

Jan. 10, 1967

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3,297,320

DEVICE FOR STRETCH EXERCISING MUSCLES

Filed Sept. 10, 1963

Fig. 1.

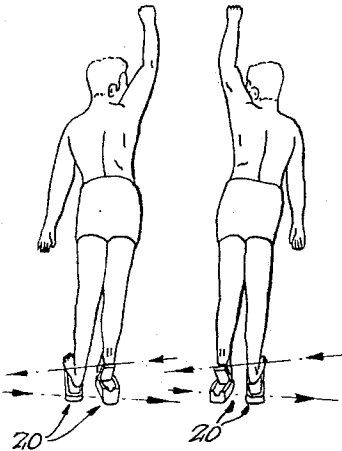


Fig. 2.

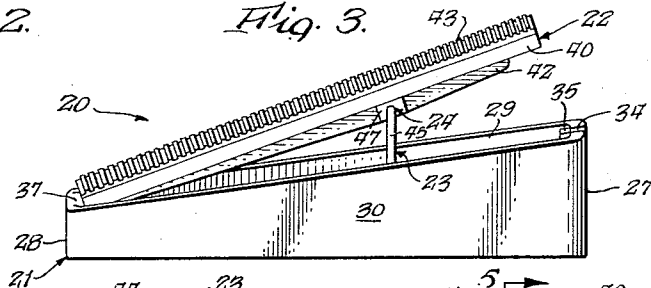


Fig. 3.

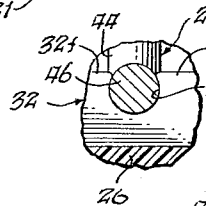
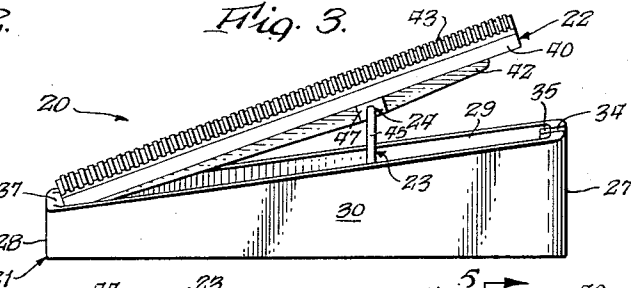


Fig. 9.

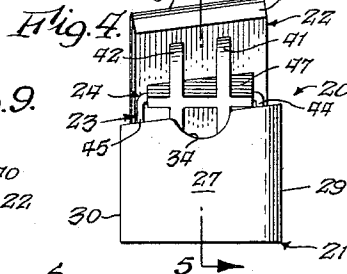


Fig. 5.

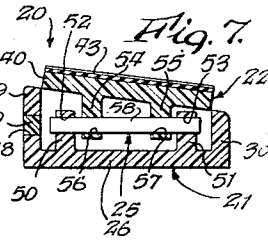
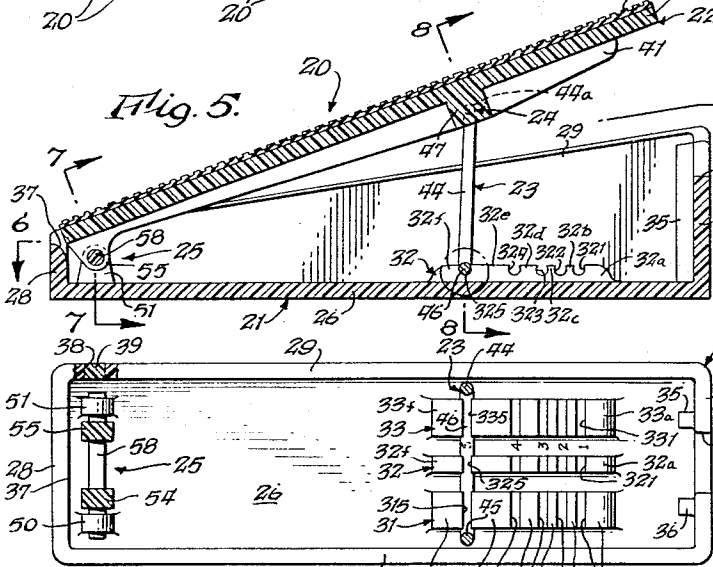


Fig. 7.

