(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 636 508 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
15.04.2020 Bulletin 2020/16

(21) Application number: **17935393.3**

(22) Date of filing: **28.12.2017**

(51) Int Cl.:
B61D 1/04 *(2006.01)*

(86) International application number:
PCT/CN2017/119335

(87) International publication number:
WO 2019/119501 (27.06.2019 Gazette 2019/26)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD TN

(30) Priority: **22.12.2017 CN 201711408537**
22.12.2017 CN 201721827835 U

(71) Applicant: **CRRC Changchun Railway Vehicles Co., Ltd.**
Changchun, Jilin 130000 (CN)

(72) Inventors:
- **GAO, Dengke**
  Jilin 130000 (CN)
- **MA, Kai**
  Jilin 130000 (CN)
- **LIU, Tao**
  Jilin 130000 (CN)

(74) Representative: **Thoma, Michael**
Lorenz Seidler Gossel
Rechtsanwälte Patentanwälte
Partnerschaft mbB
Widenmayerstraße 23
80538 München (DE)

(54) **RAILWAY TRAIN AND COMPARTMENT THEREOF**

(57) A railway train compartment, comprising a floor (1) and multiple rows of seats (2) mounted on the floor (1) and sequentially arranged along a length direction of the compartment. A passing slide rail assembly extending along the length direction of the compartment is provided below the floor (1); slide members (3) are provided in the slide rail assembly; the seats (2) are mounted on the slide rail assembly by means of the slide members (3), and are able to move along the slide rail assembly; the seats (2) can move along the slide rail assembly by means of the slide members (3), so that distances between the rows of the seats (2) can be adjusted, the quantity of the seats (2) can be enhanced or reduced, the first-class seats and second-class seats (2) can be interchanged, and diversified operation demands can be satisfied. Also provided is a railway train comprising the compartment.

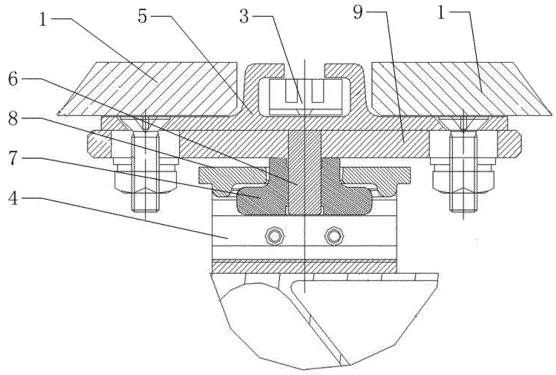

Figure 1

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Description

[0001] The present application claims priorities to Chinese Patent Application No. 201711408537.1, titled "RAILWAY TRAIN AND COMPARTMENT THEREOF", filed on December 22, 2017 with the State Intellectual Property Office of People's Republic of China and Chinese Patent Application No. 201721827835.X, titled "RAILWAY TRAIN AND COMPARTMENT THEREOF", filed on December 22, 2017 with the State Intellectual Property Office of People's Republic of China, both of which are incorporated herein by reference in their entireties.

FIELD

[0002] The present disclosure relates to the technical field of railway trains, particularly to a railway train carriage and a railway train including the carriage.

BACKGROUND

[0003] A multiple-unit train is one type of railway trains, which includes at least two locomotives or powered carriages and multiple non-powered carriages. The multiple-unit train originates from double heading locomotive, but is different from the traditional double heading locomotive. Double heading locomotive, with an increasing number of locomotives rather than changing a type of the carriage being a trailer, is generally used for freight trains and is mainly to solve a problem of insufficient tractive force. However, the multiple-unit train is almost used for passenger trains only, mainly to solve a problem of insufficient acceleration and restricted maximum speed. Driving devices of the passenger train may be placed in multiple passenger carriages respectively, so that these carriages are powered, while a heading locomotive of the passenger train may become a trailer only having a console but without the driving force.

[0004] In a multiple-unit train, each carriage is equipped with a driving device, and a heading locomotive and the carriages are almost indistinguishable, or there is no heading locomotive. The train is entirely controlled by the railway system, and is mainly used in some urban railway transport trains such as maglev trains, APM (Automated People Mover) trains and ultra-high speed test trains and so on. The multiple-unit train generally includes two locomotives, multiple powered carriages and non-powered carriages. In some multiple-unit trains, the heading locomotive includes control equipment of the train and does not include the driving device.

