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3,664,666

PORTABLE GYMNASIUM

Filed Nov. 5, 1970

3 Sheets-Sheet 2

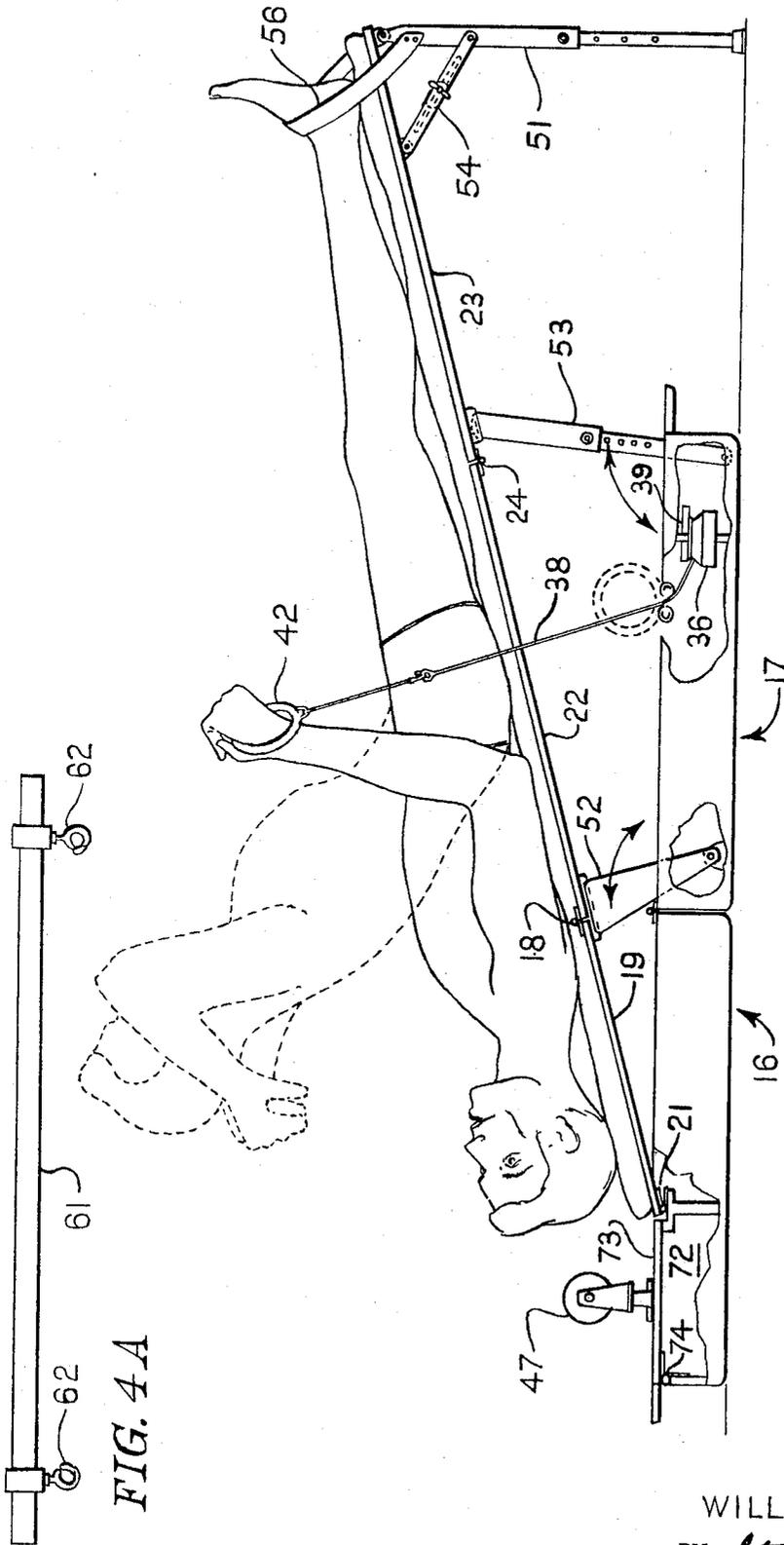


FIG. 4

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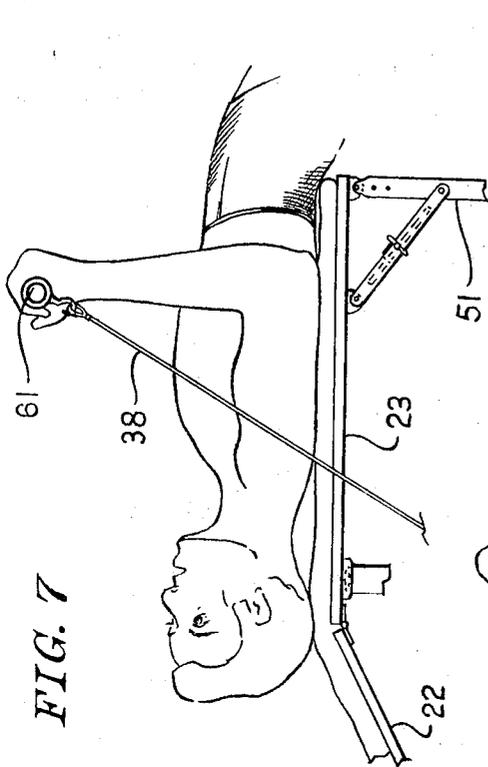


