United States Patent

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[31] **27,532/67**

[54] **STATIC EXERCISING DEVICE FOR THE HUMAN BODY**
8 Claims, 3 Drawing Figs.

[52] **U.S. Cl.** **272/58,** 272/57
[51] **Int. Cl.** **A63b 21/02**
[50] **Field of Search** 272/57, 58, 60

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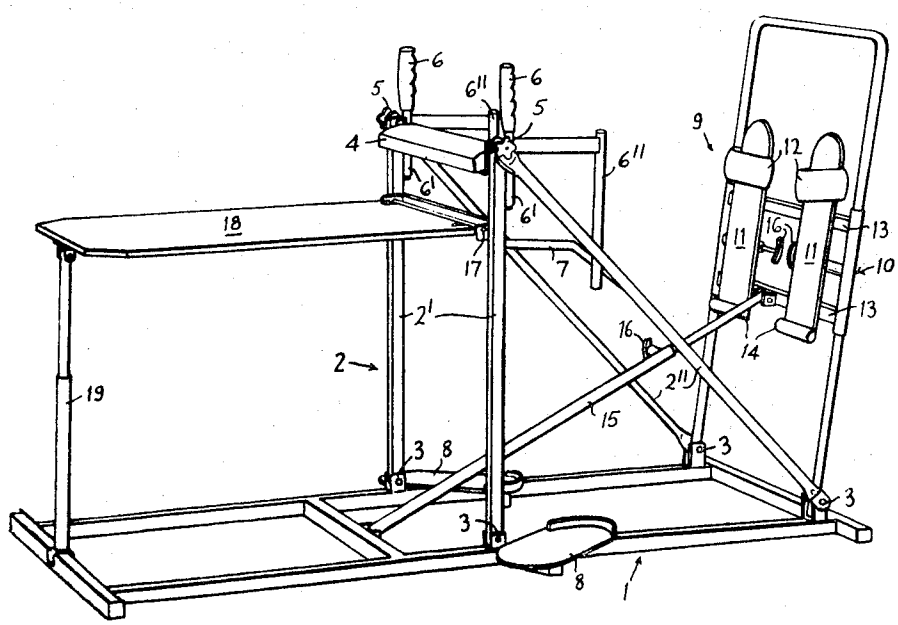
ABSTRACT: This invention relates to a static exercising device for the human body, which, in use, does not rely upon any moving parts. The device includes a base carrying a raised pelvic support member, foot-locating means, and a body support surface, which enable the execution of exercises in a prone or semiprone position. The pelvic support member also defines part of a raised, upwardly and downwardly opening, openwork frame for locating and stabilizing the pelvic region of the body in directions transversely and longitudinally of the base when exercising in an upright position.



