is attached to a carabiner; the TIBLOC is arranged on the cord having both ends in the form of loops for connection to the carabiner, while the straps are also provided with loop-shaped members for connection to the carabiner and with pouches for attaching the spacing bar having a length corresponding to the shoulder width of the exercising person.

[0009] Features:

[0010] - the straps with the pulleys, as well as the cord with the supporting loops are connected to each other by means of the carabiners;

[0011] - the straps are made in the form of twin band with cross stitches forming loop-shaped elements for fastening the carabiners;

[0012] - the handles are made in the form of cylinders of low-elastic material with a relief coating for comfort grip;

[0013] - surface of the handles is rubberized,

[0014] - surface of handles is made of leather;

[0015] - the planes of the second load-carrying supporting loop and the third limiting loop are mutually perpendicular to one another;

[0016] - the spacing bar is collapsible and consists of a set of bushings with cylindrical protrusions wherein each protrusion has a smaller diameter than that of the respective bushing;

[0017] - the length of the spacing bar is selected for 10-15 cm wider than the shoulder width of the exercising person;

[0018] - the used pulleys correspond to rolls of a mountain climbing outfit with a hole for fastening a carabiner;

[0019] - the cord corresponds to a rope of the mountain climbing outfit;

[0020] - the connection of the band of supporting loop engaged with the handle has an Y-like shape,

[0021] - the angle of mutual arrangement of the bands forming the support at the point of their connection amounts from 20 to 70 degrees,

[0022] - the point of connection of bands forming the supporting loop is covered with a patch;

[0023] - the second load-carrying supporting loop is connected through a hole in the handle.

Brief Description of Drawings

[0024] The claimed invention is illustrated by the drawings, where Fig. 1 depicts the exercise machine for functional training, fitted with collar (hook), Fig. 2 shows an exercise machine fitted to spaced racks, in Fig. 3 an exercise machine transformed into one-pulley apparatus

for feet training is shown, Fig. 4 shows in a detail a load-carrying supporting loop against the wrist of an exercising person at the grip of the handle, Fig. 5 illustrates the spacing bar, Fig. 6 shows an exercise machine transformed into a "rings" type apparatus, Fig. 7 shows in a detail a load-carrying supporting loop with exercising person's foot with upward-pointing toes, Fig. 8 shows in a detail a load-carrying supporting loop with exercising person's foot with downward-pointing toes.

[0025] The following reference numerals are utilized in the drawings:

- [0026] 1 - supporting loop,
- [0027] 2 - handle,
- [0028] 3 - cord,
- [0029] 4 - pulley
- [0030] 5 - strap,
- [0031] 6 - carabiner
- [0032] 7 - TIBLOC,
- [0033] 8 - spacing bar,
- [0034] 9 - second load-carrying supporting loop,
- [0035] 10 - third limiting loop,
- [0036] 11 - loop-shaped elements of the straps,
- [0037] 12 - pouches for attaching the spacing bar,
- [0038] 13 - cross stitches of the straps, forming loop-shaped elements for fastening to the carabiner,
- [0039] 14 - sockets of the spacing bar,
- [0040] 15 - cylindrical elements (protrusions) of the spacing bar,
- [0041] 16 - patch covering the point of Y-shaped connection of the bands of supporting loop,
- [0042] 17 - exercising person's hand,
- [0043] 18 - exercising person's foot,
- [0044] 19 - horizontal bar,
- [0045] 20 - angle of fitting the bands of a load carrying supporting loop.

Description of Embodiments

[0046] The exercise machine for functional exercising comprises two load-carrying supporting loops with handles, a cord and a first pulley, a second pulley, two straps, at least two carabiners, a TIBLOC, and a spacing bar. Each load-carrying supporting loop is provided on the handle-side with a second load-carrying supporting loop and a third limiting loop, while the other end of the supporting loop is made in the form of loop for connection to the carabiner; the TIBLOC is attached to a carabiner; the TIBLOC is arranged on the cord having both ends in the form of loops for connection to the carabiner, while the straps are also provided with loop-shaped members for connection to a carabiner hook and with pouches for attaching the spacing bar, the length of which is for 10-15 cm more than the shoulder width of the exercising person.

[0047] The straps are made in the form of a twin band with cross stitches to fasten the carabiner.

