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An engine for spacecraft
Proposal for patenting application

Annotation

This proposal is addressed to those individuals and organizations that specialize in the field of space technology and satellites. An idea that can be patented is briefly described. The author is looking for partners for joint patenting and the manufacture of an experimental sample.

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Proposal for patenting application

Recently, there has a patent [1], an experiment by NASA based on this patent [2], and a similar Chinese experiment [3] - see fig. 1. They cause doubts and disputes in the scientific world, since they allegedly violate the law of conservation of momentum. These experiments clearly demonstrate the creation of thrust due to electrodynamic effects. At the same time, they demonstrate that the thrust force is very small.
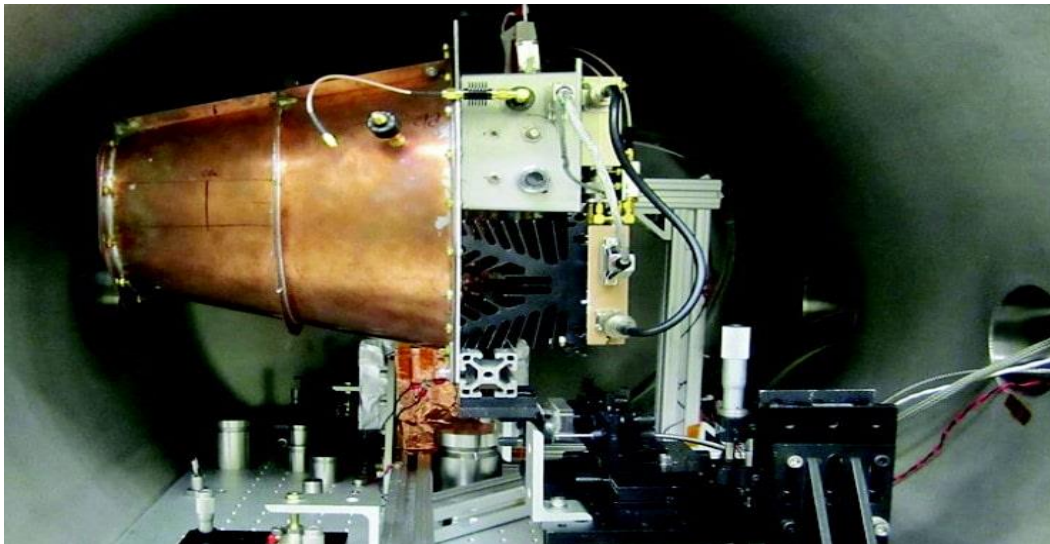
Fig. 1.

The following is shown below.

1. This experiment does not violate the law of conservation of momentum;
2. There is a much less complicated experiment - a high voltage electric motor (hereinafter, HVE), which also demonstrates the creation of thrust due to electrodynamic effects - see the appendix 1
3. There are other experiments in which there is an inexplicable appearance of thrust force;
4. Explaining all these experiments becomes possible, if we assume that an electromagnetic momentum can have a significant value. But the density of the electromagnetic momentum p is related to the density of the flux of electromagnetic energy S on the formula $p = S/c^2$, where c is the speed of light. It seems meaningless to pay attention to the meager amount resulting from dividing by the square of the speed of light.
5. The author built a theory (within the framework of the existing scientific paradigm), which explains why an electromagnetic momentum can have a significant value [5] – see also the appendix 2.
6. This theory, in particular, numerically predicts the results of an experiment with HVE;
7. The author is ready to perform the verification of the approval of clause 4 with various versions of the HVE designs (these designs are very simple to manufacture);
8. The author has a project of a solid-state device that creates thrust due to electrodynamic effects (hereinafter – **ESC ‐** Engine for SpaceCraft);
9. The author has a method for calculating ESC and experimental programs; about prototypes see in Appendix 3.

Such a device can fly in space with low acceleration (without overload), which will:

• ensure flight safety,
• get rid of heavy thermal protection (when moving in the atmosphere),
• save fuel
• drastically reduce the mass of the device.

Appendix 1. About HVE.

The "high voltage electric motor - HVE" Lavrinenko [4] - HVE has long been known. It is a high voltage air condenser. In it, one plate is made in the form of a wire, and the second in the form of a strip of foil - see fig. 2. With a high voltage between the plates there is an ion current and an ion wind. The device takes off.

This effect was first explained by the action of ion current and ion wind. More careful measurements show that ion wind generates about 60% of the lift. The source of 40% of the lifting force is not revealed.

According to the proposed theory, the author calculates the results of experiments with HVE. The well-known parameters HVE (dimensions, mass, current, voltage, electrical capacity) is calculated lifting speed. If it is equal to the measured one, then it can be argued that the theory is valid.

Fig. 2 (from [4], time 6:37)

Appendix 2. On the electromagnetic momentum.

Umov in 1874 introduced to physics the idea of energy motion, the energy flow and the velocity of energy motion. In this case, the energy flux density S, energy density W W and velocity of energy motion v are related by the formula $S = W \cdot v$. [6]

This statement is universal. In electrodynamics, the flux density vector of electromagnetic energy is called the Umov – Poynting vector. The velocity of electromagnetic energy in electrodynamics is assumed to be equal to the velocity of light: $v = c$. This statement forced out cases from scientific use, where the velocity of movement of electromagnetic energy is less than the velocity of light. And such cases are known. For example, the velocity of energy in a wave packet <u>is less than the velocity of light</u>. In a **stationary** electromagnetic field there is no electromagnetic wave, but there is a flow of electromagnetic energy. In this case there is no reason to associate the velocity of electromagnetic energy in static fields with the velocity of light.

It is known that the density of the electromagnetic momentum p is related to the density of the flow of electromagnetic energy by the formula $p = S/c^2$. It is also known that the density of an electromagnetic momentum propagating in the body is (numerically) the density of the mechanical momentum m in this body: $m = p$. And this fact also somehow fell out of scientific use. Indeed, is it worth paying attention to the meager value resulting from dividing by the square the velocity of light.

But the velocity of movement of electromagnetic energy **is not equal** to the velocity of light (in general). This velocity can be calculated. In [5] various processes of electromagnetic energy propagation (battery discharge, capacitor discharge, magnet demagnetization, energy movement in a DC wire) are considered and it is shown that in these cases the energy velocity is much less than the velocity of light.

So, if the speed of movement of electromagnetic energy is less than the speed of light, then the electromagnetic momentum takes on a large value, and a mechanical momentum equal to it can cause a movement similar to movement under the influence of exhaust gases of the rocket.

Appendix 3. About prototypes.

Serl's drives are widely known for generating energy and demonstrating unsupported movement. The technology of their manufacture is briefly described in [7]. Also known converter Roshchin and Godin [8, 9], made by analogy with the Searl disks and showing the same properties. In terms of the implementation of unsupported movement, these devices can serve as a prototype of the proposed ESC. However, ESC does not implement the functions of a power generator - ESC uses a conventional electric motor and a conventional generator of any type to power this electric motor. This allowed to significantly simplify the design and manufacturing technology of ESC.

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