C. F. PETERSON.

PROCESS OF MAKING INSULATING MATERIAL.

APPLICATION FILED OCT. 20, 1909.

1,098,967. Patented June 2, 1914.

Fig. 1.

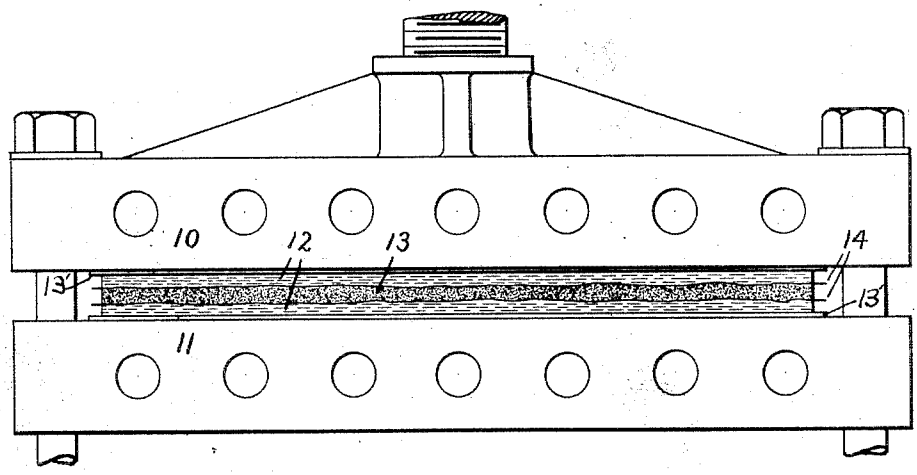


Fig. 2.



Fig. 3



Fig. 4



Fig. 5

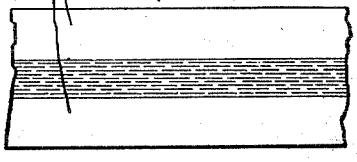
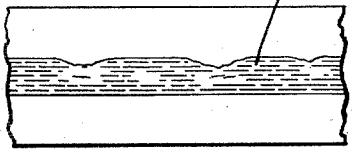


Fig. 6



Witnesses:
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UNITED STATES PATENT OFFICE.

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PROCESS OF MAKING INSULATING MATERIAL.

1,098,967.

Specification of Letters Patent. Patented June 2, 1914.

Application filed October 20, 1909. Serial No. 523,597.

To all whom it may concern:

Be it known that I, CHARLES F. PETERSON, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in the Process of Making Insulating Material, of which the following is a specification.

This invention relates to the manufacture of material which is built up from adherent fragments. Material of this character is used quite extensively in electrical arts, being built up from fragments of mica pressed together with an adhesive substance.

One of the objects of my invention is to improve the making of sheets by making them uniform.

One of the difficulties with mica sheets made up of fragments is that the material is liable to be irregular in density. In the manufacture of these sheets the fragments are pressed together between iron plates and the overlapping fragments cause some parts of the sheet to be hard and others soft. The plates of course press upon the high spots and compress the sheet at these points. This is particularly troublesome with mica sheets used in commutators. When the commutator is turned off, it is often found that the copper is carried over the edges at the places where the mica is porous, instead of there being a clean line of division, as would be the case if the mica were uniform. In order to make the mica uniform, it is necessary to mill off the sheets of mica on both sides and great waste of material is entailed. In carrying out my invention, I overcome this difficulty by applying a yielding material adjacent the fragments so as to distribute the pressure. I have found that in compressing mica a layer of yielding material, such, for instance, as asbestos, serves the purpose. By employing a pad of this material the pressure is distributed throughout the sheet which is to be formed and a product of uniform density is obtained. I have found that an asbestos pad is particularly well adapted, since it furnishes the desired yielding properties, and at the same time will withstand the temperature which is employed in the baking of the sheets.

In the accompanying drawing illustrating my invention, Figure 1 shows mica sheets with an asbestos pad between them in a press; Fig. 2 represents the sheets and asbestos pad as they come out of the press; Fig. 3 is a sheet of mica before it is milled off; Fig. 4 represents a sheet after it is milled off; Figs. 5 and 6 show the mica in the slots of the commutator.

Referring to the drawings, 10 and 11 represent iron plates used in the pressing of the mica sheets. These plates may be pressed together in any desired manner, this feature of the process forming no part of my invention. The plates are perforated, as shown, for the purpose of carrying the steam coils for heating the sheets to bake them. The mica sheets 12, which are built up of mica fragments in the well known manner, are placed between the plates of the press with the asbestos pad 13 between them. Thin sheets of metal 13′, as for instance, sheet iron or tin, are placed between the mica sheets and the plates of the press to prevent the mica from adhering to the plates, and thin sheets of impregnated paper 14 are laid between the asbestos pad and the mica for similar reason. When pressure is applied to the plates and the sheets are baked, the sheets will be found to be flat and even on one side, whereas on the side next to the asbestos the surface is very uneven. The sheet itself, however, is of uniform density. This sheet, which is shown in Fig. 3, is milled off on one side only, *i. e.*, the uneven side, so as to reduce the sheet to the form shown in Fig. 4.

In Figs. 5 and 6 I have shown the difference between the use of sheets of mica which are of uniform density and sheets which are not. In Fig. 5 a clean line is formed between the mica and the bars 15 of the commutator, while in Fig. 6 the copper of the bar is carried over at the soft spots of the mica 16.

It will be seen that I have provided means whereby a uniform sheet of mica may be obtained in a very simple manner.

Various modifications of my invention will suggest themselves to those skilled in the art, and it should be understood that I do not limit my invention to the particular means and materials set forth therein except in so far as they are limited by the scope of the claims annexed hereto.

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

1. The process of forming mica insulating material which consists in spreading

fragments of mica provided with adhesive over an extended area to form a sheet, pressing the sheets between rigid plates with a compressible material adjacent the mica to give the sheet a uniform density and make the face of the sheet adjacent the yielding material uneven and then planing off the uneven surface.

2. The process of forming mica insulating material which consists in spreading fragments of mica provided with adhesive over an extended area to form a sheet, pressing the sheets between rigid plates with yielding material between the sheets to give the sheet a uniform density and make the faces of the sheets which are adjacent the yielding material uneven and then planing off the uneven surfaces.

In witness whereof, I have hereunto set my hand this 19th day of October, 1909.

CHARLES F. PETERSON.

Witnesses:
BENJAMIN B. HULL,
HELEN ORFORD.