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Jones

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[54] **SWIVEL CASTER SUPPORTED EXERCISING HANDLE APPARATUS**

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[52] **U.S. Cl.** ..... **272/57 J**

[51] **Int. Cl.** **A63b 23/00**

[58] **Field of Search** ..... 272/57 R, 57 D, 57 J, 60, 272/79 R, 68; 280/79.1

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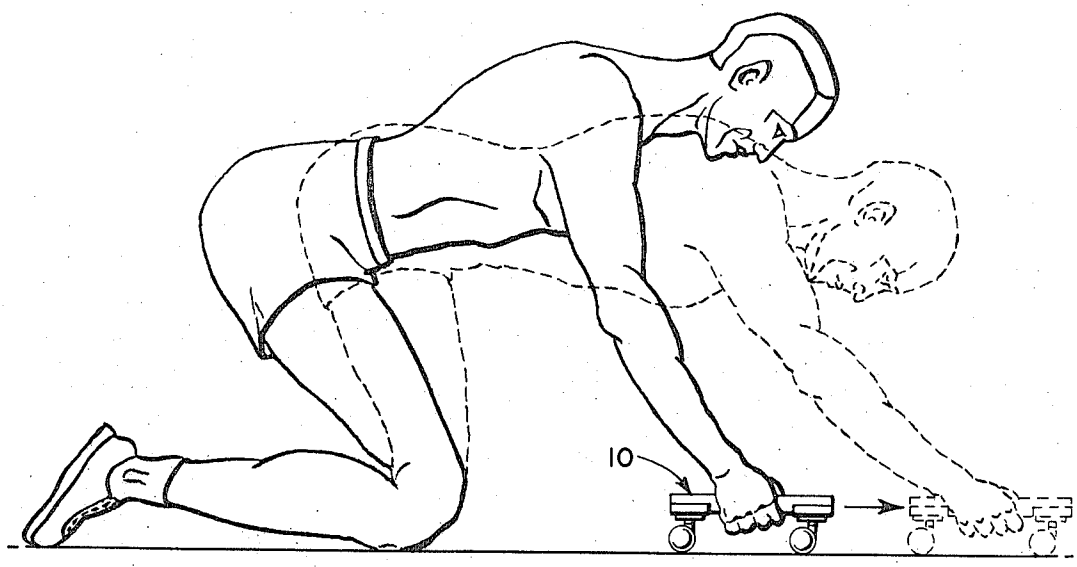
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Primary Examiner—Richard C. Pinkham
Assistant Examiner—R.T. Stouffer
Attorney, Agent, or Firm—Lane, Aitken, Dunner & Ziems

[57] **ABSTRACT**

An exercising device in the form of a handle supported by at least three swivel casters and adapted to be moved about a floor while supporting the upper body of a person in use. The handle defines a longitudinal axis around which the swivel casters are symmetrically and fixedly disposed. Additionally, the handle has a girth which enables circumferential gripping by an adult hand.

