MOUNTING ASSEMBLY OF AUTOMOBILE TUBULAR COLUMN, TUBULAR COLUMN ASSEMBLY AND VEHICLE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present disclosure is proposed based on and claims priority to Chinese Patent Application No. 202020225641.8, filed on February 28, 2020, which is incorporated herein by reference in its entirety.

FIELD

[0002] The present disclosure relates to the field of vehicles, and more specifically, to a mounting assembly for an automotive steering column, a steering column assembly, and a vehicle.

BACKGROUND

[0003] In the related art, a connection structure between a vehicle body and a steering column is complex and requires cooperation of multiple people at the same time for assembly, which greatly wastes manpower, material resources, and man-hours, resulting in low assembly efficiency.

SUMMARY

[0004] The present disclosure aims to resolve at least one of the technical problems in the related art.

[0005] Therefore, the present disclosure provides a mounting assembly for an automotive steering column to simplify the assembly between a steering column and a vehicle

body.

[0006] The present disclosure further provides a steering column assembly including the foregoing mounting assembly.

[0007] The present disclosure further provides a vehicle including the foregoing steering column assembly.

[0008] The mounting assembly for the automotive steering column according to the embodiments of the present disclosure includes: a fixing support and a connecting support. The fixing support is configured to be fixed on a vehicle body, the fixing support has one of a hanging slot and a hanging column, and the fixing support also has a first assembly hole. The connecting support is configured to be connected to the automotive steering column, the connecting support has the other of the hanging slot and the hanging column, and the connecting support also has a second assembly hole, where the hanging column is placed in the hanging slot to pre-mount the connecting support on the fixing support, and a fixing connector is configured to engage with the first assembly hole and the second assembly hole respectively to fix the connecting support on the fixing support.

[0009] In the mounting assembly for the automotive steering column according to the embodiments of the present disclosure, the hanging column is placed in the hanging slot to pre-fix the connecting support on the fixing support first. In this way, the worker who is mounting a steering column can completely release the grip on the steering column to mount the fixing connector to engage with the first assembly hole of the fixing support and the second assembly hole of the connecting support respectively, so that the connecting support is fixed on the fixing support, thereby simplifying a connection structure between the connecting support and the fixing support, greatly saving manpower, material resources, and man-hours, and improving assembly

efficiency.

[0010] In some embodiments of the present disclosure, the fixing support also has one of a positioning slot and a positioning column, the connecting support has the other of the positioning slot and the positioning column, and the positioning slot engages with the positioning column.

[0011] In some embodiments of the present disclosure, the fixing support extends obliquely, the positioning slot is below the hanging slot, and after the hanging column is placed in the hanging slot, the connecting support is rotated to fit the positioning slot with the positioning column.

[0012] In some embodiments of the present disclosure, the positioning slot includes a positioning opening and a positioning slot bottom, the positioning slot bottom is below the positioning opening, and the positioning column passes through the positioning opening and is supported on the positioning slot bottom.

[0013] In some embodiments of the present disclosure, an opening of the hanging slot faces upward.

[0014] In some embodiments of the present disclosure, a distance between opposite side walls at the opening of the hanging slot is greater than a distance between opposite side walls at a slot bottom of the hanging slot.

[0015] In some embodiments of the present disclosure, one of the connecting support and the fixing support is provided with a pre-set nut, and the fixing connector is in thread fit with the pre-set nut.

[0016] In some embodiments of the present disclosure, the fixing support includes a fixing base plate and fixing side plates respectively arranged on opposite side walls of the fixing

base plate, and each of the fixing side plates has one of the hanging slot and the hanging column; and the connecting support includes a connecting base plate and connecting side plates respectively arranged on opposite side walls of the connecting base plate, and each of the connecting side plates has the other of the hanging slot and the hanging column.

[0017] In some embodiments of the present disclosure, the fixing side plates are perpendicular to the fixing base plate, and the connecting side plates are perpendicular to the connecting base plate.

[0018] The steering column assembly according to the embodiments of the present disclosure includes: an automotive steering column and a mounting assembly. The mounting assembly is the mounting assembly according to the foregoing embodiments of the present disclosure, the connecting support is arranged on the automotive steering column, and the fixing support is configured to be fixed on a vehicle body.