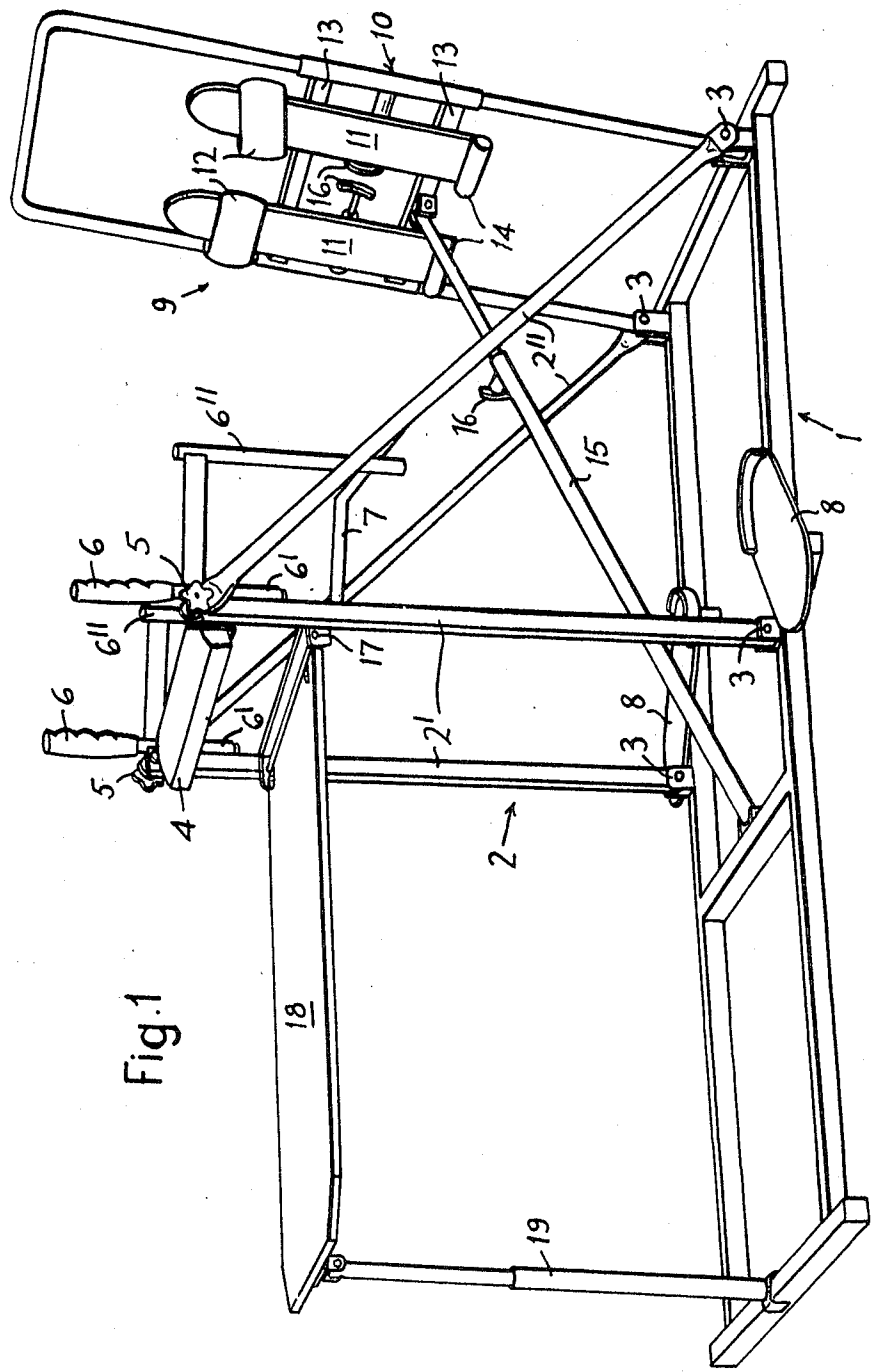

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Fig.1

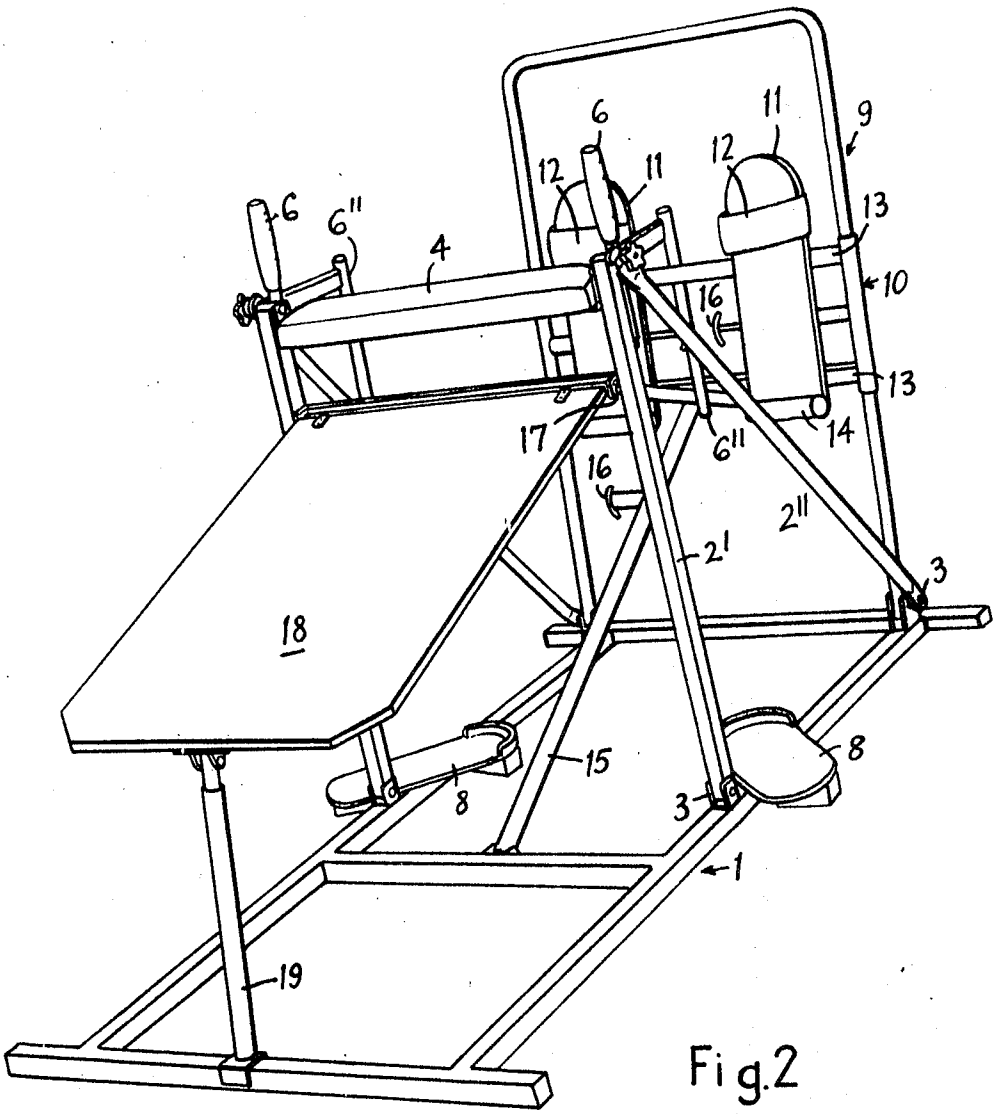

Fig.2

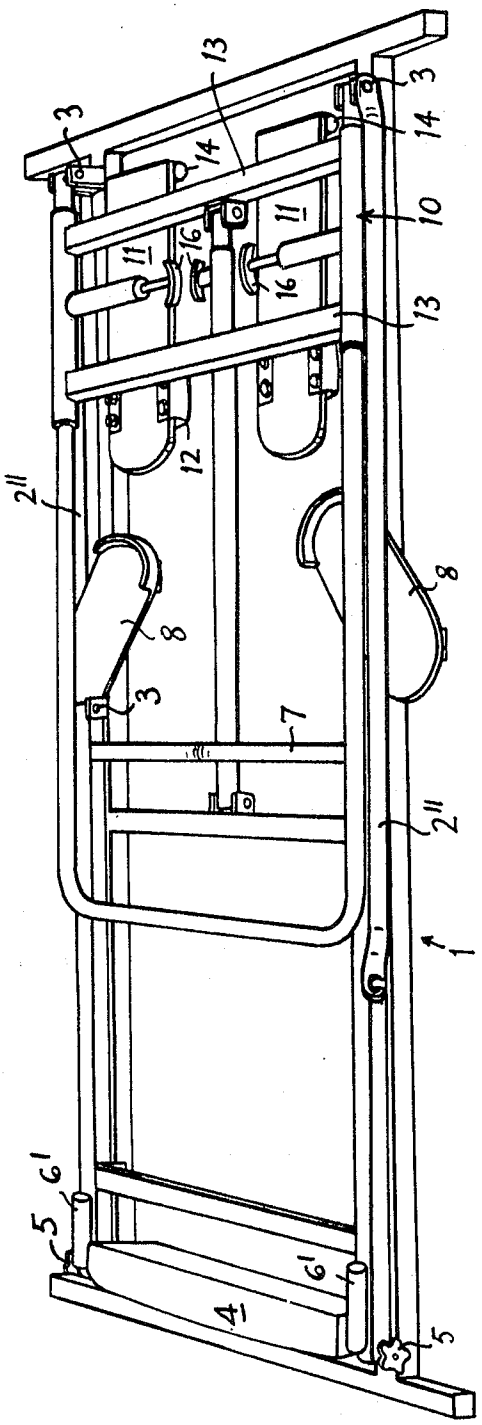

Fig.3

STATIC EXERCISING DEVICE FOR THE HUMAN BODY

The present invention relates to exercising apparatus by means of which a person may carry out a variety of physical exercises. The invention particularly relates to a static device, i.e. a device which, unlike rowing machines and the like, does not rely for its operation upon moving parts, and which may be employed to exercise and activate at least the spinal and abdominal regions of the human body.

According to the present invention, there is provided a static physical exercising device comprising a base on which is mounted a raised support member capable of supporting the pelvic region of a human body, an adjustable foot-locating member spaced longitudinally from the raised support member and also spaced from a surface intended to support the trunk of the human body by the raised support member, the support surface and the raised support member being mutually relatively adjustable. The support surface is preferably attached to a framework, which also serves to carry the support member, so as to be adjustable in inclination.