6 Claims, 8 Drawing Figures



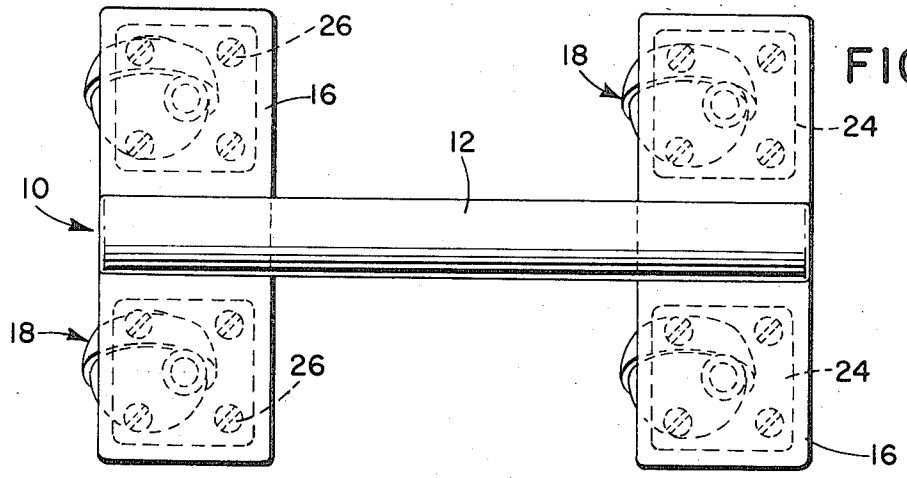


FIG. 1

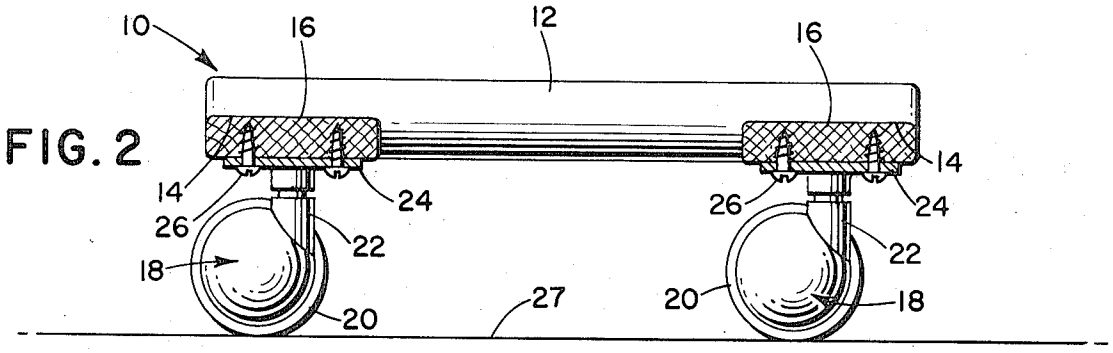


FIG. 2

