

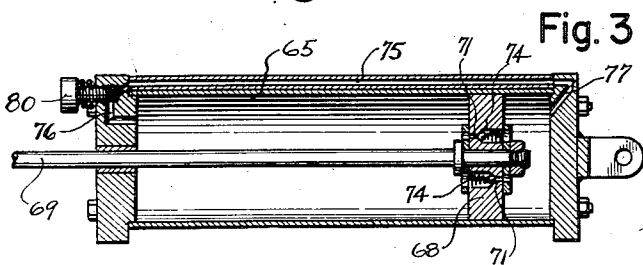
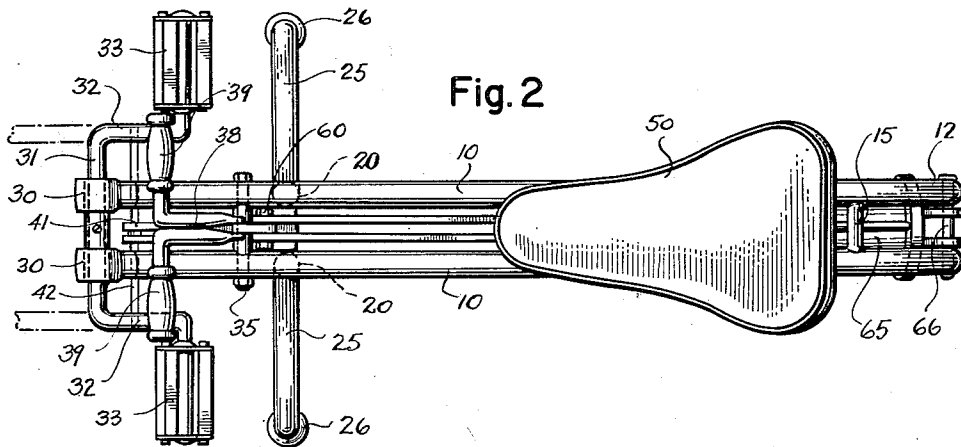
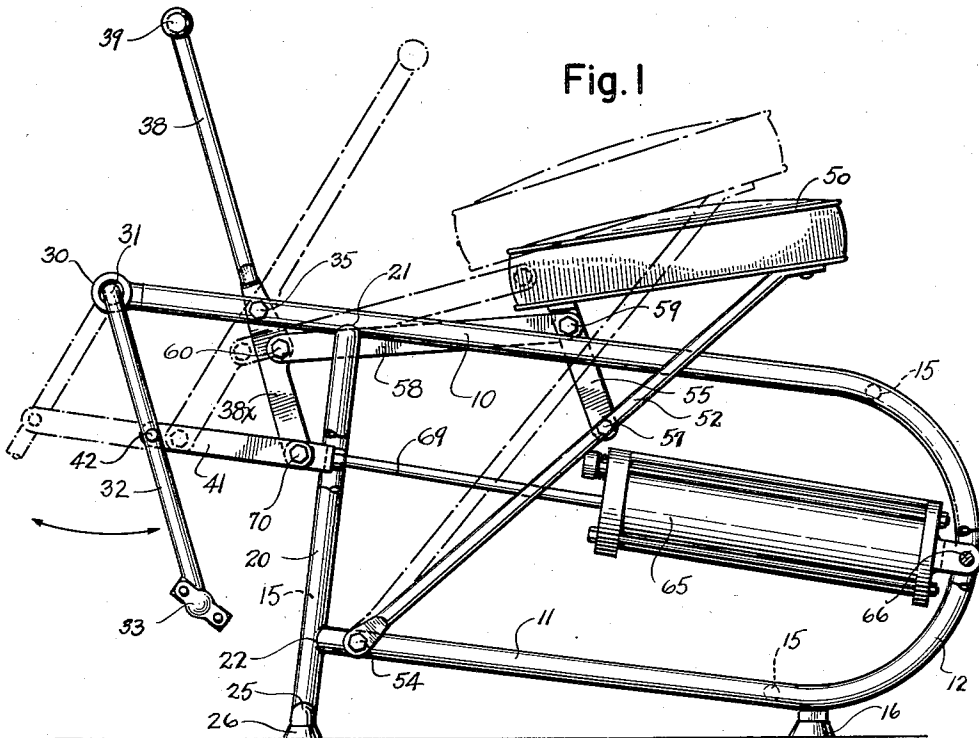
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EXERCISING MACHINE

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EXERCISING MACHINE

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This invention relates to exercising machines and it has reference more particularly to an apparatus which to some extent simulates the rowing machine type of exerciser in that it is stationary and provides for the simultaneous exercising of back, leg and arm muscles.

