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L. I. BLAKE.

ELECTROSTATIC APPARATUS.

APPLICATION FILED JUNE 9, 1904.

Fig. 1

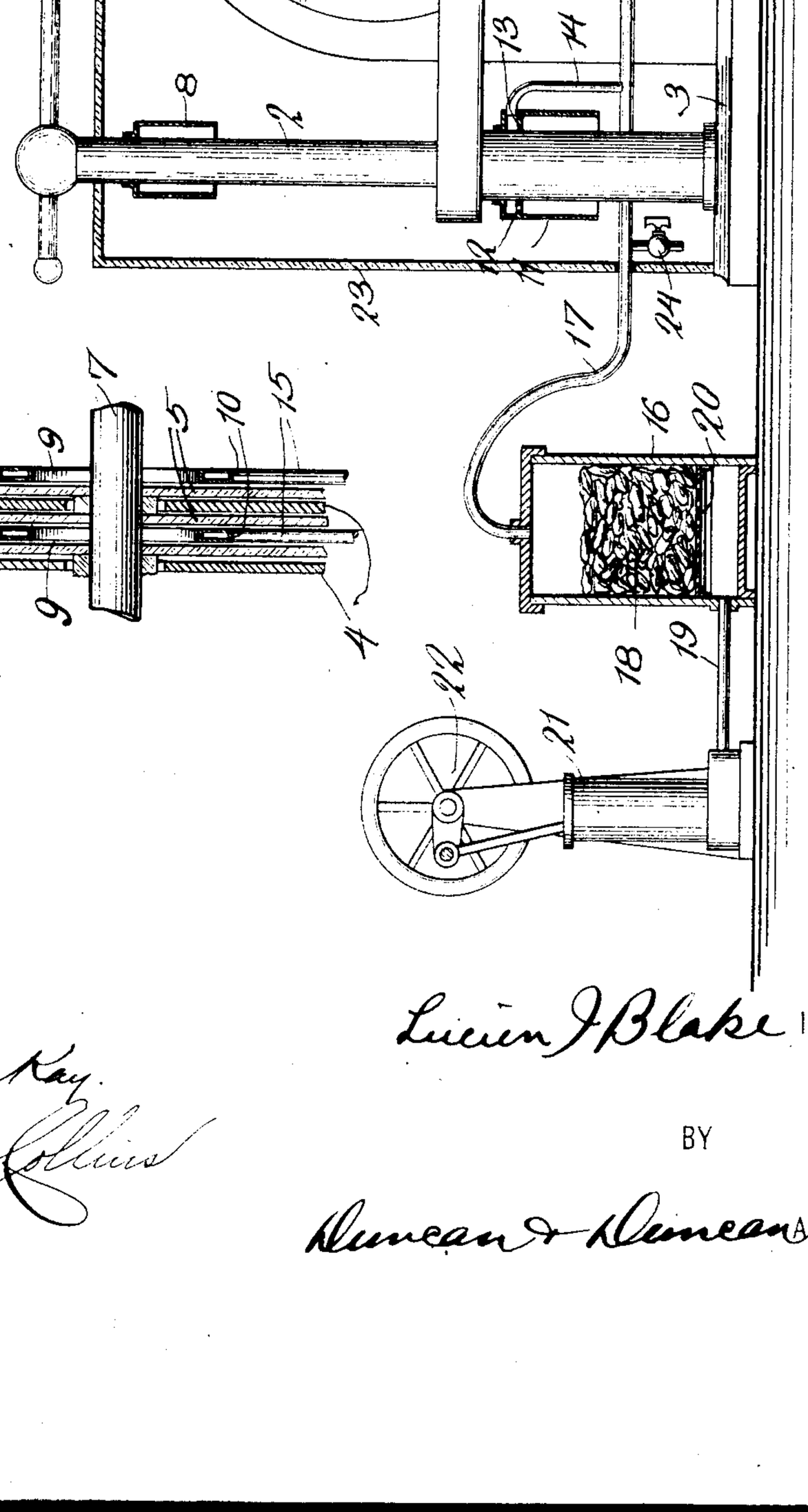
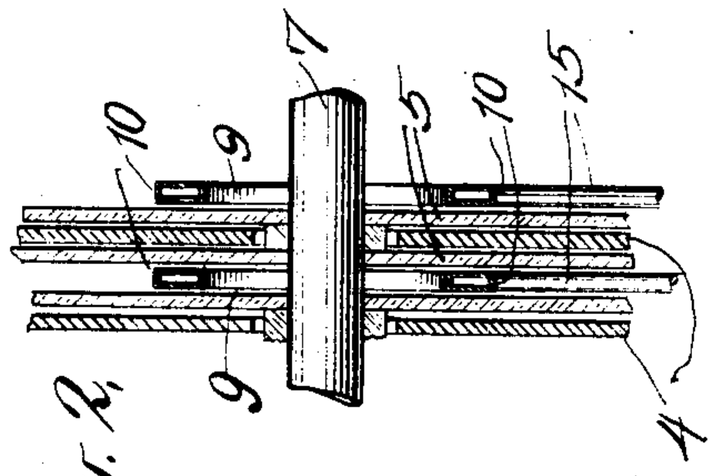


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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ELECTROSTATIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 792,751, dated June 20, 1905.

