

## ALTERNATE CURRENT ELECTRO-STATIC INDUCTION APPARATUS.

BY

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About a year and a half ago while engaged in the study of alternate currents of short period, it occurred to me that such currents could be obtained by rotating charged

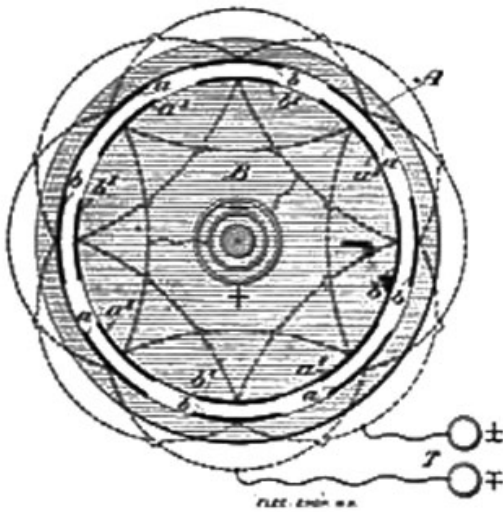


FIG. 1.—TESLA ALTERNATING ELECTROSTATIC INDUCTION APPARATUS.

surfaces in close proximity to conductors. Accordingly I devised various forms of experimental apparatus of which two are illustrated in the accompanying engravings.

In the apparatus shown in Fig. 1, A is a ring of dry shellacked hard wood provided on its inside with two sets

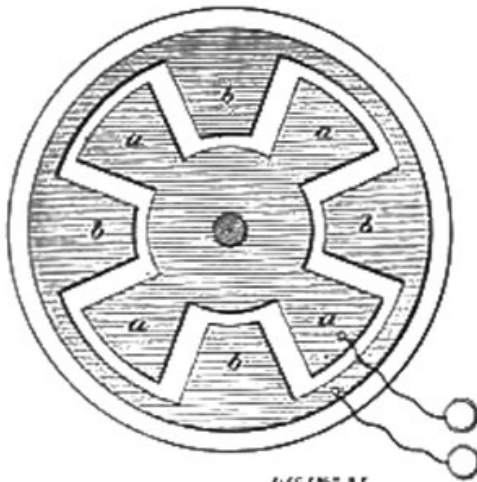


FIG. 2.—TESLA ALTERNATING ELECTROSTATIC INDUCTION APPARATUS.

of tin-foil coatings, a and b, all the a coatings and all the b coatings being connected together, respectively, but independent from each other. These two sets of coatings are connected to two terminals, r. For the sake of clearness only a few coatings are shown. Inside of the ring A,

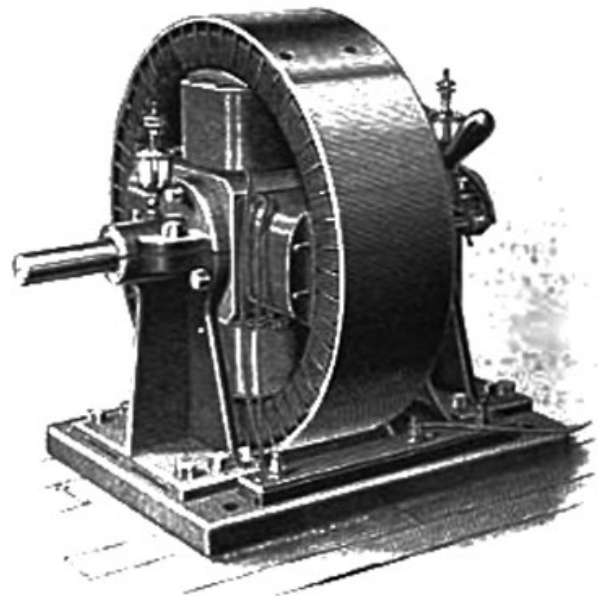
and in close proximity to it there is arranged to rotate a cylinder a, likewise of dry, shellacked hard wood, and provided with two similar sets of coatings, a' and b', all the coatings a' being connected to one ring and all the others, b', to another marked + and -. These two sets, a' and b' are charged to a high potential by a Holtz or Wimshurst machine, and may be connected to a jar of some capacity. The inside of ring a is coated with mica in order to increase the induction and also to allow higher potentials to be used.

When the cylinder a with the charged coatings is rotated, a circuit connected to the terminals r is traversed by alternating currents. Another form of apparatus is illustrated in Fig. 2. In this apparatus the two sets of tin-foil coatings are glued on a plate of ebonite, and a similar plate which is rotated, and the coatings of which are charged as in Fig. 1, is provided.

The output of such an apparatus is very small, but some of the effects peculiar to alternating currents of short periods may be observed. The effects, however, cannot be compared with those obtainable with an induction coil which is operated by an alternate current machine of high frequency, some of which were described by me a short while ago.

## THE SIMPLEX MOTOR.

A new motor presenting in its general appearance a contrast to those now in general use, has recently been brought out by the Simplex Motor Company, of Boston, and is being exhibited at their office at No. 113 Devonshire street, in that city. As will be seen



SIMPLEX MOTOR.

from the accompanying illustration, the armature is placed on the exterior of the field, the coils of which are held in place by pins. The field magnet cores project through the coils to decrease the air space in the magnetic circuit. The armature, being in the form of a ring, can be extended to any diameter, will run at a very slow speed, and, therefore, produces little friction on the bearings.

The Simplex motor can be applied to vehicles in several ways, either directly, by making the motor a wheel of the vehicle, or it may be suspended from the vehicle and directly connected to the axle, or it may be mounted in the cab of a locomotive, and connected to the axle by means of side bars, as in the steam locomotive, or by belting, the advantages of this method being that the motor is high from the ground, and is thus protected from moisture and dust, while at the same time, every part is open to view and as accessible as though it were stationary and located in the shop.

The first two of these methods involves no loss whatever in the transmission of power, and the last, only a very slight loss.