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Weiss et al.

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[54] **SPRING-TYPE EXERCISING DEVICE**

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[52] **U.S. Cl.** **272/82**

[51] **Int. Cl.** **A63b 21/00**, A63b 21/20

[58] **Field of Search**..... 272/82, 83 R, 67, DIG. 4, 272/DIG. 5, 79 R, 80

[56] **References Cited**

UNITED STATES PATENTS

118,740	9/1871	O'Connor	272/82
680,556	8/1901	Wieland	272/82
1,539,569	5/1925	Hubert	272/82
2,782,033	2/1957	Ugartechea	272/83 R X
3,649,010	3/1972	Jeffrey	272/DIG. 5

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[57] **ABSTRACT**

An exercising apparatus has two hand grips each of which is in the form of a U-shape having two substantially parallel end portions. A pin extends between the end portions and is detachably connected to the latter. A variable number of elastic closed bands or loops enclose each of the pins so as to normally engage the pins of the hand grips when the hand grips are separated from one another by a person performing an exercise. The number of loops or bands, in the form of rubber bands, can be changed by removing the pins from the hand grips and disengaging one or more of the bands. The flexibility in which the exercising apparatus may be utilized is enhanced by securely connecting one of the hand grips to a flat, substantially rigid board. The board may be clamped to a flat supporting surface and cushioning means in the form of a foam pad may be positioned on the flat board when the apparatus is utilized for hand wrestling exercises. Alternately, a person can stand on the board and do back and leg exercises.

