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# MAGNETIC CORE OF TRANSFORMER – POSSIBLE SOURCE OF ENERGY MOLECULAR CURRENTS

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

In work [1] it is shown that the main share of energy in The output of electrical machines is obtained from the energy of the magnetic fields of the domains.

But *"the output of modern electric machines produces the same amount of energy as it is consumed from the network (taking into account losses)"* [1, p. 77]. An increase in energy consumption from the network with increasing load occurs due to the presence of negative feedback between the output and input of electrical

car.

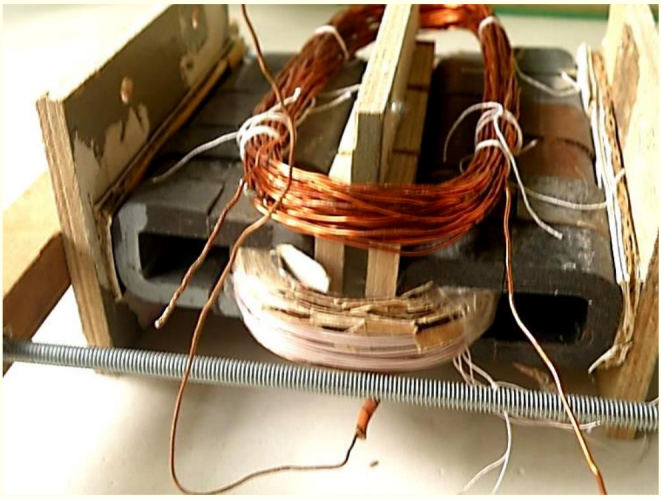
For example, the ampere-turns of the primary winding and the ampere-turns of the secondary winding of a transformer equally effectively influence the magnitude of the magnetic flux in the magnetic core, but in opposite directions. On the other hand, a change in the magnetic flux in the manipulator equally effectively excites the induced emf (per turn) - both in the primary winding and in the secondary winding.

Eliminating this negative feedback allows you to maintain the idle mode of the transformer even when connecting a rated load to its output, that is, more energy will be received at the output of the transformer than was supplied to its input.

The work [2] describes **the experimentally obtained excess of energy at the output** of the transformer by 13.8 times compared to the energy supplied to the input of the transformer. That is, in this work, **Nikolai Emelyanovich Zaev** proved that **a device, structurally designed like a regular transformer, can be a source of energy if there is an isolation between the output and the input.** In the experiments described in [2], this decoupling of the output and input of the transformer was carried out by **separating in time** the process of supplying current to the primary winding of the transformer to magnetize the magnetic circuit and the process of extracting energy from

secondary winding when connecting a load during demagnetization of the magnetic circuit.

Isolation between the output and input of the transformer can also be achieved due to **the spatial separation** of the magnetic field of the current in the primary winding of the transformer and the magnetic field of the current in the secondary winding, by changing the design of the transformer (Fig. 1) [1, p. 81, fig. 2 and fig. 3].

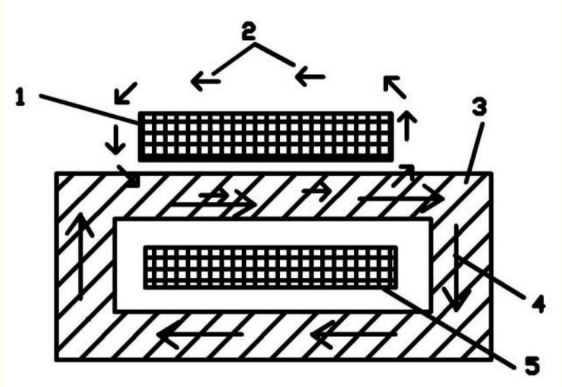


Rice. 1. Experimental layout of a non-reciprocal transformer

Experimental layout of a non-reciprocal transformer Fig. 1 consists of a primary winding (lying on the magnetic core on top), a magnetic core and a secondary winding, which penetrates the closed circuit of the magnetic core. In Fig.