[0048] The handles are made in the form of rigid or low-elastic cylinders with relief coating for comfort grip.

[0049] The surface of the handles is rubberized, or

[0050] the surface of the handles is made of leather.

[0051] The planes of the second load-carrying supporting loop and third limiting loop are mutually perpendicular to one another.

5 [0052] The spacing bar is collapsible and consists of a set of bushings with cylindrical protrusions, wherein each protrusion has a diameter less than a diameter of the respective bushing.

10 [0053] The pulleys correspond to those used in a mountain climbing outfit with a hole for securing the pulley onto gear the carabiner. The quick opening of such pulleys allows a fast mounting, assembling and transforming of the exercise machine.

15 [0054] The cord corresponds to a dynamic rope of a mountain climbing outfit.

[0055] The load-carrying supporting loop is made of one band threaded through the handle, the ends of which at the point of connection (looping) are secured in a Y-shaped configuration, at an angle of 20 to 70 degree, and the connection point of the supporting loop bands is covered with a patch.

20 [0056] The second load-carrying supporting loop is connected (looped) through a hole in the handle. The second load-carrying supporting loop and third limiting loop are made in the form of band.

25 [0057] The exercise machine for functional exercising is used as follows.

30 [0058] The claimed exercise machine is used for functional exercising and can ensure heavy loads for the exercising person, because the moving structure of the exercise machine makes the exercising person's muscles getting involved in work to stabilize the body in space.

35 [0059] The assembling of elements of the exercise machine is made with the carabiners, which connect the supporting loops with the cord interacting with the pulleys as well as with the carabiners. The straps may be attached to almost any support: a ring, hook, horizontal bar, ledge, or, for example, may be secured in a gap between a door panel and a door frame. Such universality of the fixing is ensured by that fact that the straps are flexible bands furnished with locks in the form of carabiners at both ends of the straps, whereas the carabiner may be fasten to a loop element of the strap at any point thereof, so the strap may be attached or winded around a horizontal bar, a tree branch, a ledge, etc. This design feature of the strap ensures a possibility of adjustment of the suspension height of the exercise machine by choosing the corresponding place on the strap with cross stitches for fastening to carabiner.

50 [0060] The spacing bar with corresponding pouches on the straps provides for the location of the supporting loops hanging down approximately at the distance of shoulder width of the exercising person (a little more than the shoulder width), which is optimal in terms of biomechanics of human's movement for carrying out dynamic exercises focusing on the development of the upper body when the exercising person leans on the handles. In this case, rubbing the exercising person's skin by the sup-

porting loop is eliminated, which increases the comfort and efficiency of the exercises. The spacing bar itself is collapsible and consists of separate elements in the form of bushings with cylindrical protrusions, making possible to adjust the length of spacing bar corresponding the parameters of exercising person (10-15 cm wider than the shoulder width).

[0061] The spacing bar is used in those cases, when the straps are attached to the support at one point and the load on the supporting loops causes approaching the opposite ends of the straps with the pulleys hanging on them. If the straps are attached in spaced points (FIG. 2), for example, on vertical supports of wall bars, the spacing bar may not be installed.

[0062] The ends of the straps are connected with the pulleys by the carabiners, through which rolls the cord is threaded. The TIBLOC is attached to the cord ensuring the easy adjustment of the exercise machine's length by moving the TIBLOC along the cord. The length of cord is about 3 meters.

[0063] One of the supporting loops is fastened to one of the ends of the cord with the carabiner, the other supporting loop is fastened to the TIBLOC so that the distance between the handles and the pulleys facilitates a convenient and effective exercising. To eliminate the cord dangling, its end may be fastened to the corresponding carabiner (FIG. 1). The length of the supporting loops is about 800 mm, so that the TIBLOC does not contact with the exercising person's body.

[0064] In addition to the handle, the supporting loop comprises the second load-carrying supporting loop to put the foot in it during exercising the feet muscles.

[0065] The third limiting loop jointly with the handle ensure securing the foot in the second load-carrying supporting loop, which allows an effective exercising of the legs in a wide range of lifting angle without foot slipping. The effect of the presence of the second load-carrying supporting loop and securing of the foot is a convenience feeling during exercising and improvement of the hygienic conditions at the use of the exercise machine, because the foot is not put on the handle, which also facilitates the progress of the exercising and increases the safety of the exercise machine.