6 Claims, 5 Drawing Figures

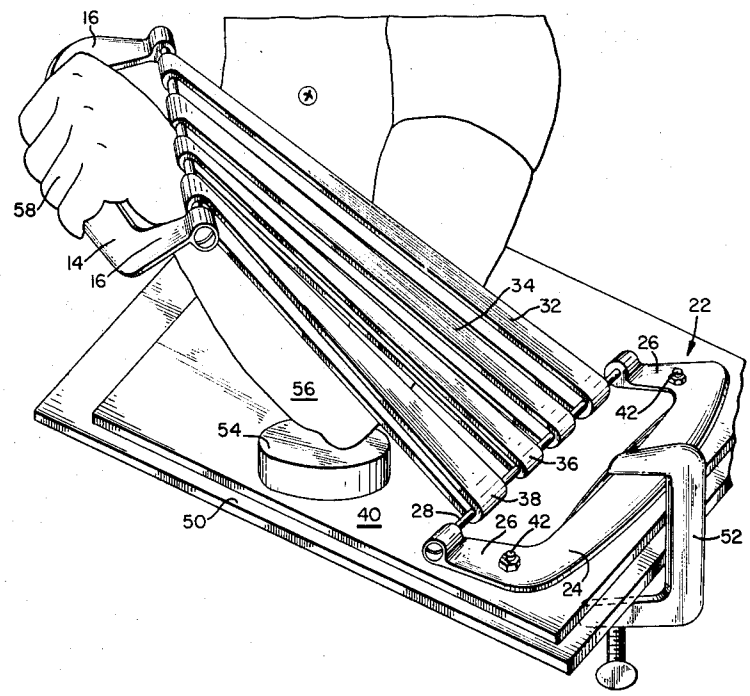


FIG.1

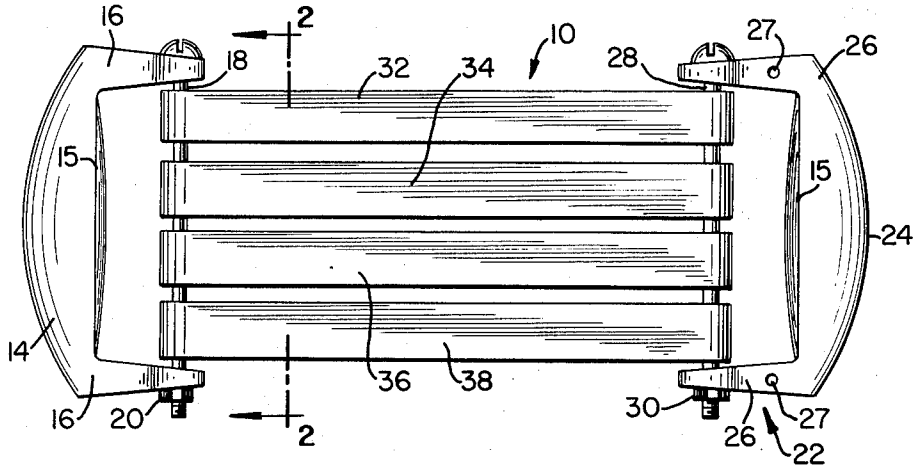


FIG.2

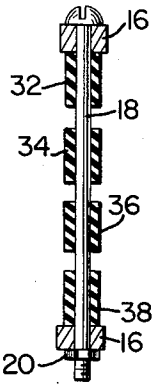


FIG.3

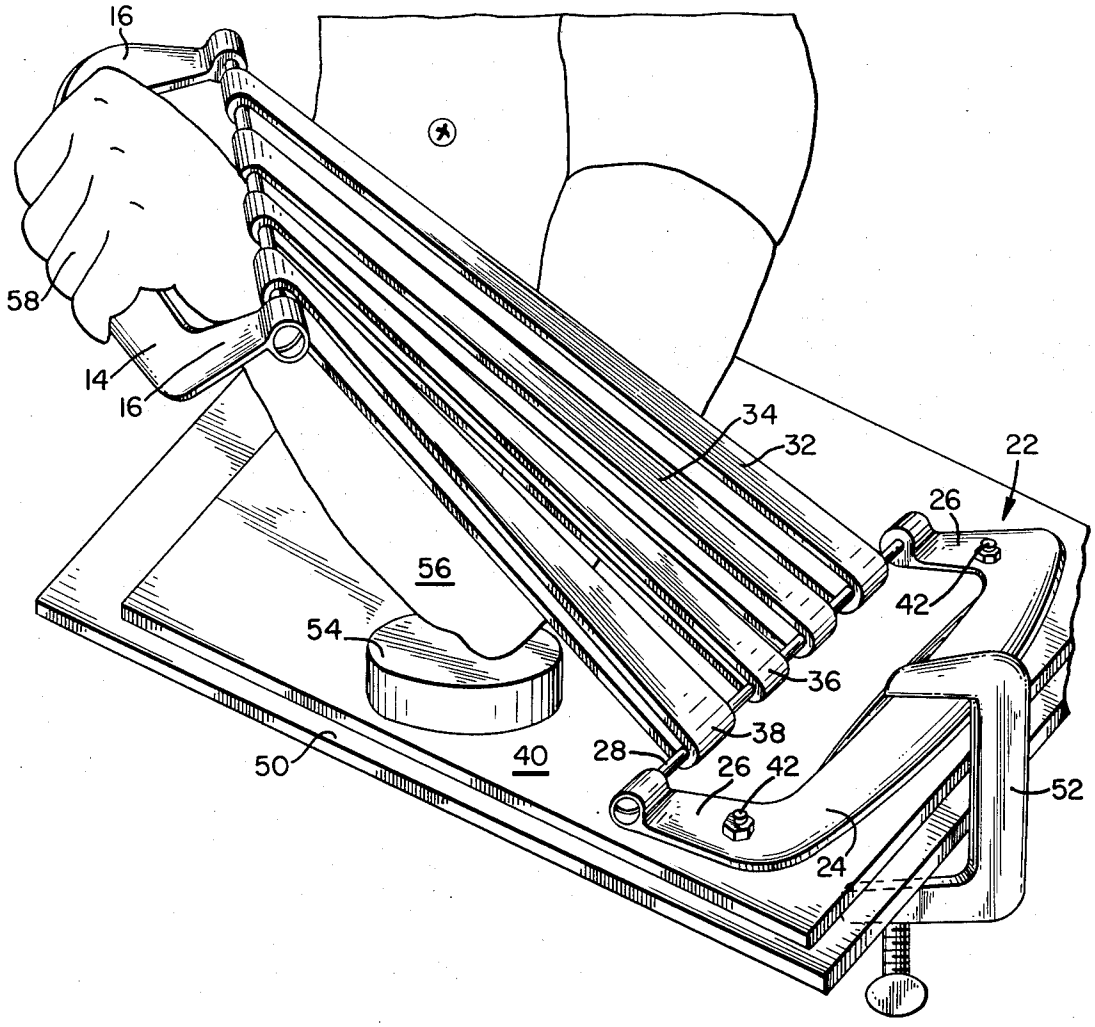


FIG. 4

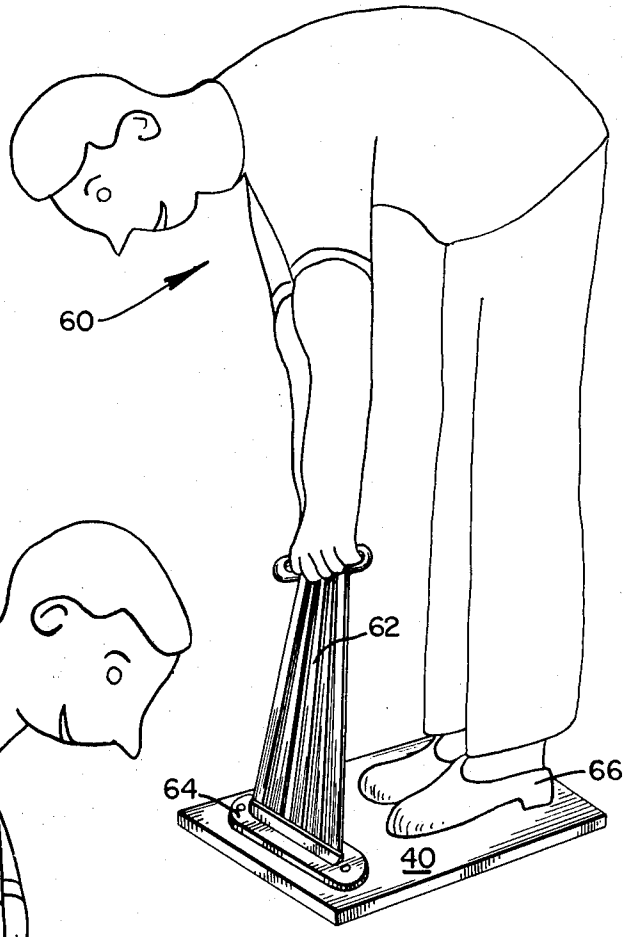
