No. 783,666. PATENTED FEB. 28, 1905.

B. E. BAKER.

REVOLVING PLATE FOR STATIC MACHINES.

APPLICATION FILED DEC. 31, 1904.

Fig. 1.

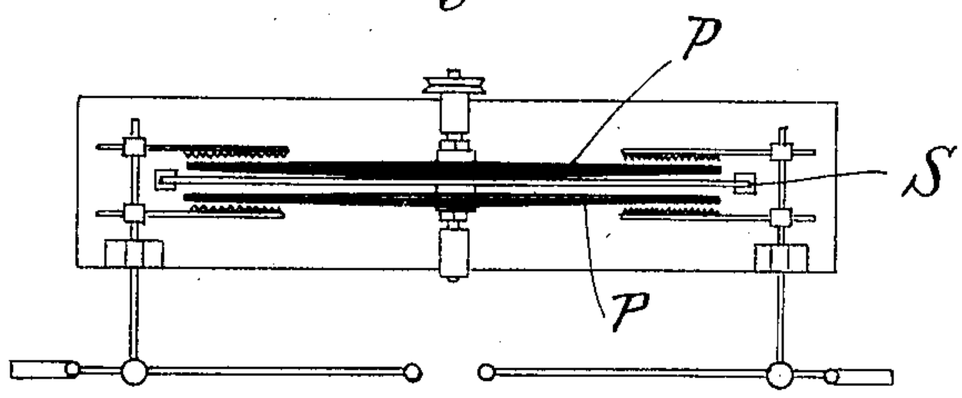


Fig. 2.

