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(54) **METHOD FOR CONSTRUCTING LARGE-SPAN THIN-WALLED CONCRETE SOUND BARRIER WITH POURING TROLLEY.**

(57) The present application relates to a trolley construction method for pouring long span thin wall concrete sound barrier, which includes the following steps: Step 1: constructing a base on two sides of the existing line, and mounting a steel rail on the base; Step 2: hoisting a pre-assembled walking system; Step 3: mounting a truss system, transporting a processed arch frame to a construction site, hoisting the arch frame, connecting a vertical column to the connecting beam, adjusting the lifting jack and a hydro-cylinder, adjusting the arch frame and a turn-over section to a design elevation, mounting the subsequent arch frames successively by repeating the above processes, and connecting a connecting rod between the adjacent arch frames after mounting and adjusting the arch frames; Step 4: mounting a base mold on an arch crown, assembling a reinforcement, mounting a side mold, conducting the pouring of the concrete, curing, lowering the arch frame by the lifting jack and the hydro-cylinder after the concrete reaching the design strength, detaching the base mold, then continuing to adjust the height by the lifting jack until the walking wheel contacts the steel rail, and moving a trolley. The present application is convenient for movement and construction, and has no influence on the passage of existing lines while meeting the construction requirements.

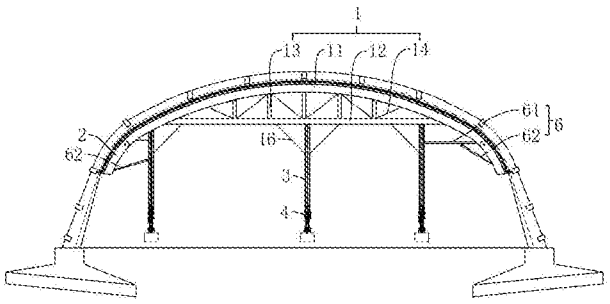

FIG. 1

METHOD FOR CONSTRUCTING LARGE-SPAN THIN-WALLED CONCRETE SOUND BARRIER WITH POURING TROLLEY

TECHNICAL FIELD

[0001] The present application relates to a field of trolley, and in particular, relates to a method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley.

BACKGROUND ART

[0002] A sound barrier is a wall structure provided alongside the railways and roads for reducing the impact of driving noise on nearby residents.

[0003] A sound barrier includes a base, a plurality of primary beams arranged on the base, and secondary beams connected between the primary beams. The primary and secondary beams of the sound barrier are generally reinforced concrete structures, and a formwork is required to be erected during construction. At present, during construction, a full scaffold is erected below the primary and secondary beams as a supporting for mounting formworks of the primary and secondary beams. However, the sound barrier is generally mounted alongside the existing railways or roads, the full scaffold may occupy the space of the railways or roads, which affects the normal traffic.

[0004] In the above technology of the prior art, there is a problem that the construction of the primary and secondary beams of the sound barrier influences the normal traffic.

SUMMARY

[0005] In order to solve the problem that the sound barrier construction influences the normal traffic on the existing lines, the present application provides a method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley.

[0006] The method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley according to the present application adopts the following technical solution.

A method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley includes the following steps:

Step 1: constructing a base on two sides of an existing road, and mounting a steel rail on the base;

Step 2: hoisting a pre-assembled walking system, adjusting a position of a connecting beam such that walking wheels fit to the steel rail, and adjusting a lifting jack such that one end of the lifting jack is supported on the base, the walking wheels separate from the steel rail and a connecting beam is raised;

Step 3: mounting a truss system; transporting a processed arch frame to a construction site, hoisting the arch frame, connecting vertical columns to the connecting beam, wherein a space for the existing road is formed between adjacent vertical columns, adjusting the lifting jack and a hydro-cylinder to adjust the arch frame and a turn-over section to a design elevation; mounting subsequent arch frames successively by repeating the above processes; and connecting connecting rods between adjacent arch frames after mounting and adjusting the arch frames;

Step 4: mounting a base mold to an arch crown; binding reinforcements; mounting a side mold; pouring concrete; curing; lowering the arch frame by the lifting jack and the hydro-cylinder after the concrete reaching a design strength; detaching the base mold; then further adjusting the lifting jack until the walking wheels contacts the steel rail, and moving the trolley.

