

Dec. 11, 1962

H. J. BALNE

3,068,002

EXERCISING DEVICE

Filed March 28, 1960

2 Sheets-Sheet 1

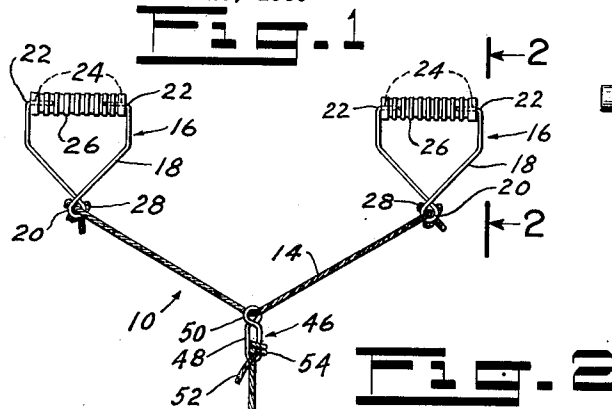


Fig. 2

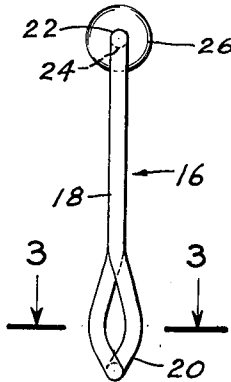
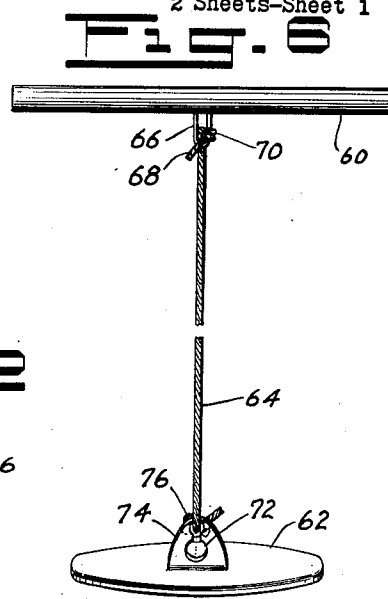


Fig. 4

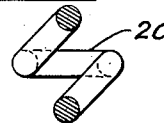
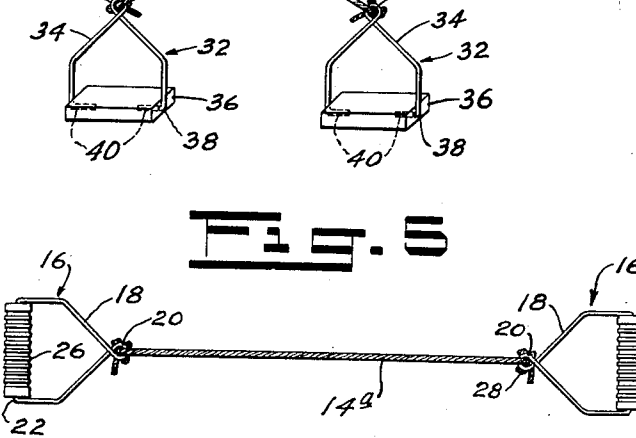
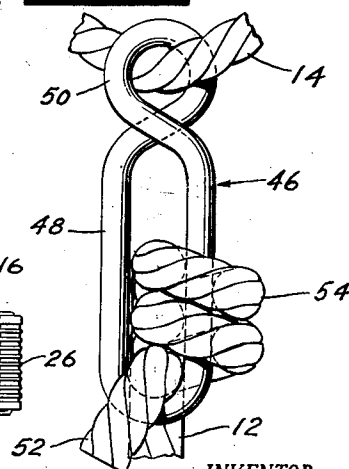


