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(54) **PUSH-UP BENCH**

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(57) **ABSTRACT**

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An adjustable exercise device for performing push-ups is provided. The push-up bench is designed to accommodate exercisers of varying heights, sizes and fitness levels. The exercise device comprises a base assembly, an inclined exercise platform assembly flexibly attached to the base along one end by a hinge, and a connecting leg assembly which is connected to both the base and the inclined platform. Adjustment of the leg assembly with respect to the base adjusts the inclined platform from a fully horizontal position to multiple degrees of inclination, providing multiple degrees of exercise difficulty. The inclined platform also includes foot pads and hand grips to properly position the exerciser. The inclined platform is adjustable lengthwise to permit the distance between hand grips and foot pads to be adjusted, to accommodate users of varying heights. The adjustments provided by this invention facilitate the proper performance of push-ups.

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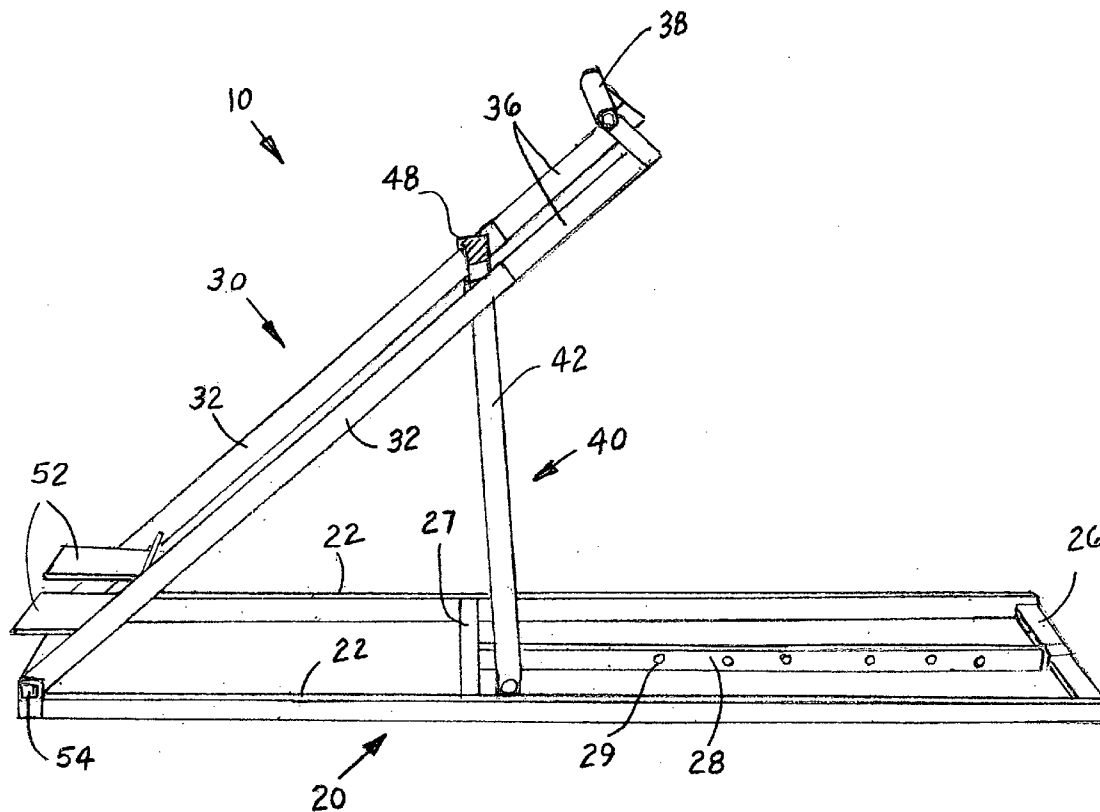
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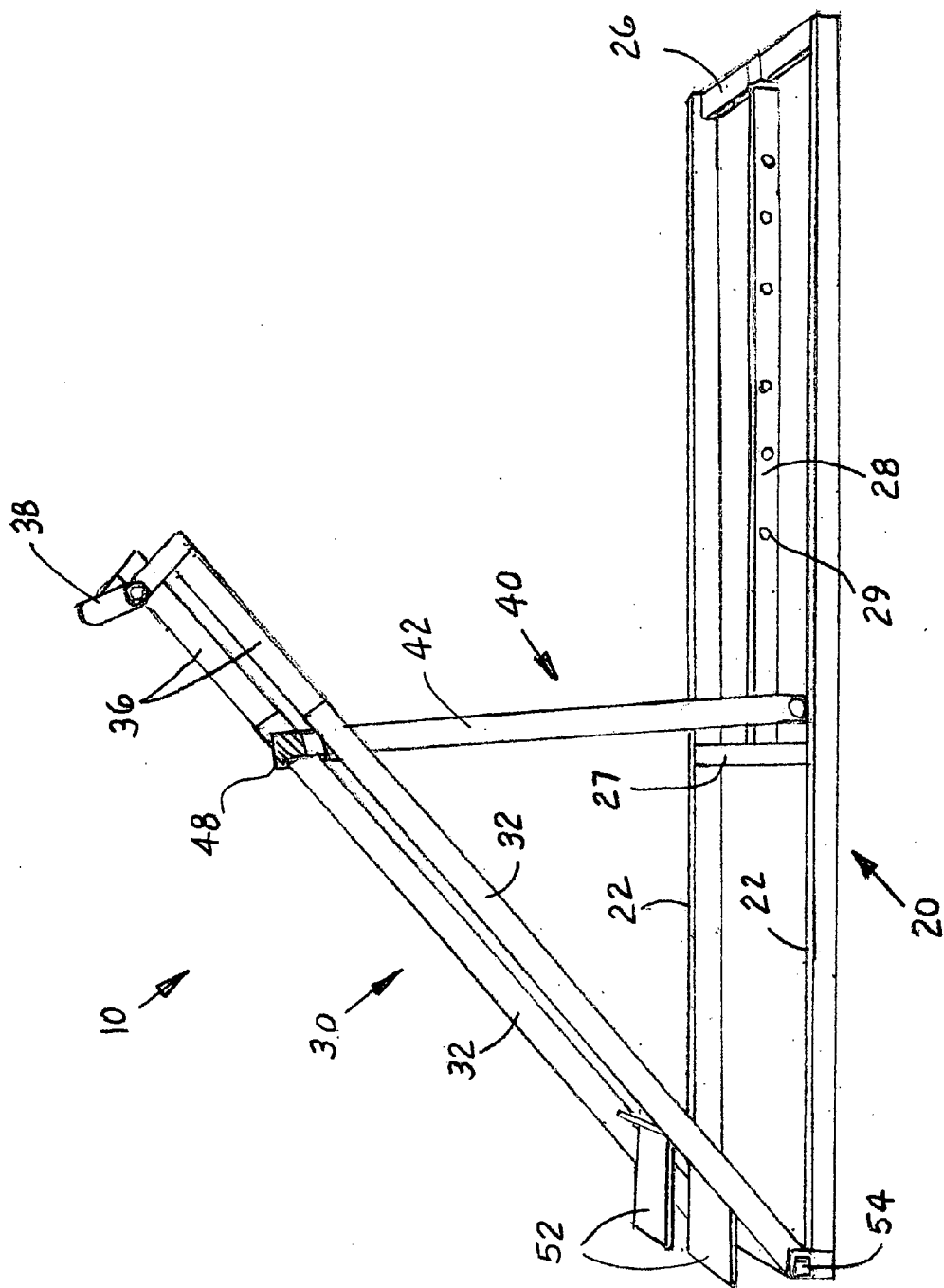
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(60) **Provisional application No. 60/822,548, filed on Aug. 16, 2006.**