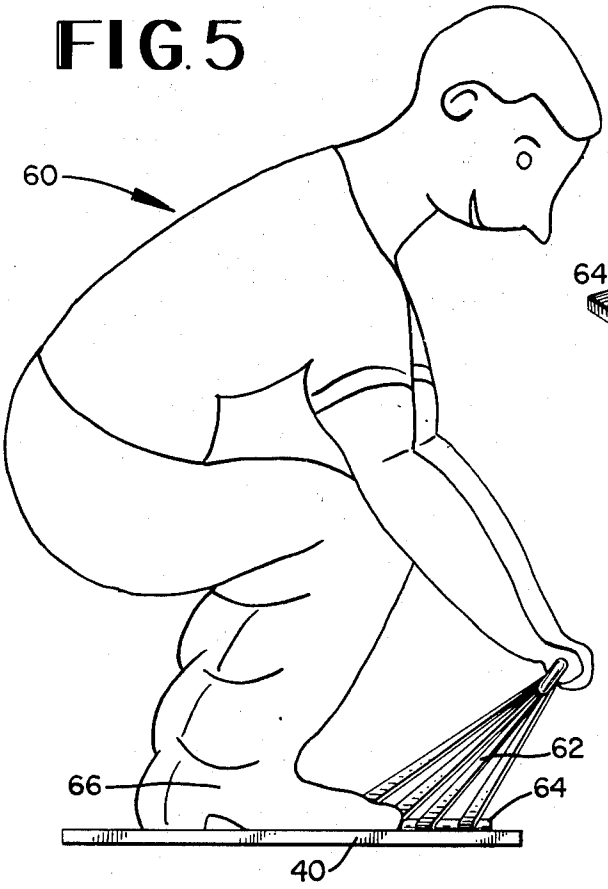


FIG. 5



SPRING-TYPE EXERCISING DEVICE

BACKGROUND OF THE INVENTION

The present invention relates generally to exercising apparatus, and more particularly to an exercising apparatus suitable for exercising the arms, legs and back.

