(12) UK Patent Application (19) GB (11) 2 458 028 (13) A

(43) Date of A Publication 09.09.2009

(21) Application No: **0904251.6**

(22) Date of Filing: **22.11.2007**

Date Lodged: **12.03.2009**

(62) Divided from Application No **0722861.2** under Section 15(9) of the Patents Act 1977

(51) INT CL:
A63B 23/02 (2006.01) ***A63B 22/16*** (2006.01)
A63B 26/00 (2006.01)

(56) Documents Cited:
GB 0633655 A **EP 1557205 A1**
US 3475020 A **US 2726845 A**
US 20050075225 A1

(58) Field of Search:
INT CL **A63B, A63G**
Other: **WPI, EPODOC**

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(54) Abstract Title: **Pivoting exercise apparatus**

(57) An abdominal exercise apparatus includes a ground-engaging, curving, flat section pivot (the flat section pivot replaces the tubular pivot 1 shown in figure C). At each end of the curving pivot there is a fixed stop 2. A tubular formation 3,5 is positioned adjacent one end of the ground-engaging pivot and handgrips are mounted on the tubular formation. During use the user kneels on the floor placing the apparatus in front of him or her, grasps the handgrips and rocks the apparatus back until the stop is reached, at which point the user raises both knees from the floor and slowly pushes the handgrips away from the body. At a point nearing the curved ground-engaging pivot's travel, the user resists further forward movement of the handgrips and an attempt is made to maintain this now abdominally stresses position. The flat section pivot provides for a greater degree of lateral stability compared to a tubular pivot.

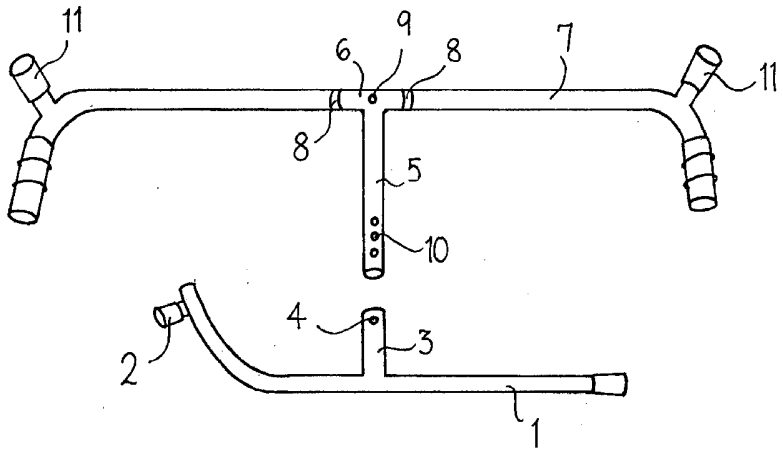

FIGURE C

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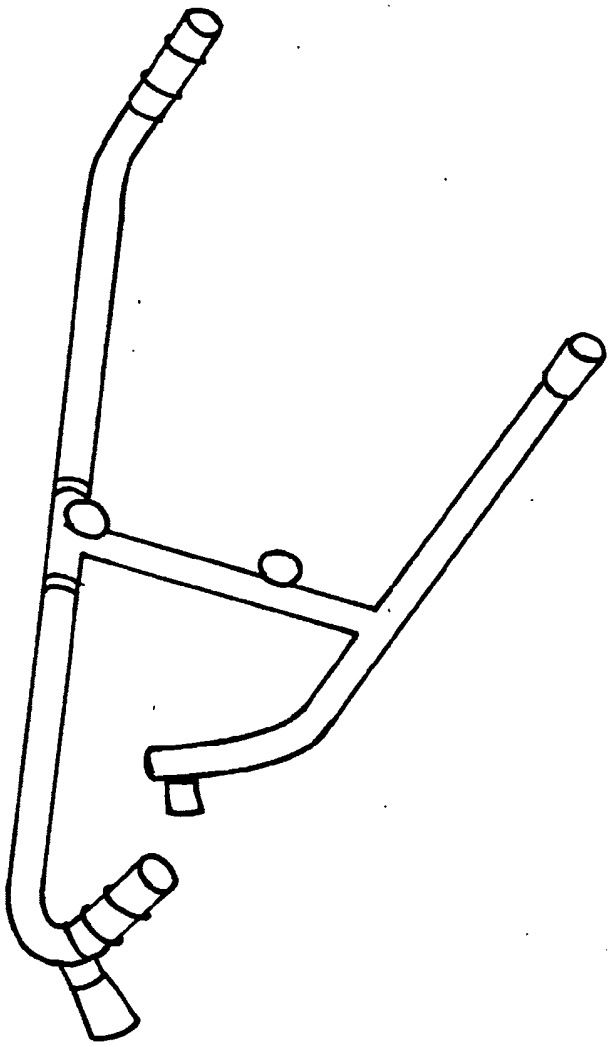

