CLAIMS:

1. A carriage device comprising:

a frame seat including an upper platform, a lower platform that is disposed below and spaced apart from said upper platform, a guide rod that interconnects said upper and lower platforms, and an adjusting mechanism that is operable to adjust a distance between said upper and lower platforms, said adjusting mechanism includes at least one follower wheel that is mounted to a bottom side of said upper platform, a cam member that is disposed on a top side of said lower platform and that is in contact with said at least one follower wheel, and an adjusting actuator that is operable to drive movement of said cam member relative to said at least one follower wheel; and

a working stage disposed on said frame seat.

2. The carriage device as claimed in claim 1, wherein said working stage includes a carrying platform, said carrying platform having a plurality of engaging seats that protrude upwardly and that are arranged in rows and columns, each of said engaging seats having at least one communication hole.

3. The carriage device as claimed in claim 2, wherein said carrying platform further has at least one conical positioning portion that is disposed on an upper surface of said carrying platform.

4. The carriage device as claimed in claim 2, wherein said carrying platform further includes a plurality of sensing components that are spaced apart from said engaging seats and that are accessible to a top side of said carrying platform.

5. The carriage device as claimed in claim 2, wherein said working stage further includes a bottom seat that is disposed on said upper platform of said frame seat, said working stage defining a chamber therein that is located below said carrying platform, said chamber having an opening that opens downwardly.

6. The carriage device as claimed in claim 1 or 2, further comprising a load-detection unit that is disposed between said working stage and said upper platform of said frame seat.

7. The carriage device as claimed in claim 2, wherein said adjusting mechanism includes two of said follower wheels that are spaced apart from each other, said cam member having two cam portions that are respectively in contact with said follower wheels, each of said cam portions having a lower cam surface, an upper cam surface that is spaced apart from said lower cam surface, and an inclined cam surface that is connected between said lower cam surface and said upper cam surface.

8. The carriage device as claimed in claim 2, wherein said at least one follower wheel includes an axle, and a plurality of bearings that are mounted to a middle portion of said axle.

9. The carriage device as claimed in claim 8, wherein said adjusting mechanism further includes at least one receiving groove that is formed at said bottom side of said upper platform for being mounted with said at least one follower wheel, said at least one receiving grooves having two spaced-apart groove portions that receive portions of said axle, said bearings of said at least one receiving groove partially projecting out of said receiving groove and being in contact with said cam member.

10. The carriage device as claimed in claim 2, wherein said adjusting mechanism further includes an adjusting guide rail that is disposed on said lower platform and that extends in an X-direction, and two adjusting slide blocks that are slidably mounted to said adjusting guide rail, that are movable along the adjusting guide rail, and that permit said cam member to be disposed thereon.

11. The carriage device as claimed in claim 1 or 2, wherein said frame seat further includes at least one resilient member that has two opposite ends

respectively connected to said upper and lower platforms and that resiliently biases said upper and lower platforms toward each other.

12. A bonding equipment adapted to transport a carriage plate comprising:

a carriage device as claimed in any one of claims 1 to 11 for carrying the carriage plate; and

a conveyor including a conveyor frame that is disposed over said carriage device, and a conveyor belt that is movably mounted to said conveyor frame for conveying the carriage plate.

13. The bonding equipment as claimed in claim 12, wherein the carriage plate is for holding a to-be-bonded element, and includes an upper plate, and a lower plate that cooperates with the upper plate to clamp the to-be-bonded element therebetween.

14. The bonding equipment as claimed in claim 12, further comprising a transport rail unit, said transport rail unit including a transport slide block that is located below said lower platform of the frame seat of said carriage device, and a transport actuator that is operable to drive movement of the slide block for moving said carriage device.

15. A transport method using the carriage device as claimed in any one of claims 2 to 11 for transporting

a carriage plate, the carriage plate carrying a to-be-bonded element and having a plurality of suction void regions, the transport method comprising steps of:

a) moving the carriage device to the lower side of the carriage plate, and aligning each of the engaging seats of the carrying platform of the carriage device with one of the suction void regions; and

b) moving one of the carrying platform and the to-be-bonded element to contact the other one of the carrying platform and the to-be-bonded element via the suction void regions, and generating negative pressure in the communication hole of each of the engaging seats such that the to-be-bonded element is attached to the engaging seats.

16. The transport method as claimed in claim 15, further comprising, after step b), a step of:

c) moving, by the carrying platform, the to-be-bonded element to a bonding device so that the to-be-bonded element is bonded with a bonding element.

17. A bonding equipment configured to execute the transport method as claimed in claim 15.