No. 692,901. Patented Feb. 11, 1902.

J. N. PHIFER.

ELECTRICAL GENERATING MACHINE.

(Application filed Aug. 6, 1901.)

(No Model.)

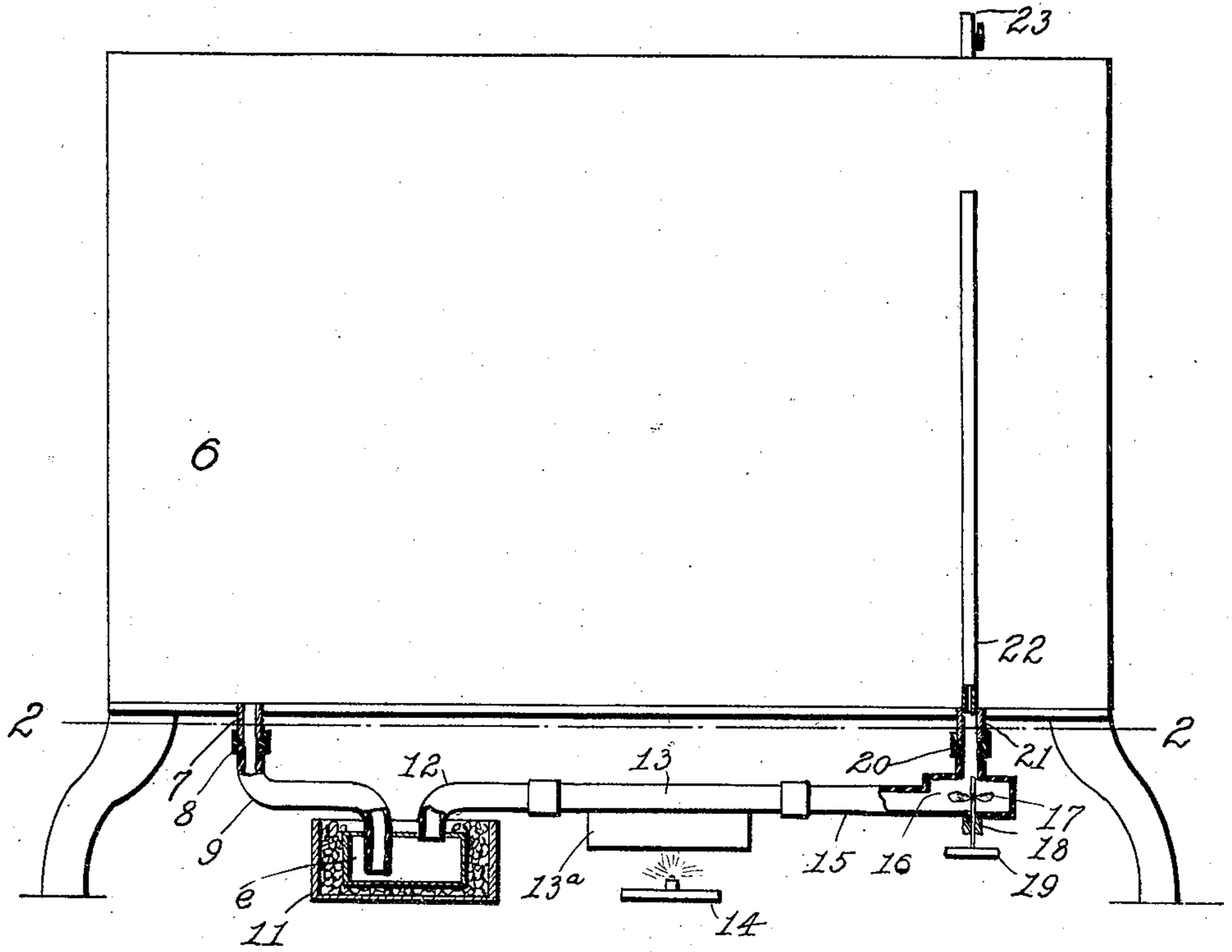

Fig. 1.

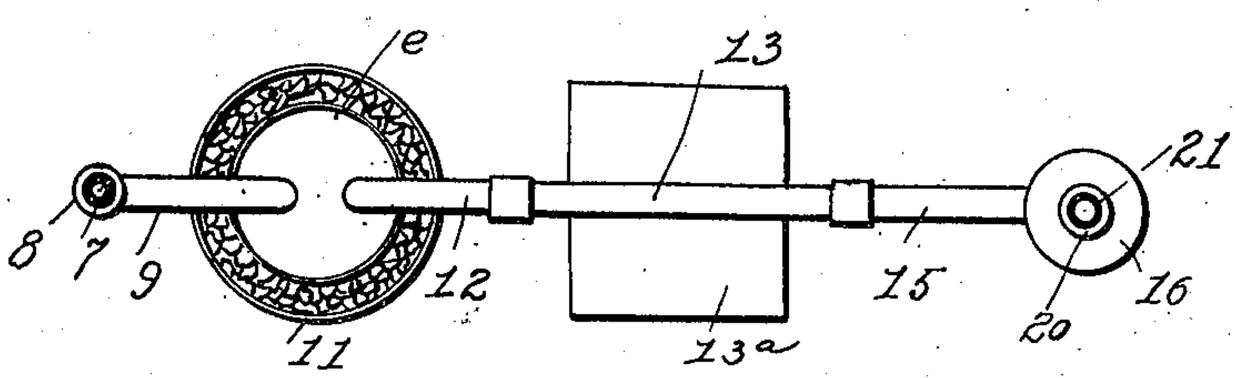

Fig. 2.

WITNESSES:

O. E. Murray.

M. L. Schroder.

John N. Phifer INVENTOR

BY

Milo B. Stevens & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN NEWTON PHIFER, OF SHUMWAY, ILLINOIS.

