June 23, 1970 B. HANSEN 3,516,661

CRANKING ACTION EXERCISING BAR

Filed March 15, 1968 2 Sheets-Sheet 1

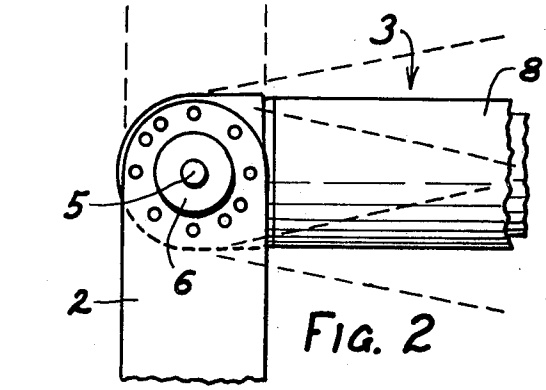


FIG. 2

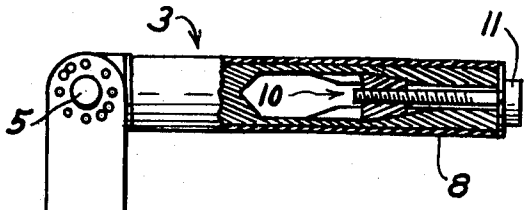


FIG. 1

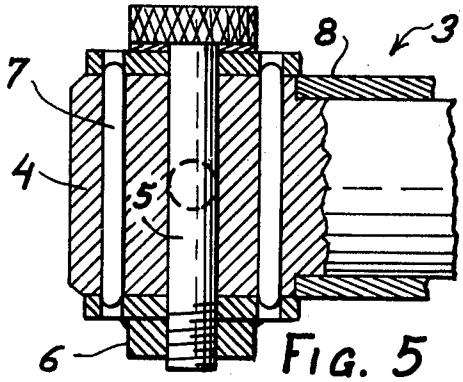


FIG. 5

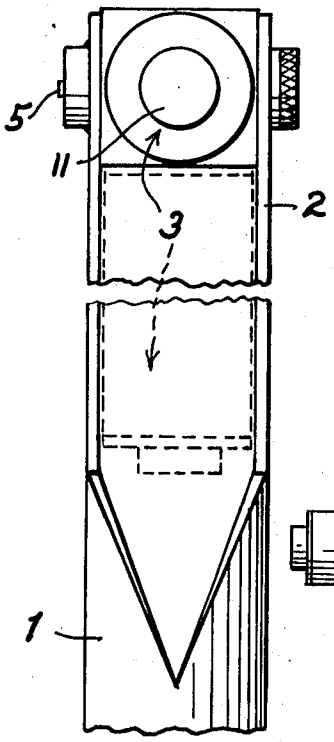


FIG. 3

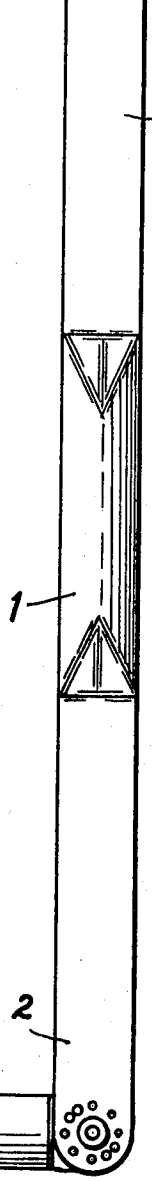
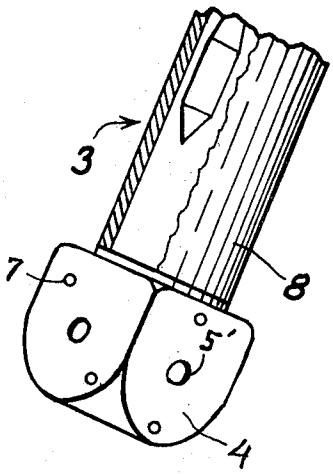


