Anti-Lorentzian Motor

Peng Kuan 彭宽 titang78@gmail.com

5 January 2014

1. What is anti-lorentzian motor?

First, let us see a video of the anti-lorentzian motor http://youtu.be/oFSS81Ic2Xg

Have you noticed something particular in this motor? The coil turns in its plane which is fixed. In classic motor, it is the plane of the coil that turns. For illustrating the difference between the anti-lorentzian motor and classic motor, here is a video of a classic motor, http://youtu.be/KuK6wBFKCuo. The coil of this motor is flat and round, its axle is in the plane of the coil. When its turns, the plane of the coil turns about the axle (see Figure 1). The plane must turn with the coil because the force that drives this coil is the Lorentz force which is perpendicular to the current and thus, to the plane.

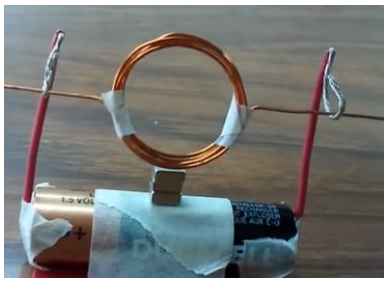

Figure 1

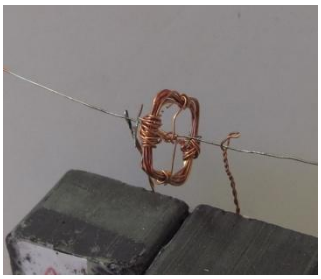

Figure 2

For the anti-lorentzian motor, the coil is flat and rectangular; its axle of rotation **perpendicularly** crosses the plane of the coil at the center (see Figure 2). When the coil turns, it rotates in the plane. So, the forces that drive the coil lie in the plane and are mostly parallel to the current. These forces are not Lorentz force. This is a blatant proof of the fail of the Lorentz force law.

2. How the forces work

The rotation of the anti-lorentzian motor is driven by the parallel action (See **Theory about parallel action experiment (word) (PDF)**). I have shown by experiment that magnetic force has a component that is parallel to current. This force was first predicted by my corrected magnetic force law below (see Unknown properties of magnetic force and Lorentz force law(word), (pdf)):

$$d^2\boldsymbol{F} = -\frac{\mu_0}{4\pi}(d\boldsymbol{I}_2 \cdot d\boldsymbol{I}_1)\frac{\boldsymbol{r}}{r^3} \qquad (1)$$

This law states that two current elements $d\boldsymbol{I}_1$ and $d\boldsymbol{I}_2$ attract each other if they flow in the same direction and repel if they are opposite.

The video "Magnetic parallel action experiment" shows that the rectangular coil near a magnet turns in its plane under the parallel action and reaches a position of equilibrium.

The Figure 3 illustrates the acting forces in the parallel action experiment. In this figure, the small red arrows indicate the directions of the current in the coil. The big red arrows are the equivalent currents in the magnet that produce the magnetic field. The forces $\boldsymbol{F}_1$ and $\boldsymbol{F}_2$ are the magnetic forces parallel to the segments a and c of the coil. Because the currents in a and c are parallel to the current in the magnet, the forces $\boldsymbol{F}_1$ and $\boldsymbol{F}_2$ are not zero and make a torque on the coil. The force $\boldsymbol{F}_3$ is the resultant

force on the coil in the position of equilibrium. As F_3 passes through the axle, the torque on the coil is zero and the coil is at equilibrium.

