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(54) REMOVABLE RECUMBENT SEAT ATTACHMENT FOR EXERCISE DEVICE

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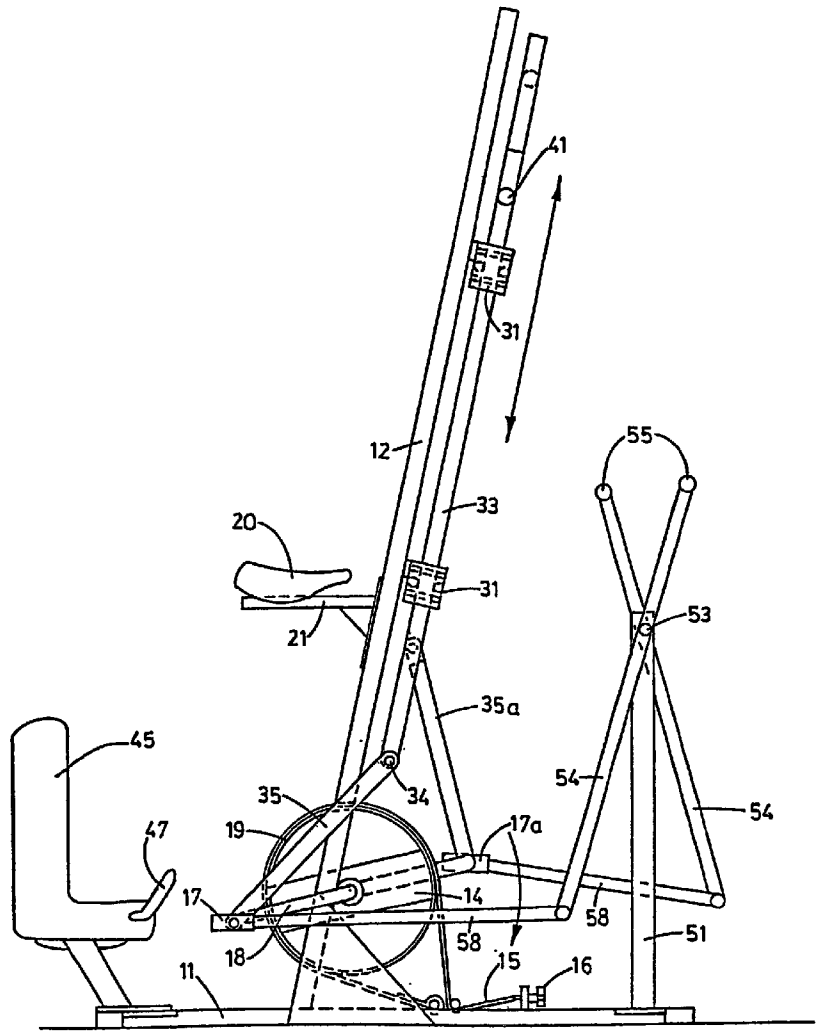
(57) **ABSTRACT**

The present invention provides the improvement of a free-standing base supporting a recumbent seat that may be used with any of a number of different existing pedal-operated exercise machines having only upright seats. The base is designed to be removably attached to the existing exercise machine to avoid separation during use, the seat being laterally and vertically adjustable by the user. In an alternative embodiment, the base and recumbent seat may be integrated into and made part of the underlying exercise device itself. Optional handles may also be provided on the recumbent seat.