[0019] In the steering column assembly according to the embodiments of the present disclosure, the hanging column is placed in the hanging slot to pre-fix the connecting support on the fixing support first. In this way, the worker who is mounting a steering column can completely release the grip on the steering column to mount the fixing connector to engage with the first assembly hole of the fixing support and the second assembly hole of the connecting support respectively, so that the connecting support is fixed on the fixing support, thereby simplifying a connection structure between the connecting support and the fixing support, greatly saving manpower, material resources, and man-hours, and improving assembly efficiency.

[0020] The vehicle according to the embodiments of the present disclosure includes: a vehicle body and a steering column assembly. The steering column assembly is the steering column assembly according to the foregoing embodiments of the present disclosure, and the fixing support

is fixed on the vehicle body.

[0021] In the vehicle according to the embodiments of the present disclosure, the hanging column is placed in the hanging slot to pre-fix the connecting support on the fixing support first. In this way, the worker who is mounting a steering column can completely release the grip on the steering column to mount the fixing connector to engage with the first assembly hole of the fixing support and the second assembly hole of the connecting support respectively, so that the connecting support is fixed on the fixing support, thereby simplifying a connection structure between the connecting support and the fixing support, greatly saving manpower, material resources, and man-hours, and improving assembly efficiency.

[0022] Additional aspects and advantages of the present disclosure will be given in the following description, some of which will become apparent from the following description or may be learned from practices of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] The foregoing and/or additional aspects and advantages of the present disclosure will become apparent and comprehensible in the embodiment description made with reference to the following accompanying drawings, where:

[0024] FIG. 1 is a schematic diagram of a steering column assembly according to an embodiment of the present disclosure;

[0025] FIG. 2 is an exploded view of a steering column assembly according to an embodiment of the present disclosure;

[0026] FIG. 3 is a schematic diagram of a connecting support according to an embodiment of the present disclosure;

[0027] FIG. 4 is a schematic diagram of a fixing support according to an embodiment of the present disclosure;

[0028] FIG. 5 is a schematic diagram of a fixing side plate according to an embodiment of the present disclosure;

[0029] FIG. 6 is a schematic diagram of a connecting support and a fixing support in a first state and a second state according to an embodiment of the present disclosure; and

[0030] FIG. 7 is a schematic diagram of a vehicle according to an embodiment of the present disclosure.

[0031] Reference Numerals:

[0032] 100. Steering column assembly;

[0033] 10. Mounting assembly; 20. Vehicle body; 30. Steering column;

[0034] 1. Fixing support; 11. Hanging slot; 111. Positioning convex; 12. First assembly hole; 13. Positioning slot; 131. Positioning opening; 132. Positioning slot bottom; 133. Guide surface; 14. Pre-set nut; 15. Fixing base plate; 16. Fixing side plate; 161. First long side;

[0035] 2. Connecting support; 21. Hanging column; 22. Second assembly hole; 23. Positioning column; 24. Connecting base plate; 25. Connecting side plate; 251. Second long side;

[0036] 3. Fixing connector;

[0037] 4. Gas spring;

[0038] 200. Vehicle; and 210. Wheel.

DETAILED DESCRIPTION

[0039] Embodiments of the present disclosure are described in detail below, and examples of the embodiments are shown in the accompanying drawings, where the same or similar

elements or the elements having same or similar functions are denoted by the same or similar reference numerals throughout the description. The embodiments described below with reference to the accompanying drawings are exemplary and used only for explaining the present disclosure, and should not be construed as a limitation on the present disclosure.

[0040] In the description of the present disclosure, it should be understood that orientation or position relationships indicated by the terms such as "center", "longitudinal", "transverse", "length", "width", "thickness", "on", "below", "front", "back", "left", "right", "vertical", "horizontal", "top", "bottom", "inside", "outside", "clockwise", "counterclockwise", "axial direction", "radial direction", and "circumferential direction" are based on orientation or position relationships shown in the accompanying drawings, and are used only for ease and brevity of illustration and description of the present disclosure, rather than indicating or implying that the mentioned apparatus or component needs to have a particular orientation or needs to be constructed and operated in a particular orientation. Therefore, such terms should not be construed as limiting of the present disclosure. In addition, features defined by "first" and "second" may explicitly or implicitly include one or more such features. In the description of the present disclosure, unless otherwise stated, "a plurality of" means two or more than two.

