United States Patent

[11] 3,602,501

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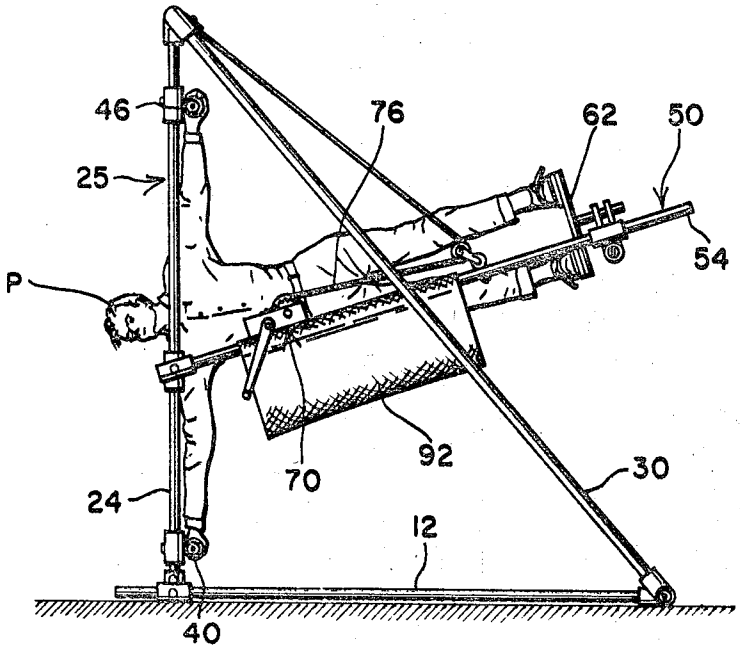
[54] **EXERCISE MACHINE FOR SUPPORTING THE USER AT AN ANGLE**
10 Claims, 10 Drawing Figs.

[52] U.S. Cl. 272/58, 272/57
[51] Int. Cl. A63b 23/02
[50] Field of Search 272/57, 58, 60, 62, 63

[56] References Cited
UNITED STATES PATENTS
1,693,810 12/1928 Daniels 272/58

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ABSTRACT: An exercising machine includes a horizontal base frame and vertical frame held by removable side-brace bars. A pivot frame is pivotally secured to the vertical frame and rotates on a horizontal axis. The pivot frame has a hammock for supporting a person's body and pedals rotatable in a plane perpendicular to the plane of the pivot frame. Handlebars are adjustably positionable on the vertical frame. A person can grasp the handlebars while his feet are engaged at the pedals. The pivot frame is angularly adjustable by a winch.



