CONNECTING SECTION, JIB MECHANISM, AND CRANE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Chinese Patent Application No. 202010750468.8, filed with China National Intellectual Property Administration on July 30, 2020 and entitled "CONNECTING SECTION, JIB MECHANISM, AND CRANE", which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] The present application relates to the technical field of crane devices, and in particular, to a connecting section, a jib mechanism, and a crane.

BACKGROUND

[0003] At present, boom sections of crawler cranes are heavy and have a variety of combinations. Thus, how to optimize transportation of boom sections and improve efficiency of disassembling and assembling the boom sections has become an important problem in design and usage processes of a crawler crane. For a luffing fly jib, a connecting section of a main boom and the jib, a lower-section arm of the jib, and a first mast of the jib are transported separately. In a mounting process, the lower-section arm of the jib, a second mast, and the first mast are usually hoisted to a mounting position of the boom-jib connecting section by using an auxiliary crane for assembly, which requires lots of time and labor and has a very high requirement on operation.

[0004] Therefore, it is urgent to provide a connecting section, a jib mechanism, and a crane to solve the problem in the conventional technology to some extent.

SUMMARY

[0005] Objectives of the present application are to provide a connecting section, a jib mechanism, and a crane, to optimize a structure of the connecting section to some extent, and reduce disassembling and assembling frequency between structures of the jib mechanism.

[0006] The present application provides a connecting section. The connecting section is configured to connect a main boom and a jib mechanism. The connecting section includes a frame body. The frame body includes a first support rod, a second support rod, and a third support rod. Two ends of the second support rod are respectively connected to an end of the first support rod and an end of the third support rod. A first connecting portion is formed at a joint of the second support rod and the third support rod, and configured to connect a lower-section arm of the jib mechanism. The first support rod is provided with a second connecting portion. The second connecting portion is configured to connect a first mast of the jib mechanism. The second support rod is provided with a third connecting portion. The third connecting portion is configured to connect a second mast of the jib mechanism. Fourth connecting portions are formed at ends, away from the second support rod, of the first support rod and the third support rod, respectively, and configured to connect the main boom. The third connecting portion is a second connecting seat, and a third connecting hole is formed in the second connecting seat. The second support rod is provided with a third connecting seat, and the third connecting seat is located between the second connecting seat and the first connecting portion; and a positioning hole is formed in the third connecting seat and used to connect an anti-back-tipping support rod of the lower-section arm.

[0007] A first connecting hole is formed in the first connecting portion. The third support rod is disposed at an angle to a vertical direction. An end, away from the fourth connecting portion, of the third support rod is inclined in a direction away from the first support rod. The second support rod is disposed at an angle to a horizontal direction. An end, away from the first support rod, of the second support rod is inclined in a direction away from the fourth connecting portion of the third support rod, so that a hole center of the first connecting hole deviates from an extension direction of the main boom.

[0008] Specifically, a plurality of reinforcing ribs are disposed between the first support rod and the third support rod as well as between the second support rod and the third support rod.

[0009] Further, the third support rod is provided with a lifting pulley block. The lifting pulley block is located between the first connecting portion and the fourth connecting portion of the third support rod.

[0010] Still further, the first support rod is provided with a pulley bracket. The pulley bracket is provided with a guiding pulley block.

[0011] The second connecting portion is a first connecting seat. The first connecting seat is disposed on the pulley bracket. A second connecting hole is formed in the first connecting seat.

[0012] Compared with the conventional technology, the connecting section provided in the present application has the following advantages:

[0013] The connecting section provided in the present application is configured to connect a main boom and a jib mechanism and includes a frame body. The frame body includes a first support rod, a second support rod, and a third support rod. Two ends of the second support rod are respectively connected to an end of the first support rod and an end of the third support rod. A first connecting portion is formed at a joint of the second support rod and the third support rod, and configured to connect a lower-section arm of the jib mechanism. The first support rod is provided with a second connecting portion. The second connecting portion is configured to connect a first mast of the jib mechanism. The second support rod is provided with a third connecting portion. The third connecting portion is configured to connect a second mast of the jib mechanism. Two fourth connecting portions are formed at ends, away from the second support rod, of each of the first support rod and the third support rod, and configured to connect the main boom.

