(No Model.) 3 Sheets—Sheet 1.

O. PATIN.

ALTERNATING CURRENT GENERATOR.

No. 491,811. Patented Feb. 14, 1893.

Fig 1.

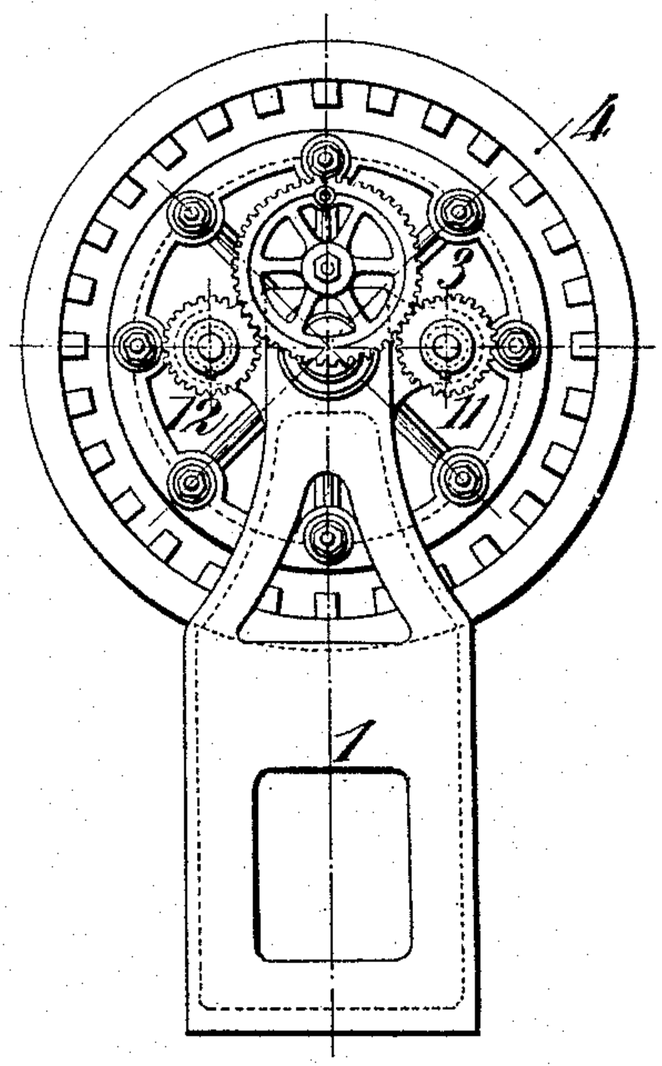


Fig 2.