[0007] With the above technical solution, the truss system and the walking system in the present application are combined to form formworks for supporting the trolley. The height of the arch frame is adjusted by lifting assembly, so that the arch frame and turn-over section can support the base mold. The walking wheels facilitate moving the trolley after construction.

In addition, a space for the existing roads is formed between the adjacent vertical columns,

so that the trolley serves as a protection frame for the existing line and a stressed frame for cast-in-place concrete base mold.

[0008] Optionally, each arch frame is divided into two sections, and two sections of the arch frame are connected by bolts, one section of the arch frame is hoisted and mounted firstly, and then the other section of the arch frame is hoisted and mounted, so as to finish the connection of two sections of the arch frame.

[0009] With the above technical solution, by providing two sections of the arch frame, on the one hand, the occupied space of the arch frame is reduced, which facilitates the transportation and hoisting of the arch frame. On the other hand, the weight of the arch frame is reduced, so that a crane can realize the hoisting of the arch frame.

[0010] Optionally, the sound barrier is positioned inside a gantry.

[0011] With the above technical solution, the components like connecting rods and footboards are hoisted by a hoisting equipment on the gantry. In addition, the formwork can be hoisted when mounting the formwork, which facilitates the construction.

[0012] Optionally, processing the arch frame comprises: connecting a transverse beam under the arch crown, wherein two ends of the transverse beam are respectively fixed to the arch crown; fixing vertical rods and diagonal rods between the arch crown and the transverse beam successively; fixing the vertical rods to the transverse beam or the arch crown, and then connecting diagonal braces between the vertical column and the transverse beam.

[0013] With the above technical solution, the arch frame is processed in advance, so that the arch frame can be hoisted directly during construction, which can reduce a risk of operation at height.

[0014] Optionally, the walking system comprises a connecting beam, walking wheels and a lifting jack (83) that are mounted beneath the connecting beam.

[0015] With the above technical solution, the lifting of the arch frame, the installation and removal of the base mold are controlled by the lifting jack. The movement of the arch frame is

controlled by the walking wheels, which facilitates the operation.

[0016] Optionally, a driving motor is mounted on the connecting beam, and the driving motor is in a transmission connection with the walking wheels.

[0017] With the above technical solution, the arch frame is driven by the driving motor, which is more convenient.

[0018] Optionally, footboards are arranged on the connecting rods after mounting the connecting rods.

[0019] With the above technical solution, the footboard is paved on the connecting rods to form an accessible working platform, a construction operator can stand on the working platform to conduct the concrete pouring operation, which facilitates the construction and has a higher safety.

[0020] Optionally, the truss system comprises arch frames, a connecting assembly for connecting adjacent arch frames, and turn-over sections hinged on two ends of the arch frame respectively, wherein at least two vertical columns are fixed on bottom of the arch frame, and a hydro-cylinder is connected between the vertical columns and the turn-over sections.

[0021] Optionally, the arch frame comprises an arch crown, a transverse beam that is arranged under the arch crown, and a vertical rod and a diagonal rod that are fixed between the arch crown and the transverse beam, wherein two ends of the transverse beam are fixed to the arch crown, and two ends of the arch crown are hinged with two turn-over sections respectively.

[0022] In conclusion, the present application has at least one of the following beneficial effects:

1. the present application combines the truss system with the walking system to form a formwork supporting trolley, the height of the arch frame can be adjusted by the lifting assembly, so that the arch frame and the turn-over section can support the base mold, and the walking wheels facilitate the movement of the trolley after construction;

a space for existing roads is formed between the adjacent vertical columns, so that the

trolley serves as a protection frame for the existing line and a stressed frame for cast-in-place concrete base mold;

2. the footboards are provided between the arch frames to form an accessible working platform, which is facilitates the operation for person; and

3. by providing two sections of the arch frame, on the one hand, the occupied space of the arch frame is reduced, which facilitates the transportation and hoisting of the arch frame; and on the other hand, the weight of the arch frame is reduced, so that a crane can realize the hoisting of the arch frame.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] FIG. 1 is a front view diagram of a trolley.

[0024] FIG. 2 is a partial side view diagram of a trolley.

[0025] Listing of reference signs: 1, arch frame; 11, arch crown; 12, transverse beam; 13, vertical rod; 14, diagonal rod; 15, scissor brace; 16, diagonal brace; 2, turn-over section; 3, vertical column; 4, connecting beam; 5, connecting assembly; 6, supporting assembly; 61, horizontal beam; 62, hydro-cylinder; 7, walking wheel; 8, lifting assembly; 81, connecting plate; 82, mounting plate; 83, lifting jack; 9, base; 91, steel rail.

