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(54) **LIGHT WEIGHT AND PORTABLE EXERCISE DEVICE WITH BENCH SEAT**

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(57) **ABSTRACT**

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The present invention is in the field of exercise equipment. The device utilizes two separate cables each rotatably wound about sheaves with resistance provided by means of friction braking mechanisms. It offers the user an adjustable incline bench seat, a variable resistance control means and the device is colapseable for compact storage and portability.

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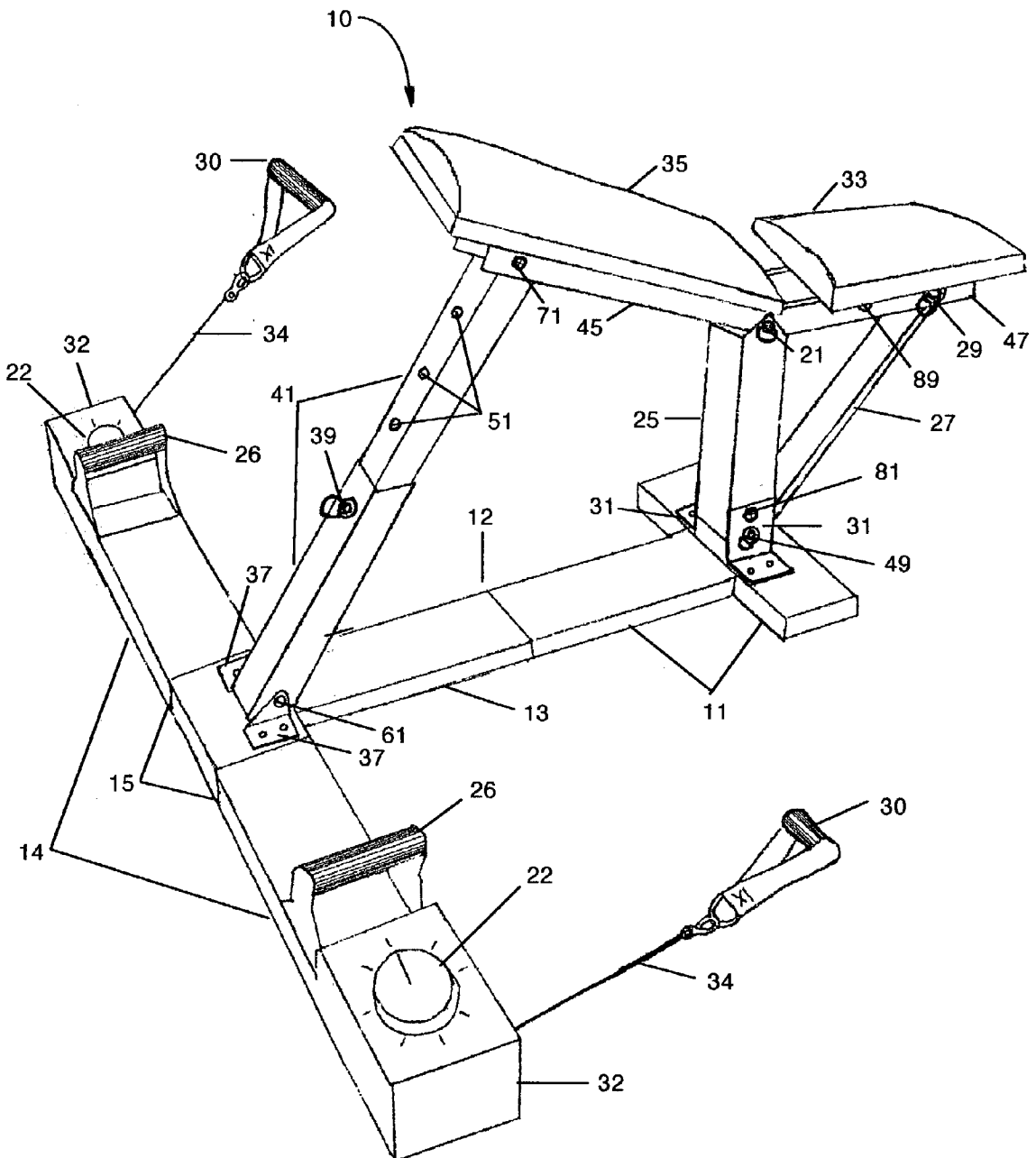


