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A63B 23/02 (2006.01)

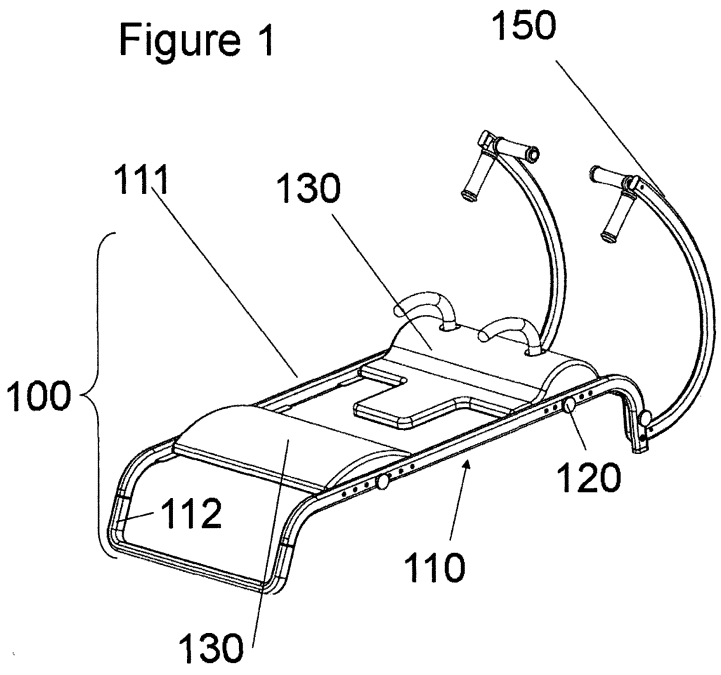
(56) Documents Cited:
US 6575884 B1
US 6206808 B1
US 4775150 A1
US 20090048082 A1
US 20040082450 A1

(58) Field of Search:
INT CL **A63B**
Other: **EPODOC, WPI**

(54) Title of the Invention: **A training aid**
Abstract Title: **Abdominal crunch device with shoulder restraints and elevated frame**

(57) The present invention provides a training aid 100 comprising a bed elevated on a frame 110. The bed comprises a shoulder rest 130 and having at least one grip member 150. At least one grip member provides at least one grip (fig. 2 152) spaced apart from the shoulder rest and bed. The grip permits pivoting of a user's body off the bed with respect to a pivot point proximate the shoulder rest. The shoulder rest is arranged in use to provide support for the user's shoulders in pivoting. There may be a pad which is displaceable 120. There may be shoulder hooks (fig. 2 140), orthogonal to the bed length, which restrain the movement of the shoulders against the shoulder rest, during pivoting. The at least one grip may be able to be collapsed when not in use and the training aid may be capable of being flat packed. The shoulder rest may also be displaceable vertically (fig. 7 231/232).

Figure 1



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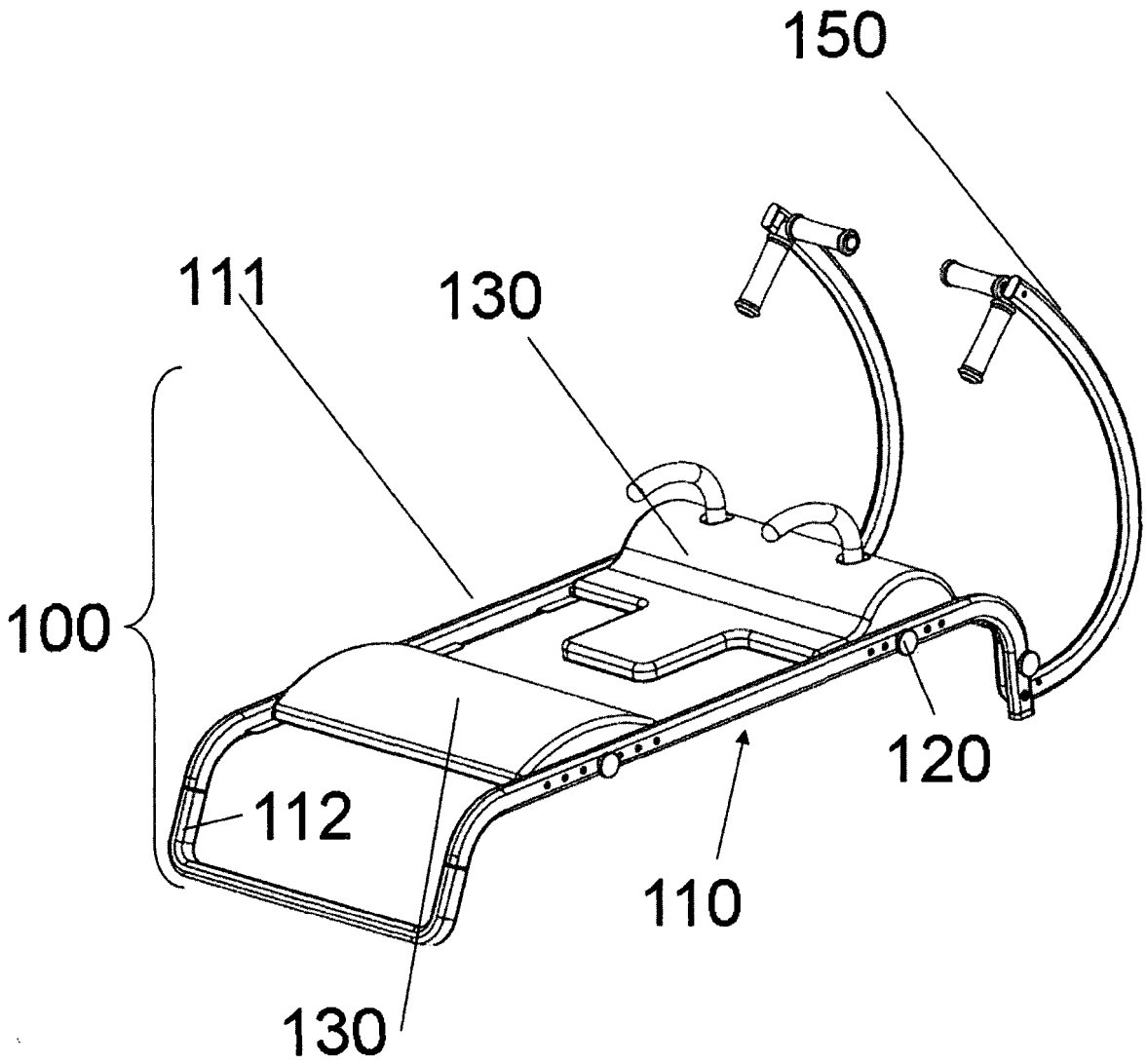

