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TITLE:

KROMREY

Molecular Generator

KROMREY, Raymond: MOLECULAR GENERATOR --- This is a proven free-energy generator, a type of monophase transformer with the peculiarity that the parallel cores make up the stators and rotors. The stators are powerful permanent magnets and the rotor cores are soft iron. Interactions take place between the magnet filed and Earth's gravity field. Timed switching takes advantage of gravity acceleration to produce power fully efficiently. Here is Kromrey's US Patent and report, "Operating Principles of the Molecular Generator"...28 pp..

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OPERATING PRINCIPLES OF THE FERROMAGNETIC GENERATOR

by the inventor
R. Kromrey

The energy relationships valid for earth's system of reference are as follows :

$$1 \text{ kg-m/sec} = 9.81 \text{ Watts} = 2.3 \text{ cal/sec}$$
$$(1 \text{ft.lb/sec} \cong 1.36 \text{ Watts} = 0.32 \text{ cal/sec})$$

A conventional dynamo transforms the earth's gravitational energy into electrical energy. In a very wide sense the figures given above are considered valid throughout the entire universe although gravity and, at the same time, acceleration can differ considerably from system to system.

It is well known that the notion of gravity is of primordial importance because it is from gravity alone that the entire science of dynamics is derived.

Having said that, the principle difference between a conventional generator and the ferromagnetic generator is that the former converts the earth's acceleration into electrical energy (using Lorentz's force as an intermediary) whereas the ferromagnetic generator transforms or converts ferromagnetic attraction directly into electrical energy.

It is not entirely fortuitous that the universal formula for gravity and the Coulomb-Poisson formulae have a similar structure :

$$F = \frac{k \; M1 \quad M2}{d^2}$$

the only essential difference being the presence of the coefficient "k".

Apart from this, it is useful to note that the fundamental principle of the conservation of energy lies with the quantative conservation of motion - anything beyond this remains purely speculative.

What then, are the principal characteristics of the molecular generator ?

We are speaking here of a type of monophase transformer with the peculiarity that the cores, respectively paralled, two-by-two, make up the stators and rotors. Preferably, the stators should be powerful permanent magnets and the rotor cores should be of soft iron.

When the armature turns, it successively enters and leaves the earth's gravitational field and the magnetic field, and vice versa, in such a way that the soft iron cores are subjected successively to a magnetic attraction and the earth's gravitational attraction.

Since, on the other hand, each action has an equal and opposite reaction, and Weight = Force = Mass x acceleration:

$$W = m.g$$

the production of electricity can be explained quite easily through classical dynamics.

In effect, we know that the electron possesses a mass. For an electric motor, the magnetic field (or inductor) has only a secondary role, that of deflection, in such a way that the electronic kinetic energy $E = \frac{m v^2}{2}$ (for example the output from a battery), remains conserved if the motor runs without load.

It is exactly the same if the machine works as a generator: the maghetic field has merely an intermediary role of transforming kinetic energy - in this case resulting from the earth's gravitational system - into electrical energy.

For the molecular generator, things happen very differently. Here, the rotor is subjected alternatively to an extra-terrestrial acceleration, enormously superior to that of the earth's gravity, which produces an electronic current.

Since Newton's third law is fundamental, because it even includes the principal of the conservation of energy, the working of the molecular generator is easily explained.

In effect, the two twin cores constituting the rotor, fall from the earth's gravitational field into the more intense magnetic field, and grow heavier because of this.

If, simultaneously, an electric current is produced by short-circuiting, for example, the winding of the armature, it can be seen that the magnetic acceleration first observed, purely with regard to the armature , is subsequently partially consumed in order to accelerate the electrons.

Since the initial acceleration of the rotor diminishes to the advantage of an electronic acceleration, the rotors become lighter. In other words the attraction between rotor and stator disappears so that the rotor continues to turn freely while producing an electric current.

This is completely normal, since a soft-iron induction coil (or rotor) that has become heavier in a magnetic field is essentially subject to the expression :

Mass x Acceleration = Weight

and which, on expending its acceleration in favour of a movement of electrons, must obviously lose its attraction for the stator.

Naturally, the foregoing is only understandable if one remembers that, before anything else, electricity obeys the laws of classical dynamics. Electricity is, after all, a branch of mechanics, and not the reverse as the theory of general relativity postulates.

People have always tried to complement Newton's concepts, whereas, in fact, everything was already contained in his work, <u>even the unified field theory</u>.

Here is the explanation :

In Newton's time, it was usual to measure gravitational force by using a simple pendulum and the formula for the duration of an oscillation given by Huygens :

.../...

$$t = 2\pi\sqrt{\frac{l}{g}}$$ from which is derived:

$$T^2 = 4\pi^2 \frac{l}{g} \qquad (g = G)$$

G = Acceleration due to the earth's gravity.

Since the density of the earth is not the same for all locations, this simple instrument could be usefully employed in geological prospecting because where mineral deposits exist for example, the pendulum would oscillate more quickly.

At the same time it is quite remarkable that, in itself, the pendulum is the differential of a fly-wheel. Here is the proof :

(diagram ici)

A mass "m" turning around a lever arm of a length "l" has a potential drop of "h". One complete oscillation of the pendulum therefore corresponds to a revolution of the mass "m" at a distance "l" from the centre of rotation "o".