FIG. 1

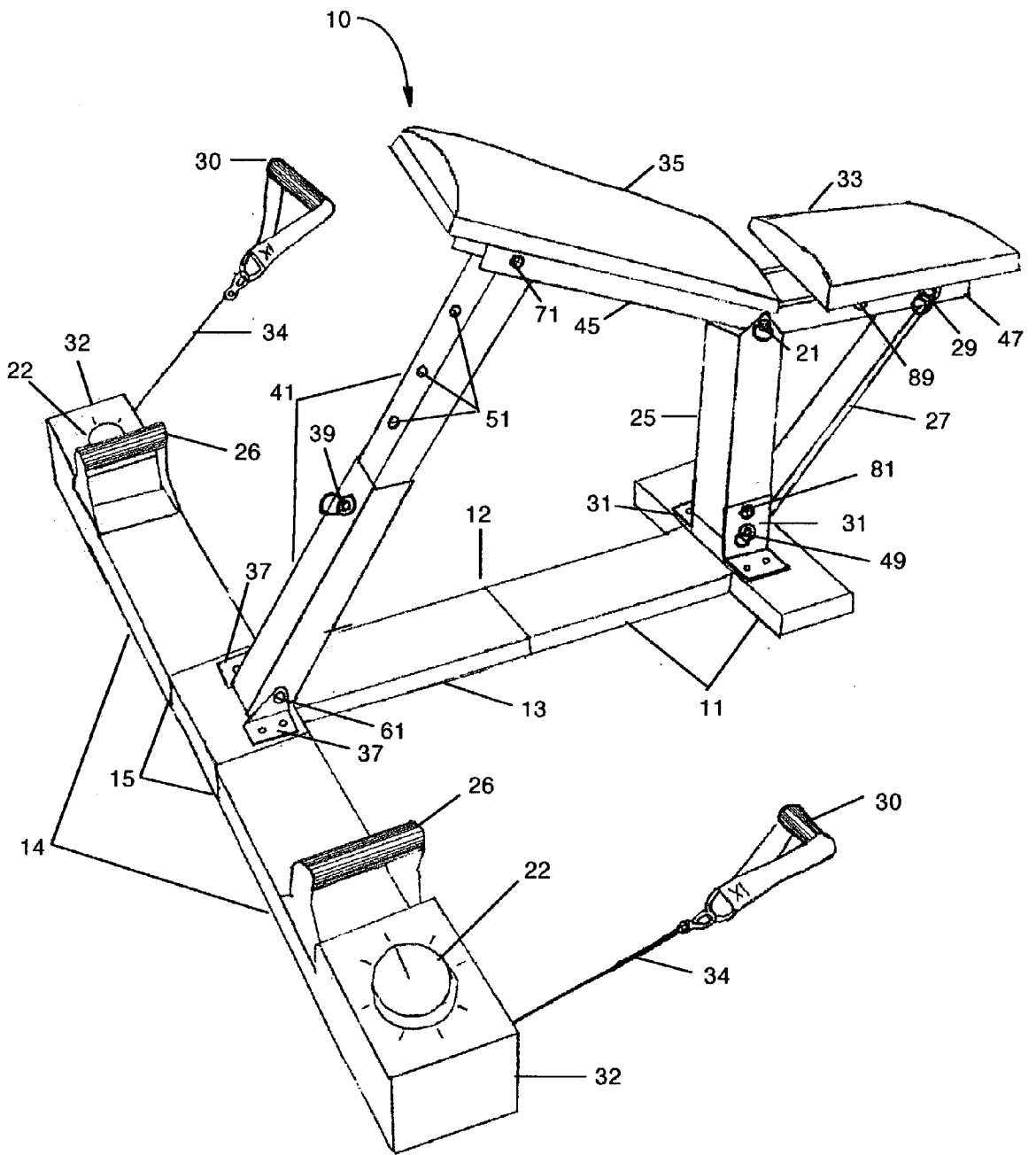


