United States Patent [19]

Rooks

[11] **3,764,131**

[45] **Oct. 9, 1973**

[54] **WRIST EXERCISER**

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[52] **U.S. Cl.**..... **272/67,** 272/79 D, 272/DIG. 3

[51] **Int. Cl.**..... **A63b 21/22**

[58] **Field of Search**..... 272/67, 68, 79 D, 272/83 A, 84, DIG. 3

[56] **References Cited**

UNITED STATES PATENTS

1,604,333	10/1926	Anderson	272/67
3,666,267	5/1972	McKinney	272/67

FOREIGN PATENTS OR APPLICATIONS

5,313	8/1905	Great Britain	272/68
498,994	1/1939	Great Britain	272/84

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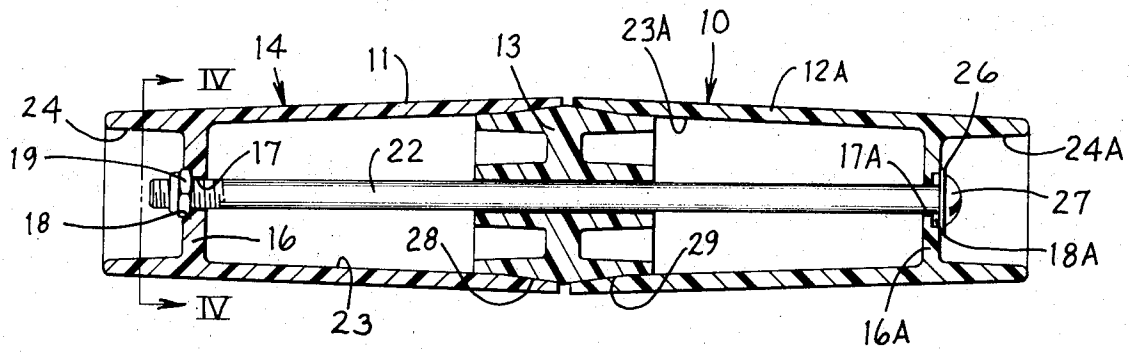
[57] **ABSTRACT**

A pair of slightly conical, hollow and substantially identical hand grips are sleeved at their adjacent ends snugly upon the opposite ends of a connecting member for relative rotation. Nut and bolt members extending lengthwise within the grips engage transverse wall sections within the grips for adjusting the frictional engagement of the grips with the connecting member. Additional, larger and hollow hand grips can be mounted upon the smaller hand grips to increase the diameter of the manually gripped surfaces.

