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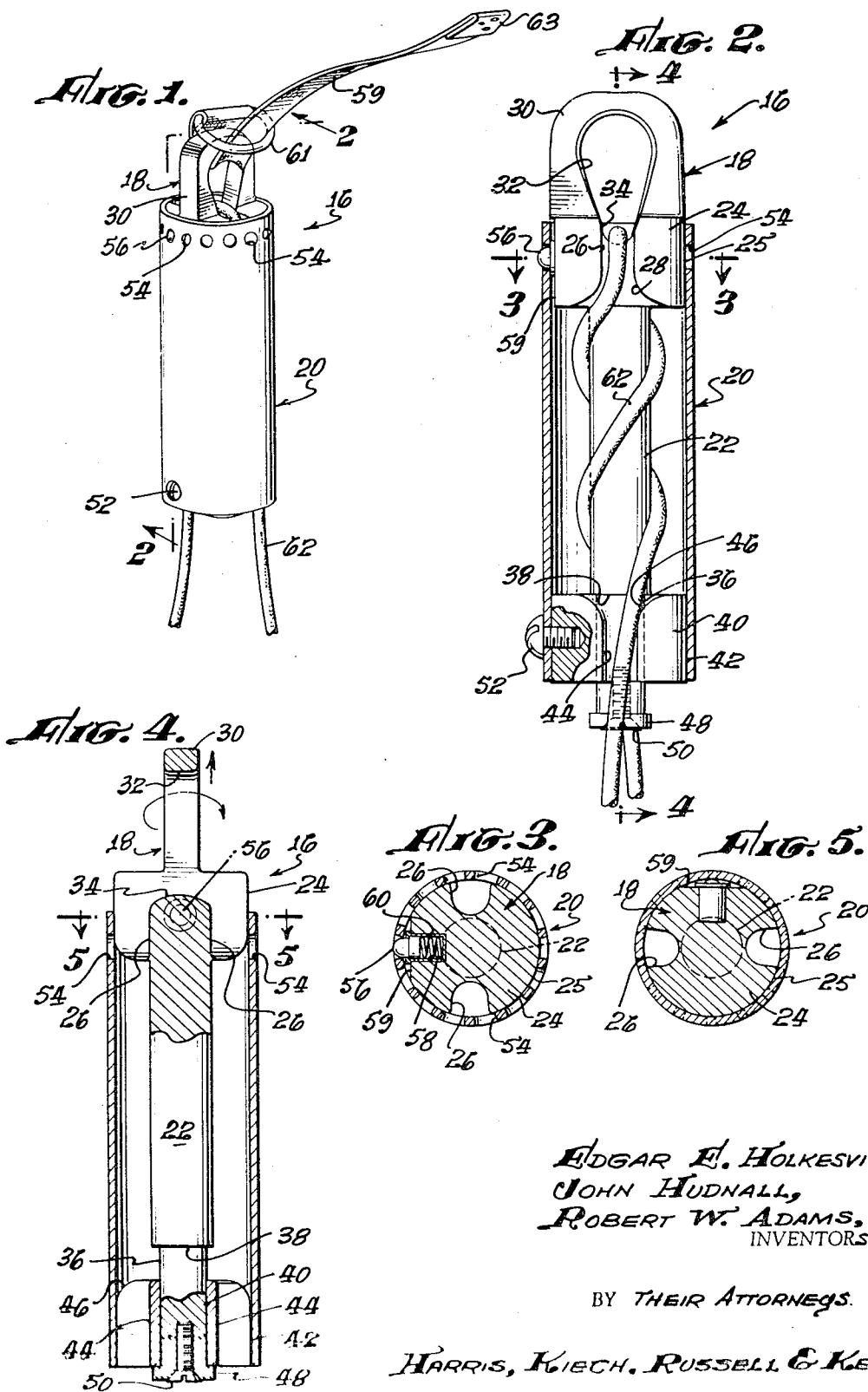
E. E. HOLKESVICK ET AL

