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(54) **DC BRUSH-ARC FURNACE WITH ARC DEFLECTION COMPENSATION**

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(57) **ABSTRACT**

The invention provides for a DC brush-arc furnace comprising a vessel **12** and first and second electrodes **16**, **18**. A first DC power supply **20** supplies power to the electrodes. A first conductor **26** extends parallel to the first electrode, so that a first current flows in a first direction through the first conductor and in a second opposite direction in the first electrode. A second conductor **28** extends parallel to the second electrode, so that the current flows in the first direction in the second electrode and in the second direction in the second conductor. An arc deflection compensation system **30** comprises a second DC power supply **32** and a compensation circuit **34** comprising a first compensation conductor **36** and a second compensation conductor **38**. The second DC power supply causes a second current to flow through the first compensation conductor in the first direction and through the second compensation conductor in the second direction.