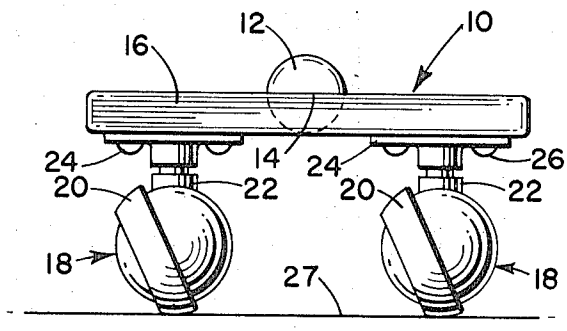


FIG. 3

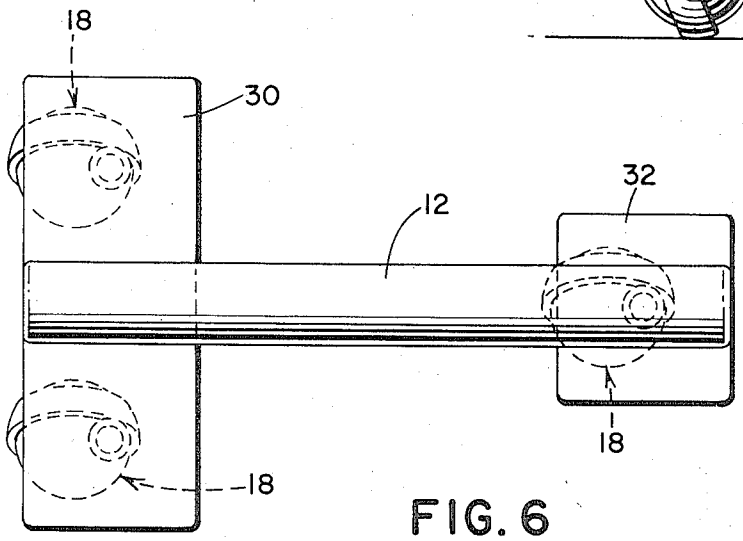
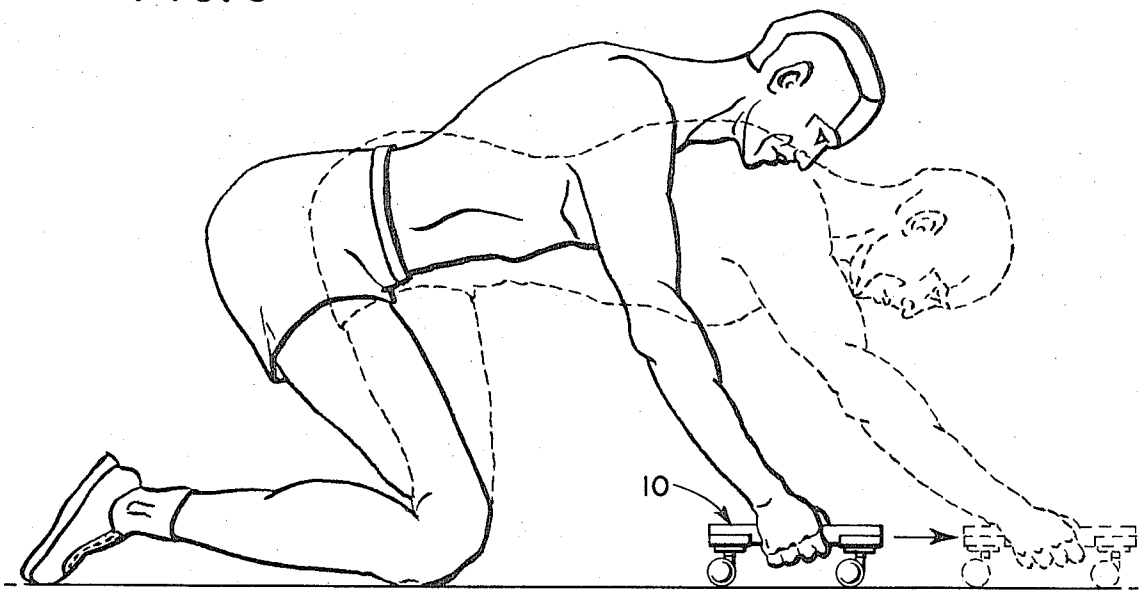