Figure 1

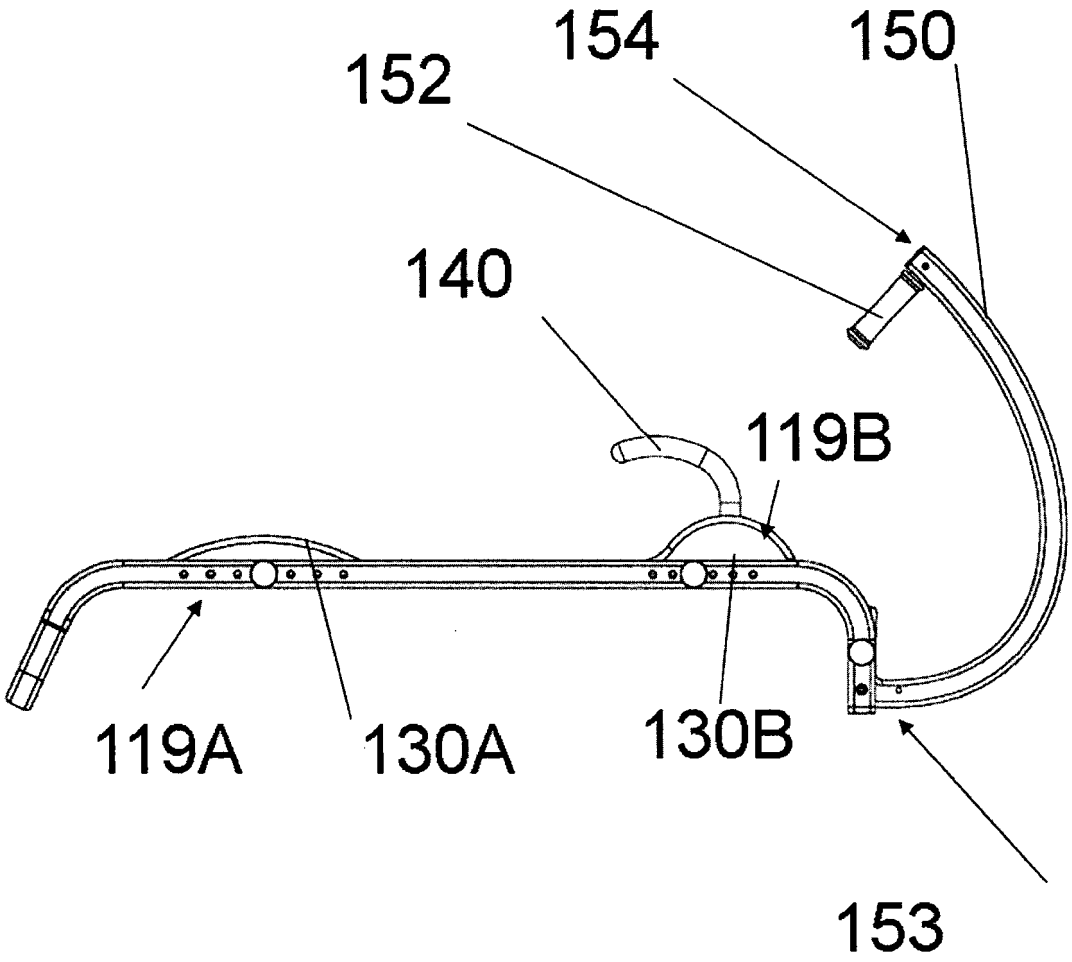

Figure 2

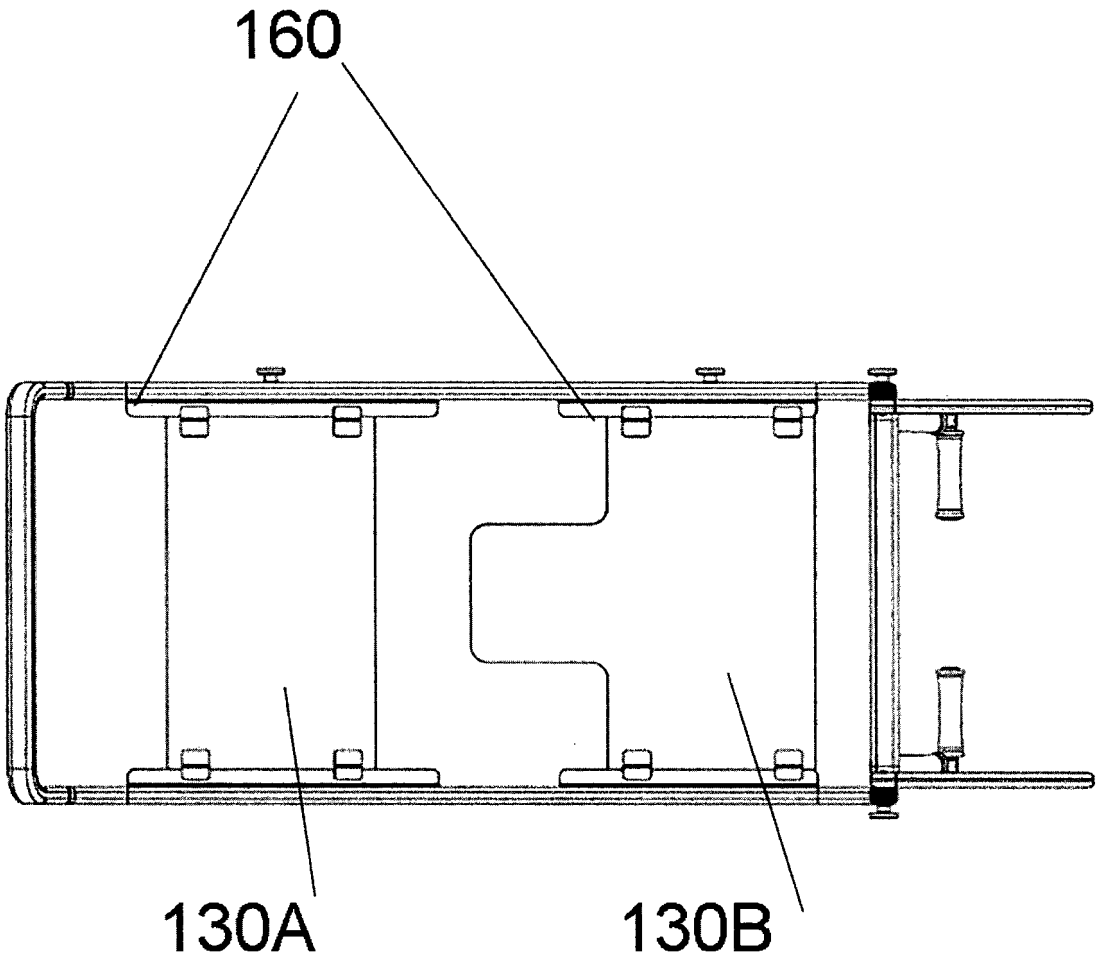

Figure 3

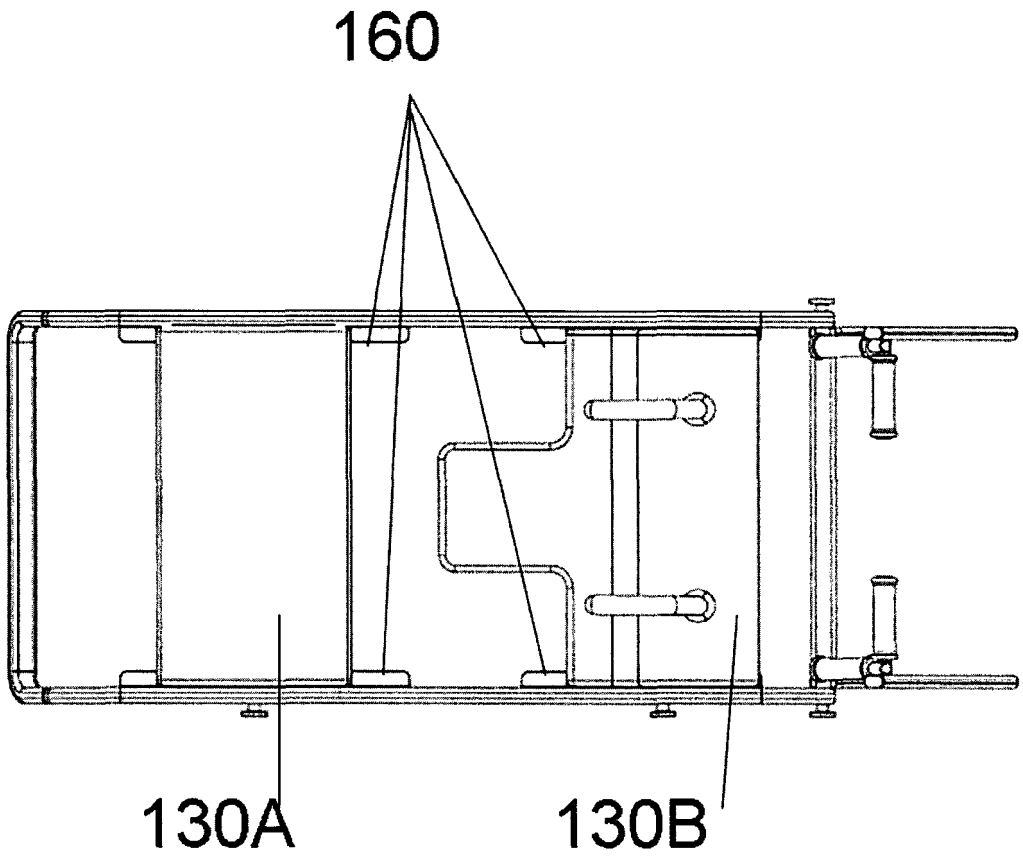

Figure 4

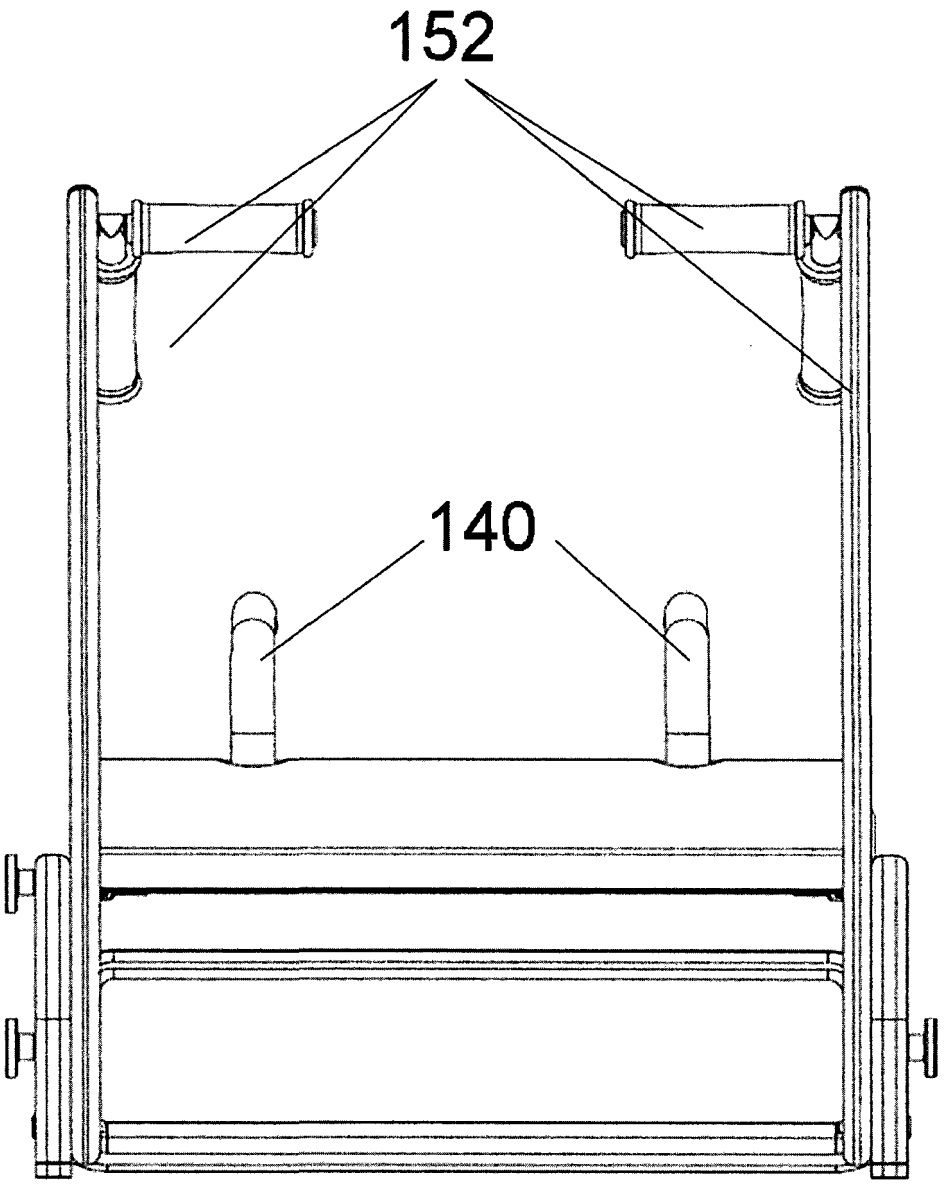

Figure 5

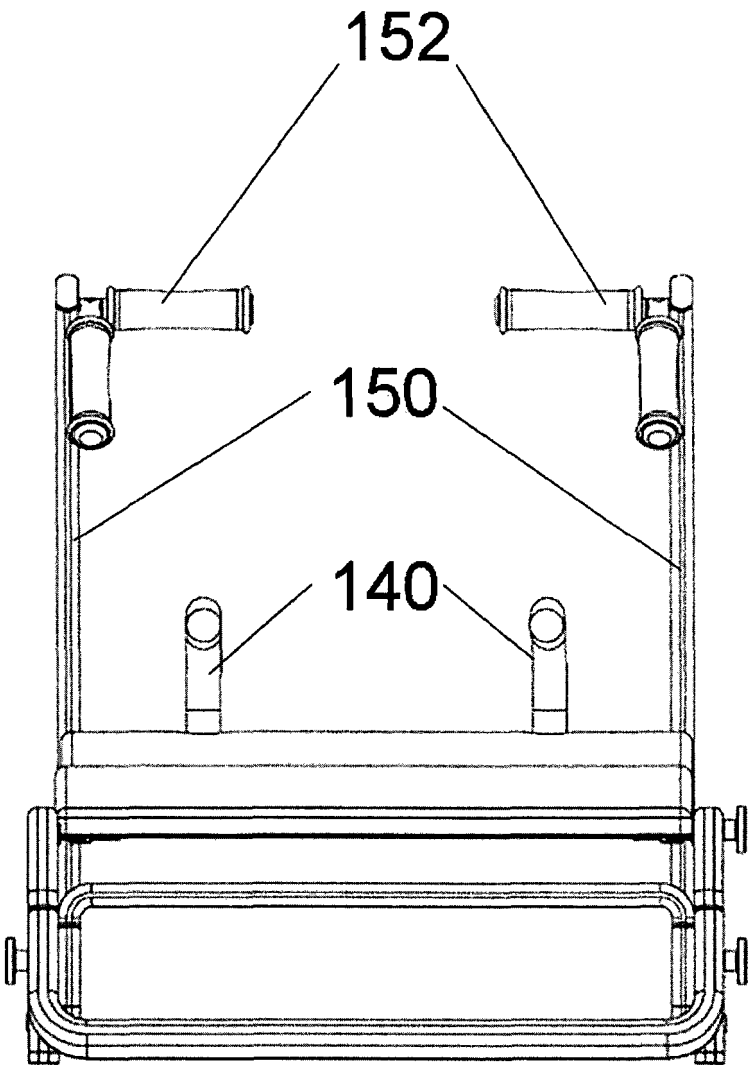

Figure 6

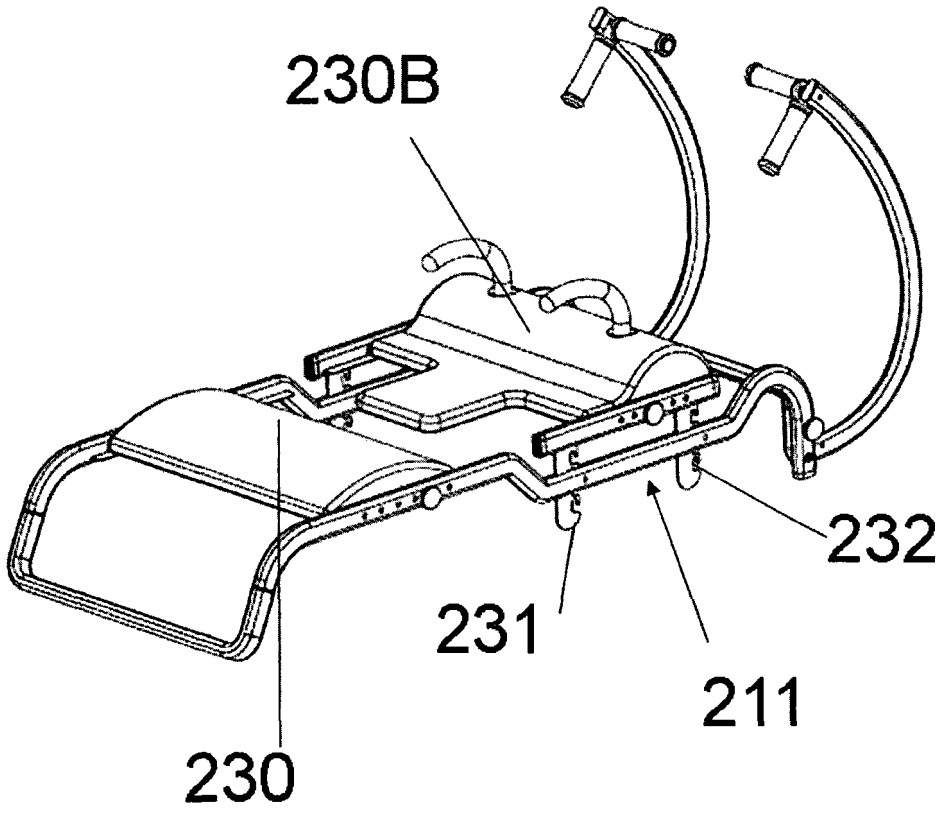

Figure 7

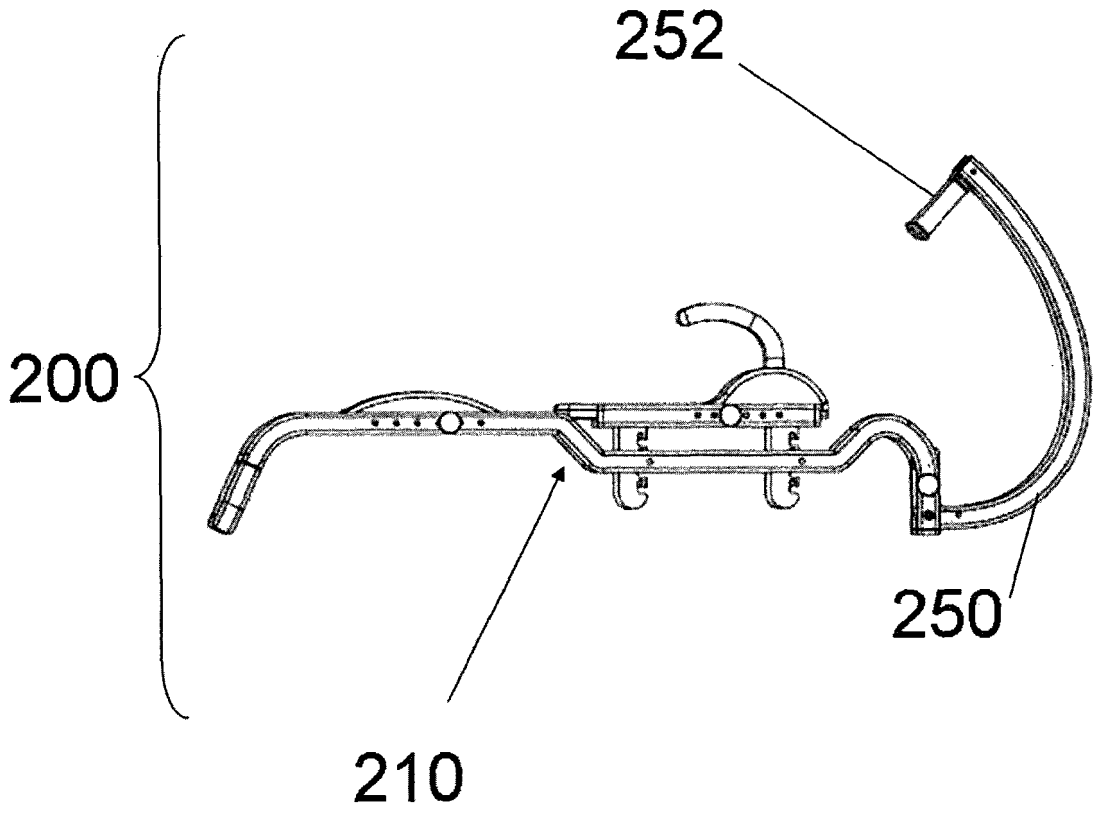

Figure 8

A TRAINING AID

Field of the Invention

The present invention relates to a training aid, in particular an aid for training muscles using user body weight, more particularly but not exclusively a training aid for abdominal muscles.

Background

There is often a desire to target particular muscles or muscle groups when exercising in order to sculpt the body and provide additional strength and improve condition. Typically particular exercises are used to engage the desired muscles in order to achieve this. Often such specific exercises may be actioned by use of an exercise aid to assist with the exercises.

