

(19)



(11)

**EP 3 750 773 B1**

(12)

## EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:

**06.03.2024 Bulletin 2024/10**

(21) Application number: **18923873.6**

(22) Date of filing: **27.11.2018**

(51) International Patent Classification (IPC):  
**B61G 7/10** (2006.01)

(52) Cooperative Patent Classification (CPC):  
**B61G 7/10**

(86) International application number:  
**PCT/CN2018/117598**

(87) International publication number:  
**WO 2020/000889 (02.01.2020 Gazette 2020/01)**

(54) **RAILWAY CAR AND RAILWAY COUPLING MOUNTING ASSEMBLY THEREOF**

EISENBAHNWAGEN UND EISENBAHNKUPPLUNGSMONTAGEANORDNUNG DAFÜR

WAGON DE CHEMIN DE FER ET ENSEMBLE DE MONTAGE D'ATTELAGE DE CHEMIN DE FER ASSOCIÉ

(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**

(30) Priority: **26.06.2018 CN 201810669841**

(43) Date of publication of application:  
**16.12.2020 Bulletin 2020/51**

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## Description

**[0001]** The present application claims the priority to Chinese Patent Application No. 201810669841.X titled "RAILWAY CAR AND RAILWAY COUPLING MOUNTING ASSEMBLY THEREOF", filed with the China National Intellectual Property Administration on June 26, 2018.

## FIELD

**[0002]** The present application relates to the technical field of rail vehicle, and in particular to a rail vehicle and a coupler mounting assembly thereof.

## BACKGROUND

**[0003]** In the current rail vehicle technology, according to relevant standards, most rail vehicles are provided with coupler mounting devices. A screw coupler mounting seat is provided on a lower cover of a coupler box. Threaded blind holes are provided according to positions of screw coupler mounting bolts on the screw coupler mounting seat, and the position of a screw coupler stop seat is designed according to the threaded blind holes. The screw coupler stop seat and the mounting seat form a screw coupler mounting structure. The above screw coupler mounting structure can bear a certain compressive load, which is achieved by shearing of the screw coupler mounting bolts.

**[0004]** According to the standard of BS EN 15020-2006+A1-2010 "Performance Requirements, Special Joint Geometric Dimensions and Test Methods of Railway Facilities-Rescue Couplers", in the case of rescuing a faulty vehicle, the vehicle traction device would bear the compressive load of 300KN, but the screw coupler and the mounting structure based on UIC standard cannot bear the compressive load of 300KN. If the traction device of the vehicle is subjected to a large impact compressive load in the rescue condition, it is very likely that the mounting bolts will shear off, which will result in the failure of vehicle rescue and may cause irreversible damage to the coupler box and other parts of the vehicle body. Prior art document US 6 446 820 B 1 discloses a draft gear assembly and in combination with a draft sill and a coupler. The draft sill has front and rear stops defining a draft gear pocket. The draft gear assembly has a yoke, a coupler follower, a rear follower, a front resilient member and a back resilient member. The yoke has top and bottom stops. The coupler follower is biased against the yoke top and bottom stops. The draft gear assembly also includes a center rod that extends through the yoke, through the back resilient member and through the rear follower. Prior to installation on a railcar, there is a shortening member on the center rod. The length of the assembly between the shortening member and the front of the coupler follower is slightly less than the longitudinal length of the draft gear pocket. After installation,

the rear follower is positioned against rear stops of the draft sill. After installation, the yoke, coupler and coupler follower each have a neutral position and a full buff position. The yoke and coupler also have a full draft position. The draft stroke of the coupler and yoke is 11/4 inches (3.2 cm) forward. The buff stroke of the coupler and coupler follower is at least 41/4 inches (10.8 cm) rearward, while the buff stroke of the yoke is 3 inches (7.6 cm) rearward. The center rod is free from compression throughout buff movement and free from tension throughout draft movement of the coupler and yoke. Prior art document US 2017/166225 A1 discloses a railroad car coupling system including a draft sill with front and rear stops, a coupler along with an energy management assembly for receiving and dissipating external forces experienced by the coupler. A yoke also forms part of the coupling system and is operably coupled to the coupler. The yoke includes top and bottom walls which each include two forward facing stops. A follower is mounted substantially between the top and bottom walls of the yoke for receiving forces experienced by the coupler. The follower is configured with two laterally spaced vertical extensions disposed toward opposed upper corners of the follower and two laterally spaced vertical extensions disposed toward opposed lower corners of the follower. Forward facing surfaces on the follower extensions are arranged in generally coplanar relationship relative to each other. Rearward facing surfaces on the follower extensions are arranged in generally coplanar relationship with each other and operably engage with the forward facing stops on the yoke to enhance the distribution of forces when the follower engages the front stops on the center sill when the coupling system is in a full draft condition.

## SUMMARY

**[0005]** An object of the present application is to provide a rail vehicle and a coupler mounting assembly thereof, which can effectively avoid coupler failure caused by the shear fracture of the mounting bolts.

**[0006]** In order to achieve the above object, a coupler mounting assembly applied to rail vehicles is provided according to the present application, which includes a coupler box body for placing a coupler, and further includes:

a mounting seat provided on two sides of the coupler box body;

a stop seat fixed on two sides of the coupler box body and extending along a length direction of the coupler box body, wherein the stop seat is located at a front end of the mounting seat;

a coupler body support plate mounted to the mounting seat and abutting against the stop seat to limit movement of the coupler toward a forward direction

of the rail vehicle;

a position-limiting block fixed on two sides of the coupler box body and extending along the length direction of the coupler box body, wherein the position-limiting block is located at a rear end of the mounting seat; and

a stop block which is slidably connected with the position-limiting block and abuts against the coupler body support plate, wherein the stop block is movable within a certain range relative to the position-limiting block along the length direction of the coupler box body, and the stop block and the stop seat are respectively located at a rear end and a front end of the coupler body support plate.

**[0007]** The position-limiting block includes:

a vertical plate provided along the length direction of the coupler box body;

a locking end provided on an upper surface of the vertical plate, located at a rear end of the position-limiting block and extending upward;

a notch provided on a front side wall of the vertical plate and extending downward; and

mounting holes provided on the upper surface of the vertical plate and located between the locking end and the notch.

**[0008]** The stop block includes a horizontal plate located above the vertical plate and provided along the length direction of the coupler box body, wherein the horizontal plate is longer than the vertical plate;

an end face provided on a side wall of a rear end of the horizontal plate for abutting against the locking end;

a bent end provided at a front end of the horizontal plate and extending downward to abut against the notch; and

via holes penetrating through upper and lower surfaces of the horizontal plate for connecting the position-limiting block with the stop block by mounting bolts, wherein a hole diameter of each via hole is larger than a hole diameter of each mounting hole, so that the stop block is movable within a certain range relative to the position-limiting block.

**[0009]** Preferably, fitting surfaces of the locking end and the end surface are first wedge surfaces cooperating with each other, and fitting surfaces of the notch and the bent end are second wedge surfaces cooperating with

each other.