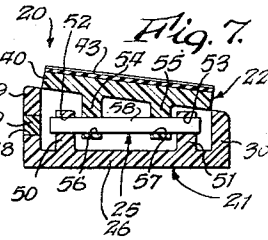


Fig. 8.

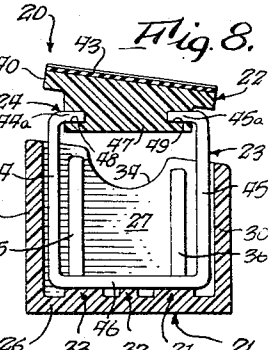


Fig. 6.

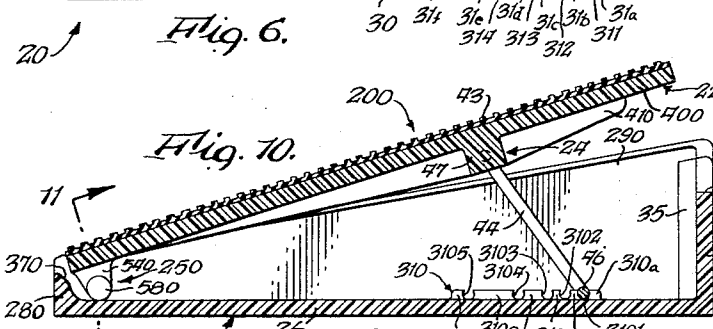


Fig. 10.

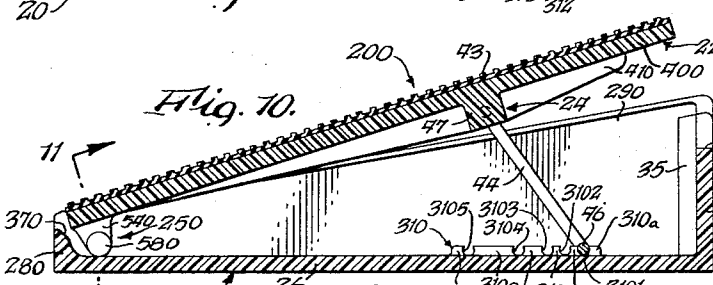
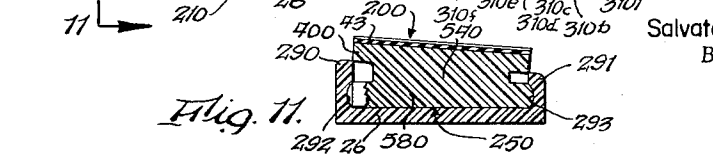


Fig. 11.



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DEVICE FOR STRETCH EXERCISING MUSCLES
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Filed Sept. 10, 1963, Ser. No. 307,824
5 Claims. (Cl. 272-57)

This invention relates to the art of exercising the muscles of the human body to improve physical fitness, and more particularly to new and improved apparatus especially adapted for use in exercising the skeletal muscles of the human body, which apparatus may be used without producing undue fatigue in the user, and is extremely effective in improving physical fitness, even though used for very short period of time each day.

Various types of physical fitness systems and devices have been proposed and utilized with varying degrees of satisfaction and success in realizing the objective sought. However, many of such systems and devices require a good deal of time and effort to use, which is a serious drawback especially in the case of an individual who lacks the time, or the strength to use one or several of such systems or devices.

The apparatus of the present invention avoids the disadvantages of such prior art physical fitness systems and devices; may be used to perform passive exercises on the muscles and joints of the human body without producing any undue fatigue, stress, or strain, and provide beneficial physical exercise, even when used for only two to four minutes a day. Basically, the apparatus of the invention forms a means for applying the principle of stretching the skeletal muscles of the human body beyond the condition of normal usage, and maintaining these muscles in a stretched condition for a brief period of time.

Accordingly, a primary object of this invention is to provide new and improved muscle exercising apparatus, the proper use of which results in the improvement of a person's physical fitness through increased muscular strength and vigor, improved overall muscular tone, and improved body mechanics such as improved posture, better muscular efficiency and coordination, increased joint mobility, and better distribution of body weight on the feet for ease and certainty of locomotion, as well as through an improved feeling of general well being.

Still another object is to provide new and improved muscle exercising apparatus, the proper use of which requires only a brief period of daily practice time.