[0041] In the description of the present disclosure, it should be noted that unless otherwise explicitly specified or defined, the terms such as "mount", "connect", and "connection" should be understood in a broad sense. For example, the connection may be a fixed connection, a detachable connection, or an integral connection; or the connection may be a mechanical connection or an electrical connection; or the connection may be a direct connection, an indirect connection through an intermediary, or internal communication between two components. A person of ordinary skill in the art may understand the specific meanings of the foregoing terms in

the present disclosure according to specific situations.

[0042] A mounting assembly 10 for an automotive steering column 30 according to an embodiment of the present disclosure is described below with reference to FIG. 1 to FIG. 6.

[0043] The mounting assembly 10 for the automotive steering column 30 according to the embodiments of the present disclosure includes: a fixing support 1 and a connecting support 2. The fixing support 1 is configured to be fixed on a vehicle body 20, the fixing support 1 has one of a hanging slot 11 and a hanging column 21, and the fixing support 1 also has a first assembly hole 12. The connecting support 2 is configured to be connected to the automotive steering column 30, the connecting support 2 has the other of the hanging slot 11 and the hanging column 21, and the connecting support 2 also has a second assembly hole 22, where the hanging column 21 is placed in the hanging slot 11 to pre-mount the connecting support 2 on the fixing support 1, and a fixing connector 3 is configured to engage with the first assembly hole 12 and the second assembly hole 22 respectively to fix the connecting support 2 on the fixing support 1.

[0044] It may be understood that the fixing support 1 is fixed on the vehicle body 20, the steering column 30 is mounted on the connecting support 2, and then the hanging column 21 is placed in the hanging slot 11 to pre-fix the connecting support 2 and the steering column 30 on the connecting support 2 on the fixing support 1. In this way, the worker who is mounting the steering column 30 can completely release the grip on the steering column 30 to mount the fixing connector 3 to engage with the first assembly hole 12 of the fixing support 1 and the second assembly hole 22 of the connecting support 2 respectively, so that the connecting support 2 is fixed on the fixing support 1, thereby simplifying a connection structure between the connecting support 2 and the fixing support 1, and even one person can complete the assembly of the steering column 30 on the vehicle body 20, greatly saving manpower, material resources, and man-hours, and

improving assembly efficiency.

[0045] In addition, when the connecting support 2 is removed from the fixing support 1, it is only necessary to first remove the fixing connector 3 and then detach the hanging column 21 from the hanging slot 11, so that the operations of assembly and disassembly between the connecting support 2 and the fixing support 1 are simpler.

[0046] As shown in FIG. 1 to FIG. 6, in some embodiments of the present disclosure, multiple hanging slots 11 are provided on the fixing support 1 at intervals, multiple hanging columns 21 are provided on the connecting support 2 at intervals, and the multiple hanging columns 21 are placed in the multiple hanging slots 11 in a one-to-one correspondence, so as to increase the connection strength between the fixing support 1 and the connecting support 2, so that the connecting support 2 can be stably hung on the fixing support 1, thereby improving the safety of assembly. In some embodiments, there are two hanging slots 11 and two hanging columns 21 to ensure that the connecting support 2 can be stably hung on the fixing support 1. It should be noted that the quantity of the hanging slot 11 and the hanging column 21 may be set according to actual situations, as long as the connecting support 2 can be stably hung on the fixing support 1. The quantity of the hanging slot 11 and the hanging column 21 is not limited herein.

[0047] In the mounting assembly 10 for the automotive steering column 30 according to the embodiments of the present disclosure, the hanging column 21 is placed in the hanging slot 11 to pre-fix the connecting support 2 on the fixing support first 1. In this way, the worker who is mounting the steering column 30 can completely release the grip on the steering column 30 to mount the fixing connector 3 to engage with the first assembly hole 12 and the second assembly hole 22 respectively, so that the connecting support 2 is fixed on the fixing support 1, thereby simplifying a connection structure between the connecting support 2 and the fixing support 1,

greatly saving manpower, material resources, and man-hours, and improving assembly efficiency.

[0048] As shown in FIG. 3 to FIG. 6, in some embodiments of the present disclosure, the fixing support 1 also has one of a positioning slot 13 and a positioning column 23, the connecting support 2 has the other of the positioning slot 13 and the positioning column 23, and the positioning slot 13 engages with the positioning column 23. It may be understood that the positioning fit between the positioning slot 13 and the positioning column 23 can increase the mounting accuracy between the connecting support 2 and the fixing support 1, thereby increasing the mounting accuracy between the steering column 30 and the vehicle body 20.

