

A 1,500,000 Volt Electrostatic Generator

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10. The application of extremely high potentials to discharge tubes affords a powerful means for the investigation of the atomic nucleus and other fundamental problems. The electrostatic generator here described was developed to supply suitable potentials for such investigations. In recent preliminary trials, spark-gap measurements showed a potential of approximately 1,500,000 volts, the only apparent limit being brush discharge from the whole surface of the 24-inch spherical electrodes. The generator has the basic advantage of supplying a direct steady potential, thus eliminating certain difficulties inherent in the application of non-steady high potentials. The machine is simple inexpensive, and portable. An ordinary lamp socket furnishes the only power needed. The apparatus is composed of two identical units, generating opposite potentials. The high potential electrode of each unit consists of a 24-inch hollow copper sphere mounted upon a 7 foot upright Pyrex rod. Each sphere is charged by a silk belt running between a pulley in its interior and a grounded motor driven pulley at the base of the

rod. The ascending surface of the belt is charged near the lower pulley by a brush discharge, maintained by 10.000 volt transformer kenotron set, and is subsequently discharged by points inside the sphere.