March 24, 1970 N. F. BRAZIER 3,502,329

EXERCISING BAR WITH REMOVABLE WEIGHT DISC

Filed April 15, 1968 2 Sheets-Sheet 1

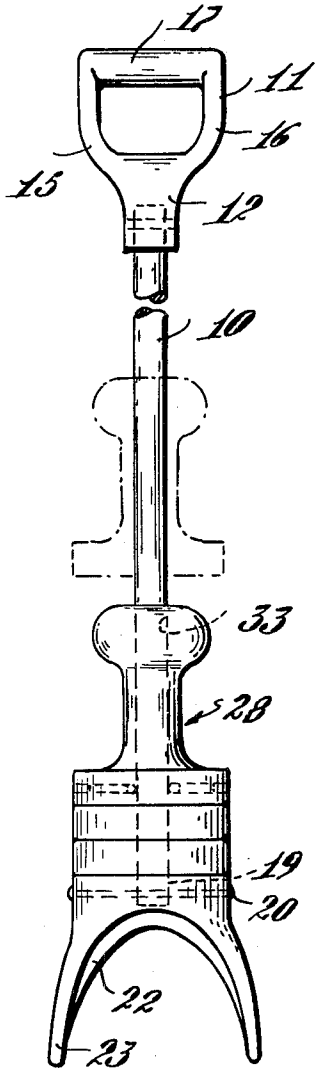


Fig. 1

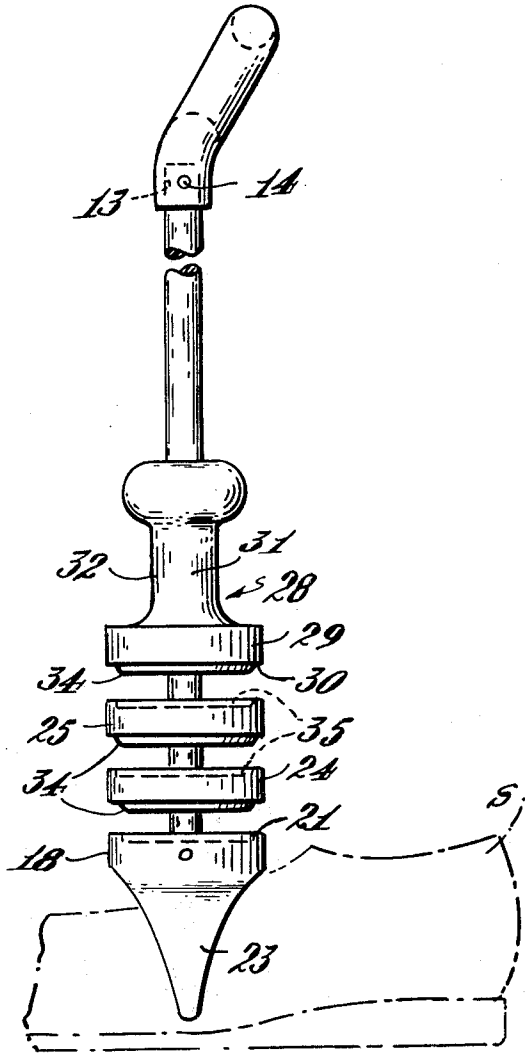


Fig. 2

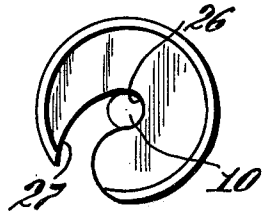


Fig. 3

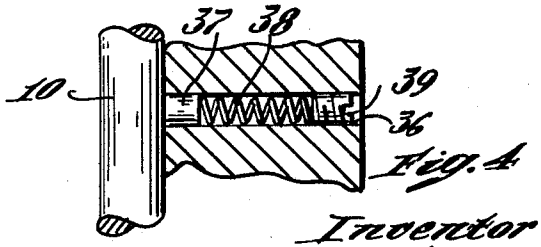


Fig. 4

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EXERCISING BAR WITH REMOVABLE WEIGHT DISC

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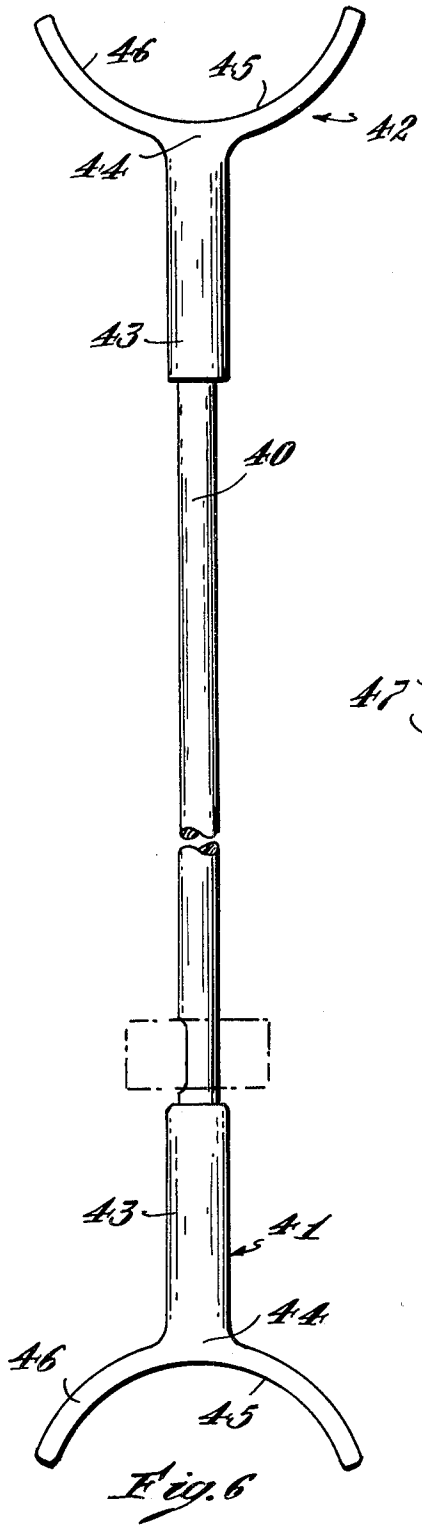


