



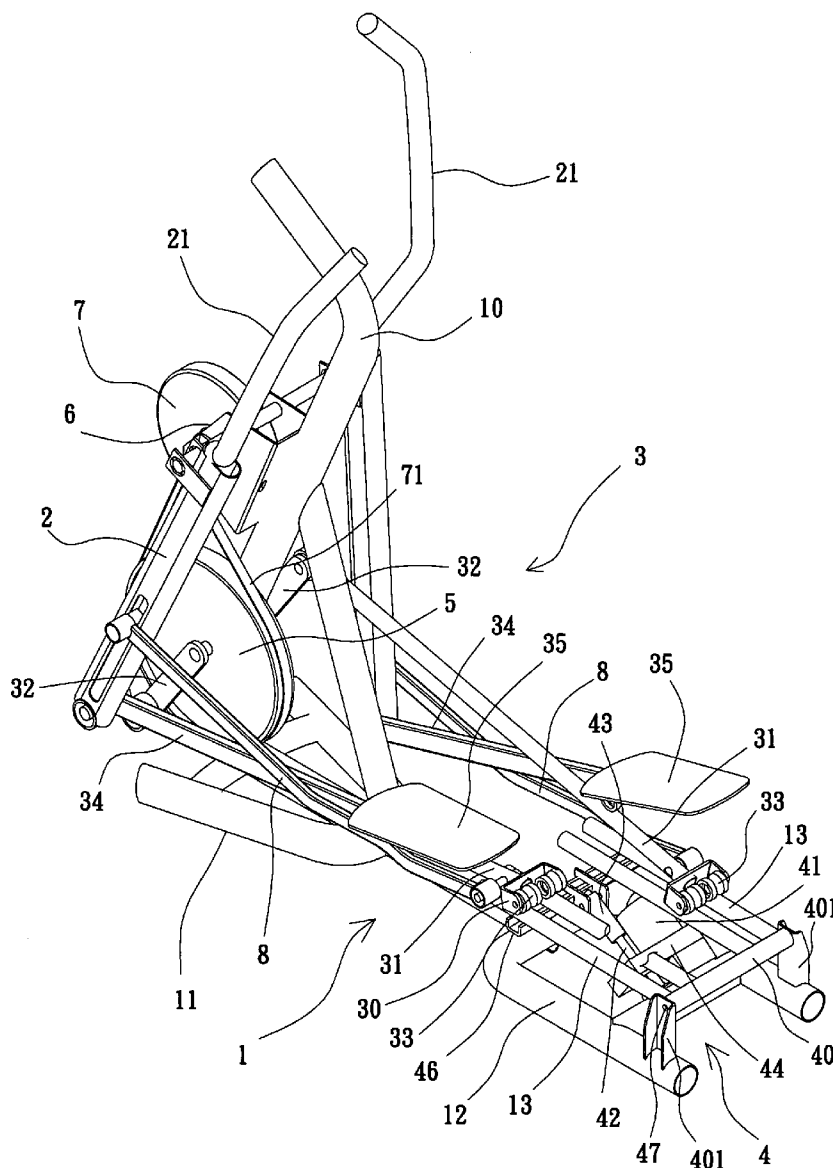
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(19) **United States**(12) **Patent Application Publication**
Kuo(10) **Pub. No.: US 2009/0111663 A1**(43) **Pub. Date: Apr. 30, 2009**(54) **ELLIPTICAL EXERCISE MACHINE****Publication Classification**(75) Inventor: **Hai-Pin Kuo, Tainan (TW)**(51) **Int. Cl.**
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ALEXANDRIA, VA 22314-1176 (US)(57) **ABSTRACT**

An elliptical exercise machine in which a raise angle of an elliptical path can be adjusted consists of a foot base, a pair of arms, a pair of foot pedaling members, and a raise angle member. When handle parts are held by hands, an opposite exercise can be taken by a left and right grip pole, as the arms are coupled to pedal rods, and a roller slides on a link rod. When both feet step on pedals, the pedal rods will slide on the link rods which drive a pulley to operate, by a function of the foot pedaling members, to achieve a purpose of workout. Furthermore, by using the raise angle member, the pedal rods and the link rods will have a change of raise angle, and the raise angle of the elliptical path is adjusted.