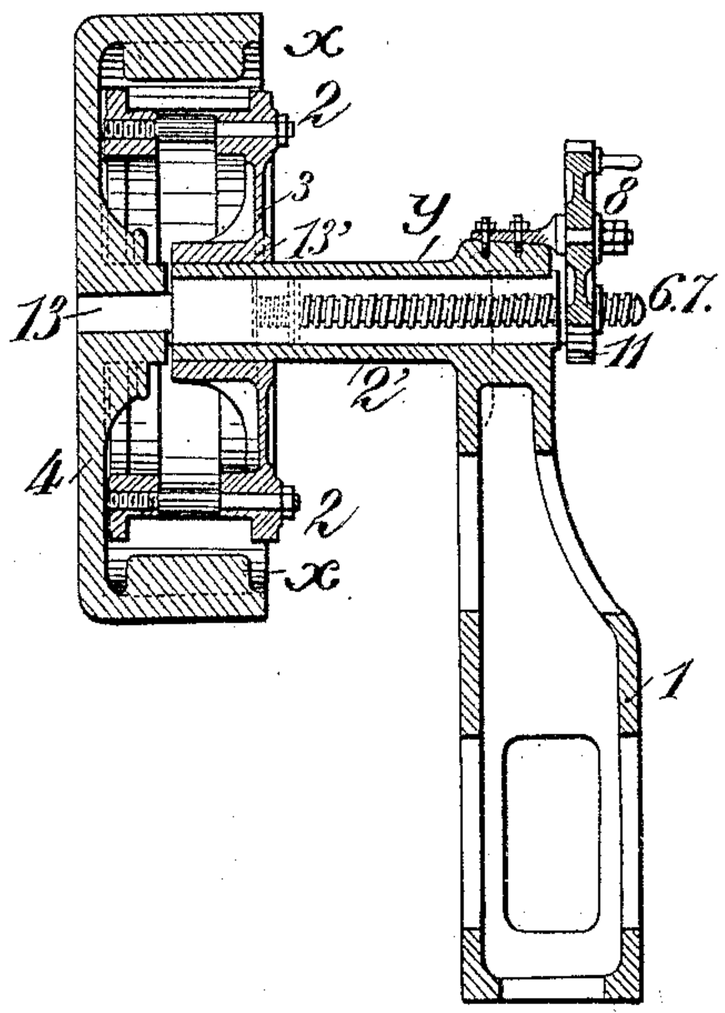
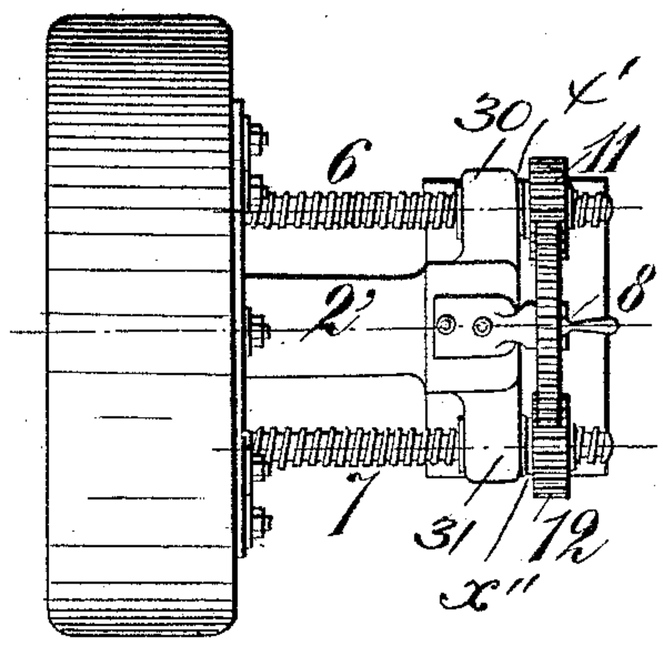


Fig 3.



Witnesses:
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E. K. Sturtevant

Inventor:
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By Richards & Co
his Attorneys.

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Fig 4.

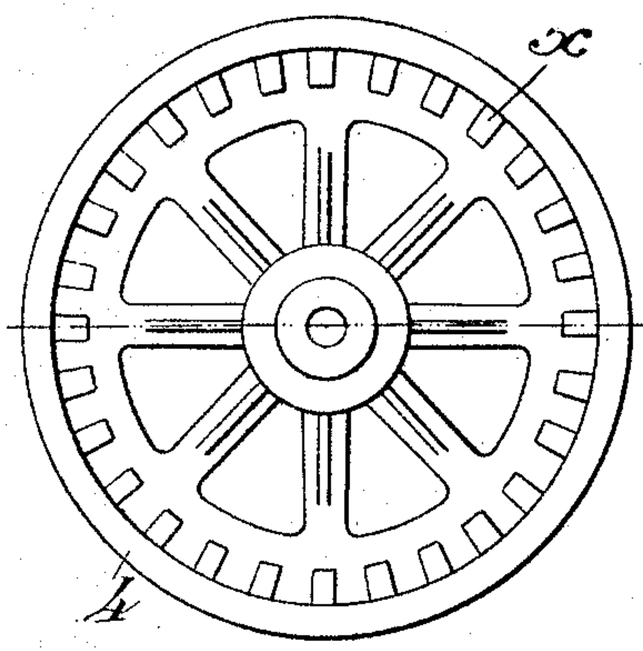


Fig 5.

