toward the wafer 80.

[0022] The wiping head 31 is attached to the tip of the head arm 32. A root part of the head arm 32 is connected to the head arm drive part 33. The head arm drive part 33 rotates and moves the head arm 32 within a plane as indicated by an arrow 92 in FIG. 1 to move the wiping head 31 attached to the tip of the head arm 32 in and out of the upper surface of the processing stage 14.

[0023] The wet cleaning chamber 13 is provided below the processing stage 14, has a circular shape that receives pure water, ozone water, hydrogen water sprayed from the water nozzle 21, or cleaning water sprayed from the wiping head 31, and has a narrow opening towards the top. The upper opening has a size that allows the wafer 80 to be taken in and out.

[0024] The pure water tank 26, the hydrogen water tank 27, and the ozone water tank 28 are tanks that store pure water, hydrogen water, and ozone water, respectively. Here, hydrogen water is water in which hydrogen gas is dissolved, and ozone water is water in which ozone gas is dissolved. Instead of the hydrogen water tank 27 and the ozone water tank 28, a hydrogen water generator for generating hydrogen water and an ozone water generator for generating ozone water may be disposed. The cleaning water tank 37 stores cleaning water such as pure water, hydrogen water, alkali-added hydrogen water, carbonated water, and the like.

[0025] The pure water tank 26, the hydrogen water tank 27, and the ozone water tank 28 are connected to the water nozzle 21 by a pure water valve 26a, a hydrogen water valve 27a, an ozone water valve 28a, and a pipe 25, respectively. Further, the cleaning water tank 37 is connected to the wiping head 31 by a cleaning water valve 37a and a pipe 36.

[0026] As shown in FIG. 1, a horizontal transport unit 60 is disposed adjacent to the wet cleaning unit 10 on the first floor. The horizontal transport unit 60 includes a casing 61, a wafer transfer stage 63 disposed in the interior 62 of the casing 61, a horizontal transport robot 64 as a horizontal transport apparatus, and a hand 65. The wafer transfer stage 63 is a stage that receives an uncleaned wafer 80 from the outside and delivers a cleaned wafer 80. A side wall 11a of the casing 11 of the wet cleaning unit 10 and a side wall 61a of the horizontal transport unit 60 are

provided with an opening 66 for transporting the wafer 80 between the horizontal transport unit 60 and the wet cleaning unit 10. The horizontal transport robot 64 transports the wafer 80 held by the hand 65 between the wafer transfer stage 63 and the processing stage 14 of the wet cleaning unit 10 through the opening 66 as indicated by an arrow 93 in FIG. 1.

[0027] As shown in FIGs. 2 and 3, the dry cleaning unit 40 includes a casing 41 which is in a substantially rectangular parallelepiped shape and is disposed to overlap the casing 11 of the wet cleaning unit 10 on top of it, a floor plate 42, a ceiling plate 43, a ceiling rail 46, an atmospheric pressure plasma head 51, a plasma ignition apparatus 52, a plasma gas tank 53 and a plasma head drive part 56.

[0028] A space partitioned by the walls of the casing 41, the floor plate 42, and the ceiling plate 43 configures a dry cleaning chamber 44 in which dry cleaning treatment is performed by the atmospheric pressure plasma sprayed from the atmospheric pressure plasma head 51. In addition, the space above the ceiling plate 43 configures an equipment installation space 45 into which the atmospheric pressure plasma does not enter.

[0029] The atmospheric pressure plasma head 51 may be, for example, an apparatus in which multiple plasma generators are disposed side by side, which includes a ceramic tube through which gas for plasma flows, a negative electrode disposed outside the ceramic tube, and a ground electrode disposed inside the ceramic tube, and in which a high voltage is applied between the negative electrode and the ground electrode to generate discharge in the ceramic tube and plasma is sprayed from the tip thereof. The atmospheric pressure plasma head 51 is attached to the ceiling rail 46 via the plasma head drive part 56. The plasma head drive part 56 reciprocally moves the atmospheric pressure plasma head 51 in the horizontal direction as indicated by an arrow 94a in FIG. 3.

[0030] At the center of the floor plate 42 and above the processing stage 14 of the wet cleaning unit 10 disposed on the lower side, an opening 47 that allows the processing stage 14 to move in the up-down direction is provided. A shutter 48 for opening and closing the opening 47 is