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Ball Bearing Motor Provides Production of Energy and Rotational Motion, A Rigorous Explanation of the Ampere Force Law

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Abstract: *In this paper we describe the Ball Bearing Motor in terms of its prime cause, that is the Non-Relativistic Longitudinal Cardinal Ampere Force which is not found yet infallible for every case. The impressive finding is the fact that this motor has no back-emf, but forward-emf and forward-Ampere-motive-force. The only consumption is its resistive load with the very high currents needed. This means its total energy consumption is less than the released energy-output work plus heat, plus the energy recharging the batteries. All these are in excess of the consumed energy-input. This means the Ball Bearing Motor is "over-unity" efficiency and that using super-conductive materials, primarily for its rollers with the best shape that of a long diameter as possible, cylindrical rollers, we shall have constructed the first "perpetual mobile" plus producing extra electrical energy.*

Several previous journals that we did not mention here their names, did not dare to publish our disliked papers of very important and revolutionary results but were not able to counter argue our arguments. They preferred the silence and have not answered us at all for many years now. Even some of them were involved previously with the ball bearing motor which is the same topic of our present paper.

Keywords: *Ball Bearing Motor, Ampere Force, Production of energy, Perpetual mobile, Lightning. Revolutionary paper.*

1. INTRODUCTION

The ball bearing motor, figures 3,5 is not a practical and common for the need of use of very high currents. However, it is a very interesting theoretically for having partially non-closed circuits for their motion. For this reason, the usual Lorentz force law is inappropriate. The correct for this particular case, Ampere force law may be used only instead.

The Ampere force was hidden and was very little known and almost unknown in the literature for 180 years, since 1826, and until the Authors published[1] about it first in 2014.

The correct Lorentz force is only when it coincides with the closed integral of the Ampere force when the later force is integrated along a closed circuit which acts as the source of "magnetic" field for the Lorentz force. In every other case, the Ampere force integral is not the same to Lorentz force and this Lorentz force is incorrect, violating[2] momentum, angular momentum, causing self-propulsion, arbitrarily assumed to cause a strong radiation to compensate momentum and angular momentum, experimentally the radiation was never observed, but falsified. However, the Ampere force law may be used in all relevant cases without the exceptions of the Loretz force law. For example, The Faraday induction caused along a circuit is a longitudinal motive force along a circuit, compatible and predicted by the Ampere force[3], and not compatible by the Relativity and totally contrary to the transverse to the conductor Lorentz force!

The Ampere force alone makes the Ampere Electrodynamics, much simpler than Maxwell's Electromagnetism with the unsolvable Maxwell's equations. The Ampere Electrodynamics determines directly all the motive forces and Electromagnetic waves[3], with no equation solving, which together with the Coulomb is all that is needed for Electromagnetism or better Electrodynamics.

2. EXPLANATION

We performed a rigorous explanation of the "Ball Bearing Motor" by the longitudinal non-relativistic Ampere force of point contact, infinite type $1/r^2 \to \infty$ on the charges, with $r \cong 0$, being the separation of only the quantum distances of the electrons and other charges. The Ampere force also obeys correctly the action-reaction principle of Newtonian Mechanics that today is valid in everyday life. Never, and nowhere it has been falsified. On the contrary, the Lorentz force does not obey Newtonian mechanics, violating momentum, angular momentum principles of conservation, never observed true in practice[4].

Approximative papers on the subject, determine a no-contact relatively the small Lorentz force, compared to relatively far much bigger Ampere contact forces, to the point, the Lorentz no-contact forces are negligible compared to the Ampere contact ones.

P. Hatzikonstantinou and P.G. Moyssides [5] paper are not exact, but an approximate and using incorrectly the Lorentz force. They cannot talk of exact solutions of Maxwell's equations, while in the text, one finds an excessive number of the words such as

"negligible, estimated, first order, second order, higher order, lower order, the order of; the generated forces are of minor significance. It considers only the leading contributions and many more phrases like these"; words and phrases, papers use exclusively in doing approximations and omissions, never done in our present paper, at all. Further, when in the abstract erroneously write: "Our predicted values for the total power, the efficiency, and the variously required constants are in excellent agreement with the experimental results".