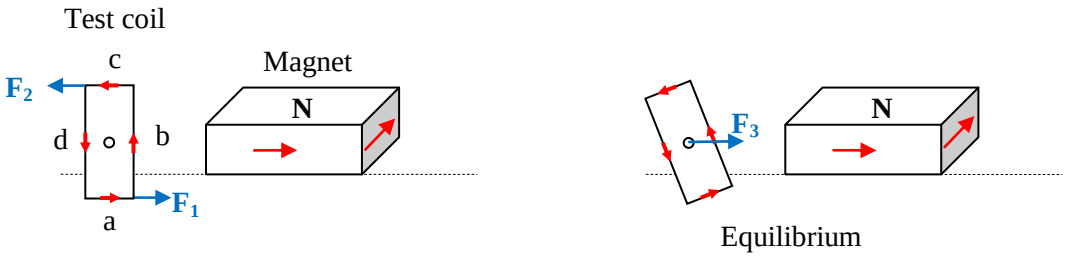

Figure 3

From the above analyze of the forces, we deduce that when the coil is in a position before the point of equilibrium, the torque is counter-clockwise and after this point the torque is clockwise. This is shown in the Figure 4.

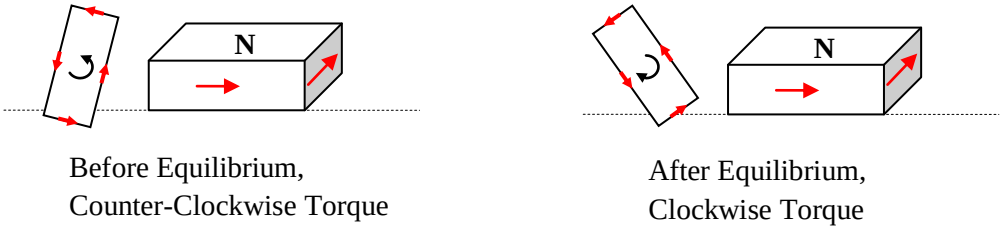

Figure 4

3. Principle of operation of the anti-lorentzian motor

The setup of the anti-lorentzian motor is made by two attached magnets with their poles opposite to each other. The coil is mounted in the middle of these two magnets.

For the coil to turn continuously, we have to create a torque always in the same direction. This is done by connecting the current when the torque is in the direction of rotation and disconnecting when the torque is opposite.

	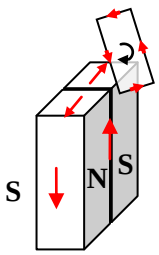	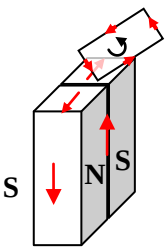
Torque	Clockwise	Counter-clockwise
Clockwise running	Current on	Current off
Counter-clockwise running	Current off	Current on

Tableau 1

In the video of the anti-lorentzian motor, we see that the motor can turn in both directions. In counter-clockwise running, we connect the current when the torque is counter-clockwise and cut the current when the coil has passed the point of equilibrium. In clockwise running, we connect the current when the torque is clockwise and cut the current when the coil has passed the point of equilibrium (see Tableau 1). The current flows always in the same direction in the coil for both directions of rotation (see the video of the anti-lorentzian motor). The contact and cutting of the current are done by the vibration of the axle.

4. Comments

I have been silent for 2 months because I was trying to carry out a good perpendicular action experiment. Unfortunately, my material condition is too poor to carry out an acceptable one. So, I changed my mind and concentrated on finding application for parallel action. And I have found the anti-lorentzian motor.

This motor does not only prove that the Lorentz force law wrongly describes magnetic force, it also shows an interesting electric motor with amazing possibility. First, the rotation in the plane of the coil allows building very thin motor, even as thin as a paper. This is a huge advantage for use in satellite, medical and precision technology where space is scarce. Second, it seems that for power motor, the simplicity of the anti-lorentzian motor can reduce cost and time of construction.

I seriously have the intention to build commercial anti-lorentzian motors. For doing so, a new company should be created and number of invention patents filed. This is a high-tech product with no competitor. If any industrial company and venture capital company are interested, please contact me.

But my first objective is to make my theory recognized by the physical community. It would be absurd that many applications of this theory are in use while the theory itself is still rejected as crack-potting.

In order to convince mainstream physicists, I call for a great movement of experiment contradicting the Lorentz force law. As the anti-lorentzian motor is very simple to construct, it is a good candidate to start with. Please join this movement, do the experiments and show your videos. The history of science will be changed by you.