

RIGID TELESCOPIC TRACTION TROLLEY FOR MOBILE POWER SUPPLY AND COMMUNICATION OF AUTOMATIC TYRE CRANE

Technical Field

5 The utility model relates to a rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane.

Background

10 At present, for traveling container gantry cranes widely used in docks and harbors, in order to achieve the purpose of energy saving and emission reduction, the power supply system thereof is gradually changed in power supply mode from the traditional diesel generator set to shore power, that is, electric energy is directly used as the energy of a tyre crane, to provide an operating power source for the tyre crane. The design principle is to install an overhead conductor rail connected with the mains power grid around or on one side
15 of the tyre crane, install a conductor rail power supply trolley on the overhead conductor rail, make the input end of the conductor rail power supply trolley come into contact with the overhead conductor rail, connect the output end of the conductor rail power supply trolley with a power supply loop of the tyre crane by a current collector, and then supply power for the tyre crane by means of the mains power grid.

20 In the operating process, the crane sometimes deviates from the track. Because the crane and the power supply trolley are connected by a cable, once the crane deviates from the track, the traction trolley may be dragged by the cable, resulting in damage to the traction trolley.

Summary

25 The utility model provides a rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane.

 A technical solution adopted to solve the above technical problems in the utility model is as follows:

A rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane, comprising: a trolley body, a control box and a cable extending from the trolley body, wherein a plug is provided at the end of the cable, the trolley body is provided with a telescopic deflector rod assembly, the deflector rod assembly including a first deflector rod and a second deflector rod, wherein the first deflector rod and the second deflector rod are sleeved and matched, and the deflector rod assembly is connected with the trolley body by a flexible member.

Preferably, the cross-sectional size of the first deflector rod is smaller than that of the second deflector rod, and the first deflector rod can be inserted into the second deflector rod.

Preferably, the end of the first deflector rod and the end of the second deflector rod are connected by a spring, so the distance between the first deflector rod and the second deflector rod can be increased or decreased.

Preferably, the side wall of the end of the first deflector rod sleeved on the second deflector rod is provided with a pulley, and the first deflector rod can slide in the second deflector rod in the axial direction of the spring.

Preferably, a hanging rod extending downward is provided under the trolley body, a sensor and a hook body are provided at the end of the hanging rod, the sensor is connected with the control box, and the hanging rod can accommodate and support the cable and the deflector rod assembly.

Preferably, a bulge which can abut against the sensor is provided at the end of the second deflector rod.

Preferably, the traction trolley is provided with a power cable, a signal cable and a code scanner, the power cable is connected with the cable to realize conductor rail power transmission, the signal cable and the code scanner are connected with the control box to realize waveguide communication transmission, and the code scanner scans a two-dimensional codes on a base to feed back position coordinates.

Compared with the prior art, the rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane of the utility model is flexibly connected with a crane by the deflector rod assembly, and once the crane is far away from or close to the base,

the traction trolley can be kept to travel or stop along with the crane since the deflector rod assembly can be prolonged or shortened. The deflector rod assembly can not only be prolonged or shortened, but also can be rotated with the flexible member as a fulcrum in the horizontal and vertical directions.

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Description of Drawings

Fig. 1 is a first structural view of the rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane of the utility model.

Fig. 2 is a second structural view of the rigid telescopic traction trolley for mobile power
10 supply and communication of an automatic tyre crane of the utility model.

Fig. 3 is a structural view showing the connection between the rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane of the utility model with the crane.

Detailed Description

The utility model is further described below in detail in combination with the drawings and embodiments.

As shown in Fig. 1 to Fig. 3, a rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane, comprising a trolley body 1, a control box 2
20 and a cable 3 extending from the trolley body 1, wherein a plug 31 is provided at the end of the cable 3, the trolley body 1 is provided a deflector rod assembly 5 and a buzzer, the deflector rod assembly 5 including a first deflector rod 51 and a second deflector rod 52, wherein the first deflector rod 51 and the second deflector rod 52 are sleeved and matched, a bulge 521 is provided at the end of the second deflector rod 52, a hanging rod 4 extending
25 downward is provided under the trolley body 1, a sensor 41 and a hook body 42 are provided at the end of the hanging rod 4, and the buzzer and the sensor 41 are connected with the control box 2. Once the traction trolley returns, after the deflector rod assembly 5 is not hung on the hanging rod 4, when the sensor 41 is not abutted by the bulge 521, the buzzer connected with the control box 2 may give an alarm; and after the deflector rod assembly 5 is

hung on the hanging rod 4, the bulge 521 may abut against the sensor 41, and then the buzzer may stop alarming.

The deflector rod assembly 5 is connected with the trolley body 1 by a flexible member 511. The cross-sectional size of the first deflector rod 51 is smaller than that of the second deflector rod 52, and the first deflector rod 51 can be inserted into the second deflector rod 52. The end of the first deflector rod 51 and the end of the second deflector rod 52 are connected by a spring, so the distance between the first deflector rod 51 and the second deflector rod 52 can be increased or decreased. The side wall of the end of the first deflector rod 51 sleeved on the second deflector rod 52 is provided with a pulley, and the first deflector rod 51 can slide in the second deflector rod 52 in the axial direction of the spring. The deflector rod assembly 5 can also be a screw rod or rack mechanism.