[0005] Seats are arranged in rows in the carriage. In the conventional technology, the positions of the seats are fixed, and the spacing between the seats cannot be adjusted, and the number of seats cannot be increased or decreased according to the operation requirements.

[0006] Therefore, it is necessary to provide a railway train carriage in which the spacing between the seats can be adjusted according to the requirements.

SUMMARY

[0007] A railway train carriage is provided according to the disclosure, in which the spacing between the seats can be adjusted and the number of seats can be increased or decreased according to the requirements, and first-class seats and second-class seats can be exchanged, thereby meeting diversified operation requirements. A railway train including the carriage is also provided according to the disclosure.

[0008] A railway train carriage is provided according to the disclosure. The railway train carriage includes a floor and multiple rows of seats arranged on the floor and arranged along a length direction of the carriage. A continuous slide rail assembly extending along the length direction of the carriage is arranged under the floor. A sliding member is arranged in the slide rail assembly. Each of the seats is mounted on the slide rail assembly through the sliding member and is capable of being moved along the slide rail assembly. A recessed groove opposite to the slide rail assembly and used for avoidance is arranged in the floor.

[0009] Optionally, the slide rail assembly includes a base connected to a carriage bottom plate and a slide groove arranged at an upper portion of the base and extending along the length direction of the carriage. The slide groove has an upward opening opposite to the recessed groove. The sliding member is arranged in the slide groove and is capable of being moved along the slide groove.

[0010] Optionally, a supporting device is arranged between the base and the slide groove. The supporting device includes a supporting member and a buffering member arranged at each of two sides of the supporting member. An upper cover is arranged at each of two sides of the buffering members.

[0011] Optionally, a connecting plate is arranged on the supporting member, and the slide groove is connected to the base through the connecting plate.

[0012] Optionally, the buffering member is made of elastic rubber.

[0013] Optionally, the railway train carriage further includes a buckle cover covering the recessed groove and a carpet covering an upper surface of the floor.

[0014] Optionally, a sidewall slide rail assembly extending along the length direction of the carriage is arranged at a sidewall of the carriage. A side sliding member is arranged at a side face of the seat. The side sliding member is arranged in the sidewall slide rail assembly and is capable of being moved along the sidewall slide rail assembly.

[0015] Optionally, the railway train carriage includes multiple slide rail assemblies arranged along a width direction of the carriage and arranged to be parallel to each other. A bottom portion of the seat is arranged with a structure connected to the sliding member.

[0016] Optionally, a bottom portion of the seat is arranged with a locking member which is capable of being fixedly connected to the slide rail assembly.

[0017] A railway train is provided according to the disclosure. The railway train includes multiple railway train carriages described above.

[0018] A railway train carriage is provided according to the present disclosure. The railway train carriage includes a floor and multiple rows of seats arranged on the floor and arranged along a length direction of the carriage. A continuous slide rail assembly extending along the length direction of the carriage is arranged under the floor, a sliding member is arranged in the slide rail assembly, each of the seats is mounted on the slide rail assembly through the sliding member and is capable of being moved along the slide rail assembly, and a recessed groove opposite to the slide rail assembly and used for avoidance is arranged in the floor. The seats are moved along the slide rail assembly through the sliding members, in this way, the spacing between the seats can be adjusted, the number of seats can be increased or decreased, and first-class seats and second-class seats can be exchanged, thereby meeting diversified operation requirements.

[0019] A railway train including the above carriage is further provided according to the present disclosure. Since the carriage has the above technical effects, the above railway train also has the same technical effects, which are not described herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020]

Figure 1 is a schematic structural diagram of a slide rail assembly and a supporting device in a railway train carriage according to an embodiment of the present disclosure;

Figure 2 is a schematic structural diagram of a slide rail assembly and a buckle cover in a railway train carriage according to an embodiment of the present disclosure;

Figure 3 is a schematic top view of a slide rail assembly in a railway train carriage according to an embodiment of the present disclosure; and

Figure 4 is a schematic front view of seats in a railway train carriage according to an embodiment of the present disclosure.