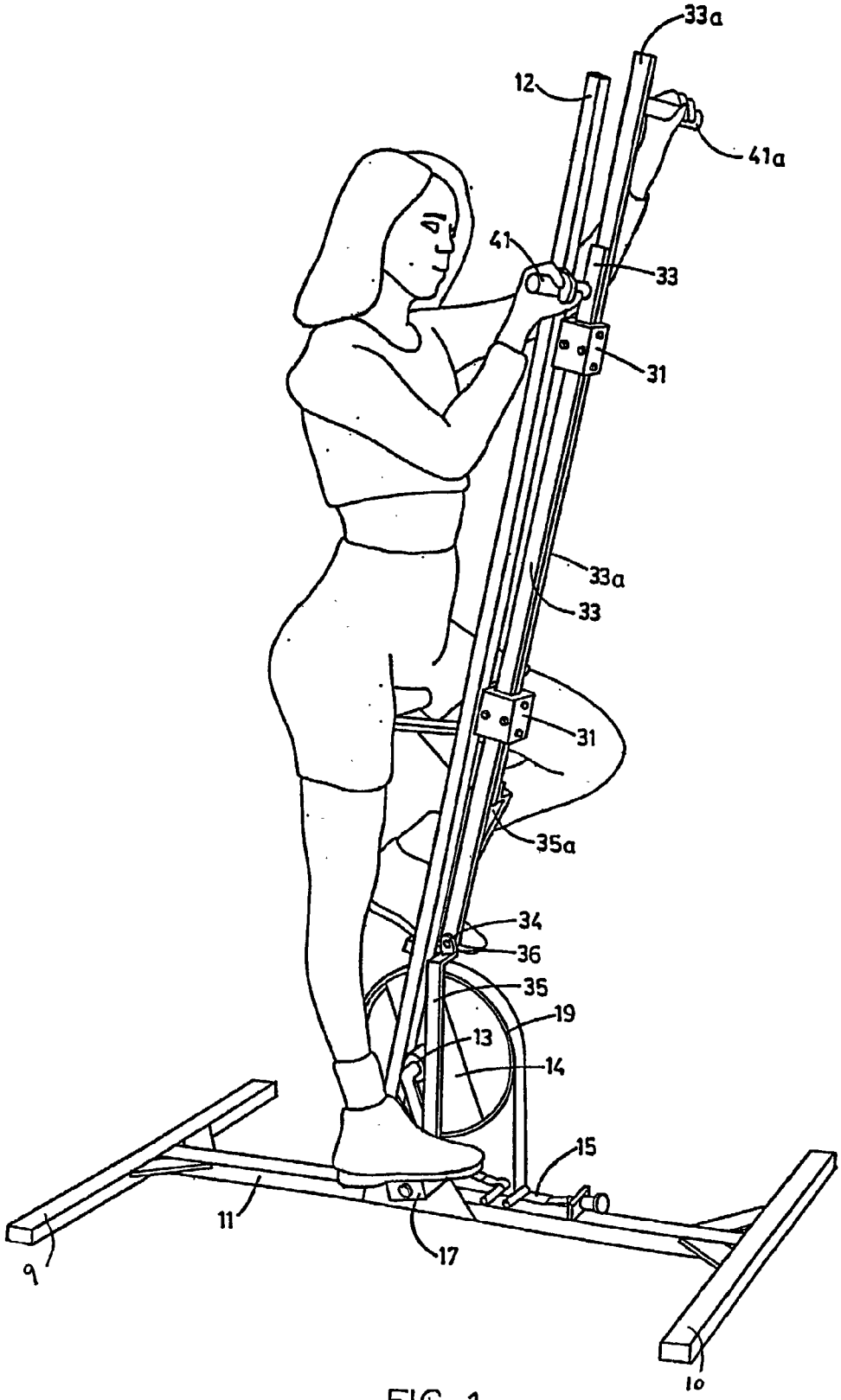


FIG. 1

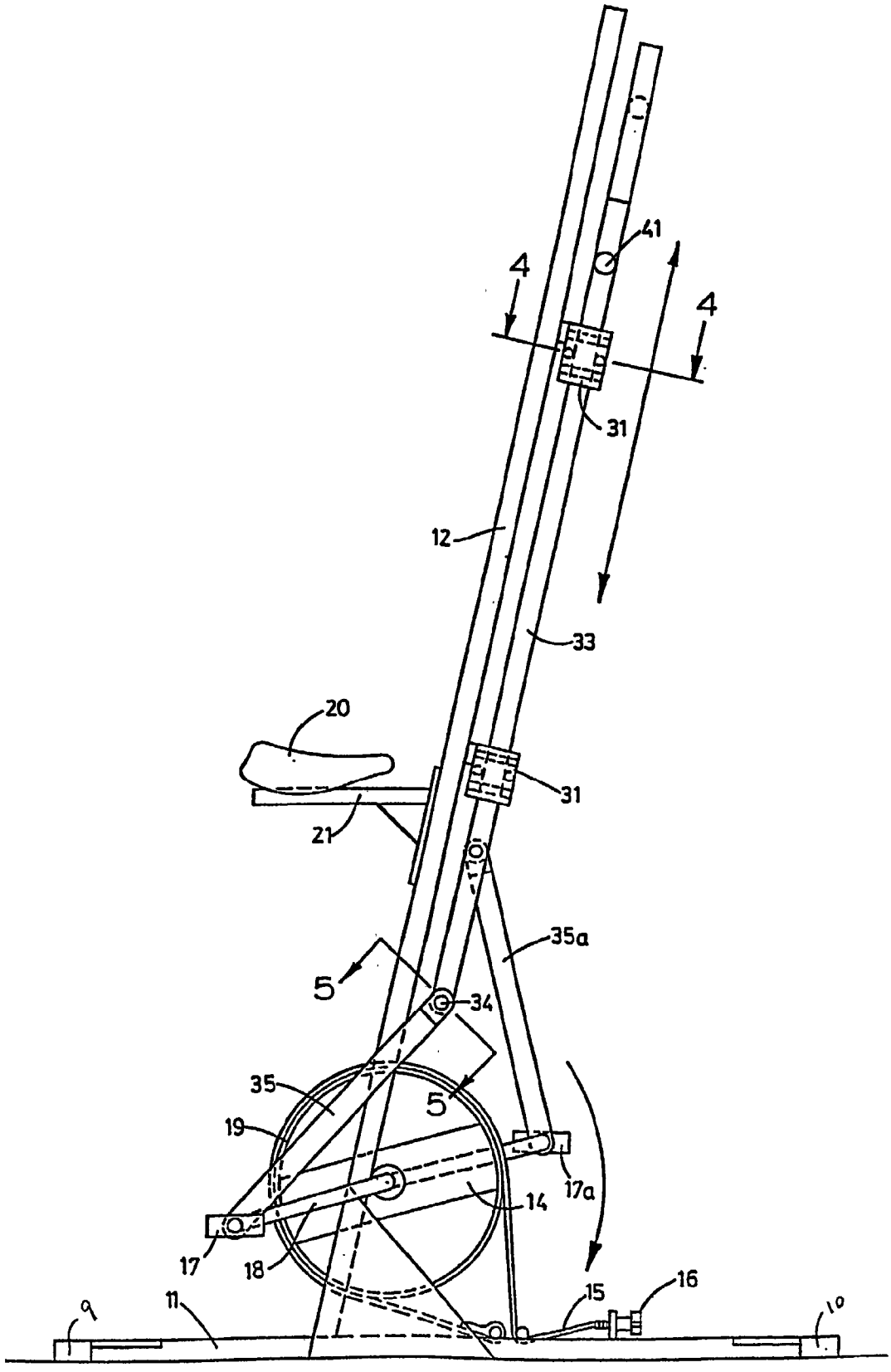
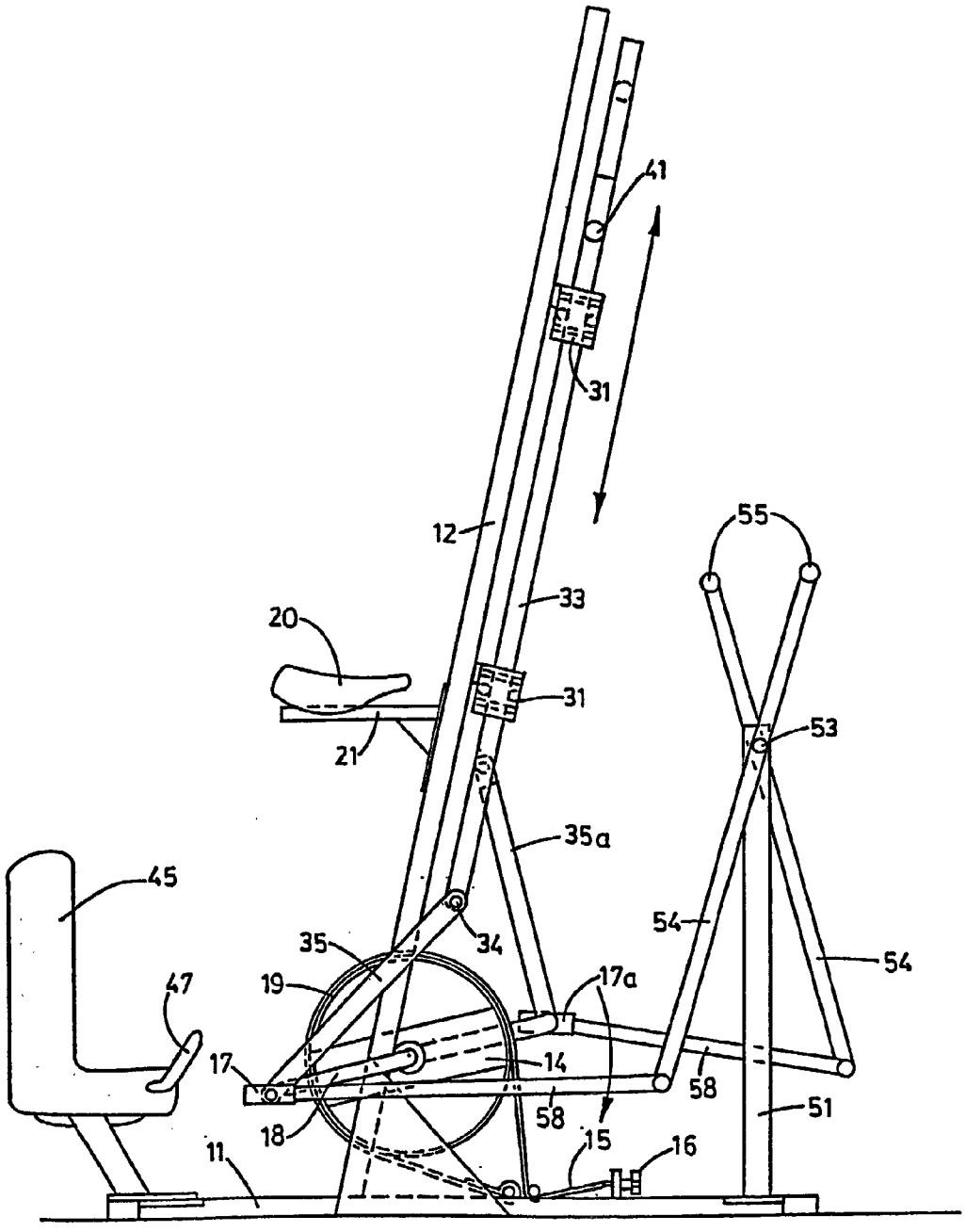


