Title: GYM MACHINE FOR DIP EXERCISES AND TWIST WORKOUT

(57) Abstract: The invention relates to a gym machine for dip exercises in combination with body twist during a workout, said gym machine comprising frame members (1, 2, 5, 8), a seat (15), a weight stack (3), and means (6) for supporting the weight stack movably on the frame members, and means (9, 10) for moving the weight stack (3) in response to a performance by the user. The gym machine further comprises a chain element (11) connected to the means (9, 10) for moving the weight stack (3), and a handle element (12) attached to one end of the chain element (11) for a user to perform the exercise movement. The gym machine further comprises brace elements (13, 14, 16, 17) for steadying the user in a performing position for dip exercise in combination with body twist for the duration of performing the workout, said brace elements comprising an upper leg support (13), lower forward leg support (16) and lower rearward leg supports (17), as well as a handgrip (14) for steadying the non-supporting arm. In the gym machine, the brace elements make up a support for the user in a performing position with the hand of a performing arm in engagement with the handle element (12) of the chain element (11), with the leg crosswise relative to the performing arm, i.e. the forward leg, being secured with its thigh portion against a bottom surface of the upper leg support (13) and with its foot in the lower forward leg support (16), with the non-performing arm being supported on the handgrip (14) by its hand and on a top surface of the upper leg support (13) by its forearm, with the rearward leg being secured by its foot in the lower rearward leg support (17).
Gym machine for dip exercises and twist workout

The invention relates to a gym machine for dip exercises in combination with body twisting during a workout. More specifically, the invention relates to a gym machine as set forth in the preamble of claim 1 for dip exercises in combination with body twisting during a workout.

As known in the prior art, dip exercise is one of the most effective workout movements performed in a gym, working primarily on pectorals, abductors, and triceps. Typically, the prior known dip exercise equipment is based on the use of both arms during a workout. On the basis of back working pulldown equipment disclosed in the prior art, it is known to use a weight stack as resistance and to move the weight stack by means of a mechanism while performing the gym exercise. It is likewise prior known to sit on a seat of the exercise machine during a workout.

One drawback in dip exercise stands known from the prior art is the addition of extra weights, since the extra weights are suspended by a belt on the waist and between the legs of an exerciser. In addition, the movement is too demanding for women and many men to perform with everyone having at least his/her body weight to lift, without extra weights.

Another drawback with dip exercise equipment known from the prior art is that, when doing dip exercise on a dip stand, it is difficult to achieve a deeper stretch downward as the workout is performed with two hands, whereby the stand and the workout technique also limit the deeper stretch that would increase effectiveness of the movement. In prior known equipment, another shortcoming is insufficient adjustability of the stretching extent.

One problem with equipment known from the prior art is also that the use thereof has resulted risks of chest muscle injuries, shoulder injuries, as well as elbow fractures in long-term intensive strength training.

As for the prior art, reference can be made to the US application publication 2007238589 A1, which discloses an exercise apparatus for arm muscles, comprising frame members. The apparatus comprises a frame-supported weight stack, which is linked by way of mechanisms to workout handles which
can be adjustable in height. The apparatus further comprises padded thigh supports and a seat for the user to sit on during a workout. This prior known apparatus is primarily intended for performing the movements with both hands, although it also enables the movement to be performed by using just one hand but, in this case, the user support is inadequate.

With regard to the more distant prior art, reference can also be made to publications describing a variety of exercise equipment: US 6113522 A disclosing an exercise apparatus for toning the mid-section and lower portion of the body; US 5637062 A disclosing a multipurpose exercise machine, DE 29707076 U1 disclosing a training apparatus for back muscles, and US 2010120590 A1. The equipment presented in these publications is described to include various support arrangements for the exercise apparatus. However, the described support arrangements are not appropriate for one-arm dip exercise in combination with body twist during a workout as there is no attention paid either to trajectories or to special requirements called for by both dip exercise and twist exercise, regarding for example a user support.

An objective of the invention is to provide a gym machine, which enables a performance of dip exercise in combination with body twist during a workout, i.e. a so-called sawing movement.

Another objective of the invention is to provide a gym machine, wherein the extra resistance is readily adjustable.

One further objective of the invention is to provide a gym machine, wherein the extent of stretching is adjustable over a wide range of adjustment, and wherein the individual trajectories become possible.

Still one further objective of the invention is to provide a gym machine, which is safe for the user.

In order to attain the foregoing and subsequently described objectives, the gym machine according to the invention is principally characterized by what is presented in the characterizing clause of claim 1.

