United States Patent

Kane

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[54] PUSH-PULL SPRING-TYPE EXERCISING DEVICE

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[52] U.S. Cl. ..... 272/83 R, 272/62, 272/DIG. 4

[51] Int. Cl. A63b 21/20, A63b 23/04, A63b 23/02

[58] Field of Search ..... 272/83 R, 82, 79 R, 80, 81, 272/DIG. 4, DIG. 5

[56] References Cited

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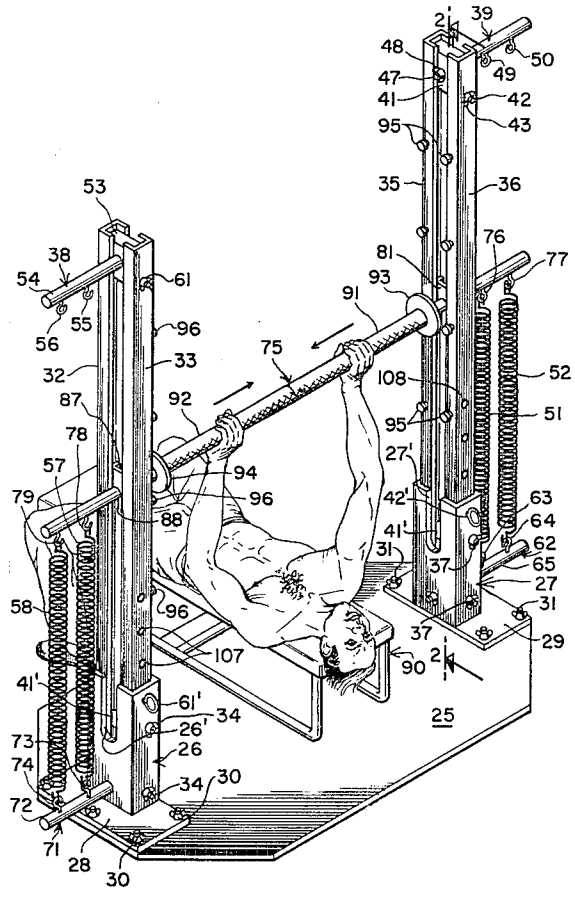
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[57] ABSTRACT

An exercising apparatus for bar bell-type exercises for the development and strengthening of major portions of the body including arms and legs, in which the forces are provided by resisting springs with the same freedom that weights are used in connection with the bar bells themselves and which are used in connection with the bar bells themselves and which includes a horizontal work bar that can be vertically connected to springs at its opposite ends and the spring force resisted intermediate its ends while the user is positioned between vertical guides. Top, bottom and vertically adjustable intermediate spring arm supports are detachably carried on opposing channel supports. Parts are provided so that the arm supports can be easily adjusted or disassembled and the bar is carried in sliding bar guides adapted to be adjusted in and between space formed by opposed channel guides extending vertically and held upon the base by insertion at their lower ends into laterally-spaced sleeve supports. Knob projections are provided upon the vertical channel guides and upon the work bar are disposed sleeve disc assemblies adapted to be engage the knob projections of the vertical guides to support the bar when not being used and which can, by the user of the bar, be easily slid out of engagement with the knob projections when the bar is to be worked against the action of the springs.