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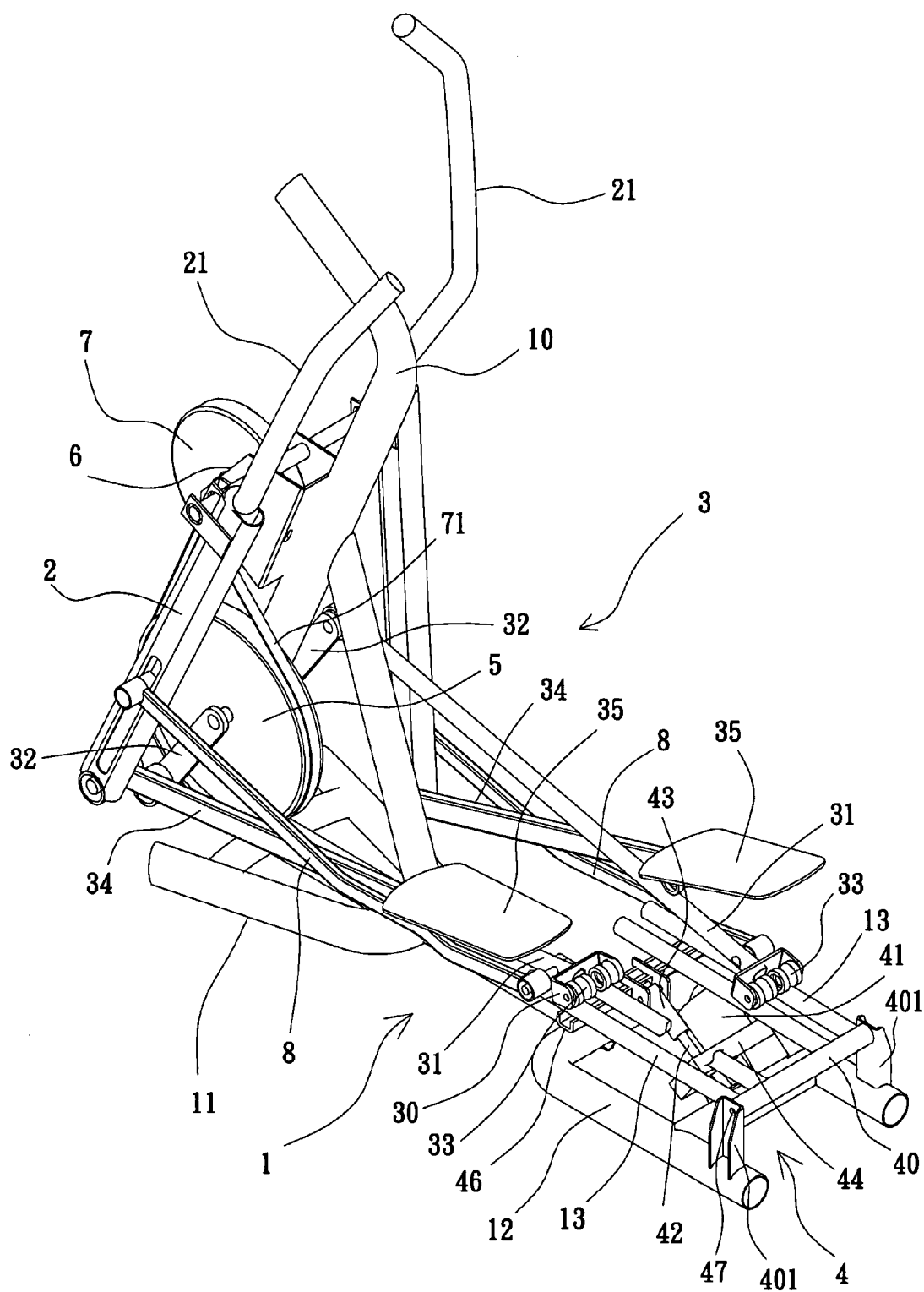