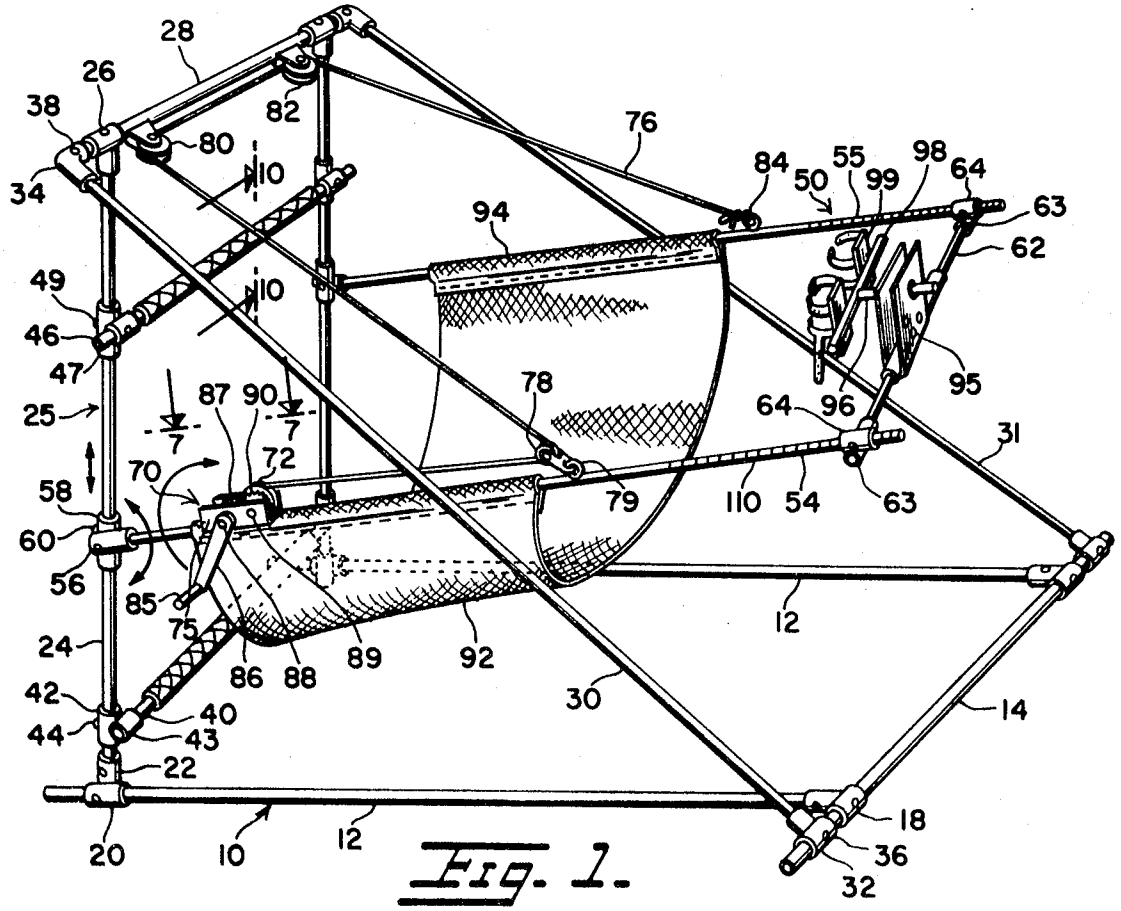


Fig. 1.

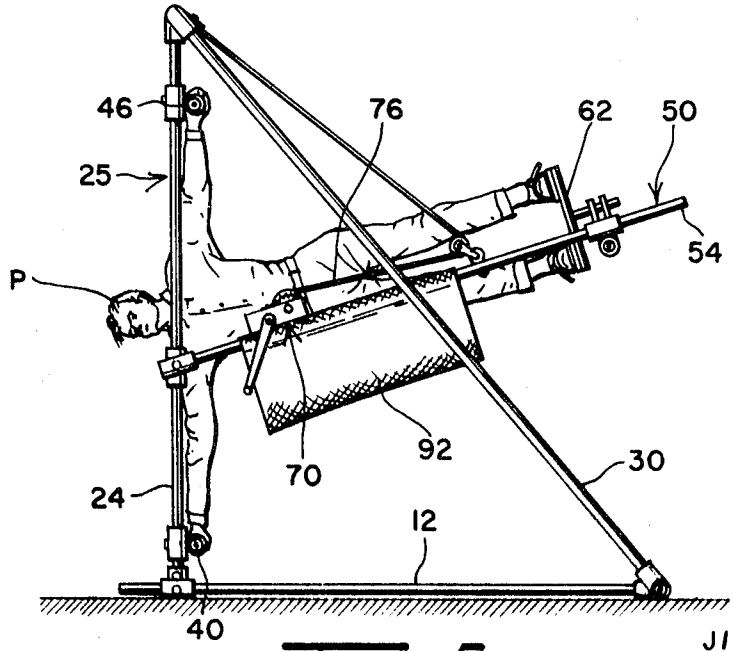


Fig. 2.