DETAILED DESCRIPTION

[0021] A railway train carriage is provided according to the disclosure, in which the spacing between the seats can be adjusted and the number of seats can be increased or decreased according to the requirements, and first-class seats and second-class seats can be exchanged, thereby meeting diversified operation requirements. A railway train including the carriage is also provided according to the disclosure.

[0022] For those skilled in the art to better understand technical solutions of the present disclosure, the present disclosure will be further described in detail in conjunction with drawings and embodiments hereinafter.

[0023] Reference is made to Figures 1 to 4, Figure 1 is a schematic structural diagram of a slide rail assembly and a supporting device in a railway train carriage according to an embodiment of the present disclosure, Figure 2 is a schematic structural diagram of a slide rail assembly and a buckle cover in a railway train carriage according to an embodiment of the present disclosure, Figure 3 is a schematic top view of a slide rail assembly in a railway train carriage according to an embodiment of the present disclosure, and Figure 4 is a schematic front view of seats in a railway train carriage according to an embodiment of the present disclosure.

[0024] A railway train carriage is provided according to an embodiment of the present disclosure. The railway train carriage includes a floor 1 and multiple rows of seats 2 arranged on the floor 1 and arranged along a length direction of the carriage. A continuous slide rail assembly extending along the length direction of the carriage is arranged under the floor 1, a sliding member 3 is arranged in the slide rail assembly. Each of the seats 2 is mounted on the slide rail assembly through the sliding member 3 and is capable of being moved along the slide rail assembly. A recessed groove opposite to the slide rail assembly and used for avoidance is arranged in the floor 1. A process that the sliding member 3 moves along the slide rail assembly is a process that the sliding member 3 moves along the recessed groove.

[0025] It should be noted that the avoidance of the above recessed groove mainly means that when the seats are mounted, the bottom part of the seats is connected to the sliding member 3 of the slide rail assembly through the recessed groove in the floor 1.

[0026] In addition, the "continuous slide rail assembly" means that the length of the slide rail assembly is approximately equal to the length of space occupied by the seats in the carriage, so that the same column of seats along the length direction of the carriage may be slid along the slide rail assembly.

[0027] The slide rail assembly includes a base 4 connected to a carriage bottom plate and a slide groove 5 arranged at an upper portion of the base 4 and extending along the length direction of the carriage. The slide groove 5 has an upward opening opposite to the recessed groove, and the sliding member 3 is arranged in the slide groove 5 and is capable of being moved the slide groove 5. A moving direction of the sliding member 3 is limited by the slide groove 5, so that the sliding member 3 is moved only along the length direction of the carriage, and a transverse movement is avoided. The slide groove 5 may also be configured as a slide rail, corre-

spondingly, a shape of the sliding member 3 is changed so that the sliding member 3 clamp the slide rail.

[0028] The seats are moved along the slide rail assembly through the sliding members 3, in this way, the spacing between the seats 2 can be adjusted, the number of seats can be increased or decreased, and first-class seats and second-class seats can be exchanged, thereby meeting diversified operation requirements.

[0029] A supporting device is arranged between the base 4 and the slide groove 5 according to the embodiment of the present disclosure. The supporting device includes a supporting member 6 and a buffering member 7 arranged at each of two sides of the supporting member 6, and an upper cover 8 is arranged at each of two sides of the buffering members 7. The main function of the upper cover 8 is to prevent dust from entering the base 4, and the upper cover 8 may be snap-fitted on the base 4. Each of the buffering members 7 includes an upper buffering member arranged vertically and a lower buffering member arranged horizontally, that is, two buffering members 7 are both L-shaped, and the two buffering members 7 are symmetrically mirrored with respect to the sliding member 3. The upper buffering member is located between an inner side of the upper cover 8 and the supporting member 6, and the lower buffering member is located between a lower surface of the upper cover 8 and the base 4, thus improves the buffering effect. Shapes and arranging manners of the components may be adjusted according to different situations, which are all within the protection scope of the present disclosure. Specifically, a connecting plate 9 is arranged at both two sides of the supporting member 6, the connecting plate 9 is connected to a bottom surface of the floor 1 by bolts. The connecting plate 9 is connected to the slide groove 5 through the bolts, so that the supporting member 6 steadily supports the slide groove 5. The buffering member 7 may be made of elastic rubber or other materials.