FIG. 7

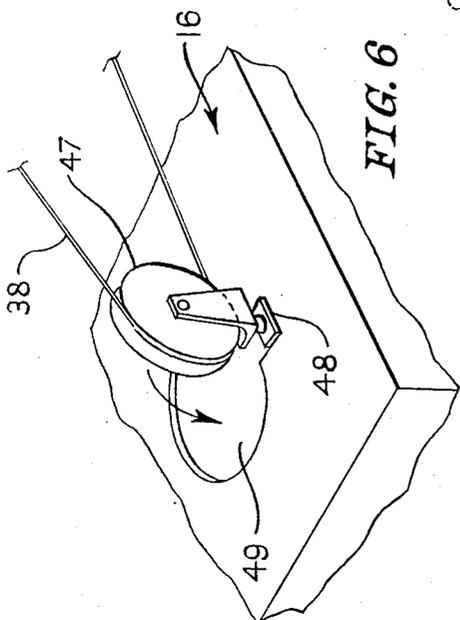


FIG. 6

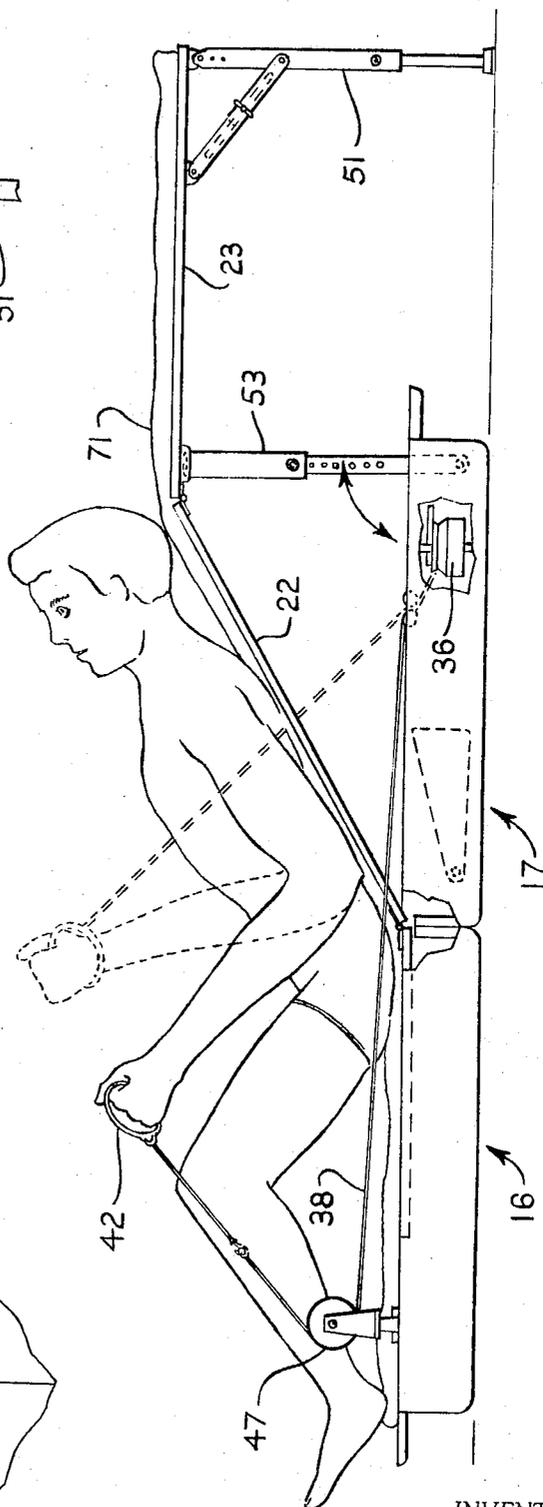


FIG. 5

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3,664,666

**PORTABLE GYMNASIUM**  
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U.S. Cl. 272—58

6 Claims

## ABSTRACT OF THE DISCLOSURE

A folding portable case, suitcase or the like which may be opened to fold out a three-section exercise board disposable in a plurality of different positions in extension beyond the original dimensions of the unit for providing substantially all configurations employed in physical culture exercises. Spring loaded cables provide for all types of lifting, pulling and pushing exercises so that complete weight reduction and body building exercises are capable of being performed on a single portable unit.

## BACKGROUND OF INVENTION

There have been devised a wide variety of different physical exercises for improving the condition of the human body and there exist many professional gymnasiums for use by persons interested in weight reduction or the more general field of physical culture. Such gymnasiums or salons, as they are often termed, usually provide a wide variety of different devices and mechanisms particularly adapted for use in a multiplicity of different exercises scientifically determined to produce particular results. Such professional installations are quite costly to construct and maintain and consequently normally charge a fee for their use. Increased understanding of body needs has also given rise to the development of a variety of different home exercisers or devices and mechanisms which may be privately purchased and employed in the home or the like for carrying out particular exercises. As an example of the latter are to be found stationary bicycles, bar bells and dynamic tension devices.

Along the line of what may be termed home exercisers there have been developed a variety of different devices which are adapted to be folded into relatively compact form and unfolded to provide particular exercising capabilities. An early example of a body exerciser is illustrated in U.S. Patent No. 992,272 and subsequent improvements in this general field are found in a wide variety of patents such as, for example, U.S. Patent No. 2,219,219 and more recent Patents 2,682,402 and 3,295,847. At least certain of these patented devices are particularly designed for folding into a carrying case so as to be truly portable.

