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3,075,518

COMBINATION RECLINING AND EXERCISE APPARATUS

Filed May 24, 1960

2 Sheets-Sheet 1

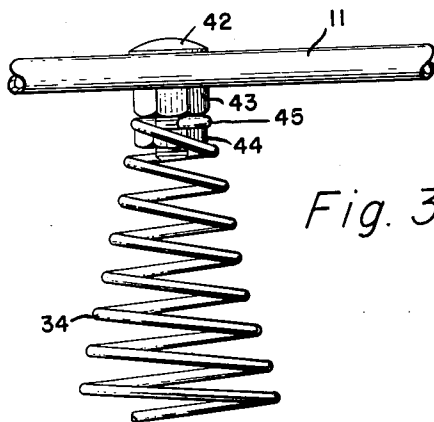
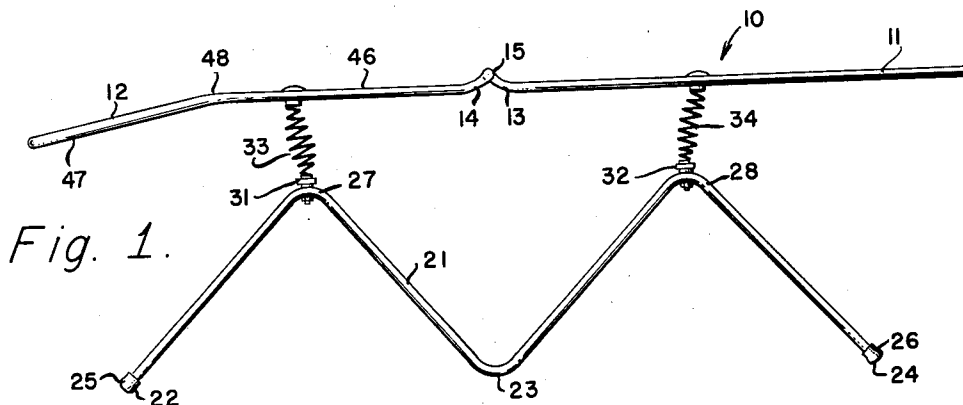
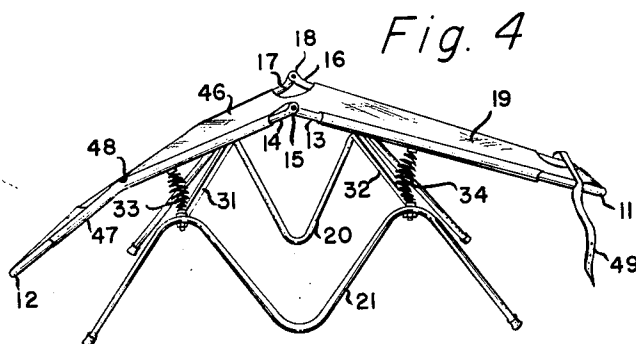
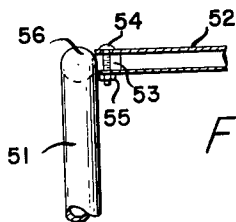
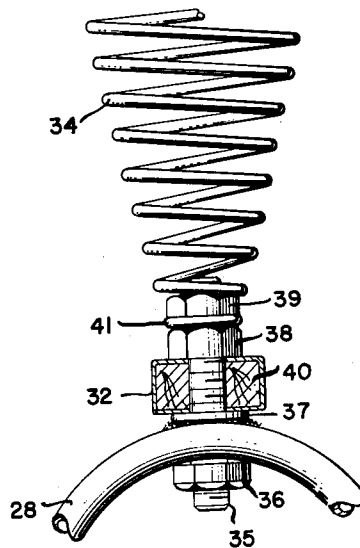


Fig. 2.



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Fig. 7.