Still another object of the invention is to provide new and improved muscle exercising apparatus which may be beneficially used by any normal person, regardless of sex or age.

Another object is to provide new and improved muscle exercising apparatus composed of a pair of devices which are not only especially adapted for use in muscle exercise, but which are also relatively simple in structure, inexpensive to manufacture, and rugged, yet light in weight for portability, as well as easy to use, easy to adjust without the need for complicated and expensive screw threaded operated mechanisms, and easy to assemble and disassemble for replacement or repair of parts.

Still another object of the invention is to provide new and improved muscle exercising apparatus wherein each device is adapted to provide stable and firm support for the user's foot in both a longitudinal and transverse direction.

Another object of the invention is to provide new and improved muscle exercising apparatus which is especially adapted to be used in practicing the disclosed muscle exercising method, which method not only constitutes a proper use of such apparatus but is also simple to follow, yet most effective in accomplishing the primary object of the invention.

A still further object of the invention is to provide new and improved muscle exercising apparatus, the proper use of which, in accordance with the disclosed exercising method, results in a balanced stretching of the anterior and posterior skeletal muscles on both sides of the body, including the inverter and evetor skeletal leg muscles.

The above and other objects and advantages of the invention will become apparent upon consideration of the following detailed description and accompanying drawing wherein:

FIG. 1 illustrates a pair of devices constituting a preferred embodiment of the muscle exercising apparatus of the invention, when being used in practicing one phase of the disclosed muscle exercising method;

FIG. 2 is a view similar to FIG. 1, but illustrates the muscle exercising devices when used in practicing another phase of the disclosed exercising method;

FIG. 3 is a side elevation of one of the muscle exercising devices illustrated in the preceding figures;

FIG. 4 is a front end view of the device of FIG. 3;

FIG. 5 is an enlarged sectional view taken generally along line 5-5 of FIG. 4;

FIG. 6 is a sectional view taken generally along line 6-6 of FIG. 5;

FIG. 7 is a sectional view taken generally along line 7-7 of FIG. 5;

FIG. 8 is a sectional view taken generally along line 8-8 of FIG. 5;

FIG. 9 is a fragmentary enlargement of the encircled portion of FIG. 5;

FIG. 10 is a sectional view similar to FIG. 5 but illustrating a modified device embodying the inventive apparatus, and

FIG. 11 is a sectional view taken on line 11-11 of FIG. 10.

Referring to FIGS. 1-9 of the drawings and particularly FIGS. 5 and 6, the numeral 20 identifies each of a pair of the identical devices constituting a preferred embodiment of the muscle exercising apparatus of the invention. Each device 20 essentially includes a base or housing 21, a foot supporting platform 22, a U-shaped bale 23, a front hinge 24 pivotally connecting bale 23 and platform 22 adjacent the front end of the platform, and a rear hinge 25 pivotally connecting the rear ends of base 21 and platform 22.

Base 21 is in the form of an elongated rectangular box which is preferably molded in one piece of suitable rigid and light weight, plastic material, such as high impact polystyrene. Box 21 includes a bottom wall 26, an open top, and a relatively high upstanding front end wall 27 and a relatively low upstanding rear end wall 28, each end wall being transversely inclined in the same direction, i.e. downwardly to the left, as viewed in FIG. 4, for a purpose to be described below. These end walls are connected by relatively high and low, transversely spaced and longitudinally inclined side walls 29, 30.

The bottom wall 26 is provided with preferably three elongated longitudinal lugs 31, 32, 33 adjacent front end wall 27, the two wider lugs 31 and 33 being spaced a substantial distance apart on each side of the third narrower lug 32 extending along the longitudinal center line or axis (not shown) of box 21. Each of these lugs is provided with a plurality of longitudinally spaced upstanding resilient wall portions, the wall portions of lug 31 being designated 31a, b, c, d, e and f, while such wall portions of lug 33 are designated as 33a-f and the wall portions of lug 32 being designated as 32a-f. (For clarity of illustration, only the wall portions of lug 31 are fully designated.) Each adjacent pair of such resilient wall portions, such as 32e and 32f forms a transverse through slot, such as 325, having a reduced upper entrance because of its greater than semicircular cross section, as best shown in FIG. 9.