[0049] As shown in FIG. 1 to FIG. 6, in some embodiments of the present disclosure, multiple positioning slots 13 are provided on the fixing support 1 at intervals, multiple positioning columns 23 are provided on the connecting support 2 at intervals, and the multiple positioning columns 23 engage with the multiple positioning slots 13 in a one-to-one correspondence, so as to increase the mounting accuracy between the fixing support 1 and the connecting support 2, so that the connecting support 2 can be stably hung on the fixing support 1, thereby improving the safety of assembly. In some embodiments, there are two positioning slots 13 and two positioning columns 23 to ensure that the connecting support 2 can be stably mounted on the fixing support 1. It should be noted that the quantity of the positioning slot 13 and the positioning column 23 may be set according to actual situations, as long as the connecting support 2 can be positioned and mounted on the fixing support 1. The quantity of the positioning slot 13 and the positioning column 23 is not limited herein.

[0050] As shown in FIG. 1 to FIG. 6, in some embodiments of the present disclosure, the fixing support 1 extends obliquely, the positioning slot 13 is below the hanging slot 11, and after the hanging column 21 is placed in the hanging slot 11, the connecting support 2 is rotated to

fit the positioning slot 13 with the positioning column 23. It may be understood that the fixing support 1 extends obliquely relative to the vehicle body 20. The positioning slot 13 is provided below the hanging slot 11, so that the connecting support 2 can be pre-fixed on the fixing support 1 by fitting the hanging slot 11 with the hanging column 21 first. The fixing support 1 is arranged obliquely, so that the connecting support 2 can be driven to rotate relative to the fixing support 1 to fit the positioning slot 13 with the positioning column 23. The positioning fit between the positioning slot 13 and the positioning column 23 can increase the fit accuracy between the connecting support 2 and the fixing support 1. Therefore, the connecting support 2 is assembled on the fixing support 1 by first pre-positioning and then fixing, achieving the effect of improving the assembly accuracy.

[0051] As shown in FIG. 4 and FIG. 5, in some embodiments of the present disclosure, the positioning slot 13 includes a positioning opening 131 and a positioning slot bottom 132, the positioning slot bottom 132 is below the positioning opening 131, and the positioning column 23 passes through the positioning opening 131 and is supported on the positioning slot bottom 132. It may be understood that when the connecting support 2 and the fixing support 1 are mounted, the positioning column 23 may be placed at the positioning opening 131 of the positioning slot 13 first for pre-positioning. After the position is adjusted, the connecting support 2 is then pushed to allow the positioning column 23 to extend into the positioning slot 13 and be supported on the positioning slot bottom 132, thereby improving the stability and assembly accuracy between the connecting support 2 and the fixing support 1.

[0052] As shown in FIG. 5, in some embodiments of the present disclosure, an arc-shaped guide surface 133 is provided between the positioning opening 131 and the positioning slot bottom 132, so that the positioning column 23 more easily slides from the positioning opening 131

to the positioning slot bottom 132, further improving the assembly efficiency.

[0053] As shown in FIG. 1 to FIG. 6, in some embodiments of the present disclosure, an opening of the hanging slot 11 faces upward. It may be understood that the opening of the hanging slot 11 faces upward to facilitate placing the hanging column 21 in the hanging slot 11, so that the mounting between the connecting support 2 and the fixing support 1 is more labor-saving.

[0054] As shown in FIG. 5, in some embodiments of the present disclosure, a distance between opposite side walls at the opening of the hanging slot 11 is greater than a distance between opposite side walls at a slot bottom of the hanging slot 11. It may be understood that when the connecting support 2 and the fixing support 1 are mounted, the hanging column 21 may be placed at the opening of the hanging slot 11 first for pre-positioning. After the position is adjusted, because the distance at the opening of the hanging slot 11 is greater than the distance at the slot bottom of the hanging slot 11, after the hanging column 21 enters the relatively narrow slot bottom of the hanging slot 11, the fit accuracy between the connecting support 2 and the fixing support 1 is higher, thereby improving the assembly accuracy between the steering column 30 and the vehicle body 20.