FIG. 2


41
31
12
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35a
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FIG. 2A

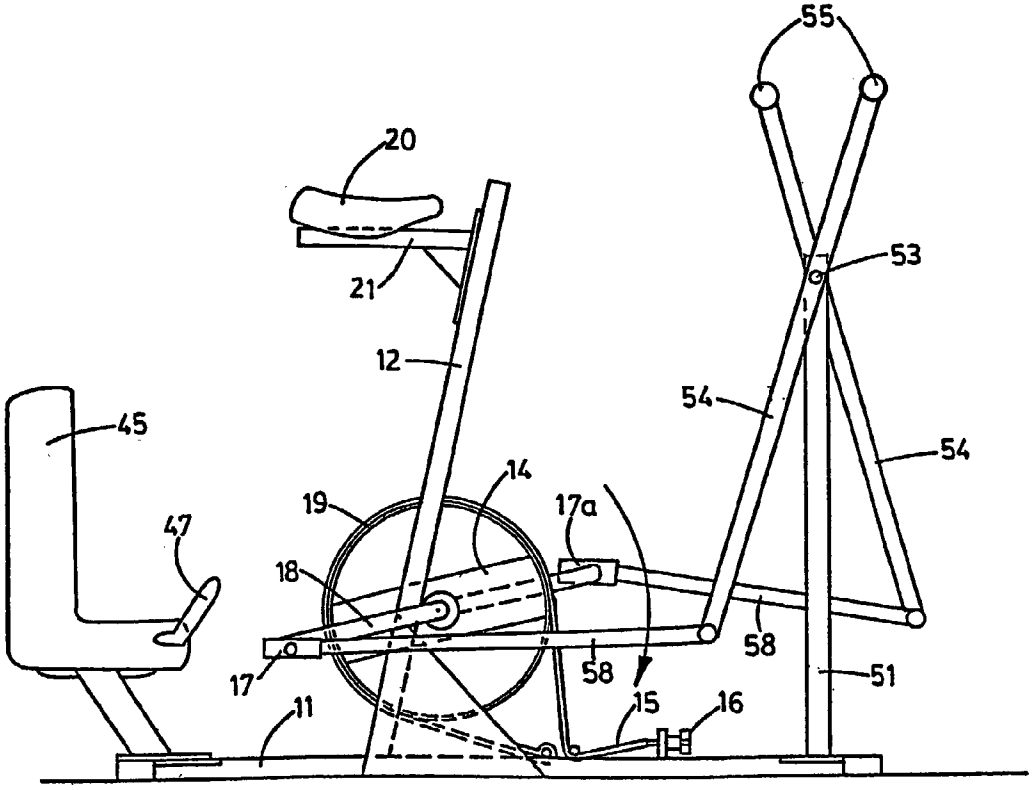

FIG. 2B

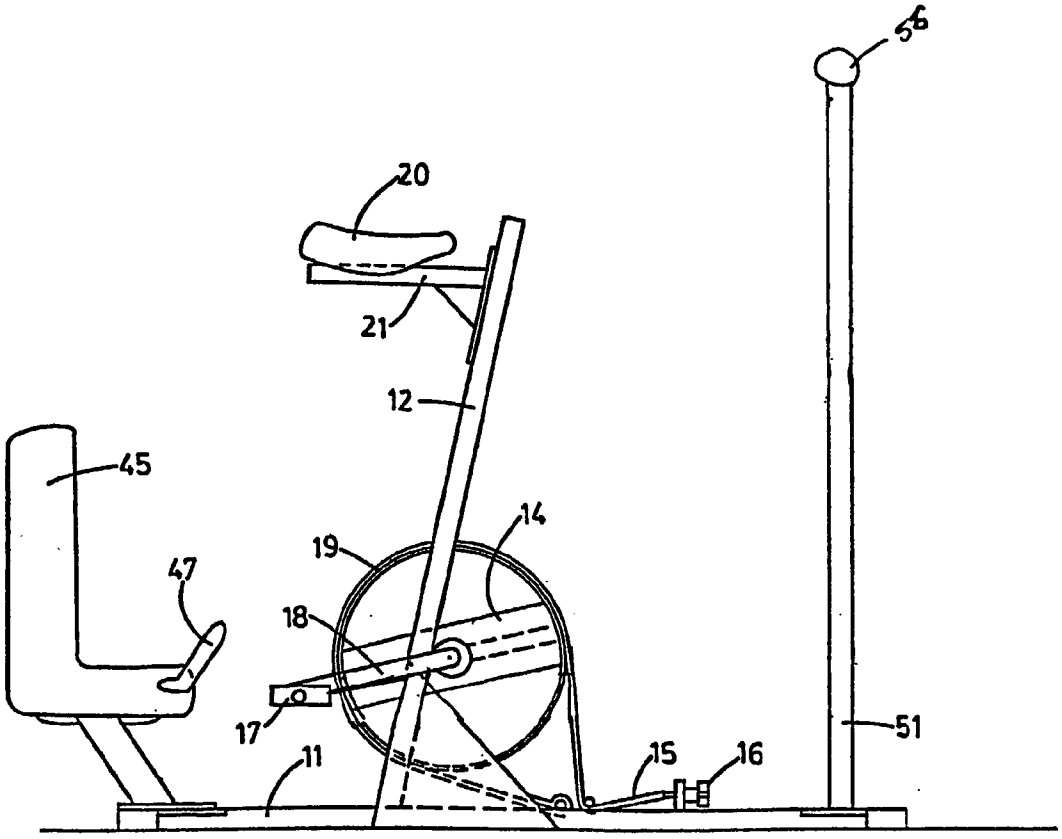

FIG. 2C

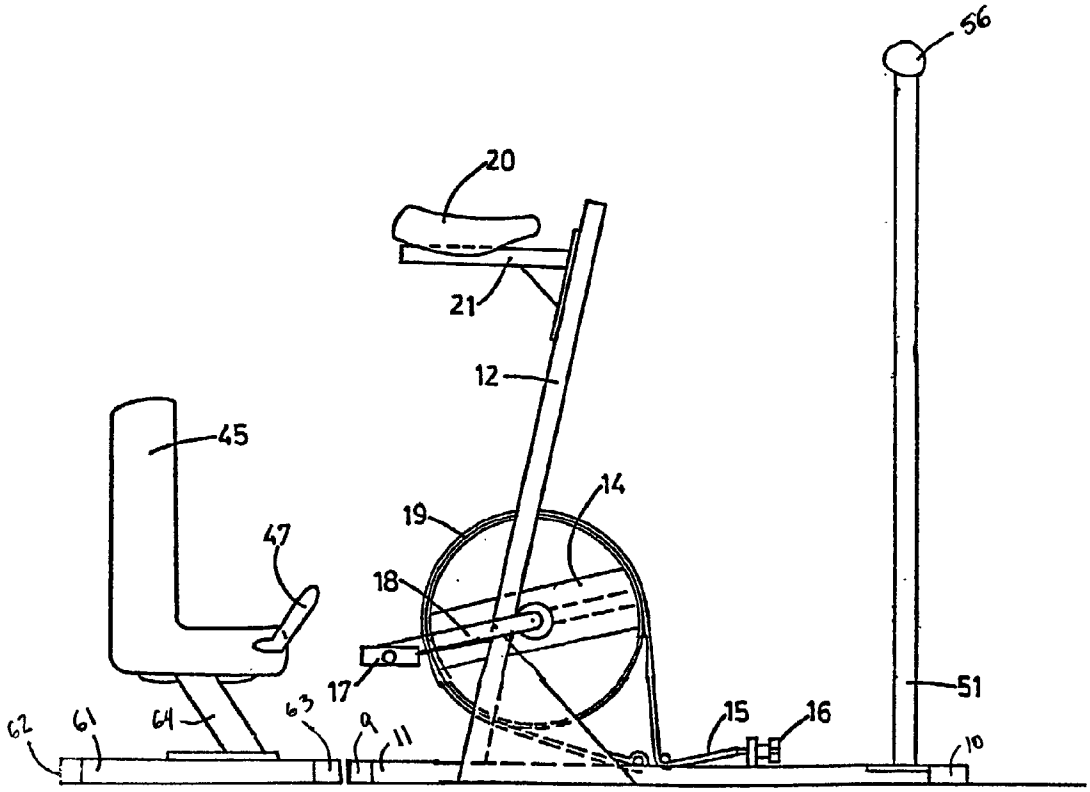

FIG. 2D

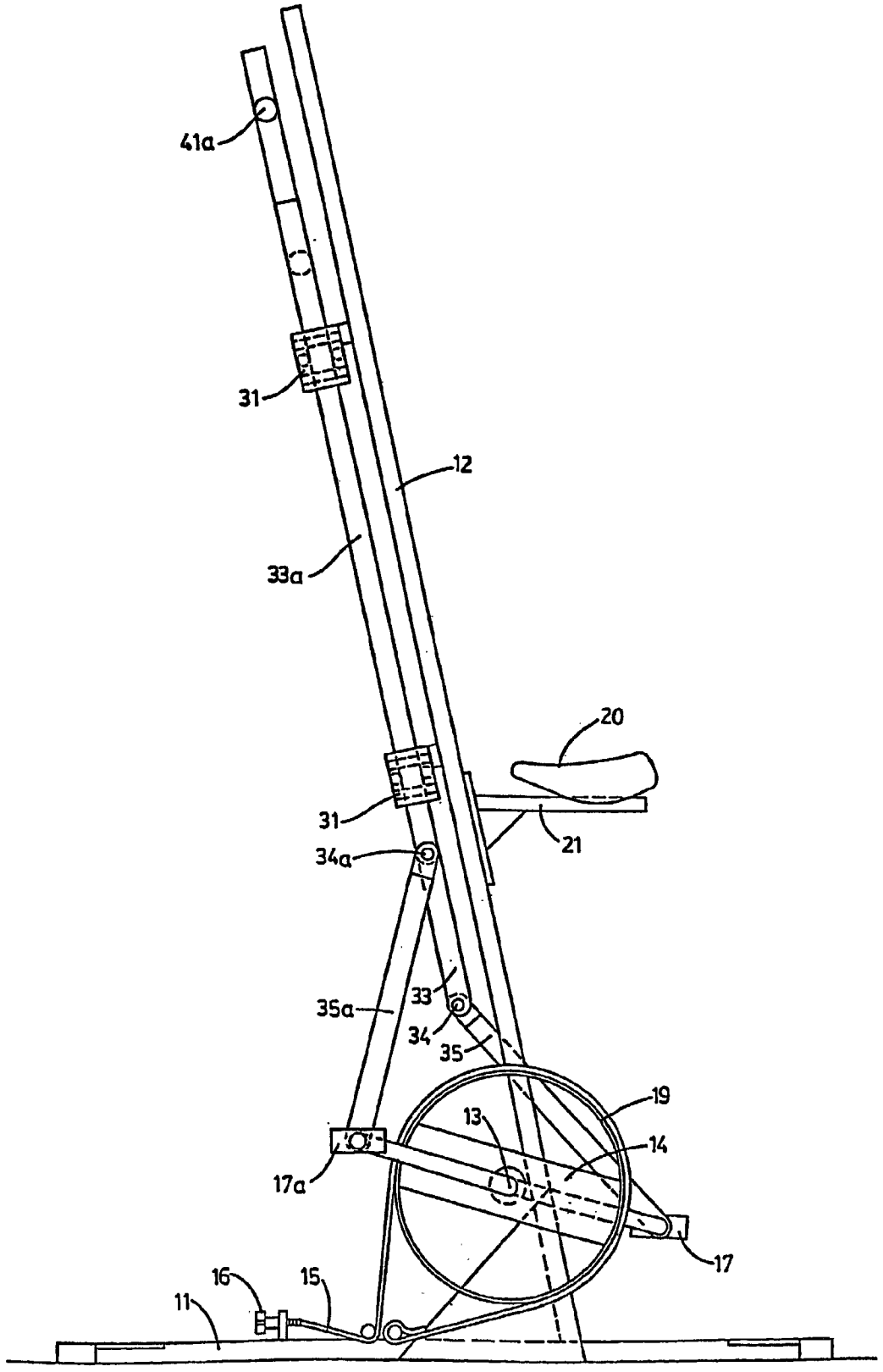

FIG. 3

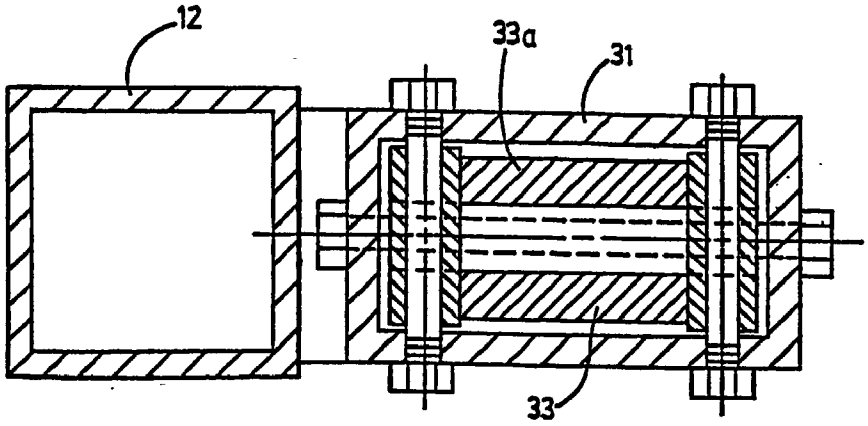

FIG. 4