The design of the device may be such that the framework is foldable against the base when the device is not in use, to facilitate transport or storage of the device. The heights and relative positions of the various components are preferably made adjustable to accommodate persons of different heights, for example, adults and children. The inclinable support surface may be detachably mounted on the framework to permit its removal when not in use.

This device may be used to exercise the human body when positioned in a prone or semiprone position. For example, exercises involving abdominal contraction and extension, and lumbar spinal contraction and extension may be carried out by lying, respectively, face upwards or downwards upon the device, supported in the pelvic region on the raised support member, with the feet in engagement with the foot-locating member to immobilize the lower part of the body, and with the upper region of the trunk or torso supported on the inclinable support surface. By raising the trunk from, and lowering the trunk onto, the support surface, the required exercise is effected. By varying the height of the foot-locating member and/or the inclination of the support surface, the various exercises may be made more or less rigorous.

According to a feature of the invention, the device is provided with means to assist a person to exercise in a standing or upright position. To this end, the device may be provided, in the region of the raised support member, with means to locate, in a lateral direction, the pelvic region of the body of a person standing in the device. Although said means laterally locate the pelvic region, they allow unrestricted movement of the trunk, thus stabilizing the person executing exercises such as forward and backward trunk movement and trunk circling.

In order that the invention may be more readily understood, one embodiment thereof will now be described with reference to the accompanying drawings, in which:

FIG. 1 is a perspective view, from one side, of the device in its erect or operative condition, and with the inclinable support surface in a horizontal position;

FIG. 2 is a perspective view of the device taken from the left-hand end in FIG. 1, and with the support surface inclined relative to the horizontal position; and

FIG. 3 is a perspective view of the device in its folded or inoperative condition.

