March 18, 1924. 1,487,617

D. C. STOPPENBACH

ELECTRICAL APPARATUS

Filed Aug. 17, 1920

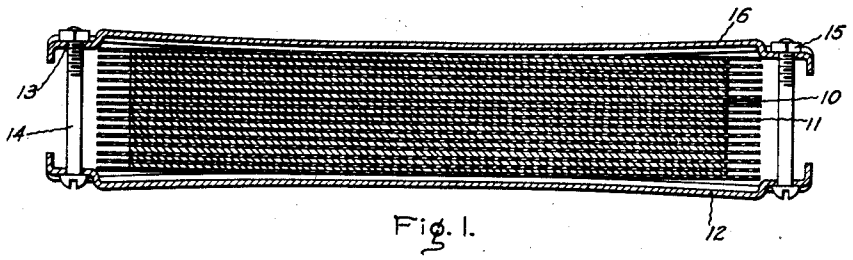

Fig. 1.

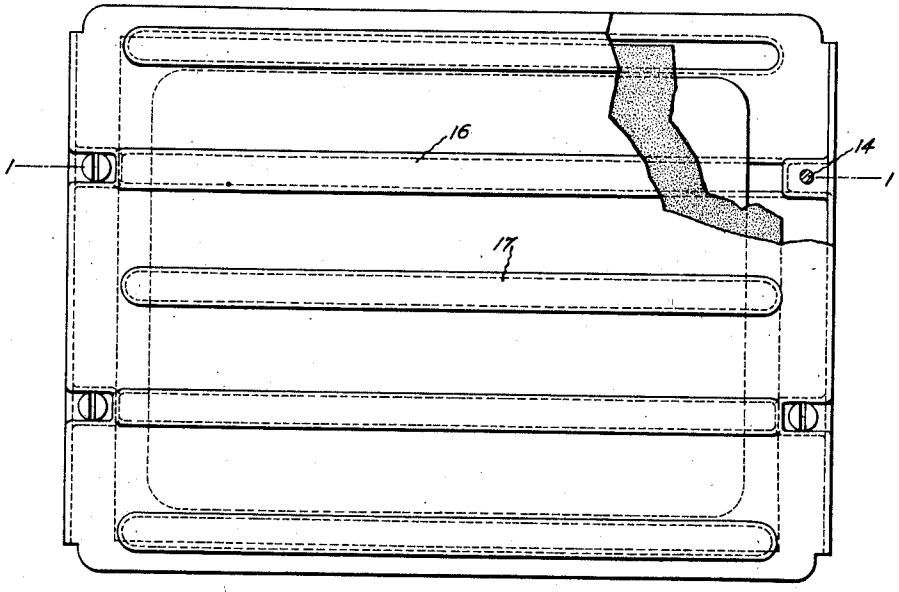

Fig. 2.

Inventor:
Donald C. Stoppenbach,
by Albert G. Davis
His Attorney.

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UNITED STATES PATENT OFFICE.

DONALD C. STOPPENBACH, OF NEW YORK, N. Y., ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ELECTRICAL APPARATUS.

Application filed August 17, 1920. Serial No. 404,243.

To all whom it may concern:

Be it known that I, DONALD C. STOPPENBACH, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Electrical Apparatus, of which the following is a specification.

This invention relates to electrostatic condensers of that type which comprise interspaced sheets of alternate conducting and insulating material. In providing means for holding the sheets in contact with one another, difficulty has been experienced in securing a holding device which will exert a uniform pressure over the entire area of the sheets. This is particularly desirable because with any considerable difference of pressure an attempt to adjust the sheets until the insulation at the points of greatest pressure will, in the operation of the condenser, be subjected to the maximum allowable electrical stress leaves other portions of the sheet at such a low pressure that the capacity of the same will be unduly limited. On the other hand, a still further increase of the total pressure on the sheets will result in a considerable weakening of the dielectric at the points of maximum pressure. One object of my present invention is to overcome this disadvantage by providing a condenser wherein the sheets are secured between two thin metal plates, each of which is normally convex toward the condenser sheets and further, by providing means for drawing the edges of said plates together whereby the plates are made to assume a flat form, and by reason of their natural tendency to resume the convex or curved form exert uniform pressure over the entire sheet.

Another object is to provide the above mentioned plates with clamping means which shall be adjustable to vary the pressure upon the condenser sheets.

Other objects will appear from the following disclosure.

Referring to the drawing, Fig. 1 is a sectional view taken on the line 1—1 of Fig. 2, and Fig. 2 is a side elevation with certain of the parts broken away.

The condenser is formed of alternate conducting and insulating sheets 10 and 11, held between two sheet metal faced plates 12. These plates are formed at their ends with openings 13 for the reception of bolts 14, which cooperate with nuts 15 to clamp the plates onto the condenser sheets. The plates 12 are formed with a natural curvature or convexity toward the condenser sheets, as is shown in Fig. 1. As the plates are drawn together the plates are straightened out and their natural curvature and resiliency tend to prevent the localization of the pressure in the vicinity of the bolts 14 as would be the case were the plates originally flat. It has been found desirable to form the plates 12 by longitudinal strengthening ribs 16 and 17.

Suitable leads are attached to the conducting sheets 10 and the entire apparatus supported in a container which, if desired, may be filled with the liquid insulator. As these features however are no part of my present invention they will not be particularly described.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. In a condenser, alternate sheets of conducting and insulating material, and means comprising resilient plates between which said sheets are held for forcing said sheets together with a pressure which is uniform throughout their area.

2. In a condenser, the combination of alternate sheets of conducting and insulating material, a face plate of resilient material formed with a natural convexity toward said sheets, and means engaging the face plate near its edge to cause said plate to be flattened and to press against the sheets with a substantially uniform pressure throughout their area.

3. In a condenser, the combination of alternate sheets of conducting and insulating material, face plates of resilient material formed with a natural convexity toward the said sheets, and adjustable means engaging said plates to flatten the same and cause the same to press upon said sheets with a substantially uniform pressure over their entire area.

In witness whereof, I have hereunto set my hand this 16th day of August, 1920.

DONALD C. STOPPENBACH.