[0014] It may be learned via analysis that the first support rod, the second support rod, and the third support rod form the frame body; a connection between the lower-section arm and the frame body may be implemented by connecting the second support rod to the third support rod and forming the first connecting portion; a connection between the first mast and the frame body can be facilitated by providing the first support rod with the second connecting portion; and a connection between the second mast and the frame body can be facilitated by providing the second support rod with the third connecting portion. Therefore, the lower-section arm, the second mast, and the first mast can be integrated into the frame body through the first connecting portion, the second connecting portion, and the third connecting portion. In addition, because the fourth connecting portions are formed at the ends, away from the second support rod, of the first support rod and the third support rod, the lower-section arm, the second mast, and the first mast are enabled to be quickly connected to the main boom of a crane through the frame body.

[0015] In addition, the present application further provides a jib mechanism. The jib mechanism includes the foregoing connecting section and a luffing fly jib assembly or a fixed jib assembly. Each of the luffing fly jib assembly and the fixed jib assembly includes a lower-section arm and a first mast. The luffing fly jib assembly further includes a second mast. An end of the lower-section arm is rotationally connected to the first connecting portion. An end of the first mast is rotationally connected to the second connecting portion. An end of the second mast is rotationally connected to the third connecting portion.

[0016] During operation of the jib mechanism using the connecting section provided in the present application, the luffing fly jib assembly may be connected to the connecting section, or the fixed jib assembly may be connected to the connecting section, to connect the luffing fly jib assembly or the fixed jib assembly to the main boom.

[0017] Then, the connecting section may be directly connected to the main boom of the crane. During transportation, the connecting section is separated from the main boom. The lower-section arm is rotationally connected to the first connecting hole, the second mast is rotationally connected to the third connecting hole, and the first mast is rotationally connected to the second connecting hole. Therefore, the jib mechanism with the connecting section may be directly transported without disassembly and assembly, thereby improving transportation efficiency to some extent.

[0018] In addition, because all of the lower-section arm, the second mast, and the first mast may be rotated to appropriate positions, space occupied by the jib mechanism during transportation may be decreased to some extent.

[0019] The present application further provides a crane. The crane includes the foregoing jib mechanism, a crane body, and a main boom. The main boom is of a frame structure, a plurality of connecting positions are formed at an end, away from the crane body, of the main boom, and the fourth connecting portion of the first support rod and the fourth connecting portion of the third support rod are connected to the plurality of connecting positions, so that the jib mechanism is connected to the main boom.

[0020] According to the jib mechanism provided in the present application, the lower-section arm, the second mast, and the first mast are all integrated into the connecting section; and two fourth connecting holes are formed in the fourth connecting portions of the connecting section respectively. Therefore, the jib mechanism can be directly connected to

the main boom through the fourth connecting hole during operation, and thus a boom of the crane can be assembled quickly, thereby improving operation efficiency to some extent.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] To describe technical solutions in the specific implementations of the present application or in the conventional technology more clearly, the following briefly describes the accompanying drawings required for describing the specific implementations or the conventional technology. Apparently, the accompanying drawings in the following description show merely some implementations of the present application, and those of ordinary skill in the art may still derive other drawings from these accompanying drawings without creative efforts.

[0022] FIG. 1 is a schematic diagram of an integral structure of a connecting section according to an embodiment of the present application.

[0023] FIG. 2 is a schematic diagram of an integral structure of a jib mechanism according to an embodiment of the present application.

[0024] FIG. 3 is a schematic diagram of an integral structure of a crane according to the present application.