The gym machine according to the invention for one-arm dip exercises and twist workout comprises frame members, which preferably consist of a horizontal support leg, a vertical support leg mounted thereon, a support shank, a ver-
tical support frame member and an upper support frame member, a seat preferably propped with the vertical support leg and the support shank on the horizontal support leg, a weight stack and means for steadying the weight stack, preferably rails, and means for moving the weight stack, preferably a cable and pulleys or the like rotating elements, as well as a track assembly. According to the invention, the gym machine comprises a chain element, which is connected to the means for moving the weight stack, and a handle element attached to one end of the chain element for a user to perform the exercise movement. The machine according to the invention further comprises brace elements for supporting the user in a performance position during the workout, said brace elements comprising an upper leg support, lower forward leg supports and rearward leg supports, a handgrip for steadying the non-performing arm, in which machine the brace elements make up a user support, wherein the hand of a performing arm is in engagement with the chain element’s handle element, the leg crosswise to the performing arm is a forward leg, which is secured with its thigh portion against a bottom surface of the upper leg support and with its foot in the lower forward leg support, the hand of a non-performing arm is in engagement with the handgrip connected to the upper leg support and the forearm lies against a top surface of the upper leg support, the rearward leg being secured by its foot in the lower leg support.

According to one preferred further characterizing feature of the invention, the gym machine comprises an inflexible chain adjustable in height with desired intervals, for example with 2-3 cm intervals, preferably a metal link chain, which is connectible by its bottom part to the handle. The adjustable metal chain enables the height adjustment of individual performance according to the size and stretching level of an exerciser.

According to one preferred characterizing feature of the invention, the gym machine comprises a handle, which is connectible to the adjustable metal chain by means of a snap hook or the like fastener. The handle functions during the performance of a one-arm dip exercise as the performing implement in a gym machine of the invention.

According to the invention, the gym machine comprises a handgrip for the non-performing arm, and an upper leg support, a lower forward leg support, a lower rearward leg support, which jointly make up an apparatus for performing a dip
exercising in combination with a body twist workout, i.e. a so-called sawing movement.

What has been accomplished with a gym machine of the invention is a totally new assembly and a totally new performance technique enabled thereby, and hence, excellent training results. A particularly notable feature achieved when using a gym machine of the invention for exercise is a successive and cross-wise position of the legs bearing against the foremost lower leg support and the rearmost leg support, the maintenance of which position during a performance would not be otherwise possible and which makes up a technical basis for the sawing movement.

In a gym machine of the invention, the handgrip and leg supports are designed with a view of making it possible that a body twist and a so-called sawing movement be performed during a workout in an effective and innovative manner. What has been provided by way of the invention is a novel dip exercise apparatus, enabling a body twist training movement which has neither been available in gym machines known from the prior art nor has therefore been possible to perform.

The gym machine according to the invention comprises supports capable of stabilizing the legs and arms and establishing a performing position that allows for an effective body twist during the performance. The gym machine according to the invention is a body twist training apparatus, which enables a novel sawing movement to be performed at the time when the performing position provides a more intensive muscular tension for the mid- and upper body muscular system.

The gym machine according to the invention provides numerous benefits. The adjustment of extra resistance is better controllable than in the prior art equipment. The extent of stretching is adjustable over a wider range and trajectories are possible which are more individual than in the prior art equipment. Further, the gym machine of the invention is safe for the user with no hazard of damaging the joints or tendons. In addition, the machine of the invention enables the use of a higher muscular tension during the performance.

In a gym machine of the invention, the better control over the adjustment of extra resistance facilitates the adjustment of load and the increase of an adjustment interval regardless of the body weight makes it possible for everyone to
perform the movement. With a machine of the invention, it is possible to adjust a one-arm resistance over an extensive range, for example from 5 kg to 200 kg, with small increases, thus enabling effective training from beginners to the strongest people in the world.

In a gym machine of the invention, the extent of stretching is adjustable over a wide adjustment range and, in addition, the performance of individual trajectories is possible, which provides an effective end result in target muscles and at the same time provides also an end result with more effective and diverse development of other muscle groups. By way of the individual adjustability of cables/pulley solution, the gym machine according to the invention enables a trajectory most appropriate for every individual. The gym machine according to the invention also enables the position and angle, as well as the height of a handle to be adjusted in compliance with the needs of an exerciser.