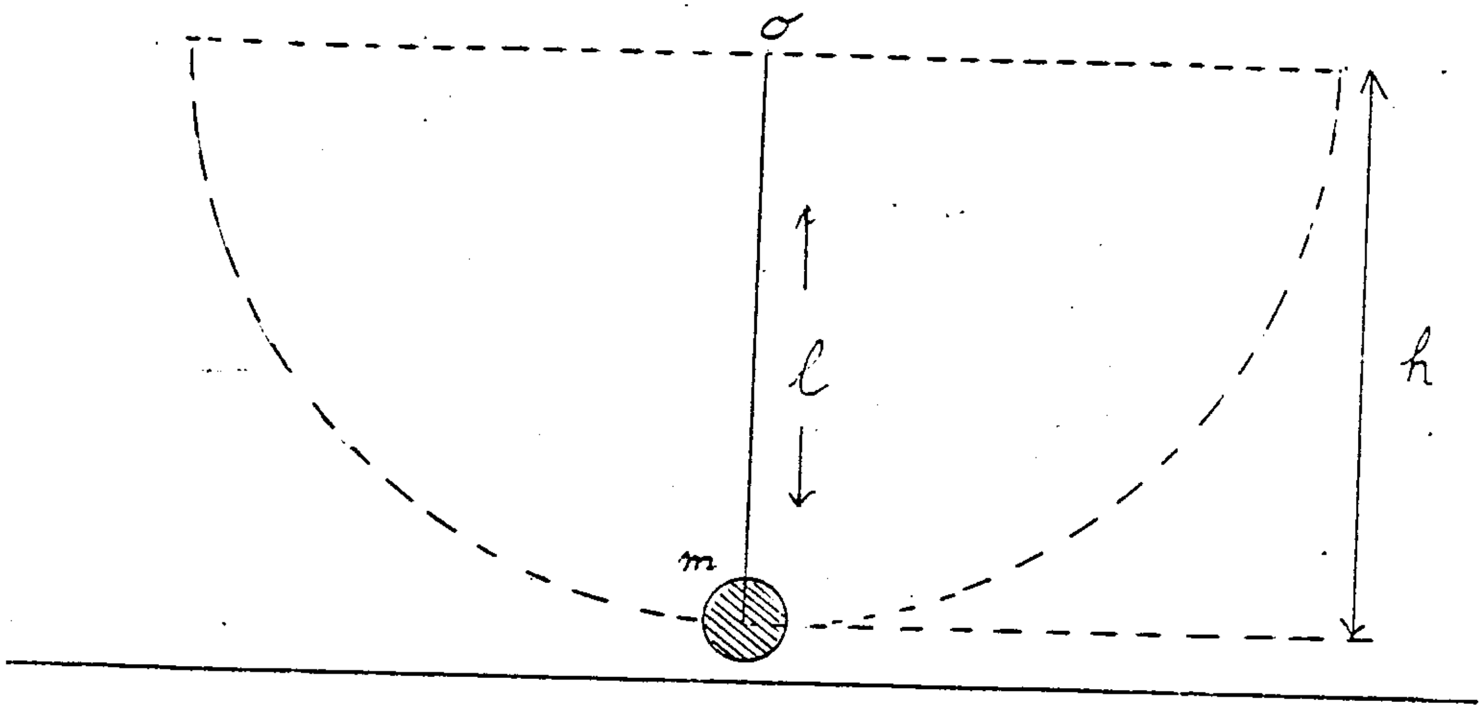
The rate of displacement of the mass "m" is expressed in the equation $v = \frac{2\pi l}{T}$ where T corresponds to the duration of one cycle. Thus in a single cycle, the mass "m" of the pendulum drops twice from the high point (h = l) so that in one vertical drop, the work performed will be

$$P. 2l = \frac{m \quad v^2}{2}$$

But since the pendulum falls through the arc of a circle, must be written successively :

.../...

Diagram



$$P \cdot 2\,1 = \frac{I\,w^2}{2} \quad (w = \text{omega})\ \omega = 2\pi \frac{1}{T}$$

$$P \cdot 1 = Iw^2$$

$$m \cdot g \cdot 1 = m\ 1^2\ (2\pi f)^2$$

$$g = 1 \cdot 4\pi^2 \cdot f^2$$

since : $f = \frac{1}{T}$ ~~aussi~~ also : $1 \cdot \frac{4\pi^2}{T^2} = g$

then : $T^2 = \frac{1 \cdot 4\pi^2}{g}$ to give : $T = 2\pi\sqrt{\frac{1}{g}}$

What is the significance of the fact that a pendulum is the differential of a fly-wheel ? Quite considerable, as one can see from the following :

If for exampèe, a fly-wheel of considerable mass is placed on the moon at a speed of 1500 rpm, very little energy is expended because the lunar force of attraction is 163 cm/sec.^{2}, minimal compared with the earth's force of attraction of 981 cm/sec^2.

If the same fly-wheel could be transported immediately within the earth's gravitational field, its rate of rotation would be in no way diminished. On the contrary, the speed of rotation will have a tendency to increase even more and also result in a considerable gain in kinetic energy - and this without coming into conflict with the principal of the conservation of energy.

.../...

In other words, if the mass of a body drops in free fall towards the earth's surface, it will travel 4.91 metres during the first second. The same mass falling towards the moon's surface will have travelled only 0.81 metres after the first second. Masses possessing weight and masses that are inert are therefore quite different in the two systems of reference, and it is the same for the respective kinetic energies.

Schools, however, teach the following:

The fact that a body has a mass means, in the first place, that a force is necessary in order to accelerate it; but this would also be the case if the body was not attracted towards the earth's surface - in other words if it was weightless - and from this can be deduced the fact that notions of weight and of mass have absolutely nothing in common.

At the same time, when defining the concept "mass" and the concept "Weight", gravity has been excluded which is obviously an error.

Mach's law no longer holds good. According to Ernst Mach, and also Albert Einstein, inertia is a property of a mass determined by the presence of all the other masses in the universe.

In fact, inertia is in direct correlation with the finite and therefore the contrary of infinity. The system of reference can be determined. For this reason, unity should be defined as acceleration itself. The unity of mass will in future be the mass exerted on a mass identical to the distante 1, acceleration 1.

It is impossible to agree with schools of thought that maintain the following :
to put a ball of iron in motion on the moon will require the same effort as that required to make the same ball of iron in motion on earth.

The example cited corresponds exactly with the experiment of the fly-wheel - set in motion on earth at one time, then at another time on the moon. In the end, it is not the kilogram-masses that have to be moved but the kilogram-weights.

The amount of mouvement released by an action is essentially linked to the binary system of reference.

The invariability or stability of the oscillation path of the pendulum in Foucault's famous experiment at the Pantheon in Paris, designed to demonstrate the earth's rotation, is not a result of the presence of all the other stellar masses but is a direct result of the mutual attraction of the terrestrial mass and the mass of the pendulum.

Newtonian gravitation is based on instantaneous action at a distance, an opinion which is not questioned . On raising the mass of a litre of water (1'000 grams) to the top of the Eiffel Tower in Paris (300 metres) the water will lose one ten-thousandth of its weight. At 10 kilometres its weight will be only 965 kf and, 10'000 kilometres, only 151 kf.

.../...