[0025] List of reference numerals:

1: frame body

101: first support rod

1011: pulley bracket

1012: guiding pulley block

102: second support rod

103: third support rod

1031: lifting pulley block

2: first connecting hole

3: first connecting seat

301: second connecting hole

4: second connecting seat

401: third connecting hole

5: fourth connecting hole

6: reinforcing rib

7: third connecting seat

701: positioning hole

8: lower-section arm

801: anti-back-tipping support rod

9: second mast

10: first mast

11: main boom

DETAILED DESCRIPTIONS OF THE EMBODIMENTS

[0026] To make the objectives, technical solutions, and advantages of the embodiments of the present application clearer, the following clearly and completely describes the technical solutions in the embodiments of the present application with reference to the accompanying drawings in the embodiments of the present application. Apparently, the described embodiments are some rather than all of the embodiments of the present application. Generally, assemblies in the embodiments of the present application described and shown in the accompanying drawings herein may be arranged and designed according to various different configurations. Therefore, the following detailed description of the embodiments of the present application with reference to the accompanying drawings is not intended to limit the protection scope of the present application, but merely represents selected embodiments of the present application. All other embodiments obtained by those skilled in the art without making creative efforts based on the embodiments of the present application will fall within the protection scope of the present application.

[0027] In the description of the embodiments of the present application, it should be noted that orientation or position relationships indicated by terms such as “upper”, “lower”, “left”, “right”, “vertical”, “horizontal”, “inner”, and “outer” are orientation or position relationships shown in the accompanying drawings or usual orientation or position relationships of the products of the present disclosure during usage. These terms are only used to facilitate description of the present application and simplify the description, rather than to indicate or imply that the mentioned apparatus or elements must have a specific orientation or must be constructed and operated in a specific orientation. Therefore, they should not be construed as a limitation to the present application. In addition, terms such

as “first”, “second”, and “third” are used only for the purpose to distinguish descriptions and cannot be understood as indicating or implying relative importance.

[0028] Moreover, terms such as “horizontal” and “vertical” do not mean that a component is absolutely horizontal or vertical but means that the component may be tilted slightly. For example, “horizontal” only means that a direction of the component is more horizontal with respect to a “vertical” direction, it does not mean that the structure is completely horizontal, but may be tilted slightly.

[0029] In the description of the embodiments of the present application, it should be further noted that, unless otherwise explicitly defined and limited, terms such as “dispose”, “mount”, “communicate”, and “connect” should be comprehended in a broad sense. For example, a connection may be a fixed connection, a detachable connection, or an integral connection; may be a mechanical connection or an electrical connection; and may be a direct connection, an indirect connection through an intermediate medium, or internal communication between two elements. For those of ordinary skill in the art, specific meanings of the foregoing terms may be obtained in the present application based on specific cases.

[0030] For example, the term “and/or” used herein includes any one and any combination of any two or more of associated items that are listed.

[0031] For ease of description, terms such as “above”, “upper part”, “below”, and “lower part” that indicate spatial relationships may be used herein to describe a relationship between an element and another element shown in the accompanying drawings. In addition to orientations described in the accompanying drawings, such terms that indicate spatial relationships further include different orientations of an apparatus during usage or operation.

[0032] The terms used herein are used only to describe various examples and are not intended to limit the present disclosure. Unless otherwise clearly stated in the context, singular forms are intended to include plural forms as well. Terms “include”, “contain”, and “have” are used to list presence of a described feature, quantity, operation, component, element, and/or combination thereof, but do not exclude presence or addition of one or more other features, quantities, operations, components, elements, and/or combinations thereof.

[0033] A shape shown in the accompanying drawings may vary due to a manufacturing technology and/or a tolerance. Therefore, the examples described herein are not limited to

specific shapes shown in the accompanying drawings, but include variations in shape occurring in a manufacturing process.

[0034] Features of the examples described herein may be combined in various ways that are apparent after understanding of disclosed content of the present application. In addition, although the examples described herein have various configurations, there may also be other configurations, provided that the configurations described herein are apparent after understanding of the disclosed content of the present application. In addition, technical solutions of the embodiments may be combined with each other, provided that they can be implemented by those of ordinary skill in the art. When a combination of the technical solutions incurs conflict or cannot be implemented, it should be considered that such a combination of the technical solutions is inexistent and is not within the protection scope claimed by the present application.

[0035] FIG. 1 is a schematic diagram of an integral structure of a connecting section according to an embodiment of the present application from a first viewing angle.