FIG. 2

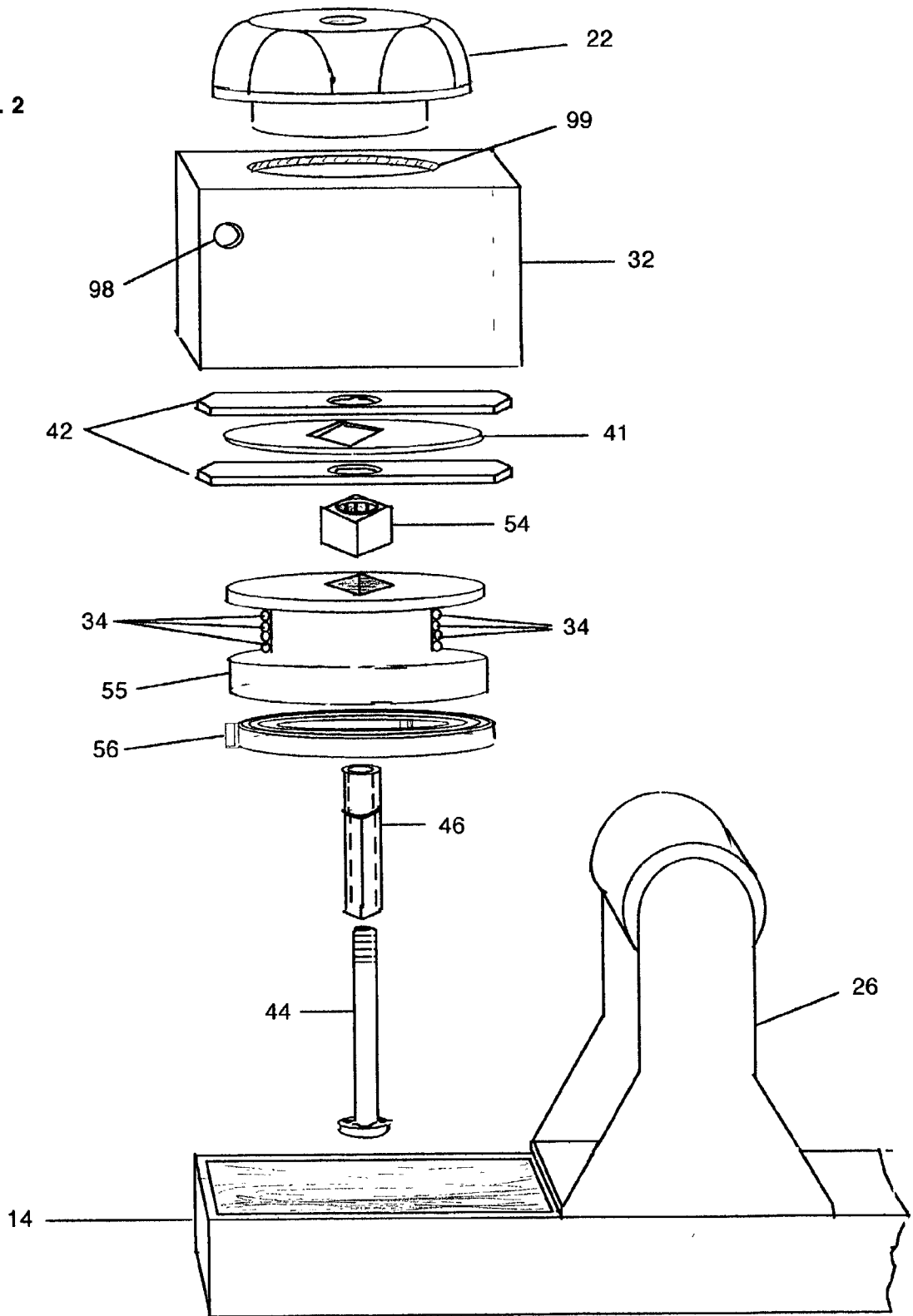