[0055] As shown in FIG. 5, in some embodiments of the present disclosure, a positioning convex 111 is provided between the opening and the slot bottom of the hanging slot 11. The positioning convex 111 can block the hanging column 21, so that after the position of the connecting support 2 relative to the fixing support 1 is adjusted, the hanging column 21 enters the slot bottom of the hanging slot 11 from the opening of the hanging slot 11, thereby increasing the mounting accuracy.

[0056] As shown in FIG. 1 to FIG. 6, in some embodiments of the present disclosure, a worker may first fix the fixing support 1 on the vehicle body 20 and mount the steering column 30

on the connecting support 2, then pre-support the hanging column 21 of the connecting support 2 at the opening of the hanging slot 11 of the fixing support 1, and rotate the connecting support 2 with the axis of the hanging column 21 as a rotation center line to extend the positioning column 23 of the connecting support 2 to the positioning opening 131 of the fixing support 1, so that the connecting support 2 is pre-fixed on the fixing support 1. In this case, the connecting support 2 is in a first state (referring to the dashed line part shown in FIG. 6).

[0057] After the position of the connecting support 2 relative to the fixing support 1 is adjusted, the connecting support 2 may be pushed to make the hanging column 21 of the connecting support 2 slide into the slot bottom of the hanging slot 11 of the fixing support 1 and the positioning column 23 of the connecting support 2 slide into the positioning slot bottom 132 of the fixing support 1 under the gravity of the connecting support 2, so that the connecting support 2 is assembled on the fixing support 1. In this case, the connecting support 2 is in a second state (referring to the solid line part shown in FIG. 6).

[0058] Finally, the worker who is mounting the steering column 30 can completely release the grip on the steering column 30 to fit the fixing connector 3 with the first assembly hole 12 of the fixing support 1 and the second assembly hole 22 of the connecting support 2 respectively, so that the connecting support 2 is fixed on the fixing support 1, thereby simplifying a connection structure between the connecting support 2 and the fixing support 1, and even one person can complete the assembly of the steering column 30 on the vehicle body 20, greatly saving manpower, material resources, and man-hours, and improving assembly efficiency.

[0059] As shown in FIG. 4, in some embodiments of the present disclosure, one of the connecting support 2 and the fixing support 1 is provided with a pre-set nut 14, and the fixing connector 3 is in thread fit with the pre-set nut 14. It may be understood that the fixing connector

3 is threadedly connected to the pre-set nut 14, so that the connection structure between the connecting support 2 and the fixing support 1 is simpler.

[0060] In some embodiments of the present disclosure, the fixing connector 3 may be a bolt, the pre-set nut 14 is welded on the fixing support 1, a threaded hole in the pre-set nut 14 is in communication with the first assembly hole 12, and thus the fixing connector 3 sequentially passes through the second assembly hole 22 of the connecting support 2 and the first assembly hole 12 of the fixing support 1, and then is threadedly connected to the pre-set nut 14, so that the connecting support 2 is stably mounted on the fixing support 1, making the structure of the mounting assembly 10 more stable.

[0061] In some embodiments of the present disclosure, the first assembly hole 12 of the fixing support 1 may be provided as a threaded hole, so that the fixing connector 3 passes through the second assembly hole 22 of the connecting support 2 and then is directly threadedly connected to the first assembly hole 12 of the fixing support 1, making the connection structure between the connecting support 2 and the fixing support 1 simpler.

[0062] As shown in FIG. 1 to FIG. 6, in some embodiments of the present disclosure, the fixing support 1 includes a fixing base plate 15 and fixing side plates 16 respectively arranged on opposite side walls of the fixing base plate 15, and each of the fixing side plates 16 has one of the hanging slot 11 and the hanging column 21; and the connecting support 2 includes a connecting base plate 24 and connecting side plates 25 respectively arranged on opposite side walls of the connecting base plate 24, and each of the connecting side plates 25 has the other of the hanging slot 11 and the hanging column 21.