For a motor of "over unity" efficiency, high and variable friction, subject on overheating, differently for its various parts resistance, depending on the heating, that makes the friction variable, depending on the degree of heating. Thus, the Ball Bearing Motor parameters are time-depended. Therefore, it is hard to believe what H.-M. write is seriously accurate. It seems they do not know what they are talking. Most important, they do not specify explicitly that they use the inappropriate and no point contact, but the perpendicular to a point Lorentz force!

In Reference. 5, the effect is attributed on an extra weak parasitic, secondary and supporting, relatively far away by-effect (no contact force), almost imaginary, of the magnetic field action of the rotating axle on the balls.

Here, we shall discuss, contrary to Ref. 5, the main and stronger cause, dominant and fundamental principle of operation of the so-called Ball Bearing Motor, figures 3, based on the longitudinal, non-relativistic, Ampere contact forces figures 2,4:

$$d^2F_{12} = k \frac{r_{12}I_1I_2}{r_{12}^3} \{2\mathbf{ds_2}.\mathbf{ds_1} - \frac{3}{r_{12}^2}\mathbf{ds_2}.\mathbf{r_{12}}\mathbf{ds_1}.\mathbf{r_{12}}\}. \quad (1)$$

where ds_1 is the infinitesimal length which contacts the current I_1 and produces the infinitesimal force dF_{12} on the infinitesimal section ds_2, curing the current I_2 or

$$d^2F_{12} = (\mu_0/4\pi)dq_1dq_2)(\mathbf{r_{12}}/r_{12}^3)\{2\mathbf{V_1}.\mathbf{V_2} - (3/r_{12}^2)\mathbf{V_2}.\mathbf{r_{12}}\mathbf{V_1}.\mathbf{r_{12}}\} \quad (2)$$

taking into account $Ids=(dq/dt)ds=dqds/dt=dqv$, and ds/dt is the drift velocity V of electrons[6], (L/T and dq is the infinitesimal total charge=nAq

finally the Ampere force parametrized by the motive parameters of the drift velocities V_1, V_2 of the two charges dq_1, dq_2 involved.

$F_{12} = \lambda r_{12}$, $\lambda>0$, We have repulsion, F_{12} and r_{12} have the same direction. With similar dq and opposite Vs, $\lambda<0$, We have an attraction.

For an isolated current like lightning falling from the sky, the endpoints of lightning repel and the lighting becomes self-propelled, gaining energy. Thus, lightning charges up the Geo-electric field by offering energy to it and thus maintaining it, according to meteorology[7] lightning. 90% of lightning brings negative charges to the negative ground[7], instead of going upwards to the positive and more conductive ionosphere, if it was due to electrostatic attraction, assumed between the ground and a cloud. Moreover, this is impossible, because the lightweight and very flexible cloud should be attracted downwards. An elect8ostatic spark break is due to 1000 volts per mm. Lightning is usually

several Km long[7]. So a cloud should have been more often negatively charged to **several hundred billion volts exceeding the maximum of the positively charged ionosphere of 400,000 volts!** On top, lightning appears between differently charged clouds or the different parts of the same cloud. This seems impossible because charges on a cloud are of similar origin and can't be of different sign.

Small similar charges on a cloud are pushed by the wind, causing a current of moving charges. The currents might be different depending on the direction of the wind. Thus, lighting is self-created, self-propelled and self-energy producer and powered, breaking in many different directions, no evidence of particular potential difference direction, and thus, location.