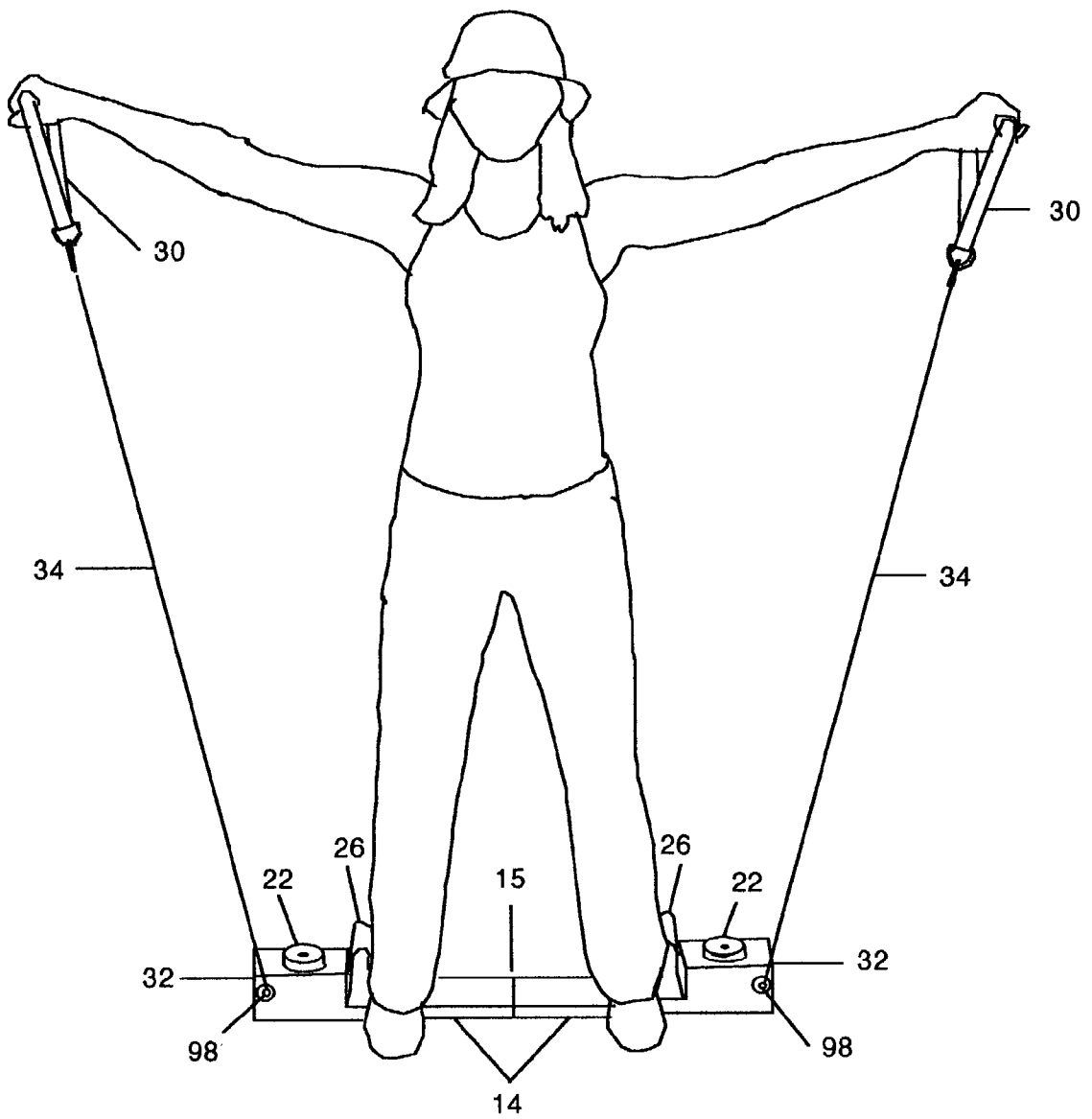