ELECTRICAL GENERATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 692,901, dated February 11, 1902.

Application filed August 6, 1901. Serial No. 71,101. (No model.)

To all whom it may concern:

Be it known that I, JOHN NEWTON PHIFER, a citizen of the United States, residing at Shumway, in the county of Effingham and State of Illinois, (whose post-office address is Shumway, Illinois,) have invented certain new and useful Improvements in Electrical Generating-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to electrical friction-generating machines, and comprises an apparatus for drying and purifying the air in such machines. It is well known that to produce good or the best results in such machines it is necessary that the air within the casing be dry. It is also well known that operation of the machine causes the production of ozone, which impairs the further generation of electricity. It is therefore essential that the ozone be expelled and fresh air introduced.

The object of my invention is to construct an apparatus which will dry the air within the casing without in any manner interfering with the operation of the machine.

A further object is to provide an apparatus which will not leak off current from the machine.

A further object is to construct an apparatus for the purpose referred to the principal parts of which are without the casing, so that there will be no occasion for opening the casing to effect the purpose of my apparatus.

With these and other objects in view the invention is hereinafter described and is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the apparatus. Fig. 2 is a section on the line 2 2 of Fig. 1, showing my apparatus in plan.

Referring more particularly to the drawings, the casing of a machine of the character stated is indicated at 6. The form and construction thereof are immaterial to my invention. It is usually a rectangular box with glass walls. Within this casing the machine is contained. I have considered it unnecessary to illustrate a machine, as the same has no connection with my invention and may be of the Holtz or other type.

An opening in the floor of the casing is provided with a nipple 7, preferably made of glass and threaded on the portion projecting below the bottom of the floor of the casing. To this nipple, by means of a hard-rubber coupling 8, is connected a hard-rubber pipe 9, the lower end of which passes through the top of a glass jar *e* and within an inch or two of the bottom thereof. The jar is surrounded by a freezing mixture, such as salt and ice, contained within a wooden pail 11, in which the jar is placed. Communicating with the jar, through the top thereof, is a hard-rubber pipe 12, which is fitted to a sheet-steel pipe 13, provided with an enlargement 13^a, forming a hot-air chamber, the heat for which is supplied by the flame of a lamp 14 in proximity thereto. The other end of the steel pipe is fitted to a hard-rubber pipe 15 at one end thereof. The other end of the pipe communicates with the chamber 16, preferably extending at a right angle to the pipe, and in the chamber is a fan 17, the shaft of which is revolubly supported in bearings 18. Outside the chamber the fan-shaft may be provided with a pulley 19, whereby the fan is driven by any suitable mechanical device. An electric motor is a convenient means for this purpose. The chamber communicates with the interior of the case through a coupling 20, fitted to a nipple 21. The coupling is of hard rubber and the nipple of glass, similar to the nipple and coupling heretofore described, and the nipple fits a hole in the floor of the case and communicates with a glass pipe 22, which extends vertically within the casing to a point near the top thereof. In the top of the casing, above the glass pipe, a valved opening 23 is made.

In operation if the electric current from the machine be defective on account of dampness the lamp is lighted or the fan started, which causes a current of air through the pipe 22, the valved opening 23 being closed. This induces a current of moist air from the bottom of the casing through the pipe 9 into the glass jar 10, where the moisture in the air is condensed by reason of the freezing mixture sur-

rounding the jar. The air then passes through the pipe 13, where it is heated, and thence or by reason of the fan through the pipe 22 into the casing. A circulation of the air is thus maintained during the operation of the machine or as long as may be necessary. Instead of the freezing mixture surrounding the glass jar dry calcium chlorid or similar hygroscopic substance may be placed within the jar for the purpose of absorbing the moisture from the air passing through the same. If by use of the machine the air within the casing becomes charged with ozone, so that the operation of the machine is affected, the valve 23 may be opened and the air within the case expelled by means of the lamp under the hot-air chamber, which will heat the air and cause it to rise and pass out of the opening.

The apparatus herein described is easily detached from the casing and may be attached only when it is necessary. When detached, the openings in the floor of the casing may be closed by suitable caps or plugs. Inasmuch as the connections are made of insulating material, the current does not leak away; also, the apparatus does not interfere with the operation of the electrical machine, but the same may be operated while the apparatus is attached and working.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. An air-drying apparatus for electrical generating-machines comprising an insulated pipe communicating with the interior of the casing of the machine and adapted to conduct the air therefrom, means to deprive the air so conducted of its moisture, and an insulated pipe adapted to return the air into the casing.

2. An air-drying apparatus for electrical generating-machines comprising an air-pipe communicating with the interior of the casing, an insulating-coupling between the pipe and the casing, means to exhaust the air from the casing through the pipe, means to extract moisture from the air so exhausted, means to then heat the air, and an insulated pipe adapted to return the air so heated to the casing.

3. In an air-drying apparatus for electrical generating-machines, in combination, a casing for the machine, a vessel in which air may be deprived of its moisture, an insulated pipe connecting the casing and the vessel, another pipe leading out of the vessel having means to heat the air therein, and a fan adapted to force the air into the casing.

4. In an air-drying apparatus for electrical generating-machines, in combination, a casing for the machine, an opening in the bottom thereof, an insulated pipe connected with said opening, a vessel adapted to receive air from said pipe, means to extract moisture from the air in the vessel, a heating-chamber, a pipe communicating between the vessel and the chamber, a pipe communicating from the heating-chamber to the interior of the casing, and a fan adapted to force the air through the pipe.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN NEWTON PHIFER.

Witnesses:

WILLIAM H. KELLY,

CHAS. MAIER.