Fig. 5



INVENTOR

BY HARRY J. BALNE

Edw. S. Higgins
ATTORNEY

Dec. 11, 1962

H. J. BALNE

3,068,002

EXERCISING DEVICE

Filed March 28, 1960

2 Sheets-Sheet 2

FIG. 7

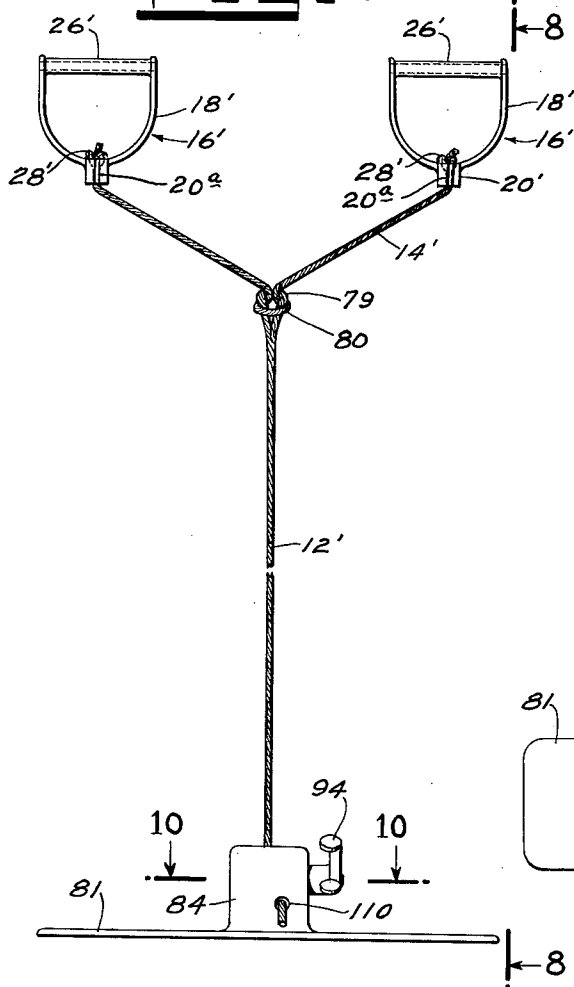


FIG. 8

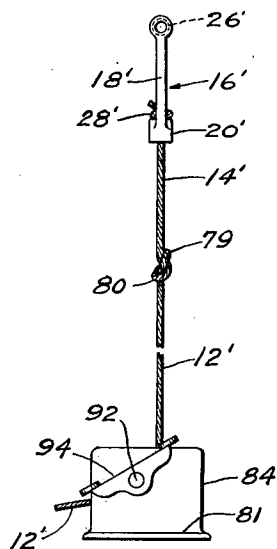


FIG. 9

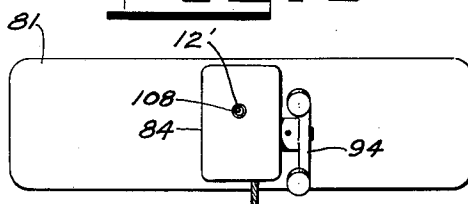


FIG. 11

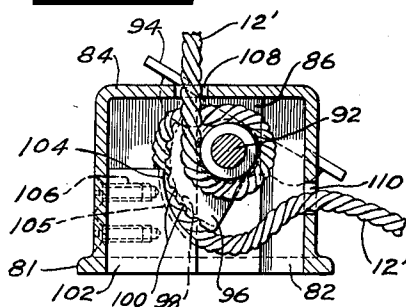
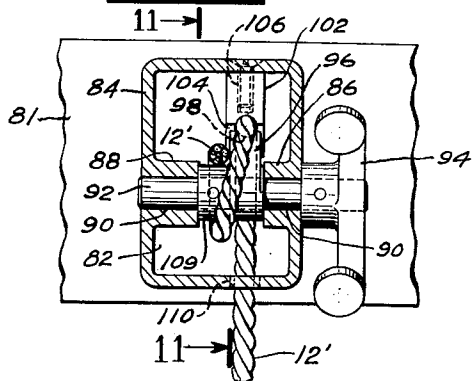


FIG. 10



INVENTOR.

HARRY J. BALNE

BY

Edw. S. Higgins

ATTORNEY

1

3,068,002

EXERCISING DEVICE

Harry J. Balne, New Canaan, Conn., assignor to

Merrill A. Portman, Yonkers, N.Y.