[0030] In order to prevent moisture and debris from entering the slide rail assembly 3, a buckle cover 10 may be arranged at the recessed groove. The buckle cover 10 is fitted with the upward opening of the slide rail assembly to close the upward opening of the slide rail assembly. The buckle cover 10 is abrasion-resistant and artistic, and covers the recessed groove, thereby having a good practical and decorative performance. A carpet 11 is further arranged on an upper surface of the floor 1.

[0031] In order to improve the stability, multiple slide rail assemblies may be arranged in sequence along a width direction of the carriage and arranged to be parallel to each other. A bottom portion of the seat 2 is arranged with multiple structures connected to the sliding member 3. A sidewall slide rail assembly 12 extending along the length direction of the carriage may be further arranged at a sidewall of the carriage, a side sliding member is arranged at a side face of the seat 2, and the side sliding member is arranged in the sidewall slide rail assembly 12 and is capable of being moved along the sidewall slide rail assembly 12.

[0032] Based on the railway train carriage according to the above embodiments, the bottom portion of the seat 2 is arranged with a locking member which is capable of being fixedly connected to the floor 1. After the spacing between the seats 2 is adjusted, the floor 1 and the seats 2 are fixedly connected by the locking member, so as to prevent the seats from sliding during the normal usage, thereby improving the safety.

[0033] In addition to the railway train carriage, a railway train including the carriage is provided according to an embodiment of the present disclosure, and one may be refer to the conventional technology for the structures of other parts of the railway train, which is not described in detail here.

[0034] A railway train carriage and a railway train including the carriage according to the present disclosure are described in detail hereinbefore. The principle and the embodiments of the present disclosure are illustrated herein by specific examples. The above description of examples is only intended to help the understanding of the method and the concept of the present disclosure. It should be noted that, for those skilled in the art, a few of modifications and improvements may be made to the present disclosure without departing from the principle of the present disclosure, and these modifications and improvements are also deemed to fall into the protection scope of the present disclosure defined by the claims.

Claims

1. A railway train carriage, comprising:

   a floor (1); and
   a plurality of rows of seats (2) arranged on the floor (1) and arranged along a length direction of the carriage, wherein
   a continuous slide rail assembly extending along the length direction of the carriage is arranged under the floor (1), a sliding member (3) is arranged in the slide rail assembly, each of the seats (2) is mounted on the slide rail assembly through the sliding member (3) and is capable of being moved along the slide rail assembly, and a recessed groove opposite to the slide rail assembly and used for avoidance is arranged in the floor (1).

2. The railway train carriage according to claim 1, wherein the slide rail assembly comprises a base (4) connected to a carriage bottom plate and a slide groove (5) arranged at an upper portion of the base (4) and extending along the length direction of the carriage, wherein the slide groove (5) has an upward opening opposite to the recessed groove, and the sliding member (3) is arranged in the slide groove (5) and is capable of being moved along the slide groove (5).

3. The railway train carriage according to claim 2, wherein a supporting device is arranged between the base (4) and the slide groove (5), wherein the supporting device comprises a supporting member (6) and a buffering member (7) arranged at each of two sides of the supporting member (6), and an upper cover (8) is arranged at each of two sides of the buffering members (7).

4. The railway train carriage according to claim 3, wherein a connecting plate (9) is arranged on the supporting member (6), and the slide groove (5) is connected to the base (4) through the connecting plate (9).

5. The railway train carriage according to claim 4, wherein the buffering member (7) is made of elastic rubber.

6. The railway train carriage according to claim 1, further comprising a buckle cover (10) covering the recessed groove and a carpet (11) covering an upper surface of the floor (1).

7. The railway train carriage according to claim 1, wherein a sidewall slide rail assembly (12) extending along the length direction of the carriage is arranged at a sidewall of the carriage, a side sliding member is arranged at a side face of the seat (2), and the side sliding member is arranged in the sidewall slide rail assembly (12) and is capable of being moved along the sidewall slide rail assembly (12).

8. The railway train carriage according to claim 1, comprising a plurality of slide rail assemblies arranged along a width direction of the carriage and arranged to be parallel to each other, wherein a bottom portion of the seat (2) is arranged with a structure connected to the sliding member (3).

9. The railway train carriage according to any one of claims 1 to 8, wherein a bottom portion of the seat (2) is arranged with a locking member which is capable of being fixedly connected to the slide rail assembly.

