A universal fitness machine includes an upright frame formed of a base and a post, a swivel arm mechanism, which has a transverse bar fastened to the top end of the post and two cantilever units respectively rotatably connected to the two distal ends of the transverse bar, each cantilever unit having an elastic rope that has an inner end connected to the respective cantilever unit and an outer end extending to the free end of the respective cantilever and mounted with a grip, a lifter, which has a slide coupled to the post, a seat pad affixed to the front side of the slide and two handles fastened to two opposite lateral sides of the seat pad. By means of pulling the elastic rope or lifting the lifter, the universal fitness machine is used for multiple weight-training exercises.
FIG. 12
UNIVERSAL FITNESS MACHINE

BACKGROUND OF THE INVENTION

(a) Field of the Invention

The present invention relates to exercising machines and more particularly, to a universal fitness machine that allows the user to perform various different weight training exercises.

(b) Description of the Prior Art

People may use simple exercising apparatus at home to perform simple exercises. For performing weight training exercises to exercise the muscles of different parts of the body, different exercising apparatus may be used. For example, a sit-up bench or chair may be used for sit-up exercise; a push-up bar may be used for push-up exercise; dumbbells may be used for training arm muscles; a horizontal bar may be used for training the muscles of the back; a chest developer may be used for training the muscles of the chest; a footplate may be used for training calf muscles; a hand grip may be used for training the muscles of the hands. However, it is expensive to prepare many different exercising apparatus for training different parts of the body. When prepared various exercising apparatus are not used, the storage of these exercising apparatus is another problem to be settled.

Therefore, it is desirable to provide a universal fitness machine, which is practical for training different parts of the body and, which is collapsible to reduce the storage space when not used.

SUMMARY OF THE INVENTION

The present invention has been accomplished under the circumstances in view. It is the main object of the present invention to provide a universal fitness machine, which is formed of an upright frame, a swivel arm mechanism and a lifter for enabling the user to pull elastic ropes in the swivel arm mechanism in training the muscles of the arms, chest, back and legs, or to keep in a half squat posture and then to push up the legs and pull up the hands in training the muscles of the legs.

It is another object of the present invention to provide a universal fitness machine, which can be collapsed to reduce the dimension when not in use.

To achieve these and other objects of the present invention a universal fitness machine comprises an upright frame formed of a base and a post, a swivel arm mechanism, which has a transverse bar fastened to the top end of the post and two cantilever units respectively rotatably connected to the two distal ends of the transverse bar; each cantilever unit having mounted therein at least one elastic rope that has an inner end connected to the respective cantilever unit and an outer end extending to the free end of the respective cantilever unit and mounted with a grip, a lifter, which has a slide coupled to the post, a seat pad affixed to the front side of the slide and two handles fastened to two opposite lateral sides of the seat pad. By means of pulling the elastic rope or lifting the lifter, the universal fitness machine is used for multiple weight-training exercises.

Thus, the user can hold the grips with the hands to stretch the elastic ropes, thereby exercising the muscles of different parts of the body in one of a variety of exercising postures. The user can also sit on the seat pad to perform different weight training exercises, or keep in a half squat posture with the hips rested on the seat pad of the lifter and then push up the legs, thereby training the muscles of the legs. When not in use, the major parts of the universal fitness machine can be collapsed, reducing the dimension of the universal fitness machine for storage.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an oblique elevational view of a universal fitness machine in accordance with the present invention.

FIG. 2 is a rear side view of the universal fitness machine in accordance with the present invention.

FIG. 3 is an exploded view of the universal fitness machine in accordance with the present invention.

FIG. 4 is an exploded view of the swivel arm mechanism for the universal fitness machine in accordance with the present invention.

FIG. 5 is an exploded view of one cantilever unit of the swivel arm mechanism for the universal fitness machine in accordance with the present invention.

FIG. 6 is an exploded view of the slide of the lifter for the universal fitness machine in accordance with the present invention.