Thus, the resilient wall portions in each lug form a series of longitudinally spaced slots, with the slots in each of the lugs being transversely aligned with the slots in the other lugs to form longitudinally spaced transverse sets of slots perpendicular to the longitudinal center line of box 21. The slots in lug 31 are designated as 311, 312, 313, 314 and 315, while the slots in lug 33 are designated 331-335 and the slots in lug 32 are designated as 321-325. (For clarity of illustration, only the slots of lug 31 are fully designated.)

The various longitudinal spacings of the sets of slots is designed to vary the inclination of platform 22 to the angle desired, this inclination varying from the lowest angle at position 1, through positions 2, 3 and 4, to the highest angle at position 5, the numerals indicating these positions conveniently being located on the upper surface of bottom wall 26 between lugs 32 and 33, as best shown in FIG. 6. The transverse spacing of the lugs 31, 32 and 33 is designed to minimize the amount of material required and hence the weight of the box 21, as well as to provide a firm, stable support for bale 23. It is to be noted that there is sufficient clearance between the outer lugs 31 and 33 and the adjacent side walls 30 and 29 respectively to permit movement of bale 23 for the desired engagement and disengagement between the bale 23 and any of the longitudinally spaced sets of slots.

As also seen in FIG. 8, front wall 27 is provided with an arcuate through finger receiving recess 34 in its upper edge, as well as a pair of upstanding lugs or supports 35, 36 recessed below the upper edge of the front wall on each side of recess 34, but spaced above the bottom of the recess. Supports 35, 36 are inclined transversely in the same direction as the upper edge of front wall 27 and are designed to support the front end of platform 22 when bale 23 is pivoted out of engagement with the sets of slots in lugs 31-33, i.e. when the device 20 is not in use. At the same time, the front end of platform 22 is readily accessible through recess 34 for manually varying the inclination of the platform to the angle desired.

Rear wall 28 of box 21 is beveled or tapered at 37 in order to provide the desired clearance for the rear end of platform 22 as it pivots on hinge 25. Higher side wall 29, as best seen in FIG. 7, is provided with a cylindrical transverse through access hole 38 adjacent rear wall 28 and a removable plug 39 closing such access hole in order to form part of and to facilitate assembly and disassembly of rear hinge 25 to be described.

As also seen in FIG. 4, platform 22 is composed of an elongated rectangular plate 40 which is preferably molded in one piece of the same polystyrene plastic as box 21 and is provided with a pair of transversely spaced and longitudinally extending integral reinforcing struts 41, 42 projecting downwardly from its underside. The upper side of plate 40 is provided with a transversely grooved pad 43 of rubber or the like, and which pad may be secured to plate 40 in any suitable manner, such as by an adhesive. As will be evident, the grooved surface of pad 43 provides a soft yet frictional support for the user's foot.

As illustrated in FIGS. 4, 7 and 8, the plate 40 of platform 22 is inclined transversely of box 21 in the same direction as end walls 27, 28. The purpose of this transverse inclination will become evident from the detailed description of the exercising method employing a pair of the devices 20.

Bale 23, as best shown in FIGS. 5 and 8, is preferably formed of round solid spring steel wire of about $\frac{3}{8}$ inch outer diameter and bent into the shape of a U to form a pair of transversely spaced resilient upper arms 44, 45 connected by a lower transverse leg 46. As illustrated in FIGS. 5, 6, 8, and particularly FIG. 9, lower leg 46 is slightly larger in diameter than the entrances to the sets of slots in lugs 31, 32 and 33, but is slightly smaller than the inner diameter of these slots. In view of the fact that the wall portions forming each slot are resilient,

the lower leg 46 of bale 23 is adapted to be sprung into and out of engagement with the appropriate set of slots by spreading such resilient wall portions apart, and these wall portions quickly recover to narrow the slot entrances once again and firmly grip the lower leg of the bale.

Thus, it is but a simple matter for the user to vary the inclination of platform 22 by manually raising and lowering the front end thereof for selective engagement between bale 23 and the appropriate set of slots in lugs 31, 32 and 33, the finger receiving recess 34 in front wall 27 permitting ready access to the front end of platform 22 when the same rests upon supports 35, 36 and bale 23 is pivoted out of engagement with the slots in the lugs.