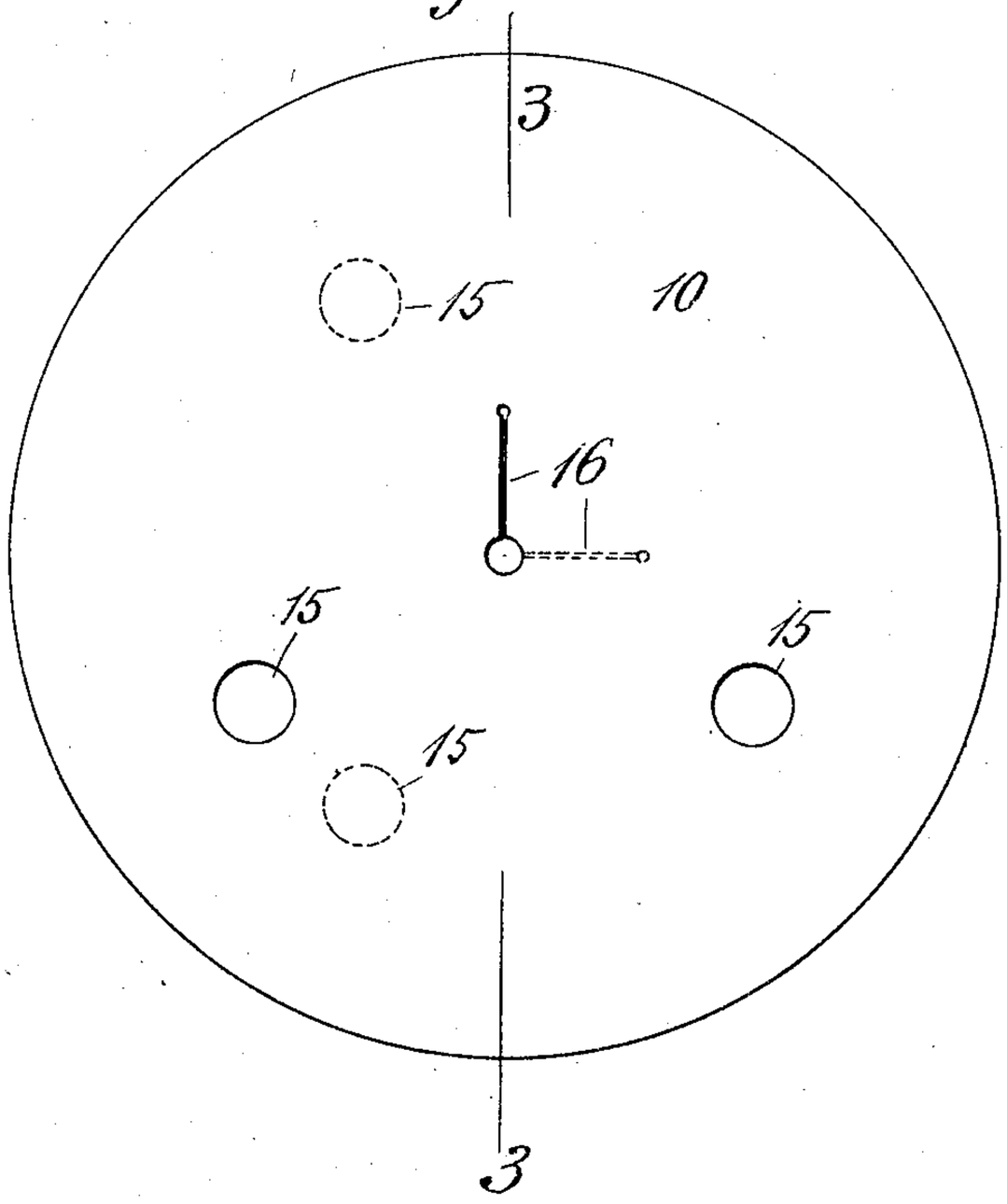
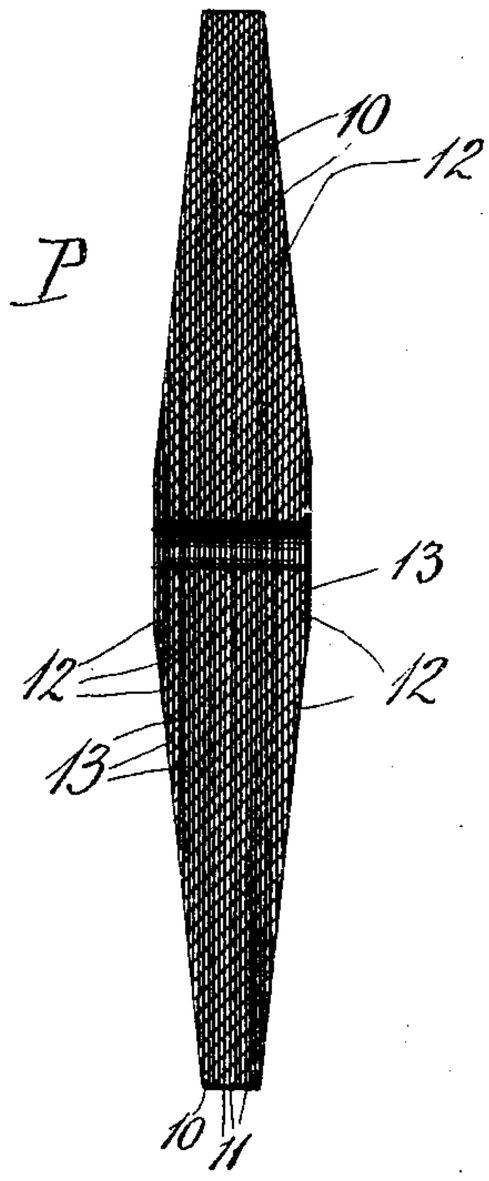


Fig. 3.



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UNITED STATES PATENT OFFICE.

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REVOLVING PLATE FOR STATIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 783,666, dated February 28, 1905.

Application filed December 31, 1904. Serial No. 239,060.

To all whom it may concern:

Be it known that I, BURTON E. BAKER, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Revolving Plates for Static Machines, of which the following is a full, clear, and exact specification.

This invention relates to plates for static machines, and more especially to those which are rotated at high speeds to coöperate with the stationary plate of the machine in generating an induced electric current of uniform quality.

My invention has for one of its objects the provision of an inexpensive plate which will possess great tensile strength and will not fracture or fly to pieces under high velocities and which will, furthermore, be highly insulated, impervious to moisture, and not subject to the accumulation of condensation on its surface, features upon which the successful action of the entire machine depends to a great extent.