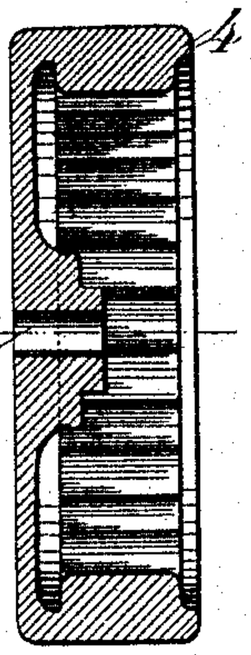
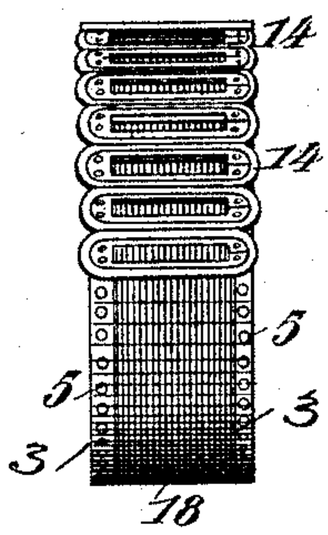


Fig 13.



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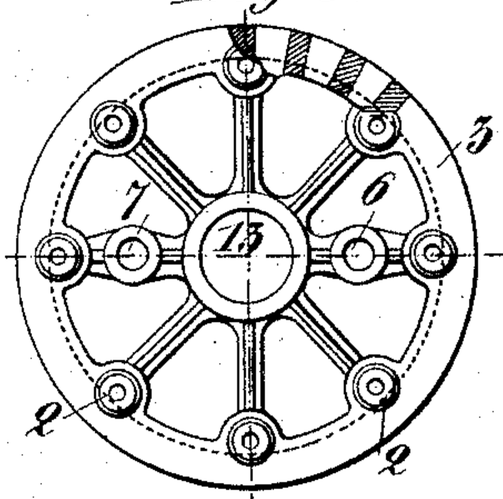

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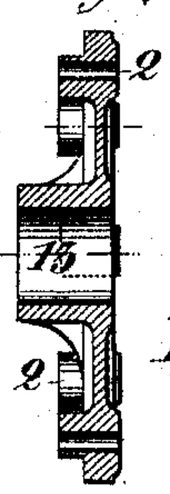


Fig 10.

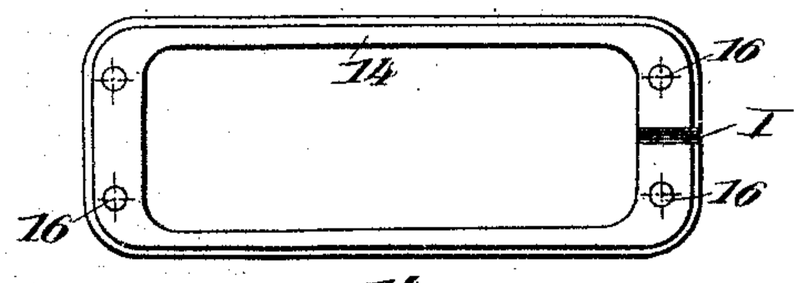
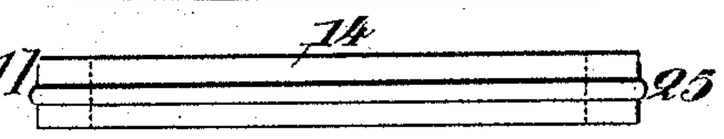


Fig 11.



