Aug. 4, 1936. H. BARTHEL 2,049,940

DEVICE FOR ELECTROSTATICALLY CHARGING MATERIALS

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Fig. 1.

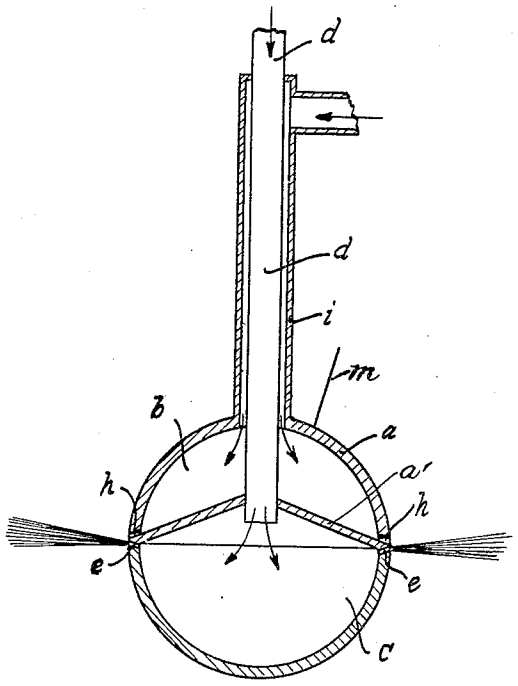
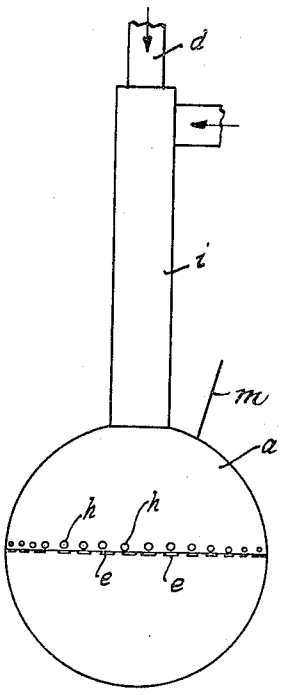


Fig. 2.



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DEVICE FOR ELECTROSTATICALLY CHARGING MATERIALS

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3 Claims. (Cl. 175—265)

This invention relates to improvements in devices for effecting electrostatic charging of liquid, dust, gaseous and like materials in a fluid state.

The invention has for its object to provide a device of this character wherein a charging body in the form of a globe or similar rounded shape is employed for improving the electrostatic charging qualities thereof.

In the accompanying drawing wherein an approved embodiment of the invention is illustrated:

Figure 1 is a vertical central sectional view through the charging device.

Fig. 2 is a fragmentary side elevation thereof.

Referring to the drawing in detail, *a* indicates a charging member in the form of a hollow globe, egg or like rounded shape. The interior of the body is divided into two separate chambers *b* and *c* by a partition *a'*.

Compressed air or gas under pressure is introduced into the lower chamber *c* of the charging body by means of a pipe *d* and escapes through narrow slots *e* provided in the wall of said body, the slots *e*, being arranged in approximately the central horizontal plane of the charging body, are distributed at uniform distances apart over the circumference thereof. A small aperture *h* above each slot *e* communicates with the upper chamber *b*, the bottom of which is suitably inclined and the central portion thereof raised.

The material to be charged is introduced into this upper chamber *b* through the external pipe *i*, leaves the chamber through said small aperture *h* and is caught and broken up by the currents forced under pressure from the slots in the lower chamber *c* into small particles.

To facilitate the discharge of liquid, powdery or gaseous matter through the aperture *h*, the upper chamber may also be put under a suitable pressure but in the case of heavier fluids, the natural tendency to fall from the reservoir will answer the purpose.

In each case, the matter is entrained and blown away by the forced currents of air from the lower chamber and thus partially pulverized.

The charging body *a* is connected by a conductor *m* in known manner with a source of unipolar electricity whereby the material discharged from the openings in the body as well as that moving toward and touching said body receives an electrostatic charge.

What I claim is:

1. A device for electrostatically charging moving fluid material comprising a charging body having an external charging surface of substantially globular shape, said charging body being of hollow form and divided internally into two chambers, means for conducting fluid material to be charged to one of said chambers, and means for conducting a distributing fluid to the other chamber, said body having apertures therein communicating with the respective chambers.

2. A device for electrostatically charging moving fluid material comprising a charging body having an external charging surface of substantially globular shape, said charging body being of hollow form and provided with apertures, means for conducting distributing air to said hollow body and the apertures therein, said body having additional apertures arranged immediately adjacent the first mentioned apertures, and means for conducting material in a fluid state to the second mentioned apertures.

3. A device for breaking up liquid and finely divided solid substances and for electrostatically charging said substances comprising a hollow substantially ball shaped charging body maintained under unipolar electric charge, said body having openings therein for the passage of said substances, and means for conducting an atomizing medium to said body for engaging the substances passing through said openings.

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