FIG. 3



LIGHT WEIGHT AND PORTABLE EXERCISE DEVICE WITH BENCH SEAT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Not applicable.

BACKGROUND

[0002] 1. Of Invention

[0003] This invention relates to the field of exercise equipment and more specifically compact and portable devices designed to exercise the human body.

[0004] 2. Description of Prior Art

[0005] Cable type exercise devices are nothing new, in fact these are the most popular and versatile exercise machines in a gym. Exercise equipment makers have scaled down the concept and utilized a brake or other friction system instead of weights to provide resistance. This frees designers to make these exercise devices smaller and more portable. Previous devices have certain disadvantages which limit their usefulness. For example; prior art does not offer the housing containing the friction systems and cables at the outer or lateral portions of the exercise devices. In this preferred configuration two independently adjustable cable resistance systems can be used, allowing each side of the body independent exercise. Other disadvantages of prior devices include a lack of add-on equipment for example the base portion on the Bruggermann, U.S. Pat. No. 5,505,681, Beeding, U.S. Pat. No. 3,929,331, Deluty, U.S. Pat. No. 3,995,853 and Francis, U.S. Pat. No. 4,944,511, exercise devices offer nothing in the way of add-ons such as an adjustable incline bench or a padded seat that allows exercisers to sit in comfort and still use the device. The Mackey, et al. device, U.S. Pat. No. 6,120,423 does offer the housings containing the friction systems and the cables at the lateral portions of the device, but the base is so large and cumbersome its usefulness is rather narrow.

SUMMARY OF INVENTION

[0006] The object of the present invention is to provide an independent pair of adjustable resistance modules, a sectional structure and an adjustable incline bench seat offering a great and varied amount of exercises that can be performed by a user on one device.

[0007] Another object of the present invention to provide a light weight, compact and portable exercise device by use of detachable sections.

[0008] Additionally, the adjustable incline bench seat sections may be used for certain exercises and then detached, allowing the user to perform other exercises that do not require the bench assembly.

[0009] The object of the present invention is to provide housings at the lateral or outer portions of the exercise device. This configuration will also allow the user a greater freedom and variety of exercises that can be performed.

[0010] It is another object of the present invention to provide a more efficient and economical friction/brake system with less total parts.

[0011] The objects and advantages in design of the present invention should become even more apparent, as will a better understanding of the concepts underlying by reference to a detailed description in conjunction with the drawings of the invention.

DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 shows a view of the assembled main embodiment.

[0013] FIG. 2 shows an exploded view of the resistance mechanism.

[0014] FIG. 3 show alternative embodiments of the present invention.

DESCRIPTION OF THE MAIN EMBODIMENT

[0015] FIG. 1 shows a preferred embodiment of a portable exercise device in accordance with the present invention generally designated as 10.

[0016] Referring to FIG. 1 the exercise device which includes sectional platform structures 11, 13 and 14 are coupled together by separable tongue and groove joint means at 12 and 15. The joint means are integrated into mating surfaces of the platform structures. Each section when coupled together is sturdy and rigid forming the platform of the exercise device. A sturdy post 25 is secured by L-brackets 31 welded onto section 11. A bolt 81 secures the post to the brackets, a removable drift pin 49 allows the post to be rigid or pivotable. Another set of L-brackets 37 welded to section 13 secure a telescoping spar 41, a bolt 61 attaches the spar to the brackets. A removable drift pin 39 allows the spar to extend and retract, when inserted into corresponding holes 51 drilled through the spar. A bolt 71 hingably attaches a seat back support 45 to the distal end of the spar and a cushioned seat back 35 is securely attached to the support. Another removable drift pin 21 hingably attaches the lower portion of the support 45 to the top of the post 25 and to a seat support 47. Securely attached to seat support 47 is a cushioned seat 33. A drift pin 29 attaches a racked stanchion 27 to the seat support, the opposite end of the stanchion rests on section 11, a bore 89 is drilled through seat support 47 to adjust the angle of the cushioned seat.

[0017] FIG. 2 shows housings 32, each is having a hollow interior cavity. Each interior cavity has a bolt 40 secured to its base with a threaded end portion extending through an aperture 99 on the top surface of the housing. A lumen in an axle shaft 46 allows it to be rotatably mounted onto the bolt, the axle shaft has a first portion which is square in section and a second portion being round in section. A sheave 55 has a square section cutout in the center and mounts onto the corresponding square section of the axle. A helically wound spring 56 is secured into a concavity in the bottom portion of the sheave 55. A one-way clutch means 54 which is square in section and is rotatably mounted onto the round portion of the axle 46. The clutch means permits free rotation of the sheave and shaft in a recoil direction shown by arrow 1, but locks onto the axle and sheave in an opposite unwinding direction. A friction pad 42 is wedged non-rotatably against the corners of the housing 32, with a central bore permitting the bolt 40, axle 46 and clutch means to extend through it. A friction disc 41 is secured to clutch 54 and a second friction pad 42 identical to the first pad mounted in the same