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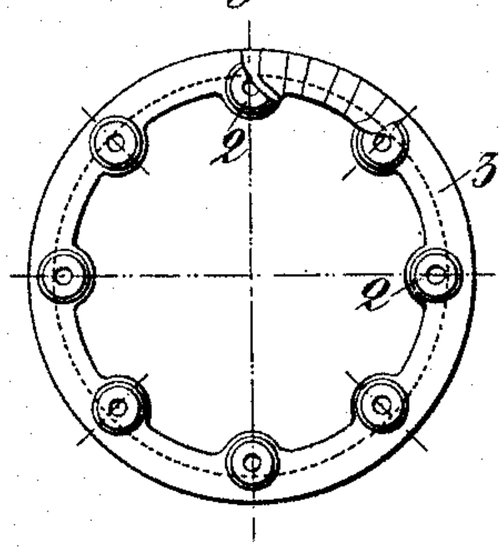


Fig 9.

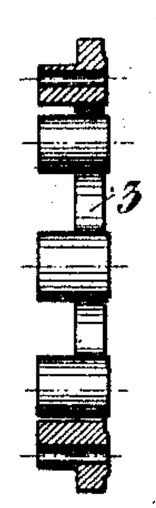
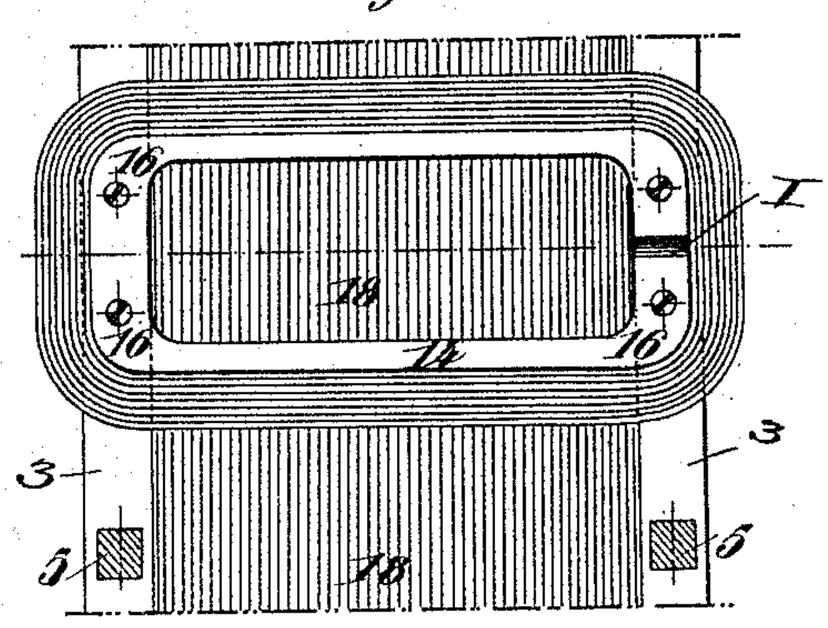


Fig 12.



Witnesses:
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Fig. 14.