One of the major difficulties in the field of what may be termed home exercisers is the inherent limitation of each to a few possible exercises that may be carried out therewith. Furthermore there is normally encountered difficulties of bulk and weight in any type of attempted portable or home exerciser which seriously limits the capabilities thereof.

There is provided by the present invention a truly portable gymnasium or exercising unit which may take the form of a relatively conventional suitcase, for example, so as to be manually carried from place to place without difficulty. There is furthermore provided in the present invention the capability of carrying out substantially all exercises possible in a fully fitted gymnasium. The present invention thus overcomes many of the difficulties and limitations of the prior art and in fact extends the art well beyond the capabilities of prior art devices or mechanisms.

## SUMMARY OF INVENTION

The present invention comprises a folding case somewhat in the form of a suitcase within which there is disposed a three-segment padded board adapted to be unfolded from the case when same is open to provide a plurality of different physical configurations for exercise. These three boards are adapted, for example, to provide a sit-up board, a prone or supine bench or an incline bench. There is also provided within the folding case of the present invention one or more spring loaded cable devices having two cables extending therefrom so as to, in combination with the above-noted boards or benches, provide a leg extension machine, a leg-curl machine, a wall pulley and the equivalent of bar bells and dumb bells. Additionally there is provided within the folding case or suitcase what is generally termed a hip roller device and controls are provided for utilization of the internal elements of the present invention for isometric exercises. Pivotaly mounted pulley wheels within the device are so arranged that the spring loaded cables may be employed for a wide variety of different exercises and also particularly designed and mounted braces, including a telescopic stand, are provided to ensure full rigidity and complete support for all elements of the present invention when employed for exercising.