[0066] A characteristic of the load-carrying supporting loop is also a covering patch and the connection of the bands (the ends of bands) threaded through the open end hole in the handle, which are fastened in an Y-shaped manner (FIG. 7), i.e. at an angle with each other, while this angle depends on the hardness of the bands' material could be in a range 20 to 70 degree, that in case of loading on the loop, ensures turning the plane of bands' connection, which plane is oriented parallel to the axis of the handle. Such parallel arrangement of the plane of bands' connection excludes a negative effect of the frontal part of the band acting upon the wrist, and it increases the effectiveness of exercising. The point of connection does not protrude to the direction of the exercising persons arm, and, in case of contacting with the arm, it overlays

at the wrist with the flat side thereof (FIG. 4), excluding a skin injury. The presence of the patch in the place of bands' overlap made of soft material or leather, cushions the contact, and allows the exercising person to pay more attention to the process of exercising without distraction caused by side annoyances.

[0067] One of aforementioned transformations of the claimed exercise machine is elimination of one pulley, if necessary. In this form, the exercise machine (FIG. 3) may be effectively used for feet exercising or exercising of the feet and arms simultaneously.

[0068] Next transformation of the claimed exercise machine (FIG. 6) is its implementation in the form of supporting loops fastened to the horizontal bar. In this case, the exercise machine takes the form of a "ring" apparatus and may be effectively used for power exercising, being a characteristic of gymnastic rings.

[0069] The claimed exercise machine may be installed also on the door panel with fastening the straps to the gap between the door panel and door frame.

[0070] The exercise machine for functional exercising may be manufactured based on commercially available and certified items of mountain climbing equipment: straps, carabiners, synthetic ropes, TIBLOCS, etc.

[0071] Thus, the claimed exercise machine ensures increasing exercise convenience, inter alia due to elimination of rubbing the cord and the body during arm exercising, elimination of a negative effect of the supporting loop on the wrist during exercising, improvement of exercise efficiency during feet exercising, expansion of the application field of the device due to the attachment universal providing the transformation capacity of the exercise machine to expand the range of exercises, and increasing the safety of use by means of improvement of the hygienic conditions of exercising.

Claims

1. A functional exercising machine, comprising two supporting loops with handles, cord and pulley, **characterized in, that** it has a second pulley, two straps, at least two carabiners, a Tibloc and a spacing bar, and each of the supporting loops is made from band and provided on the handle-side with a second load-carrying supporting loop and a third limiting loop, and at the other end of the supporting loop there is a loop to connect to the carabiner, the Tibloc with an attached carabiner is arranged on the cord, at both ends of which there are loops to connect to the carabiner, straps are also provided with loop-shaped elements to connect to the safety carabiner, as well as with pouches to attach the spacing bar, its length is selected on base of the width of the shoulders of the exercising person.
2. The exercise machine of claim 1, wherein the straps with the pulleys and the cord with the supporting loop

are connected to each other with carabiners.

3. The exercise machine of claim 1, wherein the straps comprise a twin band with cross stitches, forming loop-shaped elements for the connection to carabiners. 5
4. The exercise machine of claim 1, wherein the handles are made in a form of cylinders of low-elastic material with relief coating for convenient grip. 10
5. The exercise machine of claim 1, wherein the surface of handles is rubberized.
6. The exercise machine of claim 1, wherein the surface of handles is coated with leather. 15
7. The exercise machine of claim 1, wherein the planes of the second carrying loop and third limiting loops are oriented mutually perpendicular. 20
8. The exercise machine of claim 1, wherein the spacing bar is collapsible and consists of a set of bushings with cylindrical protrusions of smaller diameter. 25
9. The exercise machine of claim 1, wherein the selected length of the spacing bar is 10-15 cm longer than the width of the shoulders of the exercising person.
10. The exercise machine of claim 1, wherein the pulleys correspond to pulleys of a mountain climbing outfit with a hole for fastening a carabiner. 30
11. The exercise machine of claim 1, wherein the used cord corresponds to a rope of a mountain climbing outfit. 35
12. The exercise machine of claim 1, wherein the connection of the bands of the supporting loop equipped with the handle is Y-shaped. 40
13. The exercise machine of claim 1, wherein the angle of configuration of the bands of the supporting loop at the point of their connection amounts 20 to 70 degrees. 45
14. The exercise machine of claim 1, wherein the connection point of the bands of supporting loop is covered with a patch. 50
15. The exercise machine of claim 1, wherein the second supporting loop is connected through a hole in the handle. 55