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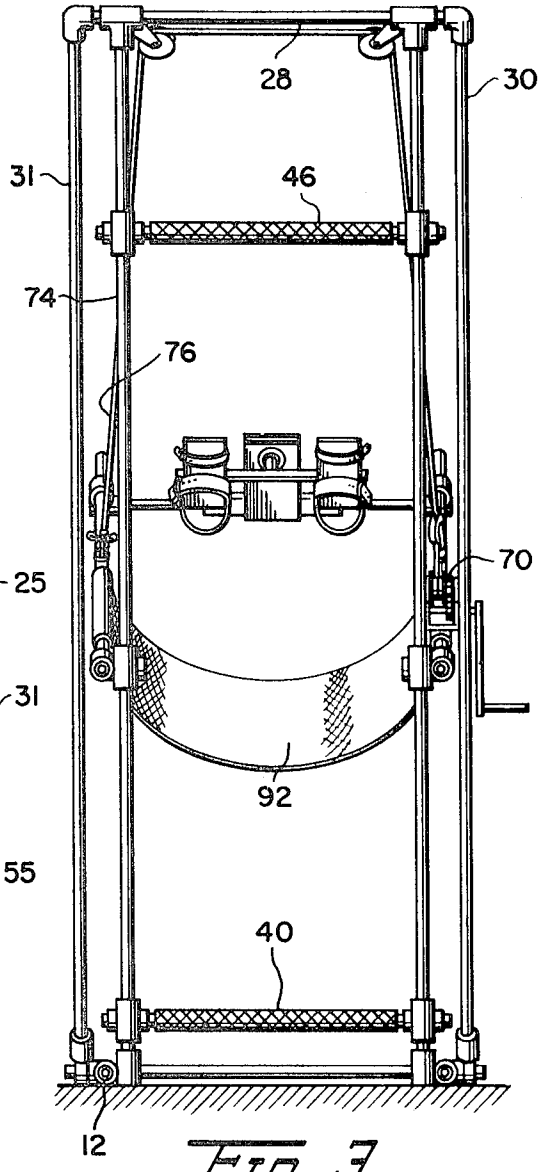


Fig. 3.

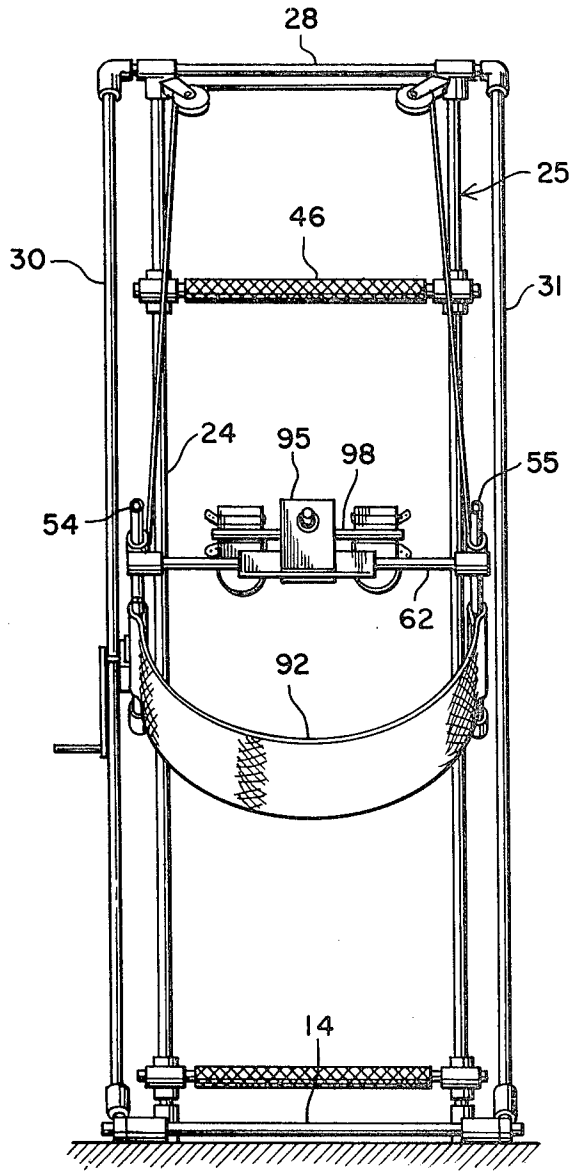


Fig. 4.

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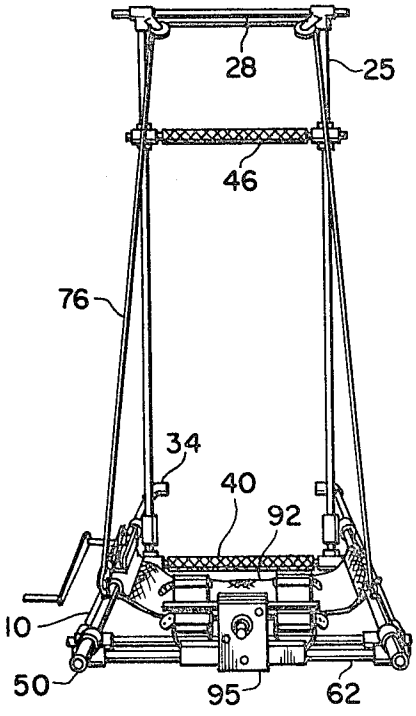


Fig. 5.