FIG. 1

FIG. 2

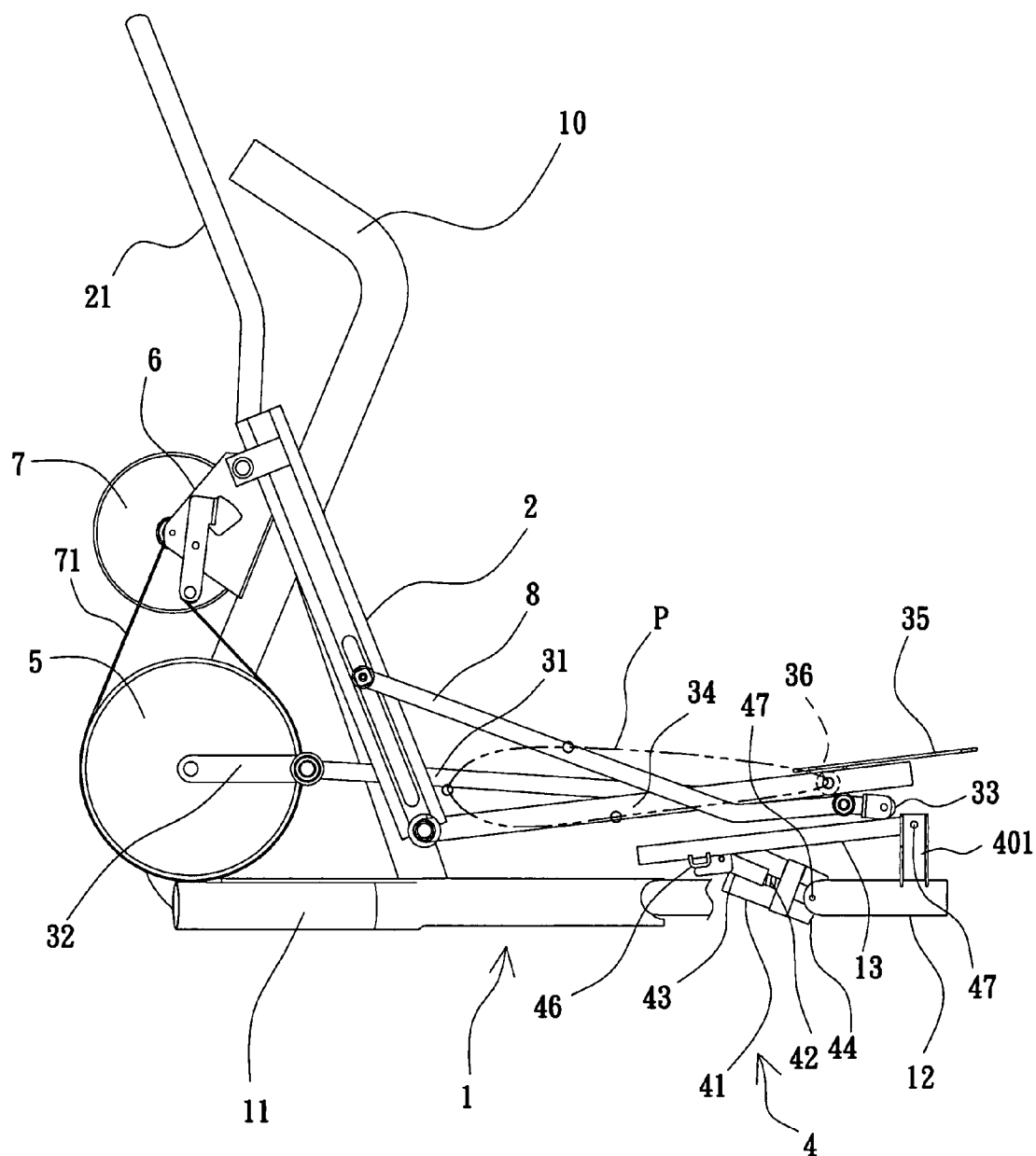


FIG. 3

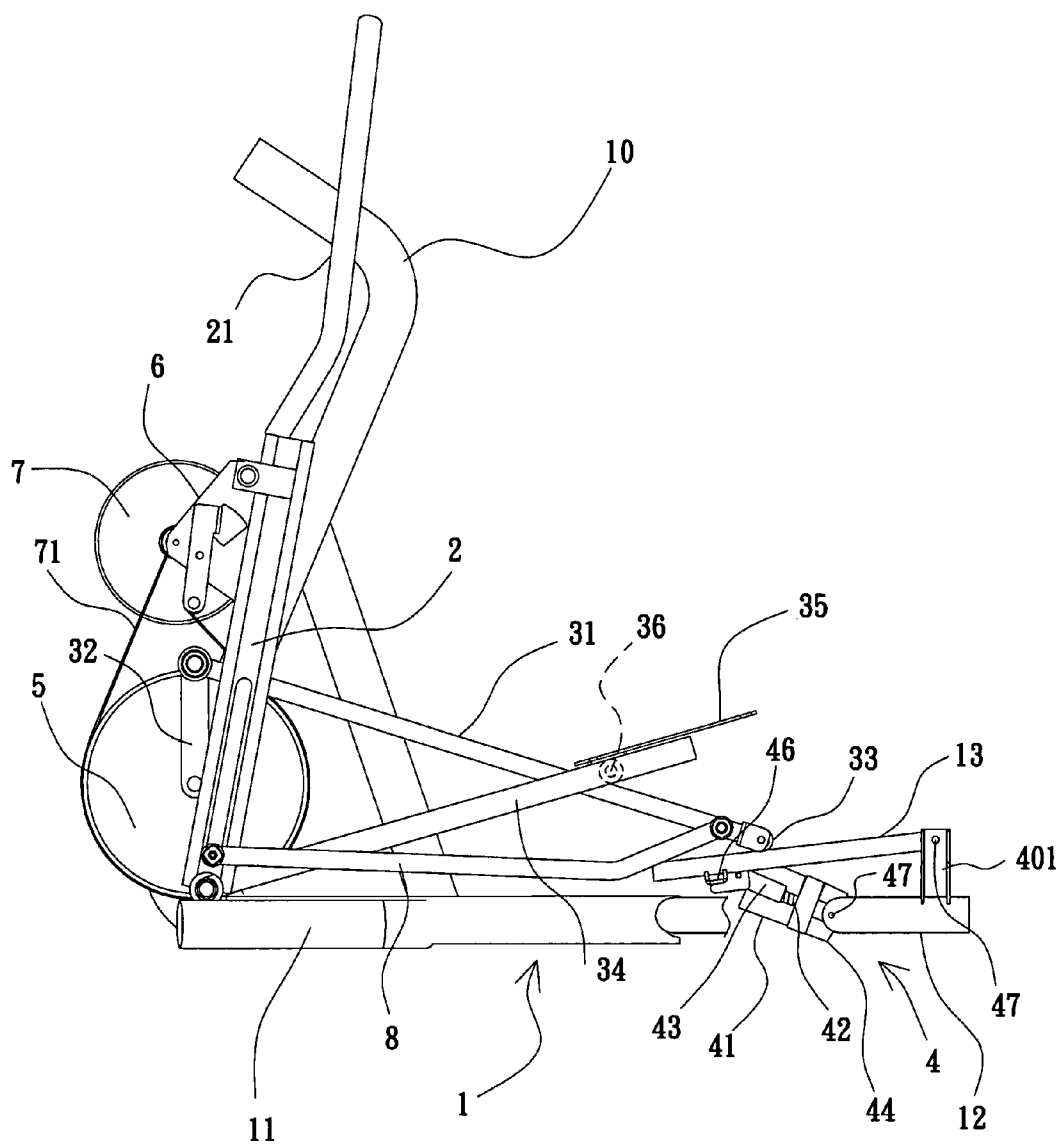


FIG. 4

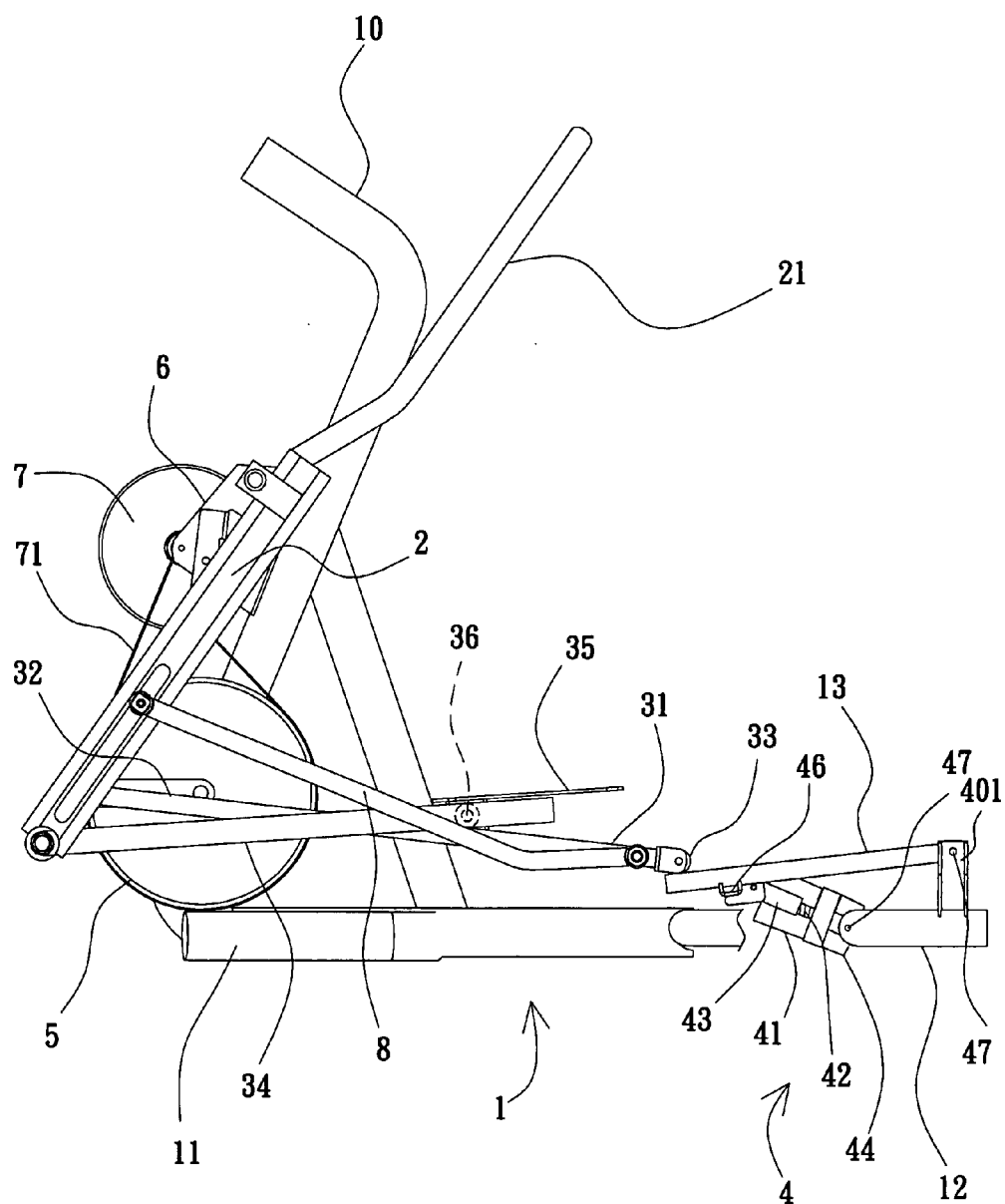


FIG. 5

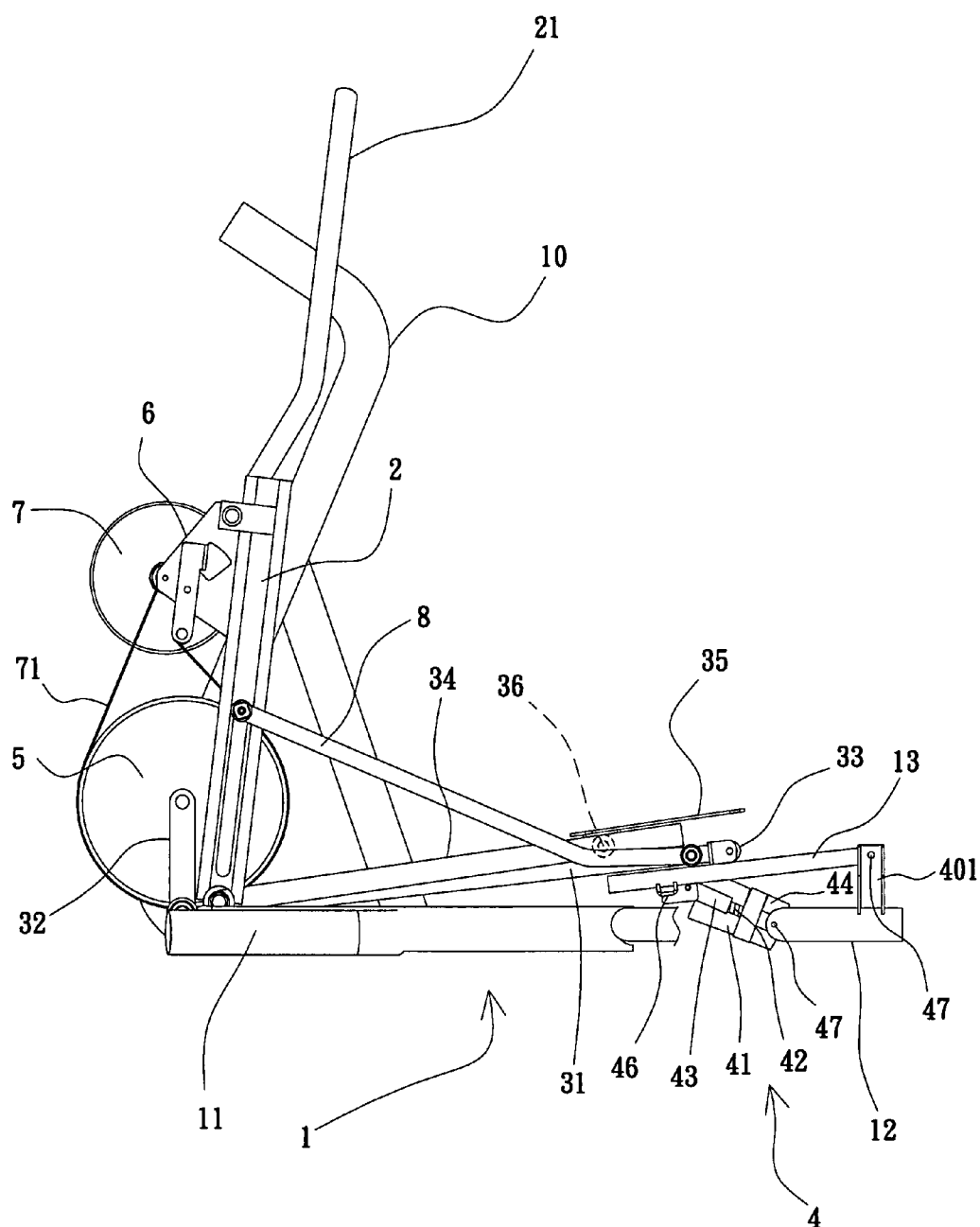


FIG. 6

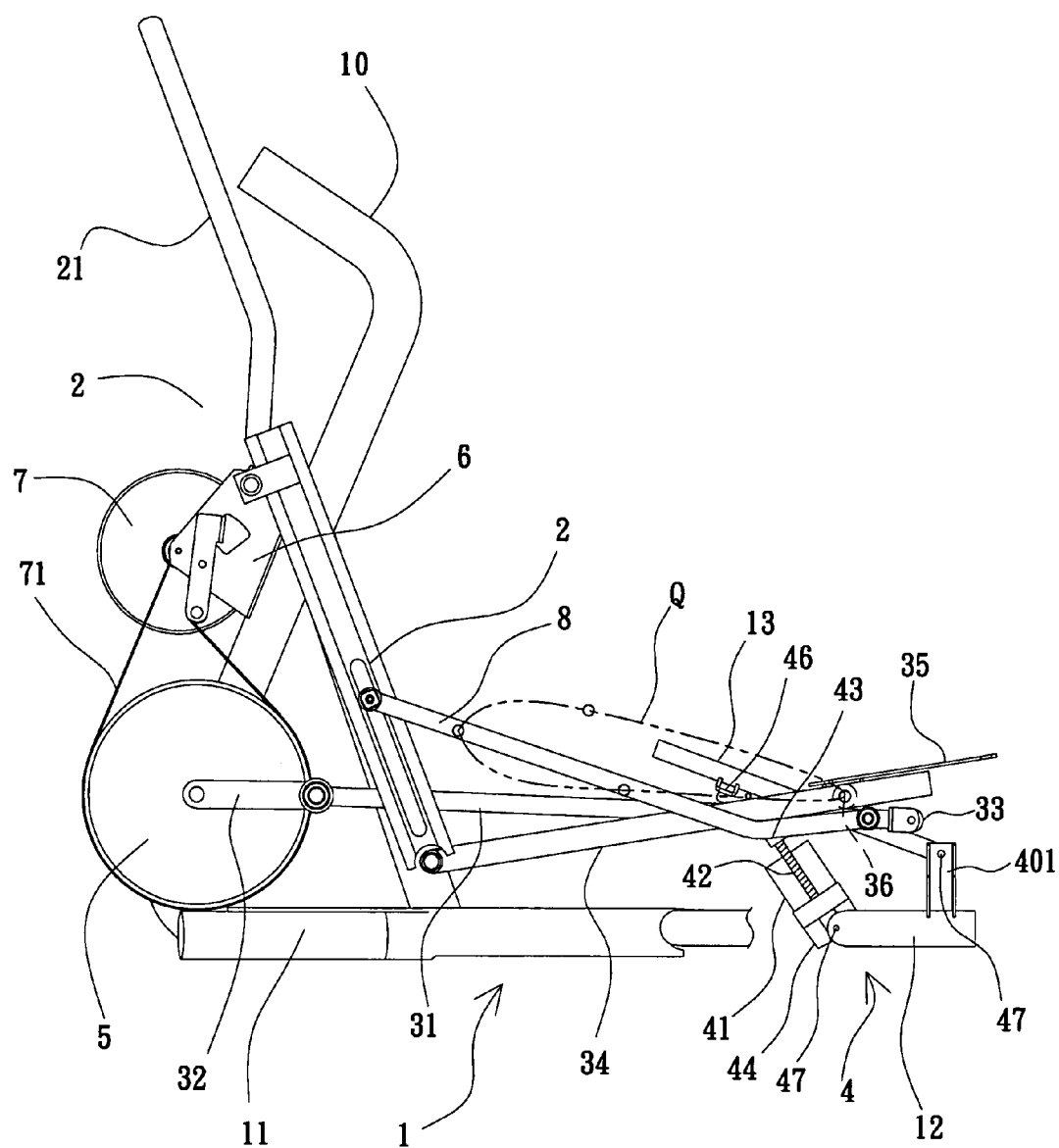


FIG. 7

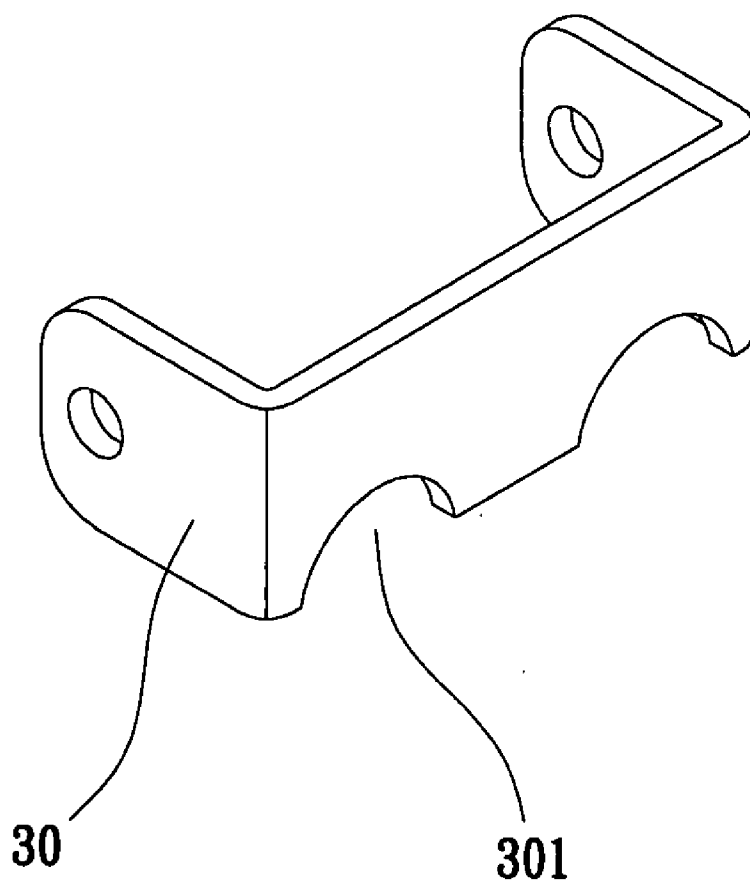


FIG. 8

ELLIPTICAL EXERCISE MACHINE

BACKGROUND OF THE INVENTION

[0001] a) Field of the Invention

[0002] The present invention relates to an elliptical exercise machine, and more particularly to an elliptical exercise machine in which a raise angle of an elliptical path can be adjusted. The elliptical exercise machine includes a foot base, grip poles, foot pedaling members, and a raise angle member. When a user holds handle parts, he or she can carry out an opposite exercise by a left and right grip pole, with one grip pole being pulled toward the user, and the other grip pole being pushed away from the user, as arms are coupled to pedal rods, and a roller is sliding on a link rod. Accordingly, by pulling toward or pushing away from the user with the handle parts, the user can exercise his or her hands, whereas both feet can step on foot