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H. E. & H. F. WAITE.
PLATE FOR STATIC MACHINES.
APPLICATION FILED DEC. 11, 1903.

NO MODEL.

Fig. 1.

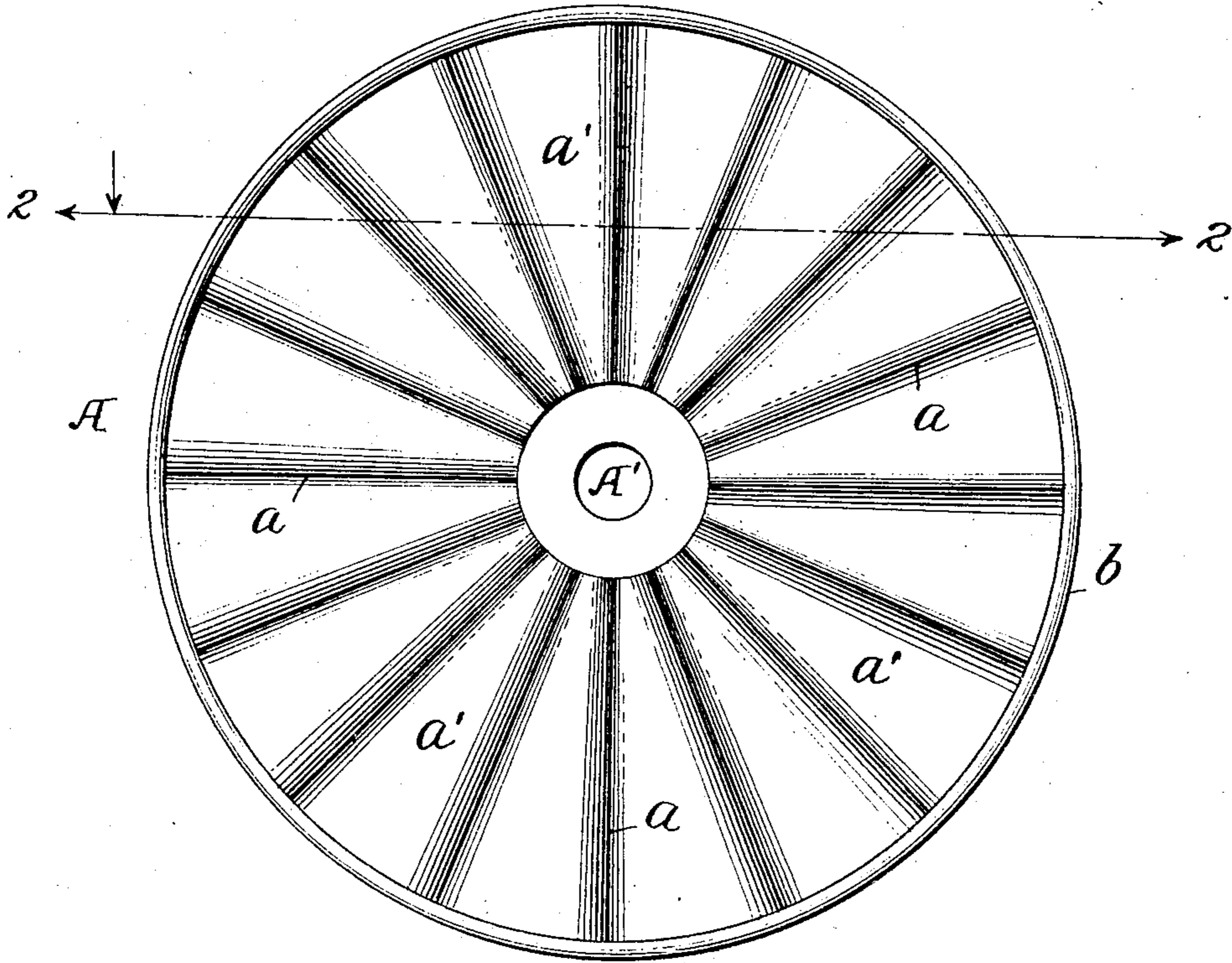
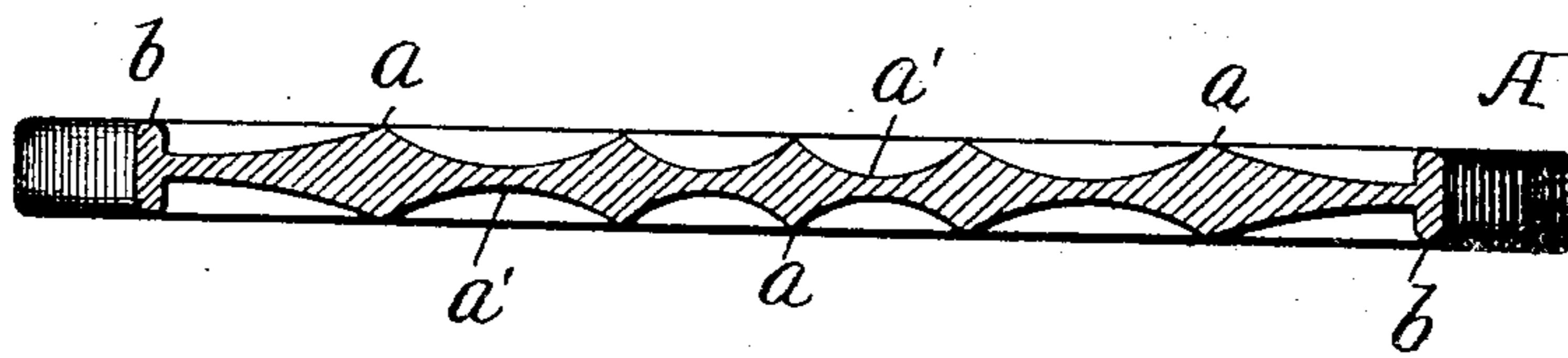


Fig. 2.