## DESCRIPTION OF FIGURES

The present invention is illustrated as to a particular preferred embodiment thereof and certain possible uses of the invention in the accompanying drawings wherein:

FIG. 1 is a perspective view of the case or suitcase of the present invention in folded condition and including all of the elements of the illustration within the case;

FIG. 2 is a plan view of the suitcase of FIG. 1 unfolded;

FIG. 3 is a transverse sectional view taken in the plane 3—3 of FIG. 2 and illustrating the hip roll mechanism of the present invention withdrawn from the storage compartment therefor and extending across a portion of the portable gymnasium of the present invention;

FIG. 4 is a side elevational view of the present invention in unfolded condition with internal elements thereof forming sit-up bench or board and having portions broken away as indicated to illustrate internal connections of elements; the view also shows a person performing certain exercises upon the sit-up board of the invention;

FIG. 4A illustrates in elevational view a revolving bar that is incorporated in the portable gymnasium of the present invention for carrying out weight lifting and bar bell exercises;

FIG. 5 is a side elevational view of the present invention in an alternative arrangement of elements of the invention and including an illustration of a person carrying out alternative exercises with the invention;

FIG. 6 is a perspective view taken in the plane 6—6 of FIG. 2 illustrating one of the pivotaly mounted cable pulleys of the present invention; and

FIG. 7 is a purely diagrammatic illustration of a person utilizing the prone bench of the present invention.

## DESCRIPTION OF PREFERRED EMBODIMENT

The present invention is externally comprised as a folding case or suitcase 11 as illustrated in FIG. 1. A handle 12 may be provided for carrying the case about and latches 13 may be attached to the case for maintaining same in closed position during transport. The case is formed of two major portions which may be termed housings 16 and 17 of like dimensions connected together by an elongated hinge 18 so that the unit or case may be folded open as illustrated in FIG. 2. The central area of the surface of the housing 16 is formed of a board 19

pivotaly mounted by means of an elongated hinge 21 on the underside thereof so that the board may be pivoted upwardly from the surface of the housing. The board 19 has the end thereof opposite hinge 21 connected to the center hinge 18. The central area from one side to the other of the housing 17 is also formed as a pivotaly mounted board 22 connected to the center portion of the hinge 18. As a practical matter this hinge 18 is normally formed as three axially aligned hinges as indicated in FIG. 2. A further, and important, portion of the present invention is a third board 23 shown in FIGS. 4 and 5 and which is pivotaly connected by a hinge 24 to the outer or otherwise free end of the board 22. This board 23 is adapted to be folded underneath the board 22 by mounting the hinge 24 on the underside of the boards 22 and 23 and, by having substantially the same length as the board 22, then fits within the housing 17 when the unit is folded together.

With the arrangement described above there may be provided a wide variety of different gymnasium elements for physical exercise. The invention provides for a maximum number of different possible exercises with a single compact unit and to this end there is included a retractable hip roller 26 normally stored in a compartment 27 of the housing 16. These individual rollers are connected together by flexible cords with one end of the combination being connected as by means of a spiral spring 28 to an axle 29 in the compartment 27. An opening 31 in the upper surface of the housing 16 provides for withdrawing the hip rollers from the compartment 27 and extending them laterally across the upper surface of the housing over the top of the board 19 for engagement with hook means 32. Thus the hip rollers are in fact retractable to be normally stored entirely within the compartment 27 but are readily withdrawn therefrom for extension across the board 19 to be used by a person in a conventional manner of using hip rollers. Release of the roller combination from the hook means 32 then results in the rollers being wound back into the compartment 27 for storage.

Within the housing 17 of the case there is mounted one or more adjustably retractable pulleys 36 having two cables 37 and 38 extending therefrom and upwardly through the upper surface of the housing 17 on opposite sides of the board 22 thereof. This pulley 36 may be of conventional spring loaded type from which a cable or two cables may be withdrawn against spring tension. The pulley is capable of adjustment as by means of a handle 39 which may be rotated to tighten or loosen the tension of the spring loading of the pulley. Rings or hand-grips 41 and 42 are removably attached to the ends of the cables 37 and 38 respectively atop the housing 17 so that a person may grip these rings in the performance of various exercises on the gymnasium of the present invention. There is also provided in the housing 17 a pair of retractable handles 43 and 44 which may telescope into the opposite sides of the housing as illustrated for latching therein until it is desired to extend them for use.

The cables 37 and 38 may also be extended longitudinally of the housing 17 and the housing 16 to wrap about pivotaly mounted pulleys 46 and 47. These pulleys 46 and 47 are similarly mounted and referring to FIG. 6 there is shown the pulley 47 mounted on a hinge 48 so as to be pivotal into an opening 49 in the upper surface of the housing 16. Thus the pulleys may be pivoted out of the way for storage and yet swung upwardly to have the cables extended thereabout for particular exercises on the gymnasium of the present invention.