10. A railway train comprising a plurality of railway train carriages according to any one of claims 1 to 9.

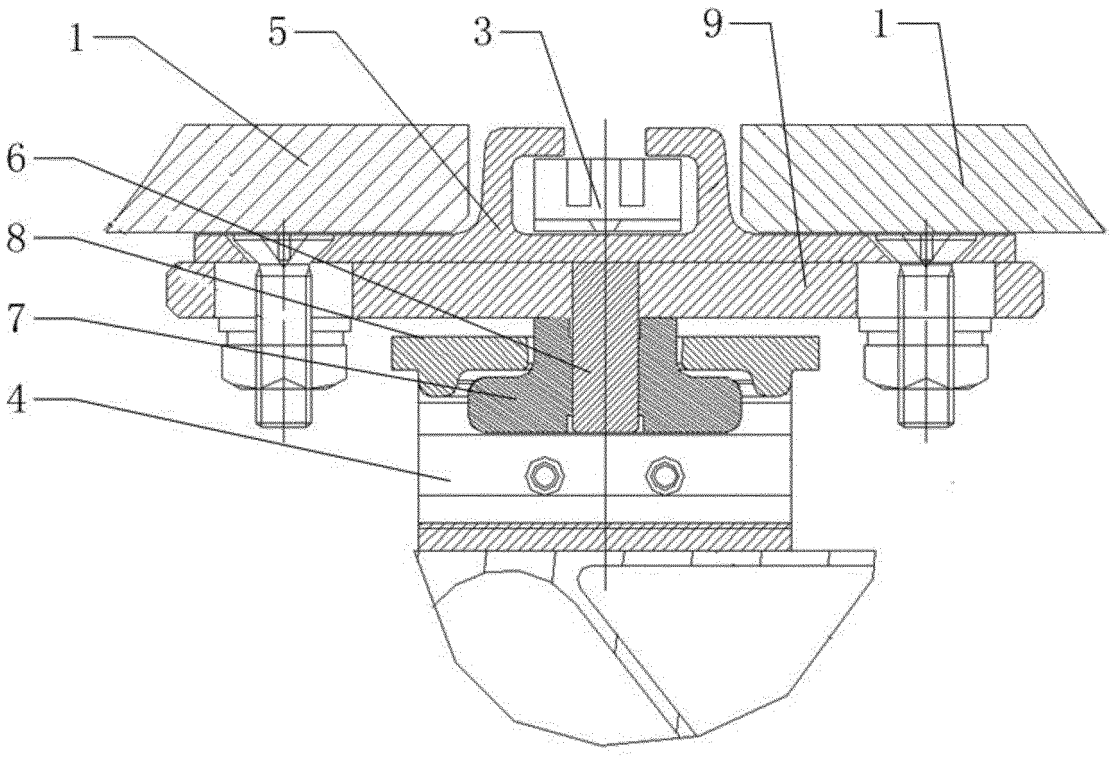

Figure 1

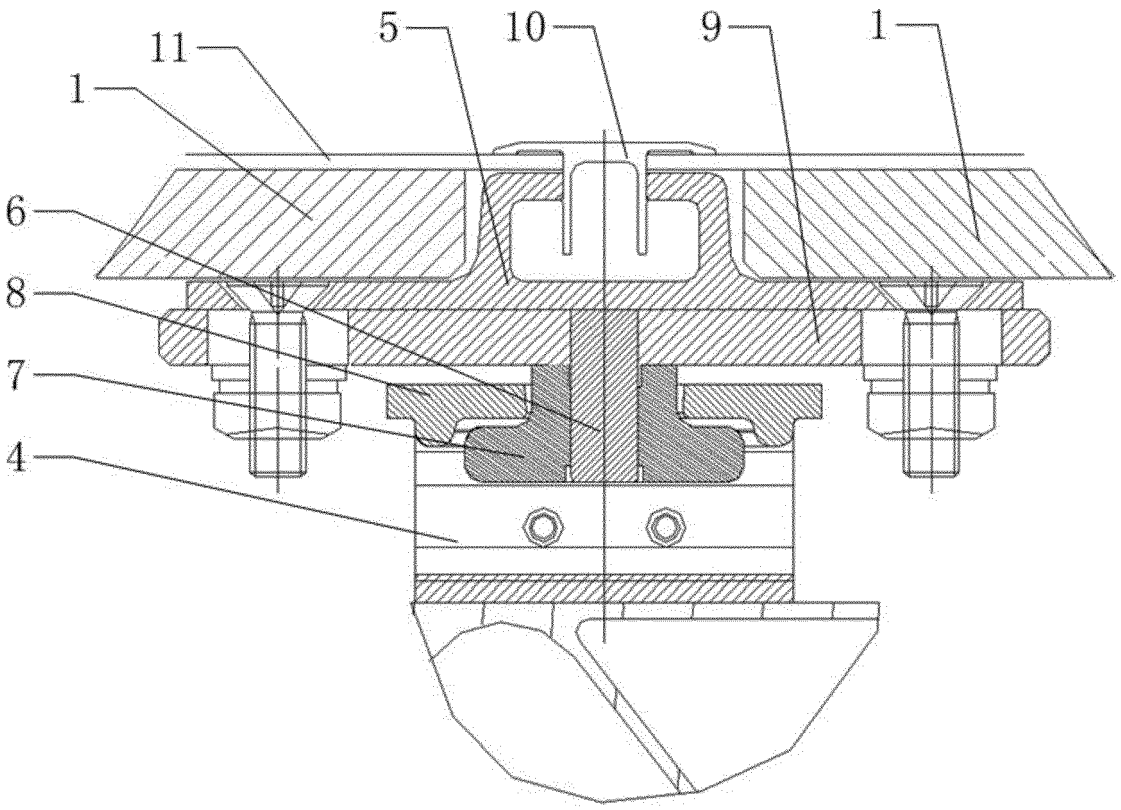

Figure 2

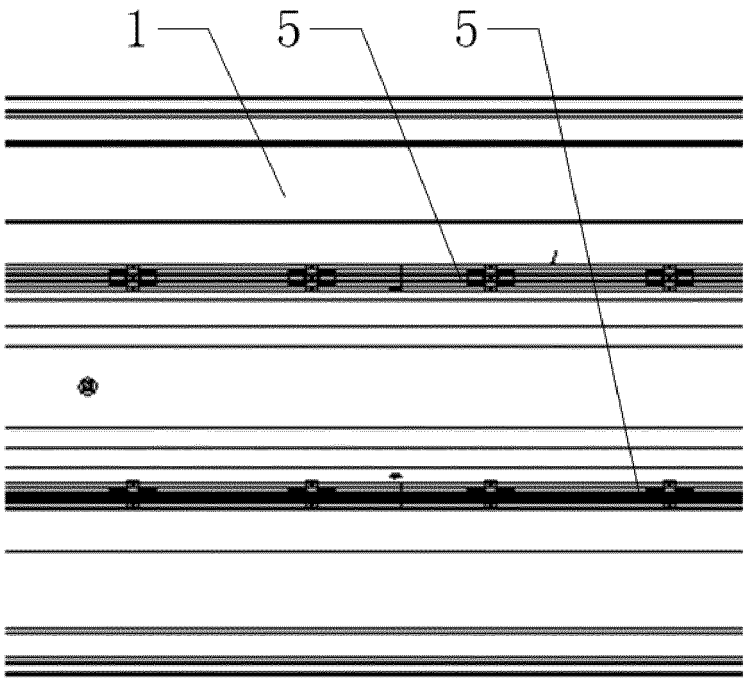

Figure 3

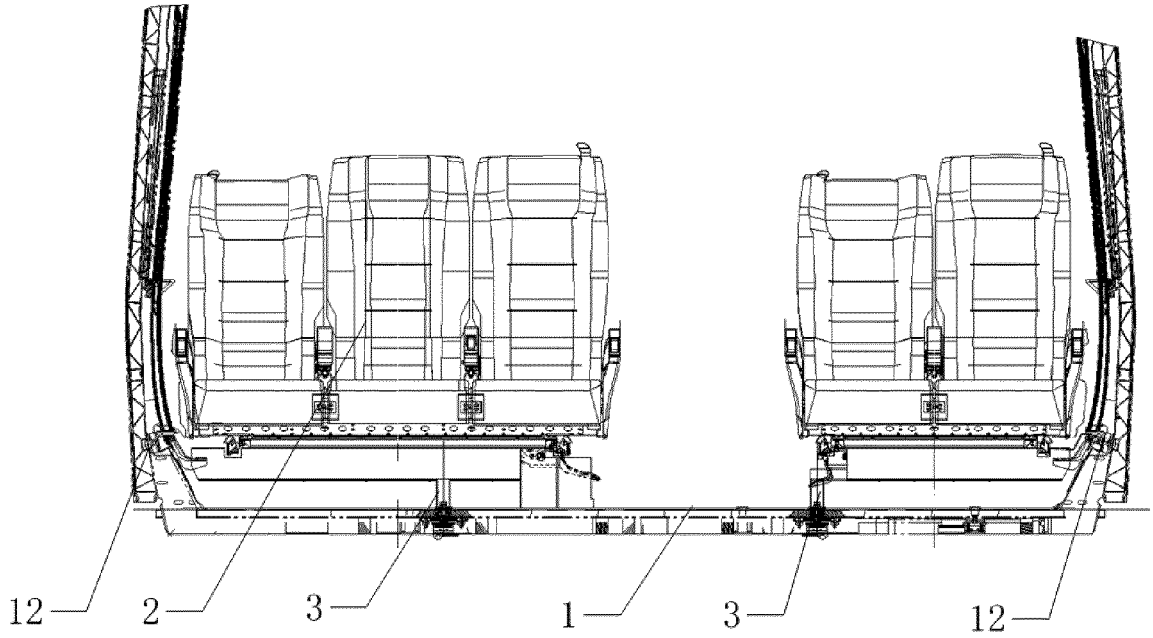

Figure 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2017/119335

A. CLASSIFICATION OF SUBJECT MATTER

B61D 1/04(2006.01)i

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)

B61D

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)

CNPAT, WPI, EPODOC, CNKI: 轨道, 列车, 火车, 车厢, 座椅, 椅子, 座位, 调节, 调整, 滑动, 滑轨, 滑槽, 滑道, 导轨, 滑移, 可调, 移动, 缓冲, 橡胶, 盖子, 侧面, 锁定, 锁紧, rail+, train, railway, carriage, seat, adjust+, slid+, orbit+, rack+, track+, mov +, cushion, rubber, cover, sid+, lock+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 101428626 A (YAO, JIN) 13 May 2009 (2009-05-13) description, page 3, and figures 1-3	1-10
