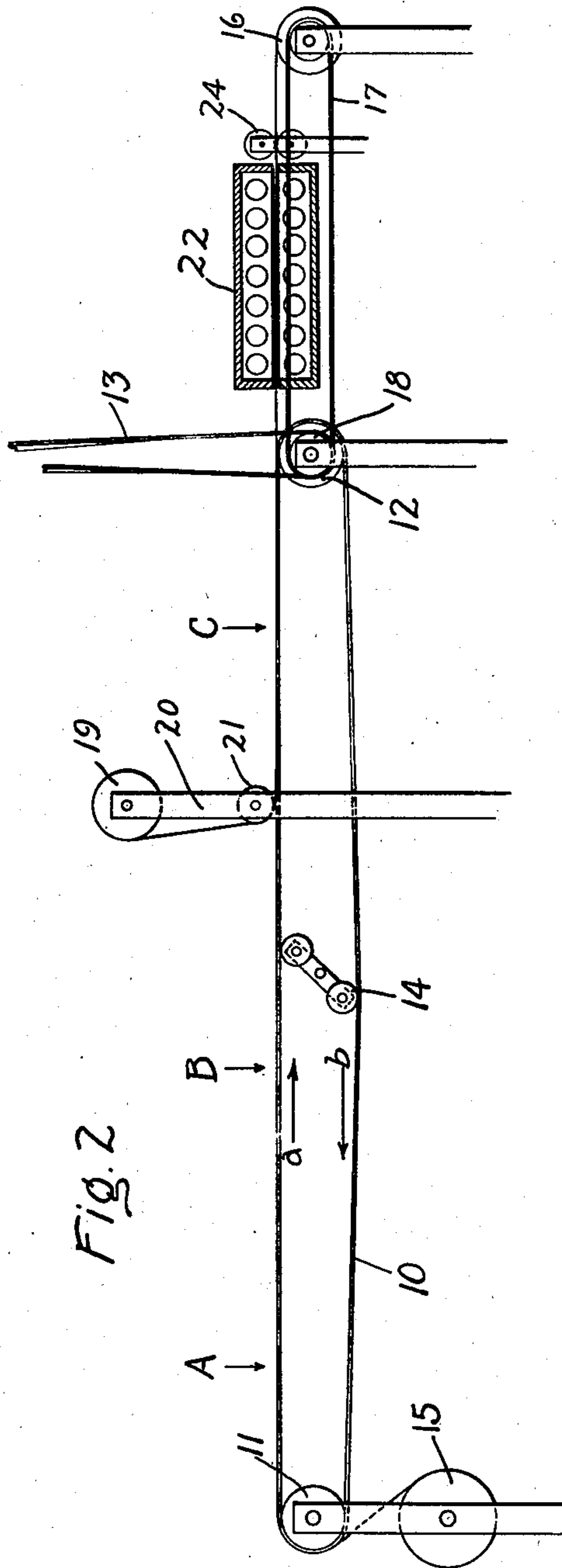
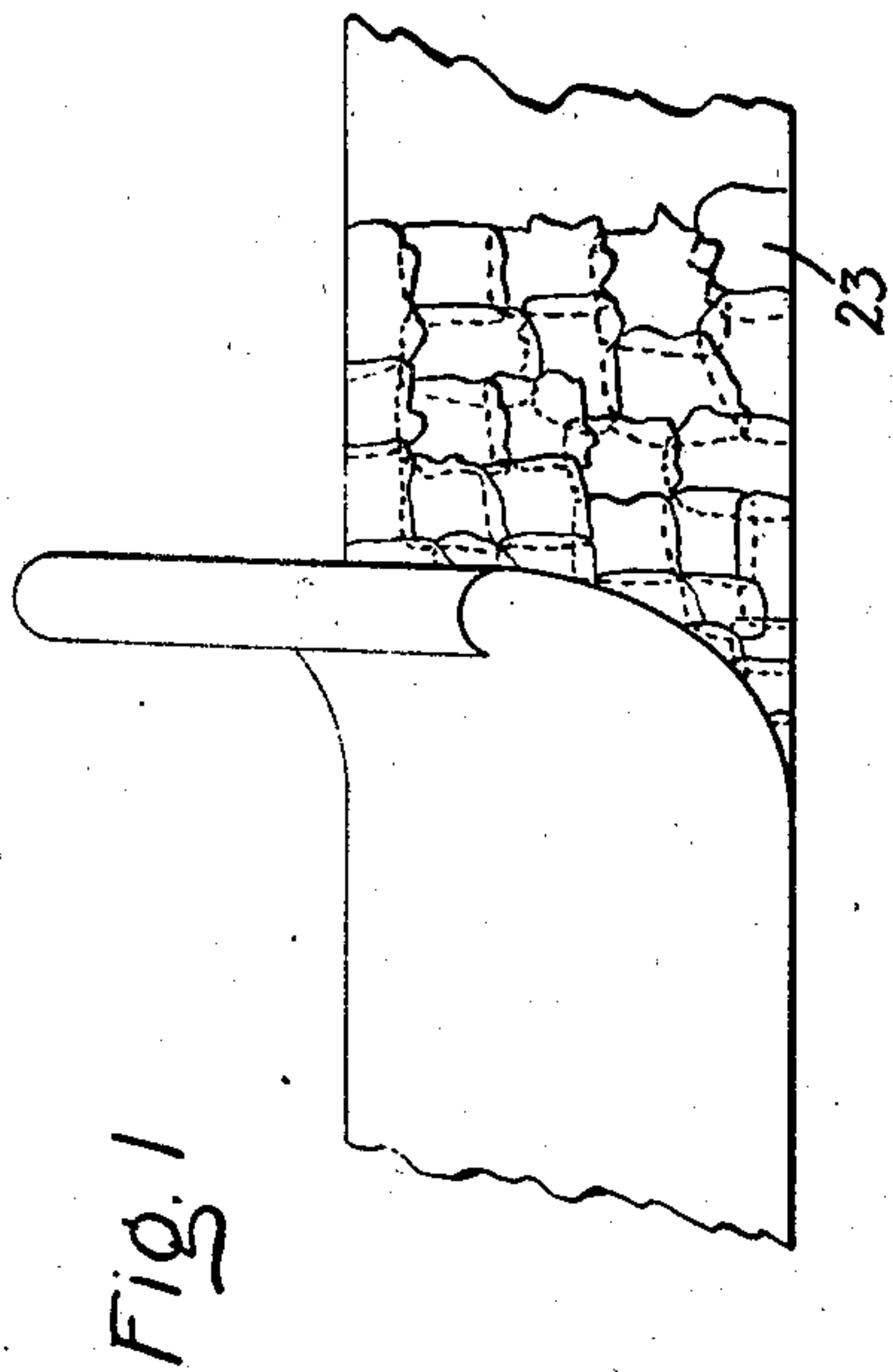