FIG. 7 is an exploded view of the seat pad and seat bar of the lifter for the universal fitness machine in accordance with the present invention.

FIG. 8 is an exploded view of the back pack and the associating hanger of the lifter for the universal fitness machine in accordance with the present invention.

FIG. 9 is a schematic drawing of the present invention, showing the cantilever units in operation.

FIG. 10 is a schematic drawing of the present invention, showing the lifter in operation.

FIG. 11 is a schematic drawing of the present invention, showing one mounting arrangement of the second elastic ropes.

FIG. 12 is a schematic drawing of the present invention, showing another mounting arrangement of the second elastic ropes.

FIG. 13 is a schematic drawing of the present invention, showing a horizontal bar connected between the two cantilever units for horizontal bar gymnastics.

FIG. 14 illustrates a collapsed status of the universal fitness machine in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. 1-3, a universal fitness machine in accordance with the present invention is shown comprising an upright frame 1, a swivel arm mechanism and a lifter 4.

The upright frame 1, as shown in FIG. 3, comprises a post 11 that has, for example, a rectangular shape, and a base 12 affixed to the bottom end of the post 11. The base 12 can be formed of, for example, a round bar 121.

The swivel arm mechanism, as shown in FIGS. 3 and 4, is adapted for enabling the user to train the muscles by pulling elastic ropes, comprising a transverse bar 2 and two cantilever units 3. The transverse bar 2 can be, for example, a rectangular bar fixedly fastened to the top end of the post 11 of the upright frame 1. Thus, the transverse bar 2 and the post 11 form a T-bar. The two cantilever units 3 are rigid bars each having a fixed end respectively rotatably connected to the two distal ends of the transverse bar 2. One cantilever unit 3 is rotatable clockwise. The other cantilever unit 3 is rotatable counter-clockwise. Further, as shown in FIG. 5, each cantile-
The lift unit 3 has mounted therein at least one first elastic rope 31. According to this embodiment, two first elastic ropes 31 are mounted in each cantilever unit 3. Each first elastic rope 31 has an inner end 311 connected to the inside of the respective cantilever unit 3 and an outer end 312 extending to the outside of the free end of the respective cantilever unit 3 and mounted with a grip 32.

[0027] The lift 4, as shown in FIG. 3, is adapted for allowing the user to sit thereon and to train the muscles of the legs. The lift 4 comprises a slide 41 coupled to the post 11 of the upright frame 1 and movable along the post 11, a seat pad 42 affixed to the front side of the slide 41 and a pair of handles 43 respectively fastened to two opposite lateral sides of the seat pad 42.

[0028] The universal fitness machine, as shown in FIG. 3, further comprises a support frame 5. The support frame 5 comprises a strut 51 and a floor plate 52. The strut 51 has its top end pivotally connected to the post 11 of the upright frame 1. The floor plate 52 is pivotally connected to the strut 51 near the bottom end of the strut 51. As illustrated, the strut 51 has two lugs 521 bilaterally arranged near the top end thereof and pivotally connected to the post 11 of the upright frame 1 by connection means, for example, a pivot pin 512. Thus, the strut 51 can be closely received to the post 11 or extended out of the post 11. The floor plate 52 has two upright lugs 521 located on the middle of the top wall near the rear side thereof. Connection means, for example, a pivot pin 522 is transversely inserted through the upright lugs 521 and the bottom end of the strut 51 to pivotally connect the floor plate 52 to the strut 51. Further, a lock pin 523 is transversely insertable through the upright lugs 521 above the pivot pin 522 and the strut 51 to lock the strut 51 and the floor plate 52, enabling the support frame 5 to support the upright frame 1 stably on a flat surface.

[0029] As shown in FIG. 3, the upright frame 1 further comprises two stop blocks 13 bilaterally located on the post 11 for stopping the lift 4 to limit downward movement of the lift 4 to a predetermined elevation.

