

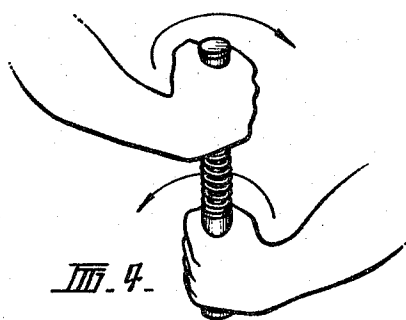
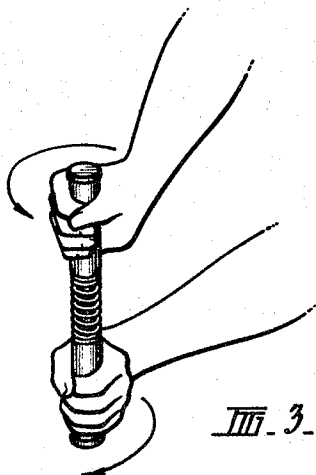
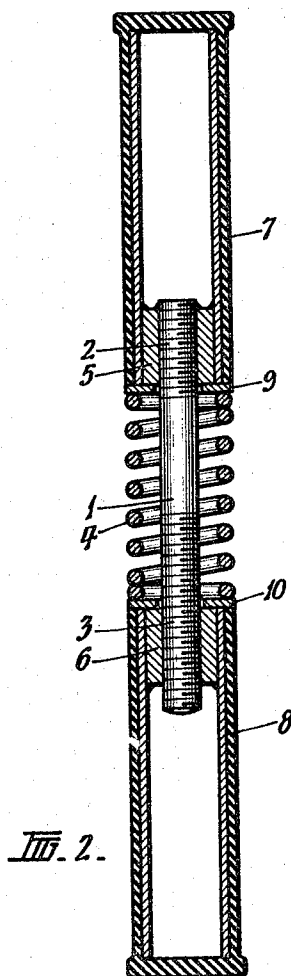
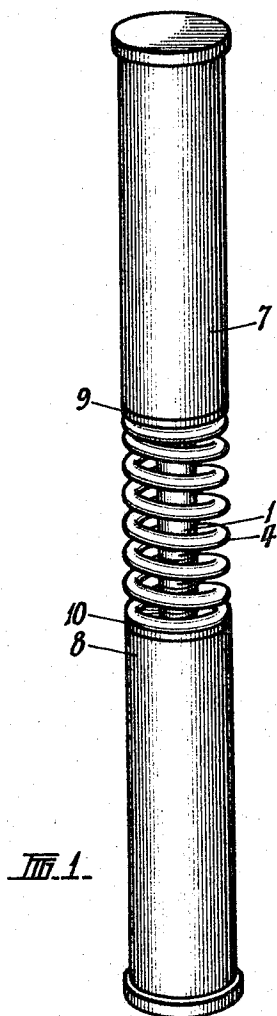
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HAND, WRIST AND FORE-ARM EXERCISING DEVICE

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HAND, WRIST AND FORE-ARM EXERCISING DEVICE

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4 Claims. (Cl. 272-67)

This invention relates to an exercising device and is directed particularly to apparatus for use in performing exercises to strengthen the muscles of the hand, the wrist and the fore-arm.

Exercises which strengthen the muscles of the hand, the wrist and the fore-arm are particularly valuable to sportsmen engaged in sports where these muscles are continually brought into play in holding and wielding bats, rackets, golf clubs and the like and also for athletes such as oarsmen where strength of these muscles is important. Further, it is desirable that the user may be able to gradually increase the work done during exercising as he progresses through an exercising program.

The objects of the invention are, accordingly, to provide an exercising device of the above-mentioned type which is simple and cheap to construct, which provides an effective means for exercising and training the muscles in question and which is readily adapted to increase or decrease the strain imposed during exercising according to the particular requirements of the user.

With the above objects in view, there is provided, according to this invention, an exercising device comprising a pair of hand grips mounted rotatably relative to each other and a resilient element which imposes a load tending to oppose such relative rotation. More particularly, the invention comprises a spindle having hand grips mounted on its ends so as to be rotatable relatively to each other and a resilient element positioned between the hand grips so as to impose a load on the hand grips resisting their relative rotation. Preferably, the spindle is screw-threaded and engages an internal screw-thread in at least one of the hand grips. Preferably also, the resilient element is a compression spring mounted on the spindle and bearing at each end against the end of the adjacent hand grip.

In order that the invention may be described in greater detail, a preferred embodiment thereof will now be described with reference to the accompanying drawings, wherein:

FIGURE 1 is a perspective view of an exercising device in accordance with the invention,

FIGURE 2 is a sectional view taken lengthwise through the device, and

FIGURES 3 and 4 show one way of using the device.