DETAILED DESCRIPTION

[0026] The present application is further described in detail below with reference to Figs.1-2.

[0027] According to an embodiment of the present application, with reference to Figs.1-2, a method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley includes the following steps.

Step 1: constructing a base 9 on two sides of an existing road or railway; the base 9 is a concrete strip base 9, and is arranged along a length direction of the existing road. When pouring concrete of the base 9, a steel rail 91 is pre-embedded in the base 9. The spacing between

adjacent steel rails 91 is the same as the spacing between adjacent vertical columns 3 on the trolley. The steel rail 91 protrudes from a top surface of the base 9 to serve as a walking rail for trolley.

Step 2: mounting a walking system on the base 9. The walking system is prepared in advance, and is hoisted on the base 9 in site. The walking system includes a connecting beam 4, walking wheels 7 and lifting jacks 83 that are mounted beneath the connecting beam 4. The walking wheels 7 are divided into active wheels and passive wheels. The active wheels and the passive wheels are distributed alternately. The active wheels are in a transmission connection with a driving motor that may be mounted on the connecting beam 4. One walking wheel 7 and two lifting jacks 83 constitute a walking system. In a walking system, the walking wheel 7 is positioned between two lifting jacks 83. Two mounting plates 82 are mounted beneath the connecting beam 4. Connecting plates 81 are fixed on two sides of the connecting beam 4 respectively. The connecting plate 81 is bolted to the mounting plate 82. A mounting space for mounting the lifting jack 83 is formed between two mounting plates 82. The lifting jack 83 is positioned between two mounting plates. One end of the lifting jack 83 is connected beneath the connecting beam 4, and the other end thereof is supported on the base 9. The connecting plate 81, the mounting plate 82 and the lifting jack 83 constitute a lifting assembly 8. The lifting assembly 8 can adjust the height of an arch frame 1. The mounting steps are as follows: hoisting a pre-assembled walking system, adjusting a position of a connecting beam 4 such that the walking wheel 7 fits with the steel rail 91; and adjusting a lifting jack 83 to support one end of the lifting jack 83 on the base 9 such that the walking wheel 7 separate from the steel rail 91 and the connecting beam 4 is raised.

[0028] Step 3: hoisting a truss system. The truss system includes arch frames 1, a connecting assembly 5 connecting adjacent arch frames 1, and two turn-over section 2 hinged to two ends of the arch frames 1 respectively. A plurality of arch frames 1 are uniformly arranged at intervals, and positioned in the same axis. At least two vertical columns 3 are fixed on the bottom of the

arch frame 1. The number of the vertical column 3 can be determined according to the span of the arch frame 1 and the spacing between adjacent vertical columns 3. In an example of the present application, three vertical columns 3 are provided, and a space for existing roads is formed between adjacent vertical columns 3. A hydro-cylinder 62 for supporting the turn-over section 2 is provided between a vertical column 3 and the turn-over section 2. One end of the hydro-cylinder 62 is hinged t the vertical column 3, and the other end is hinged with the turn-over section 2.

[0029] An arch frame 1 includes an arch crown 11, a transverse beam 12 that is arranged under the arch crown 11, in which two ends of the transverse beam 12 are both fixed on the arch crown 11, and a vertical rod 13 and a diagonal rod 14 that are arranged between the arch crown 11 and the transverse beam 12. The vertical rods 13 and the diagonal rods 14 are alternately arranged, a plurality of vertical rods 13 are evenly spaced and a plurality of diagonal rods 14 are arranged in a wavy shape. The vertical rods 13 and the diagonal rods 14 are used to increase the structural strength of the arch frame 1, so as to support the base formwork stably. The vertical column 3 is fixedly connected with the crown 11 or the transverse beam 12. The turn-over section 2 is hinged with the arch crown 11, and the materials and specifications of the turn-over section 2 and the arch frame 11 are the same. A scissor brace 15 is fixed between adjacent vertical columns 3 of different frame arches 1 in the same row, so as to increase the integrity and supporting stability of the truss system.