It is the minute loss in weight by a body raised to considerable distances above the earth's surface that is the real equivalent to the work performed.

The expression "potential energy" is an unfortunate term used to imply that a certain tension exists between two masses that are trying to unite.

In the terrestrial system of reference, it is clear that if a body is raised to a certain weight (even of several kilometres) it will only lose a minute part of its weight. This is because it is the enormous mass of the earth - to all intents and purposes alone - which is responsible for the effect of gravity.

It is therefore logical that a body raised to a height "h" corresponds to an amount of work that is practically recuperated if the body is released to make the return journey.

The molecular generator uses, therefore, a gravitational effect (ferromagnetism) to accelerate the electrons. A soft-iron armature is caught by a magnetic field and becomes very heavy over a distance of several centimetres, as it leaves the superimposed acceleration of the locally very intense magnetic field.

The molecular generator can produce energy on two inverse paths, that is to say, as the rotor approaches the stator and also as the rotor moves away from the stator. If the rotor enters the magnetic field (a gratuitous effect), the current produced destroys the attraction. If the rotor leaves the primary magnetic field, then the secondary field gratuitously formed by influence, disappears, causes cut-off, then onee more - production of electricity. It is true that for each isolated system of reference the theoretical yield cannot be greater than 1. But the forces of various systems can, at the same time, be very different.

Also, when two gravitational fields become partners, it is possible (and without contradicting the principal of the conservation of energy) that the following expression is valid:

$$\frac{\text{force recovered}}{\text{force expended}} > 1$$

In other words, each time that two gravitational fields come into action, it is possible to produce energy cheaply.

Again, for example, machinery driven by tidal motion uses the flux and reflux of the sea. The action of the moon's gravitational field associated with the terrestrial field (working at a distance of 384,400 kilometres) raises enormous masses of water to a height of metres, twice every 24 hours, at absolutely no cost - equivalent to approximately 10^{16} kfm of kinetic energy.

This is similar to what happens in the case of the molecular generator. On the one hand, the rotor is subjected to the earth's gravity; and on the other hand, to magnetic gravity, to give another possibility of producing energy chaaply.

constant force usually!

To conclude, Newton's Law of Motion are confirmed, with the suggestion that a fourth law be added as follows :

.../...

<u>The energy in any given system can only be modified in a finite time peculiar to this system. This results in a variety of forces for different isolated systems.</u>

Here, then, are the principal distinctions between a conventional permanent-magnet dynamo and a molecular generator equipped with permanent magnets of the same force :

1. Theoretically the dynamo is not limited in output- the faster it turns, the bigger the output.

2. For 1 kg/s the dynamo produces 9.81 Watts. (if 100% efficient)

3. A dynamo transforms acceleration due to the earth's gravity (981 cm/sec^2) into electrical energy.

4. When short-circuited, the dynamo has a maximum braking effect on the source used to drive it, e.g. motor, turbine, fly-wheel.

5. The molecular generator can only deliver a given amount of power.

6. This power is limited by the capacity of the permanent magnets with which it is equipped.

7. At low speed, i.e. low frequency, the amplitude of the intensity curves are large.

8. At high speed the amplitude of the intensity curves are small and the periods numerous.

.../...

9. In the two cases cited above, the output remains the same.

10. The molecular generator transforms the acceleration due to a permanent magnetic field into electrical energy.

11. In short-circuiting, the molecular generator has a minimum brakigg effect.

NEW ELECTRIC GENERATOR

This concerns a fully new type of electric generator which operates according to physical theories developed over the last 25 years and which took more than ½ million Swiss francs investments for research and testing.

It is now ready for industrial production as working prototypes can demonstrate. It is protected by international patents.

The main caracteristics of this generator are:

1. Almost constant electric power output in spite of a variation range of its rotor speed of about 35% (cf. output curve : ----- AB, on diagram).

2. Ability to work under short-circuiting conditions without heating of its rotor or any other part and without braking effect. (no back torque!) ←

3. High production efficency (ratio output/driving force), better than on conventional equipement (cf. curve ---- and curve ——— at same speed, D & A level, on diagram).

4. Produces alternative current; frequency adaptable to existing frequency of electric power networks on which it will be connected.

5. Rotor requires a rotating speed of about 1200 ± 400 RpM.

6. Construction costs about 30% under costs of traditional equipement of same installed power, because of more simple construction, tooling and engineering.

7. For certain construction particularities the use of this generator is manly appropriated for important pover level, above a minimum of 1.000 KVA.

