

Development of Thomas T. Brown's ideas on electrogravitics

Alexander V. Frolov

www.faraday.ru

Many technologies related to space exploration are currently being discussed. Electrokinetic propulsion systems are offered mainly for microsattellites. Electrical type of propulsion drives are planned to adjust the orbit of satellites, since their operating time is not limited by the fuel on board.

The most widely known works were made by Thomas Brown (Brown Thomas Townsend) that was presented in his patents 1927-1965 [1]. The controversy about the ionization of air in asymmetric capacitors was stopped after convincing tests in a vacuum. The driving force is not related here without an ion wind reactive effect.

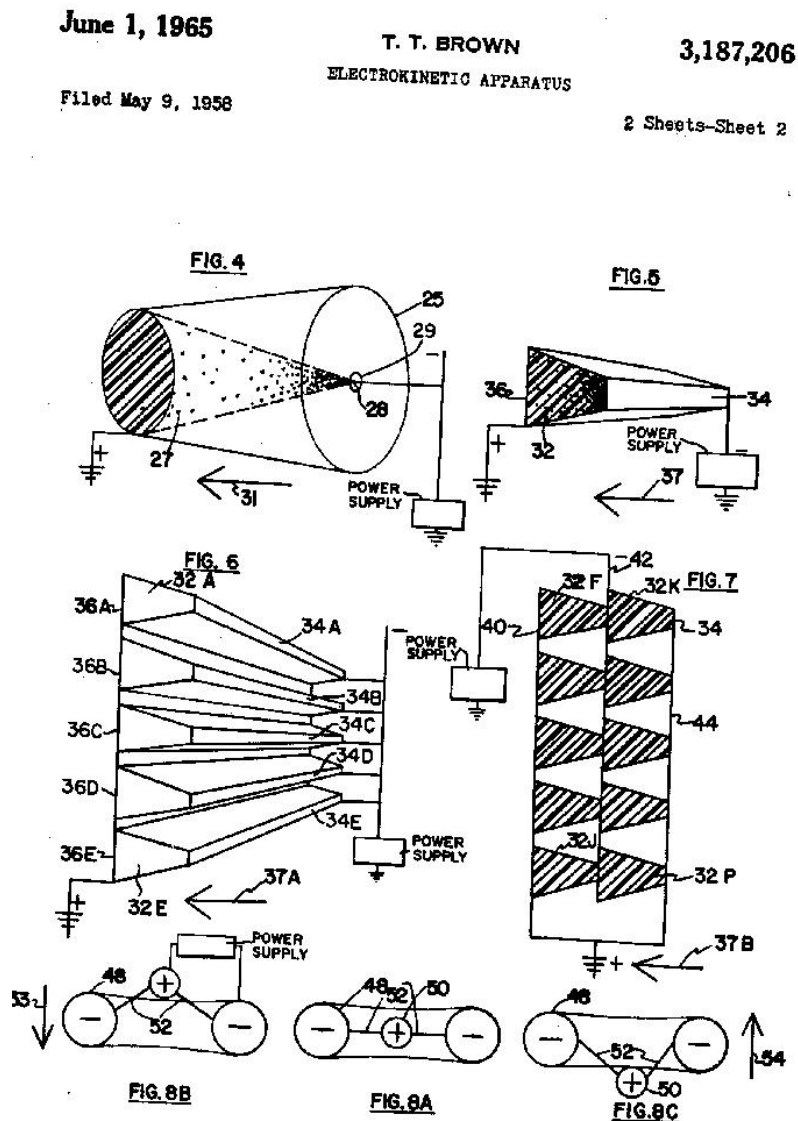


Fig.1 Asymmetry of dielectric in T. T. Brown's capacitor

Author of this article also made some experiments with asymmetric capacitors since 1994. They are presented in articles and books, at conferences and on video. There is so called "Frolov capacitor" with a T-shaped dielectric and two electrodes, as well as "Frolov hat" disk-shaped asymmetrical capacitor. The most detailed information on these types of propulsion drives are published in the book "New Space Technologies" ISBN 978-5-7679-3883-4. Note that there is no Brown's effect here, since the principle of operation here is different. Ionization in Frolov's capacitors also is not a reason of the propulsion force and it can be minimized.