FIG. 4



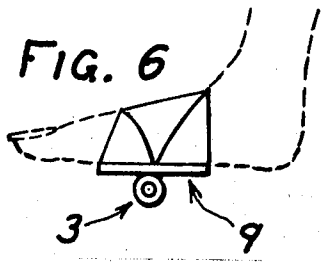


FIG. 6

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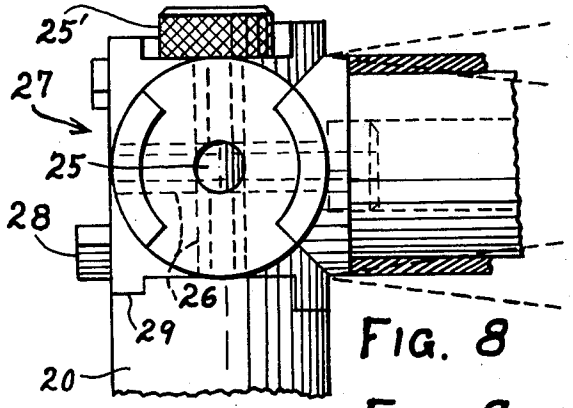


FIG. 8

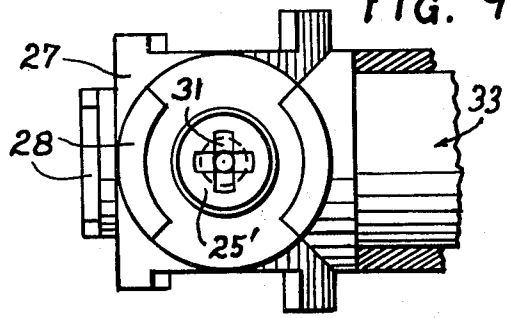


FIG. 9

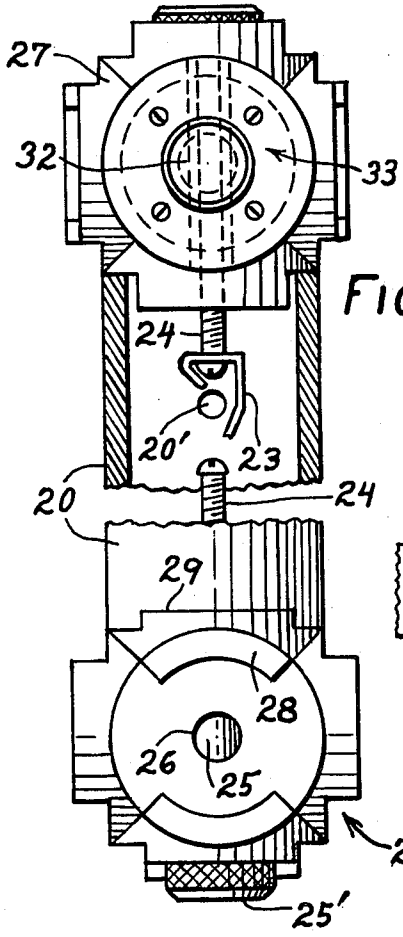


FIG. 10

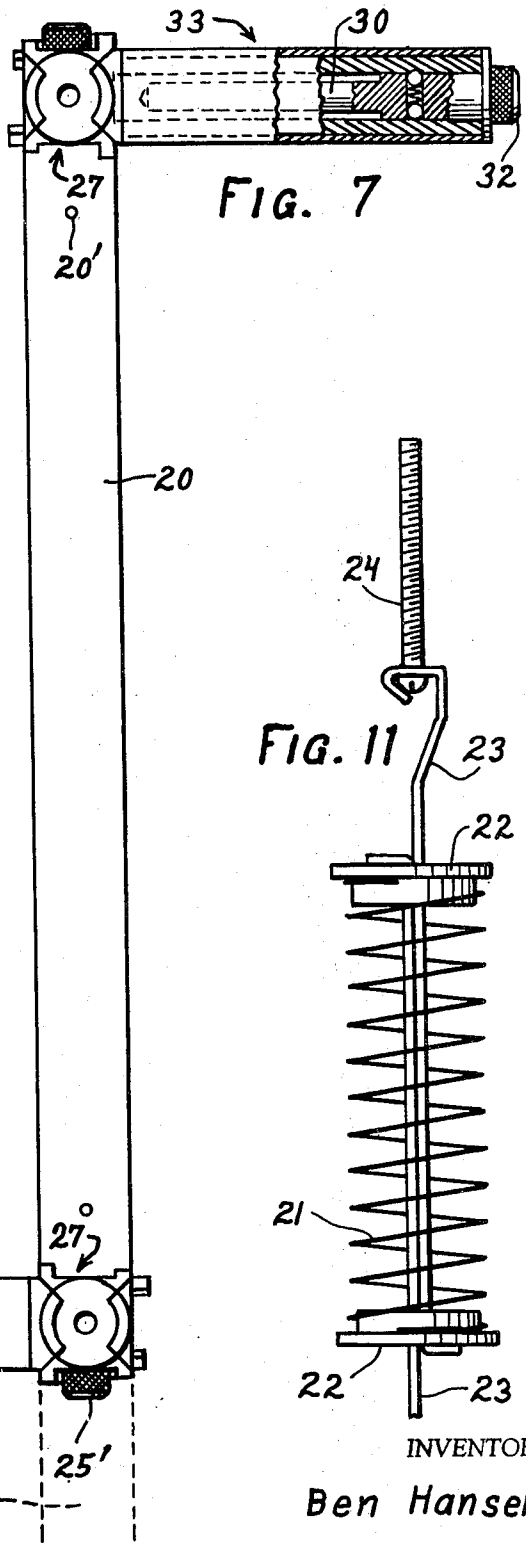


FIG. 7

FIG. 11

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CRANKING ACTION EXERCISING BAR

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U.S. Cl. 272—80 9 Claims

ABSTRACT OF THE DISCLOSURE

An exercising device comprising a rigid bar carrying at each end thereof a handle or foot pedal on opposite sides of the bar wherein the handles are preferably angularly adjustable to a fixed position and can be folded into the adjacent end of the bar or positioned in alignment with the bar.

BACKGROUND OF THE INVENTION

The field of the invention is amusement and exercising devices and the particular subject matter of the present invention is concerned with push and pull exercising devices.

The background and theory of isometric exercising devices is set forth in the U.S. Pat. 3,117,781 of Vargo, which issued Jan. 14, 1964. According to Vargo the isometric contraction system is a recent development in physical fitness exercising which involves the concept of the application of force by the subject to an immovable object to accomplish maximum sustained muscle contraction which lasts from 6 to 12 seconds per exercise for various exercises. The device of Vargo comprises a bar, rope and platform. The bar is connected to the platform by a rope and the subject stands on the platform and holds the rope in tension by pressing against the bar.