Figure 2 schematically shows the operating principle of a non-reciprocal transformer. When current passes through the primary winding 1, a magnetic field 2 is created around it; and where this field penetrates into the magnetic circuit 3, a uniform orientation of the magnetic fields of the domains arises, that is, in this (active) section of the magnetic circuit, a magnetomotive force (MF) is excited, which creates its own magnetic flux of the magnetic circuit 4. When the own magnetic flux of the magnetic circuit changes 4 the induced emf is excited in the secondary winding,

which penetrates the closed circuit of the magnetic circuit 3. However, the load current passing through the secondary winding does not create an EMF in the primary winding.



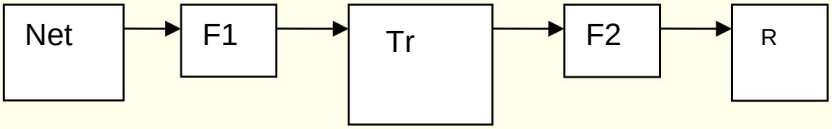

Rice. 2. The principle of excitation of a magnetic flux by electric current, which closes in addition to the closed circuit of the external field source. 1 – winding with current; 2 – magnetic field created by the current in winding 1; 3 – magnetic circuit; 4 – own magnetic flux in the magnetic circuit; 5 – secondary winding

After a magnetic flux 4 is created in the magnetic circuit 3 using a current-carrying winding (Fig. 2), which closes in addition to the closed circuit of the source of the external (control) magnetic field, the energy of the magnetic flux 4, that is, the energy of the **magnetic fields of the domains, can be selected in the form electrical energy or in the form of mechanical energy.**

Isolation between the output and input of the transformer can also be achieved using **frequency separation** of the currents at the input of the transformer and the currents at its output.

Let's consider the simplest circuit of frequency separation of the current in the primary winding of a transformer and the current in its secondary winding

(Fig. 3). The supply voltage from a source of sinusoidal alternating current (mains) with frequency F is supplied through the frequency filter F1 to the primary winding of the transformer Tr. Frequency filter F1 passes only frequency F.




Rice. 3. Frequency separation of the current in the primary winding of the transformer and the current in its secondary winding

The load R is connected to the secondary winding of the transformer Tr through a frequency filter F2, which passes all frequencies except frequency F.

Even with a sinusoidal law of change in the current in the primary winding of the transformer, due to the nonlinear dependence of the magnitude of the magnetic flux F on the magnetic field strength H, the EMF in the secondary winding contains frequencies that are multiples of the frequency of the current in the primary winding, the so-called harmonics.

Filter F2 passes only currents with a frequency of 2×F or more to the load, and filter F1 does not allow currents with a frequency of 2×F or more to pass into the network. In this way, the influence of the load current on the operating mode of the primary winding of the transformer and the supply network is eliminated. Although there is an EMF with a frequency of 2×F or more in the primary winding, the frequency filter F1 for these frequencies is almost equivalent to breaking the electrical circuit; and therefore there are no currents with such frequencies in the primary winding of the transformer Tr.

The frequency separation of the currents at the input of the transformer and the currents at its output can be accomplished in another way. The magnetic core of the transformer is magnetized by currents of two frequencies F1 and F2 through frequency filters similar in purpose to filter F1. The magnetic circuit acts as a mixer in a superheterodyne receiver. Therefore, the EMF in the secondary windings will also contain components with combination frequencies F1-F2, F1+F2, 2F1-F2, etc. Through a frequency filter, current from one or more of these frequencies is selected to the load.

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analyses.

Author of four inventions and over 50 scientific papers. Experimentally proved the incorrectness of the Neumann-Pearson lemma for signal-to-noise ratios greater than 0.5 in voltage. He proposed a more general criterion than the likelihood ratio criterion. The author of a new class ***of non-reciprocal electromagnetic systems*** and new unique electromagnetic devices based on them, showed that on the basis of standard single-phase and three-phase electric generators it is possible to create autonomous power units that do not require fuel to generate electricity, a leading scientific expert of the Russian Physical Society.