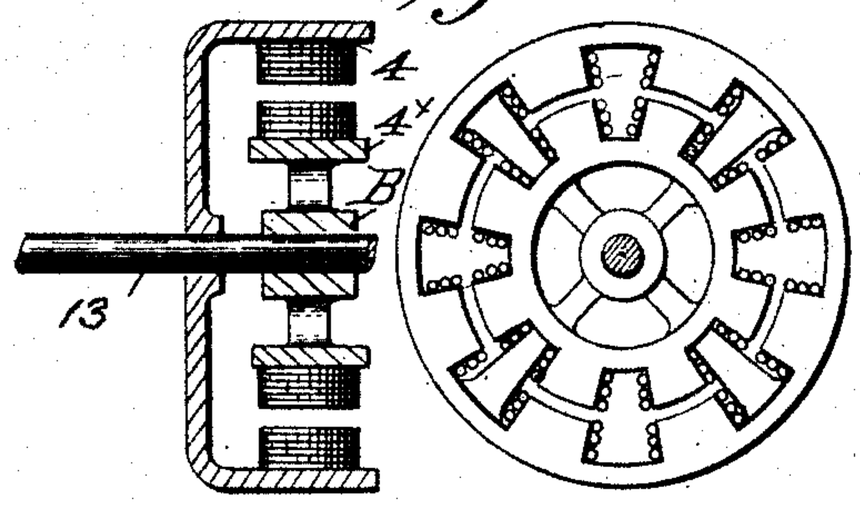


Fig. 15.

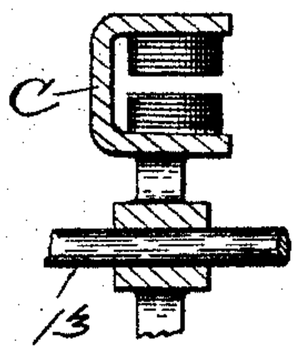


Fig. 18.

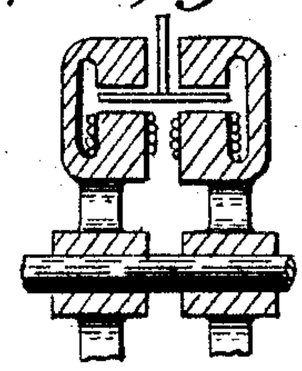


Fig. 16.

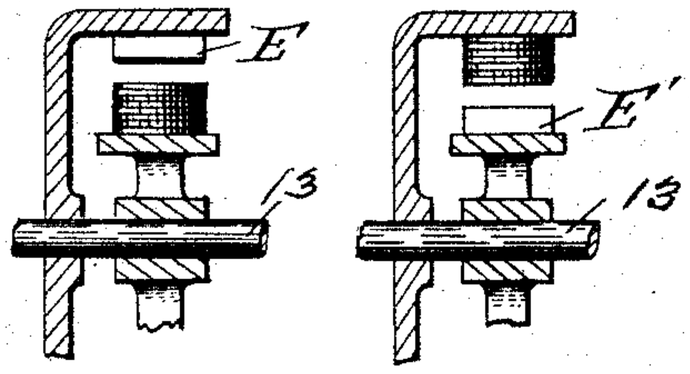


Fig. 17.

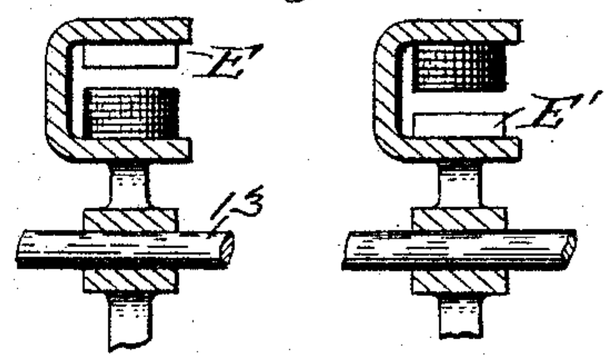


Fig. 21.