[0036] As shown in FIG. 1, the present application provides a connecting section. The connecting section is configured to connect a main boom and a jib mechanism and includes a frame body 1. The frame body 1 includes a first support rod 101, a second support rod 102, and a third support rod 103. Two ends of the second support rod 102 are respectively connected to an end of the first support rod 101 and an end of the third support rod 103. A first connecting hole 2 is formed at a joint of the second support rod 102 and the third support rod 103, and used to connect a lower-section arm 8 of the jib mechanism. The first support rod 101 is provided with a second connecting hole 301. The second connecting hole 301 is used to connect a first mast 10 of the jib mechanism. The second support rod 102 is provided with a third connecting hole 401. The third connecting hole 401 is used to connect a second mast 9 of the jib mechanism. A fourth connecting hole 5 is formed at an end, away from the second support rod 102, of each of the first support rod 101 and the third support rod 103.

[0037] Compared with the conventional technology, the connecting section provided in the present application has the following advantages.

[0038] According to the connecting section provided in the present application, the first support rod 101, the second support rod 102, and the third support rod 103 form the frame body 1; a connection between the lower-section arm 8 and the frame body 1 can be

implemented by connecting the second support rod 102 to the third support rod 103 and forming the first connecting hole 2; a connection between the first mast 10 and the frame body 1 can be facilitated by providing the first support rod 101 with the second connecting hole 301; and a connection between the second mast 9 and the frame body 1 can be facilitated by providing the second support rod 102 with the third connecting hole 401. Therefore, the lower-section arm 8, the second mast 9, and the first mast 10 can be integrated into the frame body 1 through the first connecting hole 2, the second connecting hole 301, and the third connecting hole 401. In addition, because the fourth connecting holes 5 are formed at the ends, away from the second support rod 102, of the first support rod 101 and the third support rod 103, the lower-section arm 8, the second mast 9, and the first mast 10 are enabled to be quickly connected to a main boom 11 of a crane through the frame body 1.

[0039] In the present application, both the first support rod 101 and the second support rod 102 are cylindrical rods. Because the lower-section arm 8 of the jib mechanism is connected to a lifting hook, the third support rod 103 in the present application preferably includes two support plates whose widths are greater than diameters of the first support rod 101 and the second support rod 102. The two support plates are disposed opposite each other. An end, away from the first support rod 101, of the second support rod 102 is inserted into a gap between the two support plates, to ensure connection strength and support strength to the lower-section arm 8.

[0040] Herein, it needs to be supplemented that, a connection between the first support rod 101 and the second support rod 102, and a connection between the second support rod 102 and the third support rod 103 in the present application may be both implemented via welding, so that after the connections, the first support rod 101, the second support rod 102, and the third support rod 103 can form the stable frame body 1.

[0041] In the present application, the main boom is of a frame structure, and at least four connecting positions are formed at an end, away from a crane body, of the main boom. Therefore, two connecting sections are provided in the present application, and are disposed opposite each other. The two connecting sections are connected to the connecting positions of the main boom 11 through fourth connecting portions, so that the lower-section arm 8, the second mast 9, and the first mast 10 can be connected and positioned stably.

[0042] As shown in FIG. 1, the first connecting hole 2 is formed in a first connecting portion. The third support rod 103 is disposed at an angle to a vertical direction. An end, away from the fourth connecting portion, of the third support rod 103 is inclined in a direction away from the first support rod 101. The second support rod 102 is disposed at an angle to a horizontal direction. An end, away from the first support rod 101, of the second support rod 102 is inclined in a direction away from the fourth connecting portion of the third support rod 103, so that a hole center of the first connecting hole 2 deviates from an extension direction of the main boom 11.

[0043] In the present application, the third support rod 103 is disposed at the angle to the vertical direction; the end, away from the fourth connecting portion, of the third support rod 103 is inclined in the direction away from the first support rod 101; the second support rod 102 is disposed at an angle to the horizontal direction; and the end, away from the first support rod 101, of the second support rod 102 is inclined in the direction away from the fourth connecting hole 5 of the third support rod 103. Therefore, a connection intersection of the second support rod 102 and the third support rod 103 may deviate from the extension direction of the main boom 11 in the direction away from the first support rod 101.