The early development of exercising bars is disclosed in U.S. Pat. 2,714,008 of Urban, issued July 26, 1955, and U.S. Pat. 3,006,646 of Nanni dated Oct. 31, 1961, but neither of these bars is rigid and each incorporates a resilient member such as a spring or hydraulic piston.

The use of torsional twist handles on an exercise bar is disclosed in the U.S. patents of Nielsen 3,084,547, issued Apr. 9, 1963, and Simons 3,330,558, issued July 11, 1967. The bars of Nielsen and Simons have handles at either end with means therein for adjusting the amount of torque necessary for turning the handles. The bar of Nielsen also provides calibrations which indicate the strength required for exercising and turning the torque bar a predetermined distance.

The exercising device of Grzybowski, U.S. Pat. 3,343,837, issued Sept. 27, 1967 is an exercising bar with resileint means therein and handles thereon.

None of the prior art exercising bars incorporate the concept of the crank of the present invention wherein a rigid bar has rigid handles at either end of the bar and on opposite sides of the bar.

SUMMARY OF THE INVENTION

Having in mind the state of the prior art, it is an object of the present invention to provide an inexpensive device of simple construction which is readily converted into different shapes for exercising either the hands and arms or the legs and feet. The device comprises a rigid bar with a pivotally mounted handle at each end on opposite sides of the bar. In the preferred embodiments the handles are foldable into alignment with the bar and each handle has an adjustable brake for resisting the rotation of the handle on its axis.