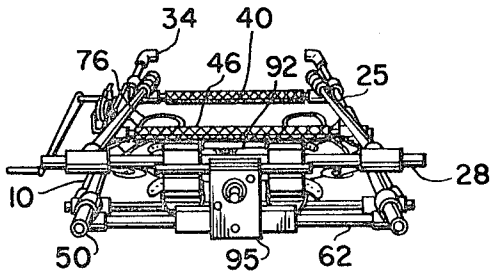


Fig. 6.

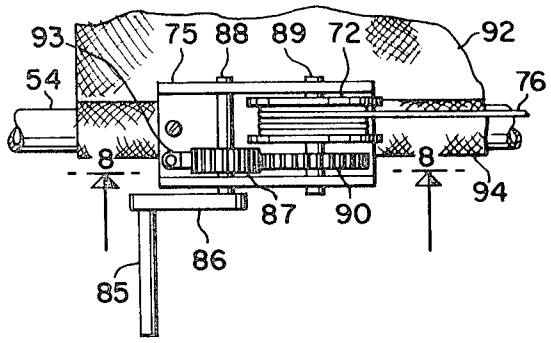


Fig. 7.

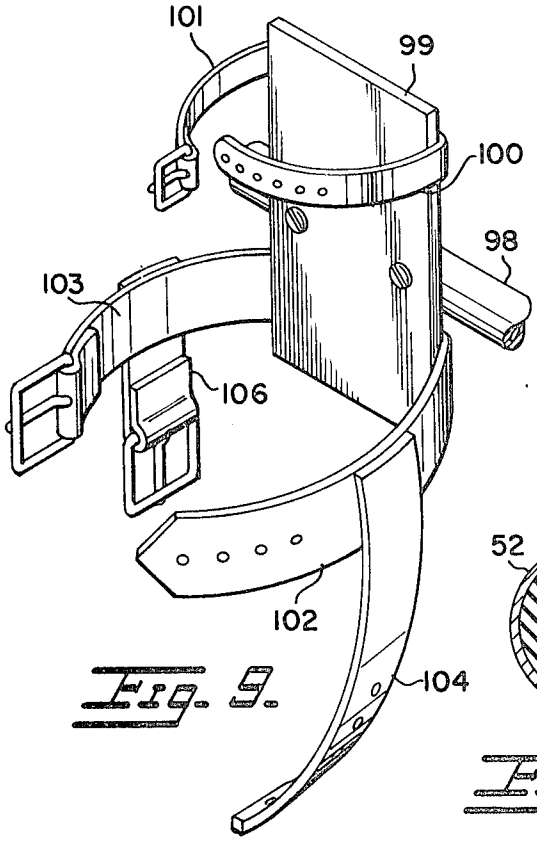


Fig. 9.

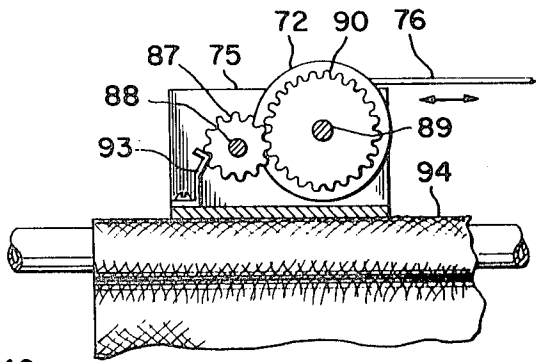


Fig. 8.

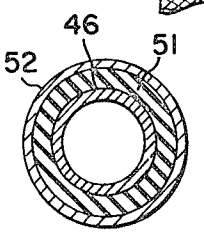


Fig. 10.

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EXERCISE MACHINE FOR SUPPORTING THE USER AT AN ANGLE

This invention concerns an exercising machine adapted for disposing a person's body in an elevated position with hands engaged on stationary handlebars and with feet engaged on a rotatable foot support.