3,717,339

METHOD OF UNASSISTED FRICTION-RESISTIVE EXERCISING

Original Filed June 12, 1961

2 Sheets-Sheet 1



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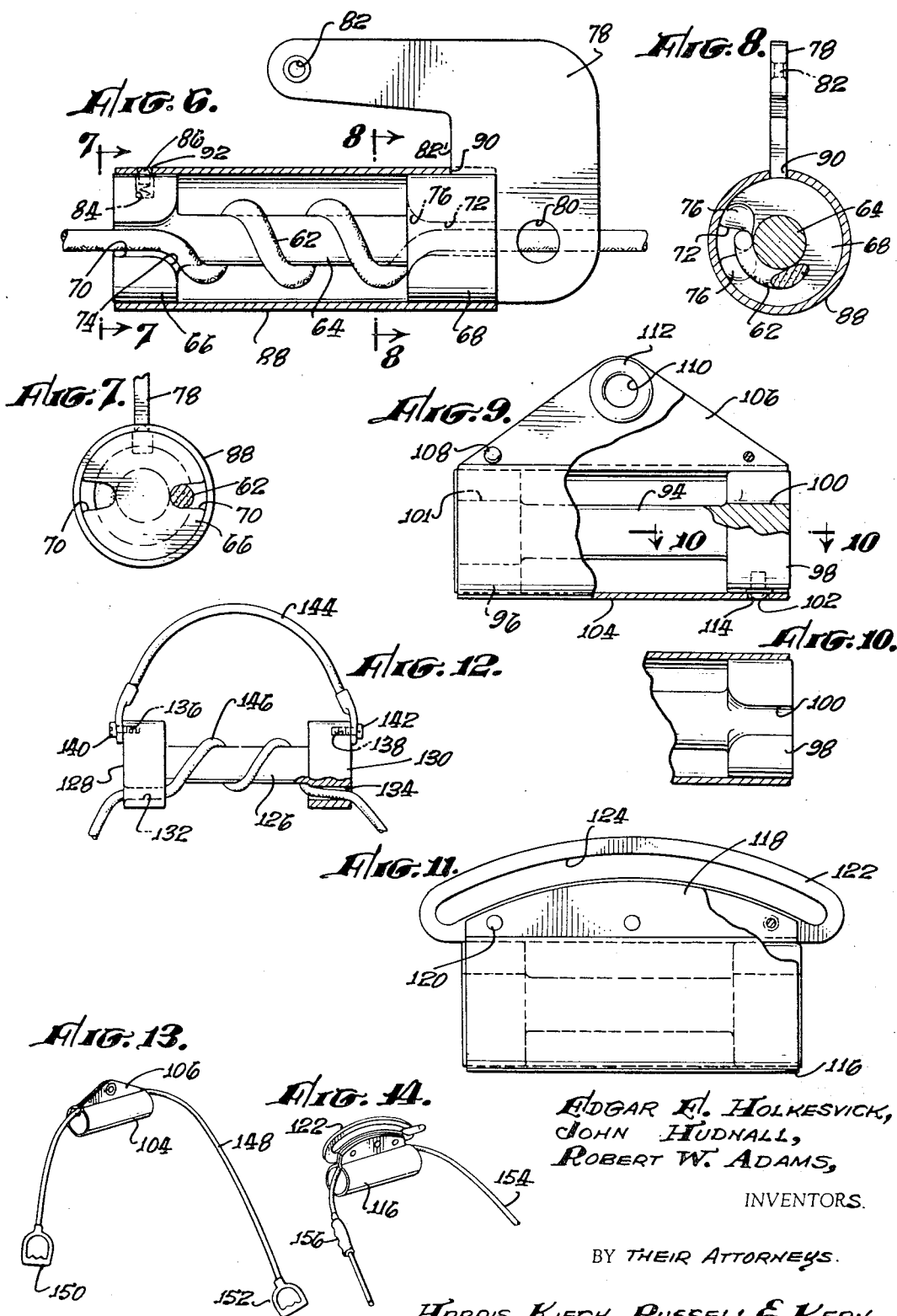
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3,717,339

METHOD OF UNASSISTED FRICTION-RESISTIVE EXERCISING

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Division of applications Ser. No. 116,393, June 12, 1961, now Patent No. 3,197,204, and Ser. No. 482,646, June 9, 1965, now Patent No. 3,411,776, and a continuation of application Ser. No. 776,305, Oct. 21, 1968, now abandoned. This application Oct. 1, 1970, Ser. No. 77,313

Int. Cl. A63b 21/00

U.S. Cl. 272—79 A

18 Claims

ABSTRACT OF THE DISCLOSURE

A method of exercising body and arm muscles. The operator or user pulls on one end of a length of rope which has the center portion releasably restrained at a support to provide an adjustable resistance of substantially constant magnitude throughout the range of movement of the rope. The operator alternately pulls on one end of the rope with one arm to move the rope on and off the shaft. The rope is wrapped around a shaft and a support and offers frictional resistance to being pulled off the shaft and support, and he then pulls on the other end of the rope with the other arm to move it on and off the shaft.