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UNITED STATES PATENT OFFICE.

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PLATE FOR STATIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 770,133, dated September 13, 1904.

Application filed December 11, 1903. Serial No. 184,810. (No model.)

To all whom it may concern:

Be it known that we, HENRY E. WAITE and HARRY F. WAITE, citizens of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Plates for Static Machines, of which the following is a specification.

Our invention relates to static machines, and has for its object more particularly to provide improved plates for use in such machines; and to this end our invention consists in plates embodying the various features of construction and adapted to accomplish the purposes substantially as hereinafter more particularly set forth.

Referring to the drawings, Figure 1 is a side view of a plate embodying our invention, and Fig. 2 is a sectional view of the same on the line 2 2, Fig. 1.

In the growing use of static machines in the arts for physical and medical purposes it has become necessary to make these machines of relatively large size in order to enable them to furnish the desired current in the required quantities, and, further, it is desirable to make these machines in a substantial manner, so that they can be used at high speeds and otherwise sustain the wear and tear to which they are subjected to meet the requirements of the present state of the art. Heretofore it has been the general practice to make the plates of such machines of glass, and while this material for some purposes is an ideal one it has many disadvantages, owing to its relatively fragile nature and liability to injury or destruction, as well as its great cost, especially when it is desired to use relatively large-sized plates. These plates as heretofore used have been of uniform thickness, with parallel plain sides, and in order to make the plates substantial in character it has been required to make them of relatively great thickness.

One of the objects of our present invention is to so fashion or form the plate that it shall have the desired and necessary strength and rigidity, so that it will not be liable to break or to warp or twist out of shape, and at the same time be relatively light and thin.

To these ends one feature of our invention

consists in making the plates with fluted or ribbed surfaces and in some instances providing them with a strengthening-rim at their edges. Thus, referring to the drawings, A indicates a plate embodying our invention, which is shown in a conventional form adapted to be mounted upon any suitable hub or support for rotating the same and being provided with an opening A' at its center for this purpose. Extending radially from the center are a number of flutings or ribs *a a*, and these, as shown, are preferably coincident on opposite sides of the plate, although they may be otherwise arranged. The material or portions of the body of the plate between the ribs, as at *a'*, is preferably curved, the curves being shown as extending from one rib or fluting to the other, thereby forming depressions or recesses between the ribs. These depressions not only permit of the use of thinner material in forming the plate and still maintain the requisite strength, but they also perform another function, especially when they are combined, as is usual in a static machine, with a number of plates upon the same shaft. We have found that in such instances these flutings or ribs act to produce an agitation or circulation of air around and between the plates, and as the plates are usually inclosed in an air-tight and moisture-proof case this circulation of the air tends to keep the plates dry and in good condition for developing static induction. This has effect not only on the rotating plates, but on other plates which are usually used in connection with them, and the result is that the machine utilizing such plates has a much greater efficiency. Sometimes it is also desirable to form the plates with a protecting and strengthening rim around the edge or other circumference, as shown at *b*, and while preferably this does not extend laterally beyond the extension of the ribs or flutings it may be of greater or less width, as desired. This rim tends largely to prevent any warping or distortion of the plate and adds greatly to the life of the plate and helps to create a circulation of air or what may be described as "eddy-currents" when the plate is revolving under high speed.

Another feature of our invention consists

in making the plate of some material other than glass, and we have found that a plate made from a material well known in the arts under the name of "electrose" forms a most efficient and satisfactory plate. This electrose is a composition consisting, essentially, of asbestos, shellac, and asphaltum mixed and molded under pressure and has a very hard surface similar to glass. This material is homogeneous in its nature, relatively hard and tough, and has high dielectric characteristics and can be melted or otherwise shaped into the desired form and when so shaped is not liable to warp or twist out of shape or to become disintegrated in use. Furthermore, the material is not liable to break even when operating under high speed.

While we have illustrated the preferred embodiment of our invention, it is evident that we are not limited to the precise form and details thereof, as these may be varied by those skilled in the art to accomplish the purposes of our invention without departing from the spirit thereof.

What we claim is—

1. A plate for static machines, provided with ribs, substantially as described.
2. A plate for static machines, provided with

ribs on its opposite faces coincident with each other, substantially as described. 30

3. A plate for static machines, provided with ribs and having curved depressions between the ribs, substantially as described.

4. A plate for static machines, having radial ribs and a peripheral rim, substantially as described. 35

5. A plate for static machines, having radial ribs with curved depressions between the ribs, and a peripheral rim extending laterally to the plane of the ribs, substantially as described. 40

6. A plate for static machines, consisting of electrose and having ribs upon its sides and curved depressions between the ribs, substantially as described.

7. A plate for static machines, consisting of electrose and having radial ribs upon its sides with curved depressions between the ribs, and a peripheral rim, substantially as described. 45

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses. 50

HENRY E. WAITE.
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