Referring to the drawings, the device comprises a base 1 to which an upwardly extending framework is connected. The framework comprises a triangulated frame 2 including a pair of transversely spaced upright frame portions 2', and a pair of transversely spaced inclined frame portions 2''. The frame portions 2' and 2'' are hingedly connected at their lower ends to the base 1, for example, by bolts or pins 3, and at their apices i.e. their other ends, carry a first raised crossmember, namely a pelvic support member comprising a padded seat 4. The seat 4 is adjustably secured to the frame 2 by manually

operable nuts or screws 5 which, when loosened, also allow the tops of the frame portions 2'' to be separated from the tops of the frame portions 2' to facilitate folding of the device. Adjacent the seat 4, handgrips 6 are secured to the frame portion 2' by engagement in sleeves 6' (FIG. 3) carried by the frame portions 2'. The grips 6 carry inverted, U-shaped, preferably padded outriggers 6'' which engage second raised cross member comprising a crossbar 7 secured between the frame portions 2''. The bar 7 together with the seat 4 and the outriggers 6'', constitute a raised, upwardly and downwardly opening, openwork frame defining a generally rectangular space of a size adequate to accommodate the pelvic region of the trunk of a person when standing in the framework, for example, on a pair of footplates 8 carried by the base 1.

Spaced longitudinally from the seat 4, and hingedly connected to the base 1 by pins or bolts, is an end frame 9 carrying a foot-locating member comprising a subframe 10 slidably adjustable up and down the end frame 9. The foot-locating member also includes footplates 11, having a pair of toe straps 12, secured to crossbars 13. Each footplate 11, at its lower end, is also provided with a crossmember comprising a transverse bar 14 projecting towards the frame 2, which serves as an additional foot-locating bar. The inclination of the end frame 9 is adjustable by means of a telescopic strut 15 hinged at opposite ends to the base 1 and the lower crossbar 13 respectively. This adjustment enables the distance between the seat 4 and foot-locating member to be varied. Adjustment of the subframe 10 and of the telescopic strut 15 is effected by releasing manually operable indexing devices or latches 16.

Hinged, for example, by a releasable hinge pin 17, to the side of the upright frame portions 2' remote from the end frame 9 and below the level of the seat 4, is a flat table or support surface 18. The end or head of the support surface 18 remote from the hinge is supported by a telescopically adjustable strut 19, hinged to or resting on the base at its lower end, which permits adjustment of the inclination of the surface 18.

The base 1 and the upwardly extending framework carried thereby, namely the frame 2, handgrips 6, end frame 9, subframe 10, and struts 15 and 19 may be made from tubing of suitable dimension, for example, from mild steel tubing.

The device, when in its erect or operational condition as shown in FIGS. 1 and 2, is intended to be used in the following manner:

In order to activate or exercise the abdominal region of the human body, the device is initially arranged with the support surface 18 horizontal as shown in FIG. 1, and with the subframe 10 in its lowermost position. The person carrying out the exercise lies in a prone position face upwards on the device, with the pelvic region of the body supported on the padded seat 4, feet hooked into the toe straps 12, knees bent, and the back resting along the length of the support surface 18. By bending at the waist, the trunk is raised from the support surface 18, and then lowered back onto this surface, and this sequence is repeated the requisite number of times, thereby achieving abdominal contraction and extension. The degree of movement and complexity of the exercises may be progressively increased by shortening the strut 19 to incline the support surface 18 as shown in FIG. 2, and ultimately by removing the support surface, or disconnecting the strut 19 and hinging the surface down into a substantially vertical position adjacent the frame portions 2'. With the support surface moved out of the way, circular movement of the trunk may also be accommodated while in the prone position. Progression may also be provided by raising the subframe 9, and therefore the toe straps 12.

In order to activate or exercise the spine, the person lies in a prone face downwards position across the padded seat 4 with the balls of the feet, or the toes, engaged under the transverse bars 14 carried by the footplates 11, and with the chest resting initially on the horizontal support surface 18. By flexing the spine, the trunk is raised from the support surface and then lowered back onto the surface a number of times, thereby achieving lumbar spinal contraction and extension. As previ-

ously mentioned, the complexity and range of movement may be progressively increased by lowering and/or removing the support surface, and/or by raising the subframe **10**, and therefore the transverse bars **14**. Trunk circling may also be carried out in this position.