[0030] A diagonal brace 16 is connected between the vertical column 13 and the transverse beam 12. One end of the diagonal brace 16 is fixed to the vertical column 3, and the other end is fixed to the transverse beam 12. A diagonal brace 16 is provided between vertical columns 3 at two ends of the arch frame 1 and the transverse beam 12. Two diagonal braces 16 are provided between a vertical column 3 in the middle and the transverse beam 12, and the two diagonal braces 16 are symmetrically installed on both sides of the vertical column 3. The connection strength and support performance of the vertical column 3 and the arch frame 1 are increased by

using the diagonal braces 16.

[0031] The connecting assembly 5 includes connecting rods, which can be made of U-steel. The connecting rods are detachably connected, e.g., are bolted, between adjacent arch crowns 11 and between adjacent turn-over sections 2. The connecting rods are evenly arranged along the arc direction of the arch crown 11 and the turn-over section 2. Footboards are arranged on the connecting rods in an arc shape with an arch consistent with the arch crown 11. The footboards close the gaps between the adjacent arch crowns 11 and provide an accessible working platform for pouring the sound barrier.

[0032] The mounting steps are as follows:

processing: connecting the transverse beam 12 under the arch crown 11; welding two ends of the transverse beam 12 to the arch crown 11; fixing vertical rods 13 and diagonal rods 14 between the arch crown 11 and the transverse beam 12 successively; a layout surveying is performed on the transverse beam 12 and the arch crown 11 to determine mounting positions of the vertical columns 3; bolting or welding the vertical columns 3 to the transverse beam 12 or arch frame 11; connecting diagonal braces 16 between the vertical columns 3 and the transverse beam 12; mounting turn-over sections 2 hinged with the arch crown 11; and connecting hydro-cylinders 62 between the turn-over sections 2 and the vertical columns 3.

[0033] After the arch frame 1 is processed, the arch frame 1 is transported to the construction site. The arch frame 1 is hoisted, and the vertical column 3 and connecting beam 4 are bolted for fixation. The lifting jack 83 and hydro-cylinder 62 are adjusted until the arch frame 1 and turn-over section 2 reach to the design elevation. The subsequent arch frames 1 are mounted successively by repeating the above process. After the arch frame 1 is mounted and adjusted, scissor braces 15 are mounted between adjacent vertical columns 3. A plurality of arch frames are connected as a whole. The connecting rods are connected between adjacent arch frames 1, and the footboards are arranged on the connecting rods, so as to form a construction platform.

[0034] Step 4: mounting formworks: fixing a base mold of a primary beam of a sound barrier

to the arch crown 11; binding primary beam reinforcements; mounting side mold; pouring concrete; after the concrete is initially set, detaching the side mold firstly, and applying concrete curing solution for curing; after the concrete reaches the design strength, lowering the arch frame 1 by the lifting jack 83 and the hydro-cylinder 62, and detaching the base mold; continuously reducing the height of the lifting jack 83 , so that the walking wheels 7 contact the steel rail 91; and moving the trolley to the next construction position driven by the drive motor.

[0035] When the span of arch frame 1 is large, the transportation and hoisting thereof have high requirements for construction space and crane specifications, so that it is difficult to carry out construction on site. Therefore, each arch frame 1 is divided into two sections, and the two sections of arch frame 1 are bolted. During construction, one section of the arch frame 1 is hoisted and mounted firstly, and then the other section of the arch frame 1 is hoisted and mounted, so as to finish the connection of two sections of the arch frame 1. By providing two sections of the arch frame 1, on the one hand, the occupied space of the arch frame 1 is reduced, which facilitates the transportation and hoisting of the arch frame 1. On the other hand, the weight of the arch frame 1 is reduced, so that a crane can realize the hoisting of the arch frame 1.

[0036] Furtherly, in order to facilitate the mounting of the trolley and the formwork, a gantry is provided outside the sound barrier, and the sound barrier is positioned inside a gantry. The components like connecting rods and footboards are hoisted by a hoisting equipment on the gantry. In addition, the formwork can be hoisted when mounting the formwork, which facilitates the construction.

[0037] The above are the preferred embodiments of the present application, which are not intended to limit the protection scope of the present application. Therefore, all equivalent changes made according to the structure, shape and principle of the present application should be covered within the protection scope of the present application.