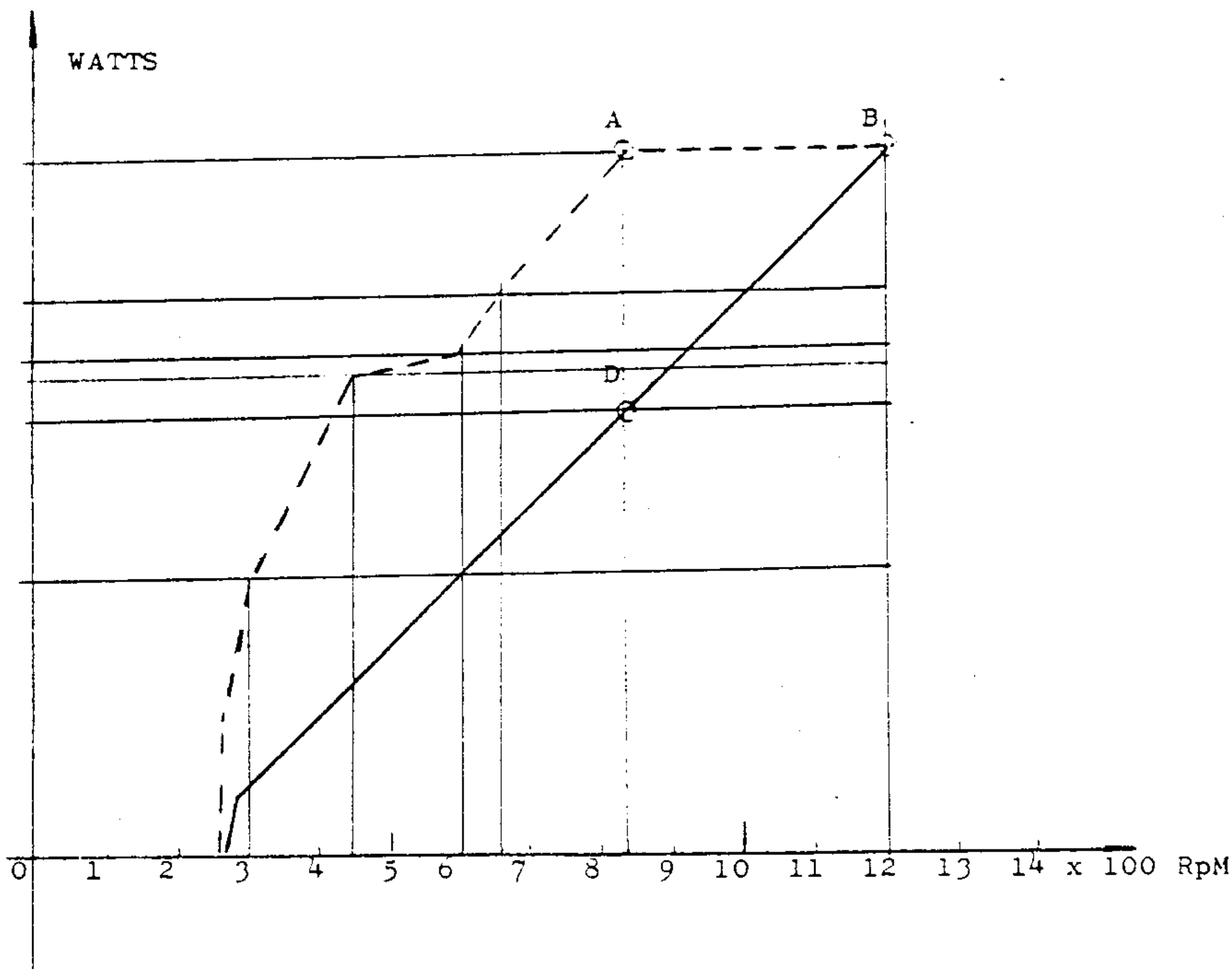
diagram attached.

NEW ELECTRIC GENERATOR

This diagram shows the comparaison between the new electric generator and the classical generator. Difference between their output force / driving speed ratio. (WATTS/RpM).

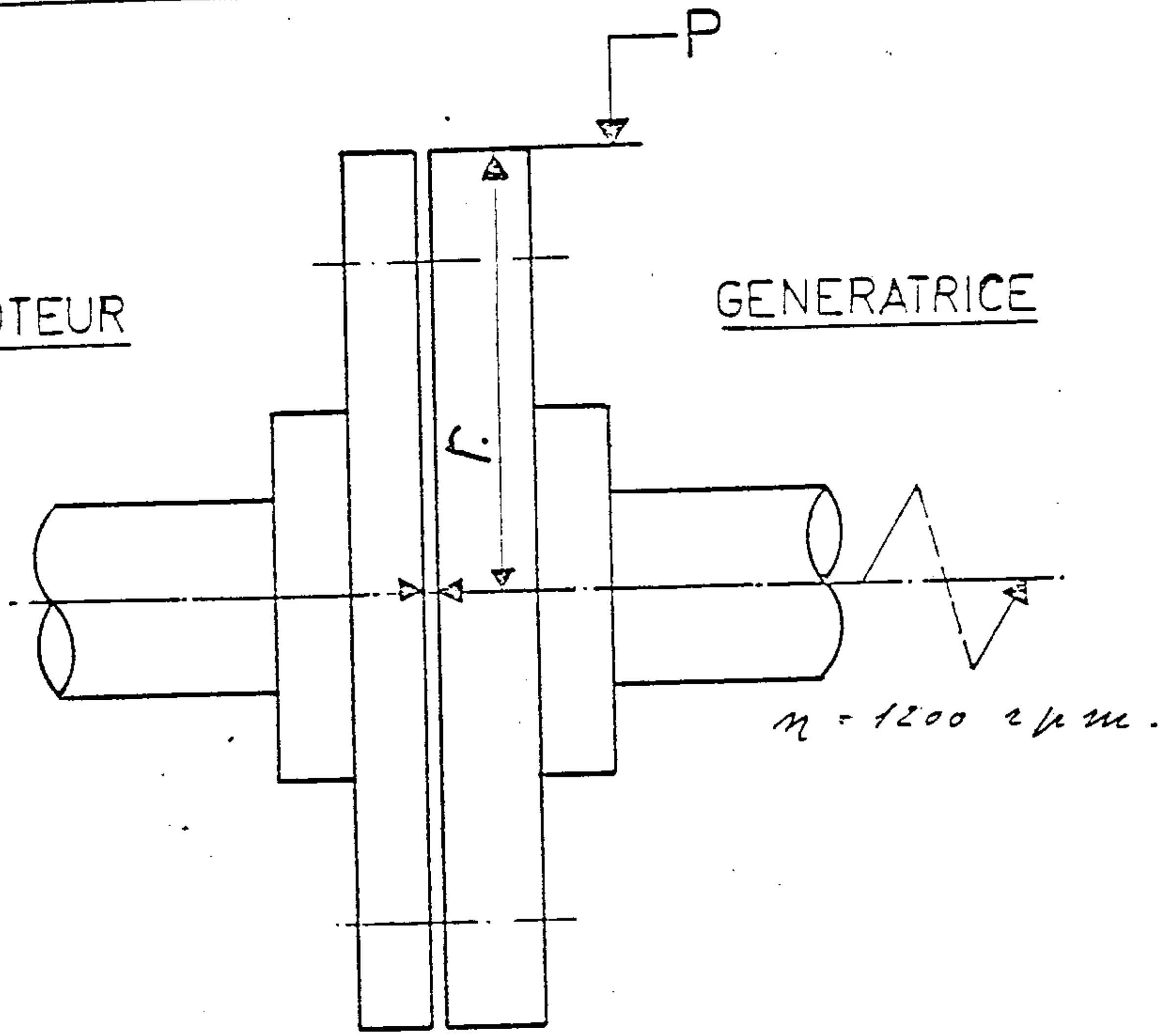
----- curve of new generator

——— curve of classical generator



Dynamometric - Coupling

Measurement with a stroboscope



$$1{,}03 \cdot P \cdot r \cdot n = \text{Watts}$$

P = Driving force in kilograms (the only variable)
r = lever in meters (a constant)
n = Speed in r p m (a constant)