CROSS-REFERENCES TO RELATED APPLICATIONS

This application is a division of co-pending application Ser. No. 482,646, filed June 9, 1965 (now Pat. No. 3,411,776), and of application Ser. No. 116,393, filed June 12, 1961 (now Pat. No. 3,197,204). This application is a continuation of application Ser. No. 776,305 filed Oct. 21, 1968 and since abandoned.

BACKGROUND OF THE INVENTION

The present invention relates generally to the physical conditioning art, and more particularly to a novel method of exercising body and arm muscles, which is especially suitable for use in the home.

It is well known that there are various types of exercising devices on the market and in use at the present time, some of which are limited to gymnasium usage, while others are usable in the home. However, most of the better exercising devices are relatively expensive, others are quite cumbersome and noisy, some are dangerous, and many which are relatively small and inexpensive are not satisfactory because they are limited in their usage and cannot be adjusted to suit the need of the person desiring to use them. Thus, exercising devices which employ springs and resilient members have been known to break or slip and thereby injure the user.

SUMMARY

In the present method of exercising, the center portion of a length of rope or similar flexible member is adjustably and releasably restrained at a support as by wrapping a selected number of turns of the rope around a shaft, thereby providing two free ends to be pulled upon by the operator or user.

Inasmuch as the sliding frictional resistance between the shaft and the portion of rope wrapped around it remains substantially constant throughout the range of movement of the rope, i.e., when the number of turns remains unchanged, the operator must exert a constant force on an end of the rope as it is being pulled or pushed

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away from the shaft or support. This contrasts with the constantly increasing force which must be applied to the end of a coiled spring as it is being extended.

In addition, in the present method of exercising, the operator or user can terminate the exercise at any position during the movement of the rope without the use or occurrence of any additional force or strain, as compared with the necessity of slowly releasing an extended coil spring or lowering weights to a starting position. Accordingly, by employing the present method, the user can completely tire a particular muscle without subjecting it to an additional strain at the end of the exercise.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a novel exercising device to be used in accordance with the teachings of the present invention, shown in controlled adjustable position;

FIG. 2 is an enlarged vertical sectional view taken on the line 2—2 in FIG. 1;

FIG. 3 is a horizontal sectional view taken on the line 3—3 in FIG. 2;

FIG. 4 is a vertical sectional view taken on the line 4—4 in FIG. 2, showing the device in the freely rotatable position;

FIG. 5 is a horizontal sectional view taken on the line 5—5 in FIG. 4;

FIG. 6 is a front elevational view, partially in cross section, showing a modified exercising device embodying the same inventive concept but lacking the full adjustability of the embodiment shown in FIGS. 1 through 5;

FIG. 7 is an end view of the modified construction taken on the line 7—7 in FIG. 6;

FIG. 8 is a vertical sectional view taken on the line 8—8 in FIG. 6;

FIG. 9 is a front elevational view, partially in cross section, illustrating another modified construction;

FIG. 10 is a fragmentary horizontal sectional view taken on the line 10—10 in FIG. 9;

FIG. 11 is a front elevational view, partially in cross section, illustrating yet another modified construction;

FIG. 12 is a front elevational view, partially in cross section, illustrating a very basic or simplified exercising device for practicing the teachings of the present invention;

FIG. 13 is a perspective view, on a reduced scale, showing a device of the type illustrated in FIG. 9 provided with a length of rope with operating handles; and

FIG. 14 is a perspective view, also on a reduced scale, showing the device of FIG. 11 provided with a length of rope which is pulled continuously in one direction during the operation of the device.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to the drawings more particularly by reference numerals, specifically FIGS. 1 through 5, 16 indicates generally an exercising device to be used in accordance with the teachings of the present invention, which includes a body member 18 and a sleeve member 20 removably and adjustably mounted thereon.