C. F. PETERSON.
PROCESS OF MAKING INSULATING FABRICS.
APPLICATION FILED MAR. 27, 1906.

940,188.

Patented Nov. 16, 1909.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES F. PETERSON, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

PROCESS OF MAKING INSULATING FABRICS.

940,188.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed March 27, 1906. Serial No. 308,261.

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 and State of New York, have invented certain new and useful Improvements in Processes of Making Insulating Fabrics, of which the following is a specification.

This invention relates to insulating material for electrical uses and has for its object the provision of an insulating fabric which will readily adapt itself to a variety of uses and can be manufactured at a low cost with simple machinery and unskilled labor.

The object of my invention is to provide an insulating fabric composed of webs or sheets of fibrous material having insulating material secured between them. The material which I propose to use is paper, although, of course, other materials may be used, if desired. The paper which I have found most advantageous is what is known as Japanese rice paper and the insulating material is mica, which is split up into thin laminae. The mica is in small sheets and is laid between the sheets of paper so as to overlap. As a means of securing the mica and paper together, a good adhesive gum—which will become tough and preferably insulating when hardened—is used. I have found that shellac serves my purpose very well.

In carrying out my invention, I provide a flexible traveling support, as, for instance, a belt which is drawn taut. Over this belt I cause a sheet of paper to travel at the same speed as that of the belt. This gives a firm support for the web of paper. As the paper passes onto the belt an operator applies a coating of shellac or varnish over the entire surface, so that the paper is really shellacked fast to the belt. The belt travels slowly, so that the operator may fully coat the paper as it passes. A second operator then applies overlapping fragments of mica to the paper, which the shellac will cause to stick fast. Just as the web leaves the second operator there is superposed a second web of paper fed from a roll located over the belt and this is carried along over the other web and at the same speed. A third operator stands just beyond this roll and applies a coat of shellac to the upper surface of the second sheet. This

operator also rubs the paper so as to take out all the wrinkles and excess shellac and makes a smooth surface. The belt underneath lends itself to this purpose, as it yields just sufficiently to obtain the best results. After the sheet passes the last operator it passes into an oven wherein the volatile matter is driven off and the shellac or other adhesive material hardened. The paper is then wound into rolls for future use.

