WHAT IS CLAIMED IS:

1. A conveying apparatus having a holding surface that holds a held surface of a substrate to convey the substrate, the conveying apparatus comprising:

a holding pad that gets contact with an outer circumferential part of the held surface of the substrate or a side surface of the substrate and forms a space to be filled with water between the held surface of the substrate and the holding surface, the holding surface keeping a boundary with the outer circumferential part of the held surface of the substrate or a side surface of the substrate liquid-tight;

a movement unit that causes the holding pad to move in such a direction as to get closer to or further away from the held surface;

a water supply unit that supplies the water to the space; and

a suction unit that sucks the water with which the space is filled and improves a force of holding the substrate,

wherein the conveying apparatus holds the substrate by the holding pad and conveys the substrate with interposition of the water; and

wherein the suction unit has a plurality of suction

pumps that are connected to a suction source and the space and includes an opening-closing valve controlled to suck a certain amount of water with which the space is filled, the suction pumps disposed at intervals in the circumferential direction of the holding pad.

~~2. The conveying apparatus according to claim 1, wherein~~

~~the suction unit has a suction pump that is connected to a suction source and the space and includes an opening-closing valve controlled to suck a certain amount of water with which the space is filled.~~

2~~3~~. The conveying apparatus according to claim 1, wherein

the movement unit has

an arm connected to the holding pad through a suction pump, and

a raising-lowering unit that raises and lowers the arm, and

the suction unit drives the suction pump in association with rising and lowering of the arm and sucks the water with which the space is filled.

3~~4~~. The conveying apparatus according to claim 1, wherein

the held surface held by the holding pad in the

substrate has a recess part formed at a center and a protrusion part that surrounds the recess part, and

the holding pad gets contact with the protrusion part.

45. The conveying apparatus according to claim 1, wherein

the holding pad has the holding surface opposed to the held surface,

the holding surface has a recess part formed at a center and a protrusion part that surrounds the recess part, and

the protrusion part gets contact with the outer circumferential part of the held surface of the substrate or the side surface of the substrate and forms the space to be supplied with the water between the holding surface and the substrate.

56. The conveying apparatus according to claim 1, further comprising:

an ultrasonic vibrator that gives vibrations to the water.

67. The conveying apparatus according to claim 1, wherein

the conveying apparatus has one or a plurality of suction holes that communicate with a suction source and

hold under suction the outer circumferential part of the held surface in an outer circumferential part of the holding pad.

78. A conveying method of a substrate in which a held surface of the substrate is held by a holding surface of a holding pad and the substrate is conveyed, the conveying method comprising:

a water supply step of supplying water to the held surface of the substrate;

a holding pad contact step of bringing an outer circumferential part of the held surface of the substrate or a side surface of the substrate into contact with the holding surface and forming a space to be filled with the water, the holding surface keeping a boundary with the outer circumferential part of the held surface of the substrate or a side surface of the substrate liquid-tight; and

a suction step of sucking, with a suction unit, the water with which the space is filled and improving a force of holding the substrate, the suction unit having a plurality of suction pumps that are connected to a suction source and the space and includes an opening-closing valve controlled to suck a certain amount of water with which the space is filled, the suction pumps disposed at intervals

in the circumferential direction of the holding pad.

8. A conveying method of a substrate in which a held surface of the substrate is held by a holding surface of a holding pad and the substrate is conveyed, the conveying method comprising:

a holding pad contact step of bringing an outer circumferential part of the held surface of the substrate or a side surface of the substrate into contact with the holding surface and forming a space to be filled with the water, the holding surface keeping a boundary with the outer circumferential part of the held surface of the substrate or a side surface of the substrate liquid-tight; and

a water supply step of supplying water to the held surface of the substrate; and

a suction step of sucking, with a suction unit, the water with which the space is filled and improving a force of holding the substrate, the suction unit having a plurality of suction pumps that are connected to a suction source and the space and includes an opening-closing valve controlled to suck a certain amount of water with which the space is filled, the suction pumps disposed at intervals in the circumferential direction of the holding pad.