As shown in the drawings, the device comprises a spindle 1 which is screw-threaded at its ends 2, 3 and carries about its mid-section a strong helical compression spring 4. The screw-threaded ends of the spindle engage internal threads on steel plugs 5, 6 which are secured within the ends of tubular hand grip portions 7, 8 respectively. These hand grip portions are covered with a suitable material such as rubber, leather or the like to enable them to be effectively and comfortably gripped by the user. The ends of the compression spring 4 bear against washers 9, 10 mounted on the spindle 1 between the compression spring and the inner ends of the hand grips 7, 8. The threaded plug 5 is welded to the end 2 of the spindle while the plug 6, and the hand grip 8, are rotatable in relation to the spindle. In effect, therefore, the spindle 1 comprises a lead screw and the plug 6 comprises a lead nut which may be advanced or retracted along the screw in order to compress or relax the spring.

In one method of using the device, it is held out in

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front of the body in a vertical position with the palms of the hands facing generally towards each other, one hand grasping the upper hand grip and the other hand the lower hand grip. The upper hand grip is then turned clockwise and the lower hand grip is turned anti-clockwise whereby the hand grips move towards each other and compress or further compress the spring (see FIGURE 3). This exercises the muscles controlling palmar flexion, i.e. the muscles on the inside of the fore-arm.

When this movement has been completed, the hand grips are rotated in the opposite directions (see FIGURE 4), thereby exercising the muscles controlling dorsi-flexion, i.e. the muscles at the back of the fore-arm.

In each case, the gripping muscles and tendons and ligaments controlling wrist strength are also exercised.

Before commencing an exercise, the spring can be preloaded by rotating the hand grips so as to compress the spring to the desired extent. The greater the initial compression of the spring, the more difficult it is to rotate the hand grips during an exercise. It is, accordingly, a simple matter to undertake a series of exercises which gradually become more difficult.

Preloading the spring in the manner described above is possible mainly because of frictional resistance to relative rotation between the spindle and the lead screw constituted by the plug 6 in the hand grip 8. Frictional forces between the washers 9, 10 and the ends of the spring also help to retain the spring in a preloaded condition. While the compression of the spring comprises the major portion of the load to be overcome while the hand grips are being rotated so as to bring them closer together, the above-mentioned frictional resistances provide a load sufficient to exercise the muscles concerned even when the hand grips are being rotated so as to slacken off the spring.

To enable the loading of the spring to be gauged, the device may be provided with a pointer and scale to indicate the amount of deformation of the spring. In a further refinement of the apparatus, one or both of the hand grips could be provided with an extended skirt which covers and conceals the spring. Where both hand grips have an extended skirt, one would be arranged telescopically within the other and in such an arrangement it would be convenient to provide a scale on the inner skirt.

It would be possible for both plugs 5, 6 to be freely rotatable on the spindle, but the advantage of having one of the plugs fixed to the spindle as described above is that one of the handles cannot then be unwound off the spindle while the spring is still under compression.

Whilst there has been described above one particular device which may be constructed in accordance with this invention and a simple form of exercise which may be carried out using that device has been explained, it is to be understood that the construction of the device may be varied and that it may be used for other exercises and for the development of other muscles. One readily apparent modification which may be made to the construction would be the replacement of the friction washers and compression spring with a torsion spring or other torsion resistant element. These and other modifications are to be understood as coming within the spirit and scope of this invention which includes every novel feature and combination of features above disclosed.

I claim:

1. An exercising device comprising a spindle and a pair of hand grip means, each hand grip means comprising a cylinder having a length substantially greater than its diameter, the diameter of one hand grip means being the same as the other, one hand grip means being non-rotatably mounted on one end of the spindle, screw threads on the other end of the spindle, the other hand grip means being threadably engaged with the said other end of the spindle, and a compression spring mounted on the spindle

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between the hand grip means to impose a load on the hand grip means resisting their relative rotation.

2. An exercising device as in claim 1, and further comprising washers on the spindle to provide bearing surfaces for the ends of the compression spring.

3. An exercising device comprising a spindle and a pair of hand grip means, each hand grip means comprising a cylinder having a length substantially greater than its diameter, the diameter of one hand grip means being the same as the other, one hand grip means being non-rotatably mounted on one end of the spindle, screw threads on the other end of the spindle, a lead nut threadably engaged with the said other end of the spindle, the other hand grip means non-rotatably connected to said lead nut, and a resilient element positioned between the hand grip

means to impose a load on the hand grip means resisting their relative rotation.

4. An exercising device as in claim 3, wherein the resilient element comprises a compression spring which, under compression, imposes an axial load on said hand grip means.

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