As also seen in FIG. 8, the front hinge 24 includes an integral transverse lug or hinge portion 47 intersecting struts 41, 42 and depending downwardly from the underside of plate 40 adjacent the front end of platform 22. Hinge portion 47 is provided at its opposite end with a pair of opposed and transversely aligned, cylindrical recesses 48, 49. The front hinge 24 is completed by the intumed and transversely aligned upper end portions 44a and 45a of bale arms 44, 45 respectively, these end portions forming hinge pins pivotally engaged in recesses 48 and 49 respectively. As will be evident from FIGS. 5 and 8, the pivotal points of engagement between the hinge pins and opposed recesses are located along a front transverse axis perpendicular to the platform's longitudinal center line or axis (not shown and common to that of box 21). At the same time, these pivotal points are spaced a substantial distance apart on each side of this common longitudinal center line, and thereby provide a firm stable support for the foot of the user standing thereon.

Since the arms 44, 45 are resilient, and the spacing between hinge pins 44a and 45a is normally less than the transverse length of hinge portion 47, these hinge pins are adapted to be sprung into and out of engagement with the opposed recesses 48, 49 by forcibly spreading arms 44 and 45 transversely apart. This construction facilitates ready assembly and disassembly of front hinge 24.

The rear hinge 25, as clearly shown in FIG. 7, includes rear side wall portion 29, access hole 38 and plug 39, as well as a pair of transversely spaced lugs or hinge portions 50, 51 projecting upwardly from bottom wall 26 adjacent rear end wall 28 and side walls 29, 30. Hinge portions 50, 51 are provided respectively with cylindrical through holes 52 and 53 transversely aligned with access hole 38 along a rear transverse axis parallel to the front hinge axis. Projecting downwardly from the underside of the rear end of platform plate 40 and between hinge portions 50, 51 is a pair of transversely spaced lugs or hinge portions 54, 55 and provided respectively with cylindrical through holes 56, 57 also in transverse alignment with holes 38, 52 and 53. An elongated and cylindrical, transverse hinge pin 58 made of sufficiently strong plastic or metal, extends through the holes in the hinge portions and is removable through access hole 38 in side wall 29 for ready assembly and disassembly of rear hinge 25. Inasmuch as the pivotal points of engagement between hinge pin 58 and hinge portions 51, 52, 54 and 55 are spaced a substantial distance apart on each side of the common longitudinal center line of box 21 and platform 22, a firm, stable support also is provided at the rear of the device for the user's foot.

Referring now to FIGS. 10 and 11, a slightly modified device is generally indicated at 200. (The same numerals are used for the parts of device 200 corresponding to those of device 20, except where modified, and in these instances, the modified parts of device 200 are indicated by numerals increased by a factor of 100 over the unmodified parts of device 20.)

The first difference in device 200 appears in the construction of rear wall 280, which is substantially shorter than rear wall 28 and is beveled more steeply at 370. This

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necessarily increases the longitudinal inclination of side walls 290 and 300 (the latter not being shown) as compared to side walls 29, 30. As a consequence, the lugs 310, 320 and 330 (the latter two not being shown) on bottom wall 26 are somewhat shorter in length than lugs 31, 32, and 33 respectively. Moreover, the arrangement of resilient wall portions 310a-f, 320a-f and 330a-f (the latter two not being shown) varies from that of 31a-f and 33a-f, as does the arrangement of the series transverse slots 3101-3105, 3201-3205 and 3301-3305 (the latter two series not being shown). The net result is that the transverse sets of slots in modified device 200 are not alined with the transverse sets of slots in device 20, although the positions 1-5 (not shown) in modified device 200 will provide for the essentially same angle of inclination of platform 220, as for platform 22. In order to further reduce weight and amount of material used, the lugs 310, 320 and 330 are not as high as lugs 31, 32 and 33, and the slots in the former terminate adjacent bottom wall 26 instead of being spaced above the bottom wall, as in device 20.

The remaining difference between the two devices is found in rear hinge 250, which includes the hinge forming portions of side walls 290 and 291 adjacent rear wall 280, as best seen in FIG. 11. These rear side wall portions 290 and 291 are resilient and are provided with a pair of circular and transversely alined, facing recesses 292 and 293. These recesses are shallow and are rounded to a concave shape. Rear hinge 250 is completed by a single transverse lug or hinge portion 540 projecting downwardly from the underside of platform plate 400 and terminating in a single, elongated transverse hinge pin 580 having convexly rounded outer ends pivotally engaged in recesses 292, 293. As will be evident from FIG. 11, these pivotal points formed by the engagement between the outer ends of hinge pin 580 and recesses 292, 293, are located along a rear transverse axis parallel to the transverse axis of front hinge 24, and are spaced a substantial distance apart on each side of the common longitudinal center line of box 210 and platform 220, in order to provide a firm and stable support at the rear of device 200 for the user's foot.