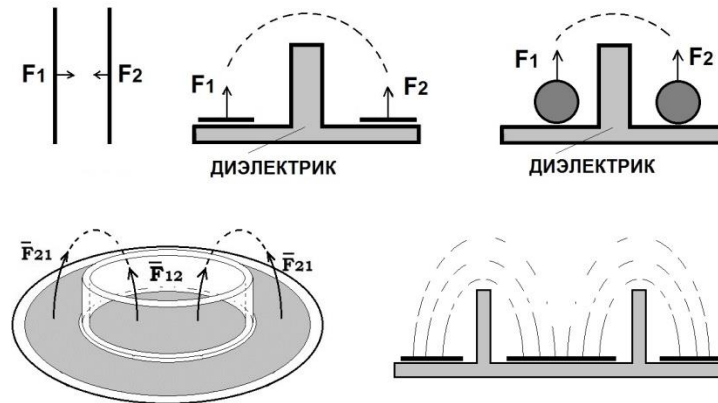


Fig.2 Frolov's asymmetrical capacitors

Let's go back to the Brown's effect. The reasons of the driving force in Brown's capacitors are still debated. In 1996, at the conference "New Ideas in Natural Science", the author proposed to explain the forces in the area of the electric field gradient by asymmetry of electrons orbits in the dielectric material. This asymmetry causes a non-zero sum of centrifugal forces, that leads to the creation of a unidirectional thrust force. Figure 3 shows an analogy to a mechanical system. The pump make some liquid to move in a curved path. The centrifugal force will create pressure in the curved section of the trajectory, then it leads to some thrust unidirectional.

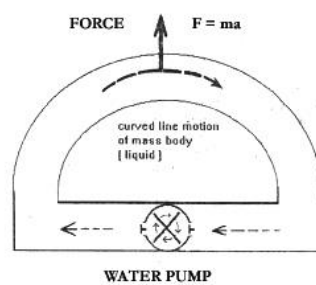


Fig.3 Scheme of mechanical analogy, Frolov's report of 1996

Considering this mechanical analogy, it was proposed to explain the forces in Brown's capacitors by the acceleration gradient of the electron motion in the dielectric material. The total sum centrifugal force $F = ma$ becomes nonzero, and a unidirectional thrust force appears. Figure 4 shows the trajectory of electrons in the presence of a gradient electric field.

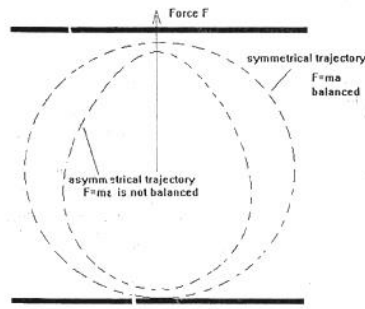


Fig.4 Trajectory of electron in gradient electric field

The problem of using the Brown's effect for practical purposes is very high voltage. In his letter [2] Brown writes that good results were obtained at voltages in range of 50 - 250 Kilovolts. I propose a new design in which the expected effects can be obtained at a lower supply voltage.

Figure 5 shows the scheme of an experiment that uses a liquid dielectric (oil). The electric field gradient is created here by analogy with Brown's capacitors, due to the special shape of the capacitor body. For aerospace systems, due to extremely low temperatures, the liquid can be replaced with an elastic dielectric material.

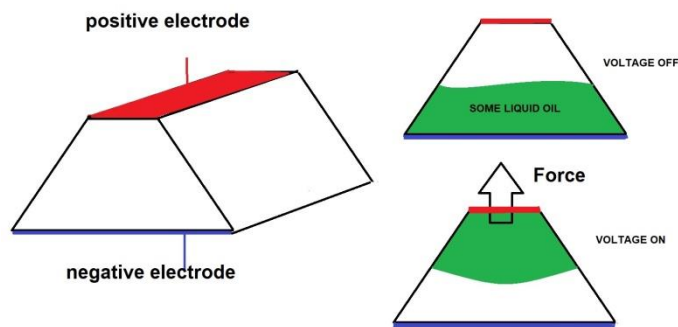


Fig.5 Frolov's experiment on asymmetrical capacitor with liquid dielectric

The author of this article tries to find laboratory for joint experiments on this topic. Contact Alexander V. Frolov at alexanderfrolov@hotmail.com

References

1. Townsend Brown, T. "Electrokinetic Apparatus." U.S. Patent 3187206 issued on June 1, 1965
2. Force on an Asymmetric Capacitor by Thomas B. Bahder and Chris Fazi, ARL-TR-XXX March 2003.