pedals with one foot up and the other foot down, such that when a left foot exerts force to step on a left pedal, by a function of the foot pedaling member, a pedal rod can slide on a link rod which drives a pulley to operate, thereby achieving a purpose of workout. On the other hand, by using the raise angle member, the pedal rods and the link rods of the exercise machine can have a change of raise angle, such that the raise angle of the elliptical path can be adjusted.

[0003] b) Description of the Prior Art

[0004] Although an indoor exercise apparatus is used in a different way than an outdoor exercise, all kinds of existing indoor exercise apparatus of various fields can be used for training muscles in all parts of a human body, allowing a consumer to perform a physical training at home or in a room, to achieve a purpose of workout or rehabilitation. Therefore, the indoor exercise apparatus has been widely appreciated by general consumers. For example, a jogging machine, a stair-stepping machine, a rowing machine, or a stationary bicycle, is the indoor exercise apparatus that is commonly selected and used by the consumers. On the other hand, under continuous new development of the indoor exercise apparatus in recent years, an elliptical exercise machine, which forms an elliptic path, is even widely appreciated by the general consumers. However, in spite that the existing exercise machine is still provided with the effect of physical training, the path formed when the conventional elliptical exercise machine is operating is only a single mode, and an angle of that path cannot be adjusted; in other words, a resistance setting of an exerciser cannot be changed.

SUMMARY OF THE INVENTION

[0005] The primary object of the present invention is to provide an elliptical exercise machine that a raise angle of path can be adjusted. The elliptical exercise machine includes a foot base, a pair of grip poles, a pair of foot pedaling members, and a raise angle member, wherein the foot pedaling members and the grip poles can be coupled together to form an elliptic path upon usage, and variation of different angles can be formed to the foot pedaling members by the raise angle member, such that the elliptical paths at different raise angles can be achieved.