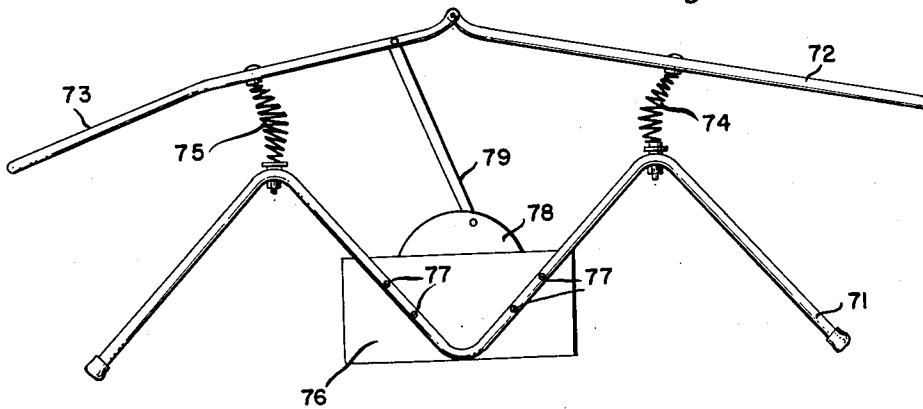
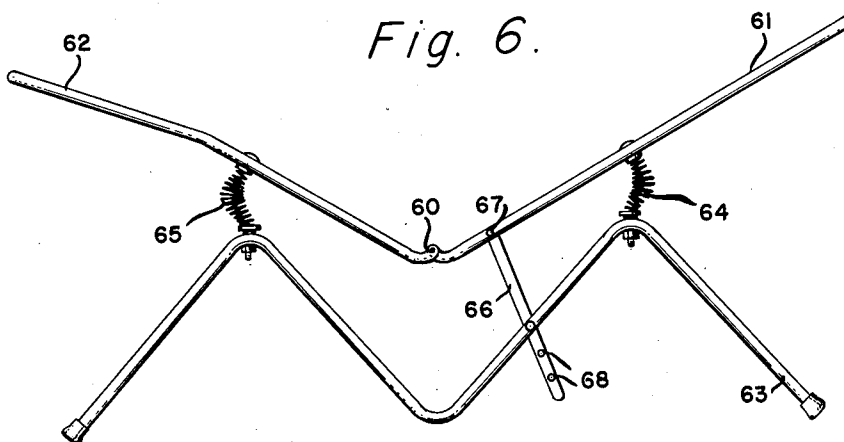


Fig. 6.



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3,075,518 COMBINATION RECLINING AND EXERCISE APPARATUS

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This invention relates to reclining and exercising apparatus and more particularly to a device adapted for exercise which is operable by an individual or which may be power driven and which may be fixed in various positions for use as a body supporting device.

There are a number of prior art exercising devices which are usable by an individual for self-administration of exercise and which also may be adjustable to various positions for seating and reclining. While these prior art devices are excellent for the various purposes for which they were designed, it has been found that in many cases the user of such devices desires, during the period that exercise is being self-administered, to stretch the body an amount sufficient to obtain greater relaxation, posture correction and the most effective exercise. As a result of the particular construction of these prior art devices, it is in most cases not possible to achieve these objectives.

Furthermore, the prior art devices, since they are constructed of rigid frames, are not capable of accepting the full effect of vibratory or oscillatory movement and of imparting such movement to the body during the time the user is exercising or reclining. Since the prior art exercising devices are constructed of rigid frames, much of the vibration or oscillatory motion which would otherwise be imparted to the body of the user is lost in the various joints of the rigid frame member.

Accordingly, it is an object of the present invention to provide a resiliently suspended body supporting device which may be employed by the user thereof for self-administration of exercise, for reclining in either a seated or prone position, or for passive administration of exercise.

It is another object of the present invention to provide an exercising device which may be employed by the user thereof to impart stretching and relaxation to the legs and back and is an effective aid to correct posture in a more efficient and helpful manner than heretofore known to the art.

It is another object of the present invention to provide an exercising device which is more firmly supported than has heretofore been known to the prior art.

It is still another object of the present invention to provide an exercise and reclining device having a body supporting section which may impart vibratory or oscillatory motion directly to the body of the user thereof more soothingly and efficiently than heretofore known to the art.