FIGURE A

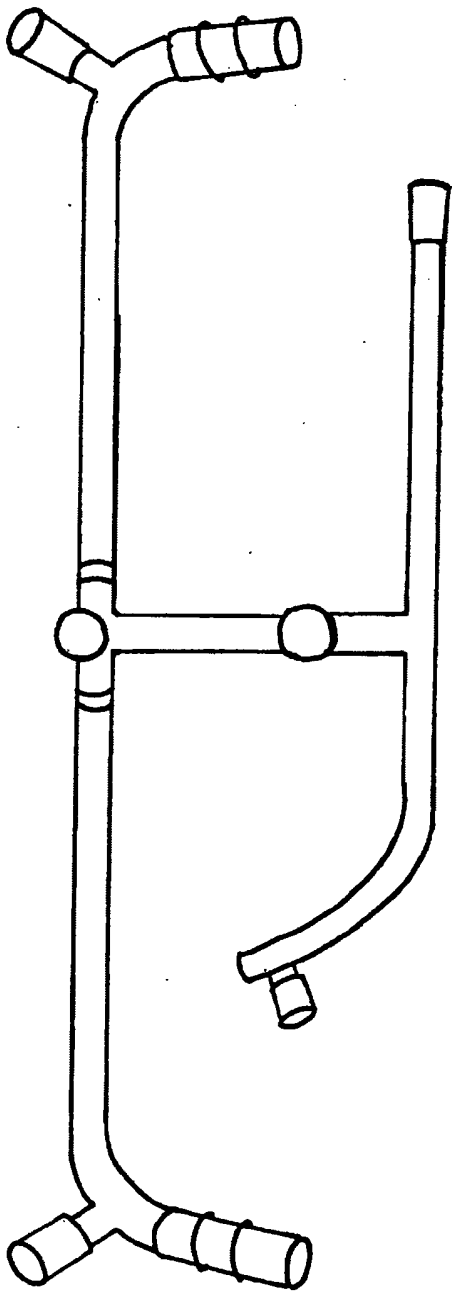

FIGURE B

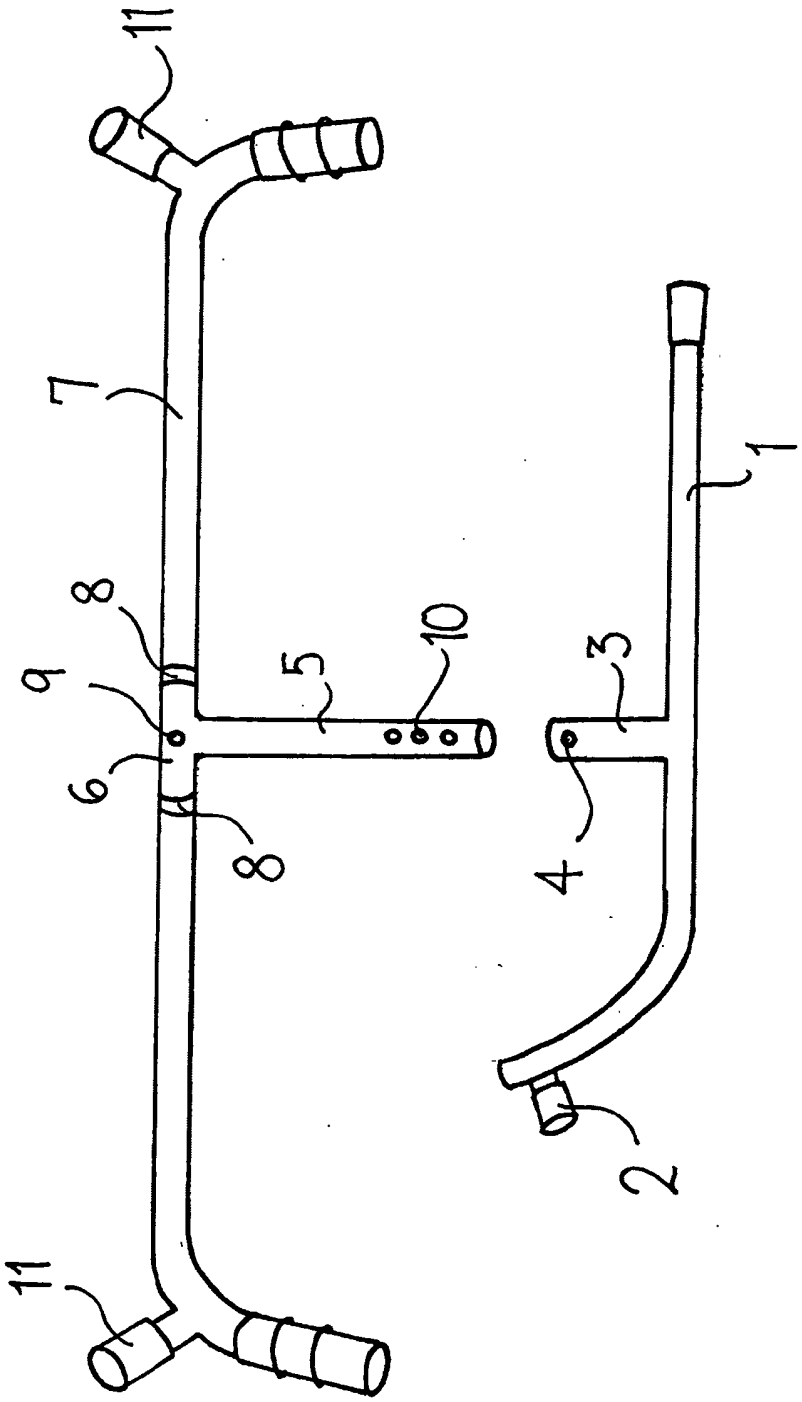

FIGURE C

EXERCISE APPARATUS

Field of the invention

This invention relates to exercise apparatus and is concerned with the provision of an improved form of exercise apparatus and a range of such apparatus, which can be used to test, train and rehabilitate the human musculo-skeletal system with improved safety.

This application is a divisional application based on Patent Application No. 0722861.2 – Publication No. 2 449 142.

BACKGROUND TO THE INVENTION

At this particular moment in time, it is estimated that there are around fifty nine million people suffering from unstable back condition in the United States of America alone. Although worldwide figures were not available at time of writing, the United States figures give a reasonable impression of the enormity of this problem.

Expert advice in the form of Osteopathic or Chiropractic practice is now available in a wide range of countries and is a sensible first choice for those experiencing painful, prolonged low back discomfort.

In addition to the above forms of treatment and often recommended following treatment by the same, physical rehabilitation in the form of specific strength training exercises are perhaps one of the best ways of both preventing and stabilising the said condition.

For individuals suffering chronic low back pain, strength training advice is best sought from a physical rehabilitation specialist, who will structure a strength program to suit the individual's particular needs and who will also provide on-going monitoring and support.

Following clearance from a medically qualified personnel the majority of low back pain sufferers, however, can benefit from a few selected strength exercises that are designed to strengthen the muscles that aid in spinal stability.

The key to maintaining good tone of the muscles that aid in spinal stability and thus good posture is the regular strength training of the same.