WHAT IS CLAIMED IS:

1. A method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley, characterized in that, the method comprises:

Step 1: constructing a base (9) on two sides of an existing road, and mounting a steel rail (91) on the base (9);

Step 2: hoisting a pre-assembled walking system, adjusting a position of a connecting beam (4) such that walking wheels (7) fit to the steel rail (91), and adjusting a lifting jack (83) such that one end of the lifting jack (83) is supported on the base (9), the walking wheels (7) separate from the steel rail (91) and a connecting beam (4) is raised;

Step 3: mounting a truss system; transporting a processed arch frame (1) to a construction site, hoisting the arch frame (1), connecting vertical columns (3) to the connecting beam (4), wherein a space for the existing road is formed between adjacent vertical columns (3), adjusting the lifting jack (83) and a hydro-cylinder (62) to adjust the arch frame (1) and a turn-over section (2) to a design elevation; mounting subsequent arch frames (1) successively by repeating the above processes; and connecting connecting rods between adjacent arch frames (1) after mounting and adjusting the arch frames (1);

Step 4: mounting a base mold to an arch crown (11); binding reinforcements; mounting a side mold; pouring concrete; curing; lowering the arch frame by the lifting jack (83) and the hydro-cylinder (62) after the concrete reaching a design strength; detaching the base mold; then further adjusting the lifting jack (83) until the walking wheels (7) contacts the steel rail (91), and moving the trolley.

2. The method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley according to claim 1, characterized in that, each arch frame (1) is divided into two sections, two sections of the arch frame (1) are bolted, one section of the arch frame (1) is hoisted and mounted firstly, and then the other section of the arch frame (1) is hoisted and mounted, and two sections of the arch frame (1) are connected.

3. The method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley according to claim 1, characterized in that, the sound barrier is positioned inside a gantry.

4. The method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley according to claim 1, characterized in that, further comprising: processing the arch frame (1), wherein processing the arch frame (1) comprises: connecting a transverse beam (12) under the arch crown (11), wherein two ends of the transverse beam (12) are respectively fixed to the arch crown (11); fixing vertical rods (13) and diagonal rods (14) between the arch crown (11) and the transverse beam (12) successively; fixing the vertical rods (13) to the transverse beam (12) or the arch crown (11), and then connecting diagonal braces (16) between the vertical column (3) and the transverse beam (12).

5. The method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley according to claim 1, characterized in that, the walking system comprises a connecting beam (4), walking wheels (7) and a lifting jack (83) that are mounted beneath the connecting beam (4).

6. The method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley according to claim 5, characterized in that, a driving motor is mounted on the connecting beam (4), and the driving motor is in a transmission connection with the walking wheels (7).

7. The method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley according to claim 1, characterized in that, further comprising arranging footboard on the connecting rods after mounting the connecting rods.

8. The method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley according to claim 1, characterized in that, the truss system comprises arch frames (1), a connecting assembly (5) for connecting adjacent arch frames (1), and turn-over sections (2) hinged on two ends of the arch frame (1) respectively, wherein at least two vertical

columns (3) are fixed on bottom of the arch frame (1), and a hydro-cylinder (62) is connected between the vertical columns (3) and the turn-over sections (2).

9. The method for constructing a large-span thin-walled concrete sound barrier with a pouring trolley according to claim 8, characterized in that, the arch frame (1) comprises an arch crown (11), a transverse beam (12) that is arranged under the arch crown (11), and a vertical rod (13) and a diagonal rod (14) that are fixed between the arch crown (11) and the transverse beam (12), wherein two ends of the transverse beam (12) are fixed to the arch crown (11), and two ends of the arch crown (11) are hinged with two turn-over sections (2) respectively.

1.Bauverfahren eines Gießwagens zur Herstellung einer dünnwandigen Betonschallschutzwand mit großer Spannweite, dadurch gekennzeichnet, dass es die folgenden Schritte umfasst:

Schritt 1: Errichten von Fundamenten (9) auf beiden Seiten der bestehenden Trasse und Anbringen von Schienen (91) auf den Fundamenten (9);

Schritt 2: Anheben des vormontierten Laufsystem, wobei die Position des Verbindungsträgers (4) so eingestellt wird, dass die Laufräder (7) an Schienen (91) anpassen; Einstellen des Wagenhebers (83), Abstützen eines Ende des Wagenhebers (83) auf dem Fundament (9), so dass die Laufräder (7) von den Schienen (91) trennen und der Verbindungsbalken (4) abstützen.

