CLAIMS

[Claim 1] A substrate processing apparatus for performing a post-processing of a substrate that was chemically and mechanically polished using a slurry, comprising:

a substrate holder configured to hold and rotate the substrate;

an inert-gas nozzle oriented toward an inside of the substrate holder;

an inert-gas supply line coupled to the inert-gas nozzle and configured to supply an inert gas to the inert-gas nozzle;

an inert-gas saturated water nozzle oriented toward the inside of the substrate holder;

an inert-gas saturated water supply line coupled to the inert-gas saturated water nozzle and configured to supply an inert-gas saturated water in which an inert gas is saturated to the inert-gas saturated water nozzle;

a processing chamber in which the substrate holder, the inert-gas nozzle, and the inert-gas saturated water nozzle are arranged; and

a saturated-water generator coupled to the inert-gas saturated water supply line and configured to generate the inert-gas saturated water.

[Claim 2] The substrate processing apparatus according to claim 1, further comprising a fine-bubble generator coupled to the inert-gas saturated water supply line and configured to generate fine bubbles of the inert gas in the inert-gas saturated water.

[Claim 3] The substrate processing apparatus according to claim 1, further comprising a peripheral wall surrounding the substrate holder.

[Claim 4] The substrate processing apparatus according to claim 3, wherein the inert-gas nozzle comprises a plurality of inert-gas nozzles arranged along an upper end of the peripheral wall.

[Claim 5] The substrate processing apparatus according to claim 3, wherein the substrate processing apparatus further comprises a partition wall configured to divide an internal space of the processing chamber into an upper space and a lower space, the partition wall is arranged outside the peripheral wall, and the inert-gas nozzle and the inert-gas saturated water nozzle are arranged in the upper space.

[Claim 6] The substrate processing apparatus according to claim 5, wherein the substrate holder includes a chuck configured to hold the substrate, and the chuck is located higher than the partition wall.

[Claim 7] The substrate processing apparatus according to claim 1, wherein the inert-gas saturated water nozzle is located at a height within 60 mm from a surface of the substrate when held by the substrate holder.

[Claim 8] The substrate processing apparatus according to claim 1, wherein the inert-gas nozzle is located at a height within 60 mm from a surface of the substrate when held by the substrate holder.

[Claim 9] The substrate processing apparatus according to claim 1, further comprising a nozzle moving device configured to move the inert-gas saturated water nozzle between a first position above the substrate holder and a second position outside the substrate holder.

[Claim 10] The substrate processing apparatus according to claim 1, wherein the substrate processing apparatus is a substrate cleaning apparatus configured to clean the substrate that was chemically and mechanically polished using the slurry.

[Claim 11] The substrate processing apparatus according to claim 1, wherein the

substrate processing apparatus is a substrate drying apparatus configured to dry the substrate that was chemically and mechanically polished using the slurry and then cleaned by a substrate cleaning apparatus.

[Claim 12] A substrate processing method of performing a post-processing of a substrate that was chemically and mechanically polished using a slurry, comprising:

supplying an inert gas from an inert-gas nozzle to a surface of the substrate and supplying an inert-gas saturated water in which an inert gas is saturated from an inert-gas saturated water nozzle to the surface of the substrate, while rotating the substrate by a substrate holder,

wherein the substrate holder, the inert-gas nozzle, and the inert-gas saturated water nozzle are arranged in a processing chamber.

[Claim 13] The substrate processing method according to claim 12, further comprising generating fine bubbles of the inert gas in the inert-gas saturated water in which the inert gas is saturated,

wherein the supplying the inert-gas saturated water from the inert-gas saturated water nozzle to the surface of the substrate comprises supplying the inert-gas saturated water containing the fine bubbles from the inert-gas saturated water nozzle to the surface of the substrate.

[Claim 14] The substrate processing method according to claim 12, wherein the substrate is rotated inside a peripheral wall surrounding the substrate holder.

[Claim 15] The substrate processing method according to claim 14, wherein the supplying the inert gas from the inert-gas nozzle to the surface of the substrate comprises supplying the inert gas to the surface of the substrate from a plurality of inert-gas nozzles arranged along an upper end of the peripheral wall.