FIG. 6

FIG. 5



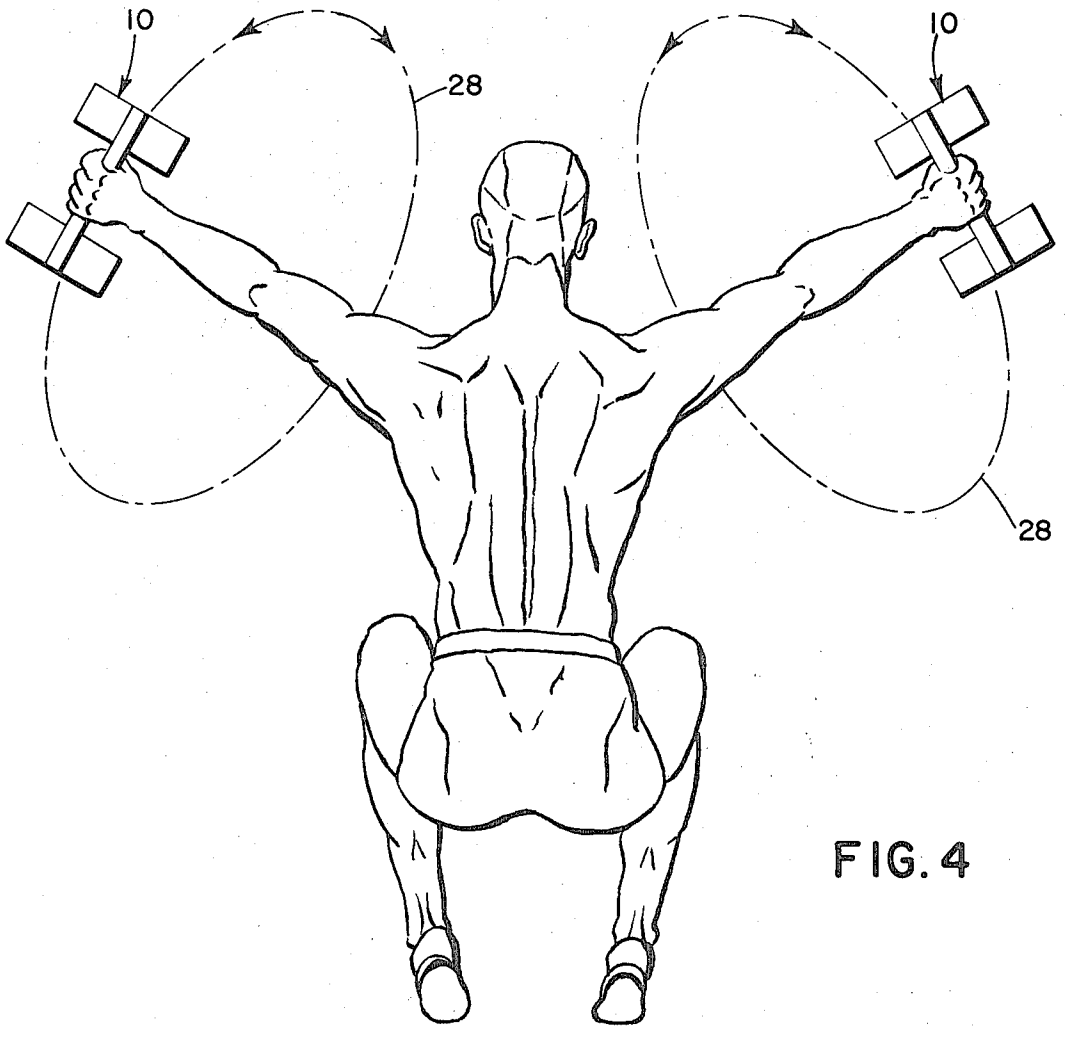


FIG. 4

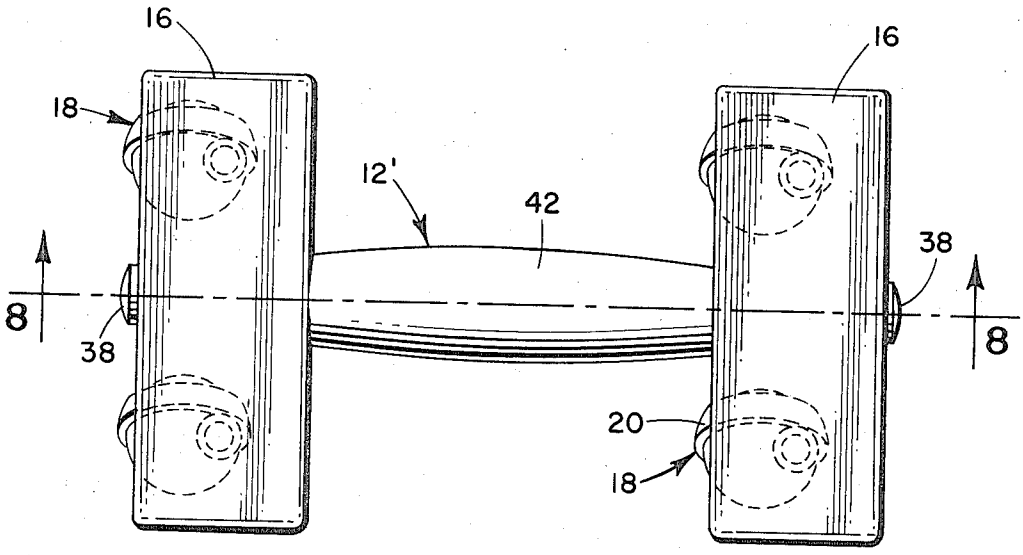

16
16
18
12'
42
38
8
38
8
20
18

FIG. 7

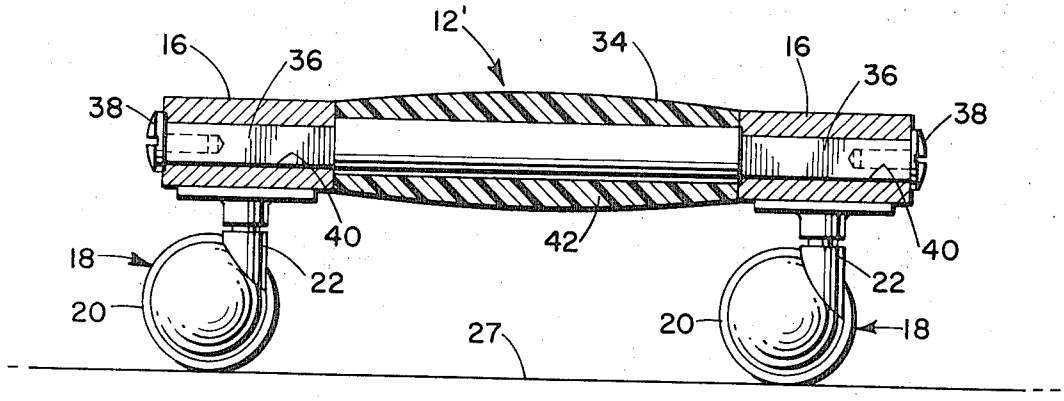

12'
16
36
34
16
36
38
38
40
42
40
18
22
22
20
20
18
27

FIG. 8

SWIVEL CASTER SUPPORTED EXERCISING HANDLE APPARATUS

BACKGROUND OF THE INVENTION

This invention relates to exercising apparatus and more particularly, it concerns exercising apparatus of the type in which a pair of hand-held devices are moved about a supporting surface such as a floor while supporting in varying degrees the weight of the upper body portion of a person while exercising.

During the past several years in this country, numerous forms of relatively simple exercising devices have become commercially available for use largely in the homes of persons desiring to engage in routine exercising activities. One popular version of such devices takes the form of a simple wheel and axle, the axle extending as handles onopposite sides of the wheel. In use, the handles are grasped one in each hand of a person upon assuming a kneeling position. By extending and retracting the wheel while supporting the weight of the person's upper body portion on the handles, several muscles are effectively exercised. In another version of the same type of apparatus, a single handle is supported between two wheels of a device, one such device being grasped in each hand by the person desiring to use the apparatus in the performance of exercises. In this latter instance, the independence of movement by each hand and arm of the user facilitates an increased range of exercises and correspondingly, an increased ability to use additional upper body muscles in the performance of such exercises.

Although the popularity of such simple and relatively inexpensive exercising devices is more than adequately justified by the results achieved in their use, the range of exercising activities permitted by such devices is somewhat limited by the uni-directional or linear movement to which they are constrained during any given exercising movement. In other words, the relatively fixed concentric relation of the handle and wheel axes restricts each extension or retraction stroke during use to a linear path. As a result, upper body muscles which might be required to maintain a linear path, for example, or to move the devices in other than a linear path are not exercised in the use of such devices.