Exercising devices have been proposed heretofore for supporting a person's body in such a way that his arms can grasp a handlebar while his feet turn a pedal assembly. U.S. Pat. No. 2,144,206 describes a typical device of this type. Such a machine, while adequate for the purpose intended, will not serve to stretch, tension and strengthen more than a few muscles of the legs, arms and torso.

The present invention is directed at an exercising machine which provides a much larger range of body movements and which uses, strains and develops a larger number of muscles in arms, legs, torso and neck than prior exercising machines.

According to the invention a machine is provided in which a person's body can be disposed in different selected angular positions with respect to a horizontal base frame. A vertical base frame has adjustable handlebars which are grasped manually. A pivot frame carries a rotatable foot support to which the person's feet can be strapped. Thus the person can turn his feet and legs while his hands remain fixed on the handlebars, or the hands can be shifted from one handlebar to the other while the person turns his entire body. The pivot frame can be adjusted in different angular positions. A hammock carried by the pivot frame serves as a body rest and support.

The invention will be explained in further detail and other and further objects and advantages of the invention will become apparent from the following detailed description taken together with the drawings, wherein:

FIG. 1 is a perspective view of the exercise machine embodying the invention.

FIG. 2 is a side view of the machine shown in use.

FIG. 3 is a rear view of the machine.

FIG. 4 is a front view of the machine.

FIG. 5 is a rear view of the machine, side braces being removed, showing the machine partially collapsed.

FIG. 6 is a rear view showing the machine fully collapsed.

FIG. 7 is an enlarged top view of the winch which raises and lowers the pivot frame, taken on line 7—7 of FIG. 1.

FIG. 8 is a further enlarged vertical sectional view taken on line 8—8 of FIG. 7.

FIG. 9 is an enlarged perspective view of a foot pedal and foot straps.

FIG. 10 is an enlarged cross-sectional view of a handlebar taken on line 10—10 of FIG. 1.

Referring first to FIGS. 1—4, there is shown the exercise machine embodying the invention. The machine is shown set up for operation. The machine includes a rectangular base frame 10 having two straight parallel horizontal side bars 12 and a front horizontal bar 14. T-fittings 18 couple the front bar 14 to the side bars 12. Cylindrical fittings 20 are secured near rear ends of bars 12. Cylindrical fittings 22 are pivotally secured to fittings 20 to rotate in vertical planes. Side bars 24 of vertical frame 25 are secured in fittings 22. T-fittings 26 are secured at upper ends of side bars 24 and carry upper crossbar 28. The vertical rear frame 25 is rotatable with respect to the base frame but is held in upright position by two lateral inclined brace bars 30, 31. Lower ends of the brace bars 30, 31, are held by T-fittings 32 on outer ends of front bar 14. Upper ends of the brace bars are held by elbow fittings 34 on outer ends of crossbar 28. The fittings 32 and 34 are secured by setscrews 36, 38 which can be loosened to detach the brace bars from the base frame 10 and vertical frame 25 to permit rotation of the vertical frame downwardly and forwardly clockwise as viewed in FIG. 1 to the lowered position shown in FIG. 6.

A lower horizontal handlebar 40 is adjustably mounted on side bars 24 of the vertical frame by means of axially perpendicular cylindrical coupled fittings 42, 43. Setscrews 44 in fittings 42 can be loosened for adjustably positioning the handlebar in any desired position along the vertical side bars 24. An upper horizontal handlebar 46 is also adjustably mounted on side bars 24 by means of axially perpendicular cylindrical coupled fittings 47, 48. Setscrews 49 in fittings 47 can be loosened for adjustably positioning handlebar 46 along the vertical side bars 24. By this arrangement the two horizontal handlebars 40, 46 can be adjustably spaced apart and fixed in position by the setscrews. Each handlebar may be covered by a tubular resilient pad 51 and handgrip friction jacket 52 best shown in FIG. 10. Pivotally mounted on frame 25 is a pivot frame 50. This frame has two side bars 54 and 55 engaged at their rear ends in fittings 56 which are pivotally secured to cylindrical fittings 58. Fittings 58 are adjustably engaged on side bars 24 and can be secured in place by setscrews 60. A crossbar 62 is adjustably mounted near front ends of side bars 54, 55, by mutually perpendicular cylindrical sittings 63, 64. In order to pivotally adjust frame 50 there is provided a winch 70 on side bar 54. This winch includes a reel 72 rotatably supported on a frame 75 and engaging one end of a flexible cable or rope 76. The rope extends from reel 72 forwardly around an idler pulley 78 secured to an eye bolt 79 on side bar 54. The rope continues rearwardly and upwardly to idler pulley 80 on upper crossbar 28. The rope then passes around pulley 82 secured on crossbar 28 and then down to eyebolt 84 on side bar 55 where the rope is tied. The pulleys 80 and 82 are located near opposite sides of the vertical frame adjacent to T-fittings 26. The winch is turned by a handle 85 on crank 86 secured to shaft 88. A gear 87 on shaft 88 is meshed with a gear 90 on shaft 89 supporting reel 72. The gears 87, 90 are held stationary by a leaf spring 92 engaged with gear 87 and shown in FIGS. 7 and 8. The spring yields however when the crank is turned for reeling in or out the rope or cable 76. As the crank is turned in one direction or the other the pivot frame will descend clockwise or rise counterclockwise as viewed in FIGS. 1 and 2.

