

WHAT IS CLAIMED IS:

1. A substrate treating apparatus comprising:

a process treating unit providing a treating space for treating a substrate; and

a plasma generation unit provided above the process treating unit and generating a plasma

5 from a process gas, and

wherein the plasma generation unit comprises:

a plasma chamber having a discharge space formed therein;

an antenna surrounding an outside of the plasma chamber and flowing a high frequency
current therethrough; and

10 a cover member surrounding an outside of the antenna, and

wherein the cover member is grounded,

wherein the cover member has a slot extending from a top end of the cover member to a
bottom end of the cover member, and

wherein intensity of an electromagnetic field generated in a region adjacent to a part in
15 which the slot is formed and a region adjacent to a part in which the slot is not formed is adjusted.

2. The substrate treating apparatus of claim 1, wherein the slot is provided in a
plurality, and the plurality of slots are placed apart from one another in a direction surrounding the
antenna.

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3. The substrate treating apparatus of claim 2, wherein a length of a lengthwise
direction of the cover member is the same or longer than a length of a lengthwise direction of the
antenna.

4. The substrate treating apparatus of claim 1, wherein the plasma generation unit further comprises a fan unit supplying an airflow to a space between the cover member and the plasma chamber.

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5. The substrate treating apparatus of claim 4, wherein the fan unit is installed at the cover member, and in a position not overlapping with the slot.

6. The substrate treating apparatus of claim 1, wherein the antenna comprises a coil
10 part surrounding the outside of the plasma chamber in a plurality of turns, and the coil part has a ground terminal to be grounded and a power terminal to be supplied with a high frequency power.

7. The substrate treating apparatus of claim 6, wherein the coil part comprises a
15 plurality of coils, and each of the plurality of coils are independently connected to the power terminal and the ground terminal.

8. The substrate treating apparatus of claim 1, wherein the plasma generation unit further comprises a shield member positioned between the antenna and the plasma chamber, and grounded.

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9. The substrate treating apparatus of any one of claims 1 to 8, wherein the cover member has a disk shape when seen from above.

10. The substrate treating apparatus of any one of claims 1 to 8, wherein the cover member has a polygonal shape when seen from above.

11. A plasma generation unit provided in a substrate treating apparatus using a plasma,
5 the plasma generation unit comprising:
a chamber having a discharge space formed therein;
an antenna surrounding an outside of the chamber and flowing a high frequency current
flowing therethrough; and
a cover member surrounding an outside of the antenna,
10 wherein the cover member is grounded to generate an induced current in an opposite
direction of the high frequency current, and
wherein the cover member has a slot extending from a top end of the cover member to a
bottom end of the cover member, and
wherein intensity of an electromagnetic field generated in a region adjacent to a part in
15 which the slot is formed and a region adjacent to a part in which the slot is not formed is adjusted.

12. The plasma generation unit of claim 11, wherein the slot is provided in a plurality,
and the plurality of slots are placed apart from one another in a direction surrounding the antenna.

20 13. The plasma generation unit of claim 11 further comprising a fan unit supplying an
airflow to a space between the cover member and the chamber to cool the chamber.

14. The plasma generation unit of claim 11, wherein the antenna comprises a coil part surrounding the outside of the plasma chamber a plural number of times, and the coil part has a ground terminal to be grounded and a power terminal to be supplied with a high frequency power.

5 15. The plasma generation unit of claim 14, wherein the coil part comprises a plurality of coils, and each of the plurality of coils are independently connected to the power terminal and the ground terminal.

10 16. The plasma generation unit of claim 11, wherein a length of a lengthwise direction of the cover member is the same or longer than a length of a lengthwise direction of the antenna.

17. The plasma generation unit of any one of claims 11 to 16, wherein the cover member has a polygonal shape when seen from above.

15 18. A substrate treating apparatus comprising:
a process treating unit for treating a substrate; and
a plasma generation unit positioned above the process treating unit for generating a plasma by exciting a gas, and

 wherein the process treating unit comprises:
20 a housing having a treating space; and
a support unit placed in the treating space and supporting a substrate, and
 wherein the plasma generation unit comprises:
a plasma chamber having a discharge space formed therein;

an antenna surrounding an outside of the plasma chamber and flowing a high frequency current flowing therethrough; and

a cover member surrounding an outside of the antenna and grounded, and wherein the cover member has at least one slot extending from a top end of the cover member to
5 a bottom end of the cover member, and

wherein intensity of an electromagnetic field generated in a region adjacent to a part in which the slot is formed and a region adjacent to a part in which the slot is not formed is adjusted.