[0044] Because the main boom 11 is disposed in the vertical direction in the present application, the first connecting hole 2 is disposed on an outer side of the extension direction of the main boom 11. On the one hand, a connection between the lower-section arm 8 and the main boom 11 can be implemented more conveniently. On the other hand, the frame body 1 is enabled to provide more sufficient space to arrange the second connecting hole 301 and the third connecting hole 401. Therefore, after being connected to the frame body 1, the lower-section arm 8, the second mast 9, and the first mast 10 can operate independently without interfering with each other.

[0045] Specifically, as shown in FIG. 1, a plurality of reinforcing ribs 6 are disposed between the first support rod 101 and the third support rod 103 as well as between the second support rod 102 and the third support rod 103.

[0046] Because the lower-section arm 8 in the present application is connected to the lifting hook for lifting operation, overall strength of the frame body 1 and support strength to the lower-section arm 8 may be increased by disposing the plurality of reinforcing ribs 6 between the first support rod 101 and the third support rod 103 as well as between the second support rod 102 and the third support rod 103.

[0047] Further, as shown in FIG. 1, the third support rod 103 is provided with a lifting pulley block 1031. The lifting pulley block 1031 is disposed between the first connecting hole 2 and the third connecting hole 401.

[0048] Control over lifting of the lifting hook needs to be implemented through the lifting pulley block 1031, and the lower-section arm 8 in the present application is connected to the frame body 1 through the first connecting hole 2. Therefore, a steel wire rope may be directly connected to the lifting hook on the lower-section arm 8 through the lifting pulley block 1031 during operation by disposing the lifting pulley block 1031 on the third support rod 103.

[0049] Preferably, the lifting pulley block 1031 in the present application is disposed between the first connecting hole 2 and the third connecting hole 401 of the third support rod 103, so that the lifting pulley block 1031 can be prevented from interfering with rotation of the lower-section arm 8 during operation.

[0050] As shown in FIG. 1, the first support rod 101 is provided with a pulley bracket 1011. The pulley bracket 1011 is provided with a guiding pulley block 1012.

[0051] The pulley bracket 1011 in the present application and the first support rod 101 form a triangular structure, so that the guiding pulley block 1012 is enabled to operate more stably. An inclination angle of the main boom 11 may be changed by the guiding pulley block 1012 disposed on the pulley bracket 1011.

[0052] Because the first support rod 101 and the third support rod 103 are disposed at two ends of the second support rod 102, the guiding pulley block 1012 on the first support rod 101 and the lifting pulley block 1031 on the third support rod 103 are disposed at two ends of the frame body 1. During operation, force exerted by the guiding pulley block 1012 on the frame body 1 and force exerted by the lifting pulley block 1031 on the frame body 1 can offset each other to some extent, thereby increasing support strength and connection strength, and improving connection stability of the frame body 1 to some extent.

[0053] Specifically, as shown in FIG. 1, the pulley bracket 1011 is provided with a first connecting seat 3. The second connecting hole 301 is formed in the first connecting seat 3.

[0054] Force exerted by the first mast 10 on the first support rod 101 can be decreased by disposing the first connecting seat 3 on the pulley bracket 1011 and disposing the second connecting hole 301 in the first connecting seat 3. Thus, usage strength of an entire apparatus may be increased.

[0055] In addition, because the first mast 10 needs to be rotated during operation, wear and tear of the first support rod 101 caused by rotation of the first mast 10 can be avoided by disposing the first connecting seat 3.

[0056] Further, as shown in FIG. 1, the second support rod 102 is provided with a second connecting seat 4. The third connecting hole 401 is formed in the second connecting seat 4.

[0057] Wear and tear of the second support rod 102 caused by rotation of the second mast 9 can be avoided by disposing the second connecting seat 4. In addition, because the second connecting seat 4 in the present application is behind the first connecting hole 2, a center of gravity of the second mast 9 can be behind a center of gravity of the lower-section arm 8, thereby improving load capacity of the lower-section arm 8 to some extent.

[0058] Still further, as shown in FIG. 1, the second support rod 102 is provided with a third connecting seat 7. The third connecting seat 7 is disposed between the second connecting seat 4 and the first connecting hole 2. A positioning hole 701 is formed in the third connecting seat 7 and used to connect an anti-back-tipping support rod 801 of the lower-section arm 8.