Forward and backward trunk movement, and trunk circling may also be carried out employing the device, by a person in a standing position instead of a prone position. In this event, the person stands, facing towards the padded seat **4**, within the generally rectangular space bounded by the seat **4**, crossbar **7** and the outriggers **6''** or frame portions **2''**, feet on the foot plates **8**. The said trunk movement may then be effected, while the pelvis and legs are supported and located by the said components bounding the rectangular space. This support and location enables maximum movement of the trunk without overbalancing.

Although specific exercises have been described, these are given by way of example, and other exercises employing the device may be evolved. During the exercises, assistance may be obtained by using the handgrips **6**.

When the device is not in use, to facilitate transport or storage, it may be folded to the substantially flat condition shown in FIG. **3**. This may be achieved by disengaging the bottom of the strut **19** from the base **1**, swinging the strut **19** against the support surface **18** and preferably securing it there by a spring clip or the like (not shown), and swinging the surface **18** against the frame portions **2'**. The upper ends of the frame portions **2''** are unhooked from the portions **2'** after loosening the nuts or screws **5**, and the portions **2'** and **2''** are then swung against the base. The strut **15** is telescoped, the subframe **10** adjusted to its lowermost position, and this subframe **10** and the end frame **9** are swung against the base **1**.

From the foregoing description it will be seen that there is provided a device which may be used to carry out a fully comprehensive range of exercises to improve the physical condition of various parts of the human body, and particularly to activate the midsection of the body, and also to slim the body, thighs or buttocks. The device is of comparatively simple construction, is rigid and stable when erected, requiring no fixing or anchorage, and is static, i.e. does not rely for its functioning, upon moving parts such as levers or the like. The device is portable, and will fold substantially flat when not in use, and is, therefore, particularly advantageous for personal or domestic use.

The device may be used for remedial and rehabilitation purposes where graduated spinal mobility and controlled abdominal activation is particularly required.

It will be understood that various modifications may be made without departing from the scope of the present invention. For example, the device need not be foldable but may instead be a rigid permanent structure, and it may be of a more robust nature, when it is intended to be used in a club, gymnasium or hospital. The position and design of the various components may be changed, and the manner in which they are interconnected and are adjusted, may be modified.

The seat **4** may be adjustable in height up and down the frame portions **2'** or their equivalent, as may be the support surface **18** which need not necessarily be inclinable. The support surface and seat may, in this respect, be formed as a single unit so as to be adjustable in unison. The device may thus be used with the seat **4** at a low level to inspire confidence. When the seat **4** is adjustable in height, the device need not necessarily incorporate a support surface corresponding to the surface **18**, since this surface may be constituted by the base **1**, or the floor or other surface on which the device is standing. In this event, trunk raising and lowering may be made progressively more rigorous by progressively increasing the height of the seat **4** above the base or floor on which the trunk is supported in the relaxed condition.

The base **1** may itself be foldable, for example, between the mounting points of the frame portions **2'** and the strut **19**, to reduce the overall length of the base, and therefore the device, when in its folded condition. In this event, the frame portions **2'** may also be foldable or telescopic.

The crossmembers **13**, and/or additional crossmembers or straps carried by the subframe **10** or end frame **9**, may be employed as foot-locating members instead of, or in addition to, the footplates **11**, straps **12** and bars **14**.

I claim:

1. A static physical exercising device including:

a. a base,

b. a first support means capable of supporting the pelvic region of the human body,

c. said support means having a first crossmember raised above and mounted on the base,

d. a second support means intended to support the trunk of the human body,

e. said second support means having a support surface adjustable in height,

f. an adjustable foot-locating member carried by said base, said foot-locating member being adjustable in height relative to said first raised crossmember,

g. a rigid frame means formed in part by said first raised crossmember to locate, in a lateral direction, the pelvic region of the body of a person when standing upright in the device, as well as to stabilize in transverse and longitudinal directions of the base said pelvic region.