One form of apparatus which avoids the exercising limitations in the two forms of devices referred to above is disclosed in U.S. Pat. No. 3,622,152 issued to Virgil A. Place on Nov. 23, 1971. The device disclosed in this patent takes the orm of a ball or sphere socketed for universal rotation in an inverted cup-like hand grip member. In the use of the disclosed apparatus to perform the kind of exercises described above, it will be appreciated that a person holding one such device in each hand and supporting his weight on his knees and his hands may move the devices in a circular path. While the enhanced measure of exercising capability afforded by the apparatus disclosed in the cited U.S. patent over simple wheel and axle devices of the type described above will be apparent, considerable wrist strength and dexterity or coordination is required on the part of the person using such an apparatus to maintain the devices in an upright or freely movable condition. The amount of such wrist and hand control over the inverted cup and ball device of this prior patent can be appreciated by an analysis of hand and wrist action required to move each device in a circular path, the center of which is positioned vertically under the shoulder joint of the person performing the exercise.

It is apparent, therefore, that available forms of exercising devices of the type referred to above, though providing an effective and inexpensive facility for persons desiring to exercise their bodies, leave room for improvement.

SUMMARY OF THE PRESENT INVENTION

In accordance with the present invention, an improved exercising apparatus is provided by which the limitations of apparatus heretofore available are substantially overcome. In point of structure, the device of the present invention takes the form of a handle preferably of bar-like configuration to facilitate grasping by the thumb and forefingers with the wrist in a relatively straight symmetrical position, the handle being supported in a plane parallel to and spaced from a floor or other surface on which the device is used by a stable assembly of omni-directional or swiveling casters. Stability or maintenance of the handle is a single plane is achieved by providing at least three and preferably four swivel casters to support the handle. As a result of this stable support, any tendency for the handle to tilt or twist out of plane parallel to the floor will be prevented.