6 Claims, 8 Drawing Figures



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SHEET 1 OF 2

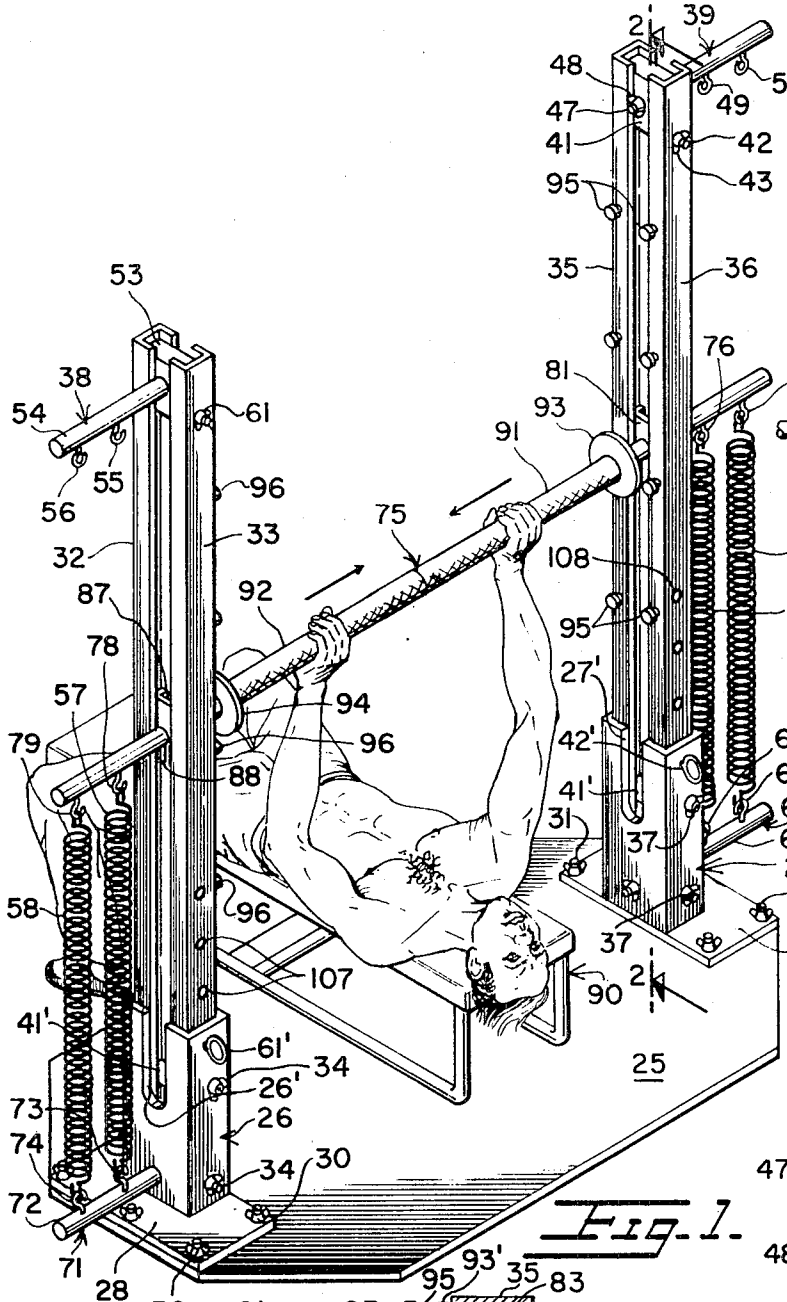


Fig. 1.

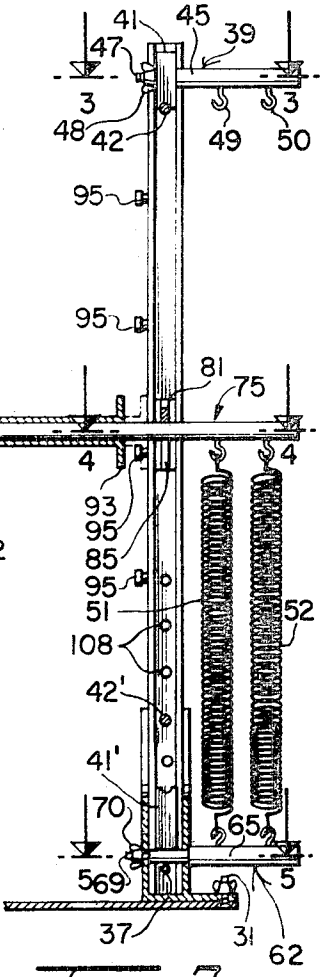


Fig. 2.

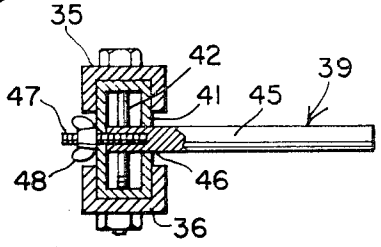


Fig. 3.

Fig. 4.

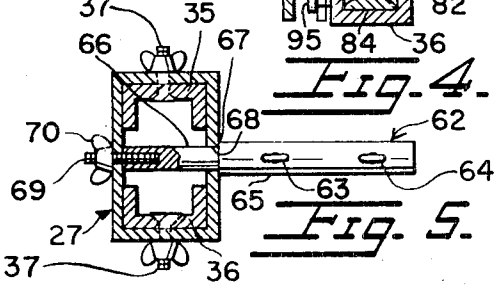


Fig. 5.