The exercising bar or crank may be used by grasping one handle with the left hand and the other handle with the right hand, and by performing cranking actions in the air. The subject may lie on his back to perform the cranking actions or he may stand erect or combine different body positions or body contours for performing the exercises. The legs, ankles and feet may also be exercised by providing boots for connecting to the handles. While exercising the legs the subject is typically lying on his back and a bicycling cranking exercise is performed with the feet in the air.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described more in detail by reference to the drawings wherein:

FIG. 1 is a plan view of the device, partly in section;

FIG. 2 is an enlarged view of the adjustable pivotal mounting of the handle;

FIG. 3 is a view at one end of the device showing how the handle can be folded into the hollow interior of the bar;

FIG. 4 is a fragmentary view of a portion of the handle;

FIG. 5 is a further enlarged view showing in section the hinge of a handle;

FIG. 6 shows a stirrup for use during foot and leg exercise;

FIG. 7 is a fragmentary plan view of a modified construction, partly in section;

FIG. 8 is an enlarged view of one of the pivotable handle mountings of FIG. 7;

FIG. 9 is a top view of FIG. 8;

FIG. 10 is an enlarged profile view of FIG. 7, partly in section and partly broken away; and

FIG. 11 is a view of the double-ended spring to be positioned in the tubular bar and connected to the cubular block carrying the handles.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The embodiments of the exercising device shown in FIGS. 1 to 5 consists essentially of a bar **1** with bifurcated ends **2** for adjustably supporting each end thereof and an angularly adjustable extension in the form of a handle or foot pedal **3**. As particularly shown in FIG. 4, the inner end of each handle or pedal is square in cross section so that it can be positioned between the resilient bifurcations of the bar in any one of four principal positions by turning it through an angle of 90°, 180° or 270° from its original position. As particularly shown in FIG. 5, a clamping screw **5** with a knurled head is passed through one of the holes **5'** in the spur end of the handle and is screwed into an internally threaded boss **6** welded or otherwise fastened to one of the bifurcations at each end of the bar **1**, to clamp the handle in any of its various possible positions. These positions include an alignment with the bar or parallel positions with the other handle on the opposite side of the bar at either acute, obtuse or right angles to the bar.

To hold the handle or pedal firmly in its adjusted positions, steel pins **7** with rounded ends are driven into holes at the spur end of each handle, two of the holes being in the same plane with the longitudinal axis of the handle while the other two holes are in a plane making an angle of 45° with the longitudinal axis of the handle. If the holes in the bifurcated ends of the bar are in the positions shown in FIGS. 1 and 2, it is possible to clamp the handles in any of the positions of angular adjustment shown in FIGS. 2 and 3.

The handles or pedals **3** preferably carry rotatable sleeves **8**, as particularly shown in FIGS. 1 and 2. As shown in FIG. 6, the sleeves **8** are equipped with stirrups **9** when the device is used for exercising the feet or legs.

When it is desired to control the torque of rotation of the sleeves **8**, then the handles are equipped to carry internal brakes **10**, as particularly shown in FIG. 1. The inter-

nal brakes **10** are adjusted by rotating an axial screw attached to a knob **11** at the end of the handle whereby friction is applied to the sleeves and calibrated amounts of torque are achieved.

In the modified construction shown in FIGS. 7 to 11, the bar as particularly shown in FIG. 7, is adapted to contain a double-ended coil compression spring **21**, as particularly shown in FIG. 11, wherein the spring **21** is interposed between two discs **22** and connected to tension bars **23**, each of which has a machine screw **24** connected to one end of it.

Internally threaded sleeves **25**, as shown in FIG. 8, have outer ends which carry a knurled head **25'** and are adapted to receive the machine screws **24**. Tube **20** can be provided with holes **20'** for the insertion of a pencil or other elongated object to support the screw **24** in fixed position to facilitate assembling of the parts. By turning knurled head **25'**, the sleeves **25** are rotated and threaded on the screws **24** so the tension in spring **21** is increased to the point that handles **33** are held in preselected rigid positions.

