

L. VOGEL.
 INFLUENCE ELECTRICAL MACHINE.
 APPLICATION FILED JUNE 28, 1921.

1,412,726.

Patented Apr. 11, 1922.

Fig. 1.

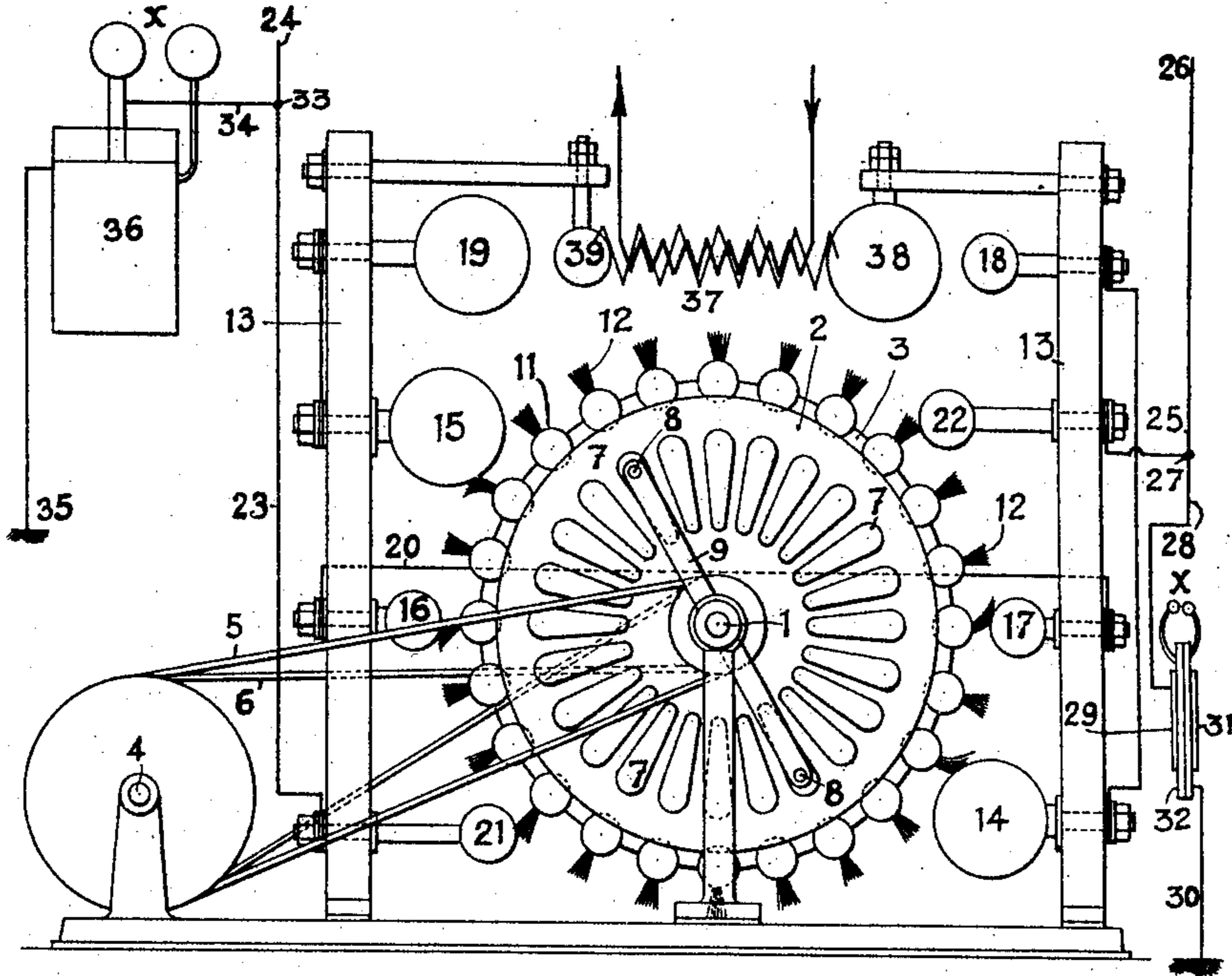


Fig. 2.