The gym machine according to the invention has a structure which enables the performance to commence from a static position whose extent has been adjusted to comply with the trajectories of an exerciser. In the machine according to the invention, the twist movement based on supports is performed with protection against incorrect movements, whereby the performing technique is controlled, nor does the performance become too rapid, the performance technique remaining thereby under control and safe training being possible.

The gym machine structure according to the invention, which comprises supports, enables a performing technique wherein the muscular tension applied to the mid-body as well as upper body muscular system is more effective than in the prior art dip exercise equipment and body twist exercise equipment. The supports and structure in a gym machine of the invention enable a performing technique consistent with a so-called sawing movement, which in combination with the body position is more effective than what is achieved in the prior art dip exercise equipment and body twist exercise equipment.

The gym machine according to the invention is a highly effective and versatile exercise apparatus, which enables a diverse development of the body without restrictions by just a single exercise movement. It is also extensively adjustable in a user-specific manner according to the personal qualities of a user. The gym machine according to the invention lends itself to the use of all those interested in improving their personal physical condition: for top athletes, leisure
time exercisers, people in injury rehabilitation, and wellness-concerned elderly people. The gym machine according to the invention saves a considerable amount of time, trouble and money in fitness improvement and enables a clear development in physical condition for all those who exercise thereon regularly and according to instructions. The supports in a gym machine of the invention for bracing the legs and arms enable an effective twist of the body during the performance, providing an excellent mid-body strengthen, the wide-scale application of which provides extensive beneficial effects on the maintenance and strengthening of the middle back and middle body in addition to the athlet-ic application, which benefits are not attainable with dip exercise equipment known from the prior art. The gym machine according to the invention is also an effective mid-back strengthen.

The invention will now be described in more detail with reference to the accompanying drawing figure whose details, however, are by no means intended to narrowly limit the invention in any way.

Fig. 1 shows schematically one preferred exemplary embodiment for a gym machine of the invention.

Fig. 1 shows schematically an exemplary embodiment for a dip exercise machine for dip exercises, whereby is achieved a sawing movement based on body twist and a new type of impact made possible thereby on the upper and mid-body muscle groups. The preferred exemplary embodiment shown in the figure comprises a horizontal support leg 1, preferably a steel leg, by which the gym machine is propped on a gym floor or the like foundation structure. On the horizontal support leg 1, preferably at a distance from one of its lengthwise ends, is mounted a vertical support leg 2. The horizontal support leg 1 and the vertical support leg 2 can also be made in one piece. The gym machine further comprises a weight stack 3, which is provided with weight plates, for example 5 kg weight plates. As known per se from weight stacks, the weight plates are provided with a hole, the weights for use during a performance being selected by means of a pin inserted therein. The weight stack 3 has for example a total weight of 150 kg or 200 kg. Arranged on top of the weight stack 3 is preferably a loose weight item, for example a clasp 4, which can be provided with small, for example 1-5 kg loose weights, for example add-on weight plates, for a more precise adjustment of the exercise weight. On the horizontal support leg, preferably at one of its lengthwise ends, is mounted a vertical support frame
member 5, preferably a steel member, which extends on either side of the machine. The horizontal support leg 1 and the vertical support frame member 5 can also be made in one piece. The support frame member 5 is fitted with rails 6, preferably metal rails, along which the weight stack 3 is adapted to be movable in up-down direction during workout. To the weight stack 3 is attached a cable or the like suspension element 7, which has a lifting capacity preferably of at least 500 kg and which is wear resistant. On the support frame member 5 is mounted a horizontal top support frame member 8, which connects the upright support frame member 5 and the rails 6. The top support frame member 8 comprises pulleys 9 or the like rotating elements, which are preferably disposed inside the same and which are preferably made of steel, as well as a track assembly 6 for guided movement of the cable 7. The cable 7 or the like suspension element is linked to an adjustable chain element 11 by way of an openable loop member 10. The adjustable chain element 11 is preferably a metal link chain 11, comprising links, preferably metal links, secured to each other for a chain. The chain element 11 is preferably adapted to withstand a weight of about 300 kg. To the chain element 11 can be fixed a handle 12 to be grasped by the user with one hand for performing an exercise movement, such as a sawing movement involving dip exercises in combination with body twist during a workout. Preferably on either side of the vertical support leg 2 is provided an upper leg support 13, which extends on both sides of the machine and under which is braced the thigh of the forward leg at a position above the knee in a crosswise manner with respect to the performing arm, and on top of which is placed the forearm of whichever is the non-performing arm. Preferably, the upper leg support 13 has at least its top surface cushioned to provide a comfortable support for the forearm of a non-performing arm throughout the workout. The upper leg support 13 is adjustable in terms of its height by way of an adjustment mechanism, for example a pin-in-hole assembly. The upper leg support 13 is provided with a handgrip 14 for the hand of a non-performing arm. Preferably, the handgrip 14 is adjustable in terms of its height by way of an adjustment mechanism, for example a pin-in-hole assembly. Above the horizontal leg support 1, by means of the support leg 2 and a vertical support leg of the upper leg support 13, is mounted a seat 15 for the user to sit on during a workout. The seat 15 is adjustable in terms of its height by way of an adjustment mechanism, for example a pin-in-hole assembly. The vertical support shank for the upper leg support 13 is on either side thereof provided with lower forward leg supports 16, under one lower forward leg support 16 of which is
braced the foot of whichever is the forward leg for securing the balance. The vertical support leg or support shank 18 is on either side thereof provided with lower rearward leg supports 17, under which the foot of whichever is the rearward leg is braced for the duration of a workout and for securing the balance. The gym machine size can be for example 80 cm (length) x 80 cm (width) x 230 cm (height).