[0006] To enable a further understanding of the said objectives and the technological methods of the invention herein,

the brief description of the drawings below is followed by the detailed description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 shows a perspective view of the present invention.

[0008] FIG. 2 shows a perspective view of structures at a left side of the present invention.

[0009] FIGS. 3 to 6 show plan views of operations of the present invention.

[0010] FIG. 7 shows a schematic view of an operation of a raise angle member of the present invention.

[0011] FIG. 8 shows a schematic view of a bracket for installing a roller in the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0012] Referring to FIG. 1 and FIG. 2, an elliptical exercise machine of the present invention includes a foot base 1, a pair of left and right arms 2, a pair of left and right foot pedaling members 3, and a raise angle member 4.

[0013] The foot base 1 is composed of a front underframe 11 and a rear underframe 12, the front underframe 11 is located at a front end of the foot base 1, and is disposed with an upright post 10. A pulley 5 is installed at the aforementioned post 10, and a left and right side of the pulley 5 is provided respectively with a crank 32. The rear underframe 12 is located at a tail end of the foot base 1, and is pivoted with the raise angle member 4.

[0014] The left and right arms 2 are disposed at two sides of the aforementioned post 10, and upper ends of the left and right arms 2 are handle parts 21 to be held by a user.

[0015] Each of the left and right foot pedaling members 3 includes a link rod 31, a pedal rod 34, and an adjustment rod 8. An end of the aforementioned link rod 31 is pivoted on the aforementioned crank 32, and a rear end is disposed with a frame seat 30 on which is provided with a movable roller 33. An end of the adjustment rod 8 is pivoted on the aforementioned arm 2, and the other end is pivoted on the link rod 31. An end of the pedal rod 34 is pivoted on the aforementioned arm 2, at a location close to a bottom end, and a tail end of the pedal rod 34 is coupled to the aforementioned link rod 31 by crossing over the link rod 31 with a roller 36 (as shown in FIG. 2). A top surface close to a tail end of the aforementioned pedal rod 34 is disposed with a foot pedal 35 to be stepped on by the user.

