

CLAIMS

[Claim 1]. A wafer delivery device configured to deliver wafers to or from a wafer storage container including a plurality of rings including a wafer holding element to hold a wafer,

wherein the wafer storage container includes, the first ring including a first supported element being formed at a first position in a plan view and a first wafer holding element holding the wafer above the first supported element, and

the second ring including a second supported element being formed at a second position different from the first position in a plan view, and a second wafer holding element holding the wafer above the second supported element,

wherein the first ring and the second ring are stacked alternately and vertically, and the first wafer holding element of the first ring is located above the second supported element of the second ring located above and adjacent to the first ring and the second wafer holding element of the second ring is located above the first supported element of the first ring located above and adjacent to the second ring,

the wafer delivery device, comprising:

a first ring support capable of supporting the ring;

a second ring support capable of supporting another ring located above and adjacent to the ring at the position above the wafer holding element of the ring supported with the first ring support;

5 an elevating platform on which the wafer storage container is placed, the elevating platform capable of moving vertically ; and

a wafer delivery device to deliver the wafer to or from the ring supported with the first ring support,

10 wherein the first ring support includes:

a first support piece fixed at the position in a vertical direction and movable in a plan view ; and

a first driving mechanism to drive the first support piece,

15 wherein the first driving mechanism selectively switches in any of three states:

a first state of the first support piece being advanced to a position overlapping with the first position and not overlapping with the second position in a plan view;

20 a second state of the first support piece being advanced to a position overlapping with the second position and not overlapping with the first position in a plan view; and

25 a third state of the first support piece being retreated to a position not overlapping with the first

and second positions in a plan view.

[Claim 2]. The wafer delivery device according to claim 1, wherein the first support piece includes:

a first claw overlapping with the first position in a plan view in the first state and not overlapping with the first position in a plan view in the second state; and

a second claw being disposed at the same position as the first claw in a vertical direction, and not overlapping with the second position in a plan view in the first state and overlapping with the second position in a plan view in the second state.

[Claim 3]. The wafer delivery device according to claim 2, wherein the first claw and the second claw are configured integrally and supported rotatably about a drive axis.

[Claim 4]. The wafer delivery device according to claim 2, wherein the first claw and the second claw are configured separately, each of which is advanced and retreated by a link mechanism.

[Claim 5]. The wafer delivery device according to any of claims 1 to 4,

wherein the first ring support includes a plurality of the first support pieces and a single one of the first

driving mechanism, and

wherein the first driving mechanism has a mechanism to cause a plurality of the first support pieces to work together and move with its driving force.

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[Claim 6]. The wafer delivery device according to any of claims 1 to 4, wherein the first ring support includes a plurality of the first support pieces and a plurality of the first driving mechanisms, and

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wherein each of a plurality of the first driving mechanisms drives each of a plurality of the first support pieces.

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[Claim 7]. The wafer delivery device according to any of claims 1 to 6,

wherein the second ring support includes:

a second support piece arranged above the first support piece and movable in a plan view; and

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a second driving mechanism driving the second support piece, and

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wherein the second driving mechanism causes the second support piece to advance to a position that overlaps with the second position and does not overlap with the first position in the first state in a plan view, the second driving mechanism causes the second support piece to advance to a position that overlaps with the first

position and does not overlap with the second position in the second state in a plan view, and the second driving mechanism causes the second support piece to retreat to a position that does not overlap with the first position and the second position in the third state in a plan view.

5 | [Claim 8]. The wafer delivery device according to claim 7, wherein the second support piece includes:

a third claw that overlaps with the second position in a plan view in the first state; and

10 | a fourth claw arranged at the same position as the third claw in a vertical direction and that overlaps with the first position in a plan view in the second state.

| [Claim 9]. The wafer delivery device according to claim 8,

15 | wherein the third claw and the fourth claw are configured integrally, and supported rotatably about a drive axis.

| [Claim 10]. The wafer delivery device according to claim 8,

20 | wherein the third claw and the fourth claw are configured separately, each of which are advanced and retreated by a link mechanism.

| [Claim 11]. The wafer delivery device according to any of

claims 7 to 10, wherein the second ring support includes a plurality of the second support pieces, and a single one of the second driving mechanism, and

wherein the second driving mechanism has a mechanism that allows a plurality of the second support pieces to work together and move with the driving force.

[Claim 12]. The wafer delivery device according to any of claims 7 to 10, wherein the second ring support includes a plurality of the second support pieces and a plurality of the second driving mechanisms, and

wherein each of the plurality of second driving mechanisms drives each of the plurality of second support pieces.

[Claim 13]. The wafer delivery device according to any of claims 1 to 12 is provided with a plurality of partially opening and closing modules including the first and second ring supports,

wherein each of the first ring supports included in each of the plurality of partially opening and closing modules is able to support any different rings from each other of the plurality of stacked rings.

~~14. A wafer storage container to or from which a wafer is delivered with the wafer delivery device according to~~

~~any of claims 1 to 13.~~

[Claim 1514]. ~~The A~~ wafer storage system including:
the wafer delivery device according to any of claims 1 to
13;

a stocker that stores the wafer storage container;
and

a crane that moves the wafer storage container between
the stocker and the wafer delivery device.