Among the objects of the present invention are therefore: the provision of an improved exercising apparatus of the type in which a weight portion of the user's body is supported on the apparatus during movement thereof on a floor or other surface under the control of the user's upper body muscles; the provision of such an improved exercising apparatus capable of being moved in all directions in the exercising of upper body muscles without requiring abnormal wrist and hand dexterity or strength; and the provision of an improved exercising apparatus of the type referred to which is simple in structure and low in cost.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a preferred form of an exercising device in accordance with the present invention;

FIG. is a side elevation of the device shown in FIG. 1;

FIG. 3 is an end elevation of the device shown in FIGS. 1 and 2;

FIG. 4 is a schematic plan view depicting the use of the exercising apparatus of this invention;

FIG. 5 is a side elevation corresponding to the plan view of FIG. 4;

FIG. 6 is a plan view of an alternative embodiment of the present invention;

FIG. 7 is a plan iew of still another modified embodiment of the invention; and

FIG. 8 is a cross-section taken on lines 8—8 of FIG. 7.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A preferred embodiment of an exercising device in accordance with the present invention is illustrated in FIGS. 1–3 of the drawings and designated generally by the reference numeral 10. As shown, the device 10 includes an elongated dowel or bar-like handle 12 of circular cross-section and rabbeted at its ends to provide steps or notches 14 to receive transversely extending

plate-like support members **16**. The geometry of the notches **14** and support members **16** enables the handle to be fixed rigidly to each of the support members **16** by suitable means such as an adhesive or glue, screws, bolts or a combination of these well-known fastening techniques. After connection in this manner and as will be appreciated from the illustration in FIGS. **1–3** of the drawings, the assembly of the handle **12** and transverse support member **16** constitute a rigid unit.

The transverse members **16** are supported near each end by swivel casters **18**, each being of conventional design to include a roller or wheel **20**, a swivel **22** and a mounting bracket **24**. As shown in FIGS. **2** and **3**, the mounting brackets are fixed to the underside of the transverse members **16** by screws **26**. It is seen therefore, that the axes of the swivels **22** are fixed in relative horizontal location both with respect to each other and with respect to the handle **12**. In this respect, it is noted that the handle **12** and transverse members **14** may be made of any suitable material such as wood, plastic or metal with minor variations to accommodate this different materials. For example, the use of the screws **26** to secure the swivel casters **18** to the bottom of the transverse members **16** would be supplanted by through bolting or welding in the event the transverse members were made of a metal such as steel.

The provision of one swivel caster at each end of both transverse support members **16** or the use of four swivel casters to support the handle **12** in the manner illustrated in FIGS. **1–3**, insures that the axis of the handle **12** will at all times be maintained in a plane spaced from and parallel to a floor **27** or other surface on which the device **10** is positioned. Thus, the central portion of the handle **12** may be held firmly in the hand of an adult person using the thumb and fingers in a closed fist position. Also, the handle may be grasped while maintaining the wrist in a relatively sraight or "locked" condition.

The manner in which the structural organization of the device **10** facilitates the performance of various exercises is shown by way of example in FIGS. **4** and **5** of the drawings. Also it may be seen in these figues tht the handle **12** is of a size having a girth which enables circumferential gripping by an adult hand in a closed fist gripping position and is of a length between the supports **16** approximately the same as the width of the adult hand in such a closed fist gripping position. In the particular exercise illustrated, a person assumes a kneeling position on a floor or other suitable surface and, grasping one of the devices **10** in each hand by the handle **12** in the manner described above, moves the devices in a generally circular path **28** while supporting the weight of his upper body portion on the devices **10**. By performing such an exercise, the person's shoulder, abdominal and back muscles may be exercised as strenuously as he chooses merely by changing the distance between the center of the circles **28** and his knees. Because of the stability provided by the use of four swivel casters and the arrangement of the transverse support members **16**, he need not concern himself with maintaining devices **10** in a stable upright position. Also, very little coordination of the wrist and hand muscles is required in the performance of the exercise.

Alhough the exercises illustrated in FIGS. **4** and **5** demonstrate the exercising facility provided by the apparatus of the present invention, it will be appreciated that other exercises may be performed. For example, the devices **10** may be moved in linear paths of a parallel or non-parallel relation or combinations of these various movements. In addition, it is possible to perform other forms of exercising using only one of the devices **10** in which case the person performing the exercise grasps the handle **12** with both hands.

In an alternative embodiment illustrated in FIG. **6**, the handle **12** is supported at one end by a transverse support member **30** similar to the transverse support members **16** described above with respect to the embodiment of FIGS. **1–3**, the transverse member **30'** also being supported by a pair of swivel casters **18**. The other end of the handle **12** in this embodiment, however, is supported by a single swivel caster **18** supported centrally on the bottom of a square plate **32**. It will be apparent therefore, that like the embodiments of FIGS. **1–3**, the axes of the swivels **22** are symmetrically disposed in relation to the longituinal axis of the handle **12**.