Schritt 3: Montieren des Traversensystems: Transportieren des bearbeiteten Bogens (1) zur Baustelle, Anheben des Bogens (1) und Verbinden der Stutzen (3) und der Verbindungsträgers (4) sowie Ausbilden des vorhandenen Linienraums zwischen den benachbarten Stutzen (3); Einstellen des Wagenhebers (83) und des Zylinders (62), um den Bogen (1) und den Umsturzabschnitt (2) auf die Entwurfshöhe einzustellen, Wiederholen des obigen Vorgangs zum Montieren der nachfolgenden Bögen (1); Verbinden der Verbindungsstangen zwischen benachbarten Bögen (1), nachdem die Montage und Einstellung des Bogens (1) abgeschlossen ist;

Schritt 4: Anbringen der unteren Form, Verankern der Bewehrung und Anbringen der seitlichen Formen auf dem oberen Bogen (11), dann Gießen und Aufrechterhalten des Betons; wenn die Bemessungsfestigkeit des Betons erreicht ist, Absenken der Höhe des Bogens (1) mit Hilfe des Wagenhebers (83) und des Zylinders (62), Entfernen der unteren Form und dann Einstellen der Höhe des Hebers (83), so dass die Laufräder (7) die Schienen (91) berühren und den Wagen bewegen.

2.Bauverfahren eines Gießwagens zur Herstellung einer dünnwandigen Betonschallschutzwand mit großer Spannweite nach Anspruch 1, dadurch gekennzeichnet, dass jeden Bogen (1) in zwei Abschnitte geteilt wird, wobei die beiden Abschnitte (1) miteinander verschraubt wird, wobei zuerst einen der Abschnitte (1) und dann der andere Abschnitt (1) anhebt wird, wobei dann die Verbindung der beiden

Abschnitte (1) abschließt wird.

3. Bauverfahren eines Gießwagens zur Herstellung einer dünnwandigen Betonschallschutzwand mit großer Spannweite, dadurch gekennzeichnet, dass die Schallschutzwand im Portal angeordnet ist.

4. Bauverfahren eines Gießwagens zur Herstellung einer dünnwandigen Betonschallschutzwand mit großer Spannweite nach Anspruch 1, dadurch gekennzeichnet, dass Bearbeitung des Bogens (1): Verbinden des Querträgers (12) unterhalb des oberen Bogens (11); verbunden und Fixieren der beiden Enden des Querträgers (12) mit dem oberen Bogen (11); Verbindung und Fixieren des Vertikalstabs (13) und des Diagonalstabs (14) zwischen dem oberen Bogen (11) und dem Querträger (12) der Reihe nach; Verbindung des Stutzens (3) und des Querträgers (12) oder des oberen Bogens (11), dann Verbinden der Diagonalstreben (16) zwischen dem Stutzen (3) und dem Querträger (12) .

5. Bauverfahren eines Gießwagens zur Herstellung einer dünnwandigen Betonschallschutzwand mit großer Spannweite nach Anspruch 1, dadurch gekennzeichnet, dass das Laufsystem den Verbindungsträger (4), die an der Unterseite des Verbindungsträgers (4) montierten Laufräder (7) und den Wagenheber (83) umfasst.

6. Bauverfahren eines Gießwagens zur Herstellung einer dünnwandigen Betonschallschutzwand mit großer Spannweite nach Anspruch 5, dadurch gekennzeichnet, dass auf dem Verbindungsträger (4) ein Antriebsmotor montiert ist, der mit den Laufrädern (7) verbunden ist.

7. Bauverfahren eines Gießwagens zur Herstellung einer dünnwandigen Betonschallschutzwand mit großer Spannweite nach Anspruch 1, dadurch gekennzeichnet, dass nach dem Einbau der Verbindungsstangen eine Trittflächen auf die Verbindungsstangen aufgelegt wird.

8. Bauverfahren eines Gießwagens zur Herstellung einer dünnwandigen Betonschallschutzwand mit großer Spannweite nach Anspruch 1, dadurch gekennzeichnet, dass Das Traversensystem einen Bogen (1), eine Verbindungseinheit (5), die benachbarte Bögen (1) verbindet, und einen Umsturzabschnitt (2), der an beiden

Enden des Bogens (1) angelenkt ist, umfasst, wobei der Bogen (1) mindestens zwei am Boden befestigte Stutzen(3) aufweist und die Stutzen (3) und der Umsturzabschnitt (2) mit einem Ölzylinder (62) verbunden sind.