The apparatus herein described, is designed to provide the general public with an easily affordable and highly effective method of conditioning the muscles/structures that are the key to providing spinal integrity and core stability in the human being.

It is an object of the present invention to provide an exercise apparatus that is simple and economical to produce and which, despite its simplicity, can be used to provide a range of beneficial exercises.

Despite simplicity of construction, the apparatus utilises sound biomechanical principles to effect a positive, progressive, adaptive response from the neuromuscular and skeletal system of the user.

SUMMARY OF THE INVENTION

According to the present invention, there is provided an exercise apparatus, which includes a ground-engaging, curving, flat section pivot at each end of which there is a fixed stop, a tubular formation adjacent one end of the ground-engaging pivot and handgrips mounted on the tubular formation.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure A is a perspective (assembled) view of the apparatus of Patent Application No. 0722861.2,

Figure B shows the apparatus of Figure A in a storage position, and

Figure C shows the apparatus of Figure A having been disassembled.

DETAILED DESCRIPTION

THE PIVOT ARRANGMENT OF THE APPARATUS OF APPLICATION NO. 0722861.2

This includes an inverted T-shaped floor-engaging round tubular pivot. The pivot structure consists of a length of tube 1 that can be straight or slightly curved toward one or both distal ends (or about its full length) to provide a two-directional pivoting/rocking action. The floor-engaging round tubular pivot 1 may include an insert or

attachment to allow for a fixed or rotatable boss containing a bracket that can be slid or fastened beneath a door or fixed to a suitably configured mounting frame.

The above pivot arrangement 1 may be substituted for a flat floor-engaging plate and/or frame-mounting hinge arrangement.

The floor-engaging pivot 1 illustrated includes a stop 2 at its most distal curved end, with this stop 2 and the stops 11 mounted on the foot rest/hand grip section serving as range limiters.

