

Frolov's Asymmetrical Capacitors

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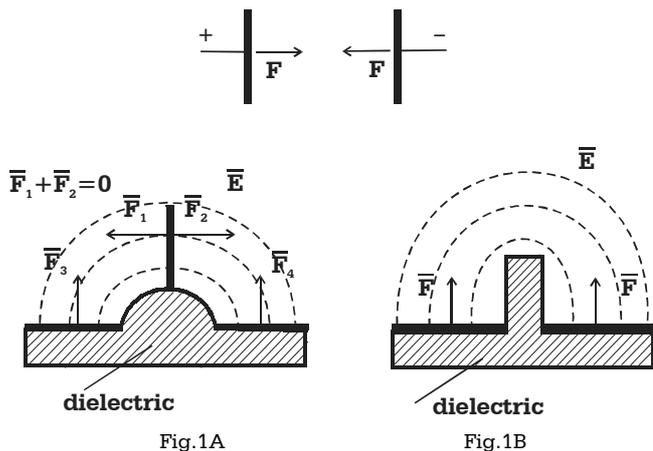
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Modern experimenting with asymmetrical electric capacitors is well known today as "Lifter" topic. What is the history of this research and what is the most perspective direction of its development? I'll try to present my ideas on it.

On the history of invention

At first we should remember **T.T. Brown's patent 3,187,206 of 1965** (you can read it and look at the figures in this issue of the magazine). T.T. Brown claimed that thrust could be produced due to special shape of dielectrical member of a capacitor and/or due to the gradient of dielectrical permittivity. I think it is the most essential ideas by T.T. Brown that allow us to get propulsion force just due to shape or the properties of the design elements but without any fuel and input power! Sure, some primary source of electrical field is necessary to restore losses but there are no any principal needs in any conductivity current.

Some experiments were produced in my laboratory. The goal was to get asymmetry in the vector sum of the field components. For example, in classical plane capacitor the plates are in attraction but the forces are contradirected. In T-shape capacitor there **are two perpendicular electrodes (Fig.1A) or in other version they are placed in the same flatness (Fig.1B)** that was proposed by me in 1994.



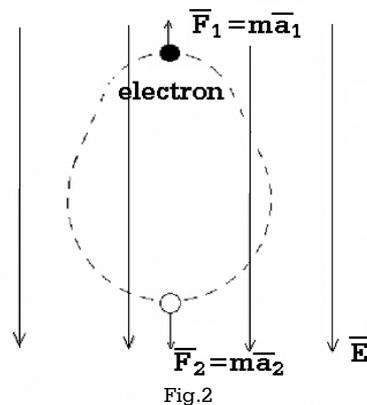
Electrodes are separated by "dielectric wall" to exclude electric discharge along the minimal distance way between electrodes. The electric field structure is configured here to create co-directed electrostatic forces for both electrodes.

One of the first articles on the topic was published in 1994, in USA and Canada [1-3]. The main conclusion

was stated as following: **"To discover a solution for a non-zero resultant force, all we need is to note that the force lines of the potential field are always perpendicular to the charged surface and take advantage of that fact."**

Also comments by Thomas E. Bearden to my article are very interesting.

Also it is necessary to note that known Biffeld-Brown effect describes the active force, which is created in the flat capacitor to the positive plate side (usually if the voltage is above 50 kV). In one of his first patents **UK #300,311 of 1927 T.T. Brown did not explain the reason of the force**, which he named as "X-force" in the text of his patents. In my opinion, **this force is the result of the asymmetry in orbital motion of the electrons in dielectric atoms due to the electric field between the plates**. In other words, this asymmetry leads to the asymmetry of centrifugal force (i.e. to its gradient) and non-zero linear component of this force.



I reported this idea in 1996, during scientific congress "New Ideas In Natural Sciences", St.Petersburg, Russia, and my report was published in Proceedings of the Congress.



Fig.3
Alexander V. Frolov's demonstration of some experiments during scientific congress "New Ideas In Natural Sciences", St.Petersburg, Russia, 1996

There is the useful mechanical analogy of this approach that is disclosed in my article "The Gravitation Conception and Experiments"

<http://www.faraday.ru/gravityconcept.htm>.

Later this idea was developed by Jean-Louis Naudin, France, and you can find very good quality diagrams at his web site, Fig.4.

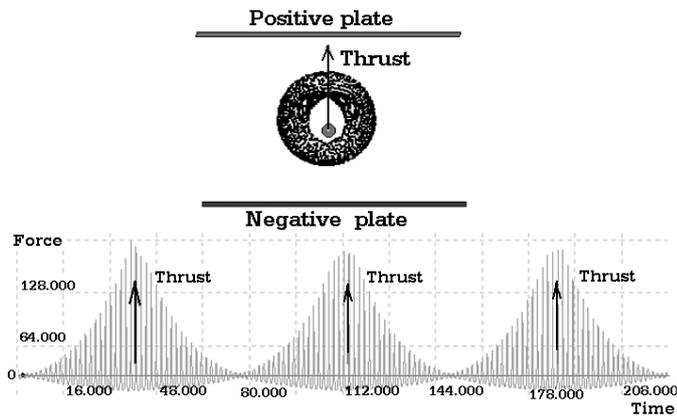


Fig.4

Some my experiments to prove the principles were demonstrated for people of well-known Japan company during their visit in St.Petersburg, 1999, Fig.5.