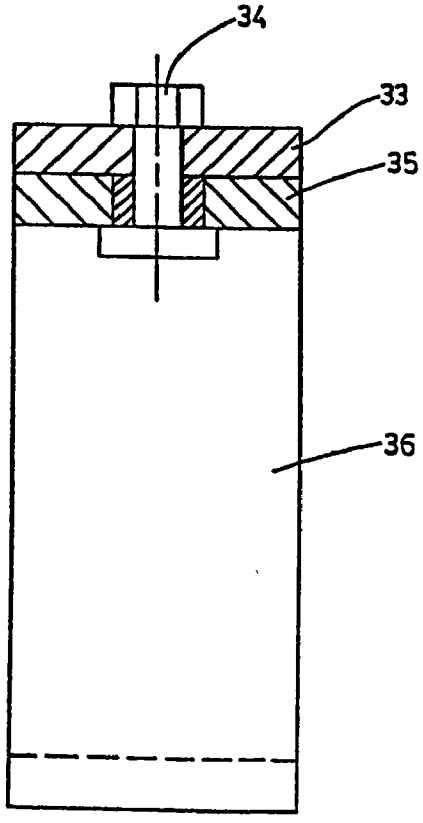

FIG. 5

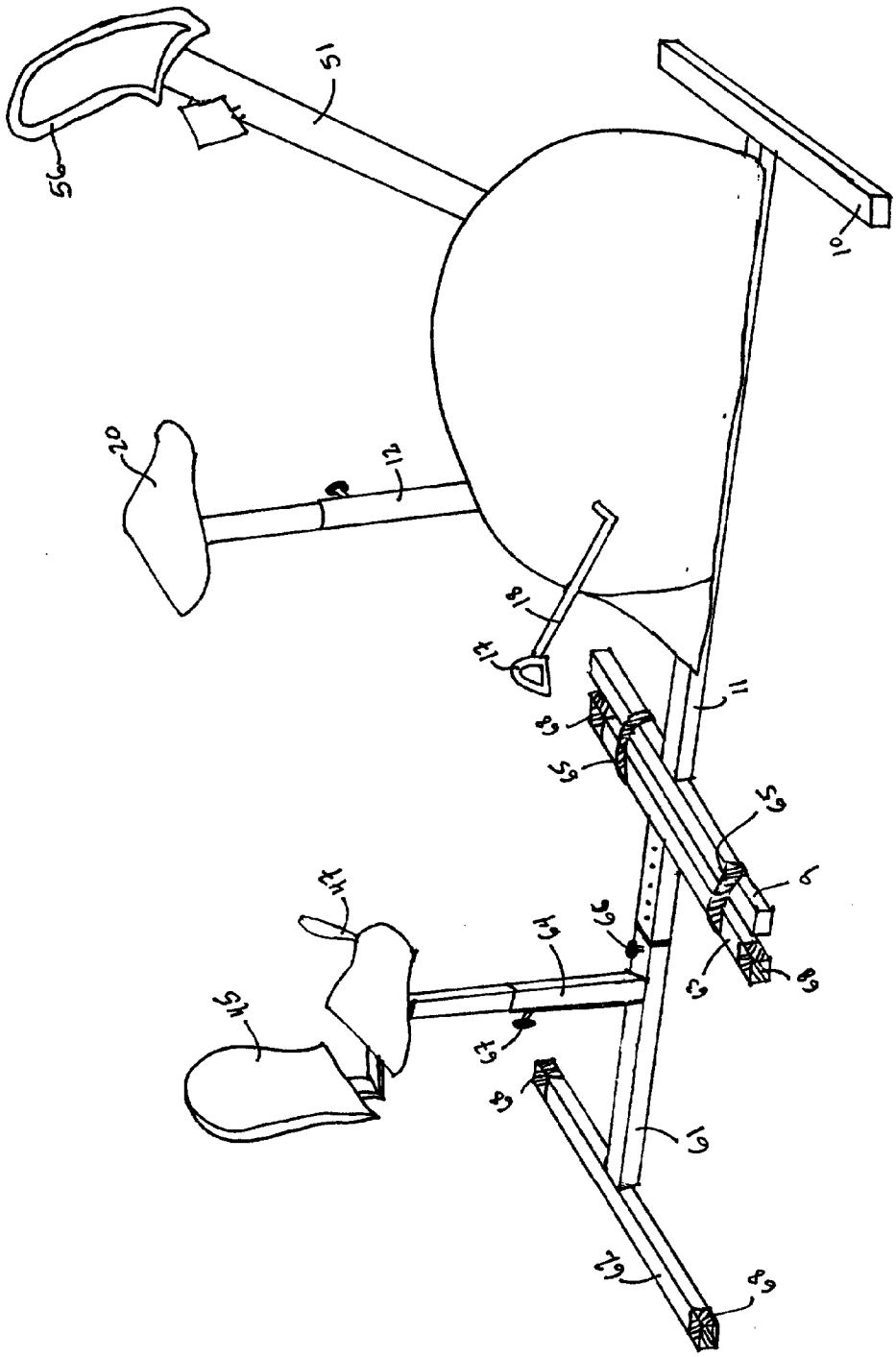

FIG. 6

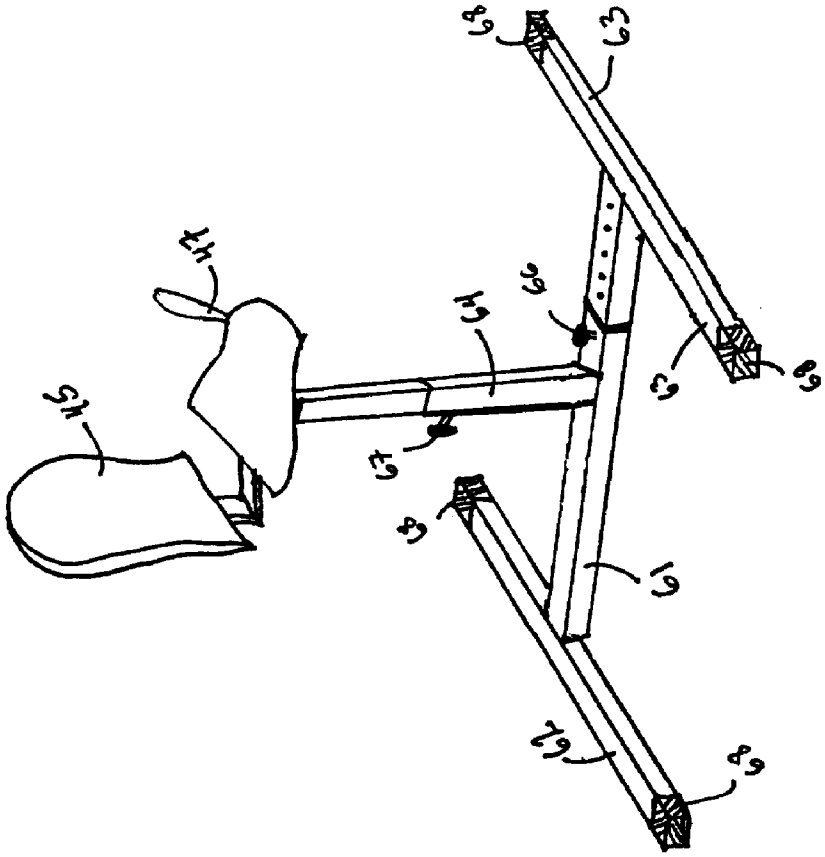

FIG. 7

REMOVABLE RECUMBENT SEAT ATTACHMENT FOR EXERCISE DEVICE

[0001] This is a continuation-in-part of application Ser. No. 09/709,915 filed Nov. 7, 2000 which claims the benefit of application Ser. No. 09/359,828 filed Jul. 23, 1999 (now U.S. Pat. No. 6,155,959) which claims the benefit of application Ser. No. 09/030,638 filed Feb. 25, 1998 (now U.S. Pat. No. 5,928,115 issued on Jul. 27, 1999) which claims the benefit of U.S. Provisional Application No. 60/039,815 filed on Feb. 26, 1997.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to exercise equipment, and more particularly to a removable recumbent seat attachment for use with an existing stationary exercise cycle.