Rear hinge 250 in modified device 200 has several advantages over rear hinge of device 20. First of all, the number of parts are considerably reduced since there is only one pair of hinge portions formed by rear side wall portions 290, 291, and a single hinge pin 580 depending from platform 220, as compared to the two pair of hinge portions and separate hinge pin required for rear hinge 25. Moreover, assembly and disassembly of rear hinge 250 is somewhat easier than is rear hinge 25. Since the hinge pin 580 is slightly longer than the distance between the resilient hinge forming side wall portions 290, 291, the hinge pin 580 is adapted to be sprung into and out of engagement with recesses 292, 293 by forcibly spreading side wall portions 290, 291 apart, and which portions will readily recover to firmly grip the outer ends of hinge pin 580. Thus, the required removal of plug 39 from side wall portion 29 prior to removal of hinge pin 58, in device 20, as shown in FIG. 7, is eliminated by the design of rear hinge 250 in device 200.

From the foregoing detailed description of devices 20 and 200, it will now be apparent how each accomplishes the desired objectives of simplicity in structure and economy of manufacture, since the number of parts are reduced to the practical minimum by molding the box and platform in one piece from suitable plastic. It will also be evident that each device is rugged, yet light in weight and thereby readily portable by the user. Likewise, each device is easy to use and adjust, as manual raising and lowering of the front end of the platform for selective engagement between the bale and the appropriate set of slots will readily vary the inclination of the platform to the desired angle. In addition, each

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device may be assembled and disassembled readily, because the bale can be sprung into and out of engagement with the slots, and both the front and rear hinges can be taken apart and put together easily. Moreover, by virtue of the spacing of the pivotal points and the points of engagement between the bale and the slots, a substantial distance apart on each side of the common longitudinal center line of the platform and box, a firm and stable support is provided for the user's foot in both a longitudinal and transverse direction.

Thus, when properly used in the manner described below, the aforesaid devices, which constitute preferred embodiments of the inventive apparatus, provide most effective means for improving the physical fitness of the user.

In practicing the following muscle exercising method with the apparatus of the invention, a pair of the identical foot supporting devices 20 or 200 are placed side by side a short distance apart upon a level horizontal surface such as a floor, and in substantially transverse and longitudinal alinement so that a person may stand thereupon, as illustrated in FIGS. 1 and 2 with devices 20. Since the technique is exactly the same whether devices 20 or 200 are used, the ensuing description will make reference to device 20 only, for simplicity. In placing the devices 20, as illustrated in FIG. 1, one of the pair is arranged so that the platform 22 will slope longitudinally downwardly from the heel to the toes of the user's right foot, and transversely downwardly from the outside to the inside of the foot as shown by the arrow, while the other device 20 is placed so that the platform 22 will slope downwardly from the toes of the left foot to the heel thereof, and transversely downwardly from the outside to the inside of the foot as shown by the arrow. During initial use of the devices, the platforms are equally adjusted by the user to the angle which will result in the desired stretching of his muscles, without causing undue strain thereon. This is simply accomplished by manually raising or lowering the front end of the platform 22 until the lower transverse leg 46 of bale 23 is engaged in the appropriate numbered set of slots, such as 1 representing the lowest position.

In practicing the first phase of the method, the user, either in bare or stocking feet, mounts the previously arranged devices so that the heel of the right foot is higher than the heel of the left foot, he straightens both knees and maintains his knees in this position. He then stands straight or erect, and raises his right hand overhead while closing or clenching the fist thereof. He lowers the left arm toward the floor and opens or extends his fingers and simultaneously turns his head toward the right, all as shown in FIG. 1. Upon assuming this position the user feels a pulling sensation on the skeletal muscles affected because these muscles are stretched, and he remains standing in this position for a brief time of about twenty to thirty seconds, thereby maintaining these muscles in such stretched condition.