A short hammock 92 is made of flexible cloth or plastic material has tubular ends 94 engaged on side bars 54, 55. The frame 75 of the winch overlays one end portion of the hammock on frame bar 54. The hammock is located near the rear or pivoting end of the pivot frame 50.

On crossbar 62 at the front end of the pivot frame is secured a bearing frame 95. The frame carries a rotatable T-bar 96. On crossbar 98 of the T-bar are secured two pedal plates 99. Each pedal plate 99 as best shown in FIG. 9, has a short strap 100 to engage the toe end of a person's shoe and a longer strap 102 to engage the instep. Straps 100, 102 engaged with buckle straps 101, 103 respectively. Strap 102 carries a heel strap 104 which extends around the back of the person's shoe and engages with buckle strap 106 carried by buckle strap 103. A graduated scale 110 can be inscribed on bar 54 and/or bar 55 for guidance in locating crossbar 62 on the pivot frame 50.

To use the exerciser it will first be set up in the position shown in FIGS. 1–4. The pivot frame 50 will be turned to a horizontal position. The handlebars 40 and 46 will be adjusted so that when a person using the machine grasps the lower handlebar 40 with one hand the other hand can grasp the upper handlebar with arms fully extended but with elbows slightly bent The foot bar 62 will then be adjusted on side bars 54, 55 so that when a person lies in hammock 92, with his feet strapped to the pedal plates 99, his shoulder will be in line with vertical frame 25. After these adjustments are made the person sits on the hammock 92 and secured his feet in the pedals by means of the straps. Then he lies down horizontally and turns the crank 86 to elevate the front end of the pivot frame so that the pivot frame then assumes an angle of about 60° to vertical frame 25 as shown in FIG. 2. The person may then perform a variety of exercises.

One exercise which he can perform is to grasp the upper handlebar 46 with both hands, with elbows slightly bent, and raise his body to a rigid, straight position as if he were standing at attention but with his body horizontal. Crossbar 98 will be

horizontal. The person P will then slowly turn his body a quarter turn 90° AND hold steady there. After he becomes tired he can shift his right hand down to the lower handlebar **40** while still holding his body rigid and straight, as shown in FIG. **2**. The crossbar **98** will then be turned 90° from its vertical horizontal position at an angle of about 30° to a vertical plane parallel to the vertical plane of frame **25**. After tiring of this position, the person can turn his body 90° in the same direction as before to face downwardly, with both hands grasping the handlebar **40** and with his toes pointing downward. Crossbar **98** will be horizontal again but inverted with respect to its position in FIG. **1**. This will complete a half turn. Then the person will turn 90° again in the same direction and shift his right hand to the upper handlebar and turn his feet 90° so that they are horizontal. Another quarter turn will bring him back to the initial position with both hands grasping the upper handlebar. At any position, the person can try to keep his feet stationary while his hands and body turn or he can turn his feet while his hands and body remain stationary. This will vigorously exercise the leg and torso muscles. The pivot frame can be, of course, set at some other angle than 60° to the vertical as shown in FIG. **2**, and the person can begin his full or partial turning movements in other directions and in other sequences. The person can turn alternately 90° to left and right for example. If desired, the person can wear a weighted waist belt while using the machine. In any case, gravity, tension and stretch are the factors which govern the operation of the machine. Gravity pulls the body down at every body position and the person must resist this pull by tensioning his muscles to hold his body rigid at each position. Stretching is required to reach and shift his arms to and from the handlebars. Stretch and tension required in performing an exercise can be increased by moving the adjustable foot bar or crossbar **62** further forward away from vertical frame **25**. The further the hands are from a vertical plane or line in grasping the handlebars the harder it becomes to hold the body rigid and straight against the pull of gravity. In all exercising positions the person's body will be lifted clear of the hammock **92** by tension in his body. He will use the hammock for resting between exercises or between exercise movements if desired, and when engaging and disengaging the straps from his feet.