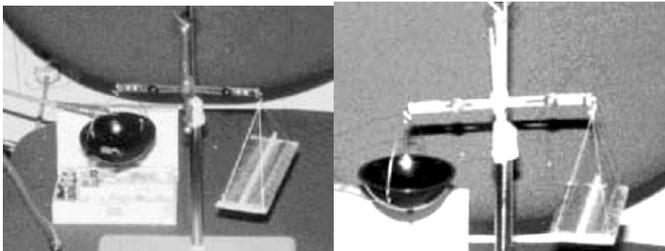


Fig.5

Small changes of T-capacitor weight can be detected with simple balance scales. Voltage is 10 kV.

Then some video files of the rotation test produced in my home laboratory (July of 1999) were submitted in Internet (see Fig.6). Asymmetrical capacitor is made of cylindrical electrode and flat electrode. You can see MPEG file here: <http://www.faraday.ru/electrogravity.mpeg>

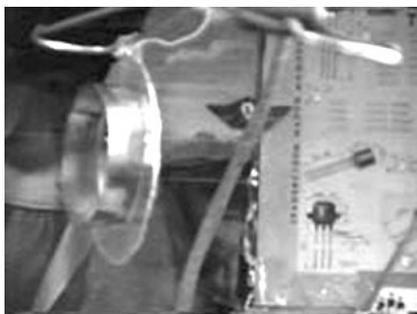


Fig.6

Then the research group from France (Jean Louis Naudin, web site address: <http://jnaudin.free.fr/>) also experimentally confirmed this principle (photos below,

see Fig.7). They named this asymmetrical capacitor as "Frolov's Hat".

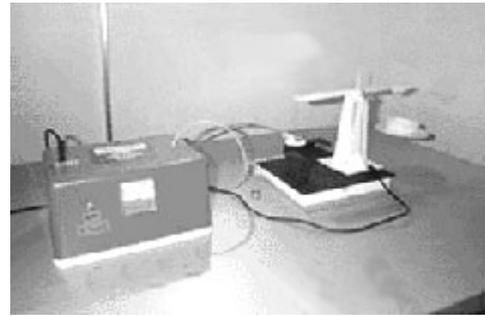


Fig.7

After some time we have got news from USA that similar technology was presented by Transdimensional Technologies, USA as "the next evolutionary step in propulsion". A small prototype was named as "lifter" and it was demonstrated that it could rise to the height of four feet without an engine, moving parts, conventional thrust, or propellant. Transdimensional Technologies, LLC is a small company started in Huntsville, Alabama in February of 2000. Physicist Jeffery Cameron is Chief Scientist and inventor of this device. It was claimed that after twenty years of research and study, Cameron conducted his first successful experiments in his garage (a plastic license plate was moved a few inches with this force). The work of Mr. Cameron has been evaluated and verified by a team of scientists contracted by NASA Langley. It is supported by mathematical analysis and modeling that is verified within experimental limits by actual demonstration. There is info about pending patent <http://www.tdimension.com/> but **NASA already have got US patent #2002012221 granted on January 31, 2002.**

Lifter version #3 made by Jean Louis Naudin allows rising 4 g of useful load and future development of the idea is quite clear (see photo below Fig.8).

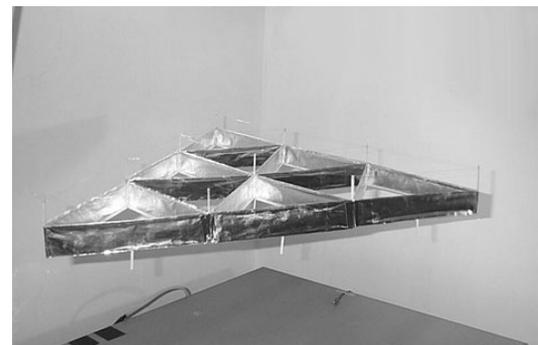


Fig.8

At the present time there are many research groups on the topic and I can note that most developed versions of the technology realization are Russell Anderson's device and Lifter by Tim Ventura.