[0030] Referring to FIG. 4, the swivel arm mechanism further comprises two axles 21 respectively perpendicularly extended from the two distal ends of the transverse bar 2. Further, each cantilever unit 3 has an axle sleeve 33 located on the fixed end thereof and coupled to one axle 21 at one end of the transverse bar 2. Thus, the cantilever units 3 can be turned about the respective axles 21 to the desired angle. Further, two graduated discs 22 are respectively fixedly located on the two distal ends of the transverse bar 2. The two axles 21 are respectively located on the center of each of the two graduated discs 22. Each graduated disc 22 has a plurality of positioning holes 23 spaced at different angles. Each cantilever unit 3 further has a lock pin 34 movably arranged at the fixed end below the axle sleeve 33, a spring member 36 loaded on the lock pin 34 and adapted to force the lock pin 34 into one positioning hole 23 on the associating graduated disc 22, and a knob 39 fixedly fastened to one end of the lock pin 34 and exposed to the outside of the fixed end for pulling by the user to move the lock pin 34 out of the graduated disc 22. Thus, the user can lock the cantilever units 3 to the transverse bar 2 at one of a series of angles.

[0031] Referring to FIG. 5, each cantilever unit 3 further comprises a long tube 37 and a wheel holder 38. The long tube 37 has one end forming the fixed end of the respective cantilever unit 3. The other end of the long tube 37 is the free end. The at least one first elastic rope 31 is inserted into the inside of the long tube 37 with the inner end 311 fastened to a part inside the long tube 37. The wheel holder 38 comprises a connection tube 381 connected to the free end of the long tube 37, two locating frames 382 extended from the periphery of the connection tube 381 in a parallel manner, at least one, for example, two first pulleys 383 pivotally mounted in between the two locating frames 382, and an end cover 384 covered on the connection tube 381 and the two locating frames 382 at the bottom side. Each first elastic rope 31 is wound round one respective first pulley 383 with the respective outer end 312 extended to the outside of the wheel holder 38 and connected to the respective grip 32. The long tube 37 has two locating frames 371 fixedly located on the fixed end in a parallel manner, and at least one, for example, two second pulleys 372 pivotally arranged between the two locating frames 371. The inner ends 311 of the first elastic ropes 31 are respectively wound round the second pulleys 372 and then fastened to the fixed end of the long tube 37.

[0032] The aforesaid lift 4 is adapted for enabling the user to exercise the muscles of the legs in a sitting posture. Preferably, as shown in FIGS. 3 and 6, the slide 41 is formed of a channel bar slidably coupled to the post 11. The slide 41 has a plurality of rollers 411 mounted on the top and bottom sides thereof and kept in contact with the front and back sides of the post 11, facilitating movement of the slide 41 along the post 11. Further, as shown in FIG. 7, the two handles 43 are respectively fastened to two opposite lateral sides of the seat pad 42. Further, as shown in FIG. 7, the slide 41 has two lugs 412 forwardly extended from the bottom side and clamped on two opposite sides of the seat bar 44 of the seat pad 42. A pivot pin 413 is inserted through the lugs 412 and the seat bar 44 to pivotally connect the seat pad 42 to the slide 41, allowing the seat pad 42 to be turned about the pivot pin 413 between a collapsed position and an extended operative position. Further, a lock pin 414 is insertable through the lugs 412 and the seat bar 44 to lock the seat pad 42 and the slide 41.