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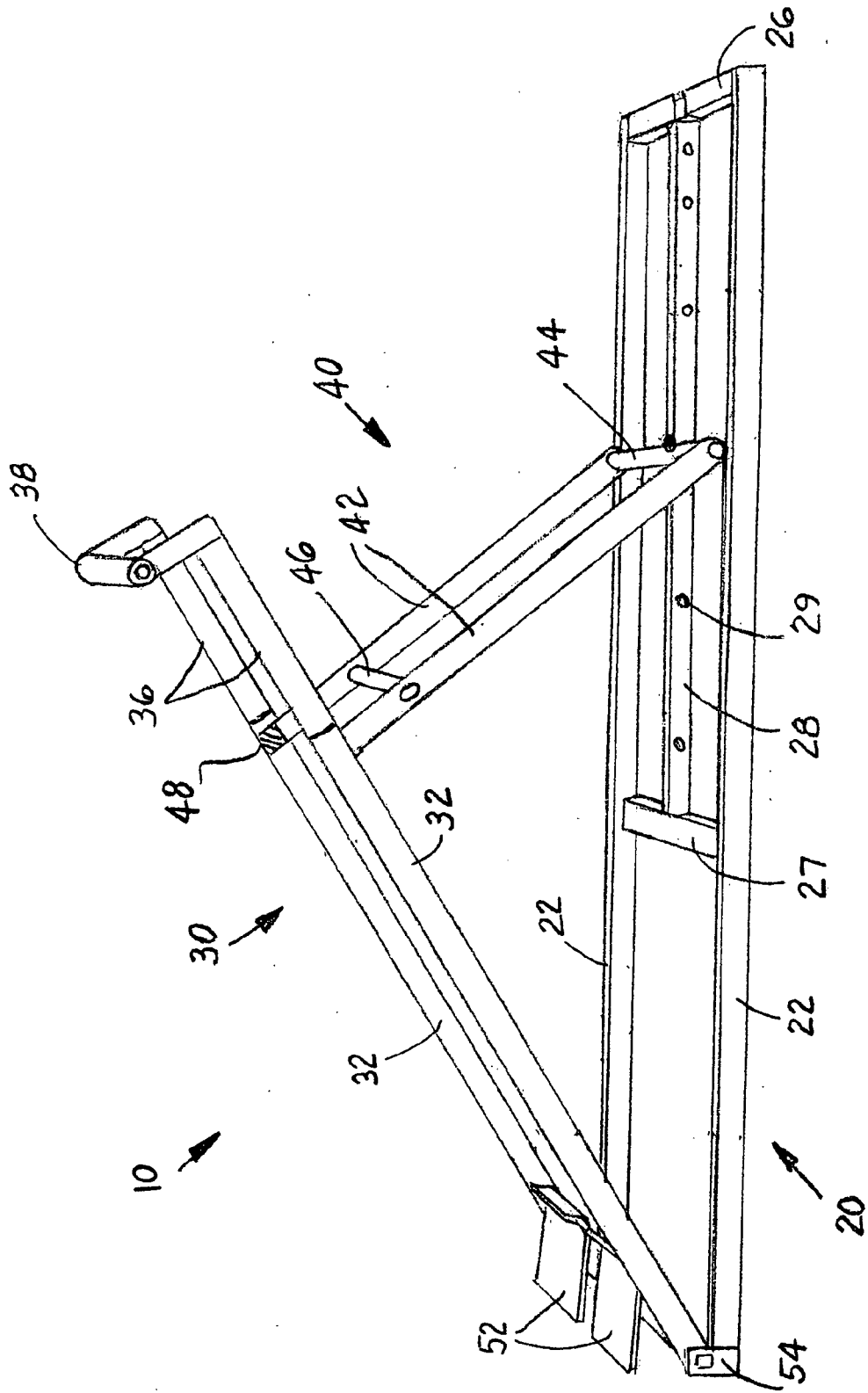