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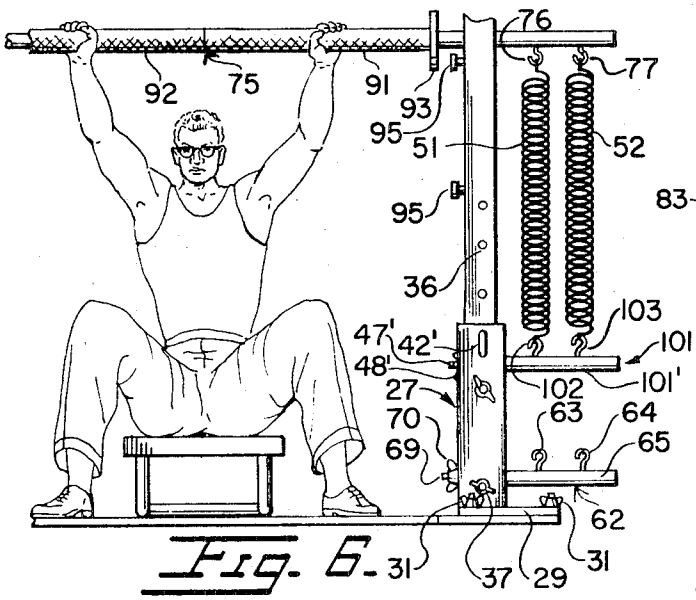


Fig. 6.

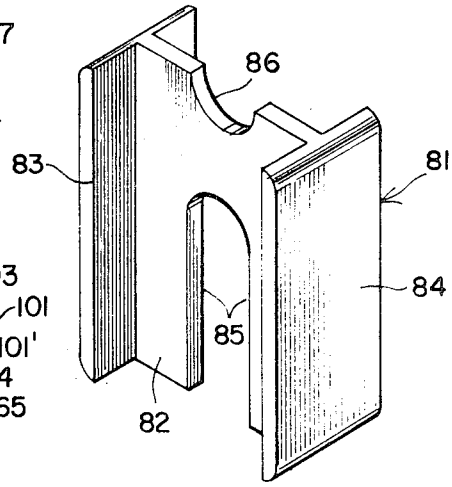


Fig. 7.