[0033] Referring to FIGS. 2 and 3 again, the base 12 (round bar 121) of the upright frame 1 has two first hangers 14 disposed at two sides relative to the post 11. The transverse bar 2 has two second hangers 24 disposed at two sides relative to the post 11. The slide 41 has two third hangers 45 respectively located on the two opposite lateral sides thereof. Second elastic ropes 6 are selectively connected between the first hangers 14 at the base 12 and the third hangers 45 at the slide 41, or the second hangers 24 at the transverse bar 2 and the third hangers 45 of the slide 41, to impart an extra load to the lift 4. Further, each second elastic rope 6 has a hook 61 at each of the two distal ends thereof for hanging. Further, as shown in FIGS. 2 and 8, a back pad 46 is fastened to the front side of the slide 41 of the lift 4 for supporting the user’s back. The back pad 46 has a fourth hanger 47 located on the back side. When the second elastic ropes 6 are not used, the elastic ropes 61 can be hung between the third hangers 45 at the slide 41 and the fourth hanger 47 at the back pad 46. When the second elastic rope 61 are hung between the third hangers 45 at the slide 41 and the fourth hanger 47 at the back pad 46, they give no pressure to the lifter 4.

[0034] When using the universal fitness machine, as shown in FIG. 13, the user can adjust the cantilever units 3 to the desired angle. At this time, the user can sit on the seat pad 42 or keep in the standing posture with the hands holding the outer ends of the first elastic ropes 31 or the feet hooking in the grips 32 at the outer ends of the first elastic ropes, and then stretch the first elastic ropes 31 to exercise the muscles of the
hands or legs. Thus, the user can perform different weight training exercises to stretch the first elastic ropes 31 in different directions and angles. The user can also sit on the seat pad 42 of the lifter 4 to perform other exercises to train the muscles of the legs or the muscles of the lower rectus abdominis. Further, as shown in FIG. 10, the user can keep in a half squat posture with the hips rested on the seat pad 42 of the lifter 4 and the feet rested on the floor plate 52, and then hold the two handles 43 at the two opposite lateral sides of the seat pad 42 with the hands, and then push up the legs and pull up the hands to lift the lifter 4, thereby training the muscles of the legs. Further, as shown in FIG. 11, the second elastic ropes 6 can be hung between the first hangers 14 and the third hangers 45 to impart a downward pull force to the seat pad 42, thereby adding a load to the lifter 4. Further, as shown in FIG. 12, the second elastic ropes 6 can be hung between the second hangers 24 and the third hangers 45 to impart an upward pull force to the seat pad 42, thereby reducing the load from the lifter 4. Further, as shown in FIG. 13, the two cantilever units 3 can be adjusted to the highest position, and then a horizontal bar 7 is connected between the two end covers 384 of the cantilever units 3. At this time, the user can sit on the knees at the seat pad 42 of the lifter 4, and then hold the horizontal bar 7 with the hands to exercise horizontal bar gymnastics. Further, the user can change the mounting position of the second elastic ropes 6 to reduce the load from the lifter 4 so that the user can exercise horizontal bar gymnastics for a long period of time without effort. By means of the aforesaid various methods, the universal fitness machine allows the user to perform different weight training exercises.

[0035] Further, as shown in FIG. 14, when the universal fitness machine is not in use, the user can collapse the seat pad 42 and the strut 51 and floor plate 52 of the support frame 4, reducing the dimension of the universal fitness machine for storage.

[0036] Although particular embodiment of the invention have been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the spirit and scope of the invention. Accordingly, the invention is not to be limited except as by the appended claims.

What is claimed is:

1. A universal fitness machine, comprising:
   an upright frame, said upright frame comprising a post, said post having a top end and a bottom end opposing the top end, and a base affixed to the bottom end of said post; said post having a top end and a bottom end opposing the top end, and a base affixed to the bottom end of said post; a swivel arm mechanism, said swivel arm mechanism comprising a transverse bar fastened to the top end of said post and two cantilever units respectively rotatably connected to two distal ends of said transverse bar, each said cantilever unit having at least one first elastic rope mounted therein, said first elastic rope having an inner end connected to the respective cantilever unit and an outer end extending to the free end of the respective cantilever and mounted with a respective grip; and a lifter, said lifter comprising a slide coupled to and movable up and down along said post, a seat pad affixed to a front side of said slide and two handles respectively fastened to two opposite lateral sides of said seat pad.