Application filed June 9, 1904. Serial No. 211,749.

To all whom it may concern:

Be it known that I, LUCIEN I. BLAKE, a citizen of the United States, and a resident of Lawrence, in the county of Douglas and State of Kansas, have invented certain new and useful Improvements in Electrostatic Apparatus, of which the following is a specification, taken in connection with the accompanying drawings, which form a part of the same.

This invention relates to electrostatic apparatus, and relates especially to apparatus for the generation of static electricity by means of which the continued and certain development of electricity of this kind can be assured without the usual interference from moisture, dust, or other atmospheric causes.

In the accompanying drawings, in which the same reference-numeral refers to similar parts in both figures, Figure 1 is an elevation, partly in section, indicating diagrammatically apparatus embodying this invention. Fig. 2 is a partial transverse section of the same.

In the illustrated embodiment of this invention an electrostatic generator of the influence type is indicated, the stationary plates 4 being mounted on a suitable base 3, and the rotary plates 5 are mounted on a shaft 7, running in the bearings 6 and alternately arranged with respect to the stators. It is of course understood that the rotors 5 are rapidly revolved by any desired means and cooperate with the stators and with suitable collecting apparatus to generate static electricity of high potential, which is supplied to the discharge-rods 1, mounted, as indicated, on the insulating-supports 2. This influence-machine is indicated as being of the well-known Toepler-Holtz construction, although, of course, other kinds of electric machines may be used, such as Wimshurst.

Suitable jets of dry air are supplied to the generator, preferably so as to impinge upon the plates and other parts to be insulated, and in this manner the continued operation of the machine is made more certain, since high insulation is effectively maintained. The jet-nozzles 9 may be given a ring form, as indicated, and mounted between the plates of the machine. These nozzles are shown as flattened to economize space and as provided with air-holes 10, so that the jets of air or other gas issuing from the nozzles may substantially impinge upon the plates. The insulating-supports 2 are also shown as provided with air-nozzles 12, which are shown as having a ring form inclosing the supports and as provided with jet-openings 13, so that the jets impinge upon the support. A suitable shield 11, formed, of course, of insulating material, is preferably provided adjacent the jet-nozzle and inclosing the support at this point to more effectively direct the jets of air or gas against the support and maintain its insulated condition. If desired, other shields 8 may be used upon the supports, which substantially inclose the same and prevent the deposit of moisture or other conducting material upon these insulating-supports. The jet-nozzles should be provided with air, gas, or vapor of non-conducting character. Dry air operates efficiently for this purpose. A suitable pump, having the cylinder 21 and the operating mechanism 22, including a crank and connecting-rod, may be used to force air through the connection 19 into a suitable drier 16. As indicated, the drier has a grid 20, upon which rests a suitable drying material, such as calcium chlorid, or, if desired, glass-wool impregnated in some cases with a suitable absorbing material may be used in the drier, or the air or other gas may be bubbled through gasolene or any other suitable insulating substance. From the drier the air is forced through the air-pipe 17, which is connected by the pipes 14, of insulating material, with the nozzles coöperating with the supports and by the similar pipes 15 with the nozzles supplying air-jets to the plates. Suitable valves 24 allow for a discharge of this air at other points within the case 23, which may inclose the whole machine when desired, the moisture ozone and other objectionable products thus being displaced and kept away from the machine.

Electrostatic machines when supplied with jets of air or gas in accordance with this invention operate in a very efficient and reliable manner. The deposit of moisture upon the plates and other parts is prevented, and the

insulation of the apparatus is maintained high, so that destructive leakage is prevented. These machines can thus be operated with certainty even under adverse atmospheric conditions where the atmosphere contains considerable moisture, steam, or suspended dust.

It is of course understood that those familiar with this art may make many modifications in the number, form, and proportion of the parts of this apparatus. Parts of the same may be employed without using the whole and parts may be used in connection with other devices without departing from the spirit of this invention or losing the advantages of the same. I do not, therefore, desire to be limited to the details of the disclosure which has been made in this case; but

What I claim as new and what I desire to secure by Letters Patent is set forth in the appended claims:

1. In electrostatic apparatus, an influence-machine to generate static electricity, a ring nozzle coöperating with a plate of said machine, a shield mounted on an insulating-support of said machine and provided with a nozzle, a pump, a drier and air-pipes connected with said nozzles to supply jets of dry air in substantial impingement upon said plate and said support.

2. In electrostatic apparatus, an electrostatic generator comprising plates, a nozzle coöperating with one of said plates, shields mounted on the insulating-supports of said machine, nozzles in said shields, and means to supply an insulating-gas to said nozzles to form jets adjacent said plate and said supports.

3. In electrostatic apparatus, a generator comprising plates to produce static electricity and means to supply jets of dry air adjacent one of said plates to maintain the electric insulation thereof.

4. In electrostatic apparatus, a generator comprising plates to produce static electricity and means to supply a jet of insulating-gas adjacent one of said plates to maintain the insulation thereof.

5. In electrical apparatus, an insulating-body and means to supply a jet of insulating-gas adjacent the surface of said body to maintain the insulation thereof.

LUCIEN I. BLAKE.

Witnesses:
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