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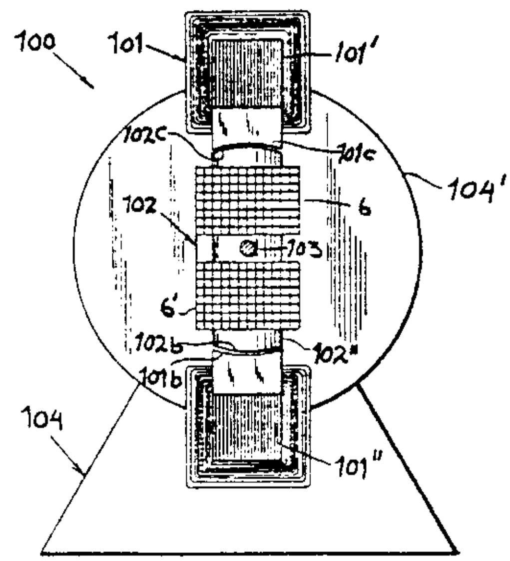

Fig.1A

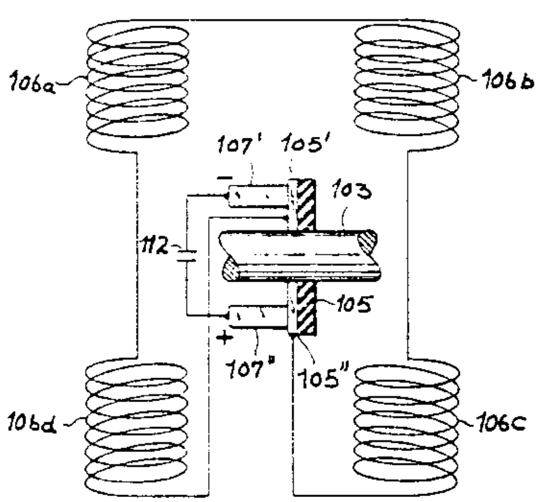

Fig. 4

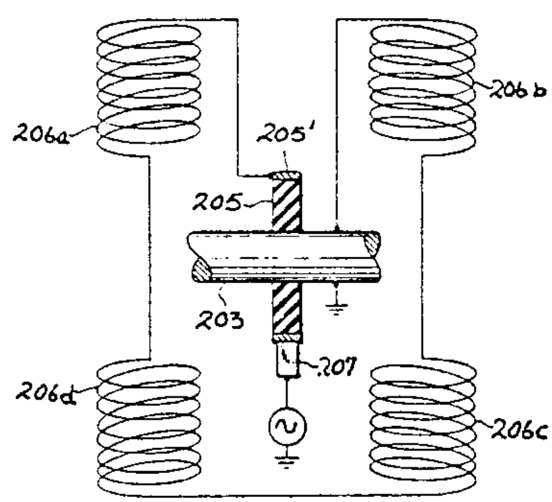

Fig.5

INVENTOR.
RAYMOND KROMREY

BY

AGENT

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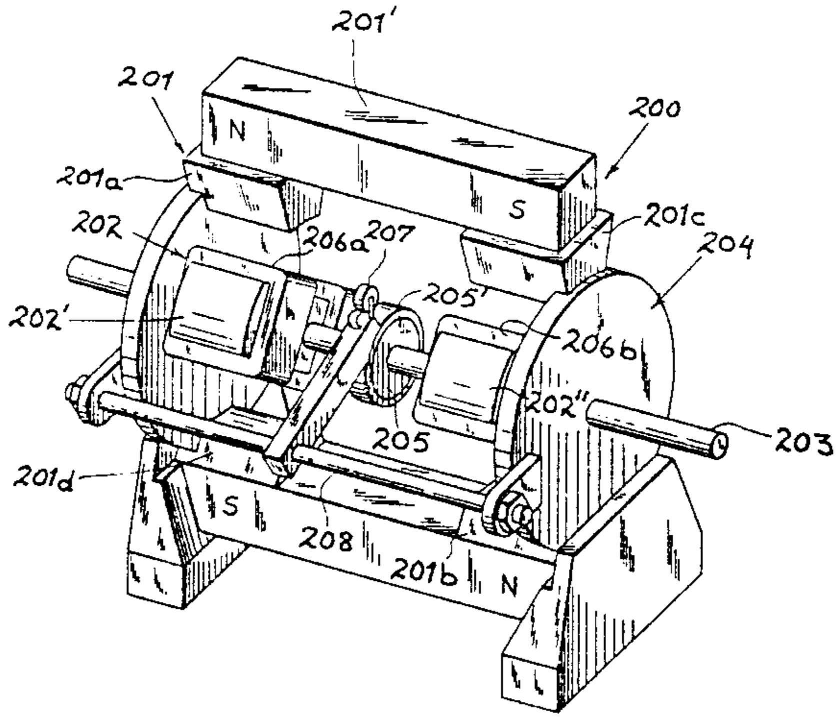

Fig.2

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Karl G. Ross

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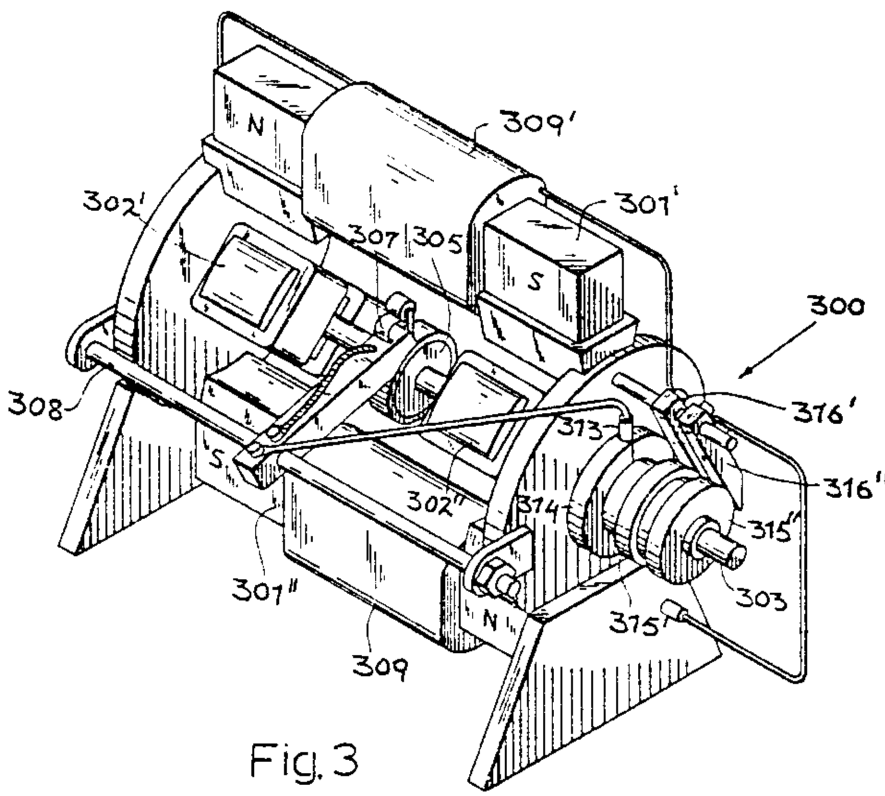