As shown in the figure, the gym machine according to a preferred exemplary embodiment of the invention comprises an adjustable chain element 11, preferably capable of withstanding a weight of at least 300 kg. The chain 11 has its height adjusted by securing the openable loop member 10 to a desired link of the chain 11, whereby the height of the chain 11 is adjustable from top all the way to the handle 12 grabbed by a user's hand. The chain 11 has its lower portion, for example over the extent of about 20-60 cm, surrounded by a rubber compound or the like covering for preventing the formation of abrasion marks on the arm during a workout. The chain 11 has its top and bottom part provided with an openable snap hook or the like fastener, by means of which the chain 11 is attached at the top to the loop 10 and at the bottom to the handle 12. The chain 11 has its length variable from 50 cm to 150 cm for example at the intervals of about 2-3 cm. The chain 11 is inflexible and capable of withstanding major weights. The exemplified gym machine further comprises the handle 12, which is preferably made of steel and preferably capable of withstanding a weight of more than 300 kg, and which has its top portion provided with a metal hole or the like hole feature, by means of which the handle 12 is attachable to the chain 11. The handle 12 enables a one-arm performing technique and jointly with the handgrip 14 for the non-performing arm a powerful twisting tension and muscular stimulation during workout.

The illustrated exemplary embodiment further comprises the upper leg support 13, which is preferably cushioned over its top portion and under which is a separate known metal base with holes and a pin, by means of which the leg support 13 can be adjusted in terms of its height. The leg support 13 has its back portion fitted with a handgrip 14 for the non-performing arm. The upper leg support 13 functions as a brace for the user's forward leg, having the thigh placed thereunder for the duration of a workout and, in addition, having the elbow of the non-performing arm planted on its top surface. This enables the legs and the balance to be supported during a workout as well as the body twist or so-called sawing movement to be achieved with the handgrip 14, the lower for-
ward leg support 16, and the lower rearward leg support 17. The handgrip 14 is intended for steadying the non-performing arm in such a way that the fingers take a hold around a post at the end of the handgrip 14, thus providing an effective workout of the upper body on a one-arm dip stand as well as a powerful twist exercise impact on muscle groups making up the target. Accordingly, the upper leg support 13, the handgrip 14 for the non-performing arm, the lower forward leg support 16, and the lower rearward leg support 17 enable a controlled forward movement of the upper body as a twist movement for achieving a so-called sawing movement. The gym machine features the lower forward leg support 16, under which the foot of the forward leg is secured during a performance, and the lower rearward leg support 17, under which the foot of the rearward leg is secured during a performance.

In the illustrated exemplary embodiment, the resistance is adjusted from the weight stack 3 as desired. The user sits down on the seat 15 for the duration of a performance, such that the left knee is pushed under the upper leg support 13 and the left foot is pushed crosswise under the lower forward leg support 16. The right foot is pushed back under the lower rearward leg support 17, which is on the opposite side with respect to the lower forward leg support 16 under which the left foot is present. Hence, the feet are in a crosswise position, one under the lower forward leg support 16 and the other under the lower rearward leg support 17. With the hand of a performing arm (in this case, the right arm) is taken a hold of the handle 12. The height is adjusted by means of the metal chain 11 to match the user, such that in a starting position the handle is level with the user's chest. The non-performing arm (in this case, the left arm) is planted with its forearm on top of the upper leg support 13 and the fingers are used to seize the handgrip 14. The user leans forward to a starting position. With the hand of a performing arm in engagement with the handle 12 which is level with the chest, and with the hand of a supporting (non-performing) arm in engagement with the handgrip 14, the handle 12 is pressed downward as far as it travels and returned slowly up to the starting position. The movement is performed by stopping at the starting position and by commencing from a standstill at the starting position. The handle 12 is pushed to level with and beyond the upper leg support 13 with forward rotation, thus generating a powerful tension in the upper and middle body. The thigh muscles also become stronger as the thighs are subjected to a powerful pressure in the performing position. With the left arm as a performing arm, the right knee
is pushed under the upper leg support 13, the right foot under the lower forward leg support 16, and the left foot is pushed back under the lower rearward leg support 17, whereby the feet are in a crosswise position one after the other; one under the lower forward leg support 16 and the other under the lower rearward leg support 17.