Considering now briefly at least certain exercises that may be performed on the present invention and various configurations of the present invention that are possible with the above described elements thereof, reference is made to FIG. 4 illustrating the first board 19 as being pivoted upwardly and at an angle and the boards 22 and 23 extending in a plane therefrom to thereby define what

is generally termed a sit-up board. In order to provide support for this sit-up board or slant board, there is provided one or more telescopic legs or stands 51 adapted to be connected to the outer end of the board 23 and extending downwardly therefrom for engagement with the floor or the like upon which the gymnasium is to be employed. The leg or legs 51 may be formed as a pair of telescopic cylinders with latching means such as a mating pin and holes for maintaining the leg or legs in a desired extended position.

There is also provided one or more first braces 52 pivotaly mounted with in the housing 17 so as to be capable of swinging upwardly to engage the incline board beneath the hinge 18 connecting boards 19 and 22. Second brace or braces 53 are pivotaly mounted in the housing 17 adjacent the outer edge thereof for extension upwardly to engage the underside of the incline board in the vicinity of the connection of boards 22 and 23. The arrangements of boards 19, 22 and 23 as an inclined sit-up board or slant board, as illustrated in FIG. 4, will thus be seen to provide a solid unit upon which a person may lie for performing exercises. In this respect there may also be provided angle braces 54 extending from the leg or legs 51 to the underside of the board 23 for further bracing of the structure. Such angle braces 54 are preferably formed of adjustable length and may be detachably engaged with a board 23 while being pivotaly mounted on the leg 51 so as to swing out of the way when the unit is folded into the housing. Note that connections of braces 51, 53 and 54 to the underside of board 23 are either inset or indentations are formed in the underside of board 22 to receive any protruding connections.

One or more foot straps 56 are connected across the outer end of the board 23 so that a person may slip their feet under the straps for carrying out exercises such as, for example, sit-ups as generally indicated by the dashed position of the upper torso of the man shown on the incline bench. Arm exercises may also be carried out on the sit-up board by a person laying thereon gripping the rings 41 and 42 attached to the cables 37 and 38 and pulling upon these rings against the tension of the pulley 36. Among the other exercises that can be carried out on the inclined board of FIG. 4 are leg extensions wherein the person lies face down on the board with his head at the upper end thereof and places his feet through the rings connected to cables extending about the pulleys 46 and 47 so as to attempt to bend his legs against the tension of the pulley 36, and also leg curls. A slant board or sit-up board is well known in the field of physical culture and thus no attempt is made here to identify all possible exercises that may be performed thereon. There may also be provided a vibrator detachably mounted to the underside of board 22 for massage purposes.

There is illustrated in FIG. 5 an alternative folded configuration of the present invention. In this position the first board 19 remains flat upon the housing 16 while the board 22 is folded upwardly at an angle to form an incline bench and the board 23 is extended horizontally to form a supine bench or, as it is more commonly termed, a prone bench. It will be seen that in the configuration of FIG. 5 the leg 51 is telescoped to somewhat shorter length than in the illustration of FIG. 4. Furthermore the second brace 53 is pivoted slightly forward in order to engage the upper end of the board 22 to provide full support for the incline bench and prone bench. Various exercises are possible upon the invention as folded in the configuration of FIG. 5. Some possible exercises are illustrated in FIGS. 5 and 7 and others will be apparent to those knowledgeable in the field of physical culture.

The invention furthermore provides a bar 61 having revolving pulley hooks 62 mounted adjacent opposite ends thereof for connection to the cables 37 and 38 in place of the rings or grips 41 and 42. This bar may then be employed as a bar bell for various different positions of weight lifting as, for example, on the prone bench of the

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present invention. The pulley hooks are mounted for rotation about the bar 61 as, for example, on ball bearings or the like, so that one exercising with the bar connected to the cables employs the full equivalent of a bar bell with weight determined by the setting of the pulley 36.

There is illustrated in FIGS. 4 and 5 of the drawings a thin mat 71 placed upon the upper surfaces of the boards 19, 22 and 23 for comfort of one exercising upon the present invention. This mat and possibly certain other portions of the invention such as, for example, the leg or legs 51 are stored within the folding case as, for example, in a storage compartment 72 formed in the outer portion of the housing 16. The top 73 of the compartment is mounted by a hinge 74 at the outer edge of the housing 16 so as to be pivotable upwardly for access to the interior of the storage compartment.