[0063] It may be understood that the fixing support 1 may be connected to the vehicle body 20 by the fixing base plate 15, making the connection structure between the fixing support 1

and the vehicle body 20 simpler; and the connecting support 2 may be connected to the steering column 30 by the connecting base plate 24, making the connection structure between the connecting support 2 and the steering column 30 simpler. In addition, the fixing side plates 16 are respectively arranged on opposite side walls of the fixing base plate 15, the connecting side plates 25 are respectively arranged on opposite side walls of the connecting base plate 24, one of the hanging slot 11 and the hanging column 21 is provided on the fixing side plate 16, and the other of the hanging slot 11 and the hanging column 21 is provided on the connecting side plate 25, so as to facilitate the assembly of the fixing support 1 and the connecting support 2, thereby improving the assembly efficiency.

[0064] It may be understood that when the connecting support 2 and the fixing support 1 are assembled, the connecting support 2 and the fixing support 1 may be opened oppositely, so that a mounting cavity is formed between the connecting support 2 and the fixing support 1 to accommodate other parts of the steering column 30, protecting some parts of the steering column 30. It may be understood that a first long side 161 is provided at a side of each fixing side plate 16 facing away from the fixing base plate 15, and an opening of the fixing support 1 is defined between two first long sides 161; and a second long side 251 is provided at a side of each connecting side plate 25 facing away from the connecting base plate 24, and an opening of the connecting support 2 is defined between two second long sides 251.

[0065] Specifically, the fixing base plate 15 and the two fixing side plates 16 form a first chamber, the connecting base plate 24 and the two connecting side plates 25 form a second chamber, the opening of the fixing support 1 is opposite to the opening of the connecting support 2, and after the fixing support 1 is connected to the connecting support 2, the first chamber and the second chamber are at least partially coincident to form the foregoing mounting cavity.

[0066] As shown in FIG. 1 to FIG. 6, in some embodiments of the present disclosure, the fixing side plates 16 are perpendicular to the fixing base plate 15, and the connecting side plates 25 are perpendicular to the connecting base plate 24. That is, both the connecting support 2 and the fixing support 1 are generally U-shaped, so that the space of the mounting cavity can be ensured to accommodate other parts of the steering column 30, protecting some parts of the steering column 30.

[0067] As shown in FIG. 1 to FIG. 6, the steering column assembly 100 according to the embodiments of the present disclosure includes: an automotive steering column 30 and a mounting assembly 10. The mounting assembly 10 is the mounting assembly 10 according to the foregoing embodiments of the present disclosure, the connecting support 2 is arranged on the automotive steering column 30, and the fixing support 1 is configured to be fixed on a vehicle body 20.

[0068] In the steering column assembly 100 according to the embodiments of the present disclosure, the hanging column 21 is placed in the hanging slot 11 to pre-fix the connecting support 2 on the fixing support 1 first. In this way, the worker who is mounting a steering column 30 can completely release the grip on the steering column 30 to mount the fixing connector 3 to engage with the first assembly hole 12 of the fixing support 1 and the second assembly hole 22 of the connecting support 2 respectively, so that the connecting support 2 is fixed on the fixing support 1, thereby simplifying a connection structure between the connecting support 2 and the fixing support 1, greatly saving manpower, material resources, and man-hours, and improving assembly efficiency.

[0069] In some embodiments of the present disclosure, the steering column 30 includes a motion assembly connected to a steering wheel. After the connecting support 2 is mounted on

the fixing support 1, the motion assembly is movably arranged on the connecting support 2, so as to adjust the position of the steering wheel when the motion assembly moves relative to the connecting support 2, making the vehicle suitable for different drivers.

[0070] As shown in FIG. 1 to FIG. 6, in some embodiments of the present disclosure, the steering column 30 also includes a gas spring 4, and both ends of the gas spring 4 are respectively connected to the motion assembly and the connecting support 2. After the connecting support 2 is mounted on the fixing support 1, the gas spring 4 pushes the motion assembly to move relative to the connecting support 2, so that the adjustment of the position of the steering wheel is more labor-saving. Further, the gas spring 4 may be arranged in the mounting cavity formed between the connecting support 2 and the fixing support 1 to protect the gas spring 4.

[0071] As shown in FIG. 1 to FIG. 7, the vehicle 200 according to the embodiments of the present disclosure includes: a vehicle body 20 and a steering column assembly 100. The steering column assembly 100 is the steering column assembly 100 according to the foregoing embodiments of the present disclosure, and the fixing support 1 is fixed on the vehicle body 20.