FIG. 2

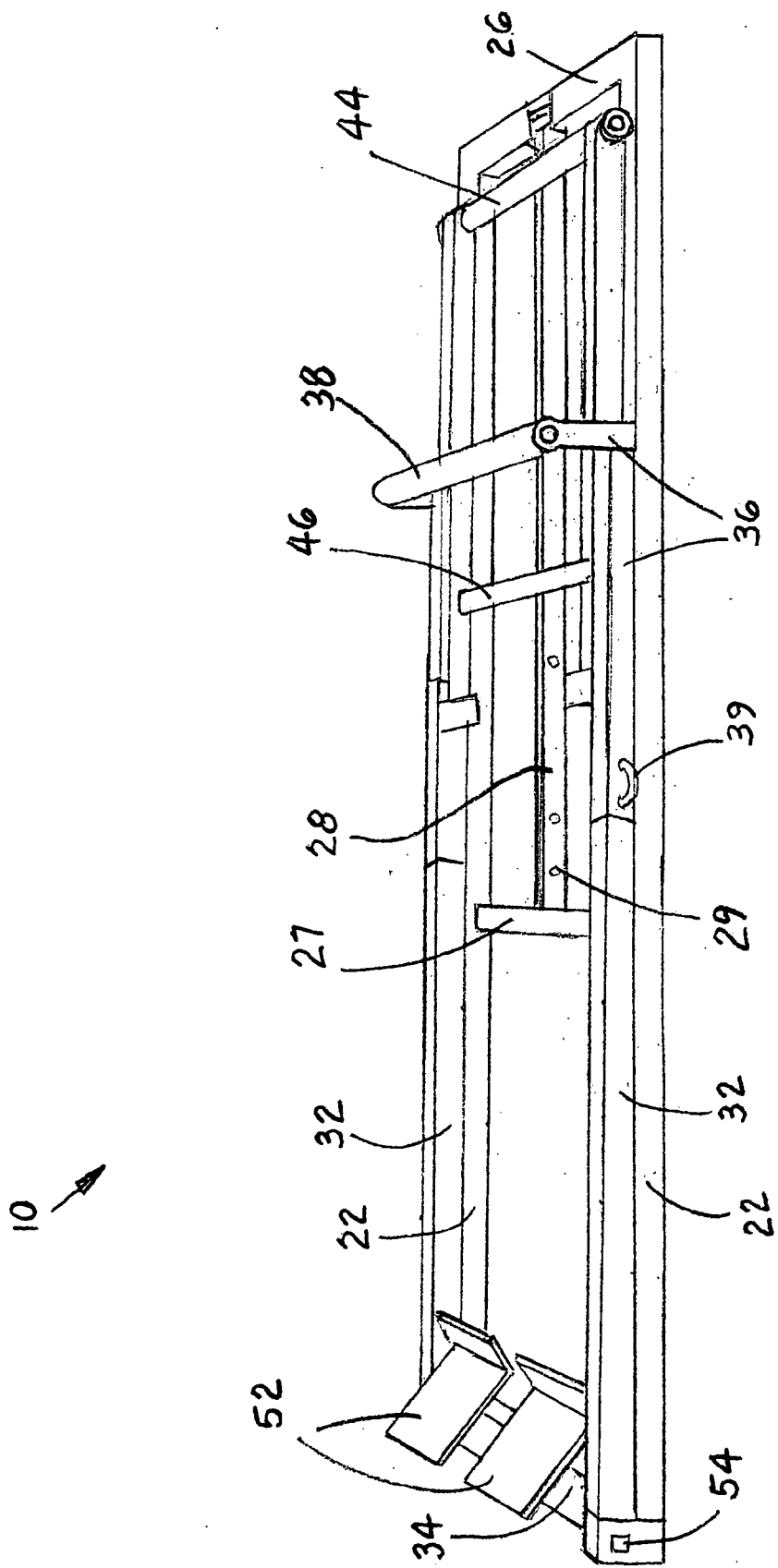


FIG. 3

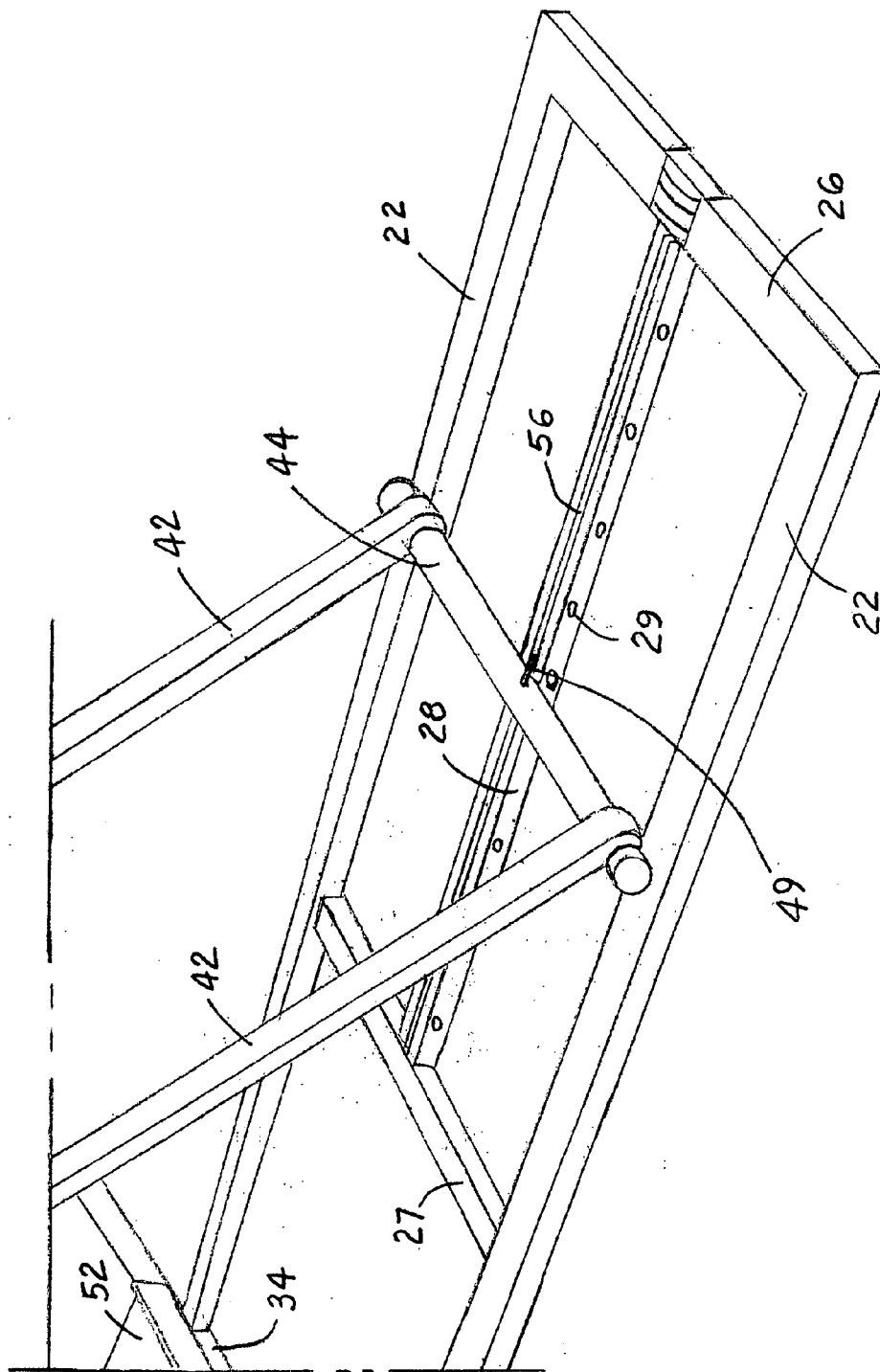


FIG. 4

PUSH-UP BENCH

CROSS REFERENCE TO RELATED APPLICATION

[0001] This patent application is related to and claims priority from U.S. Provisional Patent Application Ser. No. 60/822,548, filed Aug. 16, 2006.

FIELD OF THE INVENTION

[0002] The present invention relates, in general, to exercise equipment and, more particularly, this invention relates to an adjustable push-up bench.

BACKGROUND OF THE INVENTION

[0003] Many exercising adults and children performing push-ups experience difficulty, often because a lack of upper body strength may not allow for effective performance in the standard position. There is a need in the art for a simple and effective device to provide users of any ability the encouragement and support to begin and continue a routine of push-ups designed to build muscle strength, endurance and definition.

[0004] Prior to the conception and development of the present invention, as is generally well known in the prior art, several examples of push-up devices have been disclosed. Several examples disclose devices in which the exercise is completed at a non-adjustable fixed angle. One such example is provided in U.S. Pat. No. 5,226,868 to Montgomery, which discloses an exercise device comprising a push-up board that includes two push-up handles. The handles can be mounted at various positions on the board, providing the user multiple exercise routines.

[0005] Other examples disclose push-up devices that allow a user to perform inclined push-ups, but only at a fixed angle. U.S. Pat. No. 5,928,119 to Dinkel discloses an inclined push-up device for allowing persons with knee or back problems to exercise more safely. A static platform is utilized to allow a user to complete push-ups from an inclined but fixed angle. U.S. Pat. No. 5,181,897 to Agan discloses an inclined push-up exercise apparatus in which the device is positioned against the edge of a wall, desk or the like, creating the opportunity to complete inclined push-ups at a fixed angle. The angle of inclination is dependent on the surface chosen to position the device.