Plates manufactured in conformity with my invention may be advantageously used in static machines of various kinds, and for the sake of ready comprehension I have illustrated in Figure 1 of the accompanying drawings a machine of simple form merely in order to locate the plates in the machine in relation to the other component elements thereof. Fig. 2 is a side view of one of the layers of fibrous material, of which a certain quantity is used in building up the plate; and Fig. 3 illustrates a section of the plate as indicated by line 3 3 in Fig. 2, it being understood, of course, that the thickness of the several layers is greatly exaggerated in order to distinguish between them.

In static machines generally the results in generating high induced electric currents depend vastly upon the velocity or speed at which the plates are running, or, more strictly speaking, upon the speed at which a certain portion of each—the stationary plate S and so-called "revolving" plates P—pass each other, and attempts have been made to increase this "running-by" speed by rotating the plates in opposite directions and at safe velocities. However, the contacts and other elements of the machine required considerable reorganization to conform to the new conditions and entailed considerable complexity in their operation, so that the demands of the market are confined substantially to the "stationary-plate" machine. Under these conditions it became a necessity to provide a plate which can be run at very high velocity and which will do the work for which it is intended.

One of the principal requirements in the plate consists of its high insulation, and glass, mica, &c., have been and are extensively used; but it is evident that by virtue of their brittleness they are apt to fracture and fly to pieces at high speeds, and therefore it is my aim to provide a plate which will possess all the essential features and may be manufactured at a reasonable cost.

From the above statements it is evident that the rotating plates of static machines should have considerable tensile strength without brittleness, and therefore my improved plates are built up of a series of layers of fibrous material, which are united into what may be termed a "common mass" by means of a penetrating adhesive and under high pressure.

While textile materials of various kinds may be used—as, for instance, linen, silk, &c.—I prefer to employ tough paper and shellac, the plates being made up substantially as indicated in Fig. 3, in which the outside layers consist of paper sheets 10, and layers of powdered shellac 11 are interposed between the several papers. The layers thus built up are then subjected to high pressure under heat, thereby excluding all moisture, melting the shellac, and forcing the same into the paper, which in this manner loses its identity as such and unites with the shellac to form a homogeneous mass.

Practice has demonstrated that the contraction of the plate when cooling is apt to produce a warping effect, and hence I provide in the paper layers a series of openings 15 and

slits 16, which will permit any surplus stock of either paper or shellac to avoid bunches and to insure the plates being flat. Furthermore, I deem it advantageous to reinforce the central portion of the plate P by adding at each side thereof a series of layers of paper 12 and shellac 13 of gradually decreasing diameters, thereby enhancing the tensile strength of the entire structure, and consequently enabling the plate to run at very high speeds.

The plate when finished will fulfil all the essential requirements and in addition thereto constitutes an element which is practically unitary, cannot be split into layers, is sufficiently elastic to become perfectly straight, and does not "sing" when running at high speeds, a feature which will tend to recommend it to the favorable consideration of physicians and patients.

The outer layers of paper may be varnished or coated with some desirable insulating substance to exclude moisture and to increase the insulation of the plates.

Having described my invention, what I claim is—

1. A plate of the class specified formed of a plurality of alternate layers of fibrous material and shellac and united into a homogeneous mass.

2. A plate of the class specified, formed of a plurality of layers of fibrous material having openings for receiving surplus stock and to permit the flattening of the plate, and a plurality of layers of shellac interposed between said layers of fibrous material, and united therewith to form a homogeneous mass.

3. A plate of the class specified formed of a plurality of alternate layers of fibrous material and shellac, and united into a homogeneous mass and having a reinforced central portion for stiffening said plate.

4. A plate of the class specified, and comprising a body portion and a reinforced central portion, and formed of a plurality of alternate layers of fibrous material and shellac united into a homogeneous mass.

BURTON E. BAKER.

In presence of—
FOSTER E. HARVEY,
ROBERT H. LEWIS.