Additional objects and advantages of the present invention will become apparent from a consideration of the following description taken in conjunction with the accompanying drawings in which:

FIG. 1 is a side elevational view of a body supporting and exercising device in accordance with the present invention;

FIGS. 2 and 3 illustrate more in detail the suspension and mounting apparatus of the body supporting frame of the exercising and reclining device in accordance with the present invention;

FIG. 4 is a side view of the body supporting and exercising device of the present invention in one attitude of use;

FIG. 5 is an end view of a portion of the base member,

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partly in cross-section, illustrating one detail of construction; and

FIGS. 6 and 7 illustrate alternative uses of the body supporting and exercising device in accordance with the present invention.

Referring now to the drawings and more particularly to FIGS. 1 through 4 thereof, there is illustrated a reclining and exercising apparatus 10, in accordance with the present invention. As is therein shown, the body supporting section of the apparatus includes frame sections 11 and 12 which are substantially U-shaped in configuration. Frame sections 11 and 12 are attached in a pivotal manner at their end points so that the frame sections are pivotally interconnected substantially at the center of the body supporting section. For example, ends 13 and 14 of frame sections 11 and 12 respectively are hinged at 15, while ends 16 and 17 of frame sections 11 and 12 respectively are hinged at 18 as more clearly shown in FIG. 4. A canvass or other type coating is stretched upon the frame sections 11 and 12 as illustrated at 19. The canvass cover 19 is held in place upon the frame sections 11 and 12 by any means known to the device, but is preferably attached thereto by the device which is described and claimed in Patent No. 2,826,245. Any type interconnection or hinge between frame sections 11 and 12 may be utilized so long as the two are pivotally interconnected. However, it has been found preferable to utilize the novel hinge construction described in U.S. patent application Serial No. 791,911, filed on February 9, 1959, by John W. Sellner who is the applicant of the present application.

Pivotally interconnected frame sections 11 and 12 are mounted upon base members 20 and 21 (FIG. 4) which provide a firm, solid support for the exercising and reclining device in accordance with the present invention during the time that it is in use. The base members provide a three-point contact as illustrated at 22, 23, and 24 of FIG. 1 on each side thereof. As is shown, the base members are substantially M-shaped in configuration. By utilizing such an M-shaped configuration for the base member, the end points 22 and 24 which contact the supporting floor are spread far enough apart to eliminate any possibility of overturning or tipping while the exercising apparatus is in normal use. As is illustrated in FIG. 1, the end portions of the M-shaped base members are covered by rubber tips 25 and 26 or the like in order to preclude any possibility of the base members scarring or otherwise damaging the floor upon which the unit rests during operation thereof.

The frame members 11 and 12 are attached to the base members 20 and 21 at the upper points 27 and 28 of the base members. Cross bars 31 and 32 are interconnected to the base members 20 and 21 to support and space apart the base members. The pivotally interconnected frame members 11 and 12 are supported upon the M-shaped base members 20 and 21 by a resiliently deformable means such as, for example, springs 33 and 34. Although a spring means is illustrated throughout the drawings of the present invention, it is to be expressly understood that any resiliently deformable member may be utilized to support the frame sections upon the base members. For example, a solid rubber member, a plastic or hollow rubber ball member, or the like, may be utilized. The main consideration in the suspension and interconnection of the frame members with the base support is that the body supporting frame sections are mounted upon a resilient cushion in order to obtain a floating type action between the base member and the body supporting section during the use thereof.

As is more clearly illustrated in FIG. 2, one method

of affixing the springs 33 and 34 to the base members is illustrated. As is therein shown, a bolt 35 is inserted through openings provided in the top section 28 of the base member 21 and is held in place by nut 36. A washer or the like 37 is attached, as by welding, to the top of the base member 21 in order to provide a flat surface so that cross bar 32 may be slipped over the bolt 35 or, alternatively, the bolt 35 may be threaded therethrough. For example, in a preferred embodiment of the present invention, cross bar 32 is a hollow tubular member which is flattened at each end and has a block 40 of wood inserted into the end for receiving the threads of bolt 35. A nut 38 is then placed upon the bolt 35 in order to hold the cross bar 32 in place. A nut 39 is then placed upon the bolt in order to retain the end portion 41 of the spring 34 between the nuts 38 and 39, thereby anchoring the spring in place upon the top portion 28 of the base member 21.