Fig. 6

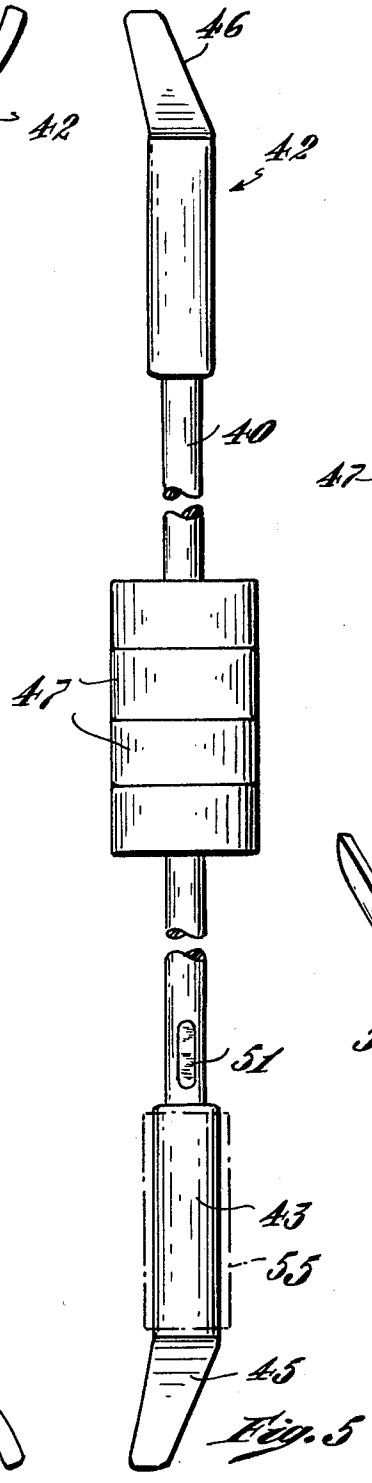


Fig. 5

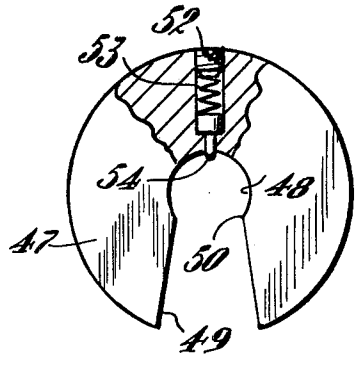


Fig. 7

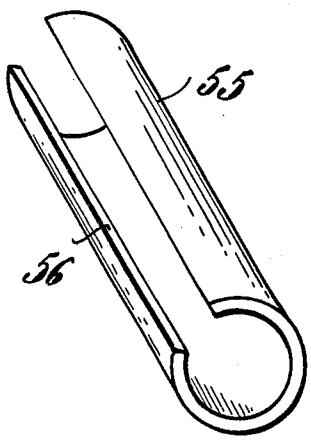


Fig. 8

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EXERCISING BAR WITH REMOVABLE WEIGHT DISC

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U.S. Cl. 272—81 10 Claims

ABSTRACT OF THE DISCLOSURE

A body conditioning exerciser having a straight bar with a body engaging member such as a handgrip at one end and a body engaging member such as a foot-engaging yoke at the other end. Disc weights are removably and adjustably mounted on the bar. One of the body-engaging members is tangled relative to the bar to displace the weights away from the body of the user. One method of use is to grasp the hand grip with one hand, place the yoke over the instep of the foot, and swing the leg backward and forward.

BACKGROUND OF THE INVENTION

So far as applicant is aware, the present invention provides the first body conditioning apparatus of the type herein disclosed.

The body conditioning apparatus of this invention is of compact design, and can be stored and transported in a small space. It is low in cost, durable in use, has no moving parts (once adjusted), and requires no maintenance.

The body conditioning apparatus hereof is adapted for use by men, women and children alike, and in a wide variety of exercises such as known or devisable for conditioning virtually all parts of the body.

The invention apparatus utilizes the principle of weight or inertial resistance to movement, as a means of exercising the muscles, ligaments and tendons. It provides also for the selective use of different amounts of weight, as appropriate for different individuals, different exercises, and for different desired degrees of conditioning.

The instant apparatus will be seen also to be safe and simple in use, requiring as it does no external or special tools or other devices for its assembly or adjustment, and being design-free from unexpected or unwanted release or shifting of weight members.

By its novel and ingenious design the body conditioning apparatus hereof is uniquely adapted to use in universal calisthenics as well as therapy programs, that may be carried out at home or even while travelling, as well as at gymnasia or hospitals or other health facilities, and entirely without the necessity for a specially prepared surface, or accessory devices. The ends of the use of my improved apparatus are thus the strengthening and conditioning of