The invention has been described above with reference to just one preferred exemplary embodiment thereof. Many modifications and variations in details and structure are conceivable within the scope of the inventive concept.
Claims

1. A gym machine for dip exercises in combination with body twist during a workout, said gym machine comprising frame members (1, 2, 5, 8), a seat (15), a weight stack (3), and means (6) for supporting the weight stack movably on the frame members, and means (9, 10) for moving the weight stack (3) in response to a performance by the user, said gym machine further comprising a chain element (11) connected to the means (9, 10) for moving the weight stack (3), and a handle element (12) attached to one end of the chain element (11) for a user to perform the exercise movement, characterized in that the gym machine further comprises brace elements (13, 14, 16, 17) for steadying the user in a performing position for dip exercise in combination with body twist for the duration of performing the workout, said brace elements comprising an upper leg support (13), lower forward leg supports (16) and lower rearward leg supports (17), as well as a handgrip (14) for steadying the non-supporting arm, and that, in the gym machine, the brace elements make up a support for the user in a performing position with the hand of a performing arm in engagement with the handle element (12) of the chain element (11), with leg crosswise relative to the performing arm, i.e. the forward leg, being secured with its thigh portion against a bottom surface of the upper leg support (13) and with its foot in the lower forward leg support (16), with the non-performing arm being supported on the handgrip (14) by its hand and on a top surface of the upper leg support (13) by its forearm, with the rearward leg being secured by its foot in the lower rearward leg support (17).

2. A gym machine as set forth in claim 1, characterized in that the frame members (1, 2, 5, 8) consist of a horizontal support leg (1), a vertical support leg (2) connected therewith, a support shank (18), a vertical support frame member (5), and a top support frame member (8).

3. A gym machine as set forth in claim 1, characterized in that the seat (15) is propped with the vertical support leg (2) and the support shank (18) on the horizontal support leg (1).
4. A gym machine as set forth in claim 1 or 2, characterized in that the means (6) for supporting the weight stack movably on the frame members comprise rails (6), which are adapted to movably support and stabilize the weight stack (3) on the support frame member (5).

5. A gym machine as set forth in claim 1 or 2, characterized in that the means (9, 10) for moving the weight stack (3) comprise a cable and pulleys or the like rotating elements disposed in connection with the top support frame member, as well as a track assembly.

6. A gym machine as set forth in claim 1, characterized in that the chain element (10) comprises an inflexible metal chain adjustable in terms of its height at desired intervals, preferably a metal link chain.

7. A gym machine as set forth in claim 1, characterized in that the handle (12) is connected to the chain element (10) by means of a snap hook or the like fastener.

8. A gym machine as set forth in claim 1, characterized in that the gym machine is adapted to achieve a so-called sawing movement performing technique, which consists of a one-arm dip exercise and body twist during the workout.
**INTERNATIONAL SEARCH REPORT**

**International application No**

PCT/12013/050786

**A. CLASSIFICATION OF SUBJECT MATTER**

INV. A63B21/00 A63B23/12 A63B21/062 A63B23/92 A63B23/035

**ADD.**

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

**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 applicable, search terms used)**

EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tr>
<td>A</td>
<td>WO 03/009902 A2 (STAMINA PRODUCTS INC [US]) 6 February 2003 (2003-02-06) claim 1; figures 1-20</td>
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<td>A</td>
<td>US 6 217 493 B1 (SPLETZER DAVID [US]) 17 April 2001 (2001-04-17) claim 1; figure 1</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

- **A** document defining the general state of the art which is not considered to be of particular relevance
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**Date of the actual completion of the international search**

15 October 2013

**Date of mailing of the international search report**

23/10/2013

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Shmonin, Vladimir
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