The user then gets off the devices 20 and reverses the relative positions thereof by simply lifting one, e.g. the one on the right, over the other, e.g. the one on the left. Thus, as illustrated in FIG. 2, the devices are now so arranged that the one on his left side will have its platform 22 sloping longitudinally downwardly from heel to toes, and transversely downwardly from the inside to the outside of the foot as shown by the arrow, while the platform of the device on his right side slopes longitudinally downwardly from toes to heel, and transversely downwardly from the inside to the outside of the foot as shown by the arrow.

In practicing the second phase of the method, the user again mounts the rearranged devices, straightens both knees and stands erect. He then raises his left arm overhead and closes his fist while lowering the right arm toward the floor with open or extended fingers and simultaneously turns his head toward the left. Upon assum-

ing this position the user feels a pulling sensation on the skeletal muscles affected because these muscles are stretched, and he remains standing in this position for a brief time of about twenty to thirty seconds, thereby maintaining these muscles in such stretched condition. As will be apparent, the user could, if he so desired, initiate the exercise by elevating the arm and heel of the foot on the left side of his body rather than on the right side, as described above.

From a consideration of the foregoing description of both phases of the exercising method when practiced with the inventive apparatus, as illustrated in FIGS. 1 and 2, it will be evident that the anterior skeletal muscles on one side of the body, and the posterior skeletal muscles on the other side of the body will be stretched during each phase, thereby inherently resulting in a balanced stretching of the anterior and posterior skeletal muscles on both sides of the body, because of the opposite and equal nature of the two phases. More specifically, in practicing the first phase of the method, wherein the right arm and heel are elevated, the anterior skeletal muscles on the entire right side of the body, including those of the downwardly pointed foot, straight leg, erect trunk and elevated arm, will be stretched, while the posterior skeletal muscles on the entire left side of the body, including those of the upwardly pointed foot, straight leg, erect trunk and lowered arm, will be stretched. Of course, the opposite will be true on practicing the second phase of the method, wherein the left arm and heel are raised. In practicing either phase however, the ancillary steps of clenching the elevated fist, extending the fingers of the hand on the lowered arm and turning the head toward the elevated arm, increase the desired stretching effect, especially on the muscles of these parts themselves, as well as the muscles adjacent thereto.

Moreover, during each phase, the corresponding lateral skeletal muscles of both legs, i.e.: either the inverter or everter muscles, will be stretched because of the opposite and equal transverse angles of the feet corresponding to the opposite and equal transverse angles of the oppositely arranged, identical foot supporting platforms 22. For example, in practicing the first phase, as described above and illustrated in FIG. 1, the downwardly and inwardly converging transverse angular relationship of the user's feet causes the inverter muscles located on the inside of both legs to be stretched, while the opposite transverse angular relationship of the feet shown in FIG. 2 causes the everter muscles located on the outside of both legs to be stretched. These inverter and everter muscles have the task of maintaining the foot in normal position for proper locomotion, the inverter muscles tending to turn the foot inwardly, while the everter muscles tend to turn the foot outwardly. Thus, the stretching of both of these types of muscles, not only strengthens them, but maintains a proper balance in their relative strength to more equally distribute body weight on each foot, and to produce a normal range of locomotion, thereby making walking not only possible, but an act which is performed with both ease and certainty.

To obtain the most beneficial results, the foregoing exercise should be performed at least twice a day, that is, upon rising and again just before retiring and may be performed in midafternoon, if possible. During the first week, the lowest useful angle of the platform is used; during the second week, the platform angularity is increased to the next higher angle, and subsequently, the angle is further increased until position No. 5 is used. Thereafter, the platform is maintained at the maximum angle No. 5 position permanently, and the exercise is repeated regularly each day in the prescribed manner.

It will be found that by regularly following the above described method, and using the inventive devices 20 or 200 for practicing the method, the user will improve his physical fitness considerably, since his muscular strength and vigor will be increased, his overall muscular

tone will be improved, and such physical fitness improvement will further be realized by improved body mechanics such as improved posture, better muscular efficiency and coordination, increased joint mobility, and a better distribution of body weight on the feet for ease and certainty of locomotion, as well as by an improved feeling of general well being. While the exercising method may be practiced by means other than the inventive devices 20 or 200 specifically disclosed herein, the basic principle involved, namely the stretching of the body muscles, and particularly the skeletal muscles, for very brief periods of time each day, remains the same, and this principle is applied most effectively when using such inventive devices.

