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(54) Title: ADJUSTABLE DISARTICULATED SADDLE HAVING INDEPENDENT SUSPENSION SYSTEM AND METHODS OF USE THEREOF

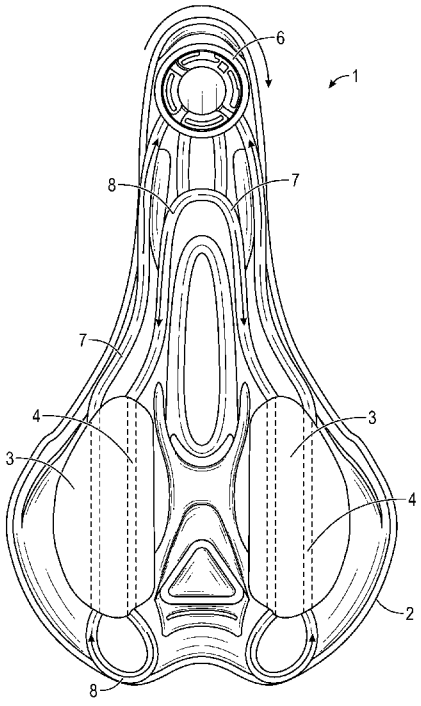

FIG. 1

(57) Abstract: The invention includes apparatus and methods of use for an adjustable disarticulated seat, which in a preferred embodiment may include one, or a plurality of independently or synchronously adjustable disarticulated inserts positioned within insert interface apertures on the distal extended portion of a saddle. An actuator element may be responsive to the one or more disarticulated inserts through one or more cords configured to be retracted or release in response to the action of the actuator causing the extension upward or release downward movement of the one or more inserts within the insert interface aperture.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - B62J 1/10; B62J 1/00; B62J 1/20; B62J 1/24; B62J 1/26; B68C 1/04 (2022.01)
CPC - B62J 1/10; B62J 1/005; B62J 1/20; B62J 1/24; B62J 1/26; B68C 1/04 (2022.05)

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)

see Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

see Search History document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

see Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 205769746 U (TIANJIN CHISU TECH CO LTD) 07 December 2016 (07.12.2016) see machine translation	1-4, 11-17, 24-30, 37-44, 51-54, 70-81
A	US 2013/0334787 A1 (GOSSEEN et al) 19 December 2013 (19.12.2013) entire document	1-4, 11-17, 24-30, 37-44, 51-54, 70-81
A	US 2005/0212337 A1 (LEE) 29 September 2005 (29.09.2005) entire document	1-4, 11-17, 24-30, 37-44, 51-54, 70-81
A	US 2015/0175230 A1 (PIAGGIO & C. S.P.A) 25 June 2015 (25.06.2015) entire document	1-4, 11-17, 24-30, 37-44, 51-54, 70-81
A	US 2016/0325799 A1 (TS TECH CO. LTD.) 10 November 2016 (10.11.2016) entire document	1-4, 11-17, 24-30, 37-44, 51-54, 70-81

☐ Further documents are listed in the continuation of Box C. ☐ 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
"D" document cited by the applicant in the international application
"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	Date of mailing of the international search report
17 May 2022	JUN 14 2022
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	Authorized officer Harry Kim Telephone No. PCT Helpdesk: 571-272-4300

INTERNATIONAL SEARCH REPORT

International application No.
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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:

3. ☒ Claims Nos.: 5-10, 18-23, 31-36, 45-50, 60-65
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 extra sheet(s).

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 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, 11-17, 24-30, 37-44, 51-54, 70-81

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.

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Continued from Box No. III Observations where unity of invention is lacking

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-4, 11-17, 24-30, 37-44, 51-54 and 70-81, is drawn to an adjustable disarticulated seat comprising: an actuator coupled with said saddle.

Group II, claims 55-59, 66-69 and 82-101, is drawn to an adjustable disarticulated seat having an internal suspension comprising: said cord suspending said disarticulated insert within said insert interface aperture.

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention: an actuator coupled with said saddle, wherein said actuator is coupled with said disarticulated insert through a cord secured within one or more insert channels on said disarticulated insert; and wherein said actuator retracts the secured cord and extends the disarticulated insert, or releases the secured cord allowing depression of the disarticulated insert as claimed therein is not present in the invention of Group II. The special technical feature of the Group II invention: said cord suspends said disarticulated insert within said insert interface aperture and provides a multi-vectored counter-compressive force in response to a force applied to the insert by a user as claimed therein is not present in the invention of Group I.

Groups I and II lack unity of invention because even though the inventions of these groups require the technical feature of an adjustable disarticulated seat comprising: a saddle having an insert interface aperture; a disarticulated insert positioned within said insert interface aperture, this technical feature is not a special technical feature as it does not make a contribution over the prior art.

Specifically, US 2015/0175230 to PIAGGIO & C. S.p.A teaches an adjustable disarticulated seat comprising: a saddle having an insert interface aperture; a disarticulated insert positioned within said insert interface aperture (On the bottom portion 14 of the saddle 10 at least one aperture 18 is made for access to a respective compartment 20 made inside the padded upper portion 12 and destined to receive any inserts 28, as will be specified further below. The aperture 18 is conveniently made at the seat of the rider and/or passenger. The shape and dimensions of the aperture 18, just as the shape and dimensions of the respective compartment 20, are variable depending on the type of saddle 10, para. 0031. The adjustable seat for motorcycles according to the present invention makes it possible to intervene in a simple and intuitive manner by means of the cover plate made on the bottom of the saddle, para. 0082).

Since none of the special technical features of the Group I or II inventions are found in more than one of the inventions, unity of invention is lacking.