[0004] 2. Description of the Prior Art

[0005] Numerous stationary exercise devices are known in the art, including stationary bicycles, treadmills, rowing machines, and stair stepping devices to name a few. Stationary cycle devices are ordinarily outfitted with a single adjustable seat that may be adjustably positioned such that when the user is seated therein, the user's arms reach the handle(s) and the user's feet reach the pedals. Some stationary cycles provide a single upright seat, while others provide a single recumbent seat. Unfortunately, for those cycles that provide the single upright seat, it is not possible or practical to move or adjust the seat into a recumbent position for exercising the legs for long periods of time. The availability of only the upright seat adds more strain and fatigue to the user's lower back during longer workouts, which may lead the user to shorten the workout thereby reducing the effectiveness of the exercise machine. It is therefore desirable to provide a recumbent seat alternative for existing exercise cycles having only an upright seat.

SUMMARY OF THE INVENTION

[0006] The present invention addresses this problem by providing an adjustable recumbent add-on seat that may be used in conjunction with a wide variety of upright stationary exercise cycles for use in exercising the legs over long periods of time. Most ordinary exercise cycles include a base that is deployed on the floor, the base supporting a chassis, seat and one or two upright handles. The chassis ordinarily contains the pedal mechanism for the cycle. The seat support and handle(s) may be attached either to or through the chassis, or directly to the base.

[0007] The present invention provides a independent and free-standing adjustable base that supports a recumbent seat that is adjustably mounted on a generally vertical standard. The base of the present invention is designed to be deployed directly behind and adjacent to an existing exercise cycle. The standard supporting the recumbent seat may be adjusted laterally relative to its base to bring the seat support as close to the exercise cycle as desired. The seat may also be adjusted vertically on the standard to properly position the seat. Both adjustments are made in order to allow the user's feet to reach the pedals of the exercise cycle while seated in the recumbent seat. This allows the user to lean back and exercise the legs. The base of the recumbent seat is preferably detachably engaged with the base supporting the cycle to avoid separation during use. In one embodiment, the recumbent seat may include a pair of gripping handles which are attached thereto. In another embodiment, the base for the free-standing recumbent seat is provided with frictional floor members to prevent movement of the base during use.

[0008] The present invention also provides a vertically oriented exercise device for working out both arms and legs simultaneously or independently. This device may be used with or without the recumbent seat. In the exercise device, a stationary base (main base) is provided having an adjustable vertical standard attached thereto. A rotatable pedal operated load wheel is provided near the bottom of the standard. Friction drag on the load wheel may be adjusted to make it easier or more difficult to rotate using the arms and/or the legs. A cushioned seat is provided for attachment to the standard at an adjustably convenient central location thereby allowing the user to comfortably sit thereon while also reaching the pedals attached to the load wheel. A pair of movable hand grips are provided near the upper end of the standard to be held by the user during exercise. Each of the hand grips is attached to a slidable vertical member, and each such member is attached through a set of pivoting linkages to the pedals on the load wheel. These linkages allow force applied to the hand grips to directly turn the load wheel. Thus, the legs independently, the arms independently, or both the arms and legs together may be used to turn the load wheel. As a result, without exiting or changing anything on the exerciser, the user may shift the emphasis of force back and forth from the arms to the legs during a given workout. The user may rest the legs while operating the device using only the arms, and vice versa.

[0009] In an alternative embodiment of the exercise device, it may independently or additionally include a second adjustable upright standard adjustably attached to the main base. This standard supports a pair of vertically oriented handle members which are pivotally attached at the top of the standard. A hand grip is provided at the top of each handle member. The bottom of each handle member is hingedly attached to one end of a motion transmission member. The opposite end of each motion transmission member is attached at the pivot of one of the load wheel pedals. Thus, as the pedals move around the wheel, oscillating motion is imparted to each transmission member, and thus to each handle member. Alternatively, as the handle members are moved back and forth, the load wheel can be turned. This allows the user to shift the emphasis of force from the arms to the legs without exiting the exercise device.

[0010] In another alternative embodiment of the exercise device, it may independently or additionally include a second adjustable upright standard adjustably attached to the main base for supporting a stationary handle.

[0011] In the preferred embodiment, the adjustable recumbent seat is provided with the exercise device of the present invention on either (1) a removable independent free-standing base, or (2) on the same main base as the exercise device itself. This allows the exercise device to be used as a recumbent exercise machine for exercising the legs. The recumbent seat also preferably includes a pair of gripping handles which are attached thereto.

[0012] It is therefore a primary object of the present invention to provide an adjustable recumbent seat and support device that may be used in conjunction with an

existing stationary exercise cycle to allow the user the option of exercising the legs for long periods of time from a recumbent position.

[0013] It is a further important object of the present invention to provide a simple and inexpensive free-standing apparatus for use with an existing stationary exercise cycle of a type having an upright seat that allows the user to exercise the legs from a recumbent position without requiring the purchase of an entirely new exercise cycle.

[0014] It is a further important object of the present invention to provide a stationary exercise machine having a pair of vertical standards, the first standard supporting a pedal operated load wheel, an adjustable seat, and a pair of slidable hand grips which are connected to the load wheel through a series of linkages thereby allowing the load wheel to be rotated by sliding the hand grips, and the second standard supporting an adjustable recumbent seat with optional handles attached thereto.

[0015] It is a further object of the present invention to provide a pair of stationary bases, the first base supporting a multiple-use exercise machine having two vertical standards, one standard supporting a load wheel, an adjustable seat, and a pair of slidable vertical members with handles and linkages to the load wheel for exercising the arms and legs, and the other standard supporting a set of oscillating handle members connected to the load wheel through a series of linkages for exercising the arms and legs; the second base supporting a third standard supporting an adjustable recumbent seat with optional handles attached thereto.

[0016] It is a further object of the present invention to provide a pair of stationary bases, the first base supporting a multiple-use exercise machine having two vertical standards, one standard supporting a load wheel, an adjustable seat, and a pair of slidable vertical members with handles and linkages to the load wheel for exercising the arms and legs, and the other standard supporting a set of stationary handle members; the second base supporting a third standard supporting an adjustable recumbent seat with optional handles attached thereto.

