Claims

[1] A substrate holding device, comprising:

a mask plate that is made of a magnetic material;

an intermediate plate that has a first surface facing the mask plate and a second surface being on the opposite side of the first surface and is configured such that the first surface can come into contact with a substrate disposed on the mask plate;

a holding plate that supports the intermediate plate such that the intermediate plate is relatively movable in an axis direction orthogonal to the mask plate, and includes a magnet configured to be capable of magnetically attracting the mask plate with the intermediate plate and the substrate being interposed therebetween; and

a pressing mechanism that is disposed to face the second surface, is configured to be capable of pressing at least a part of the second surface along the axis direction, and is installed on the holding plate, wherein

the intermediate plate is configured to be movable between a contact position at which at least a part of the first surface comes into contact with the substrate and a relative distance with respect to the holding plate is a first distance, and a holding position at which a relative distance with respect to the holding

plate is a second distance smaller than the first distance, and

the pressing mechanism

includes a pressing unit including

a pressing element that is disposed to face the second surface, and

an elastic member that is disposed between the pressing element and the second surface and is elastically deformable in the axis direction, and

presses the second surface along the axis direction in a process in which the intermediate plate moves from the contact position to the holding position.

[2] A substrate holding device, comprising:

a mask plate that is made of a magnetic material;

an intermediate plate that has a first surface facing the mask plate and a second surface being on the opposite side of the first surface and is configured such that the first surface can come into contact with a substrate disposed on the mask plate;

a holding plate that supports the intermediate plate such that the intermediate plate is relatively movable in an axis direction orthogonal to the mask plate, and includes a magnet configured to be capable of magnetically attracting the mask plate with the intermediate plate and the substrate being interposed

therebetween; and

a pressing mechanism that is disposed to face the second surface, is configured to be capable of pressing at least a part of the second surface along the axis direction, and includes a pressing unit including

a pressing element that is disposed to face the second surface, and

an elastic member that is disposed between the pressing element and the second surface and is elastically deformable in the axis direction.

[3] The substrate holding device according to claim 1 or 2, wherein

the pressing mechanism includes a plurality of pressing units configured to be capable of respectively pressing a plurality of positions of the second surface.

[4] The substrate holding device according to any one of claims 1 to 3, wherein

the pressing unit is configured to be capable of pressing the center portion and/or a circumferential portion of the second surface.

[5] The substrate holding device according to any one of claims 1 to 4, wherein

the intermediate plate is made of a non-magnetic material.

[6] A film deposition device, comprising:

a film deposition chamber;

a film deposition source that is disposed in the film deposition chamber;

a mask plate that is disposed to face the film deposition source and is made of a magnetic material;

an intermediate plate that has a first surface facing the mask plate and a second surface being on the opposite side of the first surface and is configured such that the first surface can come into contact with a substrate disposed on the mask plate;

a holding plate that supports the intermediate plate such that the intermediate plate is relatively movable in an axis direction orthogonal to the mask plate, and includes a magnet configured to be capable of magnetically attracting the mask plate with the intermediate plate and the substrate being interposed therebetween; and

a pressing mechanism that is disposed to face the second surface, is configured to be capable of pressing at least a part of the second surface along the axis direction, and is installed on the holding plate, wherein

the intermediate plate is configured to be movable between a contact position at which at least a part of the first surface comes into contact with the substrate and a relative distance with respect to the holding

plate is a first distance, and a holding position at which a relative distance with respect to the holding plate is a second distance smaller than the first distance, and

the pressing mechanism

includes a pressing unit including

a pressing element that is disposed to face the second surface, and

an elastic member that is disposed between the pressing element and the second surface and is elastically deformable in the axis direction, and

presses the second surface along the axis direction in a process in which the intermediate plate moves from the contact position to the holding position.