Y	CN 100999196 A (TOYOTA BOSHOKU CORPORATION ET AL.) 18 July 2007 (2007-07-18) description, pages 3-5, and figures 1-7	1-10
Y	CN 201193028 Y (TRANSPORT BUREAU, THE MINISTRY OF RAILWAYS THE PEOPLE"S REPUBLIC OF CHINA ET AL.) 11 February 2009 (2009-02-11) description, page 1	10
A	CN 106314454 A (LAI'AN COUNTY KELAIXING INDUSTRIAL CO., LTD.) 11 January 2017 (2017-01-11) entire document	1-10
A	CN 2073383 U (LI, ZHONGDONG) 20 March 1991 (1991-03-20) entire document	1-10
A	CN 2656202 Y (WANG, ZUSHAN) 17 November 2004 (2004-11-17) entire document	1-10

☑ 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

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Date of the actual completion of the international search	Date of mailing of the international search report
29 August 2018	**20 September 2018**

Name and mailing address of the ISA/CN	Authorized officer
State Intellectual Property Office of the P. R. China **No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088** **China**	
Facsimile No. **(86-10)62019451**	Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2017/119335

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2005112319 A (AISIN SEIKI K.K. ET AL.) 28 April 2005 (2005-04-28) entire document	1-10
A	JP 2016078745 A (HIGASHI NIPPON RYOKAKU TETSUDO K.K.) 16 May 2016 (2016-05-16) entire document	1-10

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2017/119335

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		US 2007170743 A1	26 July 2007
CN 201193028 Y	11 February 2009	None	
CN 106314454 A	11 January 2017	None	
CN 2073383 U	20 March 1991	None	
CN 2656202 Y	17 November 2004	None	
JP 2005112319 A	28 April 2005	None	
JP 2016078745 A	16 May 2016	None	

Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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- CN 201721827835 X **[0001]**