The body member 18 contains an elongated shaft portion 22, preferably of cylindrical cross section, with an upper hub portion 24 with an outer peripheral surface 25 adjacent the upper end thereof, said hub portion being provided with two diametrically opposed, vertically extending passageways or slots 26 in the outer peripheral surface which have the bottom or inner ends thereof flared outwardly in an arc as at 28, for a purpose to appear. A plate-like tongue portion 30 projects upwardly above the upper hub portion and contains an aperture 32,

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the lower part of said aperture coinciding with a groove 34 contained in the upper or end surface of the hub portion and interconnecting the slots 26. If desired, the tongue could be provided with two separate apertures, one adjacent the upper end thereof and one in registry with the groove 34, but it is preferable from a machining standpoint to employ a single elongated aperture.

The lower end of the shaft 22 contains a stud portion 36 of reduced diameter which provides a shoulder 38 between it and the shaft 22. Slidably and rotatably mounted on the stud portion 36 is a lower hub member 40 with an outer peripheral surface 42 which also contains two diametrically opposed passageways or slots 44 in said outer surface, the upper or inner ends of the slots 44 being flared outwardly in an arc as at 46 in a manner similar to the construction of the slots 26. A disc-like stop member 48 is fastened to the lower end of the stud portion 36 by a screw 50, thereby limiting the vertical movement of the lower hub member 40 between an upper position in which it abuts the shoulder 38 and a lower position in which it abuts the stop member 48.

The sleeve member 20 has an inside diameter which is only slightly greater than the outside diameter of the hub portion 24 and the hub member 40, and is of a length to extend between the outer ends of the hubs when the lower hub member is in the upper position as shown in FIG. 2. The lower end of the sleeve member 20 is removably fastened to the lower hub member 40 as by means of a machine screw 52. Formed in the upper end of the sleeve member 20 are a plurality of circumferentially spaced, circular openings 54 (FIG. 2) which are adapted to receive a detent 56 with a rounded outer end surface which is positioned in a socket 58 (FIG. 3) contained in a flattened surface 59 of the upper hub portion 24 and urged into the sleeve-engaging direction by a coiled spring 60.

It will be apparent that when the lower hub member 40 is in the upper or controlled rotation position, the lower hub member and the sleeve 20 can be rotated, notch-by-notch, relative to the shaft 22 and the upper hub portion 24, the detent 56 being cammed into a retracted position as the sleeve is rotated relative thereto and thence moving out to an opening engaging position when the next opening 54 comes into alignment therewith.

On the other hand if one wishes to quickly rotate the sleeve member 20 and the lower hub member relative to the upper hub portion (e.g. where it is desirable to make several complete revolutions hurriedly) the lower hub member 40 can be moved to the lower or free position (FIGS. 4 and 5) in which the openings 54 in the upper end of the sleeve member 20 are below the detent 56, whereby the latter is in free sliding engagement with the smooth inner surface of the sleeve member. It will be noted that, by adjusting the length of the sleeve member 20, the free rotation can be achieved with the lower hub member 40 in either the upper or the lower position. However, the illustrated construction is preferred because otherwise the sleeve member would project upwardly adjacent the tongue portion 30 during the free rotation operation.

When the device is to be used as an exerciser, a length of rope 62 could be inserted upwardly through one of the slots 44 in the lower hub member 40, through one of the slots 26 in the upper hub portion 24, through the groove 34, and thence downwardly through the other slots 26 and 44. The sleeve member 20 could then be rotated the desired number of turns, or portions of a turn, with the bottom hub member in either the upper or lower position so as to cause the rope 60 to be wrapped around the shaft 22 the desired number of turns as shown in FIG. 2. Obviously, this manner of inserting the rope into the device would have to be followed if the openings 26 and 44 were enclosed passageways instead of slots which are open to the outer surfaces of the hubs. This

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type of construction would function satisfactorily but would not have the additional advantages contained in the preferred construction.

Therefore, it will be understood that in the preferred construction illustrated, the rope is easily and quickly installed in the device by first removing the screw 52, slipping the sleeve member 20 from the body member 18, inserting the rope through the aperture 30 and then dropping both ends of the rope downwardly into the grooves 26 and 44 on the opposite sides of the body member. Thereafter, the sleeve members 20 can be quickly replaced on the body member and the screw 52 returned to its securing position. The sleeve member 20 and the lower hub member 40 can then be rotated the desired number of turns or portions of a turn, as previously described.

