Claims

1. An aid device configured to assist a transfer operation of a care receiver, the aid device comprising:

a base;

an arm provided on the base in a front-rear swingable manner;

a support portion, being provided on the arm in a front-rear swingable manner, which includes a trunk support portion configured to support a front part of the care receiver’s trunk;

an actuator, having a main body portion provided on the base in a front-rear tiltable manner and a movable portion extending and contracting from the main body portion;

a linking mechanism including a first linking member provided on the arm in a swingable manner and connected to the moveable portion, a second linking member fixed to the support portion and configured to engage with the first linking member, and a restricting member fixed to the arm,

wherein the first linking member comprises:

a support point supported by the arm in a swingable manner;

a forearm portion, extending forward from the support point and connected to the movable portion, which is configured to abut a restricting member provided on the arm, and

a rear arm portion, extending rearward from the support point, which is configured to engage with the second linking member,

the linking mechanism being configured to transmit a first operation to the forward swing of the support portion, and the linking mechanism being configured to transmit a second operation to the forward swing of the arm when the first linking member abuts the restricting member, the first operation being an operation in which the movable portion extends from a contracted position to a predetermined intermediate position, while the second operation being an operation in which the movable portion extends from the intermediate position to an extended position; and

an arm restricting mechanism including a restricting guide member configured to restrict forward swinging of the arm and a biasing member configured to bias the upper position of the arm toward the movable portion, wherein the arm restricting mechanism biases the upper position of the arm toward the point of connection between the first linking member and the movable portion.

2. An aid device configured to assist a transfer operation of a care receiver, the aid device comprising:

a base;

an arm provided on the base in a front-rear swingable manner;

a support portion, being provided on the arm in a front-rear swingable manner, which includes a trunk support portion configured to support a front part of the care receiver’s trunk;

an actuator, having a main body portion provided on the base in a front-

rear tiltable manner and a movable portion extending and contracting from the main body portion;

a linking mechanism including a first linking member provided on the arm in a swingable manner and connected to the moveable portion, a second linking member fixed to the support portion and configured to engage with the first linking member, and a restricting member fixed to the arm,

wherein the first linking member comprises:

a support point supported by the arm in a swingable manner;

a forearm portion, extending forward from the support point and connected to the movable portion, which is configured to abut a restricting member provided on the arm, and

a rear arm portion, extending rearward from the support point, which is configured to engage with the second linking member,

the linking mechanism configured to transmit a first operation to the forward swing of the support portion, and the linking mechanism being configured to transmit a second operation to the forward swing of the arm when the first linking member abuts the restricting member, the first operation being an operation in which the movable portion extends from a contracted position to a predetermined intermediate position, while the second operation being an operation in which the movable portion extends from the intermediate position to an extended position; and

an arm restricting mechanism configured to restrict the forward swing of the arm with an external force other than the actuator, wherein the arm

restricting mechanism biases the upper position of the arm toward the point of connection between the first linking member and the movable portion.

3. The aid device of claim 1, wherein the arm restricting mechanism does not hinder the driving by the actuator.

4. The aid device of claims 1 or 3, wherein

the restricting guide member is provided to a predetermined position of the arm in swingable manner, which has a holding portion configured to hold a distal end of the movable portion; and

the biasing member is configured to bias an upper position toward the restricting guide member, the upper position being a position above the predetermined position of the arm.

5. The aid device of claim 4, wherein the holding portion of the restricting guide member is an elongated hole configured to accommodate the distal end of the movable portion in a movable manner.

6. The aid device of claims 1, 3 4, or 5, wherein the first linking member comprises a restricting protrusion configured to abut the restricting member when the moveable portion is extended to the predetermined intermediate position.

7. The aid device of claim 2, wherein the arm restricting mechanism does not hinder the driving by the actuator.

8. The aid device of claims 2 or 7, wherein the arm restricting mechanism comprises:

a restricting guide member, provided to a predetermined position of the arm in swingable manner, which has a holding portion configured to hold a distal end of the movable portion; and

a biasing member configured to bias an upper position toward the restricting guide member, the upper position being a position above the predetermined position of the arm.

9. The aid device of claim 8, wherein the holding portion of the restricting guide member is an elongated hole configured to accommodate the distal end of the movable portion in a movable manner.

10. The aid device of claims 2, 7, 8 or 9, wherein the first linking member comprises a restricting protrusion configured to abut the restricting member when the moveable portion is extended to the predetermined intermediate position.

11. An aid device configured to assist a transfer operation of a care receiver, the aid device comprising:

a base;

an arm provided on the base in a front-rear swingable manner;

a support portion, being provided on the arm in a front-rear swingable manner, which is configured to support a part of the care receiver's body;

an actuator, having a main body portion provided on the base in a front-rear tiltable manner and a movable portion extending and contracting from the main body portion;

a linking mechanism includes a first linking member, provided on the arm in a swingable manner and connected to the movable portion, and a second linking member, fixed to the support portion and configured to engage with the first linking member,

wherein the first linking member includes

a support point supported by the arm in a swingable manner,

a forearm portion, extending forward from the support point and connected to the movable portion, which is configured to abut a restricting member provided on the arm, and

a rear arm portion, extending rearward from the support point, which is configured to engage with the second linking member, and

wherein the linking mechanism is configured to transmit a first operation to the forward swing of the support portion, and wherein the linking mechanism is configured to transmit a second operation to the forward swing of the arm when the first linking member abuts the restricting member, the first operation being an operation in which the movable portion extends from a contracted

position to a predetermined intermediate position, while the second operation being an operation in which the movable portion extends from the intermediate position to an extended position; and

an arm restricting mechanism including a restricting guide member configured to restrict the forward swing of the arm with an external force other than the actuator and a biasing member configured to bias the upper position of the arm toward the movable portion, wherein the arm restricting mechanism biases the upper position of the arm toward the point of connection between the first linking member and the movable portion.

12. An aid device configured to assist a transfer operation of a care receiver, the aid device comprising:

a base;

an arm provided on the base in a front-rear swingable manner;

a support portion, being provided on the arm in a front-rear swingable manner, which is configured to support a part of the care receiver’s body;

an actuator, having a main body portion provided on the base in a front-rear tiltable manner and a movable portion extending and contracting from the main body portion;

a linking mechanism including a first linking member, provided on the arm in a swingable manner and connected to the movable portion, and a second linking member, fixed to the support portion and configured to engage with the first linking member,

wherein the first linking member includes:

a support point supported by the arm in a swingable manner,

a forearm portion, extending forward from the support point and connected to the movable portion, which is configured to abut a restricting member provided on the arm, and

a rear arm portion, extending rearward from the support point, which is configured to engage with the second linking member, and

wherein the linking mechanism is configured to transmit a first operation to the forward swing of the support portion,

and wherein the linking mechanism is configured to transmit a second operation to the forward swing of the arm when the first linking member abuts the restricting member, the first operation being an operation in which the movable portion extends from a contracted position to a predetermined intermediate position, while the second operation being an operation in which the movable portion extends from the intermediate position to an extended position; and

an arm restricting mechanism configured to restrict the forward swing of the arm with an external force other than the actuator, wherein the arm restricting mechanism biases the upper position of the arm toward the point of connection between the first linking member and the movable portion.