[0006] Other push-up devices provide a user the opportunity to complete push-ups from a variety of angles. U.S. Pat. No. 5,697,875 to Stan discloses a collapsible high-low push-up exerciser, in which a user positions a push-up bar at selected heights. The invention of Stan provides no support for the body of an exerciser, increasing stress upon the back and legs.

[0007] U.S. Pat. No. 7,060,014 to Bergman et al. discloses a device and method for performing push-ups. The Bergman device includes a body support platform upon which the user is restrained in a prone position by a combination of straps which may be tightened around the user's back and legs, causing possible discomfort. The body support platform is maintained at an angle with respect to a support base, and the angle may be adjusted by the user. The support base includes handles which may be ergonomically positioned to accommodate the physical requirements of users. The handles as disclosed by Bergman are attached to the support base rather than the body support platform. A bias mechanism such as

a series of elastomeric bands provides either assisting or resisting force, to be selected by the user.

[0008] The present invention, as described and claimed below, has been designed to combine many desirable features disclosed in the prior art, and to improve upon them. The device of the present invention is designed to easily adjust to accommodate a wide variety of exercisers of various shapes, sizes and fitness levels with minimum discomfort.

SUMMARY OF THE INVENTION

[0009] The present invention provides an adjustable push-up bench designed for users of various sizes and strength levels. The device comprises three basic assemblies: a generally rectangular base member, designed to rest on a floor or other similar level surface; a generally rectangular inclined member, which is hingedly attached to the base member and which provides the platform upon which the user performs push-up exercises; and a connecting leg member, which is attached to both the base member and the inclined member. Adjustment of the connecting leg member between a completely horizontal position with respect to the base member and a completely vertical position, with multiple gradations in between, in turn adjusts the inclined member into multiple angles of inclination. The components of each assembly and their interrelationships will be detailed below.