Numerous exercising devices are already known. Typically, exercising equipment which is designed to provide one form of exercise is commonly not suitable for providing other forms of exercise. Consequently, it has been frequently required to acquire a number of different exercising devices each of which is especially suitable for exercise in one particular manner.

For example, tensioning devices which include hand grips are already known. Typically, tensioning devices include two hand grips and a plurality of metallic springs which are connected to each of the hand grips at opposite ends. In addition to being relatively heavy, the conventional hand grip tensioning devices are only suitable to be gripped by a person's hands and consequently are limited in their usefulness insofar as other types of exercises are concerned.

Further, many of the tensioning devices have the springs permanently connected to the hand grips — this decreasing the flexibility of the device since the tensioning forces which the device generates cannot be closely regulated. Generally, the prior art devices are specifically designed for the purpose of exercising the arms have not proved useful for back and leg exercises. Also, the fact that these devices have generally been heavy have made them less portable and less suitable for transporting the same while traveling.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide an exercising apparatus which does not have the above described disadvantages of the conventionally known exercising apparatus.

It is another object of the present invention to provide an exercising apparatus as above described which is simple in construction and economical to manufacture.

It is still another object of the present invention to provide exercising apparatus of the type under discussion which includes at least one hand-grip and which is suitable for hand exercises.

It is yet another object of the present invention to provide an exercising apparatus which includes removable elastic bands which permit easy regulation of the tensioning forces generated in the exercising apparatus.

It is a further object of the present invention to provide an exercising apparatus which is suitable for arm, leg and back exercises.

It is still a further object of the present invention to provide an exercising apparatus which include a hand grip and which cooperates with a hard flat board which is suitable for resting an elbow thereon, in the case of Indian wrestling exercises, or for standing thereon, in the case of back and leg exercises.

In order to achieve the above objects, as well as others which will become apparent, the present invention for an exercising apparatus comprises a substantially flat support means. At least one resilient member is secured to a portion of said support means. Gripping means are connected to said resilient member and

adapted to be gripped by a human hand. Said resilient means stretches and establishes forces on the hand when the latter moves said gripping means beyond a predetermined distance from said portion of said support means.

When used without the support means, the exercising apparatus comprises two hand grips each in the form of a U-shape having two substantially parallel end portions. A pin extends between said end portions and is removably connected to the latter. At least one loop of elastomeric material encloses each of said pins.

According to a presently preferred embodiment, a plurality of loops are provided each of which encloses said pins, said loops being made from rubber and being disengageable from said pins by disconnecting the latter from said hand-grips.

BRIEF DESCRIPTION OF THE DRAWINGS

With the above and additional objects and advantages in view, as will hereinafter appear, this invention comprises the devices, combinations and arrangements of parts hereinafter described and illustrated in the accompanying drawings of a preferred embodiment in which:

FIG. **1** is a top elevational view of the exercising device in accordance with the present invention;

FIG. **2** is a cross-section taken along line **2—2** of FIG. **1**;

FIG. **3** is a perspective of an exercising apparatus which includes the exercising device of FIG. **1** cooperating with a rigid flat board itself secured to a fixed surface, showing the apparatus utilized in an Indian wrestling exercise;

FIG. **4** illustrates schematically the apparatus of FI. **3** utilized in a back exercise; and

FIG. **5** is a schematic drawing showing the exercising apparatus of FIG. **3** utilized in a leg exercise.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is in the form of an exerciser apparatus which can, with slight adjustment and variations, be utilized for performing numerous exercises to be described. One element of the exerciser apparatus is illustrated in FIGS. **1** and **2** and is in the form of an exercising device **10** generally comprising U-shaped hand-grips **12, 22** each normally disposed with respect to the other in spaced relation. The hand-grip **12** comprises a gripping portion **14** which is configurated in a manner which makes it comfortable to grip with a human hand. The gripping portion **14** may include a rubberized cushioned portion **15** facing inwardly of the exercising device **10.** Projecting from the gripping portion **14** are two substantially parallel end portions **16.** The end portions are provided with apertures (not shown) through which a pin **18** can pass and be removably mounted on the hand-grip **12** by any suitable connecting means, e.g. nut **20** in cooperation with a threaded end portion of the pin **18.** The hand-grip **22** is similarly constructed to the hand-grip **12,** has a gripping portion **14** with a cushioned portion **15** as well as parallel end portions **26.** A pin **28,** in the form of a bolt is detachably connected to the hand-grip **22** by means of a nut **30.** The hand-grip **22** is additionally provided with apertures **27** in each of the end portions **26.**

