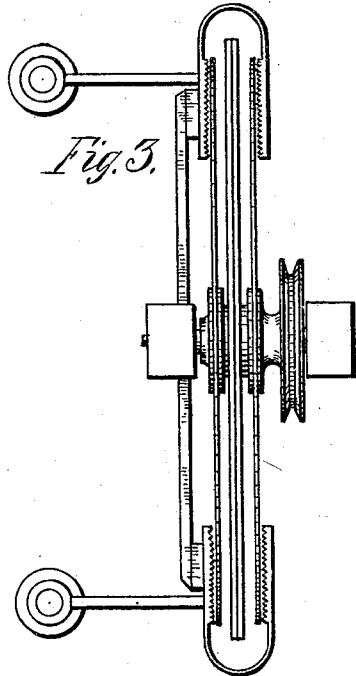
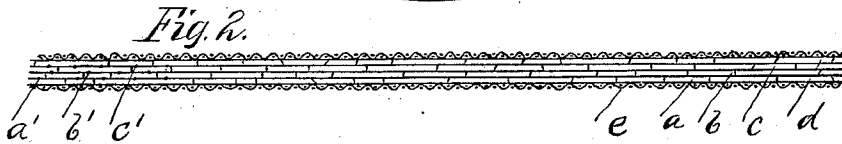
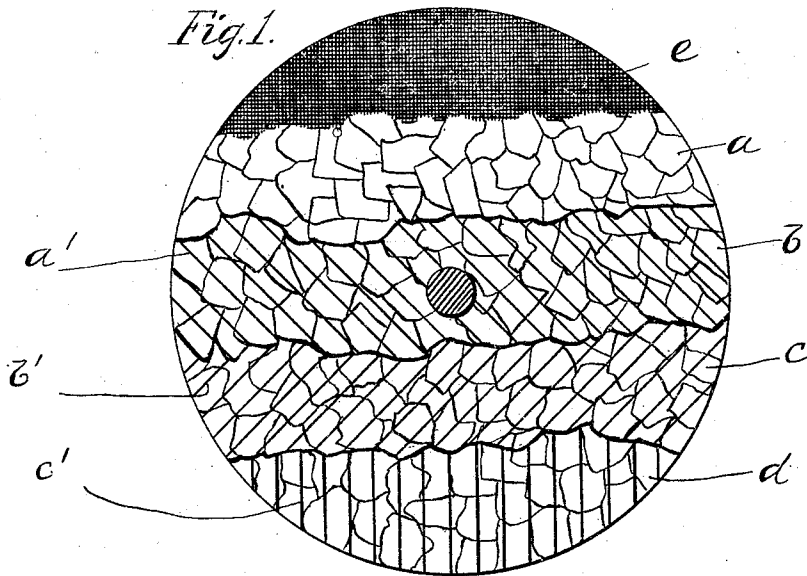


B. E. BAKER.
 STATIC INDUCTION GENERATOR.
 APPLICATION FILED NOV. 6, 1905.

937,691.

Patented Oct. 19, 1909.



Witnesses:
 F. H. Elliott.
 L. H. Mendenhall.

Inventor:
 Burton E. Baker
 by N. E. Hart.
 attorn.

UNITED STATES PATENT OFFICE.

BURTON E. BAKER, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE BAKER ELECTRIC COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF CONNECTICUT.

STATIC INDUCTION GENERATOR.

937,691.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed November 6, 1905. Serial No. 285,979.

To all whom it may concern:

Be it known that I, BURTON E. BAKER, a citizen of the United States of America, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Static Induction Generators, of which the following is a specification.

This invention relates to electrical machines and is more especially intended to apply to static induction generators of electricity.

My invention has for its object the production of an inexpensive plate such as the disks used in machines of this character which shall possess great tensile strength to prevent it from breaking and flying to pieces on high velocities of rotation, which will have high insulating qualities, be impervious to moisture, and not readily subject to the accumulation of condensation on its surface, upon all of which features the successful action of a machine of this character depends to a considerable extent.

A still further object of the invention is to produce a disk which will run quietly and be free from objectionable resonance under high velocities.

Disks made in accordance with my invention are adapted for use either as a stationary or rotating element of a static machine.

Figure 1 is a plan view of a disk made in accordance with my invention with successive layers broken away to show the construction. Fig. 2 is an edge view of the same. Fig. 3 is a general view of a static machine in which these disks are used.