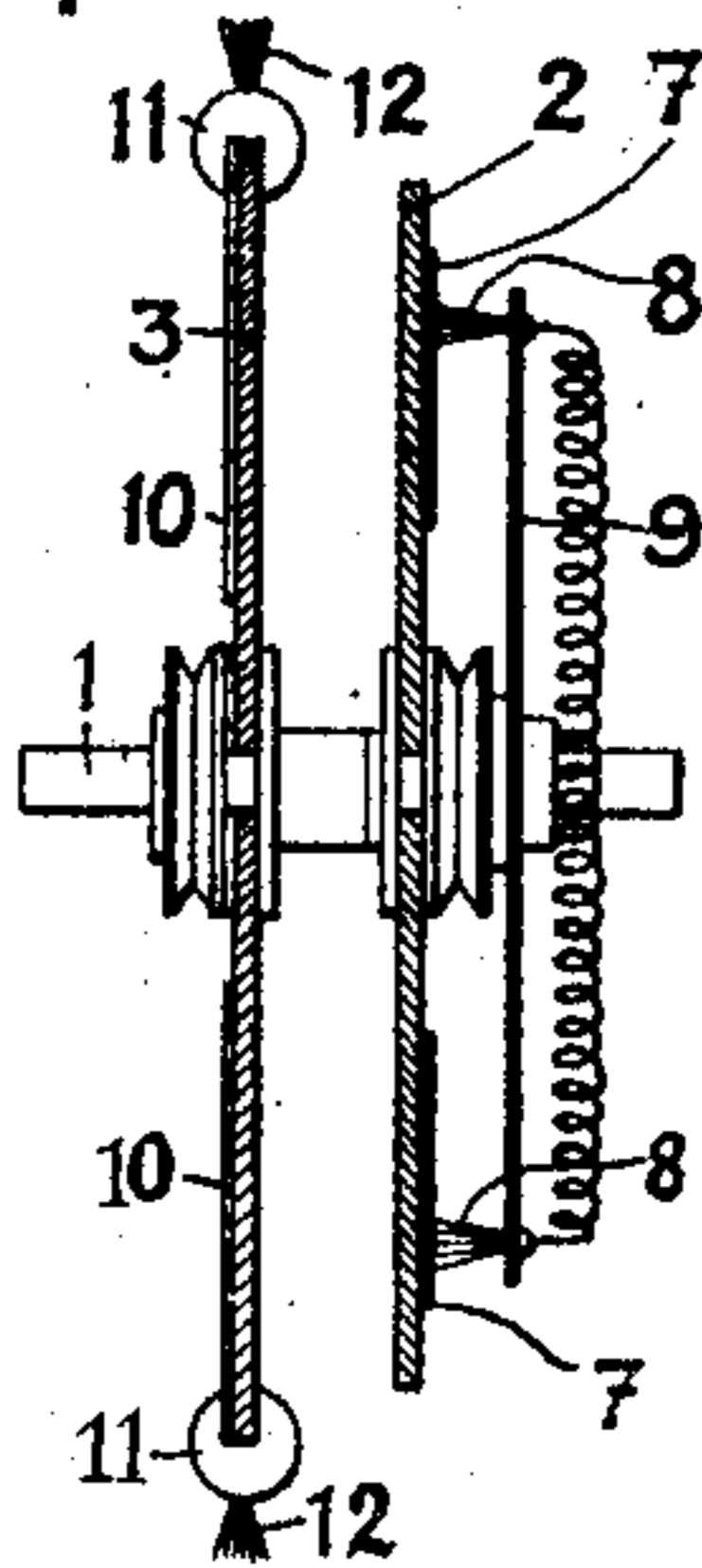