**[0010]** Preferably, the first wedge surfaces and the second wedge surfaces are both steel surfaces, and both the first wedge surfaces and the second wedge surfaces are inclined from top to bottom towards the front end, and the inclination angle ranges from 6 degrees to 14 degrees.

**[0011]** Preferably, at least two mounting bolts are provided along the length direction of the position-limiting block, and an interlocking gasket clamped under the heads of the mounting bolts for connecting all the mounting bolts is further provided on the upper surface of the stop block.

**[0012]** Preferably, the mounting seat is connected to the coupler body support plate by a vertically arranged fastening bolt, and the fastening bolt is lower than the mounting bolt in the vertical direction.

**[0013]** Preferably, the coupler mounting assembly further includes a joist mounting seat for installing a joist or a tight-lock coupler mounting seat, wherein the joist is for fixing the screw coupler, and the tight-lock coupler mounting seat is for fixing the tight-lock coupler.

**[0014]** Preferably, the joist mounting seat is provided with multiple sets of fixing holes along the vertical direction for adjusting the height of the joist or the tight-lock coupler mounting seat.

**[0015]** Preferably, the joist mounting seat is specifically two mounting frames arranged along the vertical direction, and the two mounting frames are arranged in parallel.

**[0016]** A rail vehicle is further provided according to the present application, which includes the coupler mounting assembly according to any one of the above aspects.

**[0017]** Compared with the above background technology, the coupler mounting assembly for rail vehicles provided by the present application limits the movement of the coupler body support plate toward the forward direction of the rail vehicle by means of the stop seat located at the front end of the coupler body support plate, and limits the movement of the coupler body support plate toward the backward direction of the rail vehicle by means of the stop block located at the rear end of the coupler body support plate. The stop block is movable relative to the position-limiting block, and the relative movement is along the length direction of the coupler box body and is within a certain range. That is, after the relative movement of the stop block and the position-limiting block reaches the limit, the coupler body support plate cannot further move, thereby limiting the coupler body support plate to a certain range. Meanwhile, based on the above structure, the bolt is free from the axial impact by the coupler body support plate, and the reliability of the overall structure is improved.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0018]** For more clearly illustrating embodiments of the

present application or the technical solutions in the conventional technology, drawings for describing the embodiments or the conventional technology will be briefly described hereinafter. Apparently, the drawings in the following description are only examples of the present application, and for those skilled in the art, other drawings may be obtained based on the provided drawings without any creative efforts.

Figure 1 is an axonometric view of a coupler mounting assembly provided with a screw coupler according to an embodiment of the present application;

Figure 2 is a bottom view of Figure 1;

Figure 3 is a sectional view taken along a direction A-A in Figure 2;

Figure 4 is a sectional view taken along a direction B-B in Figure 2;

Figure 5 is a schematic structural view of a wedge-shaped position-limiting block and a wedge-shaped stop block of Figure 1 during installation;

Figure 6 is a schematic view of Figure 1 viewed from another angle; and

Figure 7 is a schematic structural view of a tight-lock coupler mounting seat according to an embodiment of the present application during installation.

## DETAILED DESCRIPTION OF EMBODIMENTS

**[0019]** The technical solutions according to the embodiments of the present application will be described clearly and completely as follows in conjunction with the drawings in the embodiments of the present application. It is apparent that the described embodiments are only a part of the embodiments according to the present application, rather than all of the embodiments. Based on the embodiments in the present application, all of other embodiments, made by the person skilled in the art without any creative efforts, fall into the scope of the present application.

**[0020]** In order to provide the person skilled in the art with a better understanding of the solution of the present application, the present application is described hereinafter in further detail in conjunction with the drawings and embodiments.

**[0021]** Referring to Figures 1 to 7, Figure 1 is an axonometric view of a coupler mounting assembly provided with a screw coupler according to an embodiment of the present application; Figure 2 is a bottom view of Figure 1; Figure 3 is a sectional view taken along a direction A-A in Figure 2; Figure 4 is a sectional view taken along a direction B-B in Figure 2; Figure 5 is a schematic structural view of the wedge-shaped position-limiting block

and wedge-shaped stop block of Figure 1 during installation; Figure 6 is a schematic view of Figure 1 viewed from another angle; and Figure 7 is a schematic structural view of a tight-lock coupler mounting seat according to an embodiment of the present application during installation.

**[0022]** In this specification, taking Figure 1 as an example, the front end refers to the right end and the rear end refers to the left end; the longitudinal direction refers to the travel direction of the rail vehicle, and the lateral direction refers to the direction perpendicular to the longitudinal direction in the horizontal plane.

**[0023]** A coupler mounting assembly applied to rail vehicles is provided according to the present application, which includes a coupler box body. The coupler box body is for placing a coupler. A mounting seat 10 is provided on two sides of the coupler box body. A stop seat 11 is fixedly provided on two sides of the coupler box body. The stop seat 11 can be regarded as a part of the coupler box body. The stop seat 11 extends along the length direction of the coupler box body, and is located at a front end of the mounting seat 10. A coupler body support plate 5 is provided on the mounting seat 10, and the stop seat 11 is configured to restrict the coupler body support plate 5 from moving in the forward direction of the vehicle. Besides, the stop seat 11 is further a component that transmits the tensile force of the vehicle. The mounting seat 10 and the stop seat 11 form a basic mounting structure of screw coupler, as shown in Figures 1 to 4.

**[0024]** Two position-limiting blocks 1 can be respectively welded to two sides of the coupler box body, and the two position-limiting blocks 1 both extend along the length direction of the coupler box body, and the position-limiting blocks 1 are located at a rear end of the mounting seat 10. A stop block 2 is slidably connected with the position-limiting block 1 and abuts against the coupler body support plate 5. The stop block 2 is movable within a certain range relative to the position-limiting block 1 along the length direction of the coupler box body, and the stop block 2 and the stop seat 11 are respectively located at a rear end and a front end of the coupler body support plate 5. That is, the position-limiting block 1 can cooperate with the stop block 2 to restrict the movement of the coupler body support plate 5 toward the rear end. Besides, the position-limiting block 1 is further an important component for transmitting compressive load. The position-limiting block 1 and the stop seat 11 are located on a same longitudinal straight line.

**[0025]** With this arrangement, based on that the stop block 2 is movable within a certain range along the length direction of the coupler box body relative to the position-limiting block 1, and because of the stop seat 11 fixed on the coupler box body, the coupler body support plate 5 is hindered from moving toward the front or rear end, which can alleviate the impact on the coupler body support plate 5 to a certain extent during the rescue process and improve the reliability of the rail vehicle structure.

**[0026]** Regarding the specific arrangement of the po-

sition-limiting block 1 and the stop block 2, as shown in Figures 3 to 5, the position-limiting block 1 includes a vertical plate, a locking end and a notch. The position-limiting block 1 may be integrally formed. Referring to Figure 5, the vertical plate is arranged along the length direction of the coupler box body. The locking end is provided on an upper surface of the left end (that is, the rear end) of the vertical plate and extends upward. The notch is provided on a side wall of the right end (that is, the front end) of the vertical plate and extends downward. Mounting holes are provided on the upper surface of the vertical plate and located between the locking end and the notch.

