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 [21] Appl. No. **735,623**
 [22] Filed **June 10, 1968**
 [45] Patented **Dec. 1, 1970**

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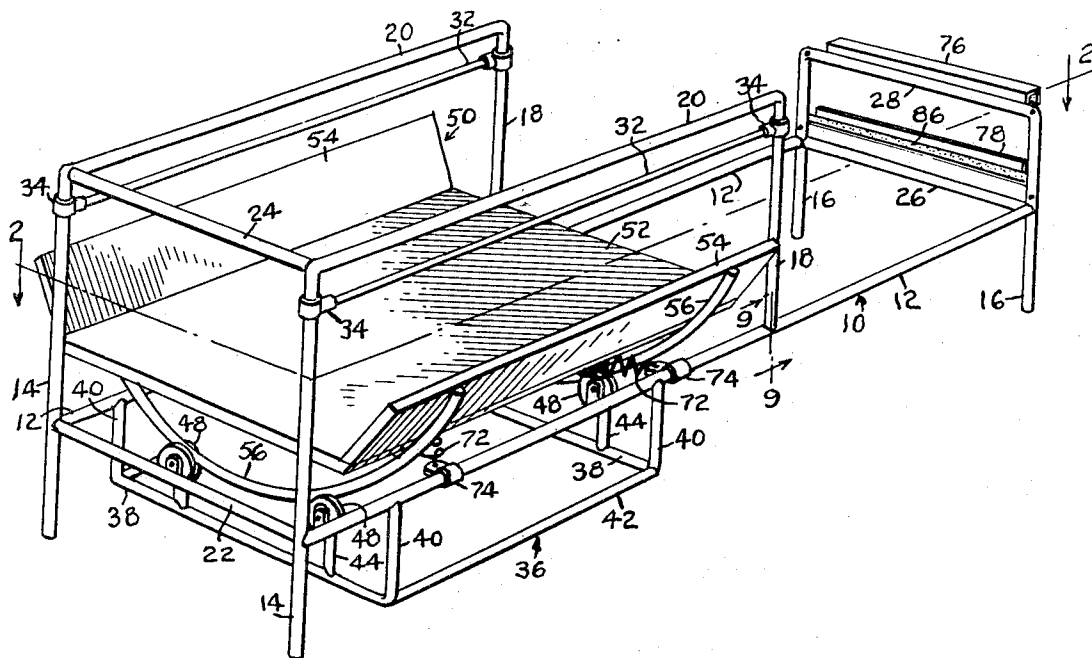
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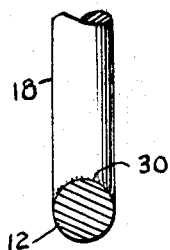
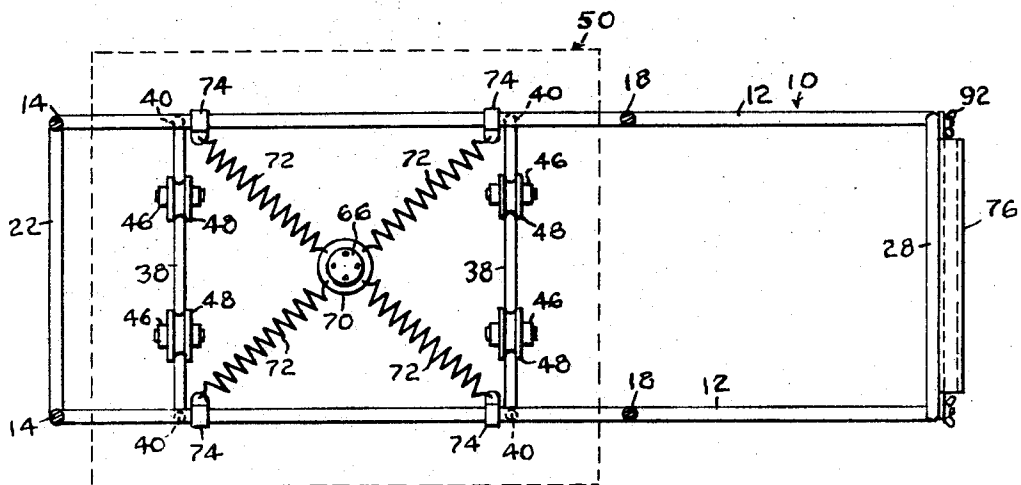
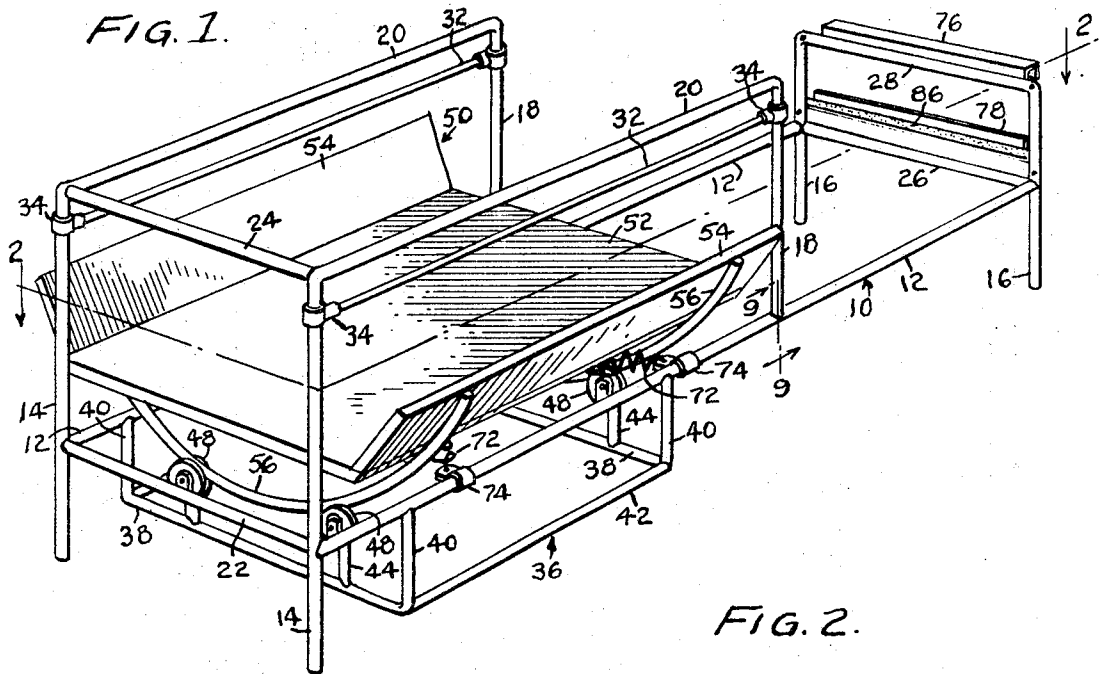
[54] **RESILIENT CRADLE EXERCISE APPARATUS**
 5 Claims, 9 Drawing Figs.

