CLAIMS:

1. A microwave transmitting module of an artificial diamond production device emitting a microwave to a diamond holder (30) in a reaction chamber (10), the reaction chamber (10) having a window (12), the diamond holder (30) having a focus area (31) facing to the window (12), and the microwave transmitting module disposed outside the reaction chamber (10) and comprising:

a microwave generator (40) having a transmitting port (41) and emitting the microwave to the diamond holder (30) via the transmitting port (41);

a focusing-lens assembly (50) disposed between the diamond holder (30) and the transmitting port (41) to focus the microwave of the microwave generator (40); and

a focusing mechanism (60) connected to the focusing-lens assembly (50) to change a distance between the focusing-lens assembly (50) and the transmitting port (41) to focus the microwave of the microwave generator (40) on the focus area (31) of the diamond holder (30);

wherein

the microwave generator (40) has a polarizing tube (42);

the transmitting port (41) is an opening formed on an end of the polarizing tube (42) toward the diamond holder (30); and

the polarizing tube (42) has at least one polarizing plate (43) being elongated, extending along a direction of a traveling path of the microwave of the microwave generator (40), and having a thickness being tapered from a middle of the at least one polarizing plate (43) to two opposite ends of the at least one polarizing plate (43).

2. The microwave transmitting module as claimed in claim 1, wherein the focusing mechanism (60) has

a motor (61); and

a screw assembly (62) connected to the motor (61) and having

a rotating element (621) connected to the motor (61); and

a moving element (622) connected to the rotating element (621) and securely connected to the focusing-lens assembly (50), and a rotation of the rotating element (621) driving the moving element (622) to move linearly relative to the rotating element (621).

3. The microwave transmitting module as claimed in claim 2, wherein

the rotating element (621) is a sleeve, and has an inner thread formed on an inner surface of the sleeve and an end connected to the motor (61); and

the moving element (622) is an externally threaded rod and has

a lens end (6221) securely connected to the focusing-lens assembly (50); and

a sleeve end (6222) extending into and screwed with the rotating element (621).

4. The microwave transmitting module as claimed in claim 3, wherein a microwave absorption casing (80) is connectable to the microwave generator (40) and the reaction chamber (10) and has

a receiving room (81) formed in the microwave absorption casing (80);

an inlet (82) disposed on the microwave absorption casing (80), and

communicating with the receiving room (81) and the transmitting port (41) of the microwave generator (40); and

an outlet (83) disposed on the microwave absorption casing (80), abutting an external surface of the reaction chamber (10) around the window (12), and communicating with the receiving room (81);

wherein the focusing-lens assembly (50) is disposed in the receiving room (81), the focusing mechanism (60) is disposed outside the microwave absorption casing (80), and the moving element (622) of the screw assembly (62) of the focusing mechanism (60) slidably extends into the microwave absorption casing (80).

5. The microwave transmitting module as claimed in claim 4, wherein a linear motion assembly (70) is connected to the focusing-lens assembly (50) and has

a fixing element (71) in a position fixed relative to the transmitting port (41); and

a sliding element (72) slidably connected to the fixing element (71) and securely connected to the focusing-lens assembly (50);

wherein the linear motion assembly (70) and the focusing mechanism (60) are respectively connected to two opposite ends of the focusing-lens assembly (50).

6. The microwave transmitting module as claimed in claim 5, wherein

the fixing element (71) is a linear bearing and is securely connected to

the microwave absorption casing (80); and

the sliding element (72) is a straight rod body, slidably extends through the fixing element (71) and slidably extends into the microwave absorption casing (80), and the sliding element (72) has two ends, one of the two ends is disposed in the receiving room (81) and is securely connected to the focusing-lens assembly (50), and the other one of the two ends is disposed outside the microwave absorption casing (80).

7. The microwave transmitting module as claimed in claim 1, wherein

the polarizing tube (42) has two polarizing plates (43) disposed opposite to each other at a spaced interval; and

the microwave generator (40) has a linearly polarized electric field microwave source (44) connected to the polarizing tube (42) opposite to the transmitting port (41), and emitting a linearly polarized electric field microwave to the polarizing tube (42);

wherein the polarizing tube (42) converts the linearly polarized electric field microwave to a circularly polarized electric field microwave emitted toward the diamond holder (30) via the transmitting port (41).

8. The microwave transmitting module as claimed in any one of claims 1 to 4, wherein the focusing-lens assembly (50) is selected from a dielectric convex lens and a combination of concave and convex lens.

9. An artificial diamond production device comprising:

a reaction chamber (10) having a window (12), and an external microwave emitted into the reaction chamber (10) via the window (12);

a diamond holder (30) disposed in the reaction chamber (10) and having a focus area (31) facing to the window (12);

a microwave transmitting module disposed outside the reaction chamber (10) and having

a microwave generator (40) having a transmitting port (41) and emitting the microwave to the diamond holder (30) via the transmitting port (41);

a focusing-lens assembly (50) disposed between the diamond holder (30) and the transmitting port (41) to focus the microwave of the microwave generator (40); and

a focusing mechanism (60) connected to the focusing-lens assembly (50) to change a distance between the focusing-lens assembly (50) and the transmitting port (41) to focus the microwave of the microwave generator (40) on the focus area (31) of the diamond holder (30);

wherein

the microwave generator (40) has a polarizing tube (42);

the transmitting port (41) is an opening formed on an end of the polarizing tube (42) toward the diamond holder (30); and

the polarizing tube (42) has at least one polarizing plate (43) being elongated, extending along a direction of a traveling path of the microwave of the microwave generator (40), and having a thickness being tapered from a middle of the at least one polarizing plate (43) to two opposite ends of the at least one polarizing plate (43).