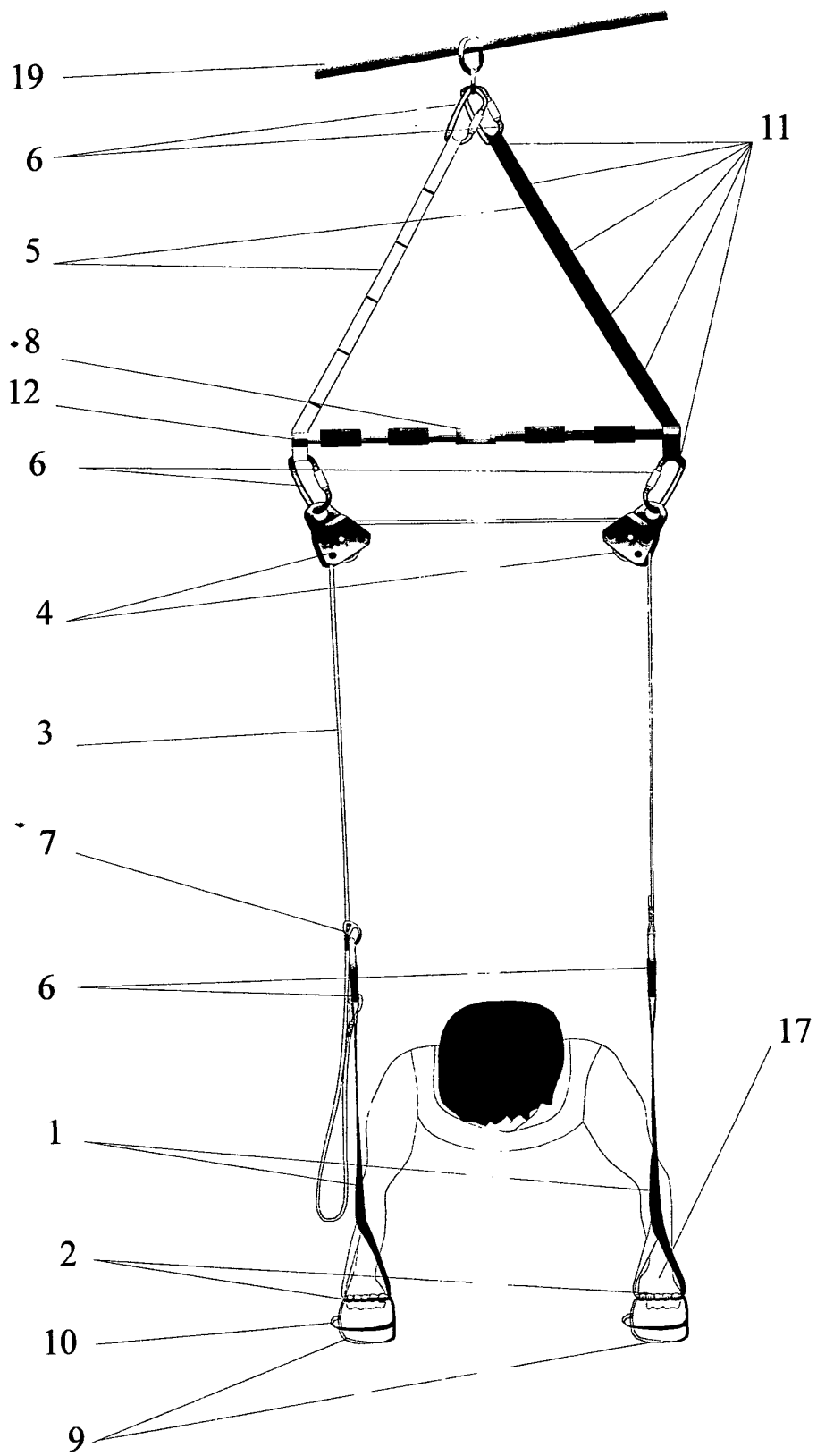


Fig. 1

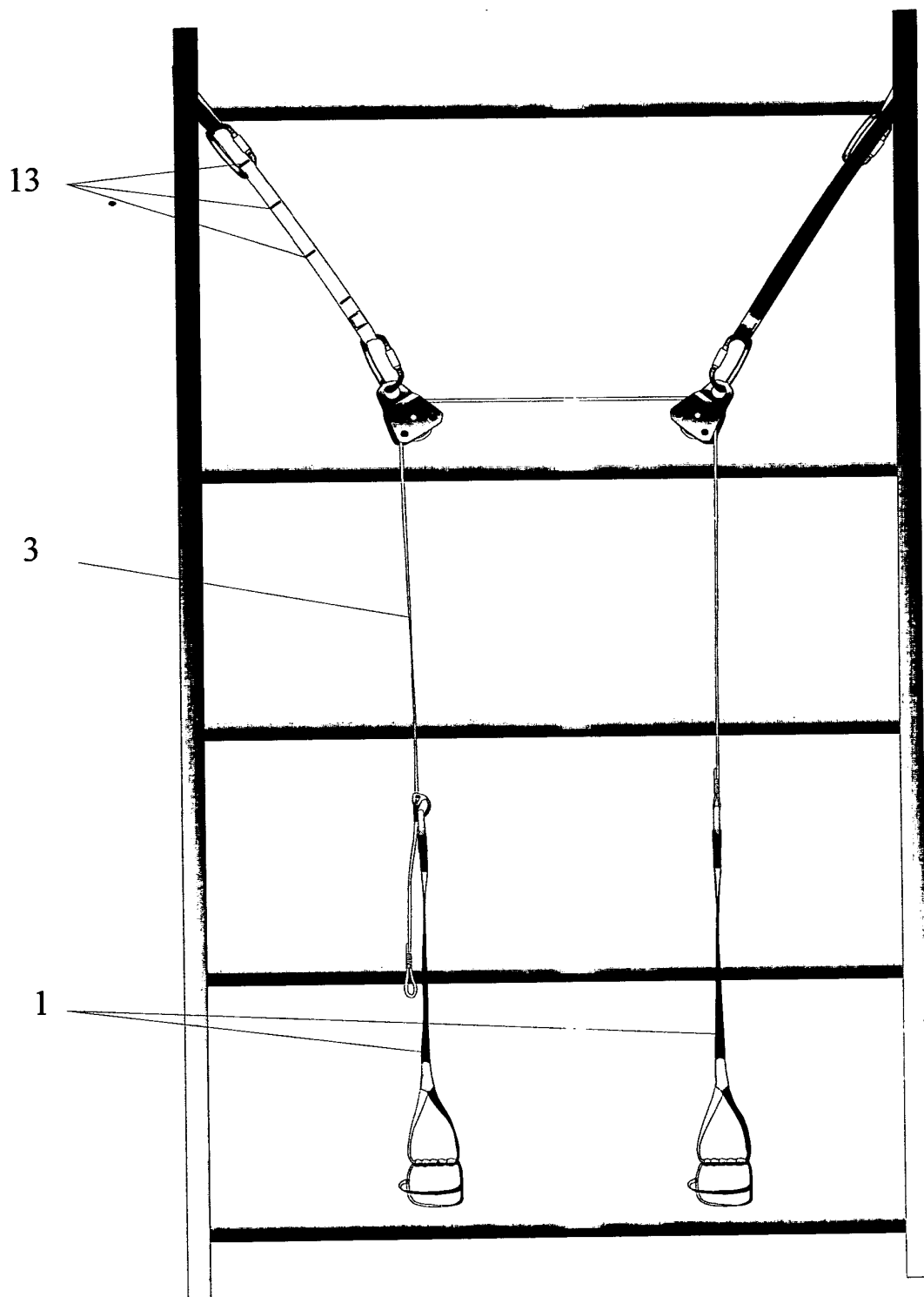


Fig. 2

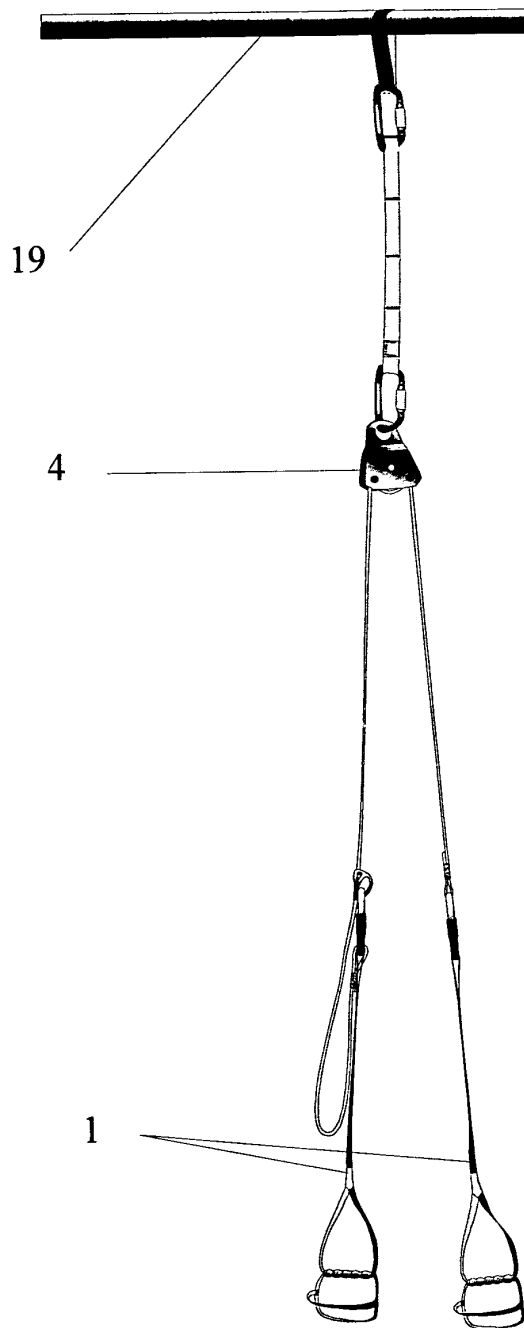


Fig. 3

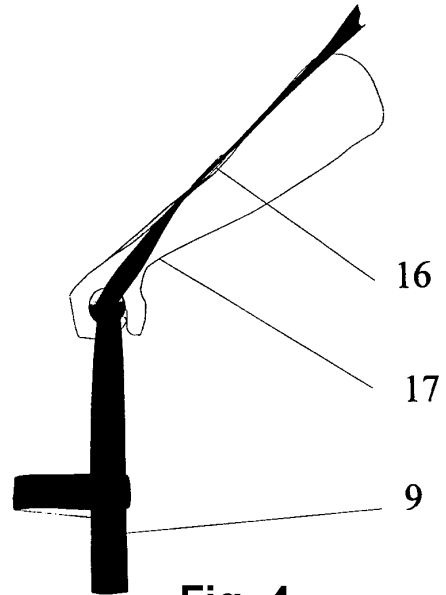


Fig. 4

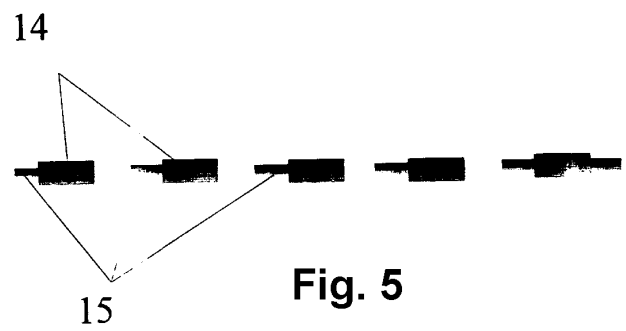


Fig. 5

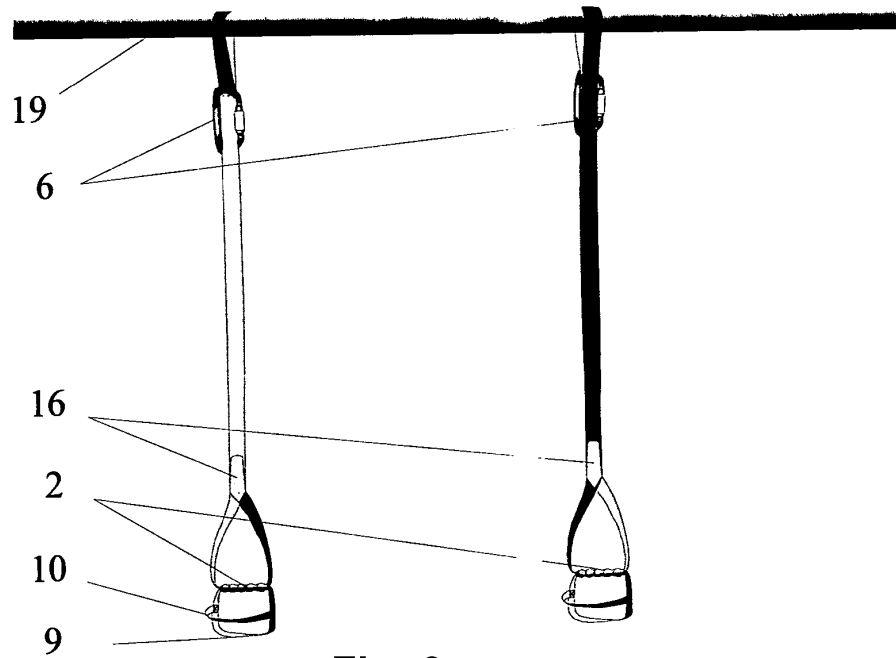


Fig. 6

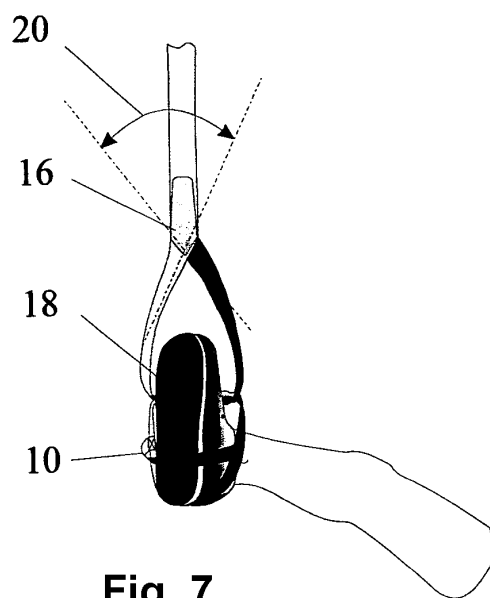