While the embodiment of FIG. **6** provides stability for the handle **12** in light of the triangular arrangement of swivel casters used in this embodiment, it is somewhat less stable than that of the embodiment of FIG. **1** and also provides slightly more resistance to free movement about a floor particularly one which is carpeted because of the reduced number of swivel casters employed.

A still further embodiment of the exercising device of this invention is illustrated in FIGS. **7** and **8** of the drawings. In this instance, the handle **12'** is formed as a stepped shaft having a cylindrical center portion **34** extending on opposite ends in square or non-circular mounting portions **36** rigidly secured such as by screws **38** within a complementing through bore **40** in each of the transverse support members **16**. A rotatable hand grip **42** is supported by the central portion **34** of the handle shaft. As in embodiment of FIGS. **1–3**, four swivel casters **18** are employed to support the handle **12'**.

The embodiment of FIGS. **7** and **8** has the advantage of facilitating completely free movement of the exercising device of the present invention. It has been found in practice, however, to be more difficult to control and not as suitable as the embodiment of FIGS. **1–3**, for example, for use by older persons or persons with limited strength in their hands and arms.

In light of the foregoing description, it will be appreciated that as a result of this invention an improved exercising apparatus is provided by which the above mentioned objectives are completely fulfilled. It will also be appreciated that further modifications of the forms of apparatus disclosed will be apparent to those skilled in the art. It is intended, therefore, that the foregoing description is illustrative of preferred embodiments only, not limiting, and that the true spirit and scope of the present invention will be determined by reference to the appended claims.

I claim:

1. An exercising device of the type adapted to be moved about a supporting surface such as a floor while supporting at least a portion of the weight of a person in the performance of exercises, said device comprising: a single elongated handle defining a longitudinal axis and having a girth which enables circumferential gripping by an adult hand in a closed fist gripping position; and support means for retaining said handle in a plane parallel to and spaced from the floor or other

such surface; said support means including at least three swivel casters to enable free movement of said handle in all directions in said plane and means fixing the location of the axes of said swivel casters relative to each other and symmetrically disposed in relation to the longitudinal axis of said handle, at least a portion of said handle being presented above said support means and the length of said handle between said support means being approximately the same as the width of an adult hand in a closed fist gripping position.

2. The device recited in claim 1 wherein said support means includes at least one transverse member to mount two of said swivel casters, one on each side of said handle.

3. The device recited in claim 1 wherein said support means includes a pair of transverse members connected at opposite ends of said handle, each of said transverse members mounting a pair of said swivel casters, one of each pair being positioned on opposite sides of said handle.

4. The apparatus recited in claim 3 wherein said handle is of bar-like cylindrical configuration and fixed rigidly to said transverse members.

5. An exercising apparatus of the type by which a person moves a pair of hand held devices on a floor or other surface on which the person is supported at least in part, each such device comprising: a single elongated handle defining a longitudinal axis and having a girth which enables circumferential gripping by an adult hand in a closed fist gripping position; and support means for retaining said handle in a plane parallel to and spaced from the floor or other such surface; said support means including at least three swivel casters to enable free movement of said handle in all directions in said plane and means fixing the location of the axes of said swivel casters relative to each other and symmetrically disposed in relation to the longitudinal axis of said handle, at least a portion of said handle being presented above said support means and the length of said handle between said support means being approximately the same as the width of an adult hand in a closed fist gripping position.

6. An exercising device of the type adapted to be moved about a supporting surface such as a floor while supporting at least a portion of the weight of the person in the performance of exercises, said device comprising: a handle having a central portion freely rotatable about the axis thereof; and support means for retaining said handle in a plane parallel to and spaced from the floor or other such surface, said supporting means including a pair of transverse members connected at opposite ends of said handle, and a pair of swivel casters mounted on each of said transverse members, one of each pair of casters being positioned on opposite sides of said handle, said swivel casters enabling free movement of said handle in all directions in said plane and means fixing the location of the axes of said swivel casters relative to each other and to said handle.

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