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Zinken et al.

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[54] HAND AND WRIST EXERCISER DEVICE

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[52] **U.S. Cl.** .....**272/67**, 272/DIG. 4, 272/DIG. 5, 272/79 D

[51] **Int. Cl.** **A63b 21/00**

[58] **Field of Search**.....272/67, 68, 79 R, 83, DIG. 4, 272/DIG. 5, 79 D

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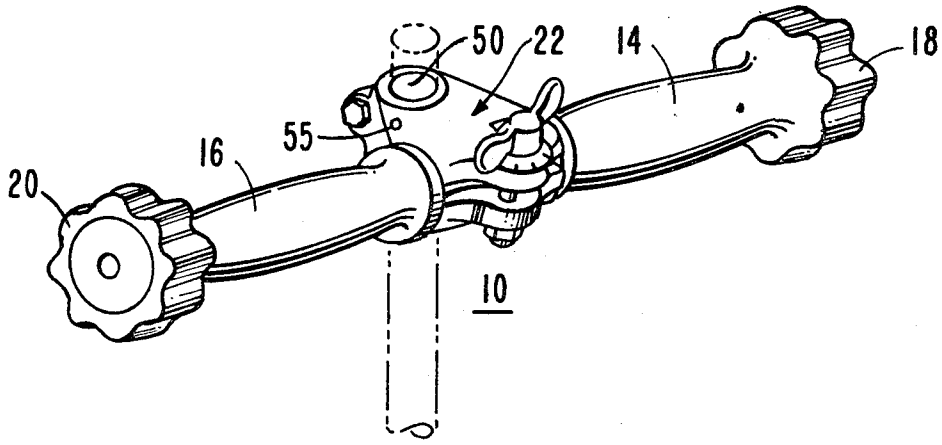
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[57] **ABSTRACT**

An improved exercise device is provided for exercising the wrist, hand and forearm, which device comprises a pair of spaced handles containing knobs on lateral ends thereof, a connector between the handles adapted to connect the handles to a vertically standing pipe in a gym apparatus, the handle means being disposed around a horizontally extending shaft through the connector, a printer and dial arrangement and means for tightening the connector means around the shaft in a controlled manner utilizing means indicating the extent of adjustment thereof i.e., a measure of the increase or decrease in resistance to turning of the handles relative to the connector means.