The cable is erected on the left side of a base 100, and the traction trolley is supported on the right side of the base 100, so that the cable supplies power for the traction trolley.

The traction trolley may slide on the base 100. A series of two-dimensional codes are provided on one side of the base 100 opposite to the traction trolley, each two-dimensional code corresponding to different position coordinates. The traction trolley is provided with a power cable 11, a signal cable 12 and a code scanner 13, the signal cable 12 and the code scanner 13 are electrically connected with the control box 2, the power cable 11 is connected with the cable 3 to realize conductor rail power transmission, and the signal cable 12 is connected with the control box 2 to realize waveguide communication transmission. When the traction trolley slidably travels on the base 100, the code scanner 13 may scan the two-dimensional codes on the base 100, so that the control system can feed back the position coordinates of the traction trolley in real time. The bulge 521 of the deflector rod assembly 5 is connected with the crane, so that the traction trolley supplies power for the crane and travels along with the crane; after the traction trolley returns, the plug 31 at the end of the cable 3 is hung on the hook body 42 of the hanging rod 4, the bulge 521 of the deflector rod assembly 5 is placed on the hanging rod 4, and the bulge 521 is abutted against the sensor 41, so that the hanging rod 4 can accommodate the cable 3 and the deflector rod assembly 5.

When the crane is supplied with power by the traction trolley, the plug 31 at the end of

the cable 3 is connected with the socket on the crane. Once the crane deviates from the track in the traveling process, when the crane is far away from or close to the base 1, the deflector rod assembly 5 can be correspondingly prolonged or shortened, and the deflector rod assembly 5 can be rotated around the flexible member 511, thus ensuring the flexible
5 connection between the traction trolley and the crane without dragging the traction trolley.

The conductor rail power supply, waveguide communication and two-dimensional code scanning information on the traction trolley are all sent to the crane by cables, a plurality of tyres 201 are provided at the bottom of the crane, and the crane is provided with a quick connection port 202 connected with the deflector rod assembly 5. When the crane walks, the
10 trolley is driven to walk synchronously by the deflector rod assembly 5, thereby completing the functions of mobile power supply, communication and positioning.

The rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane of the utility model is flexibly connected with the crane by the deflector rod assembly 5, and once the crane is far away from or close to the base 100, the traction
15 trolley can be kept to travel or stop along with the crane since the deflector rod assembly 5 can be prolonged or shortened. The deflector rod assembly can not only be prolonged or shortened, but also can be rotated with the flexible member 511 as a fulcrum in the horizontal and vertical directions, so as to avoid the phenomenon that the crane drags the traction trolley, and ensure that the traction trolley supplies stable power for the crane.

Finally, it should be noted that the above embodiments are only used for describing the
20 technical solution of the utility model rather than limitation. Although the utility model is described in detail by referring to the above embodiments, those ordinary skilled in the art should understand that: the technical solution recorded in each of the above embodiments can be still amended, or some technical features therein can be replaced equivalently. However,
25 these amendments or replacements do not enable the essence of the corresponding technical solution to depart from the spirit and the scope of the technical solution of various embodiments of the utility model.

Claims

1. A rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane, comprising: a trolley body (1), a control box (2) and a cable (3) extending from the trolley body (1), wherein a plug (31) is provided at the end of the cable (3); the trolley body (1) is provided with a telescopic deflector rod assembly (5), the deflector rod assembly (5) including a first deflector rod (51) and a second deflector rod (52), wherein the first deflector rod (51) and the second deflector rod (52) are sleeved and matched; and the deflector rod assembly (5) is connected with the trolley body (1) by a flexible member (511).

2. The rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane according to claim 1, characterized in that the cross-sectional size of the first deflector rod (51) is smaller than that of the second deflector rod (52), and the first deflector rod (51) can be inserted into the second deflector rod (52).

3. The rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane according to claim 2, characterized in that the end of the first deflector rod (51) and the end of the second deflector rod (52) are connected by a spring, so the distance between the first deflector rod (51) and the second deflector rod (52) can be increased or decreased.

4. The rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane according to claim 3, characterized in that the side wall of the end of the first deflector rod (51) sleeved on the second deflector rod (52) is provided with a pulley, and the first deflector rod (51) can slide in the second deflector rod (52) in the axial direction of the spring.

5. The rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane according to claim 4, characterized in that a hanging rod (4) extending downward is provided under the trolley body (1), a sensor (41) and a hook body (42) are provided at the end of the hanging rod (4), the sensor (41) is connected with the control box (2), and the hanging rod (4) can accommodate and support the cable (3) and the deflector rod

assembly (5).

6. The rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane according to claim 5, characterized in that a bulge (521) which can abut against the sensor (41) is provided at the end of the second deflector rod (52).

5 7. The rigid telescopic traction trolley for mobile power supply and communication of an automatic tyre crane according to claim 1, characterized in that the traction trolley is provided with a power cable (11), a signal cable (12) and a code scanner (13), the power cable (11) is connected with the cable (3) to realize conductor rail power transmission, the signal cable (12) and the code scanner (13) are connected with the control box (2) to realize waveguide
10 communication transmission, and the code scanner (13) scans two-dimensional codes on a base (100) to feed back position coordinates.