[52] U.S. Cl. 272/58;
 128/33; 272/63; 272/82; 272/83
 [51] Int. Cl. A63b 23/02
 [50] Field of Search. 272/58, 60,
 57; 128/25, 33, 37; 277/58

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ABSTRACT: A metal frame supports a rocker or cradle on which a person may be supported in prone position to rock about an axis above his body. The frame is provided with top bars which may be grasped by the person exercising to effect various exercises including the rocking of the cradle. Elongated resilient members, similar to shock cords, are arranged below and parallel to the top bars of the frame and which elements the user may grasp to push or pull longitudinally to exercise the hands and arms. Springs connected between the cradle and the frame to oppose the cradle-rocking movement and a shoe-engaging structure on the frame for stabilizing the exerciser.





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FIG. 3.

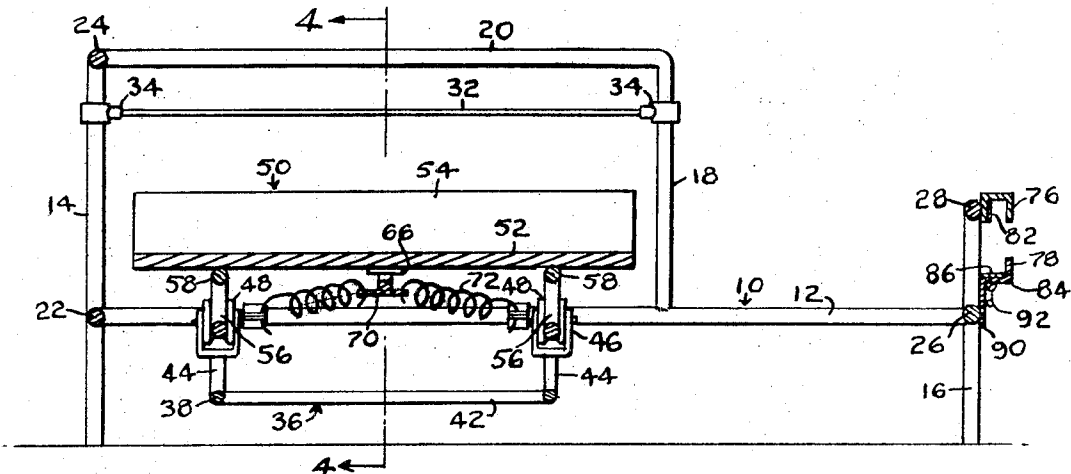


FIG. 4.

