P. THOMAS.

CONDENSER.

APPLICATION FILED OCT. 8, 1917.

1,396,897. Patented Nov. 15, 1921.

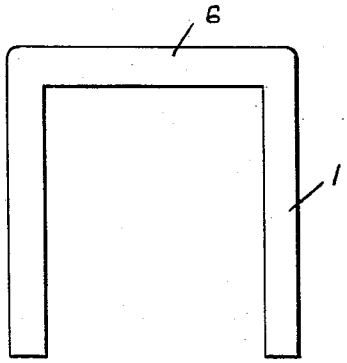


Fig. 1.

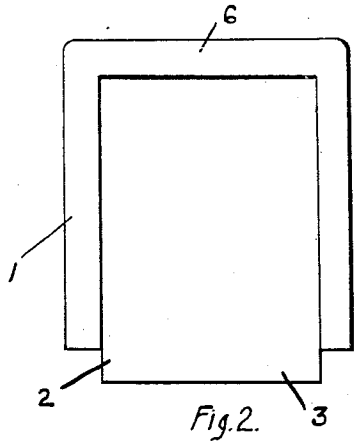


Fig. 2.



Fig. 3.

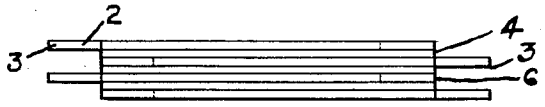


Fig. 4.

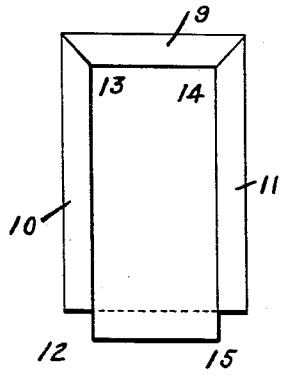


Fig. 6.

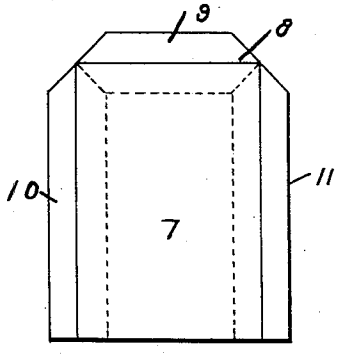


Fig. 5.

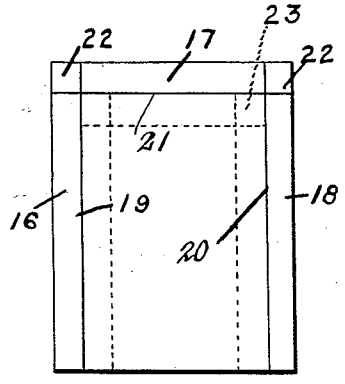


Fig. 7.

WITNESSES:

E. V. Herron

Elmer V Griggs

INVENTOR

Phillips Thomas

BY

Wesley G. Carr

ATTORNEY

UNITED STATES PATENT OFFICE.

PHILLIPS THOMAS, OF EDGEWOOD PARK, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

CONDENSER.

1,396,897. Specification of Letters Patent. Patented Nov. 15, 1921.

Application filed October 8, 1917. Serial No. 195,224.

To all whom it may concern:

Be it known that I, PHILLIPS THOMAS, a citizen of the United States, and a resident of Edgewood Park, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Condensers, of which the following is a specification.

My invention relates to electric condensers, and its object is to provide means for improving the insulation of stacked-foil condensers.

Another object of my invention is to provide means for filling the space which remains at the edges of the conducting foils in condensers constructed in the ordinary manner.

In the drawing, Figure 1 is a plan view of a sheet of insulating material; Fig. 2 is a plan view of a sheet of conducting foil assembled with the structure of Fig. 1; Fig. 3 is an elevational view of the structure of Fig. 2; Fig. 4 is an elevational view of a portion of a condenser constructed according to the method of Figs. 1 to 3, inclusive; Fig. 5 is a plan view of a sheet of insulating material, as shaped in a modified construction; Fig. 6 is a plan view of the insulating sheet of Fig. 5 when folded and assembled with a conducting sheet; and Fig. 7 is a plan view of a further modification of insulating sheet.