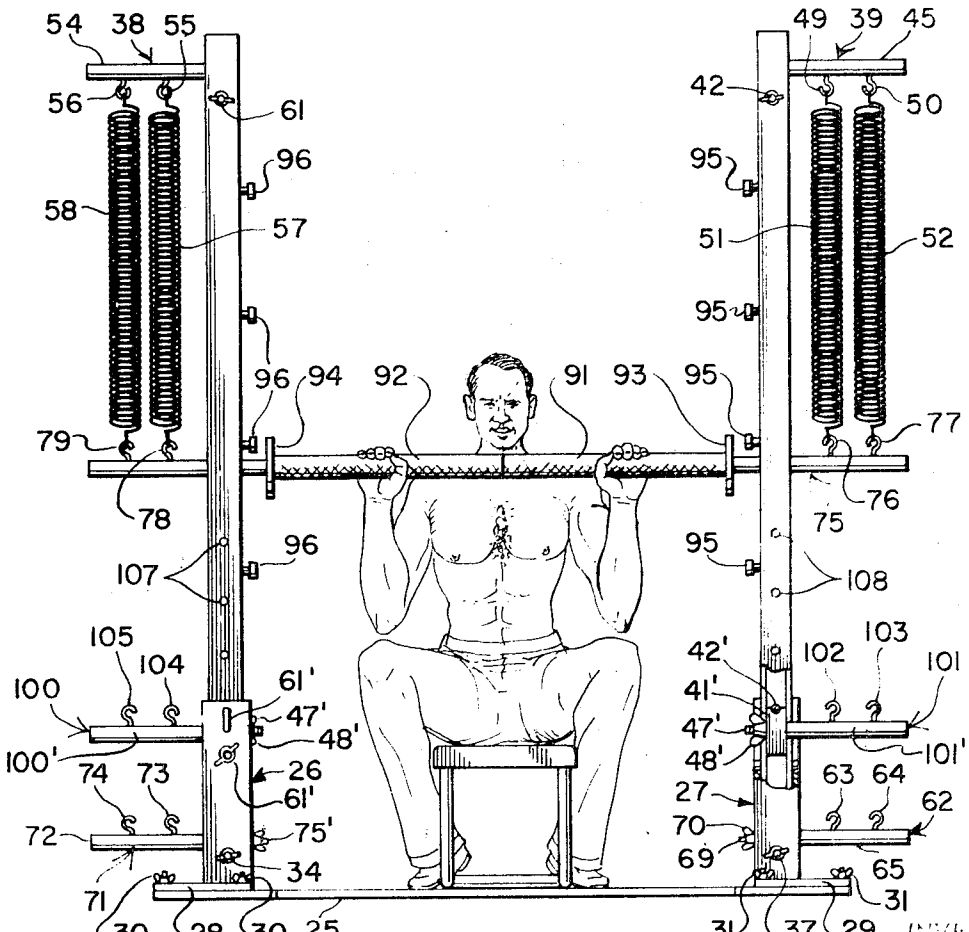


Fig. 8.

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PUSH-PULL SPRING-TYPE EXERCISING DEVICE

This invention relates to an exercising apparatus of the barbell type in which springs are employed in lieu of the barbell weights.

It is the principal object of the invention to provide a knockdown spring barbell-like apparatus which can be easily assembled for use or disassembled to consume little space for shipment or storage.

It is another object of the invention to provide an exercising apparatus of the barbell like in which the parts can be arranged and rearranged for the different exercises and the springs attached between the supporting arm parts readily and even while the user is positioned within the apparatus so that the different exercises can be effected with less difficulty than with the ordinary barbells which require the use of heavy weights.

It is another object of the invention to provide an apparatus that can be adapted for the different exercises so that the different exercises can be made much the same as with a barbell and wherein there is principally only but three different setups of the apparatus that will give the full advantage for a number of the principal exercises that can normally be effected with the barbells.

It is still another object of the invention to provide a simple device associated with the working bar for the securement of the working bar in place upon the upright channel guide members and against displacement by the springs and which can be easily disengaged upon the bar and from the vertical supports so that the exercise can be effected with such freedom as with an ordinary barbell yet using the springs for the resisting weights.

It is a further object of the invention to provide a barbell-like exercising apparatus that makes possible all of the barbell-like exercises through movement of work bar in up and down directions and which is controlled in its movements by vertically extending channel for the bar guides and which are adapted to support the bar in its highest position so that chinning and other hanging-type exercises can be performed by the user.

Other objects of the invention are to provide a barbell-type exercising apparatus with above objects in mind, which is of simple construction, inexpensive to manufacture, easy to assemble and disassemble, durable, strong and effective, and efficient in use.

For a better understanding of the invention, reference may be had to the detailed description of the invention taken in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view of the barbell-like exercising apparatus embodying the features of the present invention and illustrating the manner in which the apparatus is used for a prone press exercise.

FIG. 2 is a vertical sectional view taken along line 2—2 at right side of the apparatus.

FIG. 3 is an enlarged horizontal sectional view taken at line 3—3 of FIG. 2 and of a top laterally extending spring support arm.

FIG. 4 is a fragmentary horizontally extending sectional view taken on line 4—4 of FIG. 2 and through the work bar support and illustration being made as to the inward sliding movement of the sleeve disc latch.

FIG. 5 is an enlarged horizontal sectional view of the bottom spring support arm at one side of the apparatus and as viewed on line 5—5 of FIG. 2.

FIG. 6 is a fragmentary elevational view of the right side of the apparatus wherein the work springs are connected between the bar end and the immediate lateral spring support arm.

FIG. 7 is an enlarged perspective view of the bar guide slide.

FIG. 8 is a front elevational view of the apparatus with the springs being attached between the upper spring support arm at the top of the vertical supports and at the laterally and outwardly extending ends of the work bar with illustration being made to a sitting pull down exercise.

Referring now to the figures, 25 represents a flat base to the lateral side ends of which there are respectively supported in transverse alignment with one another, vertical sleeve support structures 26 and 27 respectively having bases 28 and 29 which are detachably connected to the flat base 25 by flat-heated bolts and wing nut means 30 and 31.

The vertical support structure 26 carries opposing channel guides 32 and 33 removably fitted at their lower ends into the support structure 26 and retained therein against upward displacement by flat-headed bolt and wing nut means 34.

At the opposite side of the apparatus is shown a similar arrangement of opposing channel guides 35 and 36, removably fitted at the lower ends into the vertical support structure 27 and retained against vertical displacement by flat-headed bolt and wing nut means 37, as best shown in FIG. 5.