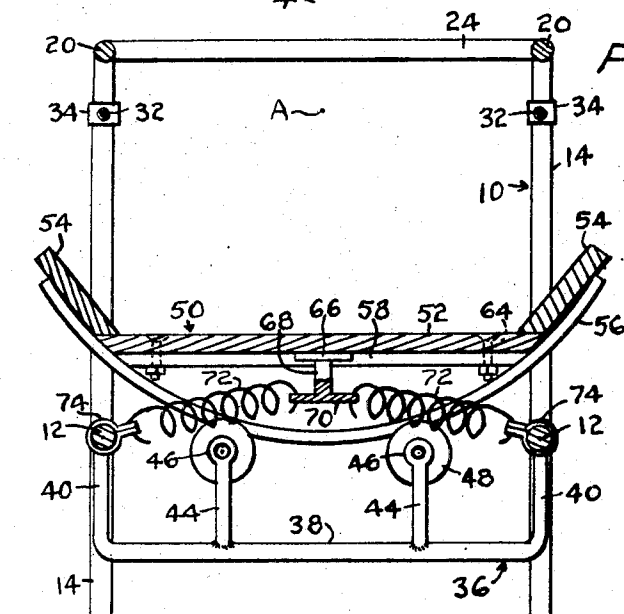


FIG. 5.

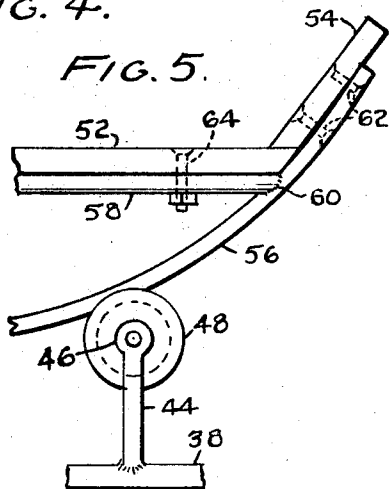


FIG. 7.

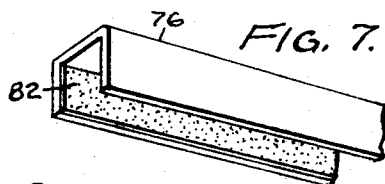
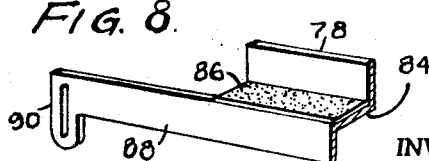


FIG. 8.



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RESILIENT CRADLE EXERCISE APPARATUS

BACKGROUND OF THE INVENTION

The invention relates to the field of exercise apparatus of which there are many types available, usually for specific exercises. For example, some prior devices are generally in the nature of "rowing" machines where the user is seated and pulls on a handle resisted by a spring to exercise the arm and back muscles. Some are in the nature of boards pivoted therebeneath to rock back and forth to exercise various muscles.

SUMMARY OF THE INVENTION

The invention comprises an elongated framework within which is supported at one end thereof a rocker or cradle on which the user of the apparatus lies, the other end of the framework being provided with foot supports. The cradle is mounted to rock on a fixed axis above the user, which axis is arranged longitudinally of the apparatus so that the user swings back and forth, in an arc of a circle transverse to the length of the apparatus. The supporting frame includes at opposite sides, at a higher level than the cradle, rigid parallel bars which may be grasped by the user for different exercises. For example, the user may grasp these upper bars to effect rocking movement of the cradle, or he may use them to pull himself up to a sitting position, or to lift the body holding the latter rigid to perform exercises somewhat similar to pushups except inverted from the usual exercises of this type.

Just beneath and parallel to the rigid bars referred to, resilient elements extend parallel to each other. These elements are preferably formed of conventional shock cord, made up of many strands of small rubber bands encased in fabric. While lying in the cradle, the user may exert force on these shock cords endwise thereof either by pushing or pulling or alternately exerting both forces to exercise the arms.

