

Method and equipment for electrostatic separation of a non-conductive materials mixture

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Description:

The present invention refers to a method and equipment for the fluidized bed triboelectrostatic separation of a granular mixture of non-conductive materials. The proposed solution improves the efficiency of the triboelectrification process by a fluidized bed with adjustable configuration, increases the separation yield by the deviation of the granular mixture components in opposite direction once they have acquired opposite charge and extracts the charged granules from the triboelectrization chamber so as to avoid their return in the fluidized bed.

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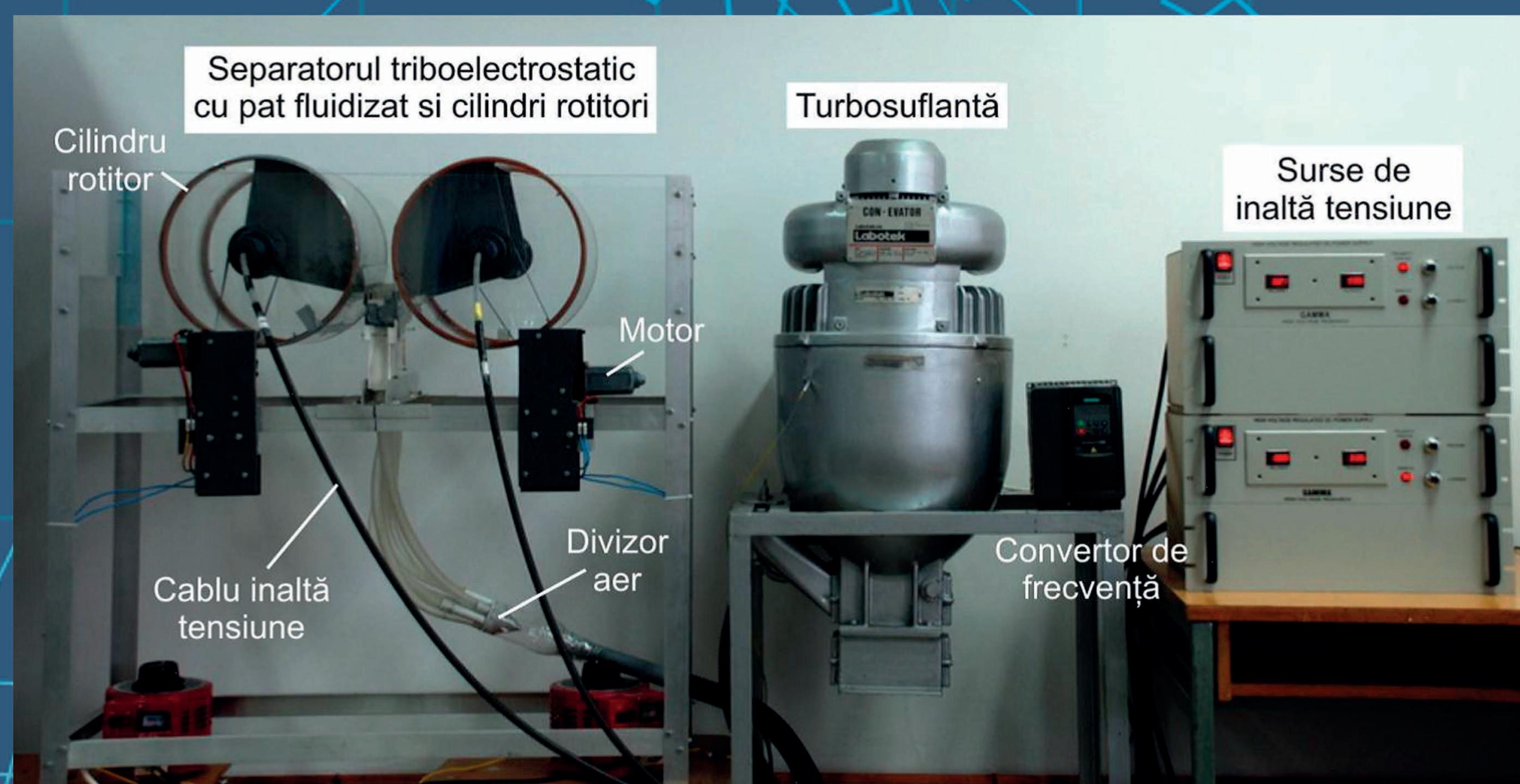


Fig. 1. Separator assembly equipped with high-voltage power supply for the circular-sector type electrodes and turbo-blower to generate fluidization air.

