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(54) Title: HAND-HELD EXERCISE APPARATUS AND RESISTANCE MECHANISM FOR EXERCISE APPARATUS

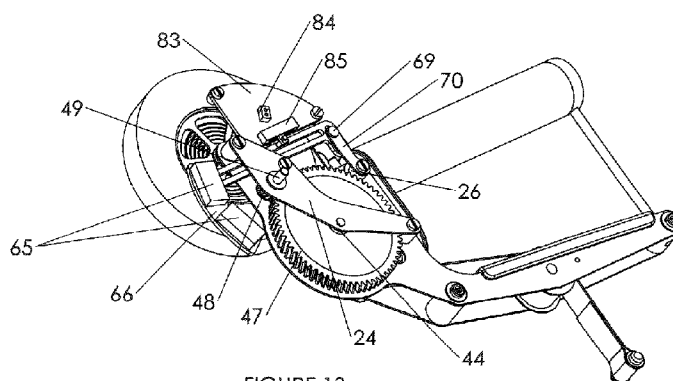


FIGURE 13

(57) Abstract: A hand-held exercise device comprises a frame, a handle attached to the frame, a spool element pivotally mounted to the frame, a pull-cord movable between a wound configuration in which the pull-cord is wound around the spool element and an unwound configuration in which the pull-cord is unwound from the spool element, a resistance element pivotally mounted to the frame, a transmission that couples the pull-cord to the resistance element such that pulling the pull-cord from the device causes the resistance element to rotate, and a damping means that acts to slow the rotation of the resistance element. The device provides a compact and lightweight form of exercise equipment that is easy to carry and easy to store. The device can be used with various fixtures, and also with a second handle fixed to the pull-cord, to allow the user to perform a wide range of exercises. Preferably the exercise device transmits exercise data to an external device that provides feedback and guidance to the user. A resistance mechanism for exercise apparatus allows a pull-cord to be coupled to a resistance element such that pulling the pull-cord from the mechanism causes the resistance element to rotate. A drive element is driven by a frictional force between the drive element and the pull-cord. The resistance element is coupled to the drive element by a transmission.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2012/059285

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-4, 46, 51-53

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2012/059285

A. CLASSIFICATION OF SUBJECT MATTER INV. A63B21/005 A63B21/008 A63B21/018 A63B21/16 A63B21/22 A63B23/04 A63B23/12 G06F1/16 A63B71/06 A63B24/00 A63B21/00 A63B23/035 A63B21/02		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) A63B G06F		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 7 621 856 B1 (KEITH GARY S [US] ET AL) 24 November 2009 (2009-11-24) paragraph [0022] - paragraph [0032]; figures -----	1,2,4, 46,51-53
X	US 6 309 328 B1 (DUDLEY DAVID EDMOND [US]) 30 October 2001 (2001-10-30) column 2 - column 3; figures -----	1,2,4, 46,51-53
<input style="width: 20px; height: 20px; margin-right: 5px;" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" style="width: 20px; height: 20px; margin-right: 5px;" type="checkbox"/> See patent family annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 25 September 2012	Date of mailing of the international search report 28/01/2013	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Borrás González, E	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2012/059285

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 7621856	B1	24-11-2009	NONE

US 6309328	B1	30-10-2001	NONE

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4, 46, 51-53

A hand-held exercise device with a guide element

2. claims: 14, 32-36

Attachment features.

3. claims: 15, 16, 29-31, 37-40, 50

Device comprising an adjustment means with an electrical actuator.

4. claim: 17

A longitudinal axis extending from the first handle extends within 3cm of the centre of mass of the device.

5. claims: 18-23, 28, 45

Device comprising an electronic circuit with a sensor

6. claim: 24

Device comprising a user input device close to the first handle.

7. claims: 25-27

Device having a centre part detachably affixable

8. claims: 42, 47

Device having a mass of less than 2kg and fitting within a space envelope measuring 35cm by 20cm by 6cm.

9. claims: 41, 43

Device providing 200N of tension in the pull-cord while the pull-cord is pulled from the device at a speed of 0.5 m/s.

10. claims: 44, 48, 49

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

The resistance element having radially extending features
for moving air

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 5-13(completely); 15, 16, 20-23, 25-27, 37-41, 44-50, 52, 53(partially)

Present independent claim 5 relates to a resistance mechanism suitable for a pull-cord driven exercise device. However, neither the definition of the resistance mechanism as such nor its structural and functional relation to the pull-cord driven exercise device allows the skilled person to clearly determine the subject-matter for which protection is sought. For example it is not clear if the pull-cord is part of the resistance mechanism, of the pull-cord driven exercise device and/or of both, and what might be the relation between the resistance element and the grip element. The description does not provide support and disclosure in the sense of Art. 6 and 5 PCT concerning the features of said claim, and there is no common general knowledge of this kind available to the person skilled in the art. The only embodiments dealing with a resistance mechanism as such are those of Figs. 9-11 and 51-53. However, these examples are not covered by independent claim 5, since no pivotally mounted drive element in combination with a pivotally mounted resistance element can be found. Moreover, even considering these examples and the application as a whole, it is not possible to determine the structural and functional relation between drive element, resistance element, grip element and transmission means of the resistance mechanism intended by the definitions of claim 5. This non-compliance with the substantive provisions is to such an extent, that the search was performed taking into consideration the non-compliance in determining the extent of the search (PCT Guidelines 9.19). Consequently, independent claim 5 as well as claims 6-13 dependent on claim 5 and claims 15,16,20-23,25-27,37-41,44-50,52,53 when depending of claim 5 have not been searched.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.2), should the problems which led to the Article 17(2) declaration be overcome.