DESCRIPTION

Title of Invention

WORK VEHICLE INCLUDING SUSPENDED PLATFORM

Technical Field

[0001] The present disclosure relates to a work vehicle including a suspended platform. More particularly, the present disclosure relates to a work vehicle with a suspended platform that travels to a structure such as a road bridge for inspection or maintenance of the entire wall surfaces of bridge piers.

Background Art

[0002] In the construction or maintenance of structures such as buildings, vessels, power plants, tanks, smokestacks, and bridges, suspended platforms including work cages have been used for safe and efficient high-rise operations on the wall surfaces. A suspended platform is installed on a rooftop, and has a work cage carrying an operator, which is suspended from the rooftop with lanyards such as wires.

The work cage of the suspended platform carries an operator who performs an operation on the wall surfaces while being lowered from the rooftop by changing the positions of the lanyards wound around the sheaves of endless winders (refer to, for example, Patent Literature 1).

[0003] For inspection or maintenance of road bridges or other structures, boom lift vehicles (bridge inspection vehicles) are used. A boom lift vehicle includes an arm mechanism and a work cage installed at the distal end of the arm mechanism, and moves the distal end of the arm mechanism to an intended position in combination with a rotating mechanism, an extension mechanism, and a derricking mechanism installed on the vehicle.

For example, an operator in the work cage of the boom lift vehicle moves the distal end of the arm mechanism to a work position from above the road to allow the operator in

CLAIMS

1. A work vehicle including a suspended platform, the work vehicle comprising:

a work cage configured to carry an operator;

an arm mechanism having a distal end, the distal end being movable to an intended position by at least one of a rotating mechanism, an extension mechanism, or a derricking mechanism that are installed on a vehicle body; and

the suspended platform comprising

a support post located at the distal end of the arm mechanism and extending vertically,

a suspension frame from which the work cage is suspended, the suspension frame being mounted on an upper end of the support post, being located outside the work cage, and allowing the operator to perform an operation on a portion above the upper end of the support post, and

a lift mechanism configured to raise or lower the work cage to a work position, the work cage being suspended from the suspension frame with a plurality of lanyards,

wherein the arm mechanism comprises an operation panel that is operable from the work cage at an uppermost stop position and inoperable from the work cage at a raised or lowered position.

2. A work vehicle including a suspended platform, the work vehicle comprising:

a work cage configured to carry an operator;

an arm mechanism having a distal end, the distal end being movable to an intended position by at least one of a rotating mechanism, an extension mechanism, or a derricking mechanism that are installed on a vehicle body;

the suspended platform comprising

a support post located at the distal end of the arm mechanism and extending vertically,

a suspension frame from which the work cage is suspended, the suspension frame being mounted on an upper end of the support post, being located outside the work cage, and allowing the operator to perform an operation on a portion above the upper end of the support post, and

a lift mechanism configured to raise or lower the work cage to a work position, the work cage being suspended from the suspension frame with a plurality of lanyards;

a fastening mechanism located between the work cage and the suspension frame to fasten the work cage at an uppermost stop position; and

a load detector installed in the suspension frame to detect a fastened state of the work cage at the uppermost stop position based on a load on at least one of the lanyards.

3. A work vehicle including a suspended platform, the work vehicle comprising:

a work cage configured to carry an operator;

an arm mechanism having a distal end, the distal end being movable to an intended position by at least one of a rotating mechanism, an extension mechanism, or a derricking mechanism that are installed on a vehicle body; and

the suspended platform comprising

a support post located at the distal end of the arm mechanism and extending vertically,

a suspension frame from which the work cage is suspended, the suspension frame being mounted on an upper end of the support post, being located outside

the work cage, and allowing the operator to perform an operation on a portion above the upper end of the support post, and

a lift mechanism configured to raise or lower the work cage to a work position, the work cage being suspended from the suspension frame with a plurality of lanyards,

wherein

the lift mechanism in the suspended platform is driven by a battery mounted on the work cage, and

the work cage has the battery rechargeable at an uppermost stop position with power from an external power supply.

4. The work vehicle according to any one of claims 1 to 3, wherein the support post comprises a rotating post configured to rotate about a vertical axis.

5. The work vehicle according to claim 2 or 3, wherein the arm mechanism includes an operation panel that is operable from the work cage at the uppermost stop position and inoperable from the work cage at a raised or lowered position.

6. The work vehicle according to claim 1 or 3, further comprising:

a fastening mechanism located between the work cage and the suspension frame to fasten the work cage at the uppermost stop position; and

a load detector installed in the suspension frame to detect a fastened state of the work cage at the uppermost stop position based on a load on at least one of the lanyards.

7. The work vehicle according to claim 1 or 2, wherein

the lift mechanism in the suspended platform is driven by a battery mounted on the work cage, and

the work cage has the battery rechargeable at an uppermost stop position with power from an external power supply.