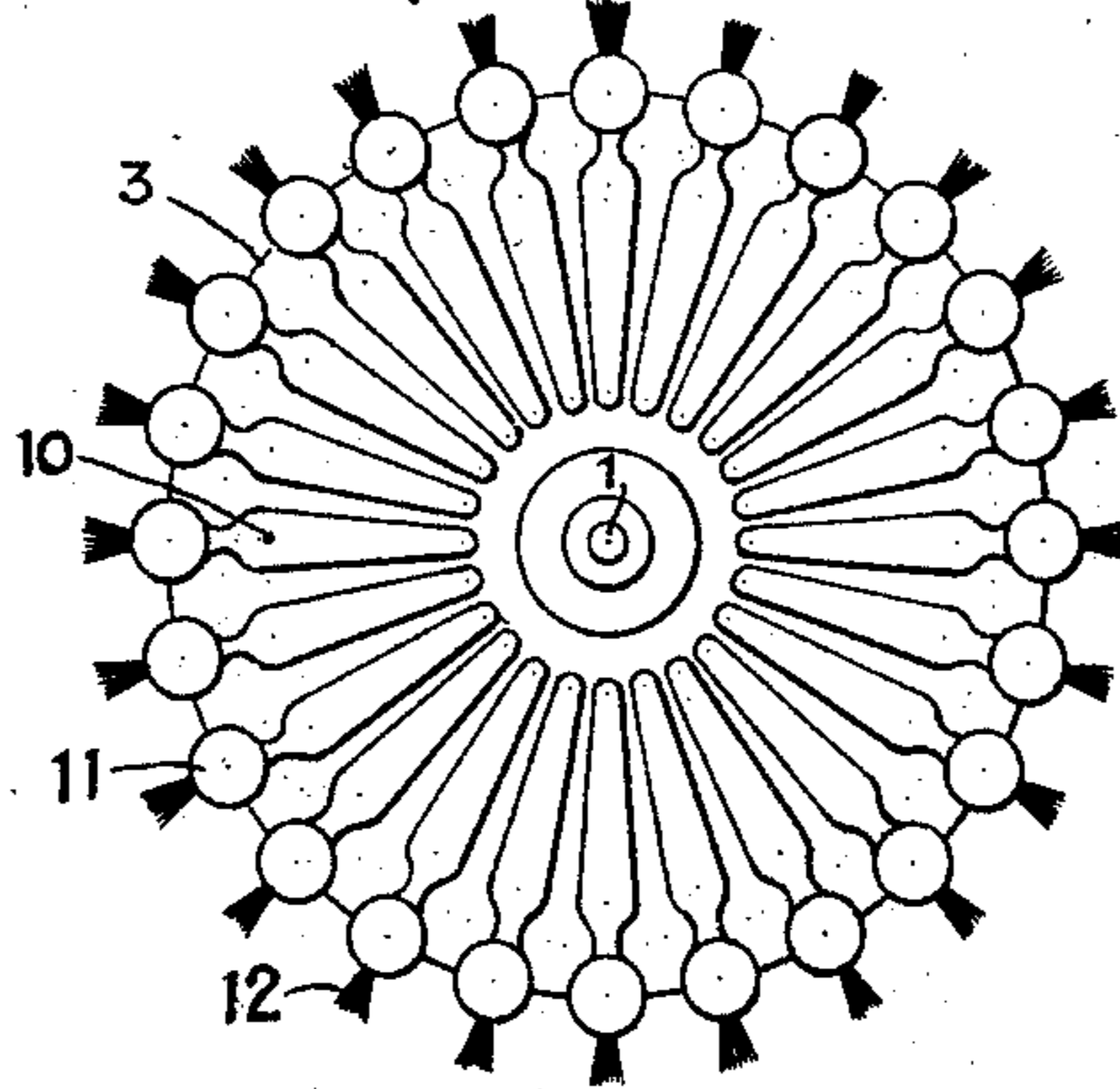