**[0027]** The stop block 2 may be integrally formed and includes a horizontal plate. The horizontal plate is located above the vertical plate and extends along the length direction of the coupler box body, and the horizontal plate is longer than the vertical plate. An end face is provided on a side wall of the rear end (that is, the left end) of the horizontal plate, and can abut against the right side of the locking end. A bent end is provided at the front end (that is, the right end) of the horizontal plate and extends downward, and the left side of the bent end abuts against the right side of the notch. Besides, via holes are provided in the horizontal plate and penetrates through upper and lower surfaces of the horizontal plate. Mounting bolts 3 pass through the via holes of the stop block 2 from top to bottom, and are fastened in the mounting holes of the position-limiting block 1, thereby connecting the stop block 2 with the position-limiting block 1. Moreover, a hole diameter of each via hole is larger than a hole diameter of each mounting hole, so that the stop block 2 is movable within a certain range relative to the position-limiting block 1. In other words, the stop block 2 can be regarded as a movable part, which is movable relative to the position-limiting block 1 along the length direction of the coupler box body. The through hole of the stop block 2 may be an oblong hole, and the adjustable direction of the oblong hole is the length direction of the vehicle.

**[0028]** More specifically, fitting surfaces of the locking end and the end surface are first wedge surfaces cooperating with each other, and fitting surfaces of the notch and the bent end are second wedge surfaces cooperating with each other, as shown in Figure 5. The first wedge surfaces and the second wedge surfaces are both steel surfaces, and both the first wedge surfaces and the second wedge surfaces are inclined from top to bottom towards the front end, and the inclination angle ranges from 6 degrees to 14 degrees.

**[0029]** As shown in Figure 3, when the coupler body such as the screw coupler is subjected to an impact compressive load  $F$ , in order to restrict the coupler body support plate 5 from moving backward, structures of the stop block 2 and the position-limiting block 1 are designed according to the principle of friction self-locking. Both the stop block 2 and the position-limiting block 1 are provided with two friction self-locking inclined planes. Considering

that the dynamic friction factor between the two steel bodies is generally 0.1 to 0.25, the angle of the inclined plane can be selected from 6 degrees to 14 degrees. If the angle is too large, the longitudinal adjustable amount of the stop block 2 is relatively large and the stop block 2 is easy to disassemble, but the friction self-locking effect is not good. If the angle is too small, the friction self-locking effect is good, but the longitudinal adjustable amount of the stop block 2 is greatly reduced, and a larger vertical pulling force is required to disassemble the stop block 2, which is not conducive to the disassembly of the screw coupler. Considering that the stop block 2 has been fastened by two vertical mounting bolts 3, in order to increase the longitudinal adjustable amount of the stop block 2 and facilitate the disassembly of the screw coupler, the angle of the inclined surface in the practical engineering application of the present application is 11 degrees to 12 degrees. Even if the screw coupler is subjected to a large impact compressive load (not exceeding the failure load of the screw coupler), the fastening bolt 9 is hardly subjected to shear force, and the impact load force is transmitted to the stop block 2 through the coupler body support plate 5, and since the two groups of inclined planes are friction self-locked, the stop block 2 is rigidly connected with the position-limiting block 1, so that the compressive load is transmitted to the coupler box (end traction beam 12) along the stop block 2 and the position-limiting block 1. Compared with the prior art, the reliability of the vehicle body structure is greatly improved. The mounting seat 10 is connected to the coupler body support plate 5 by a vertically arranged fastening bolt 9, and the fastening bolt 9 is lower than the mounting bolt 3 in the vertical direction.

**[0030]** According to the present application, at least two mounting bolts 3 are provided along the length direction of the position-limiting block 1, and an interlocking gasket 4 clamped under the heads of the mounting bolts 3 for connecting all the mounting bolts 3 is further provided on the upper surface of the stop block 2. That is, this specific embodiment also relates to the working principle of interlocking gaskets. As shown in Figure 5, in a case that two mounting bolts 3 are provided to fasten the stop block 2, considering that the structure here is an under-vehicle structure, reliable anti-loosening measures or secondary anti-disengaging structures are required. In order to prevent the stop block 2 from disengaging due to the alternating load, the interlocking gasket 4 is provided to interlock the at least two mounting bolts 3, thereby further improving the reliability of the vehicle body structure.

**[0031]** In the present application, the mounting seat 10, the stop seat 11, the position-limiting block 1 and other bent parts are welded together to form the coupler box. First, the coupler support plate 5 (including drawbar and elastic device) is fastened on the mounting seat 10 with four fastening bolts 9. During the installation, it is ensured that the front end face of the coupler support plate 5 is in close contact with the stop seat 11. Then,

the two groups of inclined planes of the stop block 2 and the position-limiting block 1 are adjusted to fit well, then the interlocking gasket 4 and an anti-loosening gasket are installed, and then the stop block 2 is fastened with the mounting bolts 3. When the coupler mounting assembly is disassembled, the mounting bolts 3 that fasten the stop block 2 are unscrewed at first, then an auxiliary tool (with threads) is screwed into a threaded hole in the middle of the stop block 2 (as shown in Figure 5), then a vertical pulling force is applied thereon after the auxiliary tool is tightened, then the stop block 2 is pulled out, and then the fastening bolts 9 are loosened, completing the disassembly process.

[0032] In addition, structures of the end traction beam of the current rail vehicle used for shunting are singular, one structure is the screw coupler mounting structure, and another is the tight-lock coupler mounting structure, but the two are not well integrated. Once the coupler draft gear or other parts fail, the rescue work of vehicles will be impossible.

[0033] The coupler mounting assembly according to the present application further includes a joist mounting seat 6 for installing a joist 7 or a tight-lock coupler mounting seat 13, wherein the joist 7 is for fixing a screw coupler 8, and the tight-lock coupler mounting seat 13 is for fixing a tight-lock coupler. In use, if the screw coupler cannot be used, for example, the screw coupler is damaged in the rescue process of the vehicle or the vehicle travels under some special conditions, the screw coupler body and the joist 7 can be removed, then the tight-lock coupler mounting seat 13 is installed on the joist mounting seat 6, then the tight-lock coupler is installed and the height of the tight-lock coupler from the rail surface is adjusted to complete the vehicle coupling work. The joist mounting seat 6 is provided with multiple sets of fixing holes along the vertical direction for adjusting the height of the joist 7 or the tight-lock coupler mounting seat 13, as shown in Figures 6 and 7. Specifically, the joist mounting seat 6 is two mounting frames arranged along the vertical direction, and the two mounting frames are arranged in parallel.

[0034] According to the coupler mounting assembly applied to rail vehicles provided by the present application, in the vehicle rescue process, the assembly can bear larger impact compressive load, and the reliability of the vehicle structure is improved. In addition, the problem that the screw coupler and the tight-lock coupler cannot be compatibly installed in the whole vehicle design is solved. Besides, the installation conversion of the screw coupler and the tight-lock coupler is convenient, which meets the requirements of modular design of the vehicle body. By changing the shapes of the stop block 2 and the position-limiting block 1, the self-locking structure can adapt to different kinds of screw coupler designs, which simplifies the structural design of the end traction beam and obviously shortens the design cycle. Compared with the conventional screw coupler mounting structure, the joist mounting seat can be installed to serve

as both a screw coupler body joist and a height-adjustable tight-lock coupler, thereby expanding the functional diversity of the end traction beam. Finally, the self-locking structure is simple, does not occupy too much space of the coupler box, and is beneficial to the design and arrangement of draft gears.