9. Bauverfahren eines Gießwagens zur Herstellung einer dünnwandigen Betonschallschutzwand mit großer Spannweite nach Anspruch 8, dadurch gekennzeichnet, dass der Bogen (1) einen oberen Bogen (11), einen Querträger (12), der unterhalb des oberen Bogens (11) angeordnet und an jedem Ende fest mit dem oberen Bogen (11) verbunden ist, sowie ein Vertikalstab (13) und ein Diagonalstab (14), die zwischen dem oberen Bogen (11) und dem Querträger (12) befestigt sind, umfasst, wobei der obere Bogen (11) an jedem Ende an dem Umsturzabschnitt (2) angelenkt ist.

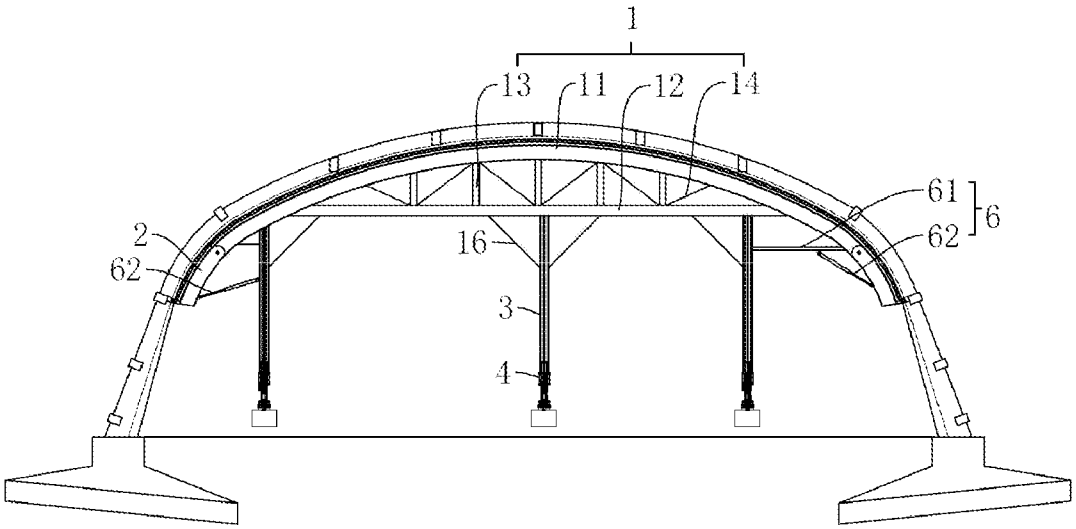

FIG. 1

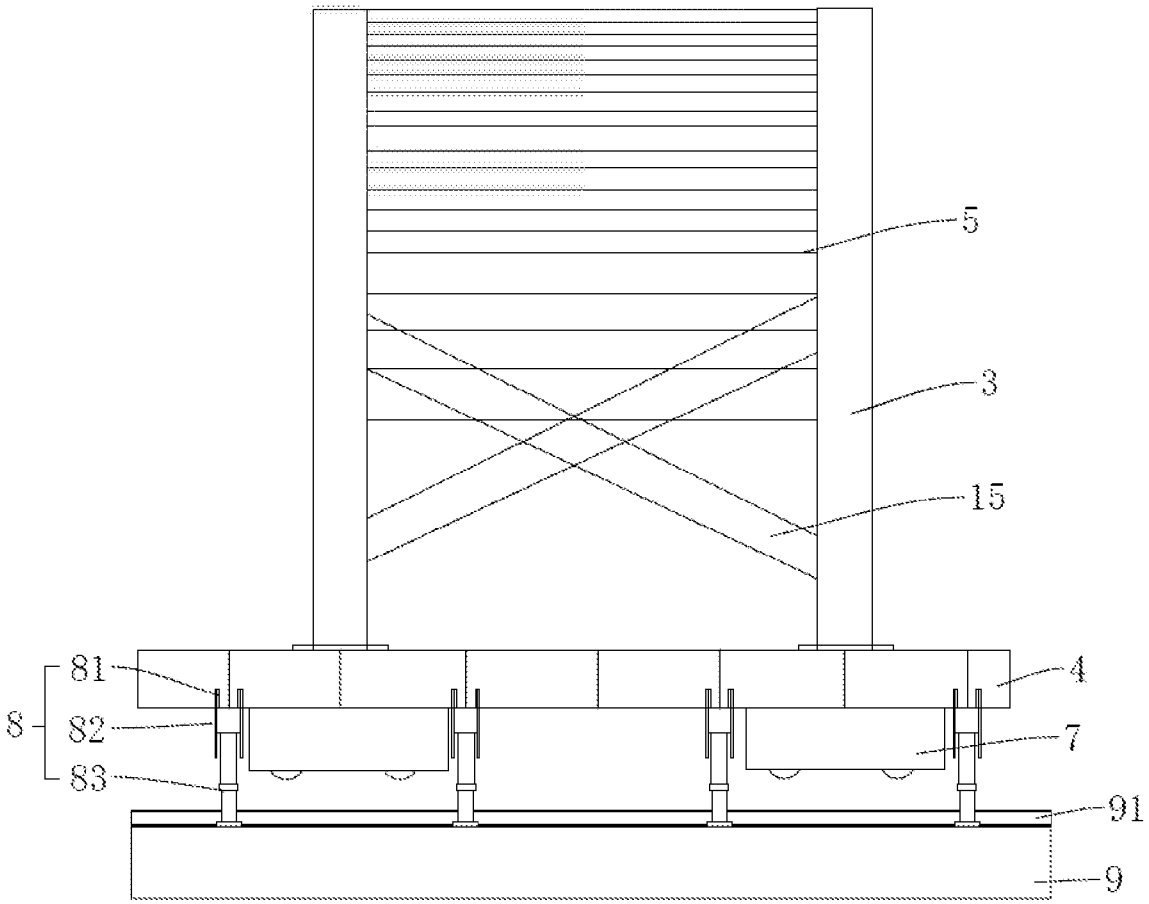

FIG. 2

TRANSLATION

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2021/102140

A. CLASSIFICATION OF SUBJECT MATTER

E01F 8/00(2006.01)i; E01D 2/00(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

E01F,E01D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNABS, CNTXT, CNKI, VEN: 中铁, 声屏, 台车, 模架, 支架, 支模, 模板, 底模, 走行, 行走, 轮, 轨, 移动, 拱架, 拱圈, 拱涵, 拱桥, 桁架, CHINA RAILWAY, sound 3d barrier, pour+ trolley, rail+, travel+, truss+, wheel+, jack, arch+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 112726442 A (BEIJING RAILWAY CONSTRUCTION CO., LTD. OF CHINA RAILWAY SIXTH GROUP et al.) 30 April 2021 (2021-04-30) claims 1-9	1-9
PX	CN 112709162 A (BEIJING RAILWAY CONSTRUCTION CO., LTD. OF CHINA RAILWAY SIXTH GROUP et al.) 27 April 2021 (2021-04-27) description, paragraphs 5-41 and figures 1-2	1-9
Y	CN 110130230 A (CHINA RAILWAY NO.2 GROUP CO., LTD. et al.) 16 August 2019 (2019-08-16) description, paragraphs 35-83 and figures 1-4	1-9