The stops can be substituted with versions that have the ability to expand and contact to be fixed at any desired length in offering an adjustable range limiting facility for one or both ends of the pivot.

Welded to the most central aspect of the pivot tube 1 can be found a further tube section 3 that has towards its most superior aspect four through holes 4 running around its circumference. Two of the holes 4 may have associated with them threaded bosses for acceptance of a threaded pin/knob assembly or can be left unthreaded for acceptance of a simple nut and bolt assembly.

UPPER T SECTION (FOOT REST/ HAND GRIP ASSEMBLY)

The upper T-section or serving foot rest/hand grip assembly consists of a length of tube or bar that has a series of through holes drilled along its length 5. One end of the tube 5 is centrally butt-welded to a further short length of tube 6 that serves as a boss for the passing through of a further length of tube 7. Lateral movement of the foot rest/hand grip assembly 7 is prevented (relative to the boss 6) via two

collars 8 that butt (one each side) up against the centrally positioned boss 6 and which are fixed to the tube 7. The face of the boss 6 is through-drilled at 9, as is the corresponding foot rest/hand grip section (within the boss 6) so that a pin or threaded bolt can secure the two sections together. The foot rest/hand grip section 7 can present varying lengths and take a number of different forms (include various fixed or demountable attachments). The foot rest/hand grip section 7 can be directly fixed to section 5 thus operating without the use of a boss.

The pivot section is fastened to the foot/hand rest section by sliding section 3 of the pivot section over section 5 on the footrest T-section and fastening the two together by passing a bolt or threaded shank through one of the holes 10 associated with the pivot and through one of the series of holes (these two sections may also be threadedly joined). The apparatus can be formed via the use of round or square tubing or a combination of the two, to suit both product strength and ease of mass production.

A demountable seat may be provided, to aid in the facilitation of seated exercises and can be fixed to the superior aspect of the apparatus, either centrally or off centre in relation to the pivot point.

METHOD OF OPERATION

The apparatus described above, i.e. the apparatus of Application No. 0722861.2 is designed for both the rehabilitation and sports/fitness markets.

The apparatus of the present invention is a linear abdominal trainer, which is designed to provide for a greater degree of lateral stability for those requiring it:

Provided is a floor-engaging, upwardly curving, flat section pivot, which has attached to each inferior aspect, a fixed stop. Positioned towards the most forward – superior aspect of the floor-engaging pivot, can be found an upwardly extending tubular projection, which in turn is T-capped by a further length of tube that serves for placement of two fixed or rotatable handgrips.

The handgrip tubular section can be fixed, made to rotate or demount for storage. A member that spans the foremost upward projection and the uppermost part of the flat curved floor-engaging pivot serves to provide rigidity of the unit.

METHOD OF OPERATION

The operator kneels on the floor, placing the apparatus about a hand's length in front of him or her. With the apparatus positioned so that the handgrips are furthest away, a firm grip is taken of the same. The machine is rotated back until the stop is reached, at which point the operator raises both knees from the floor and slowly pushes the handgrips away from the body. At a point nearing the curved ground-engaging pivot's travel, the operator resists further forward movement of the handgrips and an attempt is made to maintain this now (abdominally) stressed position.

The resistance is such that two or three sets of short-burst training, around 5-6 seconds each set, is more than enough stimulation for optimal abdominal conditioning for the average person.

Claims:-

1. An exercise apparatus which includes a ground-engaging, curving, flat section pivot at each end of which there is a fixed stop, a tubular formation adjacent one end of the ground-engaging pivot and handgrips mounted on the tubular formation.

2. An exercise apparatus as claimed in Claim 1, in which a member spans the upper part of the floor-engaging pivot and the upper part of the tubular projection.

3. An exercise apparatus as claimed in Claim 1, in which the handgrips extend at right angles to the tubular formation.

INTELLECTUAL PROPERTY OFFICE

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Application No: GB0904251.6 **Examiner:** Mr Paul Makin

Claims searched: 1-3 **Date of search:** 1 July 2009

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	1,2,3	US 2726845 A (HYSLOP) whole document
X	1,2,3	US 3475020 A (SCHAUERTE) whole document
X	1,3	US 2005/0075225 A1 (SHIN) whole document
X	1,2,3	GB 633655 A (ARMSTRONG) whole document
X	1	EP 1557205 A1 (CARBONE) whole document

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; A63G

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

WPI, EPODOC

International Classification:

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

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Subclass	Subgroup	Valid From
A63B	0022/16	01/01/2006
A63B	0026/00	01/01/2006