the body and the overall development of muscular tone and stamina, as differentiated from the mere building up of muscular bulk. The apparatus hereof is uniquely adapted also to the exercise regimens that are suited to persons of weak or undeveloped musculature, hence serving to enhance and strengthen the muscles, ligaments and tendons of the persons who need it most without the necessity of their performing any particularly vigorous or difficult exercises such as they may be incapable of performing.

SUMMARY OF THE INVENTION

The invention apparatus is herein shown to comprise a bar member, body engageable elements associated with the bar member and adapted for engaging the hand and foot, a series of one or more weighting members, and means for adjustably positioning said weighting members on said bar

member for desired weighting and balancing of the apparatus.

The invention will now be more fully described and with reference to the accompanying drawings in which

FIG. 1 is a side elevation of a preferred embodiment of the invention apparatus;

FIG. 2 is a like view taken in a plane at right angles to that of FIG. 1 and showing the assembly of the apparatus and its application to a body part;

FIG. 3 is a plan view of one of the weighting elements of the apparatus, shown applied to the bar member;

FIG. 4 is a vertical section on a larger scale taken along the line 4—4 of FIG. 1;

FIG. 5 is a side elevation of another embodiment of the apparatus;

FIG. 6 is a view taken in a plane at right angles to that of FIG. 5 and indicating the assembly of the weighing elements to the bar member;

FIG. 7 is a top plan of one of the weighting elements as provided with a braking means; and

FIG. 8 is a perspective of another of the weighting elements, being that which is shown in dotted line in FIG. 5.

Referring now more particularly to FIGS. 1 and 2, the invention apparatus is there shown in a preferred embodiment to comprise a rigid straight smooth body or bar **10** of generally uniform cross-section, and having a length such as with the associated parts to span between the outstretched arm and foot, between both arms of the user.

At its one end the bar **10** mounts a body engageable element taking in this embodiment the form of a handle **11**. Handle **11** comprises a base portion **12** recessed to form a socket **13** snugly receiving the associated end of the bar **10**, to which the handle is rigidly held as by a pin **14** passed both through the bar end and the base **12**.