Broadly considered my invention consists in building up a disk from successive layers of mica, interposing between these layers of mica a binder in the nature of a fabricated fibrous material such as threads, cloth or paper, securing the whole mass together by a cementing composition, preferably a dry shellac, and preparing the active surfaces of the plate by applying thereto a fine fibrous material such as cloth or paper which is thoroughly impregnated with an oxidizing oil. In the production of these disks I preferably use small pieces or flakes of mica which may be scaled down very thin and are laid flat either with or without the edges of the various flakes overlapping one another.

Referring more particularly to Figs. 1 and 2 of the drawings *a b c d* represent the

various layers of mica formed from the small flakes. *a' b' c'* represent threads which are laid between the successive layers of mica, the successive layers of threads preferably extending in different directions so as to increase the tensile strength of the finished disk in all directions. For instance, if there were four layers of threads each layer would preferably extend in a direction substantially at right angles to the threads of the layer beneath it. As these flakes of mica and layers of threads are laid in place they are treated with a cementing substance such as dry powdered shellac which is sifted in thoroughly; or the pieces of mica may be dipped in a cementing solution the basis of which is shellac. The disk thus made is treated to heat and pressure in order to melt the shellac, evaporate moisture and express any moisture and excess of the cementing material. The disk is then mounted on an arbor and balanced either by stripping off or adding laminae of mica, after which the active faces are prepared. To the outer walls of the disk there is applied a fine fibrous material indicated at *e* such as a light closely woven cloth or paper which is firmly secured by a cementing composition and is then treated by thoroughly impregnating with an oxidizing oil, which leaves a heavy gum of high insulating qualities. As an equivalent of the oxidizing oil an insulating varnish may be used which produces a similar effect. In actual practice at the present time I have found that a composition of which linseed oil is the base gives extremely good results.

The operation of machines of this character is accompanied by the production of excessive amounts of ozone which is a vigorous oxidizing agent. As a result there is a continuous process of oxidation of the oxidizing oil with which the surface layers of the disk are impregnated, which ultimately produces an extremely hard gum of very high insulating qualities.

While I have shown and described separate threads as being interlaid between the layers of mica it is apparent that any binding material, such as threads or cloth or paper, can be used with almost equally good results. When the term "binding material" is used I wish to be understood as meaning a fabricated material, for instance, spun or woven threads or cloth as distinguished from a fibrous material which is not fabricated

but is composed of the raw fiber. It is preferable to have this binder as light as possible.

It is well known that it is practically impossible to scale mica down to its thinnest lamina and there is an ever present liability, if the mica constitute the active faces of the moving disk, that the combs used to collect the generated charge would catch in the edge of a piece of mica and flake off a part or all of it, disturbing the balance of the disk and starting a bad spot on the disk which would cause excessive wear at that point, would catch and retain moisture and interfere seriously with the proper action of the machine. In disks made in accordance with my invention there is no such liability for destruction of or injury to the active faces by the combs or in any way in which a plain mica disk would be injured and I am able to produce a disk having very high insulating properties and free from any tendency of condensation. Furthermore, plain mica disks revolving under high speeds are extremely resonant and are objectionable for this reason. The fibrous material which is incorporated in my disks kills the objectionable resonance, giving a very smooth and quiet running machine.

I am aware that it is not new to build up a disk for static machines from successive layers of small flakes of mica secured together by a cementing substance and I do not make any broad claim to such a structure as my invention.

What I claim as new and desire to secure by Letters Patent is:—

1. A disk for use in static induction generators made up of a series of layers of mica interlaid with a binding material, the whole being secured together by a cementing composition.

2. A disk for use in static induction generators made up of a series of layers of mica interlaid with a fibrous material, the faces of said disks being covered with a fibrous material impregnated with an oxidizing oil, the whole being secured together by a cementing composition.

3. A disk for static induction generators comprising alternating layers of mica and a binding material secured together by a cementing composition, and sheets of fibrous material secured to the outer faces of said disk and impregnated with oxidizing oil.

4. A disk for static induction generators comprising alternating layers of mica and a binding material secured together by a cementing composition, and sheets of non-conducting fibrous material secured to the outer faces of said disk, substantially as described.

5. A generator plate composed of alternate layers of fibrous material and films of mica incorporated and secured together by a cementing material.

6. A plate for use in static induction generators comprising a disk of insulating material and a covering of non-conducting fibrous material secured to the active faces of said disk.

7. A plate for use in static induction generators comprising a disk of insulating material and a covering of fibrous material secured thereto and impregnated with an oxidizing oil.

In testimony whereof I affix my signature in presence of two witnesses.

BURTON E. BAKER.

Witnesses:

H. E. HART,

D. I. KREIMENDAHL.