

technique and has, as its exemplary object, to provide a deposition apparatus advantageous in improving the utilization efficiency of the target without shaving the target.

5 SOLUTION TO PROBLEM

[0009] In order to achieve the above-described object, a deposition apparatus according to an aspect of the present invention forms a film on a substrate, and is characterized by comprising a rotation unit
10 configured to rotate a target about a rotating axis, a striker configured to generate an arc discharge, a driving unit configured to drive the striker so as to obtain a close state in which the striker and a side surface around the rotating axis of the target are
15 close to each other when the arc discharge is generated, and a control unit configured to control rotation of the target by the rotation unit so as to change a facing position on the side surface of the target facing the striker in the close state.

20 [0010] Further objects or other aspects of the present invention will become apparent by a preferred embodiment to be described below with reference the accompanying drawings.

ADVANTAGEOUS EFFECTS OF INVENTION

25 [0011] According to the present invention, for example, it is possible to provide a deposition apparatus advantageous in improving the utilization

CLAIMS

1. A deposition apparatus which forms a film
on a substrate, characterized by comprising:

5 a rotation unit configured to rotate a
target about a rotating axis;

a striker configured to generate an arc
discharge;

a driving unit configured to drive the
10 striker so as to obtain a close state in which the
striker and a side surface around the rotating axis of
the target are close to each other when the arc
discharge is generated; and

a control unit configured to control
15 rotation of the target by the rotation unit so as to
change a facing position on the side surface of the
target facing the striker in the close state.

2. The deposition apparatus according to claim
20 1, characterized by further comprising a moving unit
configured to move the target along the rotating axis,

wherein the control unit further controls
movement of the target by the moving unit so as to
change the facing position on the side surface of the
25 target facing the striker in the close state.

3. The deposition apparatus according to claim

2, characterized in that the control unit controls the rotation of the target by the rotation unit and the movement of the target by the moving unit such that the target moves along the rotating axis after the target
5 rotates once about the rotating axis.

4. The deposition apparatus according to claim 2, characterized in that the control unit controls the rotation of the target by the rotation unit and the
10 movement of the target by the moving unit such that a locus on the side surface of the target at the facing position is formed into a spiral shape.

5. The deposition apparatus according to any
15 one of claims 1 to 4, characterized in that the control unit changes the facing position each time the arc discharge is generated.

6. The deposition apparatus according to any
20 one of claims 1 to 4, characterized in that the control unit changes the facing position each time a size of an arc spot generated in the target by the arc discharge becomes larger than a predetermined size.

25 7. The deposition apparatus according to any one of claims 1 to 6, characterized in that the control unit changes the facing position such that a part of

the arc spot generated in the target by the arc discharge overlaps.

8. The deposition apparatus according to any one of claims 1 to 7, further comprising an anode arranged to face the target, wherein the driving unit drives the striker such that a distance between the anode and the striker in the close state becomes constant.

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9. The deposition apparatus according to any one of claims 1 to 8, characterized in that the target has one of a columnar shape, a prismatic shape, a cylindrical shape, and a rectangular tube shape.

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10. A deposition apparatus which forms a film on a substrate, characterized by comprising:

a moving unit configured to move a target along an axis;

20 a striker configured to generate an arc discharge;

a driving unit configured to drive the striker so as to obtain a close state in which the striker and a side surface around the axis of the target are close to each other when the arc discharge is generated; and

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a control unit configured to control

movement of the target by the moving unit so as to
change a facing position on the side surface of the
target facing the striker in the close state.

technique and has, as its exemplary object, to provide a deposition apparatus advantageous in improving the utilization efficiency of the target without shaving the target.

5 SOLUTION TO PROBLEM

[0009] According to one aspect of the present invention, there is provided a deposition apparatus which forms a film on a substrate, including a rotation unit configured to rotate a target about a rotating
10 axis, a striker configured to generate an arc discharge, a driving unit configured to drive the striker so as to make a close state which the striker closes to a side surface around the rotating axis of the target to generate the arc discharge, and a control unit
15 configured to control rotation of the target by the rotation unit so as to change a facing position on the side surface of the target facing the striker in the close state.

[0010] Further objects or other aspects of the
20 present invention will become apparent by a preferred embodiment to be described below with reference the accompanying drawings.

ADVANTAGEOUS EFFECTS OF INVENTION

[0011] According to the present invention, for
25 example, it is possible to provide a deposition apparatus advantageous in improving the utilization

CLAIMS

1. A deposition apparatus which forms a film on a substrate, comprising:

a rotation unit configured to rotate a target about a rotating axis;

a striker configured to generate an arc discharge;

a driving unit configured to drive the striker so as to make a close state which the striker closes to a side surface around the rotating axis of the target to generate the arc discharge; and

a control unit configured to control rotation of the target by the rotation unit so as to change a facing position on the side surface of the target facing the striker in the close state.

2. The deposition apparatus according to claim 1, further comprising a moving unit configured to move the target along the rotating axis,

wherein the control unit further controls movement of the target by the moving unit so as to change the facing position on the side surface of the target facing the striker in the close state.

3. The deposition apparatus according to claim 2, wherein the control unit controls the rotation of the target by the rotation unit and the movement of the target by the moving unit such that the target moves along the rotating axis after the target rotates once about the rotating axis.

4. The deposition apparatus according to claim 2, wherein the control unit controls the rotation of the target by the rotation unit and the movement of the target by the moving unit such that a locus on the side surface of the target at the facing position is formed into a spiral shape.

5. The deposition apparatus according to any one of claims 1 to 4, wherein the control unit changes the facing position each time the arc discharge is generated.

6. The deposition apparatus according to any one of claims 1 to 4, wherein the control unit changes the facing position each time a size of an arc spot generated in the target by the arc discharge becomes larger than a predetermined size.

7. The deposition apparatus according to any one of claims 1 to 6, wherein the control unit changes the facing

position such that a part of the arc spot generated in the target by the arc discharge overlaps.

8. The deposition apparatus according to any one of claims 1 to 7, further comprising an anode arranged to face the target,

wherein the driving unit drives the striker such that a distance between the anode and the striker in the close state becomes constant.

9. The deposition apparatus according to any one of claims 1 to 8, wherein the target has one of a columnar shape, a prismatic shape, a cylindrical shape, and a rectangular tube shape.

10. A deposition apparatus which forms a film on a substrate, characterized by comprising:

a moving unit configured to move a target along an axis;

a striker configured to generate an arc discharge;

a driving unit configured to drive the striker so as to make a close state which the striker closes to a side surface around the axis of the target to generate the arc discharge; and

a control unit configured to control movement of the target by the moving unit so as to change a facing position on the side surface of the target facing the striker in the close state.