Abdominal sculpting can be very difficult to achieve in particular as it requires the use of multiple muscles. Often traditional sit-ups target the upper abdominal muscles but it can be harder to successfully engage lower abdominal muscles. Although many lower abdominal muscle exercises are provided it can be difficult to achieve and maintain the correct posture during the exercises. Therefore often the exercises are ineffective or can lead to muscle strain or lower back pain due to incorrect posture.

Prior Art

Accordingly a number of patent applications have been filed in an attempt to resolve the problem or similar, including the following:

United States patent application US20040082450 discloses an abdominal exercise device comprising a frame, a seat support fixed to said frame, a back support pivotally connected to the frame near the seat support and being disposed at a negative incline during a portion of its use, and one or more handlebars pivotally mounted to the frame and in operational contact with the rear surface of the back support for causing the back support to pivot away from the negative incline if desired by a user during the exercise.

United States granted patent US6575884 discloses an apparatus is provided for specifically exercising the lower abdominal muscles, upper abdominal muscles, or both the lower and upper abdominal muscles together in combination of a human user. The apparatus includes a frame which accommodates the upper torso of a user and a resistance member pivotally connected to the frame on a latitudinal axis. The resistance member is capable of pivotal rotation about the axis, and includes a mechanism for varying the resistance of such pivotal rotation. As such, the knees of the user can be raised and lowered above horizontal without interference.

United States Patent granted patent US5697874 discloses an abdominal exercise device including a pair of arm portions for the user to grasp, a head rest and support attached thereto, the support being attached to the arm portions, an extension portion extending from each arm portion and a curved radius on the other end thereof.

Summary of the Invention

According to the present invention there is provided a training aid comprising a bed elevated on a frame, the bed comprising a shoulder rest and having at least one grip member extending therefrom, in which at least one grip member provides at least one grip spaced apart from the shoulder rest and bed, so as to permit pivoting of a user's body off the bed with respect to a pivot point proximate the shoulder rest, and wherein the shoulder rest is arranged in use to provide support for the user's shoulders in pivoting.

Preferably the bed comprises at least one displaceable pad.

