Claims

1. An assistance device to support a body of a care receiver, wherein

a base end of a pipe made of a fiber reinforced plastic is attached at an upper position in a room, and a leading end of the pipe is connected to a torso support configured to be attached to a torso of the care receiver,
wherein
if the care receiver tilts leftward or rightward, the pipe made of the fiber reinforced plastic can bend to follow the care receiver and to exert a force in a direction that effects recovery of his/her original position or posture.

2. The assistance device according to claim 1, wherein

the base end of the pipe is attached at the upper position in the room,

in a constrained state where the base end is not allowed to angularly displace in at least one direction, and is limited in a range of angular displacement in a direction in which the base end is allowed to angularly displace.

3. The assistance device according to claim 1 or 2, wherein

there are two of the pipes, and the leading ends of the pipes are connected to the torso support at the left and right of the care receiver, respectively.

4. The assistance device according to claim 3, wherein

the two pipes are used in a state of being elastically bent so as to form left and right outward convex shapes, respectively.

5. The assistance device according to any one of claims 1 to 4, wherein

the leading end of the pipe is connected to the torso support by a detachable insertion-type connector.

6. The assistance device according to any one of claims 1 to 5, wherein

the pipe has a telescopic structure having a variable length, a pull member is passed through the pipe, and the assistance device further comprises an operation mechanism configured to move the torso support by operation of the pull member.

7. The assistance device according to any one of claims 1 to 6, wherein
the torso support is provided with a sensor configured to detect an abnormal motion of the care receiver.

8. The assistance device according to claim 6, wherein
the base end of the pipe is located at a position directly above where the care receiver sits or forward of the position.

9. The assistance device according to claim 8, wherein
the base end of the pipe is located forward of the position directly above where the care receiver sits such that the pipe is inclined by 0 to 45 degrees.

10. The assistance device according to any one of claims 1 to 9, wherein
the base end of the pipe is attached to an upper support unit, and a part of or the entirety of the upper support unit is configured to horizontally move so as to move the base end of the pipe forward and backward in a range including a position directly above where the care receiver sits.

11. The assistance device according to any one of claims 1 to 10, wherein
the base end of the pipe is attached to an upper support unit, and a part of or the entirety of the upper support unit is configured to rotate so as to horizontally revolve the base end of the pipe along a circumferential path.

12. The assistance device according to any one of claims 1 to 11, configured to provide assistance for the care receiver to stand up and sit down, and transfer to and from a wheelchair with help of one healthy person.

13. The assistance device according to any one of claims 1 to 12, wherein
the pipe includes a plurality of tubes, the plurality of tubes having different diameters and being telescopically connected, a tube on the outside includes, at one end thereof, an engaging step facing inward, and a tube fitted into the tube on the outside includes, at one end thereof oriented in a reverse orientation with respect to the end having the engaging step facing inward, an engaging step facing outward.

14. The assistance device according to any one of claims 1 to 13, wherein

the pipe is made of a fiber reinforced plastic and has a layered structure including a layer of fibers extending in a length direction of the pipe and a layer of fibers extending in a circumferential direction of the pipe.

15. The assistance device according to claim 13 or 14, wherein

the outermost tube of the plurality of tubes of the pipe having different diameters is connected to the torso support, as the leading end.

16. The assistance device according to any one of claims 1 to 15, wherein

the base end of the pipe is attached to an upper support unit, and the upper support unit is detachably attached to an upper portion of a support frame configured to be self-supported on a floor of the room.

17. An apparatus comprising a support frame and an assistance device according to any one of claims 1 to 16, wherein

the support frame is configured to be self-supported on a floor of a room, and the support frame is further configured such that a base end of a pipe is detachably attached to an upper portion of the support frame.