[0059] Because the lower-section arm 8 tends to tip backwards during operation, the lower-section arm 8 is usually provided with the anti-back-tipping support rod 801. An end, away from the lower-section arm 8, of the anti-back-tipping support rod 801 can be connected to the frame body 1 by disposing the third connecting seat 7 on the second support rod 102 and between the second connecting seat 4 and the first connecting hole 2, and forming the positioning hole 701 in the third connecting seat 7. Thus, the frame body 1 can perform a support function on the lower-section arm 8 through the anti-back-tipping support rod 801; and then avoid back-tipping of the lower-section arm 8.

[0060] Herein, it needs to be supplemented that, in the present application, two ends of the anti-back-tipping support rod 801 are rotationally connected to the frame body 1 and the lower-section arm 8, respectively. On the one hand, rotation of the lower-section arm 8 is prevented from being affected. On the other hand, the support function on the lower-section arm 8 can also be ensured.

[0061] FIG. 2 is a schematic diagram of an integral structure of a jib mechanism according to an embodiment of the present application.

[0062] In addition, as shown in FIG. 2, the present application provides a jib mechanism. The jib mechanism includes the foregoing connecting section and a luffing fly jib assembly

or fixed jib assembly. Each of the luffing fly jib assembly and the fixed jib assembly includes a lower-section arm 8 and a first mast 10. The luffing fly jib assembly further includes a second mast 9.

[0063] An end of the lower-section arm 8 is rotationally connected to the first connecting hole 2. An end of the first mast 10 is rotationally connected to the second connecting hole 301. An end of the second mast 9 is rotationally connected to the third connecting hole 401.

[0064] During operation of the jib mechanism using the connecting section provided in the present application, the luffing fly jib assembly may be connected to the connecting section, or the fixed jib assembly may be connected to the connecting section, to connect the luffing fly jib assembly or the fixed jib assembly to the main boom.

[0065] Then, the connecting section may be directly connected to the main boom 11 of the crane. During transportation, the connecting section is separated from the main boom 11. Due to the lower-section arm 8 is rotationally connected to the first connecting hole 2, the second mast 9 is rotationally connected to the third connecting hole 401, and the first mast 10 is rotationally connected to the second connecting hole 301, and therefore, the jib mechanism with the connecting section may be directly transported without disassembly and assembly, thereby improving transportation efficiency to some extent.

[0066] In addition, because all of the lower-section arm 8, the second mast 9, and the first mast 10 may be rotated to appropriate positions, space occupied by the jib mechanism during transportation may be decreased to some extent.

[0067] Preferably, the lower-section arm 8, the second mast 9, and the first mast 10 are all hinged to the frame body 1, so that connection strength is ensured on the premise that the lower-section arm 8, the second mast 9, and the first mast 10 are capable of rotating relative to the frame body 1.

[0068] In the present application, the lower-section arm 8, the second mast 9, and the first mast 10 may alternatively be rotationally connected to the frame body 1 through pin shafts. In addition, the lower-section arm 8, the second mast 9, and the first mast 10 may be detachably connected to the frame body 1 through the pin shafts. Thus, when a structure thereof needs to be maintained, disassembly and assembly can be performed quickly.

[0069] Herein, it needs to be supplemented that, in an operating state, the first mast 10 in the present application is fixed relative to the connecting section, and the second mast 9 can be rotated relative to the connecting section.

[0070] FIG. 3 is a schematic diagram of an integral structure of a crane according to the present application.

[0071] As shown in FIG. 3, the present application further provides a crane. The crane includes the foregoing jib mechanism, a crane body, and a main boom 11. The main boom 11 is of a frame structure, a plurality of connecting positions are formed at an end, away from the crane body, of the main boom 11, and the fourth connecting portion of the first support rod 101 and the fourth connecting portion of the third support rod 103 are connected to the plurality of connecting positions, so that the jib mechanism is connected to the main boom 11.