Fig. 3

RAYMOND KROMREY
INVENTOR

BY Karl G. [signature]
AGENT

(4)

ELECTRIC GENERATOR

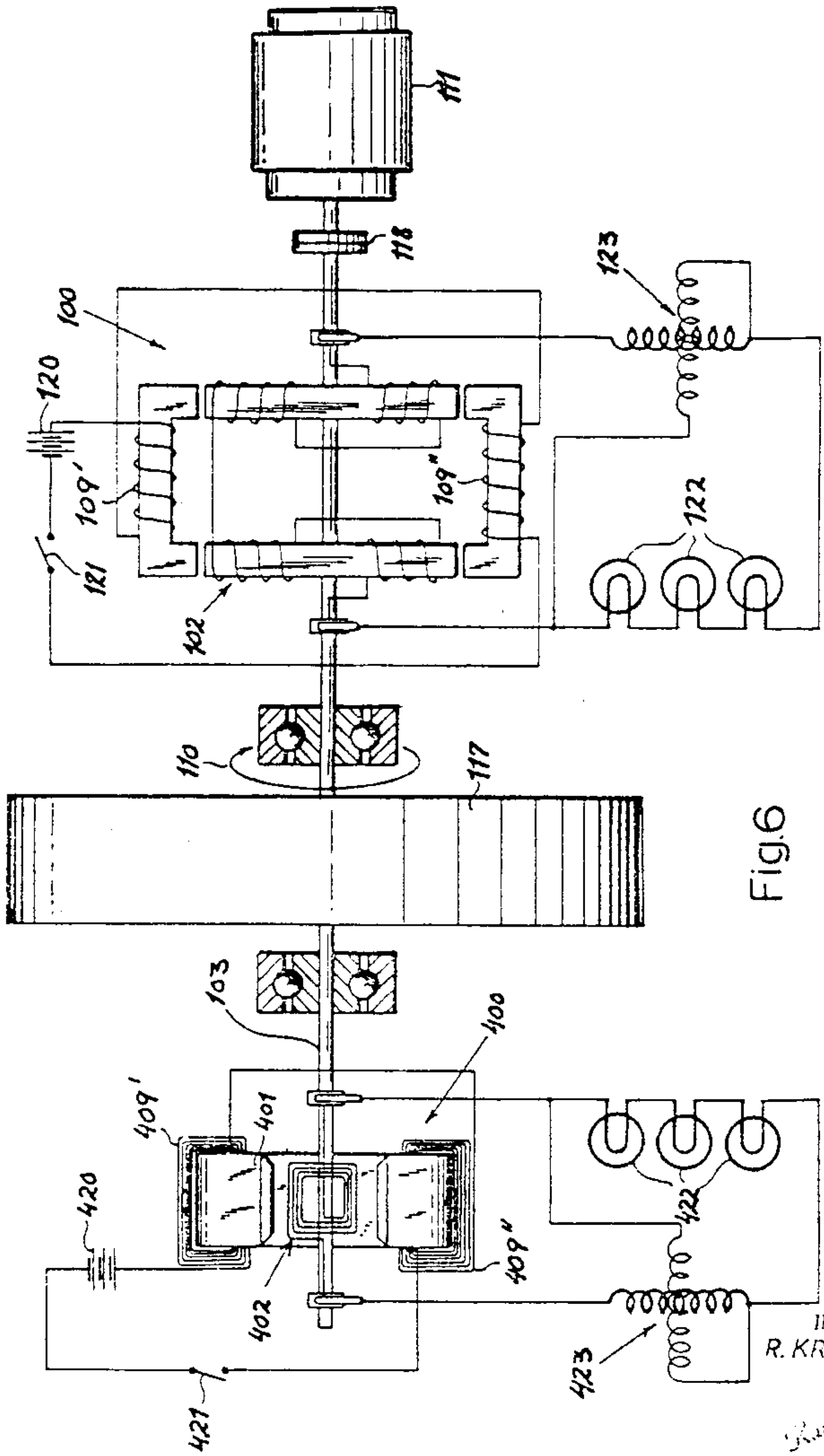

Fig.6

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United States Patent Office 3,374,376
Patented Mar. 19, 1968

3,374,376
ELECTRIC GENERATOR

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Filed Jan. 9, 1964, Ser. No. 336,769
1 Claim. (Cl. 310—112)

My present invention relates to an electric generator serving to convert magnetic force into electric energy with the aid of two relatively rotatable members, i.e. a stator and a rotor, one of these members being provided with electromagnetic or permanent-magnetic means adapted to induce a voltage in a winding forming part of an output circuit on the other member.

Conventional generators of this type utilize a winding whose conductors form loops in different axial planes whereby, upon relative rotation of the two members, diametrically opposite portions of each loop pass twice per revolution through the field of each pole pair of the magnetic inductor member (usually the stator). If the loops are open-circuited, no current flows in the winding and no reaction torque is developed so that the rotor will be free to turn at the maximum speed of its driving unit. As soon as the output circuit including the winding is short-circuited or connected across a load, the resulting current flow tends to retard the motion of the rotor to an extent dependent upon the magnitude of the current, it being therefore necessary to provide compensating speed-regulating devices if it is desired to maintain a substantially constant terminal voltage. Moreover, the variable reaction torque subjects the rotor and its transmission to considerable mechanical stresses which, in the case of widely fluctuating load currents, may lead to objectionable strains.