The upper ends of the opposing channel guides 32 and 33 at the left side of the apparatus are held apart by a laterally extending spring arm assembly 38 while the opposing channel guides 35 and 36 at the right side of the apparatus are held apart by a laterally extending spring arm assembly 39. The construction of these assemblies 38 and 39 are best shown in section in FIG. 3 with reference to the assembly 39, and of which the spring arm assembly is similar.

The left spring arm assembly has a hollow block 41 that spans the space between the vertical channel guides 35 and 36 and are supported against downward displacement by a long-headed bolt and wing nut assembly 42 to hold the channel guides 35 and 36 against the hollow block 41 and in proper spaced relationship to provide a guideway for a work bar guide as will be apparent as the description proceeds. This block member 41 removably carries the upper spring arm rod 45 which extends into a hole 46 in the side of the block 41 and held in abutting relationship against the inner face of the opposite side of the block 41 by means of a stud bolt 47 carried on the inner end of the rod 45 and extending through a hole in the opposite side of the block 41 and made secure thereagainst by a wing nut 48. The rod 45 of the spring arm support 39 has depending hooks 49 and 50 spaced from each other by which work springs 51 and 52 may be respectively attached to the rod 45 as shown in FIG. 8.

The spring arm assembly 38 has a similar construction and includes a hollow block 53 and a laterally extending rod 54 having depending hooks 55 and 56 for the securement thereto of work springs 57 and 58, as best shown in FIG. 8, when the springs are to be used for an exercise in which the force applied on the bar in a downward manner and against the upward pull of the springs, such as for the sitting pull down exercise. The lateral spring arm supporting assembly 38 is held elevated by a long bolt and wing nut assembly 61.

As shown in FIGS. 1 and 2, with the apparatus arranged for the prone press exercise, the lower ends of the right work springs 51 and 52 are connected to a bottom spring arm assembly 62 having upwardly extending hooks 63 and 64 to which the respective spring ends are connected. This spring arm assembly 62 is shown in detail in FIG. 5 and comprises a laterally extending rod 65 having a reduced diameter portion 66 and a shoulder 67 that abuts the outer face of the sleeve support 27 upon the reduced diameter portion 66 being extended through a hole 68 in the sleeve support 27 and engaged with the opposite wall of the sleeve support 27 wherein the rod 65 is made secure by a stud bolt 69 fixed in the end of the reduced diameter portion 66 of the rod 65 and extending through the opposite wall of the sleeve support 27 and made secure to hold the end of rod 65 shouldered against the inner face of the opposite wall of the sleeve support 17 by a wing nut 70.

At the left side of the apparatus, a bottom spring supporting arm assembly 71 is provided. This spring arm assembly 71 includes a laterally extending rod 72 having upwardly extending hooks 73 and 74 to which the lower ends of springs 57 and 58 are respectively connected as shown in FIG. 1. The rod 72 extends through the left sleeve support 26 and is made structure at the inner side thereof by a stud bolt and wing nut means 75'

and in the same manner as the bottom spring supporting arm 62 is made secure to the sleeve support 27.

Extending between and through the vertical channel guide assemblies is a work bar assembly 75, FIG. 1, the opposite ends of which extend laterally outwardly of the vertical channel guides, and at the right side of the apparatus, has hooks 76 and 77 to which springs 51 and 52 are connected and while their opposite ends are connected respectively to hooks 63 and 64 of the bottom spring supporting arm assembly 62. At the left side of the apparatus as viewed in FIG. 1, the work bar 75 has depending hooks 78 and 79 to which the upper ends of springs 57 and 58 are respectively attached while their lower ends are respectively connected to bottom spring supporting arm hooks 73 and 74.

In the space between the opposing channel guides 35 and 36 at the right side of the apparatus is a bar guide 81 such as shown in the enlarged view of FIG. 7 and which has a web 82 and opposite guide flanges 83 and 84 that slide in the channel guides 35 and 36. The web portion 82 has an upwardly extending slot 85 adapted to receive the bar 75 and a depression 86 in vertical alignment therewith for no particular purpose. The edges of the guide flanges 83 and 84 are preferably chamfered to facilitate the sliding movement bar guide 81 in the channel guides 35 and 36.

