WHAT IS CLAIMED IS:

1. A processing apparatus comprising:

a chuck table for holding a lower surface of a wafer on a holding surface thereof;

a processing unit for processing an upper surface of the wafer whose lower surface is held on the holding surface;

a delivery unit for unloading, from the holding surface, the wafer held on the holding surface; and

a control unit;

wherein the chuck table includes

a fluid communication passage providing fluid communication between the holding surface and a water supply source,

a branching portion included in the fluid communication passage,

an air fluid communication passage providing air fluid communication between the branching portion and an air supply source,

a water flow rate regulating valve disposed in the fluid communication passage between the holding surface and the water supply source, for regulating a flow rate of water from the water supply source, and

an air flow rate regulating valve disposed in the air fluid communication passage, for regulating a flow rate of air from the air supply source, and

the control unit

controls the delivery unit to hold the wafer held on the holding surface,

opens the water flow rate regulating valve to eject water from the holding surface,

spaces the wafer from the holding surface and lifts the delivery unit holding the wafer, from the holding surface, with the water ejected from the holding surface,

opens the air flow rate regulating valve to eject air from the holding surface when the lower surface of the wafer has been spaced in its entirety from the holding surface, and

increases the flow rate of air as a distance between the holding surface and the wafer spaced from the holding surface increases by lifting of the delivery unit.

2. The processing apparatus according to claim 1, wherein the delivery unit includes:

a circular delivery pad for holding the upper surface of the wafer under suction;

an air flow channel comprising ends open at a lower surface of the delivery pad into a space outside the delivery pad; and

two O-rings having different diameters disposed on a lower surface of the delivery pad near an

outer circumferential edge thereof in respective positions that are spaced radially inwardly and outwardly from the ends open of the air flow channel in the lower surface of the delivery pad.