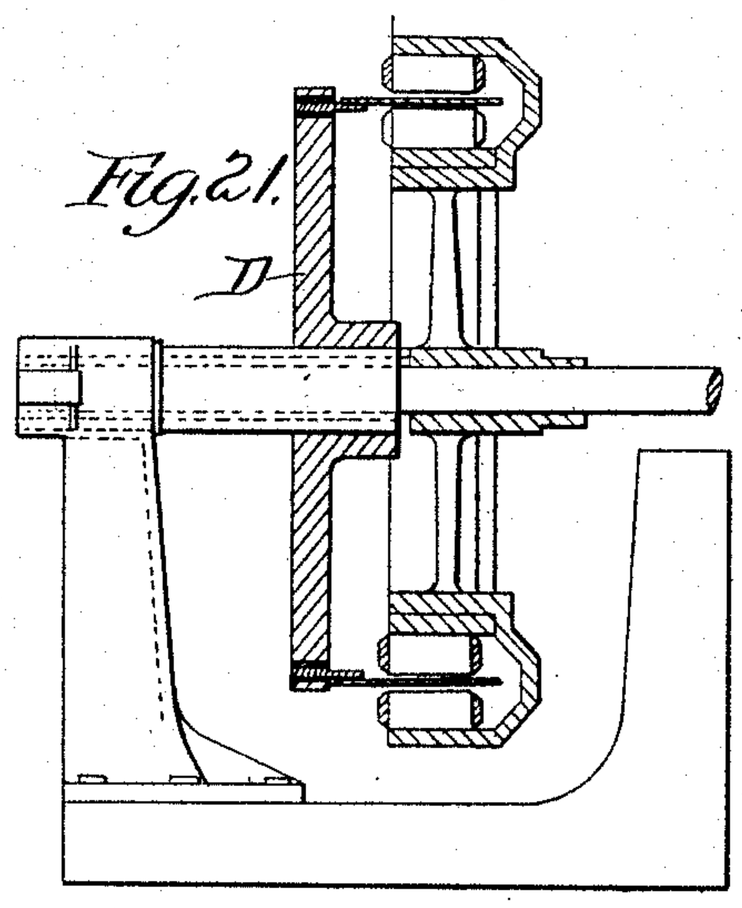


Fig. 20.

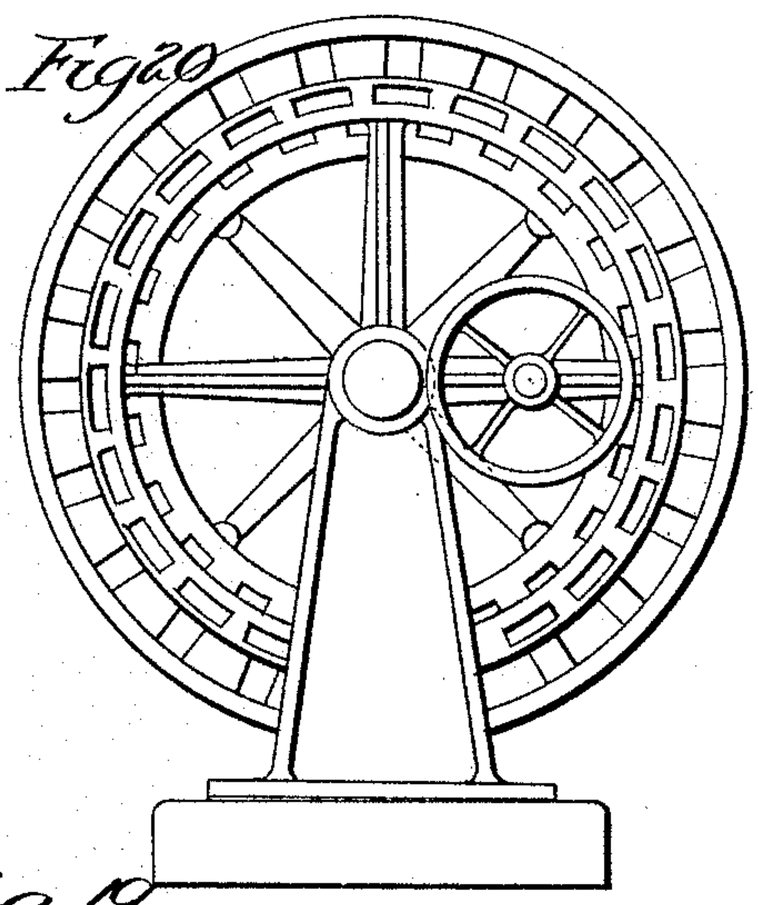
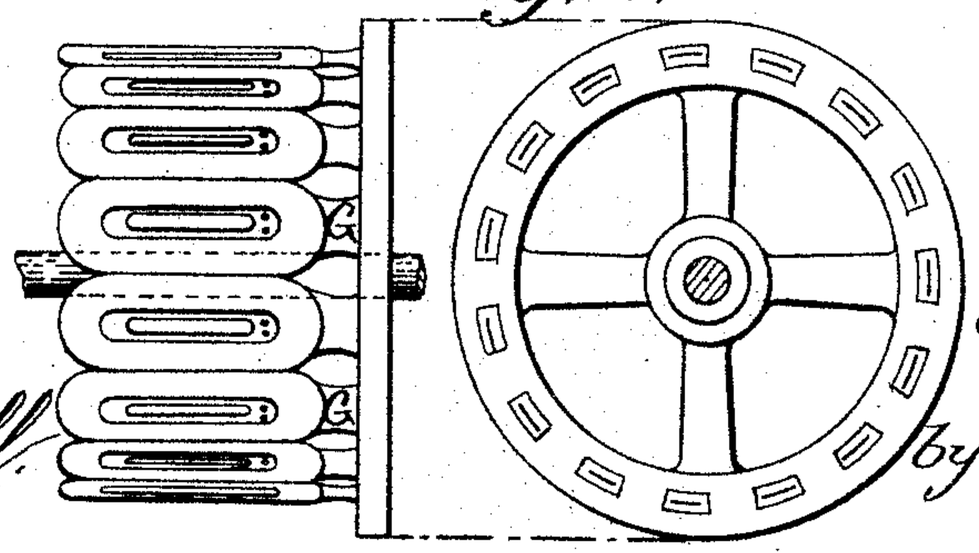