[0010] The generally rectangular base member comprises an end rail, an intermediate rail parallel to and positioned opposite the end rail, and two side rails, also positioned parallel to and opposite one another. The end rail and the intermediate rail are attached at each end to each of the two side rails. The intermediate rail is positioned roughly at the midpoint of the length of the side rails. The two side rails, the end rail, and the intermediate rail are assembled to form the generally rectangular perimeter of the base member, open at its far end. An additional end rail, attached to the side rails at the end farthest from the end rail and closing the generally rectangular base, may be added to provide additional structural support to the base. In a preferred embodiment of the invention, the two side rails are longer than the end rail and intermediate rail. The base also includes an adjustment rail, which is attached at one end to the end rail and at its other end to the intermediate rail, at roughly the midpoint in length of the intermediate rail and end rail. Thus the adjustment rail is parallel to the side rails of the base, and spans the length between the intermediate rail and the end rail.

[0011] The inclined member likewise is generally rectangular, and comprises an end member, an oppositely positioned end assembly, and two side rails, which are parallel and positioned opposite one another. The end member, end assembly, and two side rails are assembled to form the generally rectangular perimeter of the inclined member. The end member of the inclined member is flexibly attached to the base member, by at least one hinge or equivalent attachment. Foot pads are also attached to the end member of the inclined member for the comfort of users of the invention. The end assembly of the inclined member may further include a hand grip for the user, or alternatively may serve as an attachment point for an ergonomically acceptable hand grip. The end assembly may a linear rail member, or in another embodiment, be a U-shaped structure, where the free ends of the "U" engage the side rails of the inclined

member. The length of the inclined member may be fixed or adjustable. In a preferred embodiment, the inclined member is adjustable in length, so that the distance between the foot pads and the hand grip can be selected by the user.

[0012] The connecting leg member is comprised of one end rail, and two parallel side rails positioned parallel to and opposite one another. The two side rails are each attached to the end rail at one end, forming a U-shaped configuration. An optional cross bar, parallel to the end rail and attached to each side rail at roughly the midpoint of the length of the side rails, may be added for support purposes. The free ends of the side rails of the U-shaped configuration are hinged attached to the side rails of the inclined member, so that the inclined member and connecting leg member move with respect to one another during adjustment of the device. The end rail of the connecting leg is connected to the adjustment bar of the base member. Thus the connecting leg connects the base member and the inclined member such that the connecting leg props the inclined member in an inclined position with respect to the base. The connecting leg is flexibly attached to a fixed point along the length of the respective side rails of the inclined member. The end rail of the connecting leg is adjustably attached to the base at the adjustment rail; the connecting leg can be released and moved to multiple positions along the adjustment rail. The verticality of the connecting leg, and in turn, the inclination of the inclined member the connecting leg supports, is adjusted by this mechanism, as will be further detailed below.

OBJECTS OF THE INVENTION

[0013] It is, therefore, one of the primary objects of the present invention to provide a device designed to facilitate the proper performance of push-ups.

[0014] Another object of the present invention is to provide an exercise device which reduces the strain on the back, knees and legs of the user often associated with performing push-ups.

[0015] Still another object of the present invention is to provide a device which can be easily adjusted to accommodate the strength level of multiple users, simply by adjusting the angle at which an exercise platform is inclined.

[0016] Yet another object of the present invention is to provide a device which can be easily adjusted to accommodate users of varying heights, by adjusting the relative position of the hand grips and foot pads on the inclined exercise platform.

[0017] A final object of the present invention is to provide a collapsible push-up bench that folds into a flat configuration for convenient shipping and storage.

[0018] In addition to the various objects and advantages of the present invention described with some degree of specificity above it should be obvious that additional objects and advantages of the present invention will become more readily apparent to those persons who are skilled in the relevant art from the following more detailed description of the invention, particularly, when such description is taken in conjunction with the attached drawing figures and with the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] FIG. 1 is a perspective view of the invention, illustrating the inclined platform at the position of greatest inclination.

[0020] FIG. 2 is a perspective view of the invention, illustrating an intermediate position of inclination.

[0021] FIG. 3 is a perspective view illustrating the inclined platform in fully horizontal position.

[0022] FIG. 4 is an expanded view illustrating the positioning of the connecting leg with respect to the adjustment rail of the base.

BRIEF DESCRIPTION OF A PRESENTLY PREFERRED AND VARIOUS ALTERNATIVE EMBODIMENTS OF THE INVENTION

[0023] Prior to proceeding to the more detailed description of the present invention it should be noted that, for the sake of clarity and understanding, identical components which have identical functions have been identified with identical reference numerals throughout the several views illustrated in the drawing figures.