Even though the invention has been described above in detail by reference to the muscle exercising apparatus constituting preferred embodiments thereof, it is to be understood that various changes and modifications may be made therein by those skilled in the art without departing from the concept of the invention, the scope of which is to be determined by the appended claims.

What is claimed is:

1. A device upon which the user stands for exercising the muscles of the human body to improve physical fitness, said device comprising: a base in the form of an elongated generally rectangular box molded in one piece of plastic material and including a bottom wall, an open top, a front end wall, a lower rear end wall, and longitudinally inclined transversely spaced side walls connecting said end walls, said front and rear end walls being inclined transversely of said box in the same direction, said front end wall being provided with a through finger receiving recess in its upper edge and a pair of outstanding internal supports recessed below said upper edge on each side of but above the bottom of said recess, said bottom wall being provided with several elongated longitudinal lugs adjacent said front end wall, two of said lugs being spaced transversely a substantial distance apart on each side of a third lug extending along the longitudinal center line of said box, each of said lugs being provided with longitudinally spaced wall portions forming a series of longitudinally spaced transverse through slots, with the slots in each of said lugs being transversely aligned with the slots in the other lugs to form longitudinally spaced transverse sets of slots; an elongated foot supporting platform molded in one piece of plastic material and adapted to be inclined longitudinally above said box, said platform including a rear end, a front end adapted to rest upon said supports and accessible through said recess, and an upper surface inclined transversely of said box in the same direction as said end walls; a generally U-shaped round wire bale including a pair of transversely spaced arms connected by a lower transverse leg adapted to be inserted into and out of engagement with said sets of slots; a front hinge pivotally connecting said arms and said platform adjacent said front end thereof and along a first transverse axis at points spaced a substantial distance apart on each side of the longitudinal center line of said platform common to the longitudinal center line of said box; and a rear hinge pivotally connecting said rear end of said platform to said bottom wall adjacent said rear wall along a second transverse axis parallel to said first axis at points spaced a substantial distance apart on each side of said common longitudinal center line; whereby the inclination of said platform can be varied readily by manually raising and lowering said front end of said platform for selective engagement and disengagement between said bale and sets of slots.
2. The device of claim 1, wherein said arms are resilient, and said front hinge includes a transverse hinge portion projecting downwardly from said platform adjacent said front end thereof and provided with a pair of transversely aligned opposed recesses in its opposite ends, and a pair of inwardly turned transverse upper ends on

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said arms and forming hinge pins engaged in said opposed recesses, said hinge pins being adapted to be sprung into and out of engagement with said opposed recesses by forcibly spreading said arms transversely apart, whereby said front hinge can be assembled and disassembled readily.

3. The device of claim 2, wherein said rear hinge includes portions of said side walls adjacent said rear end wall, one of said side wall portions having a through transverse access hole, a removable plug closing said access hole, a first pair of transversely spaced hinge portions projecting upwardly from said bottom wall between said side wall portions and provided with through holes transversely aligned with said access hole, a second pair of transversely spaced hinge portions projecting downwardly from said rear end of said platform between said first pair of hinge portions and provided with through holes also transversely aligned with said access hole, and an elongated transverse hinge pin extending through said holes in said hinge portions and removable through said access hole, whereby said rear hinge can be assembled and disassembled readily.

4. The device of claim 2, wherein said rear hinge includes resilient hinge forming portions of said side walls adjacent said rear end wall, said side wall portions being provided with a pair of transversely aligned facing recesses, and a hinge portion projecting downwardly from said rear end of said platform and terminating in an elongated transverse hinge pin engaged in said facing

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recesses, said hinge pin being slightly longer than the spacing between said side wall portions but being adapted to be sprung into and out of engagement with said facing recesses for forcibly spreading said side wall portions apart, whereby said rear hinge can be assembled and disassembled readily.

5. The device of claim 4, wherein said longitudinally spaced wall portions of each of said lugs are resilient, said transverse through slots have reduced upper entrances because of their greater than semi-circular cross section, and said lower transverse leg of said U-shaped bale is slightly larger than said entrances so as to be inserted into and out of engagement with said sets of slots by forcibly spreading said resilient wall portions apart.

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