Fig. 19.



Attest
J. McGrear
Wm. T. Hall.

Inventor
Octave Patin
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Attys

UNITED STATES PATENT OFFICE.

OCTAVE PATIN, OF PARIS, FRANCE.

ALTERNATING-CURRENT GENERATOR.

SPECIFICATION forming part of Letters Patent No. 491,811, dated February 14, 1893.

Application filed July 8, 1892. Serial No. 439,440. (No model.) Patented in France December 11, 1891, No. 217,998.

To all whom it may concern:

Be it known that I, OCTAVE PATIN, a citizen of the Republic of France, and a resident of Paris, have invented a certain new and useful Improvement in Alternating-Current Electric Machines, of which the following is a full, clear, and exact description.

The invention has been patented in France under date of December 11, 1891, No. 217,998.

My invention is an alternate current electrical machine and it includes such a construction and arrangement of the main parts, the armature and magnets, by which one of said parts surrounds and overhangs the other, the latter being adapted to be withdrawn from the overhanging part by suitable devices provided for the purpose.

My machine is constructed with the view of placing it directly on the shaft of the engine in the place of the fly wheel. It may be arranged horizontally on a vertical axis, as on a turbine wheel if desired.

In the accompanying drawings:—Figure 1, is a front view of the machine as set up. Fig. 2, is a vertical section. Fig. 3, is a plan view. Fig. 4, is a side view of the revolving armature. Fig. 5, is a vertical section of the same. Fig. 6, a side view partly in section of one of the magnet heads. Fig. 7, is a vertical section of the same. Figs. 8 and 9 are similar views of the opposite head. Fig. 10, is a plan view of one of the magnet spool holders. Fig. 11, is a side view of the same. Fig. 12, a plan view of a section of the magnet enlarged. Fig. 13, a side view of the magnet, with a number of spools in place. Figs. 14, 15, 16, 17, and 18 are views of modified forms of armatures. Fig. 19 represents a plan and a side view of a modified form of magnet. Fig. 20, is a modified form of machine showing the application of some of the armatures shown in the modified views 14 to 18. Fig. 21, is a side sectional view of Fig. 20.