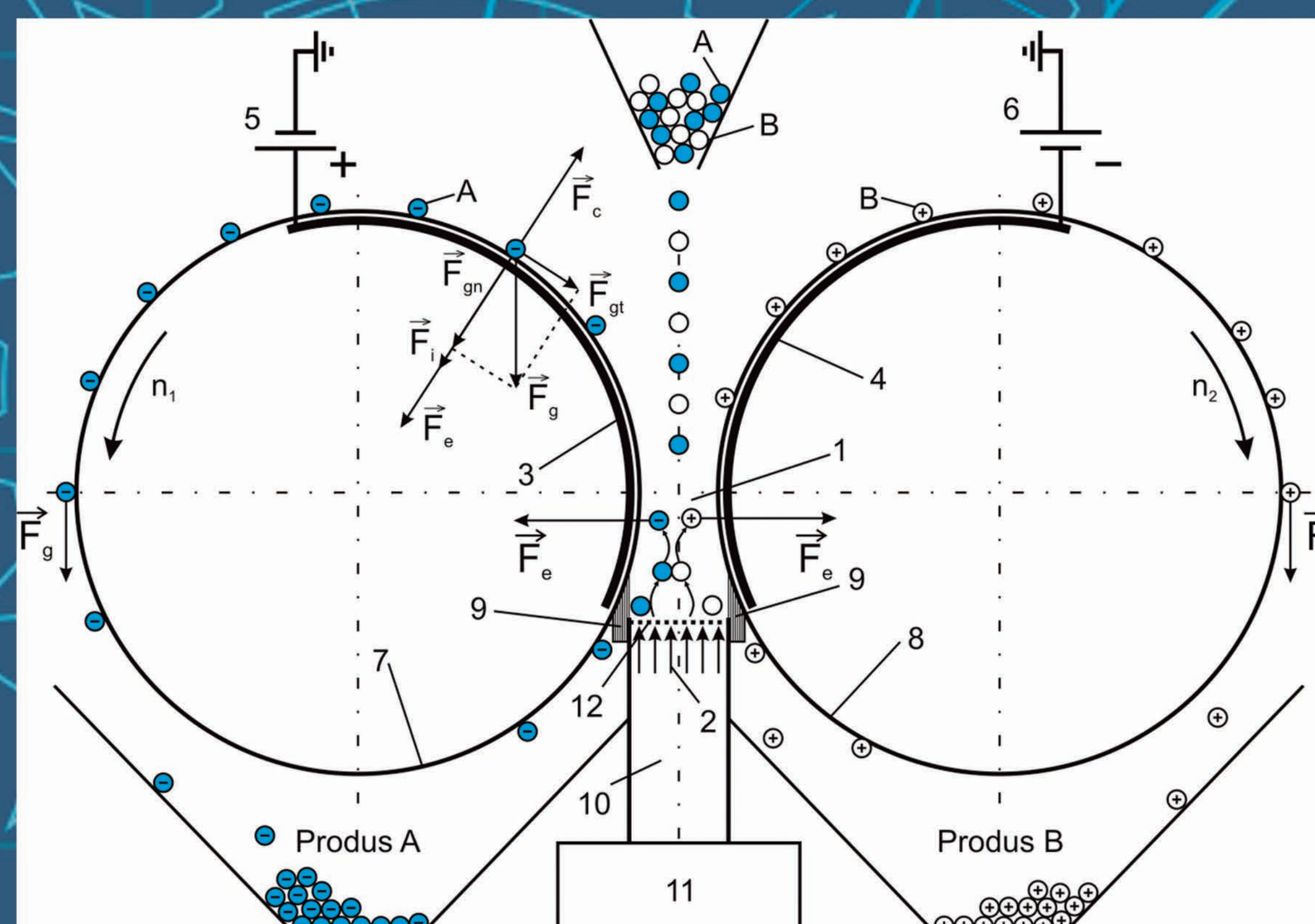


Fig. 2. Operation principle of the triboelectrostatic separator equipped with rotating nonconductive cylinders and fluidized bed. 1 – triboelectrification chamber, 2 – fluidization air, 3 – positive polarity high-voltage electrode, 4 – negative polarity high-voltage electrode, 5 – positive polarity high-voltage power supply, 6 – negative polarity high-voltage power supply, 7 – nonconductive cylinder associated to positive electrode, 8 – nonconductive cylinder associated to negative electrode, 9 – wiper and seal brush, 10 – air chamber, 11 – air divider for the fluidized bed.

Applicability:

Separation of plastic granular mixtures from Waste of Electric and Electronic Equipment, separation of nonconductive minerals