2. The universal fitness machine as claimed in claim 1, further comprising a support frame for supporting said upright frame in vertical on a flat surface, said support frame comprising a floor plate for positioning on a flat surface, said floor plate having two upright lugs located on a top wall thereof, a strut connected between said post and said floor plate, said strut having a top end, a bottom end opposite to said top end and two lugs respectively bilaterally extended from the top end, a first pivot member fastened to the lugs of said strut to pivotally connect the top end of said strut to said post, a second pivot member fastened to the upright lugs of said floor plate and the bottom end of said strut to pivotally connect said floor plate to said strut, and a lock pin insertable through the upright lugs of said floor plate and the bottom end of said strut to lock said strut and said floor plate.

3. The universal fitness machine as claimed in claim 1, wherein said swivel arm mechanism further comprises two axes respectively perpendicularly extended from the two distal ends of said transverse bar, and an axle sleeve fixedly provided at the fixed end of each of said cantilever units and respectively coupled to said axes.

4. The universal fitness machine as claimed in claim 3, wherein said swivel arm mechanism further comprises two graduated discs respectively fixedly mounted on said axes at the two distal ends of said transverse bar, each said graduated disc having a plurality of positioning holes spaced from one another at different angles, and a lock pin movably mounted in the fixed end of each of said cantilever units and selectively insertable into one positioning hole of one said graduated disc to lock the associating cantilever unit to said transverse bar, and a spring member loaded on the lock pin at the fixed end of each of said cantilever units and adapted for forcing the associating lock pin into one positioning hole of the associating graduated disc.

5. The universal fitness machine as claimed in claim 1, wherein each said cantilever unit further comprises a long tube and a wheel holder, said long tube having a fixed end and a free end, said wheel holder comprising a connection tube connected to the free end of said long tube, two locating frames extended from the periphery of said connection tube in a parallel manner, at least one first pulley pivotally mounted in between the two locating frames, and an end cover covered on said connection tube and said two locating frames at a bottom side; each first elastic rope of each cantilever unit has the inner end thereof inserted into the inside of the long tube of the associating cantilever unit and affixed to the fixed end of the long tube and the outer end thereof wound round the at least one first pulley and connected to the associating grip.

6. The universal fitness machine as claimed in claim 5, wherein the long tube of each said cantilever unit has two locating frames fixedly located on the fixed end thereof in a parallel manner and at least one second pulley pivotally arranged between the two locating frames at the fixed end thereof; the inner end of each first elastic rope of each said cantilever unit is wound round the at least one second pulley of the associating cantilever unit and then fastened to the fixed end of the long tube of the associating cantilever unit.

7. The universal fitness machine as claimed in claim 1, wherein said slide of said lifter is formed of a channel bar slidably coupled to said post, having a plurality of rollers mounted on top and bottom sides thereof and kept in contact with front and back sides of said post.

8. The universal fitness machine as claimed in claim 1, wherein said lifter further comprises two lugs forwardly extended from a bottom side of said slide, a seat bar fixedly mounted on a bottom side of said seat pad and fixedly connected with said handles, a pivot member transversely fastened to said seat bar and said slide to pivotally connect said
seat bar to said slide, and a lock pin insertable through said slide and said seat bar to lock said seat bar and said slide.

9. The universal fitness machine as claimed in claim 1, further comprising two first hangers fixedly mounted on said base of said upright frame at two opposite sides relative to said post, two second hangers fixedly mounted on said transverse bar of said swivel arm mechanism at two opposite sides relative to said post, two third hangers fixedly mounted on said slide at two opposite lateral sides, and a plurality of second elastic ropes selectively connectable between said first hangers and said third hangers or between said second hangers and said third hangers.

10. The universal fitness machine as claimed in claim 9, wherein said lifter further comprises a back pad fixedly mounted on said slide, and a fourth hanger fixedly mounted on a back side of said back pad.