[0035] A rail vehicle is further provided according to the present application, which includes the coupler mounting assembly according to the above embodiments. Reference may be made to the conventional technology for other parts of the rail vehicle, which will not be described herein.

[0036] It should be noted that, relationship terms herein such as first and second are merely used to distinguish an entity from other entities and do not require or imply that there are any such actual relationships or sequences between these entities.

## Claims

1. A coupler mounting assembly for rail vehicles, comprising a coupler box body for placing a coupler, wherein the coupler mounting assembly further comprises

a mounting seat (10) provided on two sides of the coupler box body;

a stop seat (11) fixed on two sides of the coupler box body and extending along a length direction of the coupler box body, wherein the stop seat (11) is located at a front end of the mounting seat (10);

a coupler body support plate (5) mounted to the mounting seat (10) and abutting against the stop seat (11) to limit movement of the coupler toward a forward direction of the rail vehicle;

a position-limiting block (1) fixed on two sides of the coupler box body and extending along the length direction of the coupler box body, wherein the position-limiting block (1) is located at a rear end of the mounting seat (10); and

a stop block (2) which is slidably connected with the position-limiting block (1) and abuts against the coupler body support plate (5), wherein the stop block (2) is movable within a certain range relative to the position-limiting block (1) along the length direction of the coupler box body, and the stop block (2) and the stop seat (11) are respectively located at a rear end and a front end of the coupler body support plate (5),

the coupler mounting assembly is **characterized in that**,

the position-limiting block (1) comprises

a vertical plate provided along the length direction of the coupler box body;

a locking end provided on an upper surface of the vertical plate, located at a rear end of the

- position-limiting block and extending upward;  
 a notch provided on a front side wall of the vertical plate and extending downward; and  
 mounting holes provided on the upper surface of the vertical plate and located between the locking end and the notch;  
 the stop block (2) comprises  
 a horizontal plate located above the vertical plate and provided along the length direction of the coupler box body, wherein the horizontal plate is longer than the vertical plate;  
 an end face provided on a side wall of a rear end of the horizontal plate for abutting against the locking end;  
 a bent end provided at a front end of the horizontal plate and extending downward to abut against the notch; and  
 via holes penetrating through upper and lower surfaces of the horizontal plate for connecting the position-limiting block (1) with the stop block (2) by mounting bolts (3), wherein a hole diameter of each via hole is larger than a hole diameter of each mounting hole, and the stop block (2) is movable within a certain range relative to the position-limiting block (1).
2. The coupler mounting assembly according to claim 1, wherein fitting surfaces of the locking end and the end surface are first wedge surfaces cooperating with each other, and fitting surfaces of the notch and the bent end are second wedge surfaces cooperating with each other.
  3. The coupler mounting assembly according to claim 2, wherein the first wedge surfaces and the second wedge surfaces are both steel surfaces, and both the first wedge surfaces and the second wedge surfaces are inclined from top to bottom towards the front end, and an inclination angle of the first and second wedge surfaces ranges from 6 degrees to 14 degrees.
  4. The coupler mounting assembly according to claim 3, wherein at least two mounting bolts (3) are provided along a length direction of the position-limiting block (1), and an interlocking gasket (4) clamped under the heads of the mounting bolts (3) for connecting the mounting bolts (3) is further provided on an upper surface of the stop block (2).
  5. The coupler mounting assembly according to claim 4, wherein the mounting seat (10) is connected to the coupler body support plate (5) by a vertically arranged fastening bolt (9), and the fastening bolt (9) is lower than the mounting bolt (3) in a vertical direction.
  6. The coupler mounting assembly according to any

one of claims 1 to 5, wherein the coupler mounting assembly further comprises a joist mounting seat (6) for installing a joist (7) or a tight-lock coupler mounting seat (13), wherein the joist (7) is for fixing the screw coupler (8), and the tight-lock coupler mounting seat (13) is for fixing a tight-lock coupler.

7. The coupler mounting assembly according to claim 6, wherein the joist mounting seat (6) is provided with a plurality of sets of fixing holes along the vertical direction for adjusting the height of the joist (7) or the tight-lock coupler mounting seat (13).
8. The coupler mounting assembly according to claim 7, wherein the joist mounting seat (6) is two mounting frames arranged along the vertical direction, and the two mounting frames are arranged in parallel.
9. A railway vehicle comprising the coupler mounting assembly according to any one of claims 1 to 8.

#### Patentansprüche

1. Kupplungsmontageanordnung für Schienenfahrzeuge, die einen Kupplungskastenkörper zum Positionieren einer Kupplung aufweist, wobei die Kupplungsmontageanordnung ferner aufweist:  
 einen Montagesitz (10), der an zwei Seiten des Kupplungskastenkörpers vorgesehen ist;  
 einen Anschlagsitz (11), der an zwei Seiten des Kupplungskastenkörpers befestigt ist und sich entlang einer Längsrichtung des Kupplungskastenkörpers erstreckt, wobei der Anschlagsitz (11) sich an einem vorderen Ende des Montagesitzes (10) befindet;  
 eine Kupplungskörperträgerplatte (5), die am Montagesitz (10) angebracht ist und am Anschlagsitz (11) anstößt, um die Bewegung der Kupplung in Richtung einer Vorwärtsrichtung des Schienenfahrzeugs zu begrenzen;  
 einen Positionsbegrenzungsblock (1), der an zwei Seiten des Kupplungskastenkörpers befestigt ist und sich entlang der Längsrichtung des Kupplungskastenkörpers erstreckt, wobei der Positionsbegrenzungsblock (1) sich an einem hinteren Ende des Montagesitzes (10) befindet; und  
 einen Anschlagblock (2), der verschiebbar mit dem Positionsbegrenzungsblock (1) verbunden ist und an der Kupplungskörperträgerplatte (5) anstößt, wobei der Anschlagblock (2) innerhalb eines gewissen Bereichs relativ zum Positionsbegrenzungsblock (1) entlang der Längsrichtung des Kupplungskastenkörpers beweglich ist und der Anschlagblock (2) und der Anschlagsitz (11) sich an einem hinteren Ende bzw. einem

vorderen Ende der Kupplungskörperträgerplatte (5) befinden,  
wobei die Kupplungsmontageanordnung **dadurch gekennzeichnet ist, dass**  
der Positionsbegrenzungsblock (1) aufweist:

eine vertikale Platte, die entlang der Längsrichtung des Kupplungskastenkörpers bereitgestellt ist;  
ein Verriegelungsende, das an einer Oberseite der vertikalen Platte bereitgestellt ist, sich an einem hinteren Ende des Positionsbegrenzungsblocks befindet und sich nach oben erstreckt;  
eine Aussparung, die an einer Vorderseitenwand der vertikalen Platte bereitgestellt ist und sich nach unten erstreckt; und  
Befestigungslöcher, die an der Oberseite der vertikalen Platte bereitgestellt sind und sich zwischen dem Verriegelungsende und der Aussparung befinden;  
wobei der Anschlagblock (2) aufweist:

eine horizontale Platte, die sich über der vertikalen Platte befindet und entlang der Längsrichtung des Kupplungskastenkörpers bereitgestellt ist, wobei die horizontale Platte länger als die vertikale Platte ist;  
eine Stirnfläche, die an einer Seitenwand eines hinteren Endes der horizontalen Platte zum Anstoßen am Verriegelungsende bereitgestellt ist;  
ein umgebogenes Ende, das an einem vorderen Ende der horizontalen Platte bereitgestellt ist und sich zum Anstoßen an der Aussparung nach unten erstreckt; und  
Durchgangslöcher, die zum Verbinden des Positionsbegrenzungsblocks (1) mit dem Anschlagblock (2) durch Befestigungsbolzen (3) die Ober- und die Unterseite der horizontalen Platte durchdringen, wobei ein Lochdurchmesser jedes Durchgangslochs größer als ein Lochdurchmesser jedes Befestigungslochs ist und der Anschlagblock (2) innerhalb eines gewissen Bereichs relativ zum Positionsbegrenzungsblock (1) beweglich ist.

2. Kupplungsmontageanordnung nach Anspruch 1, wobei Passflächen des Verriegelungsendes und der Endseite erste Keilflächen sind, die miteinander zusammenwirken, und Passflächen der Aussparung und des umgebogenen Endes zweite Keilflächen sind, die miteinander zusammenwirken.

3. Kupplungsmontageanordnung nach Anspruch 2, wobei die ersten Keilflächen und die zweiten Keilflächen beide Stahlflächen sind und sowohl die ersten Keilflächen als auch die zweiten Keilflächen von oben nach unten zum vorderen Ende hin geneigt sind und ein Neigungswinkel der ersten und der zweiten Keilflächen im Bereich von 6 Grad bis 14 Grad liegt.

4. Kupplungsmontageanordnung nach Anspruch 3, wobei zumindest zwei Befestigungsbolzen (3) entlang einer Längsrichtung des Positionsbegrenzungsblocks (1) bereitgestellt sind und ferner eine unter die Köpfe der Befestigungsbolzen (3) geklemmte sichernde Dichtung (4) zum Verbinden der Befestigungsbolzen (3) an einer Oberseite des Anschlagblocks (2) bereitgestellt ist.

5. Kupplungsmontageanordnung nach Anspruch 4, wobei der Montagesitz (10) durch einen vertikal angeordneten Montagebolzen (9) mit der Kupplungskörperträgerplatte (5) verbunden ist und der Montagebolzen (9) in einer vertikalen Richtung tiefer liegt als der Befestigungsbolzen (3).

6. Kupplungsmontageanordnung nach einem der Ansprüche 1 bis 5, wobei die Kupplungsmontageanordnung ferner einen Trägermontagesitz (6) zum Einbauen eines Trägers (7) oder einen Tightlock-Kupplung-Montagesitz (13) aufweist, wobei der Träger (7) zur Befestigung der Schraubenkupplung (8) dient und der Tightlock-Kupplung-Montagesitz (13) zur Befestigung einer automatischen Tightlock-Kupplung dient.

7. Kupplungsmontageanordnung nach Anspruch 6, wobei der Trägermontagesitz (6) mit einer Vielzahl von Befestigungslochsätzen entlang der vertikalen Richtung zum Anpassen der Höhe des Trägers (7) oder des Tightlock-Kupplung-Montagesitzes (13) versehen ist.

8. Kupplungsmontageanordnung nach Anspruch 7, wobei der Trägermontagesitz (6) zwei entlang der vertikalen Richtung angeordnete Montagerahmen ist und die zwei Montagerahmen parallel angeordnet sind.

9. Schienenfahrzeug, das eine Kupplungsmontageanordnung nach einem der Ansprüche 1 bis 8 aufweist.

## Revendications

1. Ensemble de montage d'attelage destiné à des véhicules ferroviaires, l'ensemble comprenant un corps de boîte d'attelage permettant de placer un attelage, l'ensemble de montage d'attelage compre-

nant en outre

un siège de montage (10) disposé sur deux côtés du corps de boîte d'attelage ;  
 un siège d'arrêt (11) fixé sur deux côtés du corps de boîte d'attelage et s'étendant le long d'un sens longitudinal du corps de boîte d'attelage, le siège d'arrêt (11) étant situé au niveau d'une extrémité avant du siège de montage (10) ;  
 une plaque (5) de support de corps d'attelage montée sur le siège de montage (10) et venant en butée contre le siège d'arrêt (11) afin de limiter le déplacement de l'attelage vers une direction vers l'avant du véhicule ferroviaire ;  
 un bloc (1) de limitation de position fixé sur deux côtés du corps de boîte d'attelage et s'étendant le long du sens longitudinal du corps de boîte d'attelage, le bloc (1) de limitation de position étant situé au niveau d'une extrémité arrière du siège de montage (10) ; et  
 un bloc d'arrêt (2) relié coulissant au bloc (1) de limitation de position et venant en butée contre la plaque (5) de support de corps d'attelage, le bloc d'arrêt (2) étant mobile dans une certaine plage par rapport au bloc (1) de limitation de position le long du sens longitudinal du corps de boîte d'attelage, et le bloc d'arrêt (2) et le siège d'arrêt (11) étant situés respectivement au niveau d'une extrémité arrière et d'une extrémité avant de la plaque (5) de support de corps d'attelage,  
 l'ensemble de montage d'attelage étant **caractérisé en ce que**  
 le bloc (1) de limitation de position comprend une plaque verticale disposée le long du sens longitudinal du corps de boîte d'attelage ;  
 une extrémité de verrouillage disposée sur une surface supérieure de la plaque verticale, située au niveau d'une extrémité arrière du bloc de limitation de position et s'étendant vers le haut ;  
 une entaille disposée sur une paroi latérale avant de la plaque verticale et s'étendant vers le bas ; et  
 des trous de montage disposés sur la surface supérieure de la plaque verticale et situés entre l'extrémité de verrouillage et l'entaille ;  
 le bloc d'arrêt (2) comprend une plaque horizontale située au-dessus de la plaque verticale et disposée le long du sens longitudinal du corps de boîte d'attelage, la plaque horizontale étant plus longue que la plaque verticale ;  
 une face d'extrémité disposée sur une paroi latérale d'une extrémité arrière de la plaque horizontale afin de venir en butée contre l'extrémité de verrouillage ;  
 une extrémité coudée disposée au niveau d'une extrémité avant de la plaque horizontale et

s'étendant vers le bas afin de venir en butée contre l'entaille ; et

des trous de liaison pénétrant à travers les surfaces supérieure et inférieure de la plaque horizontale afin de relier le bloc (1) de limitation de position au bloc d'arrêt (2) à l'aide de boulons de montage (3), un diamètre de trou de chaque trou de liaison étant plus grand qu'un diamètre de trou de chaque trou de montage, et le bloc d'arrêt (2) étant mobile dans une certaine plage par rapport au bloc (1) de limitation de position.

