

STATIC PILE DRIVER

BACKGROUND

Technical Field

5 The present invention relates to a pile driver, and more particularly to a static pile driver.

Related Art

10 Upon completion of construction, to avoid overheight cargo during transition and transportation, members such as a pile cylinder, a beam on a pile platform, and a pile clamping box of an existing static pile driver usually need to be disassembled for loading and transportation, which are then reassembled upon arrival at a next site. These operations need to be repeated for each transition, and in this way, repeated disassembly and assembly not only increase the time of transition, but also increase workload of operators.

SUMMARY

15 Technical Problem

A technical problem to be solved by the present invention is to provide a static pile driver which shortens the time of transition and lowers workload.

Solution to the Problem

Technical Solution

20 To solve the foregoing technical problem, a static pile driver provided in the present invention includes a machine body, a pile cylinder, and pile platform beams, where four uprights perpendicular to the machine body are provided on the machine body, two ends of the pile platform beams are respectively disposed on the four uprights in a sliding manner, and the pile platform beams and upper ends of the uprights are connected through
25 detachable positioning shafts.

Tracks are provided on the uprights, and the pile platform beams slide on the tracks.

The upper ends of the uprights are provided with positioning wedges.

A connecting beam support is provided at the bottom of the uprights.

By use of the static pile driver in the foregoing technical solution, prior to transition of the static pile driver, pile platform beams, and detachable positioning shafts of uprights are first taken out, a pile cylinder is contracted to drive the pile platform beams to move downwards on tracks of the uprights by means of the weight of the pile platform beams, the pile cylinder, and a pile clamping box, until the pile platform beams slide down to an upper plane of a machine body, and at this time, a lower plane of the pile clamping box is supported by a connecting beam support at the bottom of the uprights; upon arrival at a site, the pile cylinder is extended, the pile platform beams move upwards along the tracks of the uprights along with extension of the pile cylinder, when mounting holes on the beams are concentric with mounting holes on the uprights, the pile platform beams are prevented from exceeding the height of the uprights through positioning of the wedges, and finally, the detachable positioning shafts are mounted.

Beneficial Effects of the Present Invention

Beneficial Effects

To sum up, in the present invention, pile platform beams slide up and down to reduce space and height occupied by a machine during transportation, so as to achieve the purpose of avoiding disassembly of a pile cylinder, beams, and a pile clamping box, thereby achieving transportation of an entire machine, shortening the time of transition, reducing workload, and improving economic benefits.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a schematic structural diagram during transportation according to the present invention;

FIG. 2 is a schematic front view of a partial structure of a pile platform according to the present invention; and

FIG. 3 is a schematic left view of a partial structure of a pile platform according to the

present invention.

Description about reference numerals: pile cylinder 1, upright 2, beams 3, track 4, wedge 5, pile clamping box 6, connecting beam support 7, machine body 8, detachable positioning shaft 9.

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DETAILED DESCRIPTION

Embodiments of the Present Invention

The present invention is further described below in detail with reference to the accompanying drawing and specific embodiments.

Referring to FIG. 1, FIG. 2 and FIG. 3, four uprights 2 perpendicular to a machine
10 body 8 are provided on the machine body 8, a connecting beam support 7 is provided at the bottom of the uprights 2, 2 tracks 4 are provided on the uprights, two ends of pile platform beams 3 are respectively disposed on the four uprights 2 in a sliding manner, the pile platform beams 3 slide on the tracks 4, the upper ends of the uprights 2 are provided with positioning wedges 5, the body of the pile cylinder 1 is mounted on the pile platform beams
15 3, a piston rod of the pile cylinder 1 is connected to a pile clamping box 6, beam mounting holes are provided on the pile platform beams 3, mounting holes are provided at the upper ends of the uprights 2, and the beam mounting holes on the pile platform beams 3 and the mounting holes at the upper ends of the uprights 2 are detachably connected through detachable positioning shafts 9.

20 Referring to FIG. 1, FIG. 2, and FIG. 3, the four uprights 2 are perpendicular to the machine body 8 and are welded to the machine body 8, two covers fitting the profile of the uprights 2 are respectively designed on two pile platform beams 3, when the pile platform beams 3 and the uprights 2 are connected, the two pile platform beams 3 need to be parallel to each other as well as perpendicular to the uprights 2, and are symmetric with each other
25 on a central plane of the four uprights, and a corresponding fit clearance is provided between each cover and the uprights 2, so as to achieve that the pile platform beams 3 do not get jammed when sliding on the tracks 4 of the uprights 2. During transition and transportation, the pile cylinder 1 may slide down along the tracks 4 along with the pile

platform beams 3, until the pile platform beams 3 slide to an upper plane of the machine body 8, so as to reduce the transportation height of the entire machine. The uprights 2 are provided with tracks 4, so as to ensure that the pile platform beams 3 slide smoothly on the uprights 2. A connecting beam support 7 is provided at the bottom of the uprights 2, which, firstly, ensures firm connections of the uprights 2, and secondly, facilitates support for the pile clamping box 6.

Referring to FIG. 1, FIG. 2 and FIG. 3, the pile platform beams 3 are sheathed over the uprights 2, upon removal of the detachable positioning shafts 9, the pile cylinder 1 is contracted to drive the pile platform beams 3 to move downwards along the tracks 4 by means of the weight of the pile platform beams 3, the pile cylinder 1, and the pile clamping box 6, until the pile platform beams 3 slide down to an upper plane of the machine body 8, and a lower plane of the pile clamping box 6 is supported by the connecting beam support 7; when the pile cylinder 1 is extended, the pile platform beams 3 move upwards along the tracks 4 of the uprights along with extension of the pile cylinder 1 and are positioned through positioning wedges 5, so as to ensure that mounting holes of the pile platform beams 3 are concentric with mounting holes of the uprights 2, and finally, the detachable positioning shafts 9 are inserted into the mounting holes of the pile platform beams 3 and the mounting holes of the uprights 2, to mount the pile platform beams 3 at the upper ends of the uprights 2.

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CLAIMS

1. A static pile driver, comprising a machine body (8), a pile cylinder (1), and pile platform beams (3), wherein four uprights (2) perpendicular to the machine body (8) are provided on the machine body (8), two ends of the pile platform beams (3) are respectively disposed on the four uprights (2) in a sliding manner, and the pile platform beams (3) and upper ends of the uprights (2) are connected through detachable positioning shafts (9).
2. The static pile driver according to claim 1, wherein tracks (4) are provided on the uprights (2), and the pile platform beams (3) slide on the tracks (4).
3. The static pile driver according to claim 1 or 2, wherein the upper ends of the uprights (2) are provided with positioning wedges (5).
4. The static pile driver according to claim 1 or 2, wherein a connecting beam support (7) is provided at the bottom of the uprights (2).