Filed Mar. 28, 1960, Ser. No. 17,956

3 Claims. (Cl. 272-79)

This invention relates to a push and pull type exercising apparatus.

Various devices are in existence for exercising and developing the muscles of the human body but such devices with which applicant is aware use springs or friction discs or sliding bars for providing the resistive force to the movement of the limbs of the body. In the devices wherein springs are used, it is difficult to properly regulate the tension of the springs and such springs tend to lose their tension during use. Furthermore, the tension of a particular spring is not likely to meet the needs of different individuals. Devices embodying friction discs and sliding bars provide only a limited range of benefit.

It is the principal object of the present invention to overcome the shortcomings of the prior devices as above pointed out.

Another object of the present invention is to provide a push and pull exercising apparatus that can be used to perform a group of exercises to develop and strengthen the muscles in many parts of the human body.

A further object of the invention is to provide a push and pull exercising apparatus that may be moved in any direction and that provides a large range of beneficial effects and that may be easily adjusted without the use of tools to meet the strength or requirements of any individual.

A specific object of the present invention is to provide a push and pull exercising apparatus in which a pair of handles are grasped by the user and pushed or pulled against resistance force to exercise and develop the muscles of the body.

Another object is to provide a push and pull exercising apparatus that can be effectively used by adults and children and by persons of different strengths, in which the resistive forces in the movement is always under control of the user and can be changed instantly to provide resistive force which will promote optimum benefit.

Yet another object is to provide a push and pull exercising apparatus that is simple in construction, that takes up a minimum of storage space, that is easily assembled and manipulated, that is portable and that can be manufactured and sold at a reasonable cost.

For further comprehension of the benefits and advantages of the invention, reference will be had to the following description and to the accompanying drawings, wherein—

FIG. 1 is a front elevational view of a push and pull exercising apparatus embodying one form of my invention, parts being broken away.

FIG. 2 is an enlarged view of one of the handles used in the apparatus as seen from the line 2—2 of FIG. 1.

FIG. 3 is an enlarged sectional view taken on the line 3—3 of FIG. 2.

FIG. 4 is an enlarged front elevational view of the hook element used in the apparatus.

FIG. 5 is a top plan view of the handle assembly shown removed from the apparatus for independent use as an exercising device.

FIG. 6 is a front elevational view of a push and pull exercising apparatus embodying a modified form of my invention, parts being broken away.

FIG. 7 is a front view of another modified form of exercising apparatus, parts being shown broken away.

FIG. 8 is a side view thereof as seen from the line 8—8 of FIG. 7.

2

FIG. 9 is a top plan view of the foot-engaging assembly.

FIG. 10 is a cross-sectional view on the line 10—10 of FIG. 7.

FIG. 11 is a vertical sectional view on the line 11—11 of FIG. 10.

Referring in detail to the drawings, in FIG. 1 a preferred form of exercising apparatus is shown and designated generally by the reference numeral 10. The exercising apparatus comprises an elongated rope 12 connected at one end to a handle assembly and at the other end to a foot-engaging assembly.

The handle assembly comprises a short rope 14 and a handle member 16 at each end. Each handle member 16 consists of a wire frame 18 formed of a piece of wire bent and shaped into a U-V shaped body with an eye-loop 20 formed at its center, intermediate of its ends, and with its ends bent inwardly perpendicularly to the body forming journals 22 secured in socketed openings 24 in the ends of a rotatable wooden handle bar 26 closing the open end of the frame. The reaches of the wire where they cross to form the loop 20 are spaced from each other providing clearance to permit the end of the rope to be slipped therebetween in assembling the handle assembly. A knot 28 is formed on each end of the rope to prevent its withdrawal.

The foot-engaging assembly comprises a short rope 30 and a foot stirrup 32 at each end. Each stirrup consists of a wire frame 34 similar in construction to the wire frame 18 of the handle members. The frame 34 is pivotally connected to a narrow block 36 of wood by means of the journals 38 thereof pivotally mounted in socketed openings 40 in the ends of the block. The ends of the rope 30 are connected to the loops 42 of the wire frames in a manner similar to the rope 14 and are held against withdrawal by knots 44 at the end thereof.