The base 1 is provided with a tubular projection or sleeve 2′, upon the end of which the stationary magnet is placed. This is composed of the crown or head 3, fixed to the tube by its central hub, and having arms, Fig. 6, and a second head, Figs. 2, 8 and 9, secured to the first by bolts passing through the openings 2, this latter crown being without arms. Between the crowns are interposed a series of plates or bars 18, in the form of segments of washers. These form the magnetic core of the magnet and with the crowns, form a drum like body, over which and transversely thereof are fixed the spools 14, consisting of the rectangular shaped open frames with rounded corners and the wire wound about the same. The frames are secured to the heads by the screws 16. The frame has a rib 25, which serves to hold the wire in place. The frame has an interposed packing I, at one part to prevent induction. The spools are independent and are connected in any suitable manner.

The revolving armature 4, on the shaft 13 is in the form of a ring or shell, having a flange which overhangs the magnet and is provided with inwardly extending teeth, x, forming poles which are wound in any suitable manner, and are alternately positive and negative.

In order that the magnet may be withdrawn from the overhanging armature, the spur wheel 8, is operated and through the pinions 11 and 12, on each side, and the hollow nuts x' x'' connected therewith, operate on the screw rods 6, 7 and draw them through the ears 30, 31, and thus withdraw the magnet to the arms of whose crown 3, the screws are connected. When the magnet is thus withdrawn it may be readily repaired and attended to, and by unscrewing the screw rods 6, and 7, the magnet may be turned if desired to bring any portion of it into the proper position.

In Fig. 14, is shown a form of armature in which there is an interior part $4^{\times}$ and an outer part 4, both parts turning with each other. The outer part has a series of inwardly projecting teeth, while the inner part has its spools projecting outward. The space between is adapted to receive the spools of the stationary magnet, as shown in Fig. 21. The construction of Fig. 14, includes two shells for supporting the spools, whereas in Figs. 15, 17, 18 and 21, a single shell answers this purpose. The arrangement is such that the poles in each series are alternatively positive and negative, the poles of unlike sign being opposite each other. The spools of the magnets are fixed to the metal crown D, Figs. 19—21.

As in Figs. 16 and 17, I may use in connection with a series of spools properly wound, a series of unwound short projections E,

E', which serve to become saturated with the induced current. In all these forms, the one part overhangs or incloses the other and is separable therefrom, by withdrawing one part.

The machine can be double as in Fig. 18, if desired. The outer parts are withdrawn in this form, when it is desired to separate the machine parts.

I claim:

1. The combination in an electric machine of the two crowns arranged at a distance from each other and connected by bolts 2, the interposed plates 18 arranged parallel with the heads, and the spools consisting of the rectangular open frames extending transversely of the heads and across the intervening plates, said frames being secured to the heads and having rounded ends to receive the wire wound thereon, substantially as described.

2. In combination the magnet, the tubular support therefor, the shaft extending concentric with said support, the armature ring carried by the said shaft and having a flange extending from its radial supporting arms laterally to one side and over the magnet, and means for withdrawing the magnet from the armature, substantially as described.

3. In combination the standard having a tubular projection on one side, the magnet supported on the outside of and at the end of said projection, the shaft 13 having an extension at the end of the said tubular projection, the armature ring supported on the said shaft extension and having a forwardly projecting flange over the magnet ring, the means at the end of the tubular support for retracting the magnet along the tubular support and the connections therefrom to the magnet extending alongside the said tubular support, substantially as described.

4. In combination, the magnet, the ring armature overhanging the same, the internal teeth on said overhanging portion, and the second series of teeth carried by the armature and projecting outwardly within the magnet, both of said series of teeth being radially arranged substantially as described.

5. In combination the magnet, and the ring armature having the series of spools formed about projecting teeth and the series of unwound projections opposite said spools, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

OCTAVE PATIN.

Witnesses:
ROBT. M. HOOPER,
JOSEPH TOURNIER.