Problems and proposals for development of the technology

The commercial application of this technology is very complex due to high voltage equipment. You can try to calculate the lifting force for air asymmetrical capacitor (I made the calculations, they are not perspective). So, we need other solution. **In 1995 I proposed the LIQUID DIELECTRIC version** of the same asymmetrical capacitor, Fig.9. Simplest tests were produced in Faraday Lab Ltd in 2001. Some weight changes were detected in experiments with asymmetrical capacitor (the jar and liquid oil dielectric):

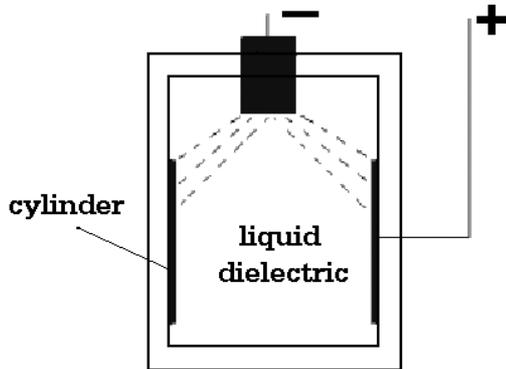


Fig.9

Force about 0,4 gram was detected in this case if 10 KV was applied to the electrodes. Measurements were made with HL400EX digital scales.

But most perspective is research on SOLID STATE GRADIENTAL DIELECTRIC as it was proposed by T.T. Brown. This work is very complex. It is necessary to produce gradual changes of dielectrical permittivity in dielectrical material between two plates of flat capacitor. But I am sure that this topic is deal of the great commercial perspectives. The calculations are submitted here: <http://www.faraday.ru/gradient.html>.

Let's consider some experiment (see Fig.10) produced by me in 1997. The basis of the design is a dielectric plate of permittivity 6 and the second layer is a dielectric plate of permittivity 1. The square of the plate is 100 square cm. The high potential (direct current) source is a home-made design. The potential is about 10 kV. The calculated active force should be about 0.001 N or 100 mg that was detected by means of rotation torsion effect.

The experiment

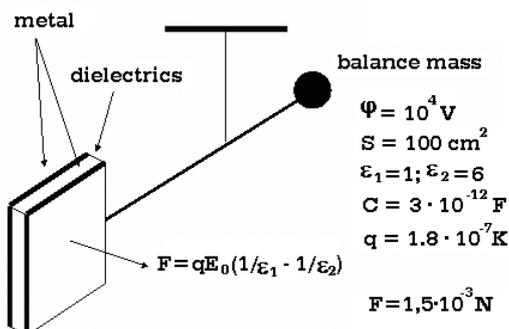


Fig.10

Fig.11 is an example of calculation for commercial aerospace project. Let's take the surface to be 100 square meters. The capacity of 1 cm radius sphere is about 1 pF, so the calculated capacity of the system should be about 1 micro Farad. The special gradiental ceramics can be used in the design, that allows to increase the permittivity gradually in the dielectric layer from 1 up to 80. The potential of 100 kV is a quite real value. So, for this potential and this surface we'll get the electrical charge about 8 Coulomb. The difference of forces, which act on the particles of this gradient dielectric, should be about 80 ton.

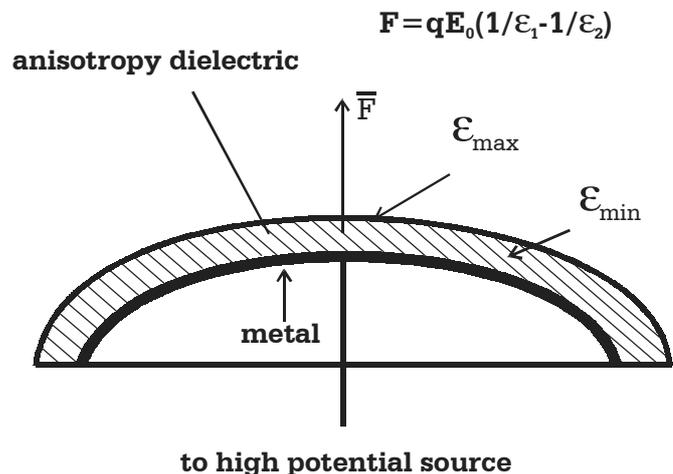


Fig.11

There is a square function of the force from the potential, so it is more useful to increase the potential than to increase the surface. As a conclusion, let me say about necessity of the true law of the momentum conservation. The "reactionless propulsion" means the absence of ordinary reactive flow of mass (rocket fuel). In the systems considered above there is a reaction, since the velocity of system changes and the compensation effect here is the change of the impulse (momentum) of the "virtual particles" or "particles of ether". So, the heat energy exchange balance should be changed due to the change of the momentum and ether becomes colder. It can be experimentally detected as 4-dimensional effects, since the time rate should be changed in local space around the device working according to the reactionless principle of active force.

References

1. The Application of Potential Energy for Creation of Power, Alexander V. Frolov, New Energy News, USA, May 1994.
2. Potential in Power Generation, Planetary Association for Clean Energy, Vol.8(1), Sept.1994
3. ELECTRIC SPACECRAFT, Leicester, North Carolina 28748 USA, Issue 27, 1997 p.30-31.