With regard to folding of the present invention into portable form, it is noted that with the braces 52 and 53 folded into the housing 17 and the leg or legs 51 removed from engagement with the board 23, this latter board is then swung about the hinge 24 beneath the board 22 until the two are in parallel abutting relationship over their respective length. This is actually accomplished by first swinging the board 19 down into the housing 16 to form a portion of the upper surface thereof and then pivoting the board 22 upwardly from the hinge 18 so that the two boards 22 and 23 may be folded together. The combination is then folded downwardly into the housing 17 with the board 22 then forming a part of the upper surface of the housing. The pulleys 46 and 47 are pivoted downwardly into the openings in the upper portion of the housing 16 and the rings 41 and 42 are disconnected from the cables which then retract until the cable ends are arrested by the openings through the top of the housing 17. With the hip roll mechanism stored in the compartment 27 the two housings 16 and 17 are then folded together along the hinge 18 to close the suitcase 11 as illustrated in FIG. 1. The handles 43 and 44 fit flush with the exterior sides of the housing 17 when they are telescoped inwardly and thus the entire invention presents the appearance of a suitcase or the like, so as to be readily carried about or stored.

Substantially every exercise normally carried out in a fully equipped gymnasium may be performed upon the portable gymnasium of the present invention. At least certain of these exercises have been briefly described or noted above. However, it is not intended to list all possible exercises capable of being accomplished with the present invention. It is, however, noted that isometric exercises are possible by providing a lock on the tension cable pulley 36 so that the cables may be extended to some desired length for a particular position of the person and then will move no further.

With regard to materials of construction, it is noted that the housings and folding exercise boards may be formed of any lightweight rigid material having sufficient structural strength to support the weights and forces to be applied thereto. Certain types of Fiberglas structures may be employed for at least part of the construction and laminated structures are also suitable. Although certain elements of the invention have been identified as boards, this is not intended to define them as being formed of wood, although this is possible, but instead the terminology is related to the use.

There has been described above an improved portable gymnasium having wide capability and many practical applications. It is not intended to limit the present invention to details of the description or illustrations for it will

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be understood by those skilled in the art that numerous modifications and variations are possible within the scope of the invention.

What is claimed is:

1. A portable gymnasium comprising first and second rectangular housings of like size and hinged together along an upper edge of each to fold together into a single unit, a first panel forming a part of the upper surface of said first housing and pivotally mounted to swing upwardly therefrom away from said second housing, a second panel forming a part of the upper surface of said second housing and pivotally connected to said first panel along the hinged line between said housings, a third panel hinged to said second panel at the opposite end thereof from said first panel for folding downwardly of said second panel from said hinged connection and having substantially the same dimensions as said second panel to be foldable under same in said second housing, and bracing means for supporting said panels in unfolded position to support a person exercising thereon.

2. The gymnasium of claim 1 further defined by at least one spring loaded cable pulley having a pair of cables extending therefrom and mounted in said second housing with the cables extending through a fixed upper surface thereof, a pair of grips removably attachable to the outer ends of said cables, and a bar having rotatably attached hooks removably attachable to the outer ends of said cables.

3. The gymnasium of claim 2 further defined by a pair of pulleys pivotally mounted upon the upper surface of said first panel on opposite lateral sides thereof adjacent the end opposite the hinged connection with said second housing, and said first housing defining openings in the upper surface thereof adjacent said two pulleys whereby said pulleys are pivotable between retracted positions substantially flush with the upper surface of said first housing and upright positions for extension of said cables thereabout.

4. The gymnasium of claim 1 wherein said bracing means includes at least one telescopic leg removably attached to the end of said third panel opposite said second panel for supporting said third panel.

5. The gymnasium of claim 1 wherein said bracing means includes at least one first brace pivotally mounted in one of said housings for movement between a storage position within the housing and an upright position supporting said first and second panels substantially at the hinged connection thereof.

6. The gymnasium of claim 5 wherein said bracing means further includes at least one second brace adapted for mounting in said second housing for upward extension into position to support said second and third panels substantially adjacent the hinged connections thereof.

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272—83 R