It is, therefore, the general object of my present and new invention to provide an electric generator which obviates the aforedescribed disadvantages.

A more particular object of my invention is to provide a generator of such construction that its reaction torque and, therefore, its rotor speed in response to a given driving torque varies but little upon changeover from open circuit to current delivery or vice versa.

It is also an object of this invention to provide an electric generator whose terminal voltage varies at a considerably lesser rate than its rotor speed so as to be less affected than conventional generators by fluctuations of its driving rate.

I have found, in accordance with this invention, that the foregoing objects can be realized by the relative rotation of an elongated ferromagnetic element, such as a bar-shaped soft-iron armature, and a pair of pole pieces defining an air gap wherein a magnetic field is set up under the influence of a suitable source of coercive force. The armature carries a winding, advantageously in the form of two series-connected coils embracing opposite extremities thereof, which is included in an output circuit adapted to be connected to a load. As the armature rotates within the stationary air gap (or, conversely, the pole pieces swing about the stationary armature), the magnetic circuit is intermittently completed and the armature experiences periodic remagnetizations with successive reversals of polarity.

When the output circuit is open, the mechanical energy applied to the driven rotor member is converted, to the extent that it is not needed to overcome frictional resistance, into work of magnetization which in turn is dissipated as heat; in actual practice, however, the resultant rise in the temperature of the armature will be hardly noticeable, particularly if the armature is part of the continuously air-cooled rotor assembly. When the output circuit is closed, part of this work is translated into electrical

energy as the current flow through the winding opposes the magnetizing action of the field and increases the apparent magnetic reluctance of the armature. This explains why, in a system embodying my invention, the speed of the generator remains substantially unchanged when the output circuit is either opened or closed.

As the armature approaches its position of alignment with the gap, the constant magnetic field existing thereacross tends to accelerate the rotation of the armature relative to the pole pieces, thereby aiding the applied driving torque; the opposite action, i.e. a retarding effect, occurs after the armature passes through its aligned position. As the rotor attains a certain speed, however, the flywheel effect of its mass overcomes these fluctuations in the total applied torque so that a smooth rotation ensues.

In a practical embodiment, according to a more specific feature of my invention, the magnetic-flux path includes two axially spaced magnetic fields traversing the rotor axis substantially at right angles, these fields being generated by respective pole pairs co-operating with two axially spaced armatures of the character described. It will generally be convenient to arrange the two armatures in a common axial plane, the two field-producing pole pairs being similarly coplanar. The armatures are preferably of the laminated type to minimize the flow of eddy currents therein; thus, they may consist in essence of highly permeable (e.g. soft-iron) foils whose principal dimension is perpendicular to the rotor axis, the foils being held together by rivets or other suitable fastening means.

If the ferromagnetic elements are part of the rotor, the output circuit will include the usual current-collecting means, such as slip rings or commutator segments, according to whether alternating or direct current is desired. The source of coercive force in the stator includes, advantageously, a pair of oppositely disposed yoke-shaped magnets, of the permanent or the electrically energized type, whose extremities constitute the aforementioned pole pieces. If electromagnets are used in the magnetic circuit, they may be energized by an external source or by direct current from the output circuit of the generator itself.

I have found that the terminal voltage of the output circuit of a generator according to the invention does not vary proportionately to the rotor speed, as might be expected, but drops at a considerably slower rate with decreasing speed of rotation; thus, in a particular unit tested, this voltage fell only to about half its original value upon a cutting of the rotor speed to one-third. This nonlinear relationship between terminal voltage and driving rate enables the maintenance of a substantially constant load current and, therefore, electric output over a wide speed range, at least under certain load conditions, inasmuch as the inductive reactance of the winding is proportional to frequency (and consequently to rotor speed) so as to drop off more rapidly than the terminal voltage, in the event of a speed reduction, with a resulting improvement in the power factor of the load circuit.

If the magnetic circuit includes but a single pole pair per air gap, the flux induced in the relatively rotating armature will change its direction twice per revolution so that each revolution produces one complete cycle of 360 electrical degrees. In general, the number of electrical degrees per revolution will equal 360 times the number of pole pairs, it being apparent that this number ought to be odd since with even numbers it would not be possible to have poles alternating in polarity along the path of the armature and also to have the north and south poles of each pair at diametrically opposite locations. In any case it is important to dimension the confronting arcuate faces of the pole pairs in such manner as to avoid bridging of adjoining poles by the armature, hence it behooves to make the sum of the arcs spanned

6

by these faces (in the plane of rotation) equal to considerably less than 360° electrical.

The invention will be described hereinafter with greater detail, reference being made to the accompanying drawing in which:

FIGS. 1 and 1A illustrate a first embodiment of my invention in axial section and in a cross-sectional view taken on line IA—IA of FIG. 1, respectively;

FIGS. 2 and 3 are perspective views illustrating two further embodiments;

FIGS. 4 and 5 diagrammatically illustrate two output circuits for a generator according to the invention, designed respectively for direct and alternating current; and

FIG. 6 is a somewhat diagrammatic illustration of an arrangement for comparing the outputs of a conventional generator and a generator according to the invention.

The generator **100** shown in FIGS. 1 and 1A comprises a stator member **101** and a rotor member **102**, the latter comprising a pair of laminated armatures **102'**, **102''** carried on a shaft **103** which is rotatably journaled in end plates **104'**, **104''** of a generator housing **104** of nonmagnetic material (e.g. aluminum) rigid with the stator. Shaft **103** is coupled with a source of driving power indicated diagrammatically by an arrow **110**.

The stator **101** includes a pair of yoke-shaped laminated electromagnets **101'**, **101''** whose extremities form two pairs of coplanar pole pieces respectively designated **101***a*, **101***b* (north) and **101***c*, **101***d* (south). The pole pieces have concave faces confronting complementarily convex faces **102***a*, **102***d* of armature **102'** and **102***b*, **102***c* of armature **102''**. These faces, whose concavities are all centered on the axis of shaft **103**, extend over arcs of approximately 20 to 25° each in the plane of rotation (FIG. 1A) so that the sum of these arcs adds up to about 90° geometrical and electrical.

