ENCYCLOPEDIA OF RUSSIAN THOUGHT

VOLUME 21

REPORTS TO THE RUSSIAN PHYSICAL SOCIETY,

2014

(Collection of scientific works)

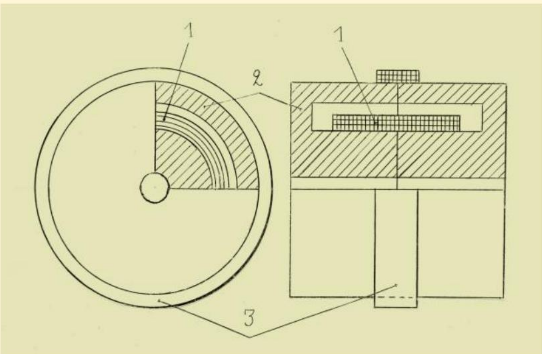
Moscow
"Public benefit"
2014

AUTHOR'S NOTES ON ARTICLES PREVIOUSLY PUBLISHED BY THE RUSSIAN PHYSICAL SOCIETY

Ruchkin V.A. *(Ukraine, Kyiv)*

V. A. Ruchkin. Two models of the pattern of magnetic flux excitation. Introduction to non-reciprocal electromagnetic systems. – K.: "Knowledge of Ukraine", 2012. – 23 p.

Experiments conducted with a non-reciprocal transformer, in which the primary winding is located on the outer surface of an armor-type ferrite magnetic core (Fig. 1), showed that the oscillatory circuit formed by the secondary winding and a capacitor connected to it, is weakly shunted by the low output resistance of the generator connected to the primary winding of a non-reciprocal transformer, which indicates a weak inductive coupling of the primary winding with the secondary. In conventional transformers, the inductive coupling between the primary winding and the secondary windings is many times stronger.



Rice. 1. Non-reciprocal transformer with a primary winding on the outer surface of an armor-type ferrite magnetic core;

1 – internal winding;
2 – ferrite magnetic core of armored type;
3 – primary winding

However, this experiment proves that the primary winding, which is not covered by the magnetic circuit, excites a magnetic flux in the magnetic circuit.

The currently generally accepted idea of the regularity of the phenomenon of excitation of magnetic flux by electric current in a closed circuit of a magnetic circuit is that *“the circulation of the magnetic field strength vector along a closed circuit is numerically equal to the algebraic sum of the currents covered by this circuit”* [p. 214, Zisman G.A., Todes O.M. General physics course. T. 2. Moscow: Nauka, 1969, – 368 p.].

“New about electromagnetism”, “New element of electric machines” and (published in ERM, Volume 20 “Reports to the Russian Physical Society, 2013, Part 2”, p. 82) – "New generation electric machines"

Maxwell's first equation (1) is a generalization to variable fields of Ampere's empirical law on excitation
magnetic field by electric current and displacement current.

$$\oint_L H\,dl = \frac{4\pi}{c}\int_S \left(j_n + \frac{1}{4\pi}\frac{dD_n}{dt} \right) dx, \qquad (1)$$

Maxwell's equation (1) does not cover all cases excitation of magnetic flux in a closed loop.

A direct current source, for example a battery, is connected from the inside to the middle ends of the hollow conducting cylinder 1 (Fig. 2), and direct current 3 flows from the middle of the end, remote from the observer, to the middle of the end closest to the observer. In this case, the magnetic field lines above the surface of the cylinder have the direction indicated by arrow 2. At the end of the cylinder closest to the observer, the current from the entire surface of the cylinder converges to point 4 and goes inward to the negative terminal of the direct current source. Therefore, above the surface of the end closest to the observer, the magnetic field lines will have the form of concentric circles.

These magnetic field lines above the end surface in the form of concentric circles do not cover any current, which contradicts equation (1).

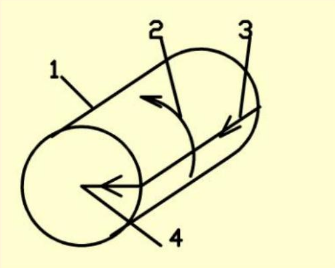


Fig. 2.

Maxwell's second equation (2) is a mathematical formulation of Faraday's law of electromagnetic induction and
is written as:

$$\oint_L E dl = -\frac{1}{c}\frac{d}{dt}\int_S B_n \, dx \qquad (2)$$

Maxwell's equation (2) also does not cover all cases of excitation of induced emf in a closed loop when changing
magnetic flux.

When a magnetic flux is excited in a cylindrical armor-type ferrite magnetic core using alternating current passing through the winding on the central part of the magnetic wire (Fig. 1, winding 1), the induced emf is also excited over the end parts of the cylindrical ferrite magnetic core

armor type. **The electric field lines** above the outer surface of the end parts of the armor-type cylindrical ferrite magnetic core **have the form of concentric circles and do not cover any magnetic flux,** which contradicts Maxwell’s equation (2).

“Generating Cheap Electricity” (published but: ZhRFM, 2014, No. 1-12 pp. 49 – 65.)

In conclusion, the second paragraph from the top on page 63 –

"In Fig. 3.4 it can be seen that ***when a purely active load is connected to only one linear voltage*** *of a standard three-phase generator (the angle ÿ between the induction emf of adjacent phases is 120 degrees), the windings of which are connected in a star configuration,* ***the load current does not brake the generator shaft.”***

This paragraph should be considered erroneous, since a recently completed full-scale experiment showed that **the load current brakes the generator shaft.**

This error arose due to the fact that the operation of two separate generators (separate magnetic systems) was analyzed, and the logical conclusion was unjustifiably extended to two phases of one generator. A consequence of this error is the statement (the last sentence before Fig. 4.2 and Fig. 4.2 itself) *“A self-accelerating generator with switching the number of turns in the armature winding can be implemented on the basis of one three-phase generator (Fig. 4.2).”* Despite the noted errors, the author believes that the analysis of the operation of two separate generators was carried out correctly; and **there is a fundamental possibility of generating any amount of electricity by electromechanical generators, spending mechanical energy only to overcome friction forces.**

It's just a matter of setting up a full-scale experiment.

June 6, 2014, Kyiv