[0016] The raise angle member 4 includes a shaft seat 40 and a drive seat 44. The drive seat 44 is provided with a motor 41, and a stretcher 43. A left and right side of the aforementioned shaft seat 40 is fixed respectively on the aforementioned rear underframe 12 with a bracket 401, and the shaft seat 40 is extended with a plurality of slide rods 13. The slide rod 13 allows the roller 33 at the tail end of the aforementioned link rod 31 to cross over on it, and a bottom end of the slide rod 13 is fixed with a fixing rod 46. The drive seat 44 is disposed on the aforementioned rear underframe 12, and is provided with the stretcher 43. An end of the stretcher 43 is pivoted on the aforementioned fixing rod 46. When the motor 41 operates to result in a change of stroke of elongation or shortening for an inner screw 42 of the aforementioned stretcher 43, the shaft seat 40 can rotate about a pivot 47,

allowing a free end of the fixing rod 46, which is also a free end of the slide rod 13, to have a change of angle of raise-up or drop-down.

[0017] A support seat 6 is located on the aforementioned post 10, and an axis of a gravity wheel 7 is pivoted at the support seat 6. The gravity wheel 7 provides certain resistance force, and is coupled with the pulley 5 with a belt 71. When the user operates the exercise machine, force exerted to hands and feet can be increased to content against the resistance, enabling the user to have another option of taking a more demanding exercise.

[0018] When the elliptical exercise machine of the present invention operates, two feet of the user will step on the foot pedals 35, and two hands will hold the handle parts 21 of the left and right arms 2. At a same time when the user is taking the hand and foot exercises, the pedal rod 34 will manifest an exercise state as shown in FIGS. 3 to 6, so as to form a foot path like an elliptical path P in FIG. 3. To change an angle of the elliptical path, the inner screw 42 of the stretcher 43 will be extended outward by the motor 41, enabling an angle formed between a tail end of the slide rod 13 and a horizontal plane to be changed, so as to increase a raise angle, as in FIG. 7 which shows an exercise state when the raise angle is changed, wherein an upward elliptical path Q is formed. This elliptical path Q is different from the elliptical path P in FIG. 3, in the angle with respect to the horizontal plane. In other words, the raise angle of the elliptical path Q is larger than that of the elliptical path P. This exercise state is like running up a slope that the resistance to exercise can be increased. This kind of design facilitates the user to adjust magnitude of the resistance to exercise which is formed by a variation of angle of the raise angle member, according to his or her physical condition, thereby being provided with flexibility and practicability.

[0019] Referring to FIG. 8, a bottom end of the frame seat 30 at the tail end of the link rod 31 can be provided with semi-circular notches 301 rather than an original straight plane. This kind of design allows the roller 33 to smoothly move on the slide rod 13, and prevents a bottom of the frame seat 30 from being abutted with the slide rod 13.

[0020] Accordingly, an elliptical path of an elliptical exercise machine of the present invention is changed by a raise angle member. As this kind of structure has not been disclosed in publications nor publicly used in a market, it is provided with novelty. On the other hand, by adjusting a stretcher, the elliptical path can be changed, so as to achieve another way for changing resistance to exercise, thereby being provided with a value of practical utility.

[0021] It is of course to be understood that the embodiments described herein is merely illustrative of the principles of the invention and that a wide variety of modifications

thereto may be effected by persons skilled in the art without departing from the spirit and scope of the invention as set forth in the following claims.

What is claimed is:

1. An elliptical exercise machine comprising:

a foot base, which is put up on a floor, and is provided with a front underframe and a rear underframe, with the front underframe being extended with an upright post, a pulley being disposed on the aforementioned post, and left and right sides of the pulley being provided respectively with a crank;

a pair of left and right arms, which is disposed at two sides of the aforementioned post, with an upper end of each of the left and right arms being a handle part to be held by a user;

a pair of left and right foot pedaling members, each including a link rod, a pedal rod, and an adjustment rod, with an end of the aforementioned link rod being pivoted on the aforementioned crank, a rear end being provided with a frame seat on which is disposed with a movable roller, an end of the adjustment rod being pivoted on the aforementioned arm, the other end being pivoted on the link rod, an end of the pedal rod being pivoted on the aforementioned arm at a location close to a bottom end, a tail end being crossed over on the aforementioned link rod with a roller, and a top surface at a tail end of the aforementioned pedal rod being disposed with a foot pedal to be stepped on by the user, and;

a raise angle member including a shaft seat and a drive seat, with the drive seat being provided with a motor, and a stretcher, left and right sides of the aforementioned shaft seat each being fixed on the aforementioned rear underframe with a bracket, the shaft seat being extended with a plurality of slide rods allowing the roller at the tail end of the aforementioned link rod to cross over thereon, a bottom end of each slide rod being fixed with a fixing rod, the drive seat being disposed on the aforementioned rear underframe, the drive seat being provided with the stretcher, and one end of the stretcher being pivoted on the aforementioned fixing rod;

with this kind of structure, when the motor operates to result in a change of stroke of elongation or shortening for an inner screw of the aforementioned stretcher, the shaft seat rotating about a pivot, which allows a free end of the fixing rod, also a free end of the slide rod, to have a change of angle of raise-up or drop-down, thereby forming an elliptical path of a different raise angle.

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