The magnets **101'**, **101''** of the stator are surrounded by respective energizing windings **109'**, **109''** which are connected across a suitable source of constant direct current, not shown. Similar windings, each composed of two series-connected coils **106***a*, **106***d* and **106***b*, **106***c*, surround the rotor armatures **102'** and **102''**, respectively. These coils form part of an output circuit which further includes a pair of brushes **107'**, **107''** that are carried by arms **108'**, **108''** on housing **104** with mutual insulation; brushes **107'**, **107''** co-operate with a pair of commutator segments **105'**, **105''** (see also FIG. 4) which are supported by a disk **105** of insulating material on shaft **103**. By virtue of the series connection of coils **106***a*–**106***d* between the segments **105'** and **105''**, as illustrated in FIG. 4, the alternating voltage induced in these coils gives rise to a rectified output voltage at brushes **107'** and **107''**; the unidirectional current delivered by these brushes to a load (not shown) may be smoothed, in a manner known per se, by conventional filter means represented diagrammatically by a condenser **112** in FIG. 4.

In FIG. 2 I have shown a modified generator **200** whose housing **204** supports a stator **201** consisting essentially of two permanent bar magnets **201'** and **201''** extending parallel to the drive shaft **203** on opposite sides thereof, each of these magnets being rigid with a respective pair of pole shoes **201***a*, **201***c* and **201***b*, **201***d*. Rotor **202** comprises a pair of laminated armatures **202'**, **202''**, similar to those of the preceding embodiment, whose output coils **206***a*, **206***b*, **206***c*, **206***d* are serially connected between a slip ring **205'**, supported on shaft **203** through the intermediary of an insulating disk **205**, and another terminal here represented by the grounded shaft **203** itself. Slip ring **205'** is contacted by a brush **207** on a holder **208**, the output of this brush being an alternating current of a frequency determined by the rotor speed.

In FIG. 3 I have shown a generator **300** basically similar to generator **100** of FIGS. 1 and 1A, its shaft **303** carrying a pair of laminated soft-iron armatures **302'**, **302''** rotatable in the air gaps of a pair of electromagnets **301'**, **301''** bearing energizing windings **309'** and **309''**. The commutator **305** again co-operates with a pair of brushes of which only one, designated **307**, is visible in the figure. This brush, carried on an arm **308**, is electrically connected to a brush **313** engaging a slip ring **314** on an extremity of shaft **303** which also carries two further slip rings **315'**, **315''** in conductive contact with ring **314** but insulated from the shaft. Two further brushes **316'**, **316''** contact the rings **315'**, **315''** and are respectively connected to windings **309'** and **309''**, respectively, the other ends of these windings being connected to an analogous system of brushes and slip rings on the opposite shaft extremity whereby the two commutator brushes are effectively bridged across the windings **309'** and **309''** in parallel. In this embodiment, therefore, the stator magnets are energized from the generator output itself, it being understood that the magnets **301'** and **301''** (made, for example, of steel rather than soft iron) will have a residual coercive force sufficient to induce an intial output voltage as is known per se. Naturally, the circuits leading from the brushes **307** to the windings **309'**, **309''** may include filter means as described in connection with FIG. 4.

In FIG. 6 I have shown a test circuit designed to compare the outputs of a generator according to the invention, such as the unit **100** of FIGS. 1 and 1A, with a conventional generator **400** of the type having a looped armature **402** rotatable in a gap of a stator magnet **401** with energizing winding **409'**, **409''**. The two generators are interconnected by a common shaft **103** carrying a flywheel **117**, this shaft being coupled via a clutch **118** to a drive motor **111** whereby the rotors **402** and **102** of both generators are rotatable in unison as indicated by arrow **110**. Two batteries **120** and **420**, in series with switches **121** and **421**, are representative of means for supplying direct current to the stator windings **109'**, **109''** and **409'**, **409''** of the two generators.

The rectified output of generator **100** is delivered to a load **122**, here shown as three series-connected incandescent lamps with a combined consumption of 500 watts, generator **400** working into an identical load **422**. Two wattmeters **123** and **423** have their voltage and current windings respectively connected in shunt and in series with the associated loads **122** and **422** to measure the electric power delivered by each generator.

Upon engagement of the clutch **118**, shaft **103** with its flywheel **117** is brought to an initial driving speed of 1200 r.p.m. whereupon the switch **421** in the energizing circuit of conventional generator **400** is closed. The lamps **422** light immediately and the corresponding wattmeter **423** shows an initial output of 500 watts; this output, however, drops instantly as the flywheel **117** is decelerated by the braking effect of the magnetic field upon armature **402**.

Next, the procedure is repeated but with switch **421** open and switch **121** closed to energize the generator **100**. The lamps **122** light up and the wattmeter **123** shows an output of 500 watts which remains constant for an indefinite period, there being no appreciable deceleration of flywheel **117**. When the clutch **118** is released and the rotor speed gradually decreases, the output of generator **100** is still substantially 500 watts at a speed of 900 r.p.m. and remains as high as 360 watts when the speed drops further to 600 r.p.m.

In a similar test with a generator of the permanent-magnet type, such as the one shown at **200** in FIG. 2, a substantially constant output was observed over a range of 1600 to 640 r.p.m.

Modifications of the specific arrangements described and illustrated will, of course, be apparent to persons skilled in the art and are deemed to be embraced in the spirit and scope of my invention as defined in the appended claim.

I claim:

1. An electric generator comprising a fixed stator and a rotor coaxial with said stator; drive means for rotating said rotor about its axis, said stator being provided with a pair of elongated bar magnets extending parallel to said axis on opposite sides thereof and terminating in transverse extremities, oppositely poled extremities of said magnets confronting each other and defining magnet means having two axially spaced pole pairs disposed in a common axial plane and forming a pair of diametrically extending air gaps for establishing a magnetic-flux path including two axially spaced parallel magnetic fields across said air gaps traversing said axis substantially at right angles, said rotor being provided with two axially spaced parallel elongated ferromagnetic elements slightly shorter than the spacing of said confronting extremities and extending perpendicularly to said axis at locations coplanar with said pole pairs for concurrent periodic alignment of said elements with said fields in said air gaps upon rotation of said rotor; and an output circuit on said rotor including winding means on each of said elements and collector means in series with said winding means, each of said pole pairs and the corresponding elements having confronting arcuate faces centered on said axis, the sum of the arcs spanned by said faces being substantially equal to 90° in the plane of rotation.

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