fashion sandwiches the disc 41. A resistance control knob 22 with its lower portion extending into an aperture 99, is threaded into the bolt 40 and when engaged creates frictional forces between the pads and the disc. Another aperture 98 in the housing allows a flexible cord 34 to extend with a free end attached to a hand grip 30 or other accessory and the opposite end wound around sheave 55. Secured to sections 14 are exercise handles 26 and can be used as push-up handles or to carry device 10.

[0018] Operation of a Preferred Embodiment

[0019] Once device 10 is assembled in accordance with the above, a user joins platform sections 11, 13 and 14 together using the tongue and groove joints at couplings 12 and 15. Then the user may adjust the incline of the cushioned seat back 35 by inserting pins 49, 39, 51 and 29 into into their respective positions. When the user achieves a desired position she may lay or sit on the cushioned bench 33 and use the hand grips 30 to exert a force on the cords 34. An adjustable amount of friction may be applied to resist the users pull on the cords, by manually turning knobs 22. Also when drift pins 49, 39, 51 and 29 are removed and platform sections 11, 13 and 14 are uncoupled the exercise device 10 is compact and can be stored in a small case.

[0020] Description of an Additional Embodiment

[0021] FIG. 3. Shows an additional embodiment which sectional platform structures 14 are coupled together by separable tongue and groove joint means at 15. This additional embodiment does not utilize the adjustable incline bench seat.

[0022] Operation of Second Embodiment

[0023] The user may sit or stand directly on the structures 14 and exert a pulling force on cords 34. If substantial resistance is desired knobs 22 may be adjusted. Additionally push-ups can be performed using handles 26 to increase the effectiveness of the movement.

CONCLUSION, RAMIFICATIONS, AND SCOPE

[0024] Accordingly, the reader will see that the exercise device can be use safely and efficiently to workout every major muscle group in the human body. In addition it offers the user a greater variety of exercise than other devices of its kind.

[0025] Furthermore, the exercise device has additional advantages in that;

- [0026]** 1. It permits the user to perform push-ups, utilizing the exercise handles long considered the best chest exercise.
- [0027]** 2. It provides independent resistance mechanisms for the right as well as the left side of the body.
- [0028]** 3. It offers the user compactability, and portability.

[0029] 4. It provides opportunities for add-on accessories.

[0030] Although the description above contains many specificities, these should not be construed as limiting the scope of the invention but as merely providing illustrations of some of the presently preferred embodiments of the invention.

What is claimed is:

1. A portable exercise device, comprising in combination:
 - a plurality of flat horizontal platform sections, each having a means for attachment to each other
 - a plurality of individual housings assemblies, each having a means for attachment to said flat horizontal platform sections
 - a plurality of individual and adjustable resistance mechanisms, each having a means for attachment within said individual housing assemblies
 - an adjustable, incline bench seat assembly, having a means for attachment to said a plurality of flat horizontal platform sections
 - a plurality of sturdy push-up handles contiguous with said flat horizontal platform sections
 - a plurality of control knob means, each having a means for attachment to said individual housing assemblies
2. The portable exercise device of claim 1 wherein: said flat horizontal platform sections are attached to each other respectively thereby forming a rigid base structure.
3. The portable exercise device of claim 2 further includes: a non-skid surface attachable to said flat horizontal platform sections.
4. The portable exercise device of claim 2 further including: elongated members hingably attached to one of said flat horizontal platform sections and an opposite end attached to said adjustable incline beach seat.
5. The portable exercise device of claim 4 wherein: said elongated members have an extendability and retractability means.
6. The portable exercise device of claim 1 wherein: each said individual housing assembly having a means of attachment on the lateral portions of the said flat horizontal platform sections.
7. The portable exercise device of claim 1 wherein: each said individual housing assembly has a hollow interior and surrounds said adjustable resistance mechanisms
8. The portable exercise device of claim 1 further includes: removable drift pins to adjust, detach and collapse said adjustable incline bench seat from said elongated members.

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