Fig. 3.



Inventor:

Louis Vogel

By Lawrence Langmuir
 Attorney

UNITED STATES PATENT OFFICE.

LOUIS VOGEL, OF STRASBOURG, FRANCE.

INFLUENCE ELECTRICAL MACHINE.

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Specification of Letters Patent. Patented Apr. 11, 1922.

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To all whom it may concern:

Be it known that I, LOUIS VOGEL, a citizen of the French Republic, and resident of Strasbourg, Alsatia, France, have invented
5 new and useful Improvements in Influence Electrical Machines, of which the following is a full, clear, and exact specification.

This invention relates to influence electrical machines adapted to collect and utilize
10 atmospheric electricity, and has for its object to provide an improved form of influence machine of this character whereby electricity for use in therapeutic treatment and
15 other purposes may be readily and efficiently obtained.

The improved machine of the invention comprises the usual pair of insulating discs arranged to rotate in opposite directions and provided with conducting sectors carried
20 thereby, one of said discs serving to exert an influence effect upon the other.

According to the present invention, the disc which is subjected to said influence effect is arranged to be supplied with atmospheric electricity either directly or indirectly and also by means of one or more
25 aerial antennæ through numerous salient poles consisting for instance of spherical conductors and brushes, distributed over the circumference of the disc, connected with the induced sectors thereof and arranged to rotate in the air and closely adjacent to the antennæ. By this arrangement a particularly favorable flow of electricity is produced, a rapid excitation of the machine and
35 an efficient collection of the electricity.

The invention is illustrated in the accompanying drawings which illustrate diagrammatically by way of example a form of construction of the improved influence machine.
40

Figure 1 is a view in elevation of the complete machine constructed in accordance with one form of the invention.

Fig. 2 being a sectional view of a portion
45 thereof.

Figure 3 is a front view of the portion shown in Figure 2.

Referring now to the drawings it will be seen that the machine comprises a pair of
50 vulcanite or ebonite discs 2, 3 pivotally mounted upon a shaft 1, and arranged to be rapidly rotated in opposite directions by means of open and crossed driving belts, 5, 6.

On one face of the disc 2 a number of
55 strips or sectors 7 of tin-foil are secured at a short distance from the edge of the disc, the

sectors 7 being completely insulated and adapted to be engaged by two brushes 8 during the rotation of the disc 2. The brushes 8 are electrically connected together, but are
60 otherwise well insulated by the insulating support 9.

The other disc 3 is also provided on one face thereof with strips or sectors 10 of tin-foil as shown in Figures 2 and 3. The sectors 10, however, unlike the sectors 7 on the disc 2, extend to the edge of the disc 3, and are each electrically connected with a spherical pole 11, the poles 11 being arranged
65 around the edge of the disc 3, and forming receiving conductors for the atmospheric electricity. The poles 11 are provided with bunch-like metallic brushes 12 projecting outwards from the disc 3, as clearly shown in the drawings, so as to whip the air when being
70 rotated.

The brushes 12 during the rotation of the disc 3 engage with a number of spherical conductors 14, 15, 16 and 17 insulated from one another and mounted upon standards 13.
80 The conductor 14 is metallically connected with a spherical conductor 18 and the conductor 15 with a spherical conductor 19. The conductors 16 and 17 are electrically
85 connected by a conductor 20.

Two additional spherical conductors 21, 22, similarly insulated upon standards 13 are provided and are so disposed as to be closely adjacent to the path of the brushes 12, without being engaged by the brushes 12 during
90 the rotation of the disc 3.

The conductor 21 is electrically connected by a conductor 23 with an aerial antennæ 24 extending as high as possible in the air and well insulated from the ground, the conductor 21 forming the pole of the antennæ.
95 The conductor 22 is electrically connected by a conductor 25 with a similarly constructed antennæ 26 of which the conductor 22 forms the pole. The antennæ 24 and 26 may be
100 mounted on separate frameworks side by side with one another or on the same framework one above the other, and separated by a suitable interval.

The conductor 25 is connected through a
105 branch conductor 28 from the point 27 to one plate 29 of a condenser, the other plate 31 of which is connected to a good earth by the conductor 30, the condenser plates 29, 31 being separated by the usual condenser dielectric 32. In a similar manner the conductor
110 23 is connected through a branch circuit 34

from the point 33 to the inner coating of a Leyden jar 36 or other suitable condenser, the outer coating of which is earthed by the conductor 35. The inner and outer coatings of the Leyden jar 36 and the plates 29, 31 of the condenser are provided with spark gaps as indicated at x , so that large quantities of electricity due, for instance, to lightning striking the antennæ, are conducted directly to earth without injuring the machine or interfering with its operation.

Two spherical conductors 38, 39 also mounted on the standards 13 adjacent to the conductors 18, 19 constitute the terminals of the high tension winding of a transformer 37 by means of which the atmospheric electricity which is frequently at an unmeasurable high tension is transformed to a lower tension and higher current strength.