4 Claims, 3 Drawing Figures



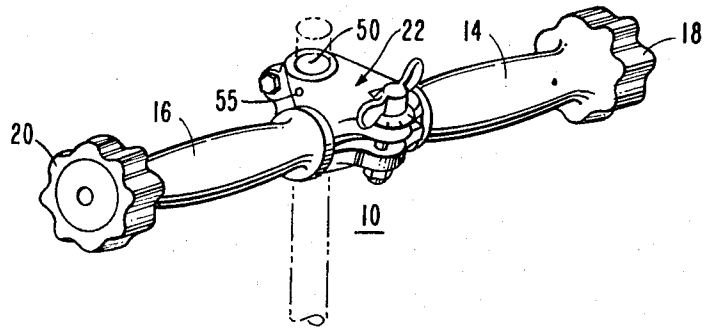


FIG.—1

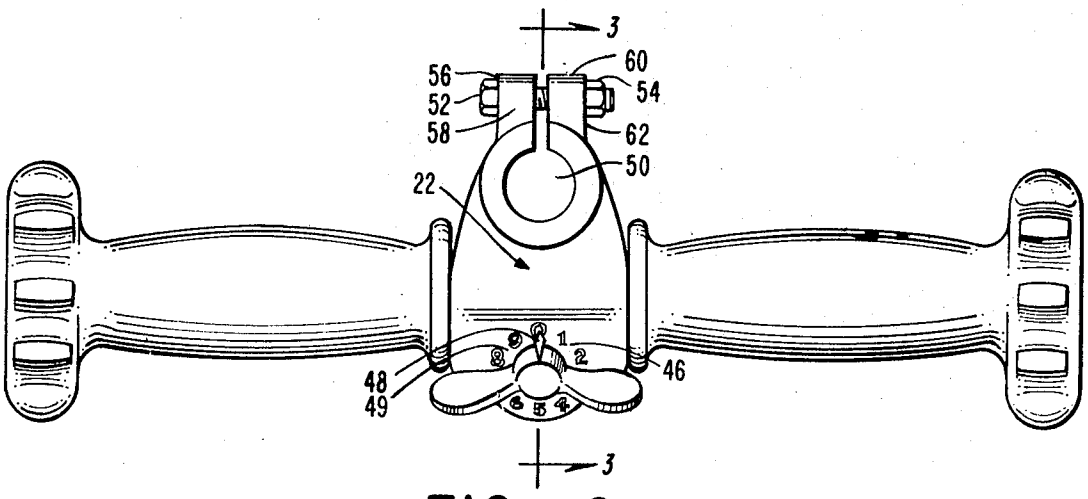


FIG.—2

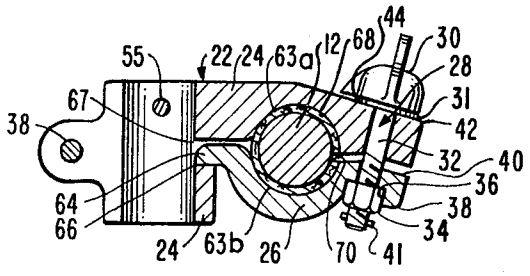


FIG.—3

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HAND AND WRIST EXERCISER DEVICE

BACKGROUND

Various devices have been provided for exercising the wrist, the hand and the forearm. Generally, separate items of equipment are employed for the wrist, hand and forearm. Moreover, separate devices customarily are employed for flexion and extension of the forearm, wrist and hand from those employed for lateral or turning motions of the wrist. Many such devices are expensive and most have no means for adjusting the force required to turn components of the device to obtain the desired exercise in flexion and extension and in lateral motions. Even those devices which do have means for adjusting such tension or force, do not provide means for visually and accurately indicating the extent of such force required nor means for adjusting the force to any desired amount or for readjusting and recalibrating the indicator means as components of the device wear or loosen. Accordingly, it would be desirable to provide a simple, inexpensive, uncomplicated unitary device capable of performing the described functions.

OBJECTS

Accordingly, it is a principal object of the present invention to provide an improved exerciser device for the wrist, hand and forearm.

It is also an object of the present invention to provide an improved device for exercising either or both wrists, hands and forearms in extension and flexion and also of exercising the wrists with lateral or rotatory motion.

It is another object of the present invention to provide an exerciser device which permits the force required to move components of the device to be accurately adjusted and which employs adjustable recalibratable visual force-indicating means.

It is a further object of the present invention to provide an improved exerciser device for flexion and extension of the wrist, hand and forearm and for lateral or turning movements of the wrist, which device is simple, inexpensive, durable and attractive and which can be readily adjusted for extent of force to move components of the device.

Further objects and advantages of the present invention will be apparent from the study of the following detailed description and the accompanying drawings of which:

DRAWINGS

FIG. 1 is a schematic perspective view of a preferred embodiment of the exerciser device of the present invention disposed around a gym apparatus component shown in phantom outline;

FIG. 2 is a schematic top plan view of the device of FIG. 1;

FIG. 3 is a schematic section taken along the section line 3—3 of FIG. 2.

SUMMARY

The present invention is generally summarized in the Abstract set forth above. The invention is directed to an improved exerciser device for the wrist, hand and forearm which is shown schematically in the accompanying FIGS. 1–3 of the drawings and which includes a pair of handles which are turned against a connector disposed between the handles. Specifically, the connector is slideably disposed around a central shaft to which the handles are connected. The extent or tightness of the engagement of the connector with the shaft can be controlled and is visually indicated on a suitable dial. The handles are provided at their outer extremities with knobs so that lateral or rotatory movement of the wrists can be made to exercise certain muscles of the same.

DETAILED DESCRIPTION

Now referring more particularly to the improved exerciser device of the invention, FIG. 1 depicts a preferred embodiment of that device. Thus, as shown in FIG. 1, an exerciser device 10 is provided. The device 10 includes a generally horizontally extending shaft means 12 (shown in FIG. 3 in cross section). Preferably, shaft means 12 comprises a steel cylindrical rod, either hollow or solid, or a rod fabricated of any other durable material. To opposite ends of the rod 12 are connected a pair of handle means 14 and 16. The connection may be permanent or releasable but is at least securely fixed so that the handles 14 and 16 turn with the rod 12. Preferably, the handles have internal cavities matching the size and shape of the ends of rod 12 and are pressed thereover. The handles 14 and 16 are provided at their ends with knobs 18 and 20 which may be separate pieces releasably but securely connected thereto or components integral therewith. In any event, knobs 18 and 20 turn with the handles 14 and 16, respectively. Preferably, each handle and the associated knob is fabricated of metal such as aluminum or the like and in one piece.