When the rope 62 has been properly positioned in the device, the exerciser 16 may be suspended from a support such as a hook or peg, by means of the aperture 32, or, a special strap 59 with a metal ring 61 at one end and a doubled-back portion 63 at the other end thereof can be inserted through the aperture 32 in the manner shown in FIG. 1 and the part of the strap containing the portion 63 placed between the top or side of a door and the door frame adjacent thereto.

The operator can then grasp one end of the rope 62 projecting from the bottom of the device, and, by pulling on it in a hand-over-hand fashion, exercise certain muscles of the body. The outer surface of the shaft portion 22 and the inner surfaces of the slots 26 and 44 are preferably polished to reduce the amount of wear of the rope resulting from the operation of the device. It will also be noted that the arcuate surfaces 28 and 46 at the inner ends of the slots 26 and 44, respectively, conform to the shape of the rope 62 which is twisted around the shaft portion 22 so as not to adversely affect the frictional drag on the rope or cause an undue amount of wear, as would result if sharp corners were used. Stating it differently, it has been found advisable to have smooth continuous surfaces devoid of sharp projections for best all around operation of the device. Thus, it will be noted that the device provides a continuous resistance of constant magnitude (per setting) throughout the entire range of motion.

If the exercising device is positioned above the user's head, the muscles which are exercised during a hand-over-hand pulling of the rope through the device as previously described would be the same as those exercised by a hand-over-hand climbing of a fixed rope. On the other hand, if the device were on a level with the user as the latter turned away from it, the result would be somewhat similar to that achieved by pulling on springs or by lifting weights actuated through a pulley arrangement.

After the rope has been pulled through the device in one direction, the user can grasp the other end of the rope and pull it through in the opposite direction. Another manner of using the device is to pull alternately on first one end of the rope and then on the other end thereof so as to move the rope back and forth through the device.

It will be obvious from the above description that the amount of friction, and therefore the amount of force required to pull the rope through the device, can be varied at will by merely rotating the sleeve member 20 and the lower hub member 40 relative to the shaft 22 and the upper hub portion 24. Also, as previously mentioned, this can be achieved either a notch at a time as when the lower hub member 40 is in the upper position, or by one or more complete turns as when the lower hub member 40 is in the lower position. Thus, a user may wish to start with a relatively low frictional resistance and gradually increase the amount of force required to pull the rope through the device, as by rotating the sleeve one notch each day.

It will be readily apparent that this small, quiet, safe, and relatively inexpensive exercising device can take the place of many larger and more cumbersome devices.

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Another embodiment of exerciser for use with the present invention, which is shown in FIG. 6, is somewhat more simple than the device described above, and although it has a certain amount of adjustability, it is not as fully adjustable as the previously described embodiment. The modified construction includes a shaft 64 which has hub portions 66 and 68 at the opposite ends thereof, the hub portion 66 being preferably provided with two axially extending diametrically opposed slots 70, and the hub portion 68 being preferably provided with a single axially extending slot 72. It is preferred that the slot 72 be in axial alignment with one of the slots 70 for ease in forming. Here again, the slots could be replaced with enclosed passageways or holes but the slot construction is by far the preferred one for obvious reasons. As shown in FIGS. 6 and 8 the inner ends of the slots 70 are flared outwardly in an arcuate manner as at 74, and the inner end of the slot 72 is flared outwardly as at 76 in the same manner.

Fastened to the end face of the hub portion 68 is a plate-like L-shaped flange or tongue 78 which contains a first aperture 80 in axial alignment with the shaft 64, and a second aperture 82 approximately midway between the hub portions 66 and 68. The tongue 78 includes a guide portion 82' which projects inwardly over the outer peripheral surface of the hub portion 68 for a purpose to appear. The hub portion 66 contains a recess 84 in a flattened area which receives a spring-biased detent 86 which is similar in construction to the one previously described.

Slidably and removably mounted on the hub portions is a tubular sleeve member 88 which includes a slot 90 at one end thereof and an aperture 92 at the other end, preferably in axial alignment with the slot 90. The slot 90 is of a width to receive the guide portion 82' of the flange, and the length of the sleeve member is such that when it is moved to the right so as to fully engage the guide portion in the slot (FIG. 6), the aperture 92 is in alignment with the detent 86 and the sleeve member is maintained in position.