FIG. **5** shows the machine at one stage in the process of collapsing or folding the machine for storage or shipment The side brace bars **30, 31** have been removed, and the pivot frame **50** has been lowered down to the base frame **10**. FIG. **6** shows the vertical frame **25** turned down on top of the pivot frame which is disposed on the horizontal base frame.

This machine makes it possible for a person to exercise as vigorously or as mildly as he wishes. Arms, legs, shoulders back and neck muscles can be gradually developed and strengthened by use of the machine. If desired it is possible to provide a motor to operate the winch in place of the hand-operated crank. The machine can be used for physical therapy purposes, or for general muscular exercise and development. It is durable in construction, relatively light in weight and relatively inexpensive to manufacture.

What is claimed is:

1. An exercising machine, comprising a horizontal base frame; a vertical frame extending upwardly from one end of the base frame; a pair of handlebars carried by said vertical frame in vertically spaced parallel disposition; a pivot frame pivotally attached at one end thereof to said vertical frame to rotate on a horizontal axis; means for adjusting and holding said pivot frame in an angular position with respect to the vertical frame; foot-supporting means carried by said pivot frame and rotatable in a plane perpendicular to said pivot frame; and means for securing a person's foot to said foot-support means; whereby the handlebars can be grasped by a person while his feet are secured to the foot-support means, and whereby a person can turn his legs with respect to his torso while his hands are grasping the handlebars, and while his body is disposed in an angular elevated position with respect to the horizontal base frame.

2. An exercising machine as defined in claim **1**, further comprising means for adjustably spacing and positioning said handlebars on the vertical frame.

3. An exercising machine as defined in claim **1**, further comprising a crossbar adjustably mounted on the pivot frame at its other end; a bearing assembly carried by said crossbar; and a T-bar rotatably carried by said bearing assembly, said pedals being mounted on said T-bar said means for securing the person's feet on the foot-support means comprising straps arranged to engage the toe, instep and heel of each foot.

4. An exercising machine as defined in claim **1**, further comprising mutually pivotable fittings coupling said base frame and vertical frame so that the vertical frame can be folded down on the base frame; and other mutually pivotable fittings coupling said one end of the pivot frame to the vertical frame so that the person's body will be disposed at an angle with respect to the base frame depending on the angular position of the pivot frame with respect to the vertical frame.

5. An exercising machine as defined in claim **1**, further comprising pivotable fittings coupling said one end of the pivot frame to the vertical frame so that the person's body will be disposed at an angle with respect to the base frame depending on the angular position of the pivot frame with respect to the vertical frame.

6. An exercising machine as defined in claim **5**, wherein the means for adjusting and holding said pivot frame in an angular position with respect to the vertical frame, comprises a winch carried by the vertical frame, pulleys on the pivot frame and vertical frame, and a flexible cable extending from said winch around said pulleys to a point on the pivot frame.

7. An exercising machine as defined in claim **6**, further comprising a hammock extending between and supported by sides of the pivot frame for supporting the body of the person thereon.

8. An exercising machine as defined in claim **7**, further comprising means for adjustably spacing and positioning the handlebars on the vertical frame.

9. An exercising machine as defined in claim **8**, further comprising other pivotable fittings coupling said base frame and vertical frame, so that the vertical frame can be rotated downwardly toward the base frame with the pivot frame disposed therebetween.

10. An exercising machine as defined in claim **9**, further comprising the side brace bars connecting the vertical frame and base frame to hold the same in mutually perpendicular disposition said brace bars being removable to permit rotation of the vertical frame downwardly toward the base frame.