CLAIMS

1. An electron beam generating device, comprising:

a cathode configured to emit a plurality of electrons;

an extraction electrode provided with an extraction hole through which the plurality of electrons pass to form an electron beam;

a first diaphragm cylinder, wherein an upper end surface of the first diaphragm cylinder is connected to a lower surface of the extraction electrode, and a bottom portion of the first diaphragm cylinder is provided with a first diaphragm hole corresponding to the extraction hole;

an acceleration electrode arranged below the first diaphragm cylinder and provided with an acceleration hole corresponding to the first diaphragm hole; and

a second diaphragm cylinder, wherein an upper end surface of the second diaphragm cylinder is connected to a lower surface of the acceleration electrode, and a bottom portion of the second diaphragm cylinder is provided with a second diaphragm hole corresponding to the acceleration hole.

2. The electron beam generating device according to claim 1, wherein an aperture of the first diaphragm hole is less than or equal to an aperture of the extraction hole.

3. The electron beam generating device according to claim 1, further comprising:

a shielding tube arranged on an upper surface of the extraction electrode, wherein a center of the extraction hole is located on an axis of the shielding tube.

4. The electron beam generating device according to claim 1, wherein an aperture of the acceleration hole is greater than or equal to an aperture of the first diaphragm hole.

5. The electron beam generating device according to claim 1, wherein an aperture of the second diaphragm hole is less than or equal to an aperture of the acceleration hole.

6. The electron beam generating device according to claim 3, further comprising:

a suppression electrode arranged between the cathode and the extraction electrode and provided with a suppression hole corresponding to the extraction hole.

7. The electron beam generating device according to claim 6, wherein a lower port of the suppression hole is arranged within the shielding tube.

8. An electron microscope, comprising the electron beam generating device according to any one of claims 1 to 7.