A connector means 22 is provided between the handles 14 and 16 and around the central portion of the rod 12. As shown in FIGS. 1–3 of the accompanying drawings, connector means 22 may comprise a pair of spaced collars 24 and 26 releasably connected together by tightening means 28 comprising a wingnut 30, a thrust washer 31, a threaded shaft 32 fixedly connected to the wingnut 30, a second nut 34 releasably connected to the shaft 32 at the opposite end thereof and disposed within a recess 36 in surface 38 of lip 40 of collar 26 and a retaining pin 41 extending through shaft 32 below nut 34 to assure that nut 34 will not become detached from shaft 32. Pin 41 is spaced sufficiently far below nut 34 to permit ready loosening of nut 34. Washer 31 controls frictional force exerted by means 28 and prevents like-metal contact (e.g., washer 31 is steel and collars 24 and 28 are aluminum). The wingnut 30 and washer 31 are adjacent the inner front surface 42 of the lip portion 44 of the collar 24, while the nut 34 is disposed in recess 36 in the lower front surface 38 of the connector means 22. There is also provided in or on surface 42 indicator means 46 in the form of a dial 49 of raised numerals with the shaft 32 passing through the center thereof. Wingnut 30 is provided with a pointer 48 to indicate the position of the wingnut with respect to the numerals of dial 49, as shown in FIG. 2. Adjacent the rear end thereof, the connector means 22 is also provided with an opening 50, preferably vertically therethrough and, as shown in FIG. 3 in cross section, preferably passing through the collar 24 thereof so as to enable the device 10 to be connected to a vertically standing pipe such as that shown in phantom outline in FIG. 1, which pipe may be fixed to or be a part of a gym apparatus or exerciser or the like. Preferably, as shown in FIGS. 1–3 of the accompanying drawings, device 10 is releasably connected to the pipe shown in phantom outline, as by means comprising a threaded bolt 52, a threaded nut 54, and a connector pin 55 extending through a hole in connector means 22 (and the pipe shown in phantom outline) to prevent rotation and vertical sliding of connector means 22 relative to the pipe. The bolt 52 extends from side 56 of a rear lip 58 of the connector means 22 transversely through an opening therein and transversely through a similar opening in matching lip 60 so that nut 54 can be tightened up against the outer surface 62 of lip 60, as shown in FIG. 2.

Upper collar 24 also includes a semicircular recess 63*a* to accommodate shaft 12 and collar 26 also includes a semicircular recess portion 63*b* to accommodate the lower half of the rod 12. Collar 26 is provided with a rearwardly extending terminal lip portion 64 which rests upon a shelf 66 in collar 24 adjoining a recess 67 provided therein, as particularly shown in FIG. 3 of the accompanying drawings.

In the preferred embodiment illustrated in FIGS. 1–3 in the accompanying drawings there is provided a separate friction strap 68 disposed around the shaft 12 in the recesses 63*a* and 63*b*. The strap 68 may be a piece of leather or the like of suitable width, for example, the width of connector means 22 and of a length commensurate with the circumference of shaft 12,

preferably less a small amount to provide a gap or space as indicated at **70** in FIG. **3**, to allow for flattening and lengthening of the strap **68** around the shaft **12** by operation of tightening means **28** previously described. It will be understood that, if desired, strap **68** can be replaced with any other suitable material or can be an integral portion of either or both collars **24** and **26** or an integral portion of the shaft **12**. Alternatively, such a strap or its equivalent can be eliminated. The function of the strap is to provide a friction drag between the shaft **12** and the collars **24** and **26**. The force required to turn handles **14** and **16** relative to connector means **22** can be varied by adjusting the proximation of the lips **38** and **42** towards each other by tightening means **28**. Thus, the wingnut **30** can be turned clockwise or counterclockwise to increase or decrease the pressure exerted on the strap **68** by collars **24** and **26** and therefore the friction between those components, and consequently the force necessary to turn the handles with shaft **12** relative to connector **22**. Thus, the present device **10** is fully adjustable with respect to a range of force required for exercising using the device. The indicator pointer **48** position of the dial **49** immediately indicates the amount of force or resistance that the device is set for at any given time. If as device **10** is used over a period of time strap **68** or its equivalent (or in the case of no strap, the bearing surfaces of the portions of collars **24** and **26** defining spaces **63***a* and **63***b*) becomes worn such that the pointer **48** does not indicate zero force required to turn the handles when in fact that is the case, adjustment of the wingnut **30** with respect to the nut **34** can be made to recalibrate the dial **49** to cause the pointer **48** to point at the numeral **0** on the dial **49** when zero force is required to run the handles. Accordingly, device **10** is fully adjustable.