It is the principal object of the present invention to provide a simplified and relatively inexpensive machine of the above type that affords all of the advantages in so far as providing for body exercise is concerned, now provided in machines of more expensive and more elaborate types. More specifically stated, it is the principal object of the invention to provide an exercising machine of rowing machine type wherein the exercising effort exerted by the arms and legs of the user is applied against a piston that is reciprocally movable in an air cylinder and the required effort can be varied, as desired, by adjustment of an air valve through which the air is by-passed from one end of the cylinder to the other.

Still further objects and advantages of the present exercising machine reside in the details of construction of its parts; in their combination and in the mode of use of the device, as will hereinafter be fully described.

In accomplishing these and other objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a side view of the present exercising machine.

Fig. 2 is a top or plan view of the same.

Fig. 3 is a longitudinal, sectional view of the air cylinder, showing the valved piston and the valve controlled passage through which air is by-passed from one end of the cylinder to the other.

Referring more in detail to these drawings:

The present machine, in a preferred form of construction, compresses a rigid main frame structure formed of metal tubing, such as aluminum, stainless steel or other suitable material. This frame structure comprises paired longitudinal elements, each formed from a single length of tubing, bent to U-form to provide an upper leg 10 and a somewhat shorter lower leg 11. These paired elements are disposed in laterally spaced, parallel, vertical planes, as understood by reference to Fig. 1, each being co-extensive with the other, and each with the semi-circularly curved end portion 12, which joins the legs 10 and 11, at the rear end of the machine.

The two frame elements above described are joined rigidly in their spaced relationship by a plurality of cross-bars 15 and, as seen in Fig. 1, they are supported at their rear ends through the mediacy of suction cups 16 affixed thereto; these being adapted to flatly engage the floor or supporting surface on which the machine rests.

It is shown in Fig. 1 that the upper legs 10 of these two frame elements are somewhat longer than the lower legs 11 and that these two joined elements are supported at their formed ends by a pair of legs 20—20. Each leg has a substantially vertical portion welded or otherwise permanently joined at its upper end, as at 21 in Fig. 1, to the leg 10 of the corresponding longitudinal frame

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element. Also, to this leg, the forward end of the shorter lower leg 11 of the frame element is welded, as at 22. At their lower ends, the legs 20 have laterally and outwardly directed feet 25, and at the ends of these are surface engaging suction cups 26 which engage the supporting surface.

The frame structure, as thus formed and supported, is rigid and durable and has no tendency in the use of the machine, to tip sidewise or to creep in a longitudinal direction.

Mounted at the forward ends of the coextension legs 10 of the paired frame elements are transversely and horizontally aligned bearings 30—30 in which a crank shaft 31 is mounted for oscillation. This crank shaft is formed at its opposite ends with depending legs, 32—32, of equal length and these are equipped at their lower ends with pedals 33—33 in transverse alignment. As thus mounted, the crank shaft is adapted for forward and rearward oscillation, as indicated by the arrow adjacent thereto in Fig. 1.

Pivotally mounted, by a bolt 35 that extends between the forward end portions of the legs 10—10 of the paired frames, for forward and rearward oscillation is a lever 38, equipped at its upper end with laterally directed handles 39. The bolt 35 is located somewhat rearward of the bearings 30 but forward of legs 20. It has a lower end portion 38x extended below the pivot bolt 35, which is pivotally connected at its lower end by paired link 41—41 with a cross-rod 42 that extends between the depending legs 32—32 of the crank shaft 31.

Disposed above the legs 10—10 of the paired main frame sections, is a seat 50 on which the user of the machine can sit, astride the frame with his two feet rested upon the pedals 33—33, and his two hands grasping the corresponding handle members 39.