[0072] According to the jib mechanism provided in the present application, the lower-section arm 8, the second mast 9, and the first mast 10 may be all integrated into the connecting section; and fourth connecting holes 5 are formed in the connecting section. Therefore, the jib mechanism can be directly connected to the main boom 11 through the fourth connecting holes 5 during operation, and thus a boom of the crane can be assembled quickly, thereby increasing operation efficiency to some extent.

[0073] Herein, it needs to be supplemented that, the frame body 1 and the main boom 11 are detachably connected to each other in the present application. Therefore, when transportation is required, the jib mechanism is separated from the main boom 11 by detaching the frame body 1.

[0074] Because the main boom 11 of the crane is usually composed of a plurality of boom sections, the frame body 1 in the present application may alternatively be connected to part of the boom sections in the main boom 11. During mounting, the boom sections may be directly mounted to the main boom 11.

[0075] The foregoing descriptions are merely preferred embodiments of the present application, but are not intended to limit the present application. Any modifications, equivalent replacements, improvements and the like made without departing from the spirit and principle of the present application shall fall within the protection scope of the present application.

CLAIMS

1. A connecting section, configured to connect a main boom and a jib mechanism, wherein the connecting section comprises a frame body, and the frame body comprises a first support rod, a second support rod, and a third support rod;

two ends of the second support rod are respectively connected to an end of the first support rod and an end of the third support rod, a first connecting portion is formed at a joint of the second support rod and the third support rod, and the first connecting portion is configured to connect a lower-section arm of the jib mechanism;

the first support rod is provided with a second connecting portion, and the second connecting portion is configured to connect a first mast of the jib mechanism;

the second support rod is provided with a third connecting portion, and the third connecting portion is configured to connect a second mast of the jib mechanism;

two fourth connecting portions are formed at ends, away from the second support rod, of the first support rod and the third support rod, respectively, and configured to connect the main boom;

the third connecting portion is a second connecting seat, and a third connecting hole is formed in the second connecting seat; and

the second support rod is provided with a third connecting seat, and the third connecting seat is located between the second connecting seat and the first connecting portion; and a positioning hole is formed in the third connecting seat and used to connect an anti-back-tipping support rod of the lower-section arm.

2. The connecting section according to claim 1, wherein a first connecting hole is formed in the first connecting portion;

the third support rod is disposed at an angle to a vertical direction, and an end, away from the fourth connecting portion, of the third support rod is inclined in a direction away from the first support rod; and

the second support rod is disposed at an angle to a horizontal direction, and an end, away from the first support rod, of the second support rod is inclined in a direction away from the fourth connecting portion of the third support rod, so that a hole center of the first connecting hole deviates from an extension direction of the main boom.

3. The connecting section according to claim 1, wherein a plurality of reinforcing

ribs are disposed between the first support rod and the third support rod as well as between the second support rod and the third support rod.

4. The connecting section according to claim 1, wherein the third support rod is provided with a lifting pulley block, and the lifting pulley block is located between the first connecting portion and the fourth connecting portion of the third support rod.

5. The connecting section according to claim 1, wherein the first support rod is provided with a pulley bracket, and the pulley bracket is provided with a guiding pulley block.

6. The connecting section according to claim 5, wherein the second connecting portion is a first connecting seat, the first connecting seat is disposed on the pulley bracket, and a second connecting hole is formed in the first connecting seat.

7. A jib mechanism, comprising the connecting section according to any one of claims 1 to 6 and a luffing fly jib assembly or a fixed jib assembly, wherein

each of the luffing fly jib assembly and the fixed jib assembly comprises a lower-section arm and a first mast, and the luffing fly jib assembly further comprises a second mast; and

an end of the lower-section arm is rotationally connected to the first connecting portion, an end of the first mast is rotationally connected to the second connecting portion, and an end of the second mast is rotationally connected to the third connecting portion.

8. A crane, comprising the jib mechanism according to claim 7, a crane body, and a main boom, wherein

the main boom is of a frame structure, a plurality of connecting positions are formed at an end, away from the crane body, of the main boom, and the fourth connecting portion of the first support rod and the fourth connecting portion of the third support rod are connected to the plurality of connecting positions, so that the jib mechanism is connected to the main boom.