

DESCRIPTION

EQUIPMENT FOR MOVING PEOPLE IN HEIGHT IN NON HORIZONTAL
SURFACES WITH VERTICAL AND HORIZONTAL TRANSLATION

Field of the Invention

The present invention relates to equipment intended to moving people in height in non horizontal surfaces, allowing their translation vertically and horizontally.

Background of the Invention

Many types of equipment are known in the art intended to allowing the displacement of people and / or cargo in height in non horizontal surfaces. Example of this equipment is disclosed in Japanese Patent No. JP2000318986 that allows the displacement of people and/or cargo in moving platforms. Or as in U.S. Patent No. KR20100085204 which discloses an apparatus that allows the displacement of a cage for transporting people and/or cargo, through a system of ropes and pulleys.

There are other devices that, allowing the displacement of people without the need of transport cages or moving platforms, are only able to make it vertically, requiring that the horizontal positioning be effected by manual adjustments, such as the disclosed in U.S. Patent No. US5072840 wherein an engine performs the vertical translation, but the horizontal translation is performed manually. Or the case of U.S. Patent No. US2004055824 that discloses equipment for the vertical movement in facades. Or the U.S. Patent No. US5762282 that discloses a fixed

equipment that is remotely controlled, and allows the vertical displacement of people.

Advantages of the invention

The present invention relates to an equipment intended to moving people in height in non horizontal surfaces, allowing their translation vertically and horizontally.

It is an equipment that, by incorporating the concepts that are part of the previously described patents, has the advantage of allowing that, in a single machine, it is possible to safely perform the vertical and the horizontal displacement, simultaneously or separately, avoiding the use of moving platforms, chairs or transport cages, allowing that the operator does not have to leave the machine to perform its repositioning, or the need to have other people to do so.

It is, additionally, an equipment that when operated by remote control, prevents the existence of cables near the operator, which typically disturbs his or her work. And, since it is controlled by the operator, allows the same to, at any time, decide on the best position to carry out his or her work, not needing any help to do so.

Being a device that does not require the installation of permanent and complex structures, it becomes easy to move it to where it is needed.

Brief description of the drawings

Figures 1, 2, 3, 4 and 5 are, respectively, the perspective

view, the front view, the rear view, the right side view and the left side view of the apparatus of the invention.

In these figures the various components comprising the device of the invention are depicted: a runner with an engaging and fastening system (1), an engine for the horizontal displacement (2), an engine for the vertical displacement (3), harness suspension cable of the operator (4) and a housing (5) in which the equipment permitting the vertical displacement is installed, in particular the drum (6) for the winding / unwinding of the suspension cable of the harness of the operator, the electric brake (8) and the support system (10) for the winding / unwinding of the suspension cable of the harness of the operator, as well as the emergency device for the controlled descent (7).

Detailed Description of the Invention

The present invention relates to equipment intended to moving people in height in non-horizontal surfaces, allowing their translation vertically and horizontally.

By the below designated "suspension cable" is intended any type of equipment required to achieve the proposed objective, namely cables, chains, ropes, or the like.

The operator properly placed on the harness carriage, which in turn, through a coupling system, is placed in the suspension cable of the harness of the operator (4). Through the remote control that he or she is holding, the operator can start the engine (3) that allows its vertical displacement, or if the horizontal movement is intended, start the engine (2). If a problem occurs with the engine (3) of the vertical displacement, or with the suspension

cable of the harness of the operator (4), the existence of an emergency device for the controlled descent (7), enables the descent of the operator to the ground, without needing any outside help.

The suspension cable of the harness of the operator (4) is an equipment manufactured in any material suitable for the purpose, depending its choice on the efforts that it may be subject to, namely steel cable, chain or cable of natural or synthetic fibers.

All this equipment is suspended on a runner (1) which, on the other hand is fixed, through fixing systems, on the top of the surface on which the operator intends to move. The vertical displacement system is equipped with several devices already on the market, such as an engine (3) that sets the drum (6) in motion, from which the cable harness suspension of the operator (4) is wound/unwound, and allows for the ascent/descent of the operator, an electric brake (8) which allows the stop in the event of power failure, a support system (10) to the winding/unwinding of the suspension cable harness of the operator, a cable tensioning on the drum which prevents the accidental unwinding, a centrifugal brake for enabling the descent without resorting to energy, a sensor of the end of the runner at the top through a waffle in the suspension cable and a system for detecting the excess load through a spring system and a micro switch.

The horizontal displacement system, whose left/right movement is effected (1) with an engagement and fixing system applied at the top of the surface, being equipped with an engine (2) with an endless gear engine, a system that detects the presence of the runner, mechanical stops

at the top of the runners and a system for the winding/unwinding of the cord.

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CLAIMS

1. Equipment for moving people in height in non horizontal surfaces with vertical translation and horizontal translation and provided with a runner and an engagement and fixing system (1), an engine for the vertical displacement (3), physical mechanical stops on top of the runners, an engine for the horizontal displacement (2), a suspension cable of the operator of the harness (4), a drum (6) for the winding/unwinding of the suspension cable of the operator of the harness, electric brake (8), support system (10) to the winding/unwinding of the suspension cable of the operator of the harness and a sensor of the end of the course at the top, characterized by being composed of an endless gear engine, a system sensing the presence of the groove, a system for the winding/unwinding of the power cord, a cable tensioning device in the drum to prevent the accidental unwinding, a centrifugal brake and an overload detection system.

2. Equipment for moving people in height in non horizontal surfaces with vertical and horizontal translation according to the preceding claim, characterized by having an emergency device to enables the controlled descent (7).

3. Equipment for moving people in height in non horizontal surfaces with vertical and horizontal translation according to the preceding claims, characterized by the suspension cable of the harness of the operator (4) being namely a steel cable, a chain, a cable of natural or synthetic fibers.