The handle **11** is seen from FG. 2 to incline or diverge in its direction at an angle of, say, 30° from the longitudinal axis of the apparatus. It mounts a pair of yoke arms **15**, **16** integrally projecting from base **12** in said inclined direction a desired length to the point of their conjunction with a transverse handle bar member **17** of a length and proportion for convenient gripping by the hand of the average person.

At its other end the bar **10** has rigidly associated therewith a body engageable element **18** recessed to present a central axial socket **19** by which it is snugly received over the bar **10**, and to which it is securely fastened by the pin means **20** indicated in FG. 1 as passed all the way through both said bar **10** and element **18**.

The body engageable element **18** is seen as formed with a solid annular base portion **21** of several times greater proportion than, and correspondingly greater weight or mass than, the base portion **12** of the handle **11**. Said base portion **21** has a generally flat transverse end face for seating and supporting the weighting members to be described. Depending from said bore portion **21** is a body engageable portion defined by a transverse cut **22** forming an elliptical recess shaped to be seated over the dorsal side of the instep, said recess defining at its sides a pair of yoke projections **23** which may be oppositely shaved or tapered to a rounded point, and whereby said portion is the more readily seated on the shoe or the like S, as shown, FIG. 2.

My novel apparatus further comprises a set of one or more weighting members, or weights, herein comprising the annular disc masses **24**, **25**, having the same diameter as the member **18**, and being of a height or thickness such as accords to each mass the desired weight, such as one lb., 2 lb., 5 lb., etc.

The disc masses or weights **24**, **25** are formed with a central transverse bore passage **26**, FIG. 3, dimensioned for snug sliding up and down on the bar **10**. The weights

24, 25 further have a spiral cut 27, FIG. 3, opening from the bore 26 to the disc periphery, and of a width to fit closely about the bar 10, in the assembly of the weights therewith by their lateral advancing until the bar has passed all the way through the slot 27 to full seating in the bore 26.

In the FIGS. 1 and 2 embodiment apparatus weighting means further comprise a member 28 having an underlying annular disc portion 29 provided with a transverse infacing weighting member engaging face 30. The member 28 further has an overlying sleeve 31 integrally extending from said underlying disc portion 29 and which is intermediately reduced as at 32 to a diameter and over a length fitting it for gripping by the hand. The member 28 is formed in both said disc and sleeve portions with a central through bore passage 33 receiving the bar 10 for snug sliding fit of said member 28 thereon.

In the FIGS. 1–4 form of the invention the apparatus weighting member 18, 24, 25, 28 are formed at their juxtaposed, transverse faces for desired nesting or locking interrelation, herein with annular projections or flanges 34 protruding in their one direction, and with mating recesses 35 at the surfaces facing in the opposite direction.

The described interlocking or nesting of the face engaged weighting members will be understood to lock the disc masses 24, 25 against unwanted or inadvertent lateral shifting relative to the bar 10, in the course of the manipulating of the apparatus.

In the mounting and demounting of the disc weights 24, 25 of the FIGS. 1–4 embodiment, the member 28 is adjusted to the open or separated position of FIG. 2 whereby the individual weights may be disassociated for addition, subtraction or substitution of one or another of said disc weighting members 24, 25.

In accordance with the invention, the member 28 may be braked to or held in the FIG. 2 position by one or more of the braking or frictioning means best shown in FIG. 4, and which may be employed in desired number, two being illustrated in FIG. 1. The braking or frictioning means of the illustrated embodiment comprises, in a transverse through passage 36 provided therefor in said member 28 at any radius of the underlying portion disc 29 thereof, frictioning plug 37, a spring coil 38 compressed behind the plug 37 and for biasing that against the opposing wall surface of the bar 10, and a set screw 39 threaded into the passage 36 and which is adjusted or turned up to compress the spring sufficiently to subject the plug 37 to the desired frictioning or binding pressure against the bar 10.

It will be evident that with the braking means 37, 38, 39 adjusted, by the setting of the screw 39 and compression thereby of the spring 38 to pressure the plug 37 sufficiently against the bar 10, the member 28 may be braked with a force to hold against its own weight in the open or upwardly separated position of FIG. 2, to which it may be hand-shifted with a thrust sufficient to overcome that breaking force and to permit the aforementioned assembly and disassembly of the removable weights 24, 25, etc. Similarly, when the element 28 has been shifted from the dotted line to the solid line position of FIG. 1, or in other words closed down against the weights 24, 25 after they have been allowed to drop into the seated or nested relation with the body engageable element 18 and with each other as there shown, the suitably braked element 28 will be understood to retain the parts in the desired nested relation, and in that to lock the weights 24 and 25 against sliding transversely off the bar 10.

