to withstand a high voltage (approximately 32,000 volts) that is applied to the second electrode **26**. One end of the resistor **50** is electrically connected to the first electrode **24** by means of a first conductor **54**. The other end of the resistor **50** is electrically connected by means of second conductor **56** to the second electrode **26**. Each plate **46**, successively spaced from the first electrode **24**, is electrically connected, by means of electrical taps **52**, to the resistor **50** at a point of successively greater resistance with respect to the one end of the resistor **50**.

After the electron gun **10** is assembled inside a cathode ray tube (not shown), the bulb spacers **44** contact the inside surface of the tube establishing an electrical contact between that surface and the second electrode **26**. When the electron gun **10** is operating, a first voltage, of about 4,000 volts, is applied to the first electrode **24** and a second voltage, in the range of 25,000 to 32,000 volts, is applied to the inside surface of the cathode ray tube. All of the voltages are with reference to the control grid electrode **16**. The second voltage is also applied to the second electrode **26** by means of bulb spacers **44** and shield cup **42**, creating a voltage difference between said first and second electrodes. This voltage difference is distributed to each plate **46** by means of resistor **50**, the two conductors **54** and **56**, and the taps **52** so that each plate **46**, spaced successively further from the first electrode **24**, is at a higher voltage than the previous plate. The distribution of the voltages is such that each plate **46** is maintained at approximately the same potential as the equipotential line at that point in an electrostatic field established in a large aperture electron lens.

There are two basic arrangements for establishing the electrostatic field between the first and second electrodes **24** and **26**. The first arrangement forms a uniform electrostatic field in which the equipotential lines are equally spaced. In forming this field, the voltage applied to each plate **46** is proportional to the spacing of that plate from the two focusing electrodes **24** and **26**. In this case, the taps **52** are spaced on resistor **50** proportionally to the plate spacing. The uniform field closely approximates the electrostatic field in the large aperture lens. However, in the large aperture lens the field is not exactly uniform. In fact, the equipotential lines near the beam path are closer to one another near the center of the lens gap than elsewhere between the first and second electrodes **24** and **26**. A second arrangement more accurately duplicates this non-uniform field by applying the voltage disproportionately to the plate spacing. This can be accomplished by spacing either the plates **46** in the gap or the taps **52** on the resistor **50** evenly while spacing the other unevenly. In the second arrangement, the plates **46** are maintained at a voltage equivalent to the potential at their position in the electrostatic field of the large aperture lens.

The improved electron gun **10** has a focusing lens with the same properties as the large aperture electron focusing lens. The inclusion of the plates **46** stabilizes the field permitting a large focusing gap while minimizing external interference to within acceptable limits. This large focusing gap increases the focal length of the lens which reduces the aberration caused by the lens. By placing the resistor **50** within the cathode ray tube and electrically connecting the resistor to the first and second electrodes **24** and **26**, the need for additional high voltage leads extending through the tube envelope is eliminated. This also eliminates possible lead insulation problems which could exist in small neck diameter cathode ray tubes where the leads would be closely spaced, to one another.

What is claimed is:

1. In an electron gun structure for producing and directing at least one electron beam along a beam path, said gun including a cathode, a control grid electrode, a screen grid electrode, a first accelerating and focusing electrode and a second accelerating and focusing electrode, spaced respectively along the beam path, the improvement comprising:

- a plurality of spaced electrode plates positioned between said first focusing and accelerating electrode and said second focusing and accelerating electrode for expanding the focusing lens fields in the path of the beam, each plate having an aperture therethrough aligned with said beam path;
- supporting means connecting said electrode plates; and
- resistive means attached at one end to said first accelerating and focusing electrode and at a second end to said second focusing and accelerating electrode and attached to said spaced electrode plates at spaced points between the ends of said resistive means, said resistive means being on said support means.

2. The device as in claim **1** wherein said device includes:

- a plurality of cathodes for producing a plurality of electron beams; and
- each of said spaced electrode plates having a plurality of apertures therethrough, each aperture being aligned with a respective beam path.

3. The device as in claim **1** wherein said resistive means comprises a thin film cermet resistor.

4. The device as in claim **1** wherein the cathode, electrodes and electrode plates are mounted between a plurality of parallel support rods.

5. The device as in claim **4** wherein the resistive means is mounted on one of said support rods.

6. The device as in claim **5** wherein the resistive means comprises a thin film cermet resistor bonded to a substrate, said substrate being mounted on one of said support rods.

7. The device as in claim **1** wherein said spaced electrode plates are connected to the resistive means so that the resistance between said spaced electrode plates is proportional to their spacing.

8. The device as in claim **1** wherein said spaced electrode plates are connected to the resistive means so that the resistance between said spaced electrode plates is disproportional to their spacing.

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