[0017] It is a further object of the present invention to provide a single stationary base for supporting a multiple-use exercise machine having three vertical standards, one standard supporting a load wheel, an adjustable seat, and a pair of slidable vertical members with handles and linkages to the load wheel for exercising the arms and legs; another standard supporting a set of oscillating handle members connected to the load wheel through a series of linkages for exercising the arms and legs; and a third standard supporting an adjustable recumbent seat with optional handles attached thereto.

[0018] It is a further object of the present invention to provide a single stationary base for supporting a multiple-use exercise machine having three vertical standards, one standard supporting a load wheel, an adjustable seat, and a pair of slidable vertical members with handles and linkages to the load wheel for exercising the arms and legs; another standard supporting a set of stationary handle members; and the third standard supporting an adjustable recumbent seat with optional handles attached thereto.

[0019] It is another object of the present invention to provide a stationary exercise machine which allows the user to operate the load wheel using the legs independently, the anms independently, or both the anms and legs together.

[0020] It is a further object of the present invention to provide a stationary exercise machine which allows the user to shift the emphasis of force back and forth from the arms to the legs during a given workout without exiting the machine or changing anything on it.

[0021] It is a further object of the present invention to provide a stationary exercise machine which allows the user to rest the legs while operating the device using only the arms.

[0022] It is a further object of the present invention to provide a stationary exercise machine which allows the user to rest the arms while operating the device using only the legs.

[0023] It is a further object of the present invention to provide stationary base supporting a load wheel with pedals and an adjustable seat with handles attached thereto for use as a recumbent exercise machine for exercising the legs.

[0024] It is a further object of the present invention to provide a pair of stationary bases, one base supporting a load wheel with pedals and an adjustable seat with handles attached thereto, and the other base supporting an adjustable recumbent seat for use with the exercise machine for exercising the legs

[0025] It is another object of the invention to provide an enjoyable exercise device.

[0026] Other objects of the invention will be apparent from the detailed descriptions and the claims herein

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] **FIG. 1** is a perspective view of the present invention showing a user resting on the adjustable seat with feet on the pedals and hands holding the slidable grips.

[0028] **FIG. 2** is a side view of the present invention showing internal aspects using phantom lines.

[0029] **FIG. 2A** is a side view of an alternative embodiment of the present invention showing a single base supporting a first standard for supporting the slidable vertical members, a second standard for supporting a second set of handles, and a third standard for supporting a recumbent seat.

[0030] **FIG. 2B** is a side view of an alternative embodiment of the present invention showing a single base supporting a first standard for supporting a first seat, a second standard for supporting a set of handles and linkages, and a third standard for supporting a recumbent seat.

[0031] **FIG. 2C** is a side view of another alternative embodiment of the present invention showing a single base supporting a first standard for supporting a first seat, a second standard for supporting a stationary handle means, and a third standard for supporting a recumbent seat.

[0032] **FIG. 2D** is a side view of another alternative embodiment of the present invention showing a combination of two bases, the first base supporting a first standard and seat, and a second standard for supporting a handle means, and a second base supporting a third standard for supporting a recumbent seat.

[0033] **FIG. 3** is an opposite side view of **FIG. 2** showing internal aspects using phantom lines.

[0034] **FIG. 4** is a cut away view along line **4-4** of **FIG. 2**.

[0035] **FIG. 5** is a cut away view along line **5-5** of **FIG. 2**.

[0036] **FIG. 6** is a perspective view of the free-standing base and seat support of the present invention detachably engaged behind a typical exercise machine.

[0037] **FIG. 7** is a perspective view of the free-standing base and seat support of the present invention.

DETAILED DESCRIPTION OF THE DRAWINGS

[0038] Referring to the drawings wherein like reference characters designate like or corresponding parts throughout the several views, and referring particularly to **FIG. 7**, it is seen that the improvement of the present invention is a free-standing stationary base **61** having front and back leg members **62** and **63**. An upright standard **64** is attached to base **61**. Standard **64** may extend upward vertically, or may extend upward at an angle such that recumbent seat **45** leans slightly back. Base **61** supporting seat **45** is adjustable with respect to front leg **63** in order to allow the position of standard **64** and associated seat **45** to be adjusted relative to the front of the assembly. The adjusted position may then be fixed using an appropriate means such as knob **66** inserted into the corresponding opening on base **61**. Similarly, the vertical position of seat **45** may be adjusted on standard **64** using an appropriate means such as knob **67** inserted into the corresponding opening on standard **64**. A single handle or a pair of handles **47** may optionally be provided on seat **45** for the user to grip with the hands while exercising. Seat **45** may be of any suitable form, such as the single unit seat shown in **FIG. 2**D, or a multi-part seat shown in **FIGS. 6 and 7**.

[0039] Turning to **FIG. 6**, it is seen that the free-standing base **61** supporting recumbent seat **45** is designed for placement directly behind the base **11** of a typical exercise device. Straps, bolts, clamps or other suitable means **65** may be used to removably attach the front leg **63** of free-standing base **61** to the back leg **9** (or other similar support structure) of the exercise device in order to prevent base **61** from separating from base **11** of the exercise device during use. Alternatively or in addition to the removable attachment means **65**, a plurality of frictional members **68** may be provided to prevent slippage of legs **62** and **63** on the support surface where deployed. Frictional members **68** may be made of any suitable material such as rubber or plastic, and may be provided with an appropriate pattern for maximizing frictional contact with the underlying surface.

[0040] FIGS. **2**A-**2**C illustrate different embodiments of the combination of the recumbent seat with different versions of an exercise device on a single base. It is to be appreciated that the recumbent seat **45** may be provided on the same base **11** with any one of a host of different exercise machines, the illustrations simply providing some examples of such machines.

[0041] **FIGS. 2D and 6** are illustrations of examples of the free standing version of base **61** with legs **62** and **63** supporting the recumbent seat **45** deployed with different exercise devices. It is likewise to be appreciated that the adjustable recumbent seat **45** may be provided on the free-standing base **61** and used with any one of a host of different exercise devices, the illustrations simply providing some examples of such devices.

[0042] Referring to FIGS. **1-3** it is seen that the exercise device of the present invention includes a support base **11** having a vertical standard **12** attached thereto. The load wheel **14** is rotatably attached to standard **12** near the bottom at pivot **13**. An adjustable tension strap **15** is wrapped around wheel **14** and may be tightened or loosened to adjust friction drag on the load wheel using adjustment screw **16** on base **11** A pair of pedals **17** (and **17***a*) are pivotally attached to the center of wheel **14**

[0043] Strap **15** is attached around the outer edge of wheel **14** and is mounted at either end on base **11**. One end of strap **15** is adjustable at **16** so as to allow different tension (friction) to be imparted to the wheel. The outer edge of wheel **14** is slidably (rotatably) attached to the wheel itself so that wheel **14** rotates inside edge **19**.

[0044] A seat **20** is provided which may be adjustably attached to standard **12** at almost any location using support bar **21**.