As previously indicated, the handles **14** and **16** and knobs **18** and **20** are preferably fabricated of aluminum as are the collars **24** and **26**. Preferably, the handles are contoured to the hand i.e., of the sure-grip type. They may be, for example, 2 inches in diameter and disposed on a 1-inch diameter round shaft (shaft **12**) of steel. Preferably, they are spaced apart about 3 inches by the connector means, the rear end of which may be releasably connected to a 14-inch long piece of 1-inch diameter solid steel shaft connected to a suitable exerciser device such as that which is known as the Universal C model Thigh and Knee Machine. Preferably nut **30** is of aluminum as are the dial **46** and pointer **48**. Washer **31**, pin **41**, pin **55**, nut **34**, shaft **32**, bolt **52**, nut **54** and shaft **12** preferably are fabricated of steel or the like for greater durability. It will be understood, however, that any other suitable material such as wood, other metals, suitable high compression plastics, fiber glass laminations, etc., can be used for the various components of the device **10**.

The present device provides in one exerciser means for flexing and extending the wrist, hand and forearm by rotating the handles against any desired resistance forward and backward i.e., away from or toward the body, either with the palms facing up or facing down and also flexing the wrists laterally in either direction by turning the knobs on the ends of the handles. A low degree of friction between the connector means and the shaft **12** can be used initially to offer a low resistance against such flexing, extending and rotating. As muscle strength increases, the degree of force required to turn the handles and the knobs can be increased by turning the wingnut clockwise to any desired setting. Obviously the frictional resistance to turning can be adjusted at any time. When the device is used from time to time by more than one person, the user at any particular time can adjust the frictional resistance (via the dial setting) for his own purposes. The adjustability and recalibratability of the device has been adequately described above. As will be apparent from a study of the foregoing description and the drawings, the device is easily used, economical to manufacture and readily installed in place. It can easily be disassembled in order to replace the strap or other components or to make any other repairs which may be required over an extended period of time.

Various changes, modifications, additions and alterations in the present device can be made. All such changes, modifications, additions and alterations as are within the scope of the appended claims form a part of the present invention. What is claimed is the following:

What is claimed is:

1. An improved exerciser device for the wrist, hand and forearm, which device is generally horizontally extending and comprises, in combination:

a. elongated shaft means;

b. a pair of handle means disposed in spaced relation to each other and attached to said shaft means, said handle means each including knob means for exercising by lateral motions of the wrist;

c. connector means adapted to connect said device to a generally vertically extending exerciser apparatus and disposed between said two handle means and substantially wholly around said shaft means in slidable adjustable engagement therewith, said connector means including:

i. tightening means adapted to regulate the closeness of engagement of said connector means with said shaft means:

ii. indicator means secured to said tightening means and adapted to visually depict the closeness of said engagement; and

iii. indicator adjusting means secured to said indicator means for resetting said indicator means, whereby adjustment of said adjusting means effects adjustment of said tightening means.

2. The improved device of claim **1** wherein said knob means are disposed on and integral with the lateral terminations of said handle means and wherein said handle means are hollow, generally cylindrical and hand fitting and are disposed in fixed attachment over the lateral portions of said shaft means and wherein said shaft means is solid.

3. The improved device of claim **2** wherein said connector means includes a pair of spaced collar means releaseably interconnected around said shaft means by said tightening means, and wherein said connector means further includes a replaceable friction strap disposed between said collar means and said shaft means and substantially wholly enclosing said shaft means.

4. The improved device of claim **3** wherein said indicator means comprises indicia in the form of a numbered dial on said connector means and a wingnut containing a pointer disposed through the center of said dial, said wingnut comprising with a threaded shaft and a second nut said tightening means and said indicator-adjusting means, said connector means including opposed spaced lips containing aligned openings through which said threaded shaft is releasably connected by said nuts, said second nut being disposed in a recess in outer surface of one of said lips and said wingnut being disposed adjacent the outer surface of the other of said lips.

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