2 Claims, 5 Drawing Figures



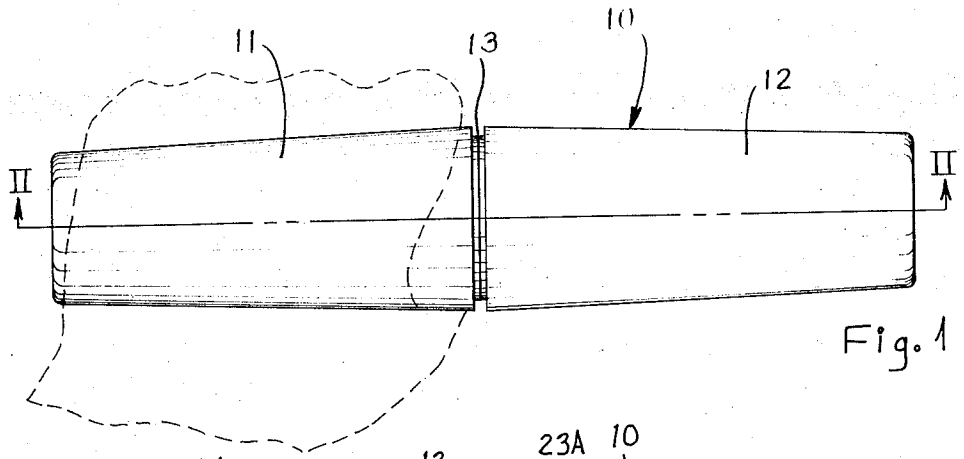


Fig. 1

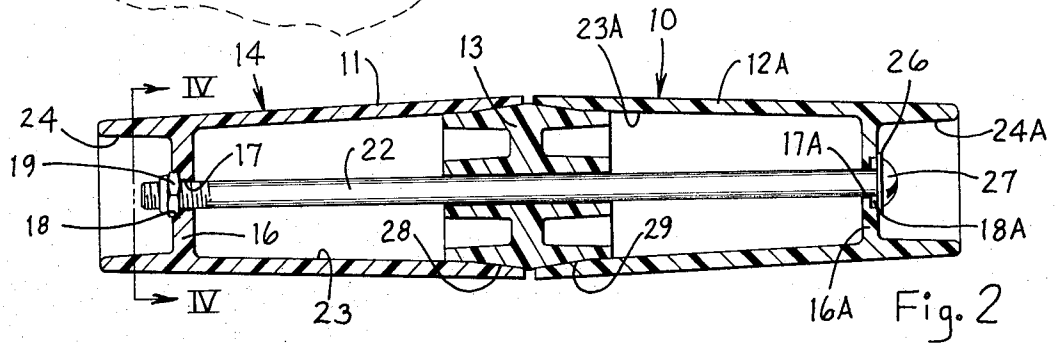


Fig. 2

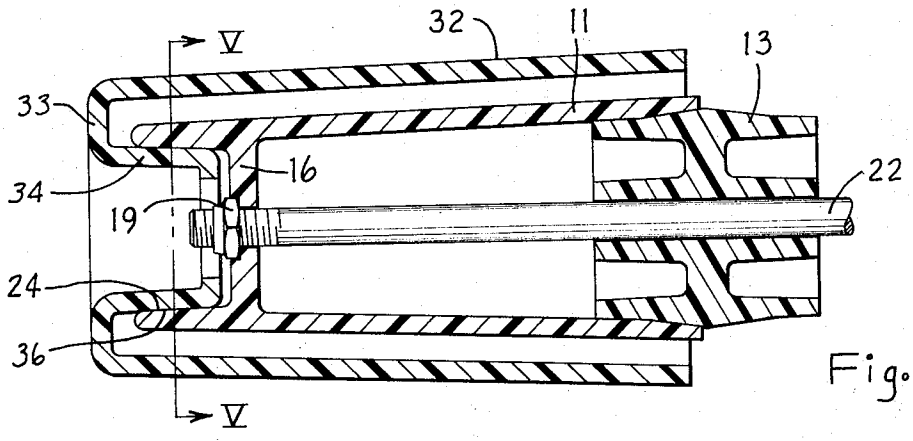


Fig. 3

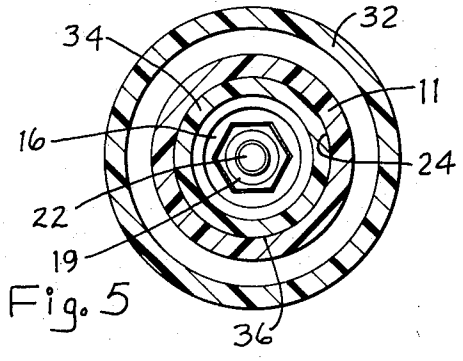


Fig. 5

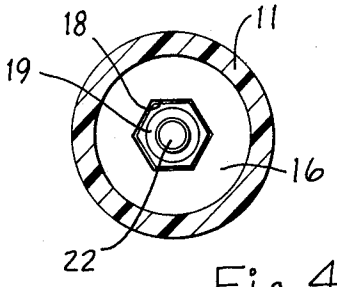


Fig. 4

WRIST EXERCISER

This invention relates in general to a device for use in exercising the hands, wrists and/or arms of a human being and, more particularly, to a type thereof in which the diameter of the manually gripped surfaces and the resistance to relative rotation thereof can be easily adjusted.

Devices for use in exercising the hands, wrists and/or arms are well known and have been widely used for therapy, for increasing strength and merely for healthful exercise. However, existing devices of the general type disclosed herein have had two main drawbacks, namely, their manually gripped surfaces are relatively fixed in diameter and/or their resistance to relative rotation cannot be readily and accurately adjusted.

In the area of therapy, it is known that the diameter of the manually gripped surface may require changing during the course of treatment. Also the resistance to rotation may also require periodic adjustment. For example, the patient may not be able, following an accident, to grasp initially a hand grip of a small diameter. Thus, it is desirable to start with a large diameter grip and work down.

Also, there may be occasions where a larger hand grip is required for one hand than for the other.

Accordingly, a primary object of this invention is the provision of a manually engageable device for use in exercising the arms, wrists and/or hands of a human being.

A further object of the invention is the provision of a device, as aforesaid, which can be readily adapted to grips of various sizes by changing the diameter of the gripping surfaces, and in which the resistance to the exercising movement, here rotational, can be easily adjusted without the use of special tools.

A further object of the invention is the provision of a device, as aforesaid, which is of simple and inexpensive construction, which is completely safe for use by anyone capable of operating it, and which can be autoclaved after use.

Other objects and purposes of the invention will become apparent to persons familiar with devices of the general type disclosed herein upon reading the description and examining the accompanying drawings, in which:

FIG. 1 is a side elevational view of an exercising device embodying the invention.

FIG. 2 is a sectional view taken along the line II—II in FIG. 1.

FIG. 3 is a fragment of FIG. 2 illustrating a modified structure.

FIG. 4 is an enlarged sectional view taken along the line IV—IV in FIG. 2.

FIG. 5 is an enlarged sectional view taken along the line V—V in FIG. 3.

For convenience in reference, the terms "left", "right" and words of similar import as used herein shall have reference to the device of the invention as appearing in FIG. 1. The terms "inner", "outer" and derivatives thereof shall have reference to the geometric center of said device or components thereof.

SUMMARY OF THE INVENTION

The objects and purposes of the invention, including those set forth above, have been met by providing a substantially tubular device including a pair of slightly conical hand grips resistively rotatably and telescopically mounted at their adjacent ends upon a substantially cylindrical connecting member. The hand grips and connecting member are adjustably held together by nut and bolt means. Enlarged hand grips can be telescopically mounted upon the aforementioned hand grips to increase the diameter of the manually gripped surfaces.