[0045] A pair of hand grips **41** (and **41***a*) are provided on the device. Grips **41** and **41***a* are attached, respectively, to the upper portions of slidable vertical members **33** and **33***a*. The positions of the hand grips may be adjusted to fit the user. At least two enclosures or housings **31** are provided along the length of standard **12** which guide, support and retain slidable members **33** and **33***a*. The lower ends of slidable members **33** and **33***a* are pivotally attached, respectively, to the upper ends of linking members **35** and **35***a* at pivots **34** and **34***a*. The lower ends of linking members **35** and **35***a* are pivotally attached, respectively, to the central pivots of pedals **17** and **17***a* (see **FIGS. 2 and 3**). This construction allows vertical force (whether up or down) applied to the hand grips to be transmitted through members **33** through linkages **34** and **35** to pedals **17** in order to rotate wheel **14**.

[0046] Detail of housing **31** is shown in **FIG. 4**. The housing **31** is made of two halves that are bolted together to allow firm support to members **33** while also making access possible for lubrication and repair A flange **36** is provided at the top of each of members **35** to provide clearance between member **35** and wheel **14** as shown in **FIGS. 1 and 5**.

[0047] In the alternative embodiments shown in **FIGS. 2A, 2B** and **2**C, it is seen that an adjustable seat **45** is provided on base **11**. Seat **45** may be laterally and vertically adjusted by the user for optimum distance from pedals **17**. Optional grip handles **47** may be provided on seat **45** for the user to hold him/herself in position while pedaling the load wheel in a recumbent position. Seat **45**, handles **47** and load wheel **14** with pedals **17** may be independently or additionally provided in the exercise device.

[0048] **FIGS. 2A, 2B** and **2**C also illustrate another alternative or additional aspect of the exercise device utilizing a second adjustable vertical standard **51** which supports either a single handle or hand grip **56** (**FIG. 2C**) or a pair of elongated oscillating handle members **54** (**FIG. 2B**). Standard **51** may be adjusted both vertically and horizontally to place the handle **56** or handle members **54** in an optimum position for the user. As shown in **FIG. 2**B, members **54** are

pivotally attached to standard **51** at pivot **53**. Hand grips or handles **55** are provided at the tops of members **54**. A pair of transmission members **58** are provided between the lower ends of members **54** and pedals **17**. This construction allows force applied to the pedals to move the handle members **54** back and forth, or force applied to the handle members **54** to rotate the load wheel **14**.

[**0049**] The second vertical standard **51** supporting oscillating members **54** allows the user to exercise the arms. Thus, this embodiment may be provided in addition to, or as an alternative to the arm-exercising upper portion provided on the first standard **12**. When provided as an alternative arm exerciser as shown in **FIG. 2**B, or as an alternative arm rest as shown in **FIG. 2**C, the upper portion of standard **12** above seat support bar **21** is eliminated, as are the slidable vertical members **33** and **33***a*, guides **31** and linking members **35** and **35***a*.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[**0050**] In the preferred embodiment, adjustable recumbent seat **45** is provided on a free-standing base **61** that may be removably deployed behind any one of numerous existing exercise machines, including without limitation the exercise device described herein, as illustrated in **FIG. 6**. It is also preferred that a pair of handles **47** be provided with seat **45**. However, all of the embodiments may be combined together in a single exercise device to allow the user many different alternative exercises without the need for a large space and/or multiple machines, as shown in **FIG. 2A**

[**0051**] All of the following parts should be made of sturdy metal or other suitable substance: bases **61** and **11**, vertical standards **64**, **12**, and **51**, pedal connectors **18**, linkages **54**, **56** and **58**, force imparting members **33** and **35**, and guides **31**. Wheel **14** may be constructed of heavy metal to retain inertia, to withstand the friction of the tension strap and to transmit heat away from the friction surface. Ball bearings, or other suitable structures may be used between wheel **14** and rim **19** thereof. Strap **15** should be made of metal fabric or other sturdy flexible material designed to withstand the friction and the heat. Vertical standard **12** should be at least six feet (6') in height, and seat **20** should be adjustable to fit along at least a three foot (3') section at the center thereof.

[**0052**] In the alternative embodiments of **FIGS. 2A, 2B**, **2**C, **2**D, **6** and **7**, seat **45** should be adjustable back and forth, as well as up and down, for different sized users so that each user may adjust the seat for optimum distance from the pedals of the load wheel. It is to be understood that any suitable frictionally resistant load wheel **14** may be employed in the present invention.

[**0053**] It is to be understood that variations and modifications of the present invention may be made without departing from the scope thereof. It is also to be understood that the present invention is not to be limited by the specific embodiments disclosed herein, but only in accordance with the appended claims when read in light of the foregoing specification.

I claim:

1. A recumbent seat assembly for use with a stationary exercise cycle comprising a free standing base for deployment on a planar surface adjacent to said exercise cycle, said base having an adjustable upright standard attached thereto and a recumbent seat adjustably attached to said standard.

2 The assembly of claim 1 wherein said base includes a telescoping central member to which said upright standard is attached, and wherein front and rear cross members are attached at opposite ends of said central member, said central member being laterally adjustable relative to said cross members.

3. The assembly of claim 2 wherein a means is provided for removably attaching said free standing base to said stationary exercise cycle.

4. In combination, a pedal-operated stationary exercise machine and a separate recumbent seat assembly comprising a first base for supporting said exercise machine, said assembly comprising a second base for supporting an adjustable upright standard, and a recumbent seat adjustably attached to said standard wherein said second base is deployed behind and adjacent to said first base so that a user in said recumbent seat is able to operate the pedals of said exercise machine.

5 The combination of claim 4 wherein said second base includes front and rear cross members attached at opposite ends of a telescoping central member, said central member being laterally adjustable relative to said cross members.

6 The combination of claim 5 wherein a means is provided for removably attaching said second base to said first base.

7 An exercise device providing for simultaneous or independent exercise of arms and legs of a human comprised of:

a. a stationary base made of a sturdy material;

b. a first vertically oriented standard made of sturdy material, the bottom of which is adjustably attached to said stationary base;

c. a rotatable load wheel mounted on said stationary base with a crank with crank arms operatively attached to the center of the load wheel and pedals mounted to the ends of the crank ann for actuation of rotation of said load wheel;

d. a drag strap mounted to said stationary base and around the outer rim of the load wheel made of sturdy flexible material;

e. a cushioned seat removably attached to said first vertical standard;

f. a second adjustable vertically oriented standard, adjustably attached to said base said second standard having a stationary handle attached at the upper end thereof; and

g. a separate recumbent seat assembly comprising a second base for supporting a third adjustable upright standard, and a recumbent seat adjustably attached to said third standard wherein said second base is deployed behind and adjacent to said first base so that a user in said recumbent seat is able to operate the pedals of said exercise device.

8. The exercise device of claim 7 wherein said second base includes a telescoping central member to which said third upright standard is attached, and wherein front and rear cross members are attached at opposite ends of said central member, said central member being laterally adjustable relative to said cross members.

9. The exercise device of claim 8 wherein a means is provided for removably attaching said second base to said first base.

10. An exercise device according to claim 9 wherein a pair of slidable vertical members are mounted to said first vertical standard, a pair of hand grips are attached near the upper end of said slidable vertical members, and a pair of movable links are provided between the bottoms of said slidable vertical members and said rotatable pedals to transmit force from the slidable vertical members to the load wheel.

11. The exercise device of claim 7 wherein at least on handle is provided on said recumbent seat.

* * * * *