To use the device as an exerciser, the detent 86 is depressed against the action of the spring, and the sleeve 88 removed from the body member. The rope 62 is positioned in the slot 72, wrapped around the shaft 64 the desired number of times, and then positioned in either of the slots 70. Thereafter, the sleeve 88 is slipped over the hub portions 66 and 68 with the slot 90 in alignment with the guide portion 82', and, when the sleeve is fully on the body member, the detent 86 is engaged in the aperture 92.

If the person desires to use the device in such a manner that the rope 62 is pulled through it in one direction, it would be hung from a support by means of the aperture 80. On the other hand, if the rope is to be pulled back and forth, first with one arm and then with the other arm, the device would be supported by means of the aperture 82.

When it is desired to change the amount of force required to pull the rope through the device, the detent 86 can be depressed and the sleeve member 88 quickly removed from the body member and the rope removed from the slot 70 and either unwrapped from or wrapped further around the shaft. Thereafter, the sleeve member 88 is reinserted on the body member as previously described. It will be noted that the two diametrically opposed slots 70 in the hub portion 66 provide for a half-turn adjustment, and, if a quarter-turn adjustment were desired, a third slot could be provided between the two diametrically opposed slots 70.

As in the embodiment first described, the arcuate surfaces 74 and 76 permit the rope 62 to be twisted around the shaft 64 without causing undue wear or additional pressure at the edges of the slot.

A further modified construction, shown in FIGS. 9 and 10, is somewhat similar to the construction shown in

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FIG. 6 in that it includes a shaft 94 with said hub portions 96 and 98 at each end thereof, one of which has a single slot 100 and the other of which is provided with two diametrically opposed slots 101. This modification is also provided with a spring-biased detent 102 which is similar in construction to the one previously described. However, in the second modification a sleeve portion 104 with a doubleflanged portion 106 is formed from sheet material which is wrapped around the hub portions 96 and 98 and the free ends thereof fastened together with rivets 108. An opening 110 is formed in the two face-to-face flange portions and a two-piece annular eye member 112 swaged together to further fasten together the two-piece flange portion 106. The sleeve portion 104 is also provided with a small aperture 114 at the bottom thereof to receive the detent 102 and maintain the sleeve portion on the body member.

In use, a rope is employed with the second modified construction in the same manner as previously described with reference to the modification shown in FIG. 6. Also, it will be readily apparent that the sleeve portion 104 can be easily and quickly removed from the body member by depressing the detent 102 whereby the position of the rope can be changed relative to the number of turns on the shaft 94.

A third embodiment, shown in FIG. 11, is very similar to the construction shown in FIG. 9 in that a sleeve portion 116 and a flange portion 118 are formed from sheet material which is wrapped around the hub portion and riveted together at 120. However, in this construction, a separate plate-like supporting bracket 122 is fastened to the flange portion 118 by the rivets 120, said supporting bracket containing an elongated arcuate slot 124. It will be noted that when the device is supported on a stud or hook which projects through the slot 124, tilting the device will cause the stud or hook to slide to either one end or the other of the slot, depending upon which end of the rope is being pulled, so that the rope will extend from the device in substantial axial alignment therewith.

A fourth modification and slightly different embodiment of exerciser is shown in FIG. 12. It will be noted that in all of the embodiments previously described, each was provided with a sleeve member to prevent the rope from escaping from the slot, which has been mentioned as the preferred construction. In the embodiment shown in FIG. 12 a separate sleeve is not necessary and therefore it is a very simple and economical construction. Thus, it includes a shaft 126 which has two hub portions 128 and 130 formed integral therewith at the ends thereof. The hub portion 128 has a single axially extending passageway 132 therethrough, and the hub portion 130 has a similar passageway 134 in alignment with the passageway 132. Here again, the inner ends of the passageway are preferably flared outwardly in the same manner as previously described in order to prevent the rope from binding on the corners. Diametrically opposite to the aforementioned passageways are two tapped recesses 136 and 138 which are also in alignment and which receive machine screws 140 and 142, respectively. These screws removably fasten a wire-like arcuate supporting member 144 to the hub portions approximately 180° from the passageways 132 and 134.

To use this modified construction as an exercising device, a rope 146 is inserted through one passageway, wrapped around the shaft the desired number of times, and then inserted through the other passageway. The device can then be hung from a support such as a door knob or the like (not shown) by means of the support member 144, and the device used in the manner previously described. Thus, it will be noted that the modification shown in FIG. 12 has somewhat the same action as the modification shown in FIG. 11 in that the arcuate supporting member 144 permits the device to pivot about the supporting stud or door knob depending upon which end of the rope is being pulled.

