Claims

1. An unlocking device, wherein the unlocking device comprises:

a guide rail;

a movable seat mounted on the guide rail;

an unlocking ejector rod vertically mounted on the movable seat; and

a driving member to drive the movable seat to move horizontally along a plane of the guide rail;

the unlocking device includes a fixing cylinder fixed vertically on the movable seat, and the unlocking ejector rod is movably mounted inside of the fixing cylinder, and a second spring is provided in the fixing cylinder, the second spring is configured to apply an upward thrust to the unlocking ejector rod.

2. The unlocking device of claim 1, wherein the unlocking device includes a returning device, and the returning device includes a stretchable elastic member mounted on a side of the movable seat opposite to the driving member, the returning device is configured to apply a force to the movable seat to return the movable seat to a designated position.

3. The unlocking device of claim 1, wherein a strip-shaped groove extending along the axial direction of the fixing cylinder is formed on the side wall of the fixing cylinder, a limiting member snapped in the strip-shaped groove is provided on a side within the fixing cylinder of the unlocking ejector rod.

4. A battery replacing platform for replacing a battery of an electric vehicle, wherein the battery replacing platform comprises:

an upper board for carrying a replacement battery;

an unlocking device according to any one of claims 1-3, which is mounted on battery

replacing platform for unlocking the battery locking device mounted on the electric vehicle; and

a movement-driving device which is connected and mounted to the upper board by a driving output end, in order to drive the upper board to move in a horizontal direction;

wherein the unlocking device comprises a movable seat, an unlocking ejector rod mounted on the upper surface of the movable seat, and a driving member that drives the movable seat to move horizontally along a plane of the upper board.

5. The battery replacing platform of claim 4, wherein

the battery replacing platform comprises a lower board which is mounted under the upper board, the movement-driving device drives the upper board to move horizontally relative to the lower board.

6. The battery replacing platform of claim 4, wherein

the movement-driving device comprising a driving portion and a screw rod mounted on the driving output end, the pushing board is fixedly mounted to the lower surface of the upper board, the pushing board is connected to the screw rod through a threaded hole, or fixedly mounted with an nut covered on the screw rod.

7. The battery replacing platform of claim 6, wherein

the screw rod is a ball screw, and the nut is a ball nut.

8. The battery replacing platform of claim 4, wherein

the upper surface of the upper board is further provided with a bridge column for positioning and mounting the battery, wherein the bridge column has a groove with an upward opening, and the bridge column is provided with a positioning magnetic steel.

9. The battery replacing platform of claim 4, wherein

the upper surface of the upper board is further provided with a sensor for detecting whether the battery is in place or not.

10. The battery replacing platform of claim 4, wherein

a battery tray is mounted on the upper surface of the upper board, wherein a positioning rod is mounted on a lower surface of the battery tray, wherein a spring fixing seat is mounted on the upper surface of the upper board, wherein the positioning rod is matched and mounted with the spring fixing seat on the upper surface of the upper board.

11. The battery replacing platform of claim 10, wherein

the upper surface of the battery tray has a plurality of guide boards having grooves with upward openings for mounting and fixing the battery.

12. The battery replacing platform of any one of claims 4-11, wherein

the movement-driving device is mounted to a lower surface of the lower board by a fixing seat, and a driving output end of the movement-driving device is connected with an pushing board, wherein the pushing board passes through a mounting hole of the lower board and is fixed to the lower surface of the upper board.

13. The battery replacing platform of claim 12, wherein

a sliding device is mounted between the upper board and the lower board, wherein the sliding device includes a sliding rail fixed to an upper surface of the lower plate and a slider fixed to the lower surface of the upper board, wherein the slider is engaged with the sliding rail.

14. The battery replacing platform of claim 13, wherein

a receiving groove protruding upwardly is disposed at a position of the upper board which is corresponding to the sliding rail, wherein the slider is fixed within the receiving groove.

15. The battery replacing platform of claim 14, wherein

a sliding board is provided between the upper board and the lower board for reducing friction between the upper board and lower board.

16. A movable battery replacing platform, wherein the movable battery replacing platform comprises a lifting portion, a travel-driving portion and a battery mounting portion;

the battery mounting portion is mounted on a top of the lifting portion for placing a battery to be replaced or a replaced battery, wherein the battery mounting porting is provided with the battery replacing platform of any one of claims 4-15;

the lifting portion is mounted on the travel-driving portion for the implement of lifting the battery during replacing the battery;

the travel-driving portion is used for driving the movable battery replacing platform to move on the ground.

17. A quick replacing system, wherein the quick replacing system comprises:

a battery holder for arranging a replacement battery of the electric vehicle, and a battery to be charged which is replaced from the electric vehicle;

a palletizer for placing the battery to be charged which is replaced in the battery holder, and removing the replacement battery from the battery holder; and

the movable battery replacing platform of claim 16.