Fig. 7

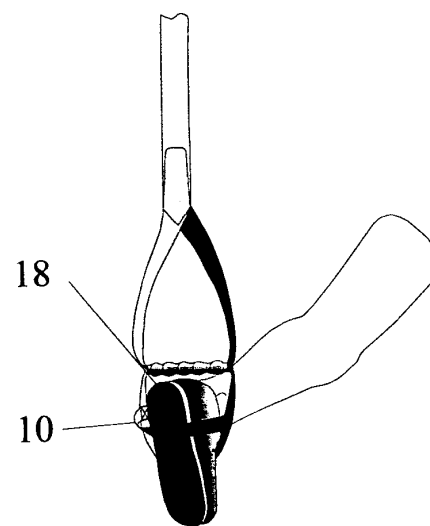


Fig. 8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/RU 2010/000761

A. CLASSIFICATION OF SUBJECT MATTER A63B 23/00 (2006.01) 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) A63B 23/00, 23/035, 23/04, 23/08, 23/12, 23/14, 23/16 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Esp@senet, PatSearch		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004/0204301 A1 (RANDAL A. HETRICK) 14.10.2004, the claims, fig. 1-9	1-15
A	KR 200436896 Y1 (RYU CHANG KUN) 15.10.2007, the claims, fig. 1, 2, 3	1-15
A	RU 84722 U1 (DOLINOV NIKOLAI VLADIMIROVICH) 20.07.2009, the abstract	1-15
☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
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Date of the actual completion of the international search 11 May 2011 (11.05.2011)		Date of mailing of the international search report 19 May 2011 (19.05.2011)
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Patent documents cited in the description

- RU 84722 U1 [0002]