The handle assembly is slidably connected to the end of the rope 12 by means of a metal loop member 46 best shown in FIG. 4. The loop member consists of a piece of heavy stock wire shaped to form an elongated loop portion 48 at one end and a smaller round loop portion 50 at the other end. The end of the rope 12 is fastened to the elongated loop portion 48 of the loop member 46 by encircling the end of the rope around one leg of the loop portion 48 and guiding the extremity 52 of such end over the bight portion of the loop member and downwardly as shown in FIGS. 1 and 4. When downward pressure is exerted on the rope, the turns of the rope provide a slip knot 54 fastening the rope to the loop member.

The foot stirrup assembly is slidably connected to the other end of the rope 12 by means of a small metal ring 56. The end of the rope is inserted through the ring and knotted securing said end to the ring. One end of the rope 30 is threaded loosely through the ring and fastened to a stirrup 32.

The exercising apparatus just described may be used to perform a group of exercises to develop and strengthen the muscles in many parts of the human body. One exercise may be performed in a standing position. The feet are inserted into the stirrups 32 over the blocks 36. The hands grasp the handle members 16 and the arms are then extended upwardly above the head to fully extended position. When the arms are so extended, an upward push is exerted upon the handle members, which upward pushing pressure is counteracted by a downward pushing pressure on the stirrups by the legs, this pressure being continued for about six seconds' time whereby the upper muscles and the lower muscles of the body are brought into play and exercised. The pressure may be gradually exerted. The apparatus may be adjusted to different heights to provide sustained resistance.

Another exercise may be performed by shortening the length of the rope 12 by loosening the knot 54 and pulling

downwardly on the end 52 until the desired length is obtained when the turns of the rope are again tightened around the leg of the loop member 46. When the rope is thus shortened, the user bends over and grasps the handle members 16 and by means of the arms exerts an upward pulling pressure on the handle members. At the same time, a downward pressure is exerted by means of the legs. This pressure is preferably continued for approximately six seconds whereby the muscles of the arms, legs, back and other parts of the body are exercised and strengthened to a degree equivalent to the beneficial effects of exercising with other devices for a much longer time.

When the exercising apparatus is shortened, the apparatus can be used for example by sitting down or lying down on the floor or the like, placing the feet in the stirrups, grasping the handle members 16 and pulling with the arms on the handle members, which pulling pressure will be counteracted by a pushing pressure by the legs upon the stirrups. A continuance of this pressure for approximately six seconds will exercise and strengthen the muscles of the upper and lower parts of the body to a degree corresponding to a much longer time with prior devices.

The handle assembly may readily be detached from the rope 12 and used as a separate exercising device. In order to detach the handle assembly, the knotted ends of the rope are pulled out through the clearance provided where the ends of the loop 50 cross each other. When so detached as shown in FIG. 5, a longer rope 14^a may be substituted for the rope 14 and the handle members 16 grasped by the hands and the rope 14^a may be placed in front of the chest or behind the back, or vertically with the handle members up and down. The rope is then extended to normal fully extended condition by extending the arms. Continued outward pressure of the arms outwardly in an effort to move the hands away from each other will bring into play and exercise the muscles of the arms, chest and back of the body. The pressure on the handle members may be gradually exerted.

Referring now to the form of my invention shown in FIG. 6, this form of exercising apparatus comprises an elongated round bar 60 constituting a handle bar. The handle bar is composed of metal, wood, plastic or any other suitable material. The bar is approximately the width of the shoulders of an adult. A flat metal plate, oval in configuration, constituting a base plate 62, of similar length to the handle bar, is also used. A rope 64 connects the handle bar and base plate. One end of the rope is anchored or tied to the handle bar by means of a U-shaped metal element 66. The end of the rope is encircled around one leg of the U-shaped element and the extremity 68 thereof is guided over the bight portion of the element and downwardly. When downward pressure is exerted on the rope, the turns of the rope provide a slip knot 70 fastening the rope to the element.