2. L'ensemble de montage d'attelage selon la revendication 1, dans lequel des surfaces usinées de l'extrémité de verrouillage et de la surface d'extrémité sont des premières surfaces de coin coopérant l'une avec l'autre, et des surfaces usinées de l'entaille et de l'extrémité coudée sont des secondes surfaces de coin coopérant l'une avec l'autre.
3. L'ensemble de montage d'attelage selon la revendication 2, dans lequel les premières surfaces de coin et les secondes surfaces de coin sont toutes les deux des surfaces en acier, et les premières surfaces de coin et les secondes surfaces de coin sont toutes les deux inclinées de haut en bas vers l'extrémité avant, et un angle d'inclinaison des premières et secondes surfaces de coin est compris entre 6 degrés et 14 degrés.
4. L'ensemble de montage d'attelage selon la revendication 3, dans lequel les deux boulons de montage ou plus (3) sont disposés le long d'un sens longitudinal du bloc (1) de limitation de position, et un joint statique de verrouillage (4), fixé par serrage sous les têtes des boulons de montage (3) afin de relier les boulons de montage (3), est disposé en outre sur une surface supérieure du bloc d'arrêt (2).
5. L'ensemble de montage d'attelage selon la revendication 4, dans lequel le siège de montage (10) est relié à la plaque (5) de support de corps d'attelage à l'aide d'un boulon de fixation (9) agencé verticalement, et le boulon de fixation (9) est plus bas que le boulon de montage (3) dans une direction verticale.
6. L'ensemble de montage d'attelage selon l'une quelconque des revendications 1 à 5, dans lequel l'ensemble de montage d'attelage comprend en outre un siège (6) de montage de solive servant à installer une solive (7) ou un siège (13) de montage d'attelage à verrouillage serré, la solive (7) servant à fixer un attelage à vis (8), et le siège (13) de montage d'attelage à verrouillage serré servant à fixer un attelage à verrouillage serré.
7. L'ensemble de montage d'attelage selon la revendication 6, dans lequel le siège (6) de montage de

solive est muni d'une pluralité d'ensembles de trous de fixation le long de la direction verticale, servant à régler la hauteur de la solive (7) ou du siège (13) de montage d'attelage à verrouillage serré.

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8. L'ensemble de montage d'attelage selon la revendication 7, dans lequel le siège (6) de montage de solive comprend deux cadres de montage agencés le long de la direction verticale, et les deux cadres de montage sont agencés en parallèle.

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9. Véhicule ferroviaire comprenant l'ensemble de montage d'attelage selon l'une quelconque des revendications 1 à 8.

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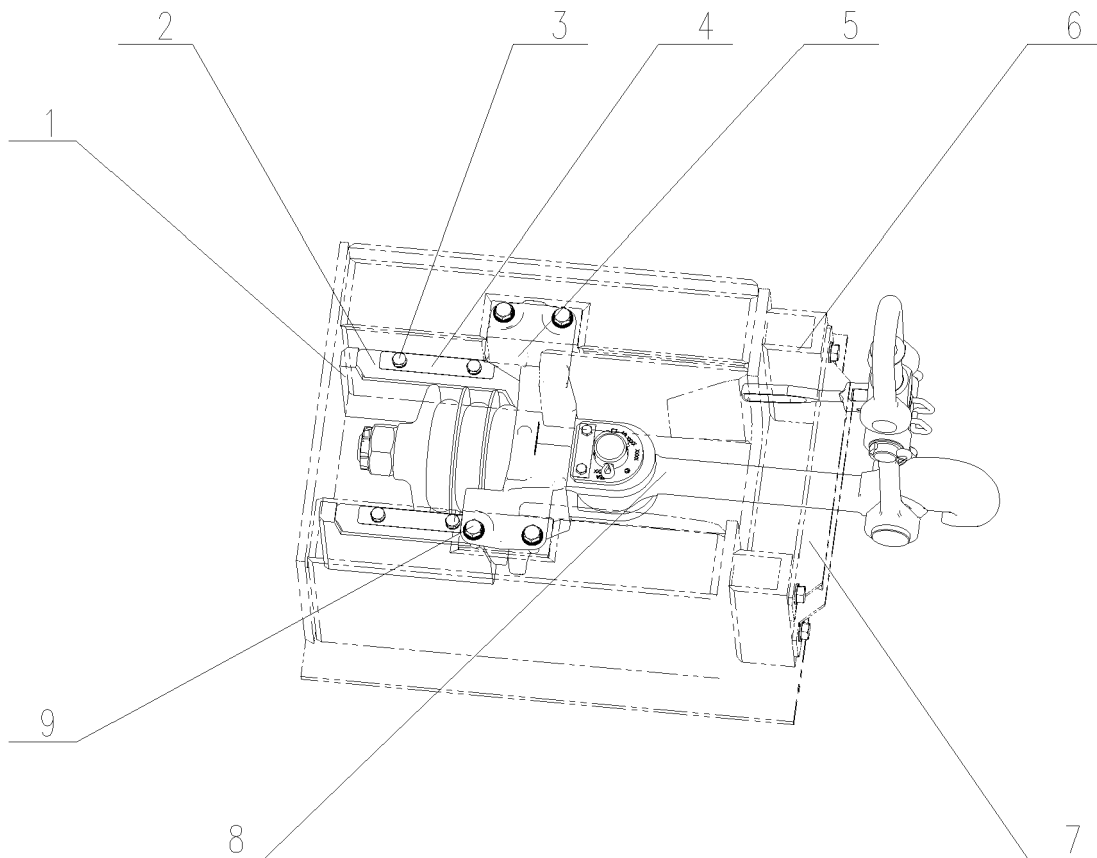