The seat 50 is supported by a pair of rods 52—52, with upper ends fixed to the under side and rear end portion of the seat, and extended forwardly and downwardly therefrom, and pivotally fixed at their lower ends to the forward ends of the legs 11 by bolts 54. A seat bracing and supporting strut 55 extends from the under side and forward end portion of the seat downwardly to the rods 52 and is fixed thereto by a bolt 57 passed through the parts. Extended between the upper end portion of strut 55 and lower end portions of lever 38 is a link 58 with its ends pivotally connected to these parts, respectively, by bolts 59 and 60. By reason of this connection, forward and rearward oscillation of the lever 38 will effect a corresponding raising and lowering of the seat as indicated by the dotted line showing of these parts in Fig. 1.

It is to be understood that, in use of the exercising device, the user, sitting on seat, with his feet on the pedals and hands gripping the handles 39, pulls rearward on the lever 38 and pushes forwardly on the pedals, to lift his weight as supported on the seat. He then reverses the operation by pushing the handle bar forward, and allowing this weight on the seat to act through the described linkage to return the pedals to retracted position.

In order that the exercising effort may be made more or less, as desired, I have mounted an air cylinder 65 longitudinally within the main frame structure; this being pivotally fixed at its rear end by a pivot bolt 66 that extends between the curved rear end portions 12 of the paired frame members. Contained in the air cylinder 65 is a piston 68 with a piston rod 69 extended from its forward end, slidably through the cylinder head and pivotally connected at its forward end to the lower end of lever 38 by a pivot bolt 70 which also connects links 41 with the lever. Thus, with the oscillation of lever 38 the piston 68 will be reciprocally moved in the cylinder, 65, and the physical effort required to move it can be

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varied in accordance with the by-passing of air from one end of the cylinder to the other.

To permit such by-passing of air, the piston is formed with two air passages 71—71 as shown in Fig. 3; each being equipped with a ball check valve, 74, and these being faced in opposite directions. In addition to these two piston passages which are of fixed area, there is also a by-pass tube 75 leading from one cylinder head to the other, exterior of the cylinder. This tube connects at its ends through passages 76 and 77 formed in the heads, with the opposite ends of the cylinder. A valve stem 80 is threaded into head and into the passage 76 and by its adjustment will vary the passage area and flow of air therethrough accordingly, thus to require more or less physical effort on the part of the user in operation of the machine.

Having thus described my invention, what I claim as new therein and desire to secure by Letters Patent is:

1. An exercising machine of the character described comprising a rigid frame structure including a pair of laterally spaced, coextensive opposite side members and means joining said members rigidly in parallel vertical planes; each side member having substantially horizontally extending upper and lower leg portions, a seat mounting lever disposed between said spaced side members and pivotally supported at its lower end, for oscillation in a plane parallel thereto, from the forward portions of the lower leg portions of said frame members; said lever extended rearwardly and upwardly to a level above said frame structure, a seat structure fixed rigidly on the upper end portion of said seat mounting lever, a handle lever located between the forward end portions of said side members and pivoted thereto, between its ends, for oscillation substantially in the same plane of movement of said seat mounting lever; said handle lever having its upper end extended substantially above said seat structure, a link pivotally connected at one end to the lower end portion of said handle lever and pivotally connected

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at its other end to the seat structure whereby oscillation of the handle lever effects a lifting and lowering action of said seat structure, and a resistance means interposed between and connected to the handle lever and the rear end portion of said frame structure and operable to yieldingly resist, to various amounts, the oscillating actions of the handle lever and seat structure.

2. The device of claim 1 including a crank shaft supported for oscillation in a vertical plane and depending from the frame structure forwardly of the handle lever; said crank shaft having foot pedals at its lower end adapted to accommodate the feet of a person sitting on the seat structure and holding the handle lever, and a link operatively connecting the crank shaft with the lower end of the handle lever to provide for the coaction of the hands and feet of the user in the actuation of the seat supporting lever.

3. The device of claim 2 wherein said resistance means comprises a double acting air cylinder, connected with the frame structure, a piston contained therein for reciprocal action and a rod connecting the piston and handle lever to move the piston in accordance with the oscillating action the handle lever, said cylinder being equipped with a passage for the by-passing of air from one end thereof to the other in accordance with piston movements and a valve associated with said passage and adjustable to control the flow of air therethrough to more or less extent, thus to establish the desired resistance to movement of the piston.

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