For machines of large dimensions the sectors 7 and 10 instead of being made of tin-foil can be constructed of thin sheet copper, and the discs 2 and 3 may be of vulcanite or ebonite only at their outer periphery, the central portions being composed of wood or cast iron.

The improved influence machine operates in the following manner:—

As the disc 2 is rotated the friction of the brushes 8 on the vulcanite or ebonite disc 2 generates frictional electricity which is collected on the sectors 7 and is distributed or exchanged by the metallic connecting circuit. All the sectors 7 are thus become charged with frictional electricity, and by their inductive action develop similar amounts of electricity of opposite polarity on the sectors 10 of the disc 3. These induced charges of electricity are obtained from the atmosphere by the rotating end poles 11, 12 of the disc 3 and are proportional to the amounts of frictional electricity on the sectors 7. This collection of electricity from the atmosphere is effected firstly in a direct manner by the rotating brushes 12 passing through the air and collecting the requisite amount of electricity and secondly in an indirect manner by the brushes 12 approaching the conductors 21, 22 and thence drawing the required electricity from the antennæ and the condenser devices 29, 31 and 36. As the frictional electricity on the disc 2 cannot flow to earth, the electric charge on this disc is continually increasing, and causes an equally increasing quantity of electricity to be developed on the disc 3.

The conductors 11 serve as carriers of charges of the electricity, until these are given off as the brushes 12 engage with the conductors 14 and 15. The induced charges of electricity are transferred or exchanged by the conductors 16 and 17 as these are engaged by the brushes 12.

The electricity collected in the conductors

14 and 15 passes to the conductors 18 and 19, and sparks across to the balls 38, 39 from which the extremely high tension alternating current passes through the high tension coil of the transformer 37 and produces in the low tension transformer winding an opposite induction current, which can be practically utilized.

If the charges of electricity from the always strongly charged earth be opposed in the two condenser devices to atmospheric electricity, the completely insulated antennæ become equally strongly but oppositely charged. On the other hand, when large amounts of atmospheric electricity are present due for instance to storm clouds, similar quantities of electricity of opposite sign are "bound" in the condenser devices. In these circumstances the action of the brushes 12 causes the electricity in the atmosphere to be drawn off the conductor 21 for one antenna and out of the conductor 22 for the other antenna and utilized.

If the electric potential between the earth and the air is too great so as to be liable to injure the machine, the electric tension will equalize at the adjustable spark gaps x and pass to the earth. During a storm, for instance, it is found that the machine operates as quietly and efficiently as with a cloudless sky.

Beyond the friction of the disc shaft 1 the only friction involved is that due to the contact of the very resilient brushes 12 with the four conductors 14, 15, 16 and 17, so that the machine can be maintained in operation with a very small expenditure of power.

In place of constituting the condenser devices as at x also as lightning arresters, special lightning arresters may be provided beside these condenser devices.

What I claim is:

1. In an influence electrical machine of the kind described, comprising two oppositely rotating insulating discs provided with conducting sectors and one of which is designed to exert an influence effect upon the other, the arrangement wherein the disc subjected to influence effect is provided with numerous salient electricity collecting poles, distributed over the circumference of said disc and connected with its conducting sectors, in combination with an antenna pole arranged so that said salient poles, when rotating in the air, can pass closely adjacent to said antenna pole, substantially as and for the purpose described.

2. In an influence electrical machine of the kind described, comprising two oppositely rotating insulating discs provided with conducting sectors and one of which is designed to exert an influence effect upon the other, the arrangement wherein the disc subjected to influence effect is provided with numerous salient electricity collecting poles, dis-

tributed over the circumference of said disc,
connected with its conducting sectors and
consisting of spherical conductors with
bunch like brushes, in combination with an
5 antenna pole arranged so that said salient
poles, when rotating in the air, can pass
closely adjacent to said antenna pole, sub-
stantially as and for the purpose described.

In witness whereof I have hereunto signed
my name this 7th day of June, 1921, in the 10
presence of two subscribing witnesses.

LOUIS VOGEL.

Witnesses:

FRIDER KURT,
AMAND ZEANCE.