2. A device as claimed in claim **1**, wherein the first raised crossmember is dimensioned to engage only a comparatively narrow zone of the human body during exercising in prone and upright positions, and the support surface comprises a table member of a size sufficient to support at least a major proportion of the body, hingedly detachably attached to said rigid frame means to permit adjustment of the inclination of the table member at least from a generally horizontal position, downwardly towards the base.

3. A device as claimed in claim **2**, wherein said rigid frame means includes, a pair of longitudinally extending, transversely spaced side supports to locate, in a lateral direction, the pelvic region of the body of a person when standing in the device, said rigid frame means further including a second raised crossmember spaced longitudinally from, and disposed generally parallel to, the first raised crossmember, between the latter and said foot-locating member, and, together with the first raised crossmember, locating the pelvic region in a longitudinal direction.

4. A device as claimed in claim **3**, provided with handgrip means comprising a pair of handles detachably secured to the rigid frame means adjacent opposite ends of the raised crossmembers, said handles being integral with the side supports.

5. A device as claimed in claim **2**, wherein the height of the foot-locating member above the base is adjustable, and its horizontal spacing from the first raised crossmember is also adjustable.

6. A device as claimed in claim **5**, wherein at least some of the components thereof which, in use, are raised above the base, are adapted to be folded against the base when not in use.

7. A static physical exercising device including; a horizontal tubular metal framework base of generally rectangular configuration; a pair of triangulated tubular metal frames collapsibly mounted on the framework base intermediate the ends of the latter; a pair of horizontal foot supports fixed to the base adjacent the lower ends of the triangulated frames; a first raised crossmember, capable of supporting the pelvic region of a human body, and comprising a padded seat adjustably mounted adjacent the apices of the frames and extending therebetween; a body support surface hingedly connected between the frames adjacent the raised support member extending therefrom above the base towards one end thereof; an adjustable strut supporting the support surface from the base to permit variation of the inclination of the support surface relative to the base; an upwardly extending generally rectangular tubular metal end frame hingedly mounted on the base adjacent the opposite end thereof; an adjustable strut connecting the end frame to the base at a position intermediate the ends thereof for locating the end frame at a predetermined angle with respect to the plane of the base; a tubular subframe

mounted for sliding adjustment up and down the end frame; a pair of foot-locating members carried by the subframe; a pair of transversely spaced handles detachably secured to the frames adjacent the apices thereof and projecting upwardly therefrom; side supports integral with the handles extending towards the subframe and engaging the frames; and a second raised crossmember spanning the frames at a position spaced longitudinally from the seat; the elements comprising said side supports, seat and second raised crossmember defining a generally horizontally disposed area of a size, and at a height above the base, such that these elements form a structure capable of locating the pelvic region of the body of a person when standing on the horizontal fixed foot supports.

8. A static physical exercising device adapted to be employed to exercise the human body both when located in a prone or semiprone, face up and face down position, and in an upright position, comprising a structure for use in prone and semiprone exercising, said structure including a base, a first raised crossmember comprising a pelvic support member extending transversely above, and carried by, the base, foot-locating means carried by the base and spaced longitudinally along the base from the pelvic support member, said foot-locating means being adapted to locate the feet of a person when supported by the pelvic support member, both in a toes-up and toes-down attitude of the person, means for permitting adjustment of the height of the foot-locating means relative the pelvic support member at least within a zone bounded by the horizontal plane of the base and the horizontal plane of the pelvic support member, a raised surface intended to support the body, extending longitudinally of the base and spaced longitudinally from the foot-locating means with the pelvic support member positioned between the foot-locating means and the raised surface, and means to adjust the inclination of said raised surface at least in a direction downwardly towards the base; in combination with a structure for use in upright exercising, said latter structure including a stationary and rigid, upwardly and downwardly opening openwork frame, carried by, and raised above, the base, at a height, and and of a size, to receive, locate and stabilize in transverse and longitudinal directions of the base, the pelvic region of the body of a person when standing on the base, said openwork frame being partly defined by said pelvic support member.