The improved body conditioning apparatus of my invention may be further embodied as represented in FIGS. 5–8, wherein the same is shown to comprise an intermediate bar 40 mounting at its opposite ends a pair of like body engageable elements 41, 42 comprising each an infacing sleeve or stem portion 43 and integrally projecting outwardly thereof a transversely extending saddle-

like body or limb engaging member 44 shaped and proportioned to fit over the instep of the foot, and also to be grasped by the hand. The transverse saddle members 44 are seen to have each a smoothly rounded convex seating or engaging face 45, and a relatively thin uniform sidewall 46 that may be grasped between the fingers. The saddle-like portions 44 of the body engageable elements may one or both be inclined, as shown, FIG. 5, and similarly as the FIG. 1 handle 11, whereby the bar carried elements or weights are displaced outwardly from and so as the better to clear the body in the manipulation of the apparatus.

In the FIGS. 5 to 8 form my novel apparatus further comprises a set of one or more weighting elements or disc masses 47 formed with a central aperture or bore 48 for snug sliding fit on the bar 40 and recessed also by a radial cut 49 extending from said bore 48 to the disc periphery, and widening from a smallest diameter 50 at the conjunction with said bore which is just sufficient to pass the bar 40. The outward widening of the cut 48 will be seen not only to facilitate assembly and disassembly of the parts to and from the position shown in FIG. 5, but also to serve manufacturing convenience, in requiring dimensioning of the cut 48 in manufacture to close tolerances only at its aforesaid innermost point 50 of smallest diameter.

In accordance with the invention, the bar 40 over a suitable short length is shaved off or flattened, as at 51, FIG. 5, at one or both sides, to present a reduced cross section over which the smallest diameter part 50 of the cut 49 is dimensioned to fit closely, whereby and by which the weights 47 are thus locked against transverse shifting on, or escape from, the bar 40, once they have been engaged thereon by passing them over the flatted bar portion as shown, FIG. 6, and then shifted lengthwise of the bar to any other desired operating position, such as that shown in FIG. 5.

It will be understood that the weights 47 may be provided in all cases, or in the outermost members of the set, with braking means such as comprising the similar screw 52, spring 53, and plug 54 as heretofore described for the FIGS. 1 to 4 embodiment, and the adjustment of which is to similarly hold the weight sets in the desired position of longitudinal adjustment relative to the 40, for any desired condition of weighting or balance of the apparatus.

A further feature of the FIGS. 5–8 embodiment is the provision optionally of a tube or sleeve-like weighting member 55, FIG. 8, which is of a length and inside diameter to fit over the stem 43, as shown in FIG. 5, and which has a wall segment removed to provide a longitudinal opening 56 smaller than said stem 43 but larger than the bar 40, or a portion thereof having a reduced section, as aforementioned, and which is of a length suitable thereto.

The apparatus hereof may be fabricated of metal, such as aluminum, affording it the desired strength, durability, and weight, and in which it may be cheaply and easily fabricated as by casting.

It will be understood further that the apparatus may be employed in a wide variety of body conditioning exercises such as to flex and tone the muscles, ligaments and cartilages of the legs, arms and trunk. All such exercises may be performed in a confined space with no special preparation or fitting out. And in any performance of all said exercises, the apparatus hereof is found safe and simple to use, requiring as it does no tools or accessory devices.

It will be appreciated also that my novel apparatus is adapted for progressive-weight-adding, and also for stationary or isometric, conditioning work or exercises.