The means of attaching the resiliently deformable support members to the frame sections of the exercising apparatus in accordance with the present invention is more clearly illustrated in FIG. 3. As is therein shown, a bolt 42 which may preferably be a carriage bolt or the like, is driven in place through an opening in the frame section 11. A nut 43 is then tightened in place in order to hold a bolt 42. Thereafter, the end portion of the spring 34 is inserted between nuts 43 and 44 as illustrated at 45 to hold the same in place and to attach it to the frame section 11.

Preferably the frame sections 11 and 12 are each supported at two points upon the base members 20 and 21 respectively. In this manner a four-point floating suspension is provided for the frame sections 11 and 12 upon base members 20 and 21.

The body supporting sections are adapted to impart a greater stretching to the body of the user than has heretofore been known by providing a bend at a given point within one of the U-shaped frame sections. For example, frame section 12 as illustrated in FIGS. 1 and 4, is divided into two sections 46 and 47 which are interconnected by the bend 48. This, therefore, causes section 47 of frame member 12 to be bent downwardly from the straight portion 46 of the frame section 12.

In use, a strap 49 of canvass or the like may be placed across the depending portions but near the base of the U-shaped frame section 11, as illustrated in FIG. 4. The feet of the user may be placed beneath this strap with the upper half of the torso disposed upon frame section 12. As can readily be seen, the upper portion of the body is caused to bend more, thereby causing the spine to be straightened and the back muscles to be relaxed.

As the user of the exercising device in accordance with the present invention moves the frame sections 11 and 12 upwardly and downwardly about the pivot points 15 and 18, the suspension members, such as springs 33 and 34, cause the frame sections 11 and 12 to be reciprocated longitudinally of the exercising apparatus. That is, as the user pivots the frame sections 11 and 12 about the points 15 and 18, the springs cause the body to be thrown downwardly and upwardly thereby imparting greater force to the exercise as it is self-administered.

The resiliently deformable supporting means, such as springs 34 and 33, may be located in any desired position upon the frame sections by merely varying the position of the top points 27 and 28 of the M-shaped base members in order to obtain the action of the frame sections 11 and 12 which is desired. The greater the space which is provided between the resiliently deformable supporting means, the more tendency the frame sections 11 and 12 have to remain so that the pivot points are downwardly positioned. That is, in viewing the exercising device from the side, as in FIG. 1, the frame sections 11 and 12 would form a V-shape. This would, therefore, cause the user thereof to exert more force to

straighten the frame sections 11 and 12 and cause them to assume the opposite type attitude with the hinge section upwardly. By spacing the spring members the desired distance apart, the frame sections 11 and 12 may be substantially balanced in a relatively level position. From this position, as the user exerts enough force to cause the frame sections 11 and 12 to pass through the balance point in a downward direction, a springing action to a V-shape is provided. When the balance position is passed in an upward direction, a springing action into an inverted V-shape is provided. This has been found to provide the maximum amount of exercise to the user of the apparatus in accordance with the present invention. This preferred manner and position of suspension has been found to be slightly greater than one-third the distance from the pivot point on each frame section. For example, where frame sections 11 and 12 are each approximately 38 inches in length, it has been found preferable to support the frame section 12 having the curved portion therein at approximately 13 inches from the pivot point, and to support frame section 11, which is straight, at approximately 14½ inches from the pivot point. This suspension dimension upon this particular size exercising apparatus provides the most preferred action when in use.

An alternative arrangement of interconnecting the cross bars to the base members is illustrated in FIG. 5 to which reference is hereby made. As is therein shown, the upper portion 51 of an M-shaped base member has a cross bar 52 connected to a solid extension 53 from the upper portion of the base member. A bolt 54 is inserted through openings provided in the cross bar 52 and the extension 53 and the combination is held in place by a nut 55. The resilient supporting means may then be attached to the extreme upper edge 56 of the base member 51 in a manner similar to that above described or alternatively may be attached to the cross bar.

