C L A I M S

1. A bed device equipped with a tilting function of tilting a floor plate body in a width direction and a back-raise function of raising the floor plate body in a longitudinal direction intersecting the width direction,

characterized by comprising:

a bed frame;

a rocking frame supported to be tiltable in the width direction by the bed frame with the floor plate body provided on an upper surface thereof;

a rocking drive source driving the rocking frame to be tilted in the width direction;

a back-raising drive source provided on the rocking frame to drive an end part side in the longitudinal direction of the floor plate body to be raised; and

a controller controlling the tilting drive of the rocking frame and the raising drive of the floor plate body, and

characterized in that

the controller controls the rocking drive source and the back-raising drive source in a manual mode in which the rocking frame can be driven only when the floor plate body is in a horizontal state and the floor plate body can be driven only when the rocking frame is in a horizontal state, and a manual operation limit mode in which if one of the rocking frame and the floor plate body is driven within a limited range the other is driven within a limited range.

2. The bed device of claim 1, characterized in that

in the manual operation limit mode, when the floor

plate body is tilted in the width direction by the rocking frame in a state in which a back floor part of the floor plate body is raised, a raising angle of the back floor part and a tilting angle of the floor plate body are set to prevent the back floor part from contacting a side fence provided at an end part in the width direction of the bed frame.

3. The bed device of claim 1 or 2, characterized by comprising:

an automatic mode of driving the floor plate body to be rocked in the width direction under a preset condition, by the rocking drive source.

4. The bed device of claim 3, characterized in that

the controller includes:

a control device;

a setting operation module connected to the control device to set driving conditions for driving the tilting drive of the rocking frame and the raising drive of the floor plate body in the manual mode, the manual operation limit mode, or the automatic mode and to set one of the modes to drive; and

a manual operation module driving the rocking frame and the floor plate body to be operated when the module is connected to the control device and when the manual mode or the manual operation limit mode is selected by the setting operation module.

5. The bed device of claim 4, characterized in that

the driving condition of the manual mode, the manual operation limit mode, or the automatic mode set by the setting operation module is stored in a switching

control unit, and the driving condition is capable of being written to a storage medium detachable from the setting operation module via the switching control unit.

6. The bed device of claim 1, characterized by further comprising:

a rocking drive unit detachably provided on the bed frame and including the rocking drive source, and characterized in that

the rocking drive unit includes a rectangular frame, and both end parts in a longitudinal direction of a pair of opposed lateral members of the frame are detachably engaged with and held by receiving units provided on a pair of opposed longitudinal members of the bed frame.

7. The bed device of claim 6, characterized in that

the rocking drive unit includes:

a rocking drive mechanism provided on the frame;

a link mechanism provided on the frame and driven by the rocking drive mechanism, and including a pair of connection links, one of the connection links moving from a downward position to an upward position and the other held at the downward position in accordance with a driving direction when driven;

a pair of attachment shafts having one-side ends pivotally attached to end parts of the pair of connection links, respectively;

a pair of first receiving rollers rotatably provided at other ends of the attachment shafts;

attachment members having both end parts in a longitudinal direction supported at middle parts of the attachment shafts, and to which the other end in the

longitudinal direction of the rocking frame is detachably connected; and

a pair of first receiving members including first recess portions provided on an upper surface of the frame to support the pair of first receiving rollers, respectively, when the pair of connection links are at the downward position, and rocking the attachment members with one of the pair of first receiving rollers serving as a fulcrum when the link mechanism is driven by the rocking drive unit.

8. The bed device of claim 7, characterized in that

a pair of second receiving rollers are provided rotatably with an axial line set to be horizontal, at both ends in the width direction, on the other end surface in the longitudinal direction of the rocking frame, and

a pair of second receiving members including second recess portions for receiving the pair of second receiving rollers when the rocking frame is in a horizontal state are provided on an upper surface of one end in the longitudinal direction of the bed frame.

9. The bed device of claim 8, characterized in that

a detection unit detecting whether the first receiving rollers or the second receiving rollers are supported in the recess portions or not is provided in the recess portions of at least either of the pair of first receiving members and second receiving members, and

a detection signal of the detection unit is output to the controller.

10. The bed device of claim 1, characterized in that

the floor plate body comprises:

a central floor plate provided on an upper surface of the rocking frame;

side floor plates disposed on both sides in a width direction of the central floor plate and having one-side ends in the width direction pivotally connected to the central floor plate by hinges; and

first receiving members provided integrally with the hinges to allow the side floor plates to pivot upward from a horizontal state with respect to the central floor plate and to prevent the side floor plates from pivoting downward from the horizontal state.

11. The bed device of claim 10, characterized in that

each of the hinges includes a first connection element attached to an upper surface of an end part in the width direction of the central floor plate, a second connection element attached to an upper surface of an end part in the width direction of the side floor plate and pivotally connected to the first connection element by a connection shaft, and the first receiving member formed integrally with the first connection element.

12. The bed device of claim 11, characterized in that

the first receiving member is formed on a first engagement member having one-side end formed integrally with the first connection element, the other end extending downward, and a distal end bent to the second connection element side, and

when the side floor plate pivots downward from an

upward state and becomes the horizontal state with respect to the central floor plate, a lower surface of one-side end in the width direction of the side floor plate is engaged with the first engagement member of the first receiving member.

13. The bed device of any one of claims 10 to 12, characterized in that

the central floor plate and the side floor plates are formed of resin and molded integrally, and upper ends in a thickness direction of, both ends in the width direction of the central floor plate and one-side ends in the width direction of the pair of side floor plates, are pivotally connected by flexible thin portions.