[0024] Reference is now made, more particularly, to FIG. 1, which is a perspective view of the present invention 10. The generally rectangular base member 20 is comprised of an end rail 26, an intermediate rail 27 and two side rails 22 which form a generally rectangular perimeter. Adjustment rail 28, parallel to side rails 22, spans the length between intermediate rail 27 and end rail 26, and is connected at each end to those rails. As is illustrated in greater detail in FIG. 4, the adjustment rail 28 includes upper and lower horizontal surfaces, and two vertical surfaces. A plurality of apertures 29 on the vertical surfaces and extending through the adjustment rail, are spaced along the length of adjustment rail 28. A groove 56 is positioned lengthwise along the upper horizontal surface of adjustment rail 28, at a depth such that a fastener engaged in one of the apertures 29 also passes through the groove 56. Both the groove 56 and apertures 29 will be discussed in more detail below.

[0025] Generally rectangular inclined member 30 is comprised of an end member 34, an end assembly 36 positioned oppositely from end member 34, and two side rails 32, which define a generally rectangular perimeter. As shown in FIGS. 1-4, hand grip 38 projects toward the user from end assembly 36. Foot pads 52 are attached to end member 34 to provide the user a comfortable posture while performing push-ups at an inclined level, minimizing strain on the user's back, knees and legs. End member 34 of the inclined member 30 is flexibly attached to the base member 20 by attachment means 54. In a preferred embodiment, suitable attachment means 54 would include at least one hinge

[0026] In a preferred embodiment, the length of inclined member 30 is adjustable, so that the distance between hand grip 38 and foot pads 52 can be adjusted to the comfort and convenience of individual users of varying heights and builds. In this embodiment, the end assembly 36 is generally U-shaped, with the free ends of the U-shaped configuration hollow and designed to extend over the ends of side rails 32. These telescoping segments of end assembly 36 would further include at least one aperture near the end of each free end. The ends of side rails 32 include a plurality of apertures as well, capable of alignment with at least one aperture on each telescoping segment of end assembly 36. Fastening means 39, extended through each aligned set of apertures, would lock the telescoping segments and side rails 32 together in place. Acceptable fastening means would include pins, screws, bolts and their equivalents in the art.

[0027] Connecting leg member 40 comprises two parallel side rails 42, and one end rail 44, forming a generally

U-shaped configuration. The end rail **44** of connecting leg **40** is preferably tubular in shape. An optional cross bar **46** is illustrated in FIG. 3 and can be added for structural support. Connecting leg member **40** is attached to each of inclined member **30** and base member **20**. Each of the two side rails **42** of the connecting leg member is hingedly attached at its free end to a side rail **32** of the inclined member **30** by attachment means **48**, such that the side rails of the connecting leg and the side rails of the inclined member can rotate relative to one another.

[0028] As detailed above and in FIG. 4, the adjustment rail **28** of base member **20** includes a lengthwise groove along its top horizontal surface, and a plurality of spaced apertures **29** extending through the rail itself. Fastening means **49** attached or integral to the end rail **44** of the connecting leg member are utilized to secure the connecting leg **40** to adjustment rail **28**. In a preferred embodiment, a ring-shaped tab attached to the end rail of the connecting leg member would provide attachment means. The tab would be integral to or securely fixed to the end rail **44**, would fit within groove **56**, and would further include an aperture capable of alignment with the apertures on adjustment rail **28**. A fastener such as a pin, screw or bolt would be positioned through the aligned apertures to further secure the connecting leg **40** to the adjustment rail **28** of base member **20**. The angle between inclined member **30** and base member **20** is adjusted by removing the fastener that secures the ring-shaped tab (and by connection, the connecting leg) to the adjustment rail, then sliding the collar and connecting leg into alignment with a different aperture, and replacing the fastener. The maximum angle of inclination would occur when the connecting leg member **40** is vertically perpendicular to the horizontal plane defined by base member **20**. The minimum angle of inclination would occur when the fastener is removed altogether and the connecting leg disengaged from connection to the adjustment rail; in this case the connecting leg would fold under the inclined member, and the inclined member itself folded flush with the base member. This configuration is illustrated in FIG. 3; such a configuration would permit the user to perform push-ups in the customary manner. This would also represent the preferred configuration for shipping or storage purposes.

[0029] The materials utilized to construct the device described above are well-known to one skilled in the art. The basic structural frame of the push-up bench is preferably durable, corrosion-resistant metal, but impact-resistant hard plastics or lightweight ceramic or composite materials would also be appropriate. The hand grips are preferably coated with a cushioning foam material, selected to be resistant to moisture and perspiration. The unit itself measures approximately 72 inches long and 24 inches wide in its flattened position. The unit could obviously be adapted to larger or smaller configurations.