[0072] In the vehicle 200 according to the embodiments of the present disclosure, the hanging column 21 is placed in the hanging slot 11 to pre-fix the connecting support 2 on the fixing support 1 first. In this way, the worker who is mounting a steering column 30 can completely release the grip on the steering column 30 to mount the fixing connector 3 to engage with the first assembly hole 12 of the fixing support 1 and the second assembly hole 22 of the connecting support 2 respectively, so that the connecting support 2 is fixed on the fixing support 1, thereby simplifying a connection structure between the connecting support 2 and the fixing support 1, greatly saving manpower, material resources, and man-hours, and improving assembly efficiency.

[0073] It may be understood that the vehicle 200 may also include wheels 210 mounted

at the bottom of the vehicle body 20 and configured to allow the vehicle 200 to travel normally.

[0074] In the descriptions of this specification, descriptions using reference terms "an embodiment", "some embodiments", "an exemplary embodiment", "an example", "a specific example", or "some examples" mean that specific characteristics, structures, materials, or features described with reference to the embodiment or example are included in at least one embodiment or example of the present disclosure. In this specification, exemplary descriptions of the foregoing terms do not necessarily point at the same embodiment or example. Moreover, the specific characteristics, structures, materials, or features described may be combined in any one or more embodiments or examples in a proper manner.

[0075] Although the embodiments of the present disclosure have been shown and described, a person of ordinary skill in the art may understand that various changes, modifications, replacements, and variations may be made to the embodiments without departing from the principles and spirit of the present disclosure, and the scope of the present disclosure is as defined by the appended claims and their equivalents.

WHAT IS CLAIMED IS:

1. A mounting assembly for an automotive steering column, comprising:

a fixing support configured to be fixed on a vehicle body, the fixing support having one of a hanging slot and a hanging column, and the fixing support also having a first assembly hole; and

a connecting support configured to be connected to the automotive steering column, the connecting support having the other of the hanging slot and the hanging column, and the connecting support also having a second assembly hole, wherein the hanging column is placed in the hanging slot to pre-mount the connecting support on the fixing support, and a fixing connector is configured to engage with the first assembly hole and the second assembly hole respectively to fix the connecting support on the fixing support.

2. The mounting assembly for the automotive steering column according to claim 1, wherein the fixing support also has one of a positioning slot and a positioning column, the connecting support has the other of the positioning slot and the positioning column, and the positioning slot engages with the positioning column.

3. The mounting assembly for the automotive steering column according to claim 2, wherein the fixing support extends obliquely, the positioning slot is below the hanging slot, and after the hanging column is placed in the hanging slot, the connecting support is rotated to fit the positioning slot with the positioning column.

4. The mounting assembly for the automotive steering column according to claim 2 or 3, wherein the positioning slot comprises a positioning opening and a positioning slot bottom, the positioning

slot bottom is below the positioning opening, and the positioning column passes through the positioning opening and is supported on the positioning slot bottom.

5. The mounting assembly for the automotive steering column according to any one of claims 1 to 4, wherein an opening of the hanging slot faces upward.

6. The mounting assembly for the automotive steering column according to claim 5, wherein a distance between opposite side walls at the opening of the hanging slot is greater than a distance between opposite side walls at a slot bottom of the hanging slot.

7. The mounting assembly for the automotive steering column according to any one of claims 1 to 6, wherein one of the connecting support and the fixing support is provided with a pre-set nut, and the fixing connector is in thread fit with the pre-set nut.

8. The mounting assembly for the automotive steering column according to any one of claims 1 to 7, wherein the fixing support comprises a fixing base plate and fixing side plates respectively arranged on opposite side walls of the fixing base plate, and each of the fixing side plates has one of the hanging slot and the hanging column; and

the connecting support comprises a connecting base plate and connecting side plates respectively arranged on opposite side walls of the connecting base plate, and each of the connecting side plates has the other of the hanging slot and the hanging column.

9. The mounting assembly for the automotive steering column according to claim 8, wherein the

fixing side plates are perpendicular to the fixing base plate, and the connecting side plates are perpendicular to the connecting base plate.

10. A steering column assembly, comprising:

an automotive steering column; and

the mounting assembly according to any one of claims 1 to 9, wherein the connecting support is arranged on the automotive steering column, and the fixing support is configured to be fixed on a vehicle body.

11. A vehicle, comprising:

a vehicle body; and

the steering column assembly according to claim 10, wherein the fixing support is fixed on the vehicle body.