Associated with the pins **18, 28** are a plurality of elastic loops or bands **32, 34, 36** and **38,** each of which is

in the form of a closed loop made from an elastomeric material, e.g. rubber, which at least partially encloses or loops around each of the respective pins **18, 28.** More particularly, the elastic bands **32–38** are in the form of elongated flat rubber bands which are shown to have equal widths and thicknesses. However, it should be clear that the widths of the individual bands as well as their thicknesses may be varied to change the elasticity or the resistance to stretching of any of the individual bands.

The hand-grips **12, 22** are advantageously made from a plastic material which must, however, be sufficiently strong so as not to brake when substantial forces are applied thereto in a manner which will become apparent hereafter. The above described construction of the exercising device **10** renders the same particularly light in weight so that the device may be easily transported when a person is traveling — this rendering the device particularly useful for exercising while on trips.

The manner in which the exercising device **10** is utilized will now be described. With the device assembled as shown in FIG. **1,** a person grips one of the gripping portions **14, 24** with one hand while gripping the other of said portions with the other hand. The straightened but non-stretched condition of the bands **32–38** shown in FIG. 1 defines a predetermined distance between the hand-grips **12, 22.** Further separation of the hand-grips stretches each of the bands — this establishing restoring forces which act upon the hand-grips **12, 22** via the pins **18, 28** to urge the hand-grips **12, 22** to their initial predetermined distance of FIG. **1.** A person exercising by separating the hand-grips in the manner described generally exercises the arm and upper back muscles by opposing the restoring forces.

It should be clear from the above-described construction of the device **10,** that one or more of the elastic bands **32–38** can be removed from the device by simply removing the pins **18, 28** from their respective hand-grips and disengaging the loops which are to be removed. By removing one or more bands or by substituting a wider band by a narrower or thinner band, the restoring forces which are generated when the hand grips are separated are smaller — this requiring less effort on the part of the person doing exercise while separating the hand-grips. Normally, the device is held across a person's chest and the hand-grips are respectively separated by moving the hand-grips laterally to each side of the person's body.

According to another feature of the invention, the exerciser apparatus is provided with a rigid board, shown in FIG. **3,** to which the hand-grip **22** is rigidly secured by means of screws and bolts **42** which pass through the apertures **27** shown in FIG. **1.** Whereas the exercising device **10** of FIG. **1** was utilized by gripping the device with both hands, the device shown in FIG. **3** is arranged in a form suitable for Indian wrestling exercise. To perform such one-handed exercise, the rigid, flat board **40** is advantageously mounted or rigidly secured to a flat stable surface **50** by any conventional connecting or clamping means — a clamp **52** being shown used in FIG. **3.**

To perform the exercise, a person's elbow is positioned on the rigid flat board **40** while a gripping portion **14** is gripped by the person's hand **58.** Cushioning means in the form of a foam pad **54** or any other soft material may be interposed between the person's elbow **56** and the rigid flat board **40** which is relatively hard. The cushioning or foam pad **54** acts as an arm rest for comfort of the person doing exercise and also prevents slipping of the person's elbow **56** on the board **40.**

As with the exercising device **10** of FIG. **1,** the relative forces which the user must apply in stretching the band **32–38** are a function of the number of bands as well as their relative dimensions. As before, the number of bands may be changed and their widths and thicknesses may likewise be varied to closely regulate the forces which must be applied in elastically deforming, by stretching, the bands by urging the gripping portion **14** to move beyond a predetermined distance from the gripping portion **24.**

The rubber bands or elastic loops may, for convenience, be color-coded in accordance with resistance to stretching so as to permit close control of the effort which one must exert in stretching the bands. Thus, as one progresses during the exercising routines, the bands can be changed until all the bands and the device are the least elastic and provide the maximum restoring forces. Alternately, the bands can be marked in any suitable conventional manner to indicate the relative elasticity thereof.