DETAILED DESCRIPTION

The exercising device **10**, a preferred embodiment of which is disclosed in FIGS. **1** and **2**, comprises a pair of hand grips **11** and **12**, which are preferably substantially identical, a connecting member **13** and a bolt **14** with a nut on the threaded end.

The left hand grip **11**, for example, is hollow, open at both ends and, in this embodiment, has a slightly conical outer surface **22** which converges toward its outer or leftward end. However, said outer surface **14** could be exactly cylindrical. The grip **11** has a transverse wall **16** near to, but spaced from, the small, outer end of the grip. The wall **16** has a central opening **17** with an enlarged portion **18** at its outer end of hexagonal configuration for receiving and nonrotatably holding a nut **19**. The bolt **22** is received through the opening **17** for engagement with the nut **19**.

The internal surface **23** of the grip **11** is circular in cross section and diverges away from the wall **16**. The internal surface **24** of the grip **11** is also circular in cross section and diverges outwardly from the wall **16**.

The grip **12** has a wall **16A** with a central opening **17A** through which the bolt **22** extends. A washer **26** covers the enlarged portion **18A** so that the head **27** of the bolt **22** will not wear into said portion **18A**. The grip **12** has internal surfaces **23A** and **24A** which are preferably identical with the corresponding surfaces in grip **11**.

The external surface of the connecting member **13** tapers convergingly toward both ends from about the center thereof so that its two tapered surfaces **28** and **29** correspond in slope to the tapers of the internal surfaces **23** and **23A**, respectively, on the grips **11** and **12**. This arrangement affords an extended, telescoping contact between the connecting member **13** and the grips **11** and **12**, which contact produces a controllable friction, hence resistance to the relative rotation, between these elements.

FIG. **3** illustrates an enlarged hand grip **32**, which mounts upon the smaller hand grip **11** in order to provide a larger manually gripped surface. The grip **32** is hollow, slightly conical and open at its larger end. An integral, annular end wall **33** partially covers the small end of the grip **32** and it has an integral, inwardly projecting and cylindrical extension **34** with a slightly conical outer surface **36** which is snugly but removably, and telescopically engageable with the internal surface **24** on the grip **11**. By this means, the grip **32** can be quickly mounted upon the grip **11** for rotation therewith. The diameter of the grip **32** can be selected as desired.

It will be apparent that another grip, like grip **32** and of the same or a different diameter, can be mounted upon grip **12** in the manner set forth above with respect to grip **11**.

The grips **11,12** and **32**, and the connecting member **13** are all preferably made from a shock resistant plastic capable of being autoclaved.

Although particular preferred embodiments of the invention have been disclosed in detail above for illustrative purposes, it will be recognized that variations or modifications of the disclosed apparatus, including the rearrangement of parts, lie within the scope of the present invention.

The embodiments of the invention in which exclusive property or privilege is claimed are defined as follows:

1. A device for use in strengthening the arms, wrists and hands of a human being, comprising: a pair of substantially identical, hollow and slightly conical hand grips, whereby each grip has a large end and a small end, both grips being open at both ends thereof, each grip having a transverse wall intermediate the ends thereof, said wall having a central opening therethrough;

a substantially cylindrical connecting member having two external, circumferential surfaces, joined together at one end, wherein each circumferential surface converges slightly from a first diameter at its joined end to a slightly smaller diameter at its free end, said external surfaces being snugly and movably engageable with corresponding internal surfaces at the adjacent ends of said hand grips, said connecting member having a central opening aligned between and with the central openings in said walls when said internal surfaces of said pair of hand grips are engaged with said external surfaces of said connecting member; and

bolt means extending through said central openings, said bolt means having head means at one end adjacent the outer side of the transverse wall in one grip and nut means on the other end adjacent the outer side of the transverse wall in the other grip, whereby the frictional resistance to relative movement between said internal and external surfaces can be adjusted.

2. A device according to claim **1**, wherein the internal surface of each grip at the small end thereof diverges from the wall toward the small end of the grip; and including a pair of second, hollow hand grips open at one end of each and having a transverse wall at the other end thereof, said end wall having an integral and axially inwardly projecting cylindrical extension spaced from and substantially concentric with said hand grip, the radially outer surface of said cylindrical extension converging toward its axially inner end for snug, removable engagement with the internal surface at the small end of the first-mentioned hand grip, whereby said second hand grip increases the diameter of the gripping surface of the device.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3 764 131 Dated October 9, 1973

Inventor(s) J. F. Girard Rooks

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

IN THE TITLE

Please delete "WRIST".

IN THE SPECIFICATION

Page 3, line 27; change "14" to ---22---.
line 30; change "22" to ---14---.

IN THE CLAIMS

Claim 1, line 4; delete "whereby each grip has a large end and a small end, both grips being".

Claim 2, line 1; after "wherein" insert ---each grip has a small end and a large end and wherein---.

Signed and sealed this 30th day of April 1974.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents

FORM PO-1050 (10-69)

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* U.S. GOVERNMENT PRINTING OFFICE : 1969 O—366-334.