The other end of the rope extends through a keyhole slot 72 formed in a perforated lug 74 extending upwardly from the center of the base plate 62 midway its ends. The end of the rope is inserted through the larger hole in the keyhole slot, pulled through the narrow neck portion, knotted and the knot 76 interlocked with the smaller hole of the slot.

Preferably a rope approximately seven feet in length, is used so that the exercising apparatus may be used by persons of all sizes including those having an exceptionally long reach when the arms are fully extended upwardly.

The exercising apparatus shown in FIG. 6 is used similarly to the apparatus shown in FIG. 1 by placing the feet on the base plate 62 on opposite sides of the lug 74 and grasping the handle bar by the hands. The arms are extended upwardly to fully extended position whereupon an upward push is exerted upon the handle bar, which upward push is counteracted by a downward pushing

pressure on the base plate 62 by the legs. This pressure is continued for about six seconds' time whereby the upper muscles and the lower muscles of the body are brought into play and exercised. The pressure may be gradually exerted. The apparatus may be adjusted to any height to provide sustained resistance.

Another exercise may be performed by shortening the length of the rope 64 by loosening the knot 70 and pulling downwardly on the end 68 until the desired length is obtained when the knot 70 is again tightened around the leg of the U-shaped element 68. When the rope is thus shortened, the user bends over and grasps the handle bar and by means of the arms exerts an upward pulling pressure on the handle bar. At the same time, a downward pressure is exerted by means of the legs. This pressure is preferably continued for approximately six seconds whereby the muscles of the arms, legs, back and other parts of the body are exercised and strengthened to a degree equivalent to the beneficial effects of exercising with other devices a longer time.

Referring now to the form of my invention shown in FIGS. 7 to 11, inclusive, the apparatus shown herein comprises an elongated rope 12' connected at one end to a handle assembly and at the other end to a foot-engaging assembly.

The handle assembly comprises a short rope 14' and a handle member 16' at each end thereof. Each handle member 16' consists of a U-shaped metal bar 16' formed with a tubular socket 20' at the center of its bight portion. Each socket is formed with a slot 20^a from top to bottom thereof. A metal tube 26' extends across the space between the ends of the U-shaped bar and connects said ends, said tube constituting a handle bar. The knotted ends of the rope 14' are slipped through the slots 20^a of the tubular sockets 20', the knots preventing withdrawal of the ends through the sockets. The ends may be detached by pulling same through the slots.

The handle assembly is fastened to the end of the rope 12' by means of a loop 79 formed on one end thereof. The free ends of the rope 14' are inserted through said loop 79, forming a loop 80 thereon, midway between its ends, and by pulling on the free ends of the rope 14', said loop 80 interlocks with the loop 79 thereby securing the ropes to each other.

The foot-engaging assembly comprises an elongated and rectangular-shaped metal plate 81 having an opening 82 midway between its ends. A box 84 is cast on the top surface of the plate over the opening 82. A pair of opposed tubular bearings 86 and 88 are formed on the side walls inside the box. The bearing 86 is shorter than the bearing 88. Opposed holes 90 are formed in the side walls of the box in line with the bearings 86 and 88. A stub shaft 92 is journaled in the bearings in the box and one end extends out through one of the holes 90 to the exterior of the box. A foot pedal 94 is fixed to the shaft 92 on the outer end thereof. An arcuate-shaped plate 96 forming a rocker lock is fixed on the shaft inside the box slightly disposed off the center of the opening. The rocker lock has a periphery with a central longitudinal groove 98 which groove is intersected by a series of spaced transverse grooves 100. An abutment member or anchor locking member 102, having an arcuate-shaped face 104, with a central longitudinal groove 105, is mounted on the inner surface of the rear wall of the box and is secured thereto by screws 106. A hole 108 is formed in the center of the top of the box. The end of the rope extends through the hole into the box and encircles the hub 109 of the plate 96 for one turn and then passes around the face of the plate 96 and between said face and the face of the member 102 and then passes outwardly through a hole 110 in the front wall of the box at the bottom thereof.