Embodiments of the training aid thereby comprise a frame for elevating a user above a surface, i.e. the floor, at least one displaceable pad located in use on said frame to support the user in a supine orientation and at least one grip member arranged to allow the user to alter orientation or elevate a part of their body.

In use the user lays supine upon the bed supported by the pad(s). The training aid elevates the user from the ground when using the training aid.

The user is enabled to perform abdominal exercises whilst on the training aid to lift lower and/or part of their upper body from the bed, contracting and thereby conditioning and strengthening the abdominal muscles.

An object of the present invention is to provide an adjustable training aid for exercising of abdominal muscles wherein the a user is supine in use, and may lift the torso and or limbs in order to engage the abdominal muscles, whilst being supported and positioned by the training aid to ensure optimal posture.

In use the user may perform various exercises in order to train, strengthen and condition the abdominal exercises. Primarily the user is enabled to achieve these exercises by arrangement of the grip members with respect to the bed, whereby the rest acts to pin a part of the user's body to the bed in contrast.

Preferably the frame and bed are dimensioned to correspond to at least the length of the user's upper body, for example from head to pelvis. In this way, for some exercises part of the user's body, such as the user's legs, extends beyond the frame so as to require self-supporting by the user.

For example the user may have their legs extended and rest their feet on the ground, the user may bend their knees and rest their feet on the ground, or the user may use their abdominal muscles to elevate their legs from the ground whilst keeping their core muscles strong, so as to maintain correct spinal posture.

Alternatively the user may be positioned in the opposite orientation wherein the lower body is supported by the training aid and the user's upper body may extend beyond the frame so that the user must use their abdominal muscles to keep their upper body raised off the ground.

Preferably in some embodiments the rest comprises a pad with curved shaping to allow pivoting thereon or otherwise provide progressive or shaped support, suited to rolling or pivoting movement.

Preferably in other embodiments the rest comprises shaped bars or extending parts arranged to cup or surround the user's shoulders and consequently permit the shoulders to be kept against a pad or the bed more generally.

Advantageously in either set of embodiments the rest allows the user to lever their lower body up and support is provided or available for the shoulders, and wider bodily pivot point.

Typically the frame comprises a pair of elongate bars having at least one leg arranged at each end of the bars and forming a bed therebetween, by at least two pad supporting struts extending from one bar to the other. Typically the bars are parallel to one another and spaced apart wide enough to support the user either on the bed, pad(s) or on the bars themselves. Ideally the bars are substantially horizontal to the ground.

In some embodiments the bars may be spaced apart to varying degrees at different places along the bar length, for example the bars may include elbows so that the bars are closer at one end than the other end.

Legs may be provided at each end of the bar and may be joined by at least one horizontal strut for improved strength.
It may be envisaged that the frame is available in various sizes so as to accommodate users of different sizes.

In preferred embodiments bars and legs may be formed from separate parts that interlock in use so as to form the frame. For example the frame may be provided with push fit joints to join one part to another. In this way the frame can be flat packed when not in use and may be easily manufactured, packed and stored.

In some embodiments the bars and legs may be formed from one continuous piece of material.

Preferably two grip members are provided, or the at least one grip member is curved and/or continuous to provide grip members for both arms or hands.

Preferably said grip member or members is attached to the frame or bed at a hinge to allow the member(s) to be displaced or folded into or onto the bed, for easier transport or storage.

In preferred embodiments the frame is formed from tubular material such as metal, powdercoated alloy or synthetic plastic. For example the frame may be formed from tubular steel so as to be strong durable and lightweight. Preferably the frame may be formed from square or rectangular tubular material or otherwise provide a solid stable contact face with the floor or other subordinate surface.

In some embodiments the frame is adjustable by means of separate parts which interlock concentrically so that one part can be extended from another so as to alter length and/or height of the frame.

In preferred embodiments the leg's distal end may include feet so as to prevent damage to the surface upon which the training aid is placed and to prevent movement of the training aid in use. For example the feet may be formed from a resiliently deformable material such as rubber. Ideally the feet may be a displaceable portion that is slotted on to the frame, for example fitting to the tubular frame.

Typically the frame may include a pin and hole arrangement so as to allow the frame to be easily adjusted incrementally.

In some other embodiments the frame may be adjustable my means of a clamp, piston arrangement or by addition of extra frame parts.

Typically the bed or pads are arranged to be displaceably mounted on the frame. Typically the bars include a ledge for receiving the pads so as to prevent the pad falling through the frame. In this way the pads can be positioned ideally on the bars so as to correspond to the user, for example being adjusted depending upon height of the user. For example the pads may be adjusted to fit users from 4 foot tall to 7 foot tall.

Ideally the pads are formed wholly or in part from a resiliently deformable material so as to provide comfort and support to the user when in use such as filled with a cellular structure such as foam so as to provide a comfortable, resiliently deformable surface for the user to lie upon.

Ideally an upper face of the bed or a particular pad is arcuate so as to be smooth and comfortable for a user and match the user's body, for example curvature of the spine.

It may be envisaged that a lower face of the bed/pads may be rigid so as to provide a hard surface suitable for attachment to the frame and which prevents undesirable flexure of the pad during use.

For example the pad may have a synthetic plastic, metal or wooden rigid base with an upper layer of resiliently deformable material such as closed cell foam. Typically the pads may be covered and/or coated in a smooth easy to clean material such as a canvas, leatherette or synthetic plastic so as to be easily wiped after use.

In preferred embodiments the pad(s) can be incrementally adjusted along the length of the frame for example by means of a hole and pin arrangement between the pad(s) and bars. The pad may include at least one aperture on each side of the pad for accepting a pin through a corresponding aperture on the frame so as to secure the pad in position. In this way in some embodiments pads may be slid along the frame to the desired position and then fixed in place, either in use or at set-up.

Typically the pads may have rigid sides so as to provide a location for the apertures. For example the sides may be integrated with the base.

Ideally at least one pad is provided to support the user's lower back at the coccyx – a lower back pad- and a second pad is provided to support the user's shoulders – a shoulder pad; wherein the pads and bars comprise the bed.

The pads typically extend across the frame from bar to bar.

In some embodiments the training aid may only include one pad, which pad comprises the bed.