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Although this embodiment has the disadvantage that it is necessary to rethread the rope 146 through the openings each time an adjustment is made, it is extremely simple in construction and relatively inexpensive to manufacture, and, for that reason, has certain advantages over the other constructions previously described.

As mentioned hereinabove, a short length of rope can be pulled through any of these devices first in one direction and then in the other, or, a relatively long length of rope can be pulled continuously in one direction and then the direction reversed so as to pull the rope continuously in the other direction. FIG. 13 shows the device of FIG. 9 provided with a relatively short length of rope 148 which has stirrup-like handles 150 and 152 fastened to the ends thereof, whereby the rope can be moved back and forth by pulling first on one handle and then on the other. On the other hand, FIG. 14 shows the device of FIG. 11 mounted on a peg 153 and provided with a relatively long length of rope 154 which has removable gripping members 146 mounted thereon, whereby the rope can be pulled through the device first in one direction and then in the other direction. The gripping members 156 are preferably made of a soft resilient material such as rubber or one of the synthetic foams such as polyurethane or styrofoam, and are generally cylindrical in shape with a longitudinal slot for receiving the rope 154. The slots are preferably larger than the diameter of the rope when the gripping members are in the free position so that the user can move his hands, one in front of the other, with the gripping members positioned therein. Obviously, the person using the device could wear leather gloves to protect his hands instead of using the gripping members 156.

Thus, it is apparent that there has been provided a novel exercising device and method of exercising, together with several modifications of the exerciser embodying the same inventive concept, which fulfills all of the objects and advantages sought therefor. All of the embodiments are simple in construction and relatively inexpensive to manufacture, and are of light weight and small size whereby they can be easily carried from one location to another or stored away in a small space. Furthermore, they are safe and noiseless and are therefore well suited for home use. All of the devices are adjustable so that the user can vary the amount of force required to pull a rope through the device, and the embodiment shown in FIGS. 1 through 5 permits a fine adjustment to be made easily and quickly by merely rotating the sleeve member relative to the body member until the desired change is achieved. However, the amount of resistance at any one setting is substantially constant so as to require a continuous pull of constant magnitude throughout the range of movement. The exercising device described herein is also of universal application in that it can be employed to exercise the same muscle which would be used in climbing a rope, pulling springs, lifting weights actuated through pulleys, and the like. It is to be understood that the foregoing description and the accompanying drawings have been given only by way of illustration and example and that changes and alterations in the present disclosure which will be readily apparent to one skilled in the art are contemplated as within the scope of the present invention.

We claim:

1. The method of exercising the muscles of an operator with a length of rope and a device containing passageways adjacent one end thereof and a shaft comprising the steps of:

wrapping a portion of the rope intermediate the ends thereof a selected number of turns around the shaft in the device, with the ends of the rope extending through the passageways adjacent one end of the device so that two end portions of the rope are adjacent each other and exterior of the device;

fastening the opposite end of the device to a stationary support; and

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manually alternately pulling the end portions of the rope to move the intermediate portion thereof around said shaft in engagement therewith, the engagement between said shaft and rope being a sliding frictional engagement during the pulling on one of the end portions of the rope and during the pulling on the other of the end portions.

2. The method of exercising the muscles of an operator with a length of rope and a device containing passageways adjacent one end thereof and a shaft as described in claim 1, wherein the shaft has a longitudinal axis and the end portions of the rope are pulled in a direction which is generally parallel with said longitudinal axis.

3. The method of exercising the muscles of an operator with a length of rope and a device containing passageways adjacent one end thereof and a shaft as described in claim 1, wherein when either one of the end portions of the rope is pulled to move the intermediate portion thereof around the shaft, the other end portion is free from external restraint.

4. The method of exercising the muscles of an operator with a length of rope and a device containing passageways adjacent one end thereof and a shaft as described in claim 1, wherein the number of turns of rope around the shaft is changed between periods of exercising.

5. The method of exercising the muscles of an operator with a length of rope and a device containing passageways adjacent one end thereof and a shaft as described in claim 1, wherein the opposite end of the device is supported between the edge of a door and a frame adjacent thereto to provide said stationary support.