Figure 1

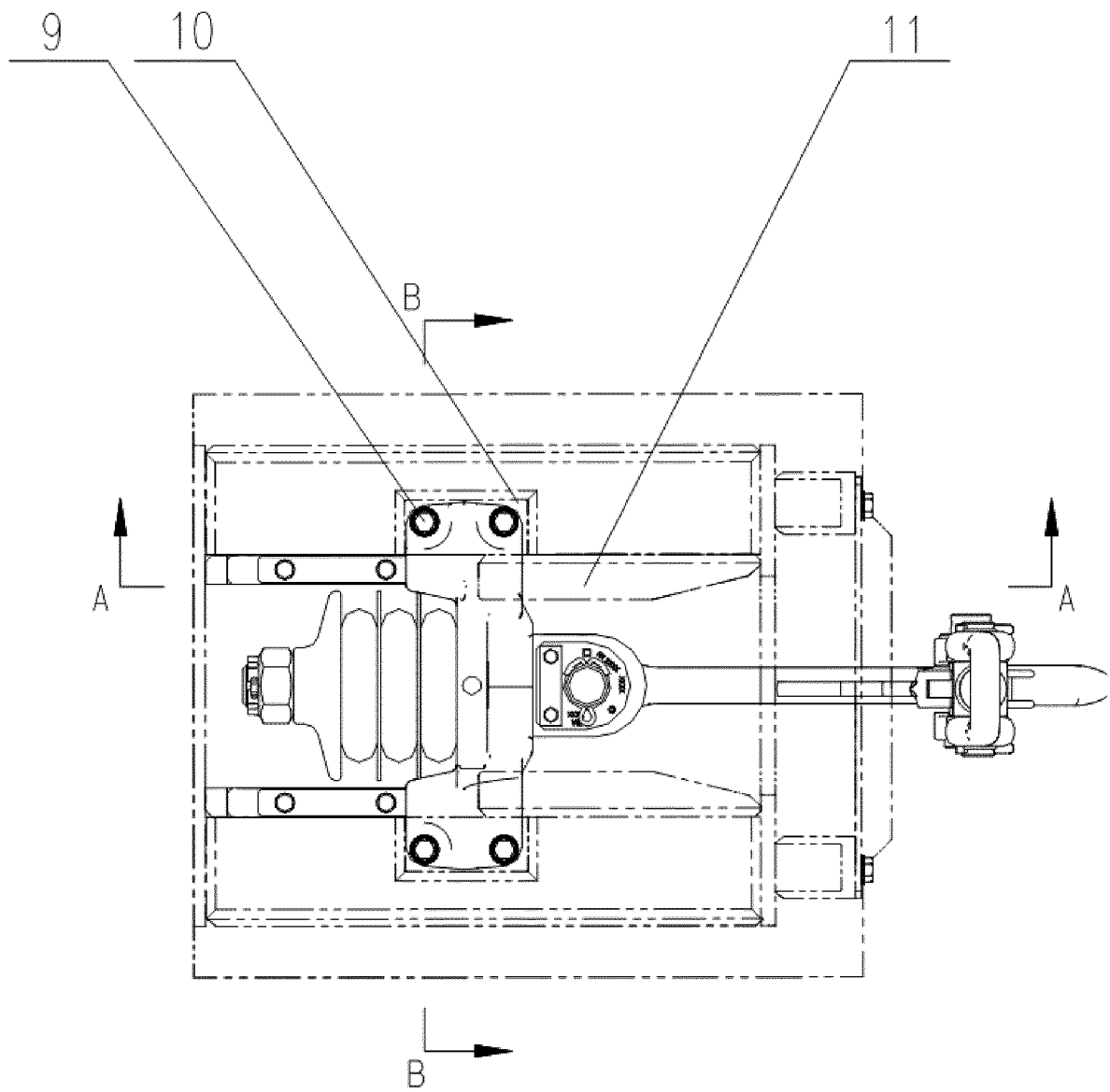


Figure 2

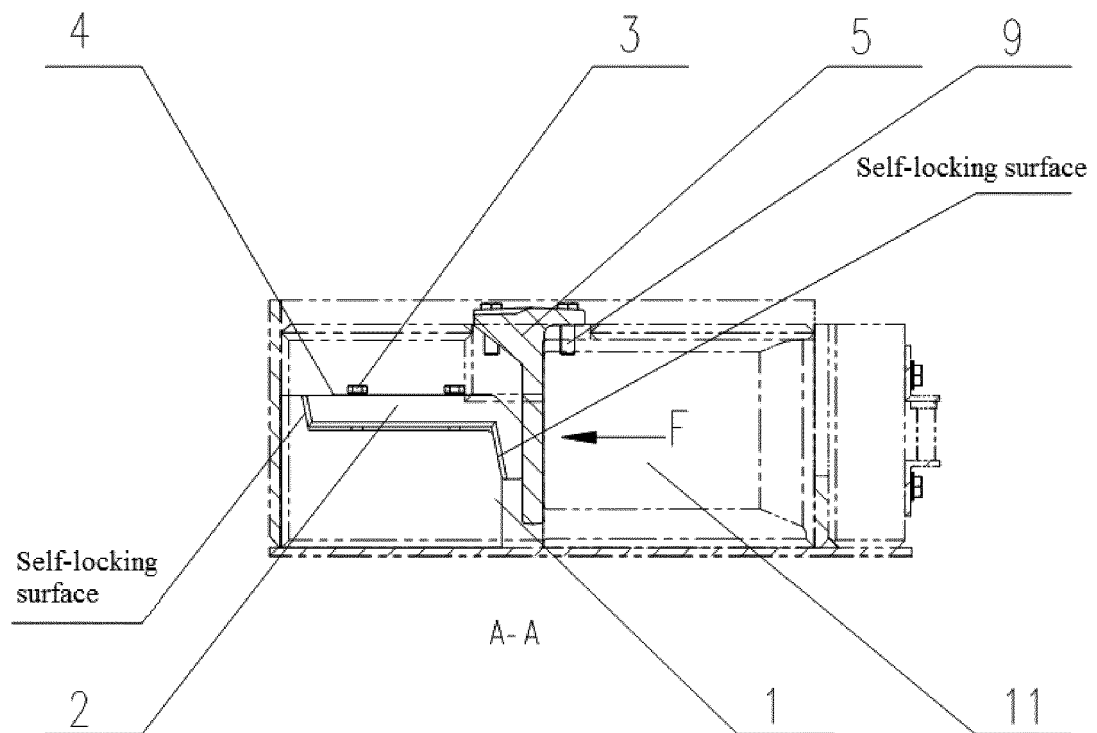


Figure 3

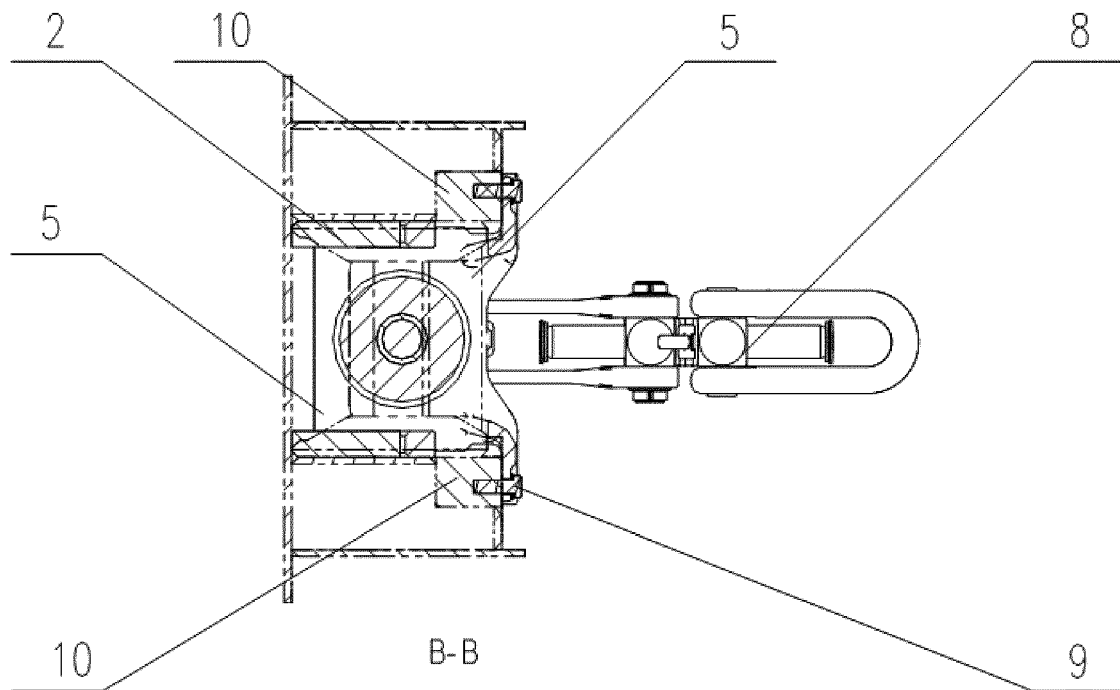


Figure 4

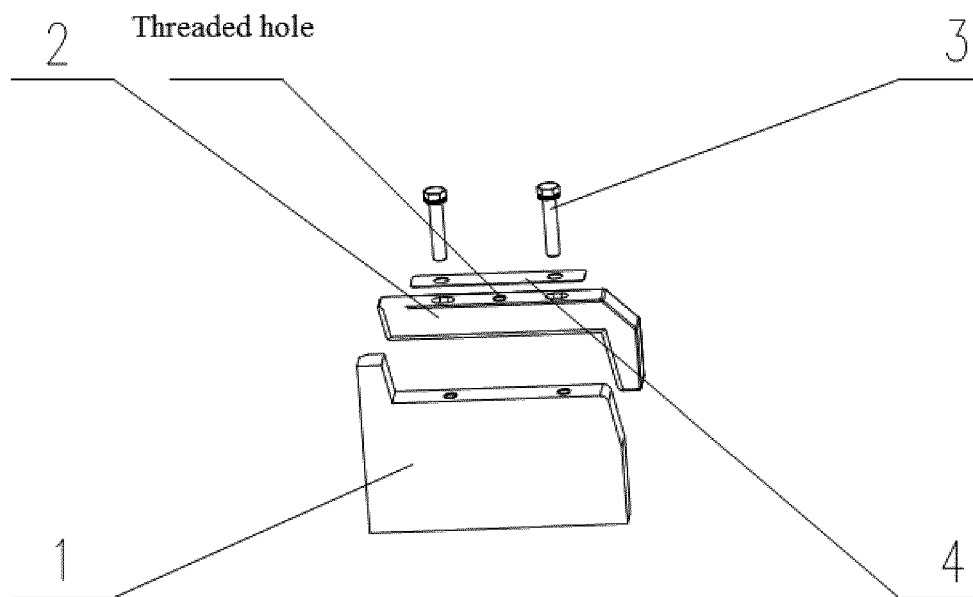