Summarizing: Lightning does not follow a particular direction. It is self-propelled and is breaking in many different directions. Even reversing direction by 90 or even 180, 360 degrees. Often the lightning extinguishes, terminating to nowhere. Many times, lightning trajectories cross one another without following any conservative field, such as the electrical field, for which classical theory proves its lines of field **can not cross each other.** For confirmation, see the pictures, figure 1, of lighting farther below: Lightning is not the first phenomenon of energy production. Energy production appears in many phenomena, similar to mass production[8] and particularly those associated with Ampere force law, as well as other force laws. Those who are interested may visit us to see and thoroughly examine our standing-by energy production apparatus for this purpose, consisting of an advanced digital oscilloscope, square pulses generator, an electronic board for defining the direction of the pulses, identical light bulbs for realistic energy direct comparison, confirming the abstract so to speak, oscilloscope image, in Athens Greece and welcomed to stay for as long they wish, eventually until they will be convinced, preferable physicists, knowing electronics or just electronic engineers! Contact us to make arrangements, our email is indicated under the title of the present paper.

Figure 1. *From the above pictures, we have another experimental evidence for the Ampere force that is self-propelled and offering excess Energy*

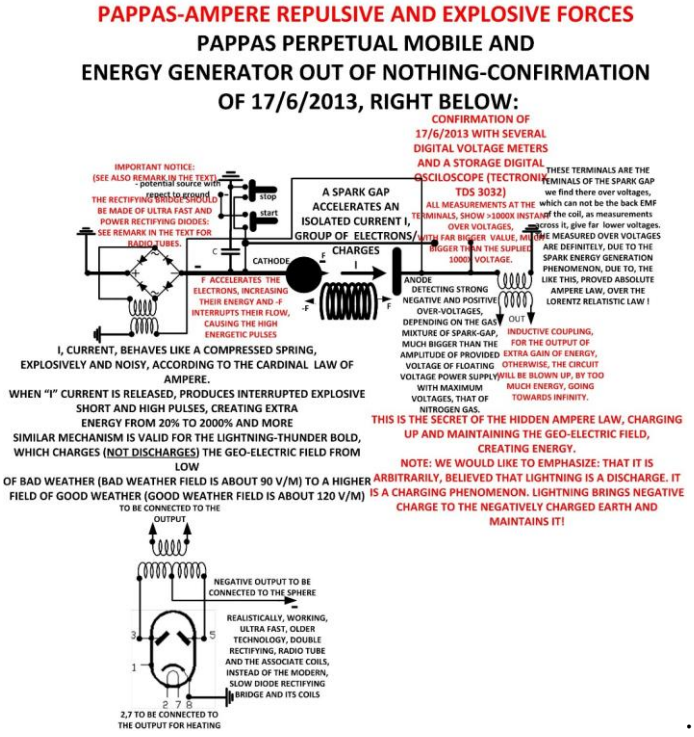

Figure 2.

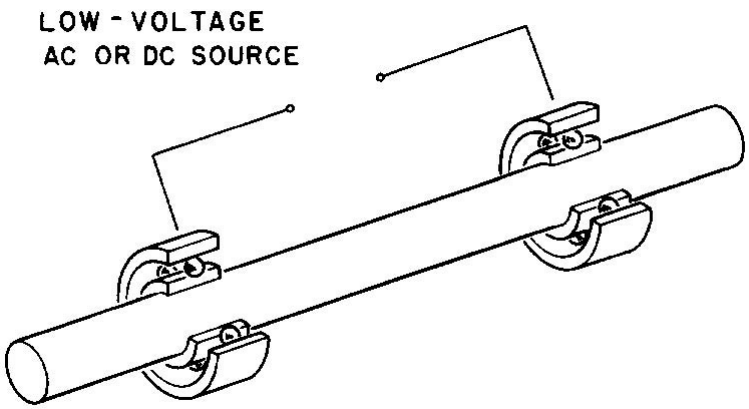

Figure 3. *A popular simple form of the ball bearing motor is sketched above. Note that this motor is not self-starting in general; the axle must typically be given an initial angular velocity, of either rotation handiness, CW, CCW, after which the motor can accelerate and finally sustain rotary motion if the current (AC or DC) is large enough.*