Although the exercising apparatus of FIG. **3** shows the hand-grip **22** bolted to the board **40,** it is clear that any other means may be provided on the board which securely engages the pin **28.** Also, it should be clear that although the board **40** has been shown to be mounted on a substantially horizontal surface, it is equally possible to mount the same on a vertical surface — the person performing the exercise while stretching the bands in a direction away from the vertical surface.

FIGS. **4** and **5** illustrate two other modes of possible use of the exerciser apparatus. In each case, the exerciser device includes a hand-grip, similar to hand-grip **12** of FIG. **1,** a rigid flat board **40,** and one or more elastic loops or bands **62.** In FIG. **4,** the exerciser kit is shown as utilized in a back exercise, whereas the apparatus is used in a leg exercise in FIG. **5.** In each case, a person **60** doing the exercise has his feet **66** positioned on the board **40.** No additional means need be provided for securing or clamping the board **40** to a fixed surface as in the case when the exerciser kit is utilized for hand wrestling exercises described in connection with FIG. **3.**

An important feature of the present exerciser apparatus is the flexibility with which it can be modified and utilized for performing numerous forms of exercises. The exerciser can be used while standing or sitting up in bed. Accordingly, the device can be used while in a hospital bed for convelescent rehabilitation. By making the elastic loops or bands easily interchangeable and removable, the energy which one must exert in performing the exercises can be easily and quickly tailored to ones needs.

Another feature of the present invention is the fact that the exerciser apparatus is made from materials which are light weight and can reliably provide many years of service. Thus, the handles are typically made from hardened rubber while the board can be made from any hard rigid substance, e.g. plastic or wood. The exerciser apparatus, and particularly the exercising device **10** of FIG. **1,** are particularly light in weight and may be conveniently transported during travelling so that the traveler may continue to perform his exercises without braking a routine.

Numerous alterations of the structure herein disclosed will suggest themselves to those skilled in the art. However, it is to be understood that the present disclosure relates to a preferred embodiment of the invention which is for purposes of illustration only and is not to be construed as a limitation of the invention.

What we claim is:

1. An exercising apparatus comprising first and second gripping means each provided with two parallel end portions to define first and second U-shaped grip members respectively, first pin means extending between said end portions of said first grip member with opposite ends of said first pin means being removably connected to said end portions of said first grip member, second pin means extending between said end portions of said second grip member with opposite ends of said second pin means being removably connected to said end portions of said second grip member, at least one endless band of elastomeric material being looped around said first and second pin means for establishing a force between said first and second grip members when said endless band is stretched beyond a predetermined distance measured from said first pin means to said second pin means, a movable support member provided with a planar surface substantially larger than said first grip member, and means securing said end portions of said first grip member in abutment against said planar surface of said support member so that said second grip member will be free and unrestrained to move in any direction above said planar surface, said second member being attached to said planar surface only by said second means.

2. An exercising apparatus as defined in claim **1**, wherein said support member comprises a flat sheet of substantially rigid material.

3. An exercising apparatus as defined in claim **1**, wherein a plurality of endless bands are provided each of which is disconnectable from said first and second pins means, whereby the force exerted can be regulated by selecting a desired number of said endless bands.

4. An exercising apparatus as defined in claim **1**, wherein said elastomeric material is rubber.

5. An exercising apparatus as defined in claim **1**, wherein said exercising apparatus is utilized as a hand wrestling exercising apparatus wherein said second grip member is gripped by a hand of a person while his elbow rests on said support member, further comprising soft cushioning means cooperating with said support member and adapted to be interposed between said support member and a person's elbow to cushion the elbow from said support member.

6. An exercising apparatus as defined in claim **1**, wherein said support member is adapted to be positioned on a relatively flat, horizontal surface during use, and further comprising clamp means for clamping said support means to said horizontal surface.

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