In this way the user can lay supine with their spine supported so as to maintain a neutral spinal alignment. The user is able to carry out abdominal exercises without restriction, whilst being provided with adequate support and comfort.

This bed formation of separate pads as opposed to a continuous bench reduces the weight and cost of the training aid as few materials are required.

In addition or the alternative the user is able to cool down more quickly during exercise as at least part of their body or back remains uncovered and aerated. Additionally this may also improve hygiene as there is a lesser area for sweat from the user to accumulate.

In some embodiments the shoulder rest may comprise of or include a may be T-shaped pad, so as to include a projection that extends from the shoulders down the spine to provide additional spinal support.

Preferably the shoulder rest may include hooks for locating the user's shoulders thereinto so that the user is correctly positioned on the training aid to brace their body against the hooks so as to prevent lifting of the shoulders from the pad during exercises.

Typically the hooks are dimensioned to cup the shoulders being arcuate so as to form an open loop which do not require adjustment for users of different sizes.

Furthermore in some embodiments the hooks may be flexible or displaceable so as to displace slightly or partly when force is applied, therefore preventing the hooks from digging in to the user whilst also providing support.

Typically the hooks run in a direction contiguous with the bars, but in some embodiments the hooks may splay orthogonally so as to have a larger contact area with the user's shoulders and in some embodiments so as provide a surface against which the user's feet may be comfortably pressed against whilst performing a sit-up.

In preferred embodiments the hooks are padded for comfort. For example the hook may be coated in a resiliently deformable material or have replaceable closed cell foam padding covers.

In some preferred embodiments the shoulder rest may be capable of displacement from or in relation to the frame, for example so as to adjust for alteration in orientation of the user. For example the shoulder rest may include a plurality of indents to alter vertical displacement of the shoulder rest or supporting pad, similar to a ratchet mechanism, and/or may be rotatable.

For example when the user is performing a leg lift the shoulders may be lifted higher than the pelvis at rest or in the exercise so as to alter intensity of the exercise.

Preferably one end of the frame provides an extension point for the at least one grip member, at the bed or more preferably lower on the legs. The at least one grip member typically provides a location upon which the user can grip with their hands for balance purposes so as to help fix their body in a particular position whilst performing exercises on the training aid. In this way the user can maintain a particular position which ensures optimal spinal alignment and abdominal muscle engagement, and uses their body weight to exercise their muscles.

Preferably the training aid includes a pair of grip members, one being provided for each hand of the user. In some embodiments the grip member may be joined so as to prom one continuous part.

Preferably the grip members are curved having a proximal end attached to the frame and a distal end arranged for receiving the user's hands in use. Other points on the intermediate members may provide gripping surfaces also.

In some preferred embodiments the grip member may include at least one grip. Preferably the grip(s) may be dimensioned to receive a hand and padded and/or moulded so as to comfortably receive the user's hands.

Ideally the grips may be displaceable so as to be positioned in various arrangements on the members so as to suit the user and/or exercise being performed. Furthermore the grips may be displaced when the user training aid is packed away for storage so as to be more compact.

The at least one grip member is typically arranged to be located above the bed and user in use so that it may be gripped by reaching upwards whilst supine. Typically the user's arms are bent during use for example bent at the elbow at 90 degrees so as to reach the grips, whilst enabling the upper arm to be perpendicular to the user's body.

Preferably the grip member is rigid and/or fixed in position in use so as to support the user.

Preferably the at least one grip member may be hingeably attached to the frame so as to allow the grip member to be collapsed when not in use and including a locking mechanism to secure the grip member in position whilst in use.

In preferred embodiments the training aid provides a means of exercising abdominal muscles whilst being supine, either lifting one or both legs or lifting the upper body so as to engage the abdominal muscles by contracting them and holding them contracted for periods of time and supporting the body in such position on or by the at least one grip member.

Alternatively the user may brace their feet in the at least one grip member to raise their upper body from the ground, simulating a sit-up, in order to engage and train the abdominal muscles.

In preferred embodiments the training aid may be provided in various colours or colour schemes so as to appeal to different users and to fit different environments. For example the frame may be an unpainted metal and the pads and feet may be provided in different colours.

Typically the adjustment means, for example the pin, may be provided in an accent colour so as to be easily identified by the user.

Brief Description of Figures

Figure 1 shows an overview of one embodiment of the training aid;

Figure 2 shows a side view of the embodiment of the training aid shown in Figure 1;

Figure 3 shows a bottom view of the embodiment shown in Figure 1;

Figure 4 shows a top view of the embodiment shown in Figure 1;

Figure 5 shows a rear view of the embodiment shown in Figure 1;

Figure 6 shows a front view of the embodiment shown in Figure 1;

Figure 7 shows an overview of a second embodiment of the training aid;

And

Figure 8 shows a side view of the embodiment of the training aid shown in Figure 7.

Detailed Description of Figures

The figures reveal two embodiments of the training aid which enable a user to perform various abdominal exercises whilst maintaining optimal posture.

Figure 1-6 disclose one embodiment of the training aid. Figures 1-6 shows the training aid 100 having a frame 110 and a means of adjustment 120 of the frame so as to allow the position of the pads 130 on the frame the frame 110 to be altered.

The means of adjustment 120 comprises a hole and pin arrangement wherein the bed pads 130 can be moved and fixed in position by means of the means of adjustment. This allows the pads to be altered incrementally to the desired positions so that the user is comfortable and well supported by the bed during use.

The frame 110 includes a pair of elongate bars 111 with legs 112 arranged at each end so as to elevate the bars from the ground. The legs are joined together by means of a strut 113.

The bars 11 include ledges 160 (shown in figures 3 and 4) which house the pads 130 and prevent them from falling through the frame in use.

The frame 110 supports two pads 130 which in use are displaceably attached to the frame. Therefore the pads 130 can be slid along the frame 110 in order to alter their position to correspond to the exercise being performed and/or size of the user.

The bed includes a back pad 130A and shoulder pad 130B.

The back pad 130A can be adjusted to seven different positions by seven holes 119A provided on each of the bars.

The shoulder pad 130B can be adjusted to five different positions by five holes 119 provided on each of the bars.