[0030] While a presently preferred and various alternative embodiments of the present invention have been described in sufficient detail above to enable a person skilled in the relevant art to make and use the same it should be obvious that various other adaptations and modifications can be envisioned by those persons skilled in such art without departing from either the spirit of the invention or the scope of the appended claims.

I claim:

1. An adjustable exercise device for performing push-ups comprising:
 - a. a generally rectangular base member, said base member including an end rail, an intermediate rail positioned opposite said end rail, two side rails positioned opposite one another and connected to said end rail and said intermediate rail to form a generally rectangular perimeter, and an adjustment rail, positioned substantially parallel to and at an intermediate distance between said side rails, where said adjustment rail is attached at one end to said intermediate rail, and attached at the other end to said end rail;
 - b. a generally rectangular inclined member hingedly attached at one end thereof to an open end of said base member, said inclined member including an end assembly positioned opposite said one end, and two side rails positioned opposite one another and connected to an end member and said end assembly to form a generally rectangular perimeter; and
 - c. a connecting leg member, said connecting leg member including one end rail, two side rails positioned opposite one another and each connected to said end rail to form a generally U-shaped configuration, further including means for connecting said end rail of said connecting leg member to said adjustment rail of said base member, and means for hingedly connecting said side rails of said connecting leg member to said side rails of said inclined member, such that said inclined member is maintained in an inclined position relative to said base member by said connecting leg member.
2. The adjustable exercise device as recited in claim 1, wherein said base member is flexibly attached to said inclined member by means of at least one hinge, such that said inclined member can move through a range of angles of inclination with respect to said base member.
3. The adjustable exercise device as recited in claim 2, further including at least one foot pad attached to said end member of said inclined member.
4. The adjustable exercise device as recited in claim 3, wherein said end assembly of said inclined member further includes a hand grip.
5. The adjustable exercise device as recited in claim 4, wherein said hand grip is cushioned.
6. The adjustable exercise device as recited in claim 2, wherein said inclined member is adjustable in length so as to accommodate exercisers of varying heights.
7. The adjustable exercise device as recited in claim 6, wherein said end assembly of said inclined member further includes two telescoping segments positioned near and overlapping the end of each said side rail, each said telescoping segment including at least one aperture.
8. The adjustable exercise device as recited in claim 7, wherein said side rails of said inclined member include a plurality of apertures spaced along and extending through said rails, said apertures engagable with said apertures on said telescoping segments of said end assembly.
9. The adjustable exercise device as recited in claim 8, wherein said apertures of each said telescoping segment are aligned with said apertures of a said side rail of said inclined member, said side rails and said telescoping segments secured in place by fastening means extending through said aligned apertures.

10. The adjustable exercise device as recited in claim 9, wherein said fastening means are chosen from among the group of screws, bolts and pins.

11. The adjustable exercise device as recited in claim 2, wherein the angle of inclination of said inclined member in relation to said base member is adjustable to accommodate exercisers of varying fitness levels.

12. The adjustable exercise device as recited in claim 11, wherein said adjustment rail of said rectangular base member includes an upper horizontal surface, a lower horizontal surface and two vertical external surfaces.

13. The adjustable exercise device as recited in claim 12, wherein a plurality of apertures are spaced along the length of said adjustment rail, said apertures extending through said vertical external surfaces of said adjustment rail on an axis parallel to that defined by said end rails of said base member.

14. The adjustable exercise device as recited in claim 13, wherein said adjustment rail further includes a groove positioned lengthwise along said upper horizontal surface of said adjustment rail, such that said groove extends beyond said apertures in said adjustment rail.

15. The adjustable exercise device as recited in claim 14, wherein means for connecting said end rail of said connecting leg member to said adjustment rail of said base member

include a ring-shaped tab positioned on said end rail, said ring-shaped tab capable of engaging said groove of said adjustment rail, and said ring-shaped tab further including an aperture capable of alignment with said apertures of said adjustment rail.

16. The adjustable exercise device as recited in claim 15, wherein said end rail of said connection leg member is positioned with respect to said adjustment rail by inserting said ring-shaped tab into said groove on said adjustment rail, sliding said ring-shaped tab such that said aperture on said ring-shaped tab aligns with one of said apertures on said adjustment rail, and fastening said ring-shaped tab in place with fastening means extended through said ring-shaped tab aperture and adjustment rail aperture.

17. The adjustable exercise device as recited in claim 16, wherein said fastening means are chosen from among the group of screws, bolts and pins.

18. The adjustable exercise device as recited in claim 1, wherein said base member further includes a second end rail, said second end rail providing structural support to said base member.

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