In the accompanying drawings, I have illustrated one method of carrying out my invention, but it should be of course understood that various other methods will suggest themselves to those skilled in the art and I do not in any sense limit my invention to the particular construction or mode of operation shown or described, except in so far as it is limited by the claims annexed hereto.

In the drawings, Figure 1 is a perspective view of a fragment of my insulating fabric, the upper portion being raised so as to expose the insulating material; and Fig. 2 is a diagrammatic representation of the arrangement whereby my invention is carried out.

Referring to the drawings, 10 is a belt which passes over the rollers 11 and 12 and is driven by belt 13, while a belt-tightener 14 keeps the belt 10 taut. 15 is a roll of material, such as Japanese rice paper, which is located adjacent one end of the belt 10 so that the material may be passed over the belt which is traveling in the direction of the arrows *a b*. The paper is led along the belt and travels at the same speed as the belt, being wound upon a roll 16 which is driven by a belt 17 by means of a pulley 18 driven by the belt 13. A second roll of paper or other material 19 is located midway of the belt 10, as upon a standard 20, and a roller 21 is arranged so as to substantially contact the belt 10. The web of paper is then passed from the roll 19, over roller 21, and into contact with the belt 10. An oven 22, which may be of any desired form and heated in any desired manner, as, for instance, electrically, is provided beyond the traveling belt 10, so that the webs of paper as they leave the belt pass therethrough.

The mode of operation is as follows: The end of the roll of paper 15 is passed along the belt 10 and started on the roll 16. As the belt 13 drives the belt 10 and the roll 16,

the paper is carried along in front of operators stationed at A, B and C. Operator A applies to the paper a coating of shellac or other adhesive material, which may be quickly accomplished by means of a brush, although of course other means may be used, as, for instance, by means of a spray. The paper then passes on in front of the operator B, who lays upon the shellacked paper sheets of mica 23 which are preferably caused to overlap, as shown in Fig. 1. The third operator C lays the end of the web of paper from the roll 19 on to the top of the mica and applies a second coating of shellac, which saturates and strikes through the paper so as to cause it to adhere to the mica and to the lower sheet of paper. Another operator stationed nearby then smoothes the surface of the paper with a cloth or straight edge, so as to take out all the wrinkles and excess shellac, making a smooth fabric, which then passes into the oven and is dried. The shellac causes the paper and mica to adhere, and, also, adds insulating qualities to the material. The paper is then passed between rolls 24 which chill and hardens the shellac and then wound on a roll 16.

It will be seen that I have produced an insulating fabric which will be useful for many purposes in the electrical art. It may be used in wide sheets, or it may be cut into narrow strips to be used as tape. It is very flexible and tough, while at the same time furnishing all of the insulating properties of the mica, or other material which forms a part of it. It will of course be understood further that other material than the Japanese rice paper may be used and that I do not limit my invention to the use of a particular adhesive or insulating material, nor to the mode of applying the same, except in so far as the invention is limited by the scope of the claims annexed to and forming a part of this specification.

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

1. The process of making sheet insulating material which consists in shellacking overlapping fragments of mica to a continuous web of material, covering the mica with a second web of material and applying a second coating of shellac.

2. The process of making sheet insulating

material which consists in shellacking overlapping fragments of mica to a continuous web of paper, covering the mica with a second web of paper and applying a second coating of shellac.

3. The process of making sheet insulating material which consists in coating a web of material with adhesive as it passes over a moving support, applying fragments of mica to the web, covering the mica with a second web midway of the support, and applying a coating of adhesive to said cover.

4. The process of making sheet insulating material which consists in coating a web of material with adhesive as it passes over a belt moving at the speed of the web, applying fragments of mica to the adhesive, covering the mica midway of the belt with a second web of material to which an insulating adhesive is applied, and then drying by heat.

5. The process of making sheet insulating material which consists in coating a web of material with adhesive as it passes over a belt moving at the speed of the web, applying an insulating substance to the adhesive, covering the same midway of the belt with a second web of material and then drying by heat.

6. The process of making sheet insulating material which consists in coating the web of paper with shellac as it passes over a belt moving at the speed of the web, applying overlapping fragments of mica to the shellac, covering the mica midway of the belt with a second web of paper and then drying by heat.

7. The process of making sheet insulating material which consists in coating a web of paper with shellac as it passes over a belt moving at the speed of the web, applying overlapping fragments of mica to the shellac, covering the mica midway of the belt with a second web of paper, applying a coating of adhesive to said second web and then drying by heat.

In witness whereof, I have hereunto set my hand this 26th day of March, 1906.

CHARLES F. PETERSON.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.