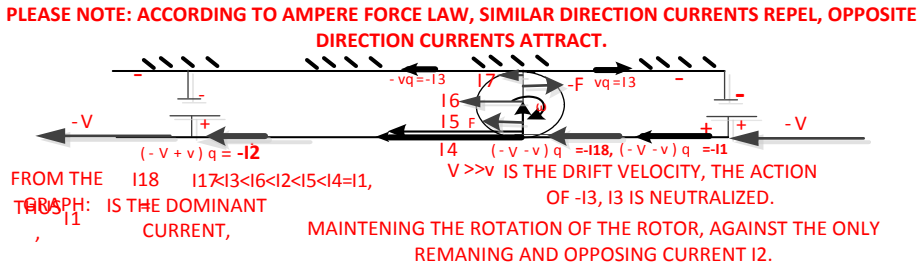

Figure 4. *Not In Scale. Graphical Representation of A Rotating Ball and Its Resulting Currents of A "Ball Bearing Motor"*

Due to the repulsion of current I1 by mainly I18 and other similar currents with a minor action, figure 4, the battery is being charged, offered energy to it, plus offered energy to the rest of the circuit. The resulting forces as F, maintain the rotation of the rotor of the ball bearing motor.

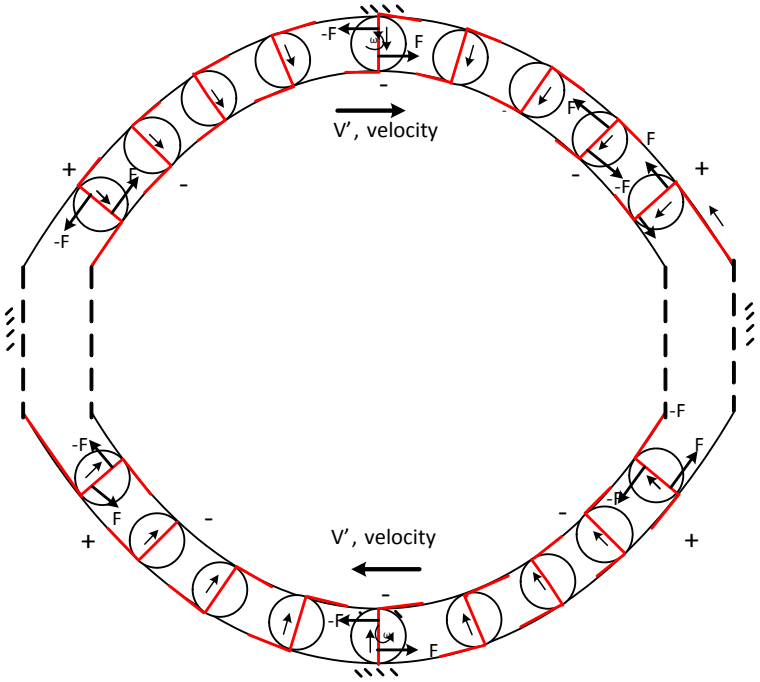

Figure 5. ***A Hole Ball Bearing is Depicted.*** *For the Ball Bearing Motor when it rotates by a push, no back Ampere motive force (b.a.m.f.) is created. The only losses are resistive also by relatively big currents, and the motor heats to overheating. If the Ball Bearing Motor is constructed of a superconducting material, the motor should be expected to become a perpetual mobile,* ***generating energy****.*

3. CONCLUSION

For, the first time, the proper analysis of the Ball Bearing Motor is made. The basis was the only appropriate and infallible cardinal[9] force of Ampere. We have also proven here, for the Ball Bearing Motor, is an energy generation phenomenon by well-established laws of Physics. The non-relativistic absolute Ampere force law is always applicable[9]. **We note: the relativistic Lorentz force is only correct when it coincides [11] with the integral of the absolute Ampere force. Here we have partial moving sections. So, the integral of Amper force does not coincide with the Lorentz force.** So,the Lorentz force is not correct.

It is safer and wise to use always the absolute Ampere[10] force, and risky and unwise to use the usual Lorentz law, as in this case. The relativistic Lorentz force, is an approximate law and only to use carefully in special cases, but it is completely inappropriate for the present case. The general Ampere force law can unconditionally be used always in all cases.

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