SUMMARY

~~In general, according to one embodiment,~~ Herein disclosed is an elevator which includes a drive device configured to drive a traction machine on power supplied from a commercial power source, a battery device configured to store power generated during a regenerative drive and supply the stored power to the drive device during a power drive and a control device connected to the commercial power device and the battery device, the control device configured to be disconnected from the commercial power source during a regular drive and control operation of the elevator using power supplied from the battery device.

According to one aspect, there is provided an elevator comprising a drive device configured to drive a traction machine on power supplied from a commercial power source; a battery device configured to store power generated during a regenerative drive and supply the stored power to the drive device during a power drive; a control device connected to the commercial power device and the battery device, the control device configured to be disconnected from the commercial power source during a regular drive and control operation of the elevator using power supplied from the battery device; a first switch provided in a first power supply line between the commercial power source and the control device; a second switch provided in a second power supply line between the commercial power source and the drive device; a third switch provided in a third power supply line between the drive device and the battery device; and a fourth switch provided in a fourth power supply line between the battery device and the control device; wherein the control device is configured to: during the regular drive, turn on the first switch to connect to the commercial power source; turn on, while being connected to the commercial power source, the second switch and the third switch to

connect the commercial power source and the battery device to the drive device; turn on the fourth switch to connect the control device to the battery device; and thereafter, turn off the first switch, to separate the control device from the commercial power source, thereby controlling the operation of the elevator using the power supplied from the battery device.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a diagram showing a structure of a hybrid-drive elevator according to an embodiment;

FIG. 2 is a flowchart illustrating a power supply operation during a regular operation of the elevator in the embodiment;

FIG. 3 is a diagram illustrating the states of SW1 to SW4 and the flow of power during the regular operation of the elevator in the embodiment;

FIG. 4 is a flowchart illustrating a power supply operation during parking of the elevator in the embodiment; and

FIG. 5 is a diagram illustrating the states of SW1 to SW4 and the flow of power during the parking of the elevator in the embodiment.

DETAILED DESCRIPTION

Embodiments will now be described with reference to drawings.

FIG. 1 is a diagram showing a structure of a hybrid-drive elevator according to an embodiment.

This elevator comprises a drive device 10, a battery device 20 and an elevator control device 30. The drive device 10 comprises a converter 11, a smoothing capacitor 12 and an inverter 13, and is

WHAT IS CLAIMED IS:

1. An elevator comprising:

a drive device configured to drive a traction machine on power supplied from a commercial power source;

a battery device configured to store power generated during a regenerative drive and supply the stored power to the drive device during a power drive; ~~and~~

a control device connected to the commercial power device and the battery device, the control device configured to be disconnected from the commercial power source during a regular drive and control operation of the elevator using power supplied from the battery device~~.~~;

a first switch provided in a first power supply line between the commercial power source and the control device;

a second switch provided in a second power supply line between the commercial power source and the drive device;

a third switch provided in a third power supply line between the drive device and the battery device; and

a fourth switch provided in a fourth power supply line between the battery device and the control device;

wherein the control device is configured to: during the regular drive, turn on the first switch to connect to the commercial power source; turn on, while being connected to the commercial power source, the second switch and the third switch to connect the commercial power source and the battery device to the drive device; turn on the fourth switch to connect the control device to the battery device; and thereafter, turn off the first switch, to separate the control device from the commercial power source, thereby controlling the operation of the elevator using the

power supplied from the battery device.

2. The elevator of Claim 1, wherein the control device is configured to charge the battery device with the power supplied from the commercial power device during parking.

~~3. The elevator of Claim 1, further comprising:~~

~~a first switch provided in a first power supply line between the commercial power source and the control device;~~

~~a second switch provided in a second power supply line between the commercial power source and the drive device;~~

~~a third switch provided in a third power supply line between the drive device and the battery device;~~ and

~~a fourth switch provided in a fourth power supply line between the battery device and the drive device;~~

~~wherein the control device is configured to: during the regular drive, turns on the first switch to connect to the commercial power source; turns on, while being connected to the commercial power source, the second switch and the third switch to connect the commercial power source and the battery device to the~~

~~drive device; turns on the fourth switch to connect the control device to the battery device; and thereafter, turns off the first switch, to separate the control device from the commercial power source, thereby controlling the operation of the elevator using the power supplied from the battery device.~~

~~4~~3. The elevator of Claim ~~3~~1, wherein the control device is configured to: during the parking, turn~~s~~ off the second switch and the third switch to disconnect the commercial power source and the battery device from the drive device; thereafter, turn~~s~~ on the first switch to connect to the commercial power source, thereby charging the battery device with the power supplied from the commercial power source.

~~5~~4. The elevator of Claim 1, wherein the control device comprises a transformer on a primary side thereof, configured to receive two different types of voltages, one terminal of the primary side being connected to the commercial power source, and an other being connected to the battery device.

~~6~~5. The elevator of Claim ~~5~~4, wherein a voltage of the battery device input to the transformer is set lower than that of the commercial power source.