With particular reference to FIGS. 8 and 9, the threaded sleeves **25** are shown positioned in one of the three intersecting holes **26** in the cubicle blocks **27**, each of which has a handle **33** projecting from one face thereof. The two threaded sleeves in combination with the two machine screws and the coil spring therefor, function as a clamping device for keeping the two handle extensions in fixed positions on opposite sides of the bar.

Since one face of each cubicle block **27** serves to support one of the handles **33**, there are five remaining faces on each block that are provided with projections **28** to fit corresponding recesses **29** at each end of the tube **20**. The heights of the projections **28** and the depths of the recesses **29** are proportioned in such a manner that the handles **33** assume positions either at right angles to the bar **20** or in alignment therewith, and in particular embodiments in order to suit individual preferences, the handles are made to assume positions at acute or obtuse angles to the bar, as indicated in dotted lines in FIG. 8. The projections on the various faces of the blocks are therefore at different heights or are differently arranged. In a change from one position to another it is necessary to release pressure on spring **21** by rotating knurled heads **25**, then pulling the block away from the tubular bar sufficiently to disengage the projections from the recesses and then rotate the block through 180°. In order to engage different faces of the block, it is necessary to unscrew the threaded sleeve **25** from the screw **24** and insert the sleeve in another one of the holes **26**.

When it is desired to arrange the handles in alignment with the bar **20**, as indicated in dotted lines at the bottom of FIG. 7, then it is necessary to remove the insert **30** from the hollow interior of the handle and then remove the threaded sleeve **25** from its transverse position in FIG. 8. The threaded sleeve **25** is inserted axially through the hollow interior of the handle until it is seated in the block coaxially with the handle, the insert **30** is then reinserted into the handle and when the handle is brought into alignment with the bar the threaded sleeve is rotated to screw it upon the free end of the machine screw **24**. This is carried out by providing the knurled head **25'** with a transverse slot or preferably with a star-shaped recess **31**, as shown in FIG. 9, to be engaged by the inner end of the insert **30** which has the form of a screwdriver and further has a knurled head **32** at the outer end of the insert for rotating the insert and threading the sleeve to the machine screw.

It will be understood that this invention is susceptible to modification in order to adapt it to different usages and conditions and, accordingly, it is desired to comprehend such modifications within this invention as may fall within the scope of the appended claims.

I claim:

1. An exercising device, comprising a rigid bar carrying at each end thereof an extension adapted to serve as a handle or foot pedal, said extensions parallel with each other on opposite sides of the bar, wherein said extensions have means for adjusting and positively interlocking the same at acute angles, obtuse angles, right angles and into alignment with the bar.

2. The exercising device of claim **1**, wherein the bar is bifurcated at its two ends to receive the inner ends of the extensions between the bifurcations, in combination with a clamping screw at each end of the bar to serve as a pivotal support during angular adjustment of the extension.

3. The exercising device of claim **2**, wherein the inner end of the extension is square in cross section and provided with two intersecting boreholes into each of which the clamping screw is insertable.

4. The exercising device of claim **3**, wherein the square end of each extension carries two transverse pins with projecting rounded ends, one of the pins being in the same plane with the longitudinal axis of the extension while the remaining pin is in a plane making an angle of 45° with said longitudinal axis.

5. The exercising device of claim **1**, wherein each extension is surrounded by a laterally secured rotatable sleeve.

6. The exercising device of claim **5**, wherein each extension has an adjustable internal brake in combination with said rotatable sleeve for opposing the free rotation of the sleeve.

7. The exercising device of claim **1**, in which the bar is hollow and the two extensions are connected respectively to the two ends of the hollow bar by means of a clamping device in the bar.

8. The exercising device of claim **7**, in which the clamping device comprises a single coil spring connected between two screw threaded manually operable tension adjusting members.

9. The exercising device of claim **7**, in which each extension is carried by a cubicle block which can assume different positions on the adjacent end of the bar.

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U.S. Cl. X.R.

272—67, 73, 79