Figure 5

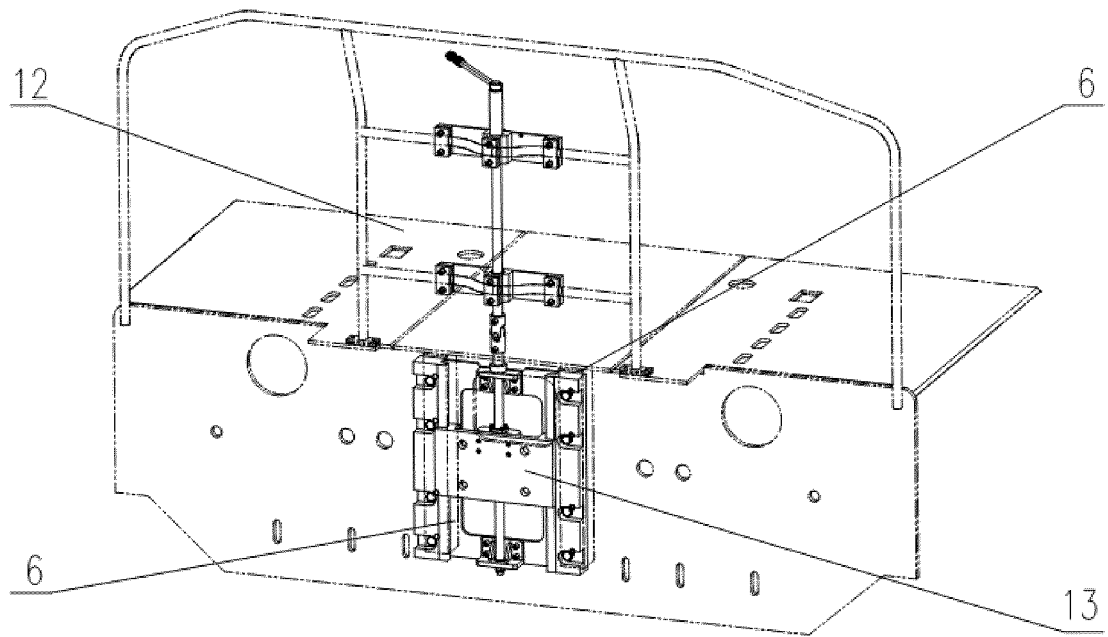


Figure 6

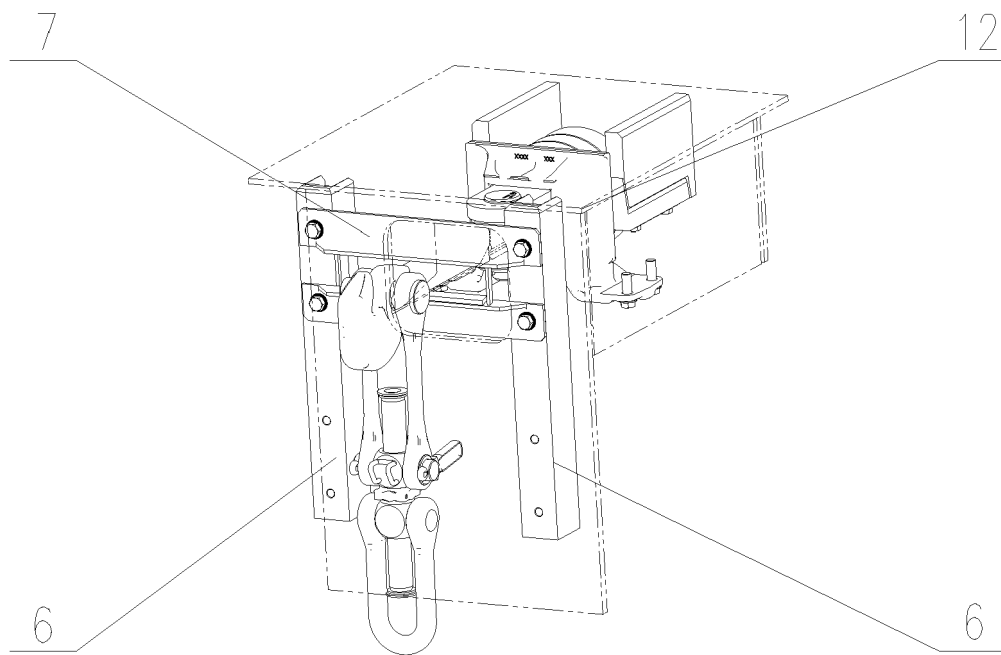


Figure 7

**REFERENCES CITED IN THE DESCRIPTION**

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