Referring now to FIG. 6, there is illustrated an alternative embodiment of the reclining and exercising device of the present invention in use as a reclining contour chair. As is therein illustrated, frame sections 61 and 62 are pivotally interconnected at 60 as hereinabove described. The pivotally interconnected frame sections are resiliently mounted upon a base member 63 by means of resiliently deformable mounting members, such as springs 64 and 65. A rigid bar or the like 66 is pivotally connected at 67 to frame section 61. A series of openings 68 are provided in the opposite end portion of the rigid bar 66 so that the bar may be adjustably interconnected with the base member 63. By moving the bar up or down and interconnecting one of the openings 68 with the base member 63, the body supporting sections of the frame 61 and 62 may be placed in any desired attitude so that the body supporting apparatus may be utilized as a contour chair, a cot, or the like.

In FIG. 7 the body supporting and exercising device in accordance with the present invention is illustrated in use with a power source for reciprocating the pivotally interconnected frame sections in an upward and downward direction. In this manner, the user may receive passive exercise if such is desired. As is illustrated in FIG. 7, a base section 71 has pivotally interconnected frame sections 72 and 73 supported thereon by resilient supporting members 74 and 75 respectively. An enclosed power unit 76 is affixed to base member 71 by means of bolts 77 or the like. A motor housed within the power means 76 drives a fly wheel or pulley 78 which in turn causes a rigid bar or the like 79 to reciprocate. The bar 79 is interconnected between the fly wheel 78 and one of the pivotally interconnected frame section, for example, 73. In this manner, the pivotally interconnected frame sections are reciprocated or oscillated in accordance with the desires of the user. For example, the motor which drives the fly wheel may have a variable

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speed control thereon so that the interconnected frame sections may be caused to reciprocate very fast or very slow or at intermediate speeds therebetween. It should be readily apparent to those skilled in the art that a base member such as 71 having the power means affixed thereto as illustrated in FIG. 7 may be quickly and easily substituted for a base member such as that at 21 illustrated in FIG. 1, thereby quickly and easily converting the exercising apparatus in accordance with the present invention from one which may be used for the self-administration of exercise to one which may be used for the passive administration of exercise to the human body.

There has thus been disclosed a resiliently suspended body supporting device which may be used for self-administration of exercise or for reclining purposes and which is more efficient and helpful than similar exercising devices heretofore known in the prior art.

What is claimed is:

1. A body supporting and exercising device comprising first and second pivotally interconnected body supporting frame members, a pair of substantially M-shaped base members, means interconnecting said base members in spaced apart relationship, and a resiliently deformable spring means affixed to each apex of each of said M-shaped base members and connected to said frame members for resiliently supporting said frame members above said base members thereby to impart a floating type suspension to said frame members.

2. A body supporting and exercising device comprising first and second pivotally interconnected body supporting frame members, one of said frame members defining first and second portions being angularly disposed with respect to each other, a pair of substantially M-shaped base members, means interconnecting said base members in spaced apart relationship, and a resiliently deformable spring means affixed to each apex of each of said M-shaped base members and connected to said frame members for resiliently supporting said frame members

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above said base members thereby to impart a floating type suspension to said frame members.

3. A body supporting and exercising device comprising a pair of substantially U-shaped frame members, said frame members being pivotally interconnected at the open ends of the U, one of said frame members having the closed end thereof angularly displaced from the open end thereof, a pair of substantially M-shaped base members, means interconnecting said base members in spaced apart relationship, and a resiliently deformable spring means affixed to each apex of each of said M-shaped base members and connected to said frame members for resiliently supporting said frame members above said base members thereby to impart a floating type suspension to said frame members.

4. A body supporting and exercising device comprising first and second pivotally interconnected body supporting frame members, a pair of substantially M-shaped base members, means interconnecting said base members in spaced apart relationship, a resiliently deformable spring means affixed to each apex of each of said M-shaped base members and connected to said frame members for resiliently supporting said frame members above said base members thereby to impart a floating type suspension to said frame members, power means including a rotatable member affixed to one of said base members, and rigid means interconnecting said rotatable member and one of said frame members for moving said frame members up and down about their pivot points in response to rotation of said rotatable member.

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