The cradle is preferably supported by arcuate tracks therebeneath nesting on rollers so that the cradle is adapted to swing in the manner referred to and springs, connected at their inner ends to the cradle centrally thereof and therebeneath, diverge for connection with elements of the frame structure. These springs tend to maintain the cradle in a normal central position and resist rocking movement of the cradle in either direction.

Foot-engaging elements are arranged at the end of the frame opposite the cradle. Upper and lower shoe-engaging elements are provided, the lower of which is adapted to engage the back of the heel portion of the shoes, while the upper element is an inverted channel in which the toe portions of the shoes may be arranged. These shoe-engaging elements facilitate the performance of exercises without the user's feet rising from normal position.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the apparatus as a whole;
FIG. 2 is a horizontal sectional view on line 2-2 of FIG. 1 with the cradle removed;

FIG. 3 is a central, vertical, longitudinal sectional view through the apparatus;

FIG. 4 is a somewhat enlarged transverse section on line 4-4 of FIG. 3;

FIG. 5 is an enlarged fragmentary view showing the mounting of the cradle;

FIG. 6 is an elevation of the foot end of the apparatus;

FIG. 7 is a fragmentary perspective of the upper shoe-engaging element;

FIG. 8 is a similar view of the lower foot-engaging element; and

FIG. 9 is an enlarged detailed section on line 9-9 of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The apparatus comprises a main frame 10 including spaced horizontal side frame members 12 supported at one end by posts 14 and at the opposite end by shorter posts 16.

Between the ends of the frame members 12 are secured upwardly extending posts 18 connected by horizontal hand bars 20 to the upper ends of the respective posts 14. At the head end of the apparatus, that is the left end in FIGS. 1, 2 and 3, the posts 14 are connected by transverse brace 22 spaced from the lower ends of the posts 14 and an upper brace 24 connected at its ends to the upper ends of the posts 14.

At the foot end of the apparatus, that is the right hand end in FIGS. 1, 2 and 3, the posts 16 are connected by a lower brace 26, in the horizontal plane of the frame members 12, and an upper brace member 28 connected at its ends to the upper ends of the posts 16. The various frame members referred to may be fabricated in any suitable manner of solid or tubular stock possessing the necessary degree of rigidity. The legs 16 and cross brace 28 may be integral of inverted U-shape. Similarly, each post 14 and its associated post 18 and hand rail 20 may be formed integrally of inverted U-shape. The remaining frame members are preferably welded to the elements to which they are connected. Where a frame element abuts another frame element transversely thereto, the first named frame element is preferably ground semicircularly to fit around the element which it abuts and is welded thereto as at 30 (FIG. 9).

Beneath and parallel to each hand rail 20 is a resilient cord 32, preferably in the nature of a conventional shock cord, made up of a substantial number of small rubber bands encased in a resilient fabric cover. The resilient elements 32 are anchored at their ends to fittings 34 connected to the associated posts 14 and 18.

Adjacent the head end of the apparatus, a depending frame structure indicated as a whole by the numeral 36 is arranged. This frame structure comprises horizontal transverse members 38 having upstanding posts 40 at their ends preferably welded to the side rails 12. Each unit comprising the elements 38 and 40 may be formed integral of solid or tubular stock and formed in U-shape as shown in FIG. 1. The junction points of the cross members 38 and posts 40 are connected by longitudinal frame members 42 welded in position as will be apparent.

Each of the crossmembers 38 (FIG. 4) has secured thereto, in any suitable manner as by welding, upstanding posts 44 having bearings 46 at their upper ends supporting grooved rollers 48. These rollers support for rocking action a cradle to be described.

The cradle of the apparatus is indicated as a whole by the numeral 50 and comprises a bottom board 52 and upwardly diverging sideboards 54. This cradle is supported therebeneath by arcuate tracks 56 resting in the grooves of the rollers 48. The tracks 56 are preferably made of solid stock and are preferably braced by a transverse member 58 welded as at 60 (FIG. 5) to the tracks 56. These tracks may be riveted or otherwise secured to the sideboards 54 as at 62, and the bottom board 52 may be bolted as at 64 to the cross braces 58, the bolts 64 having countersunk heads.

Beneath the bottom board 52 is secured a plate 66 having a depending post 68 carrying a circular plate 70 at its lower end. Diverging springs 72 (FIG. 2) are connected at their inner ends to the plate 70 and at their outer ends to fittings 74 including collar portions surrounding the side rails 12. These springs are normally under a small degree of tension so that when the cradle is rocked toward either side, the springs at the opposite side will have their tension substantially increased to oppose such rocking movement and thus require substantial physical force by the user to effect the rocking of the cradle.