In the ordinary stacked-foil condenser, it is necessary to have the sheets of dielectric material between the conducting sheets extend somewhat beyond the margins of the conducting sheets in order to prevent contact of adjacent conducting sheets of opposite polarity and consequent short-circuiting of the condenser. Between the projecting margins of adjacent dielectric sheets, a space of the thickness of the intermediate conducting sheet, in which air and moisture may collect remains unfilled. Moreover, the outer margin of the condenser structure may not press evenly with the interior portion, on account of these spaces.

According to the method of my invention illustrated in Figs. 1 to 4, inclusive a U-shaped strip 1 of dielectric material is cut to closely fit around the margin of a conducting sheet 2 of foil. The sheets 1 and 2, which are preferably of substantially the same thickness, are assembled, with U-shaped sheet 1 embracing sheet 2, so that the sheets lie in the same plane, as illustrated in Figs. 2 and 3. One end margin 3 of sheet 2 projects beyond the corresponding margin of the U-shaped sheet 1 in order to provide a lead connection.

In Fig. 4, a portion of a condenser is illustrated. The conducting sheets 2, assembled with their respective U-shaped sheets 1 as previously described, are stacked with intermediate sheets 4 of insulating material and are arranged with their terminal margins 3 projecting alternately in opposite directions, as in the ordinary construction. The dotted line at 5 indicates the hidden inner margin of conducting sheet 2. Connecting cross strip 6 of U-shaped sheet 1 fills out the space beyond the margins of sheets 2, between the margins of the adjacent dielectric sheets.

In the construction shown in Fig. 5, a sheet 7 of insulating material has two of its corners cut diagonally, as at 8. When three edge strips 9, 10 and 11 are folded in, as shown in Fig. 6 and by dotted lines in Fig. 5, the edge-strips 9, 10 and 11 serve to form the U-shaped strip of Fig. 6. The foil sheet 12, 13, 14, 15 seats within the edge strips 9, 10 and 11 which fill in the spaces at its insulated margins. In this construction, it is desirable to have the insulation and the foil of such original thicknesses that the pressing leaves them of the same final thickness, although this is not absolutely necessary.

The rectangular sheet of Fig. 7 is folded along lines 19, 20 and 21 after the small square corner portions 22 have been removed. The edge strips 16, 17 and 18, which are folded in to form the U-shaped strip, will overlap at their ends at 23, as is indicated by the dotted lines.

This construction provides a completely filled-out structure in which there are no air spaces, and the conducting sheets are particularly well insulated.

With any of the foregoing arrangements, the sheets of insulating material provide, in effect, a series of pockets which receive the sheets of foil which alternately project beyond the pockets at opposite sides to provide the terminal connections.

It is obvious that many modifications of my invention may be made by those skilled in the art without departing from the spirit of the invention, and it is to be understood

that my invention comprises all such modifications and changes as properly fall within the scope of the appended claims.

I claim as my invention:

1. A stacked condenser comprising alternate sheets of conducting and insulating material and additional strips of insulating material intermediate the margins of said sheets of insulating material.

2. In a stacked condenser, a conducting sheet having sheets of insulating material placed adjacent both its flat faces and an additional strip of insulating material placed adjacent its margins.

3. A stacked condenser comprising alternate sheets of conducting material and insulating material having additional strips of insulating material lying in the same plane with, and adjacent to the margins of, said sheets of conducting material to effectively insulate said margins.

4. An electric condenser comprising alternate sheets of conducting material and insulating material having U-shaped strips of insulating material embracing each sheet of conducting material and lying in the same plane with said sheet of conducting material.

5. An electric condenser comprising sheets of insulating material alternating with sheets of conducting material and a U-shaped strip of insulating material embracing each of said sheets of conducting material.

6. In an electric condenser having alternate insulating and conducting sheets, a U-shaped strip of insulating material having the same thickness as one of said conducting sheets and having the distance between its two side members equal to a lateral dimension of said conducting sheet.

7. An electric condenser comprising superimposed alternating sheets of insulating material and of foil, the sheets of foil being of smaller size than the sheets of insulating material and being disposed so that alternate sheets of foil project beyond opposite sides of the sheets of insulating material and additional sheet insulating material surrounding the non-projecting edges of the sheets of foil between the sheets of insulating material.

8. An electric condenser comprising a body of superimposed sheets of insulating material providing pockets alternately opening through different sides of the body and sheets of foil disposed one in each pocket and projecting from the pockets.

In testimony whereof, I have hereunto subscribed my name this 18th day of Sept., 1917.

PHILLIPS THOMAS.