The back pad 130A is substantially rectangular.

The shoulder pad 130B is T-shaped having a portion for supporting the head and shoulders and a projection 134 for supporting the spine.

The shoulder pad 130B includes a pair of hooks 140 which in use serve to hold the user's shoulders or feet in position during exercise, depending upon which orientation the user is positioned on the training aid.

The training aid 100 includes a pair of grip members 150 which each comprise an elongate member 151 and two grips 152. The two grips 152 are arranged perpendicular to one another so that the user may grasp the grips in different orientations for different exercises and for most comfortable positioning.

In figure 2 the hooks are shown as arcuate open loops so as to allow the shoulders or feet to be easily received.

The grip members 150 comprise arcuate elongate members attached to the frame 110 at a proximal end 153. The grips 152 are arranged at the distal end 154.

The grip members 150 are displaceable so as to be capable of being collapsed substantially parallel to the frame 110 for storage.

The grip members 150 are attached to the frame 110 by a lockable hinge 156 so that the grip members can be displaced and then fixed in position so that they do not move during use.

The pads 131 and 132 have arcuate upper surfaces to receive the user.

Figures 7 and 8 show a second embodiments of the training aid 200 wherein the frame 210 includes a recessed portion 211 upon which a displaceable pad 230B is arranged so as to allow the pad 230B to be vertically displaced above the frame. This allows the uses to be positioned at an incline rather than horizontal, thereby providing a greater range of exercises to be performed and enables variation of intensity of exercises.

The pad 230B is arranged on supports 231 which include a plurality or indents 232 for receiving a rod (not shown) which allows the supports to be fixed in place at a particular height.

The pad 230B includes hooks 240 which extend from an upper surface of the pad 230B in order to cup the shoulders or feet of the user depending upon which orientation they are positioned in use.

The back pad 230A is as in the first embodiment being rectangular with an arcuate upper surface.

The training aid 200 includes a pair of grip members 250 arranged to extend above the user. The grip members 250 are arcuate with a distally mounted grip 250.

The invention has been described by way of examples only and it will be appreciated that variation may be made to the above-mentioned embodiments without departing from the scope of invention. Firstly it will be understood that any features described in relation to any particular embodiment may be featured in combinations with other embodiments.

With respect to the specification therefore, it is to be realised that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention, with variation and implementation obvious and clear on the basis of either

common general knowledge or of expert knowledge in the field concerned. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as set out in the accompanying claims.

Claims

1. A training aid comprising a bed elevated on a frame, the bed comprising a shoulder rest and having at least one grip member extending therefrom, which at least one grip member provides at least one grip spaced apart from the shoulder rest and bed, so as to permit pivoting of a user's body off the bed with respect to a pivot point proximate the shoulder rest, and wherein the shoulder rest is arranged in use to provide support for the user's shoulders in pivoting.

2. A training aid according to claim 1, wherein the bed comprises at least one displaceable pad.

3. A training aid according to claim 1 or 2, wherein the frame and bed are dimensioned to correspond to at least the length of the user's upper body

4. A training aid according to any of the preceding claims, wherein the rest comprises a pad with curved shaping arranged in use to allow pivoting thereon or otherwise provide progressive or shaped support, suited to rolling or pivoting movement.

5. A training aid according to any of the preceding claims, wherein the rest includes hooks for locating the user's shoulders thereinto.

6. A training aid according to claim 5, wherein the hooks extend orthogonal to the bed length.

7. A training aid according to any preceding claim, wherein the at least one grip member is displaceable so as to be collapsed when not in use.

8. A training aid according to any of the preceding claims capable of being flat-packed.

9. A training aid substantially as described herein with reference to the figures.

Amendments to the Claims have been filed as follows ;

Claims

1. A training aid comprising a bed supported in use vertically above a surface by a frame, whereby the bed is arranged horizontally to support a user in a supine position, the bed comprising: a back pad to support a user's lower back, and a shoulder rest pad displaceable from the back pad by independent vertical and horizontal displacements to a fixable position; a pair of bars formed into arcuate open loop hooks extend fixed from the shoulder rest pad to keep the shoulders of the user supine against the shoulder rest pad during exercise.

2. A training aid according to claim 1 having at least one arcuate elongate grip member attached to the frame at an end proximal to the shoulder rest by a lockable hinge whereby the grip member is displaceable to a fixable position so as to extend the grip member above the user in use.

3. A training aid according to claim 1 or 2, wherein the frame and bed are dimensioned to correspond to at least the length of the user's upper body.

4. A training aid according to any of the preceding claims, wherein the shoulder rest pad has a curved shaping arranged in use to allow pivoting thereon or otherwise provide progressive or shaped support, suited to rolling or pivoting movement.

5. A training aid according to any of claims 2 to 4, wherein the at least one grip member is displaceable so as to be collapsed when not in use.

6. A training aid according to any of the preceding claims wherein the arcuate open loop hooks extend fixed from the shoulder rest pad to cup around the shoulders of the user.

7. A training aid according to any preceding claim wherein the back pad is rectangular with an arcuate upper surface.

8. A training aid according to any preceding claim wherein the shoulder pad is Tee shaped to provide spinal support.

9. A training aid substantially as described herein with reference to the figures.

16 10 14

Application No:	GB1319829.6	**Examiner:**	Mr Stephen Watts
Claims searched:	1-9	**Date of search:**	16 May 2014

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1-8	US6575884 B1 (EAZOR) See whole document, especially figure 1.
X,Y	1-4, 7 and 8 Y=5,6	US2004/082450 A1 (INTERNAT EDGE INC) See whole document, especially figure 2.
X	1-3 and 5-8	US2009/048082 A1 (ABBOTT) See especially figure 9 and paragraph [0042].
X	1-4, 7 and 8	US6206808 B1 (HO SUNG-CHAO) See whole document including figures 1, 2 and 5.
Y	5 and 6	US4775150 A1 (GRAHAM) See the shoulder hooks 14 and 15 of figure 1.

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^{X} :

Worldwide search of patent documents classified in the following areas of the IPC

A63B

The following online and other databases have been used in the preparation of this search report

EPODOC, WPI

International Classification:

Subclass	Subgroup	Valid From
A63B	0023/02	01/01/2006