Y	CN 110410109 A (GUANGXI ROAD CONSTRUCTION ENGINEERING GROUP CO., LTD.) 05 November 2019 (2019-11-05) description, paragraphs 23-27 and figures 1-5	1-9
A	CN 1137086 A (GEORGE R UNDERHILL) 04 December 1996 (1996-12-04) entire document	1-9
A	CN 106758903 A (CHINA RAILWAY SIYUAN SURVEY AND DESIGN GROUP CO., LTD.) 31 May 2017 (2017-05-31) entire document	1-9

☑ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
17 September 2021	**24 September 2021**
Name and mailing address of the ISA/CN **China National Intellectual Property Administration (ISA/CN)** **No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China** Facsimile No. **(86-10)62019451**	Authorized officer Telephone No.

TRANSLATION

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2021/102140

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	CN 110593136 A (CHINA RAILWAY 7TH BUREAU GROUP CO., LTD. et al.) 20 December 2019 (2019-12-20) entire document	1-9
A	CN 202899051 U (CHINA RAILWAY ENGINEERING DESIGN AND CONSULTING GROUP CO., LTD.) 24 April 2013 (2013-04-24) entire document	1-9
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A	JP 2019058645 A (NEGISHI MASAMITSU) 18 April 2019 (2019-04-18) entire document	1-9
A	US 5218805 A (SUPERIOR PRECAST INC) 15 June 1993 (1993-06-15) entire document	1-9
A	US 2019211518 A1 (SUPERIOR TRANSPARENT NOISE BARRIERS LLC) 11 July 2019 (2019-07-11) entire document	1-9

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INTERNATIONAL SEARCH REPORT
Information on patent family members

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