The rope 12' is clamped against accidental movement by stepping on the pedal 94 and rocking it clockwise as

5

viewed in FIG. 11 whereby the arcuate-shaped clamping plate 96 clamps or locks the rope against the anchor member 102 thereby preventing longitudinal movement of the rope.

In order to adjust the active length of the rope 12' upwardly, the rocker lock 96 is released from the anchor member 102 by holding the pedal down with the foot in the opposite direction whereby the rope is loosened and may be pulled lengthwise upwardly.

In order to adjust the active length of the rope downwardly, that is, to adjust the handle members downwardly, it is not necessary to touch the pedal but merely to pull the rope out of the hole 110, in the box 84.

The form of exercising apparatus shown in FIG. 7 is used similarly to the other forms, and the handle assemblies of the forms of FIGS. 1 and 7 may be used interchangeably with the handle bar 60 of FIG. 6. The apparatus of FIG. 7 may also be adjusted to any height to provide sustained resistance.

The above described exercises it will be understood are only illustrative of the many forms of exercises which may be performed by the exercising apparatuses shown and described.

It will be appreciated that the exercising apparatuses embodying my invention may be used by a class in a gymnasium, in the home or in most any place and that such devices can be used to provide a wide range of beneficial effects. When not in use, the devices can be collapsed into small compact form so as to take up a minimum of storage space.

While I have illustrated and described the preferred embodiments of my invention, it will be understood that changes in details of construction might be made without departing from the principle of the invention and I desire to be limited only by the state of the prior art and the appended claims.

I claim:

1. An exercising apparatus comprising an elongated rope, a short rope fastened midway its ends to one end of said rope, and extending perpendicularly thereto, handle members on the ends of said short rope, an elongated metal plate, and adjustable means of connection between the metal plate and the other end of the elongated rope, including a movable segment of a wheel, an abutment member spaced therefrom, said other end of the elongated rope passing through the space between the segment and abutment member, and means for moving said segment of a wheel into contact with said rope for releasably clamping the rope between the segment and abutment member, the adjustable means of connection between the

6

rope and metal plate providing adjustment of the rope to any length thereby providing sustained resistance to manual pressure exerted upon the rope at different heights.

2. An exercising apparatus comprising an elongated rope, a short rope fastened midway its ends to one end of said rope, and extending perpendicularly thereto, handle members on the ends of said short rope, an elongated metal plate, adjustable means of connection between the metal plate and the other end of the elongated rope, including a movable segment of a wheel, an abutment member spaced therefrom, said other end of the elongated rope passing through the space between the segment and abutment member, and foot-actuated means for moving said segment of a wheel into contact with said rope for releasably clamping the rope between the segment and abutment member, said adjustable means of connection between the metal plate and rope providing adjustment of the rope to any length thereby providing sustained resistance to manual pressure exerted upon the rope at different heights.

3. An exercising apparatus comprising an elongated rope, a short rope fastened midway its ends to one end of said rope and extending perpendicularly thereto, handle members on the ends of said short rope, an elongated metal plate, said plate having an opening midway its ends, an integral box on the plate over said opening, a shaft journaled in said box, a segment of a wheel on said shaft inside the box, an abutment member inside the box in line with the periphery of said segment, said box having a hole in the top wall thereof to receive the other end of the rope, the other end of the rope passing between said periphery of the segment and said abutment and outwardly through a hole in the rear of the box, and a pedal on the end of the shaft outside the box for moving said segment into contact with the rope and clamping the rope between the segment and abutment member, said rope being adjustably connected thereby providing sustained resistance to manual pressure upon the rope at different heights.

References Cited in the file of this patent

UNITED STATES PATENTS

208,485	Nicolay	Oct. 1, 1878
1,012,802	Brogan	Dec. 26, 1911
2,046,653	Petcoff	July 7, 1936
2,131,570	Riley	Sept. 27, 1938
2,838,307	Drew	June 10, 1958

FOREIGN PATENTS

26,110	Great Britain	1909
--------	---------------	------