At the left side of the apparatus, a bar guide 87 similar to that shown in FIG. 7 is slidably contained between the opposing channels 32 and 33 and which has an elongated slot 88 in its web through which the work bar 75 extends to the left of the apparatus. It should now be apparent that with this work bar, with the user lying on his back as shown in FIG. 1, upon a bench 90 that the bar can be worked upwardly against the action of the work springs connected to the bar and anchored to the bottom spring arm assemblies 62 and 71. The bar guides 81 and 87 are carried on the work bar 75 and are free to slide therewith in the opposing channel guides. The user may detach the spring end from the bar when lying on his back in the exercise position by reaching over to the opposite sides with the bar down and tension taken off the springs.

When the work bar 75 is not being put to use, the work bar and its guides 81 and 87 can be supported and the springs detached by right and left slide sleeve disc latch assemblies 91 and 92, slidable upon the bar, and having respectively end discs 93 and 94 that will engage with any one of a pair of knob projections 95 and 96 extending laterally inwardly from the sides of the vertically extending opposing channels 35, 36 and 32, 33 and at vertically spaced elevations thereon. The disc 93 will be supported upon pairs of knob projections 95 extending inwardly from the flanges of the opposing vertically extending channel supports 35, 36 at the right side of the apparatus, and the disc 94 will be supported upon a pair of knob projections 96 extending inwardly from the flanges of the channel supports 32, 33. When it is desired to disengage the discs 93 and 94, the sleeve assemblies 91 and 92 are, as the discs are lifted above the knob portions 95 and 96, drawn together toward the center and as shown in FIG. 1, and thereby placing the full action of the spring upon the arms of the user. When the bar is free of the springs and rested upon the knob projections it can be used for exercises free of the springs such as chinning exercise.

When the user is through with the exercise, the springs are detached, the sleeve assemblies 91 and 92 are pushed outwardly and the discs 93 and 94 will be rested upon opposing pairs of knob projections 95 and 96 on the right and left vertical channels as best shown in FIGS. 2 and 4. When the apparatus is being used and the bar 75 is made free as shown in FIG. 4, the sleeve assembly 91 will assume a full line position. When the user is not doing the exercise, the disc 93 will be placed upon the knob projections 95 as shown in broken lines at 93'.

With exercises such as the military press, curls and shoulder shrugs, the lower ends of the springs will be connected to vertically adjustable intermediate spring supporting arm assemblies 100 and 101 as shown in FIGS. 6 and 8, that are readily removable from the vertical sleeve supports 26 and 27 and are constructed similar to the top spring arms 38 and 39 and best shown detail in FIG. 3. These intermediate spring arm assemblies 100 and 101 have hooks 102, 103 and 104, 105 to which the lower ends of the respective springs 51, 52 and 57, 58 are attached while the upper ends of the springs as shown in FIG. 6, will have been attached to the depending hooks 76, 77 and 78, 79 of the work bar 75 and the discs 93, 94. When the apparatus is not being used, and the springs detached, the bar will be supported upon knob projections 95 and 96. As illustrated in FIG. 6, a military press exercise is being performed with the spring detached and the sleeves 91 and 92 are pulled inwardly toward one another to release the bar 75 and allow the bar to be worked by the user upwardly and downwardly, forcing the bar upwardly and resist downward movement of the bar against the action of the pairs of springs 51, 52 and 57, 58 at the opposite sides of the apparatus.

As seen in FIG. 1, the top spring supporting arms 38, 39 are held against downward displacement by bolt and nut assemblies 42 and 61, the same being located under the hollow blocks 41 and 53, disposed between the opposing channels since these spring supporting arms 38 and 39 are held against downward displacement by the work springs. With the intermediate supporting arms 100 and 101, the same must be held against upward displacement and to accomplish this pull pins 42', 61' are extended through any set of adjusting holes 107 and 108 in the channel guides above the hollow parts 41' of the intermediate spring supporting arms 100 and 101 in order to prevent their upward displacement in the channel guides at different vertical heights.

Since the intermediate spring arm supports 100 and 101 may lie within the vertical support sleeves 26 and 27, and in order to permit their removal, enlarged depending slots 26' and 27' are provided through which rods 100' and 101' of the intermediate supports 100 and 101 can be laterally removed by the disengagement of their wing nuts 48' from rod studs 47'. After rods 100' and 101' are removed, the blocks 41' and 53' can be dropped onto the bottom rods 65 and 72 as seen in FIG. 2.