Upper and lower foot-engaging elements 76 and 78 are carried by the foot end of the apparatus. The upper element 76 may be of inverted U-shape and riveted or bolted as at 80 to the crossmember 28. The inner face of the element 76 facing away from the user is covered with felt or flock 82 to protect against scuffing the toe of the shoe of the user arranged in the channel of the element 76. The lower element 78 is provided with a horizontal wall 84 covered with felt or flock 86 to protect the back of the heel of the user's shoe from scuffing when resting therein. The element 78 includes a depending wall 88

having vertically elongated slotted end portions 90, and wing nut bolts 92 carried by the end posts 16 allow for vertical adjustment of the shoe-engaging element 78.

OPERATION

The board 52 preferably will be provided with any suitable type of pad so that a user will be comfortable thereon. The user will project the toes of his shoes, if he is wearing shoes, into the channel of the upper element 76 with the shoe heel portions engaging the nonabrasive covering 86. The user may grasp the hand rails 20 and exert the necessary force to cause the cradle 50 to rock back and forth, and thus effectively exercising his legs, thighs and hips. It will be noted that the axis of rotation or rocking action of the cradle 50 is usually above the user and approximately at the point A in FIG. 4. Thus the user will swing from side to side but will not turn excessively. The rocking action takes place against the tension of the springs 72. In back and forth rocking action, the springs at opposite sides of the apparatus will be alternately increased in tension to resist the rocking action, thus requiring the output of physical energy to perform the rocking action.

In addition to such action, the user may grasp the hand rails 20 and lift the upper portion of his body, maintaining it stiff and straight while the heels are supported on the element 78. This is an excellent exercise for strengthening arm and back muscles.

Another excellent exercise is provided by the elastic elements 32. The user may grasp these elements in his hands and by exerting force thereon may first stretch these elements towards his feet and then back toward his head. These exercises with the two hands may be performed in unison or one elastic element may be moved longitudinally toward the feet, while the other is being moved by the other hand in the opposite direction. Thus it will be apparent that the apparatus is capable of providing for a substantial variety of physical exercises which will be of importance in maintaining the physical condition of the user.

From the foregoing it will now be seen that there is provided herein an improved exercise apparatus which accomplishes all of the objects of this invention and others, including many advantages of great practical utility and commercial importance.

As various embodiments may be made of this inventive concept, and as many modifications may be made in the embodiment hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative, and not in a limiting sense.

I claim:

1. An exercise apparatus comprising a frame, a body-supporting cradle mounted in said frame, means for supporting said cradle for rocking movement on a fixed axis, means for resisting rocking movement of said cradle in either direction from a normal position, said frame elongated in the direction of the height of the user on said cradle, said cradle being arranged adjacent one end of said frame, said frame including posts at said end thereof and vertical posts intermediate the ends of said frame, and resilient elements connected to and extending between said end and intermediate posts at each side of said frame.

2. Apparatus according to claim 1 wherein said frame includes hand rails above and parallel to each resilient element and connected between said posts at each side of said frame.

3. An exercise apparatus comprising a frame, a body-supporting cradle mounted in said frame, means for supporting said cradle for rocking movement on a fixed axis, means for resisting rocking movement of said cradle in either direction from a normal position, said frame elongated in the direction of the height of a user on said cradle, said means for supporting said cradle for rocking movement comprising arcuate rails arranged beneath and fixed to said cradle and grooved rollers spaced from each other transversely of said frame and engaging said rails, resilient means for opposing rocking movement of said cradle, said resilient means comprising a member rigidly connected to said cradle therebeneath and centrally thereof, and tension springs connected at their inner ends to said member and at their outer ends to side portions of said frame.

4. Apparatus according to claim 3 wherein a plurality of springs are employed at each side of the center of said cradle, the springs at each side of said cradle diverging outwardly toward and secured to portions of said frame.

5. Apparatus according to claim 4 wherein the other end of said frame is provided with vertical posts and spaced horizontally connecting braces therebetween, and upper and lower shoe-engaging elements carried by said horizontal braces, the upper shoe element having a vertical wall facing away from the user and covered with nonabrasive material to engage toe portions of the shoes of the user, the lower shoe engaging element having a horizontal wall covered with nonabrasive material and engageable behind the heel portion of the shoe of the user, one of said shoe-engaging elements being vertically adjustable.

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