Particular exercises for which the apparatus is especially suited include leg exercises wherein the apparatus is held by the hand as at the handle 17 and with the element 18 applied to the instep of the foot, and over the shoe or sneakers, FIG. 2. The leg is then swung forward or backward, or raised with bent knee against, or with.

the weight of the apparatus. It will be appreciated that the body engageable element **18** may also be applied otherwise to the body, as to the heel, or to the thigh above the knee, in the wide variety of exercises with which the apparatus may be utilized. Numerous other such exercises may comprise the manifold arm and trunk manipulations to which it is also adapted, including exercises in which the apparatus is in the FIGS. 1 and 4 embodiment suspended by the handle **17**, or in the FIGS. 5 to 8 embodiment held in both hands.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. A body conditioning apparatus comprising a rigid straight bar member of generally uniform section, said bar member having an exposed length intermediate its ends which is adapted in shape and proportion for snug, axial sliding relation with associated apparatus parts to be laterally applied thereto;

a plurality of body engageable elements;

means rigidly associated said body engageable elements with and at the opposite ends of said bar member;

said body engageable elements having a larger cross-section than the cross-section of said exposed bar length;

at least one of said body engageable elements comprising an element shaped and proportioned for engagement by the hand;

at least one of said body engageable elements comprising a yoke adapting it for application to the dorsal side of the instep;

at least one of said body engageable elements projecting divergently from the axial direction of said bar whereby when said apparatus is engaged between one hand and one foot, said bar member and any said associated apparatus parts are removed to the extent of said divergent projecting from unwanted contact with body portions intervening between said hand and foot; and

a set of one or more weighting members adapted to be removably mounted and shiftably carried on said bar member, said set of one or more weighting members comprising a disc having a central axial bore passage shaped and proportioned for snug sliding fit on said bar member, said disc further having a slot extending from said passage to the disc periphery and which in its smallest diameter is larger than at least a portion of said exposed length of said bar member.

2. A body conditioning apparatus according to claim **1** wherein both said portions of said exposed length of said bar member and said smallest dimension of said slot of said disc are reduced in proportion from that of the remainder of said exposed bar member length, whereby the one or more disc members of said set may be applied to and removed from said bar only at said portion of its said length, and whereby said disc members may be securely slid along the remainder of said exposed length of said bar.

3. A body conditioning apparatus according to claim **1** wherein said body engageable elements are formed with sockets receiving the ends of said bar member, and pin means transversely received through and securing together said body engageable elements and bar member ends.

4. The body conditioning apparatus of claim **1** wherein the body engageable element that is formed as a yoke has a generally cylindrical body which is transversely recessed in one direction to present an elliptical body contacting surface, and which is oppositely reduced in the normal direction to define symmetrically tapering yoke sides.

5. The body conditioning apparatus of claim **1**, wherein one of said body engageable elements has a generally cylindrical body and is formed also with a transverse in facing surface surrounding said bar member, said element surface being adapted to seat and support said set of one or more removably mounted, shiftably carried weighting members.

6. A body conditioning apparatus according to claim **1** wherein said weighting members comprise a sleeve member slidably received on said bar member and exteriorly formed to be gripped by the hand, and means carried by said sleeve member for resiliently pressing against, and thereby braking the sliding of said sleeve along, said bar member, whereby said sleeve member may be closed against the others of said set of one or more weighting members to releasably clamp them in desired apparatus weighting position on said bar and between said sleeve and one of said body engageable elements.

7. The body conditioning apparatus of claim **1** wherein one of said body engageable elements comprises a yoke forming portion and a sleeve portion extending inwardly coaxially over the end of said bar member from the base of said yoke forming portion, and wherein said weighting members comprise a split sleeve receivable over said sleeve portion and seatable against said yoke forming portion of said one of said body engageable elements, said split sleeve presenting an axial opening smaller than said stem but large enough to permit said sleeve opening to be passed transversely over at least a portion of said exposed length of said bar member.

8. The body conditioning apparatus of claim **1** wherein that one of said set of one or more weighting members which is furthest removed from the body engageable element against which the set is engaged is provided with means for resiliently pressing against said bar member, said resiliently pressing means frictionally engaging said member whereby said set is braked against unwanted shifting on said bar member in the normal manipulation of said body conditioning apparatus.

9. A body conditioning apparatus according to claim **1** wherein the weighting members at the opposite limits of said set of one or more such members are provided with means for resiliently pressing against said bar member, said resiliently pressing means frictionally engaging said member whereby said set may be adjustably positioned at any desired point along the length of said bar member, and whereby in said positioning said set is in its entirety braked against unwanted shifting in one or the other direction along said bar member.

10. A body conditioning apparatus according to claim **1** wherein said set of one or more weighting members comprise interfitting projections and recesses on their juxtaposed disc faces whereby they are nested in assembly on said bar member and thereby locked against unwanted removal from said bar member.

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