In FIG. 8, there is shown the apparatus set up for the back muscle building exercise wherein the work springs are secured to the top spring supporting arms 38 and 39 and depend downwardly for connection with the ends of the work bars. Here the exercise is effected by a pull down of the bar 75 against the action of the springs. When the apparatus is not in use, when the exercise has been concluded, the discs 93 and 94 may instead of engaging on top of the knob projections 95 and 96 at the bottom edges, can be pulled upwardly by the springs so that their top edges may engage the underside of the knob projections. When the apparatus is to be put into use, the latch sleeves 91 and 92 will, as illustrated in FIG. 8, be pulled inwardly so that the full force of the springs are being controlled by the user of the apparatus.

It should now be apparent that this apparatus can be set up for use of various exercises normally used with barbells and that the changeover of the springs between elevated and lowered positions for the different exercises can be effected easily by a mere connecting of the springs to the hooks of the spring supporting arms and that the intermediate supporting arm can be removed easily or adjusted to a different level when it is not being used for exercises where the lower ends of the springs are to be connected not so close to the floor as the exercises where the ends of the springs may be connected to the bottom supporting arms 62 and 71.

It will also be apparent that this apparatus is of the knockdown type and can be assembled and disassembled easily for purpose of shipment and storage, the assembly being more or less assembled with bolts and wing nuts and upon release of which, parts can be disassembled from one another.

It should be further apparent that the supporting arm assemblies 100 and 101 are similar to the assemblies 38 and 39 and can be interchanged with one another.

What is claimed is:

1. An exercising apparatus comprising a base platform, vertical sleeve supports removably secured to the platform, two pairs of vertically extending opposed channel guides secured at their lower ends in the vertical sleeve supports, bar guides freely slidable in the opposed channel guides, a work bar extending between the vertical supports through the bar guides and outwardly therebeyond, upper and lower spring supporting arm assemblies removably secured to the vertical sleeve supports and channel guides, work springs detachably connected between the outer ends of the work bar and any one of the spring supporting arm assemblies, a means carried by the work bar for aiding in securing the bar in a predetermined elevated position on the vertical channel guides, said means comprising two independently movable members that are attached to and manually movable laterally along the longitudinal axis of the work bar, and extended projections on the vertical channel guides that engage the movable members so as to support said work bar during one exercise program and to prevent vertical movement of the work bar during a different exercise program.

2. An exercising apparatus as defined in claim 1 wherein each said upper spring supporting arm assembly comprises a block disposed within each pair of said pairs of opposed channel guides, bolt means extending through the channel guides to hold the block against the channel guides, a rod extending into and carried by said block, and bolt and wing nut means for removably securing the rod to the block.

3. An exercising apparatus as defined in claim 1 further comprising a lower spring supporting arm assembly, said lower spring supporting arm assembly comprising a rod having a reduced portion extending through one side of one of the vertical sleeve supports and into engaging relationship with the other side of the said one of the vertical sleeve supports, and bolt and nut means on the rod for securing said rod to the said one of the said vertical sleeve supports.

4. An exercising device as defined in claim 1 further comprising an intermediate spring supporting arm assembly said intermediate spring supporting assembly comprising an intermediate block adapted to be fitted between one pair of said pair of opposing channel guides, a rod extending through the block and beyond the opposite side of said intermediate block, bolt and nut means for securing said rod to the intermediate block, said vertical sleeve supports having slots extending downwardly from the upper ends thereof to permit vertical adjustment of the intermediate spring supporting arm assemblies in the vertical sleeve supports, bolt extending through each of said vertical sleeve supports and opposed channel guide to support the block and the rod within each vertical sleeve support, and a removable pin extending through each of said vertical sleeve supports to hold the interspring supporting arm against upward displacement in each of said vertical sleeve supports.

5. An exercising apparatus as defined in claim 4 further comprising a series of vertically spaced adjusting holes in each pair of said pairs of vertically extending opposed channel guides for receiving the removable pin and thereby permit location of the spring arm assembly at different elevations upon the vertically extending opposed channel guides.

6. An exercising apparatus as defined in claim 1 further comprising a latch means, said latch means comprising vertically spaced pairs of knob projections provided on the respective pairs of said pairs of channel guides, a work bar said work bar having two separate sleeves axially adjustable along the work bar and each of said axially adjustable sleeves having a disc, each one of said discs adapted to span a pair of said pairs of knob projections thereby supporting the work bar when the work bar is not being used, said axially adjustable sleeves being inwardly adjustable by hands of a user to disengage the discs from the pair knob projections and free the work bar for use with the work springs.

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