6. The method of exercising the muscles of an operator with a length of rope and a device containing passageways adjacent one end thereof and a shaft as described in claim 1, wherein the operator pulls on one of the end portions of the rope with one arm and then pulls on the other end portion with the other arm.

7. The method of exercising the muscles of an operator with a length of rope and a device containing a shaft and an auxiliary surface, comprising the steps of:

wrapping a portion of the rope intermediate the ends thereof around the shaft and over the auxiliary surface, and having two end portions of the rope extending from adjacent one end of the device so that said end portions are adjacent each other and exterior of the device;

fastening the opposite end of the device to a stationary support; and

manually alternately pulling the end portions of the rope to move the intermediate portion thereof around the shaft-like member and over the auxiliary surface in engagement with said shaft and said auxiliary surface, the engagement between the shaft and the rope being a sliding frictional engagement during the pulling on one of the end portions and during the pulling on the other of the end portions.

8. The method of exercising the muscles of an operator with a length of rope and a device containing a shaft and an auxiliary surface as described in claim 7, wherein the shaft has a longitudinal axis and the end portions of the rope are pulled in a direction which is generally parallel with said longitudinal axis.

9. The method of exercising the muscles of an operator with a length of rope and a device containing a shaft and an auxiliary surface as described in claim 7, wherein when one of the end portions of the rope is pulled to move the rope around the shaft, the other end portion is free from external restraint.

10. The method of exercising the muscles of an operator with a length of rope and a device containing a shaft and an auxiliary surface as described in claim 7, wherein the number of turns of rope around the shaft is changed between periods of exercising.

11. The method of exercising the muscles of an operator with a length of rope and a device containing a shaft

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and an auxiliary surface as described in claim 7, wherein the opposite end of the device is supported between the edge of a door and the frame adjacent thereto to provide said stationary support.

12. The method of exercising the muscles of an operator with a length of rope and a device containing a shaft and an auxiliary surface as described in claim 7, wherein the operator pulls on one of the end portions of the rope with one arm and then pulls on the other end portion with the other arm.

13. The method of exercising the muscles of an operator with a length of rope and a device containing a shaft and an auxiliary surface adjacent one end thereof, comprising the steps of:

wrapping turns of the rope around the shaft and over the auxiliary surface forming a double helix on the shaft and said rope having two end portions extending from adjacent one end of the device to a position exterior of the device;

fastening the device to a support; and

manually pulling on one end portion of the rope to move the rope around the shaft and over the auxiliary surface in engagement therewith, the engagement between the shaft and the rope being a sliding frictional engagement during the pulling of said one end portion.

14. The method of exercising the muscles of an operator with a length of rope and a device containing a shaft and an auxiliary surface adjacent one end thereof as described in claim 13, wherein the end portions of the rope are manually alternately pulled to move the rope back and forth around the shaft and over the auxiliary surface in engagement therewith.

15. The method of exercising the muscles of an operator with a length of rope and a device containing a shaft and an auxiliary surface adjacent one end thereof as described in claim 13, wherein the shaft has a longitudinal axis and the end portion of the rope is pulled in a direction which is generally parallel with said longitudinal axis.

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16. The method of exercising the muscles of an operator with a length of rope and a device containing a shaft and an auxiliary surface adjacent one end thereof as described in claim 13, wherein when said one end portion of the rope is pulled to move the rope around the shaft, the other end portion of the rope is free from external restraint.

17. The method of exercising the muscles of an operator with a length of rope and a device containing a shaft and an auxiliary surface adjacent one end thereof as described in claim 13, wherein the number of turns of rope around the shaft is changed between periods of exercising.

18. The method of exercising the muscles of an operator with a length of rope and a device containing a shaft and an auxiliary surface adjacent one end thereof as described in claim 13, wherein the operator pulls on one of the end portions of the rope with one arm and then pulls on the other end portion with the other arm.

References Cited

UNITED STATES PATENTS

3,197,204	7/1965	Holkesvick et al. ---	272—79 A
609,106	8/1898	Lauritsen -----	242—154
1,572,281	2/1926	Fry -----	272—79 A UX
1,572,802	2/1926	Layman -----	272—82
3,369,809	2/1968	Morrill -----	272—79 R

FOREIGN PATENTS

389,682	3/1933	Great Britain -----	272—79 A
18,431	10/1908	Great Britain -----	272—79 A

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