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# THE METHOD OF THE COST CALCULATION OF THE ELECTRIC POWER OF THE COMPANIES SUPPLYING ELECTRIC CURRENT

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***Abstract:*** **The theory that the apparatus of counting of electric power and energy is in force, is wrong. The right formula of the electric power, is that it is analog in the third power of the electric current.**
**The velocity of the current charges that pass through the apparatus, is analog to the linear velocity of the rotated disk of the apparatus, on the position the friction of a magnet is in force. This means that we must take the rotation of the disk in the third power. We ignore the other constants that appear in the formula of electric power and we consider their rotations in the third power, so that the units of the cost calculation of electric power and energy be given.**

***Keywords:*** **Cost Calculation, Electric Power, Electric Current.**

## 1. INTRODUCTION

The method of economic cost calculation of electric power and electric energy, that every consumer of the electric current companies consumes, is wrong and I will prove the reason for this. But first, we must see the correct formulas of electricity. It is necessary that there will be some changes on the counting the electric power and energy.

## 2. METHODOLOGY

The author accepts that the electric current is flow of element charges of the electrons. Then he proves the formula of the charges velocity, with the method of induction. And again, he accepts that the force which is in force to an electric charge, is analog to the voltage and with the same method, he proves the formula of the voltage and the electric power.
The analysis goes to the apparatus which is in use for counting of electric energy and with the method of induction, he ends up with conclusions.

## 3. ANALYSIS

The current is I=Ne/t, where N is the number of electric charges which flow in the conductor, e is the charge of electron and t the time. But when the current in a conductor of section S travels distance L in time t, then,

I=NeL/tL=Nev/L and v=IL/Ne =ILS/NeS , v=the velocity of charges and

v=I.Vol/NeS= I/neS, n=N/Vol and Vol=the volume of the conductor, which is flowed in time t.

The electric charges will be in a voltage V between of neighbouring atoms of the conductor, where they distance $\Delta x$ and they accept force,

$F=m\Delta x/\Delta t^2=e(V/L)=e(V/d.\Delta x)$ and $eV=d.mv^2$, and $L=d.\Delta x$.

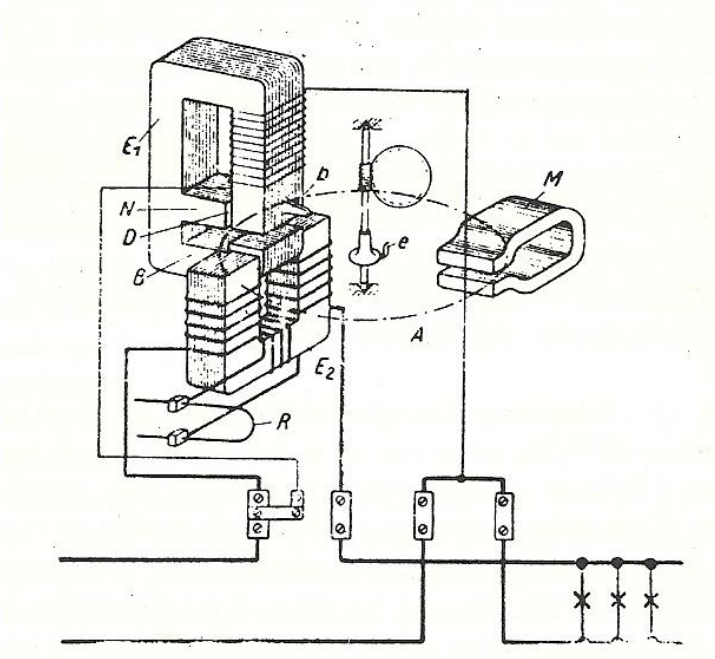
We replace the v and we find, $V = \frac{d.m}{n^2 e^3 S^2} I^2$

Because the power is P=VI, then, $P = \frac{d.m}{n^2 e^3 S^2} I^3$ $=kI^3$

I will prove then, why the formula P=VI mustn't be applied in the calculation of the electric power cost, as it is in force. The correct is formula $P=kI^3$. My method of calculation is correct.

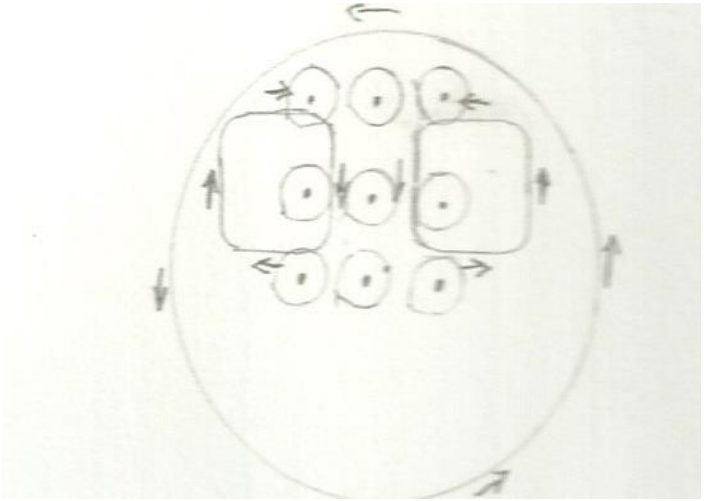
## 4. THE APPARATUS OF ELECTRIC POWER COUNTING

The plan (1) depicts the apparatus of the electric energy and power counting.



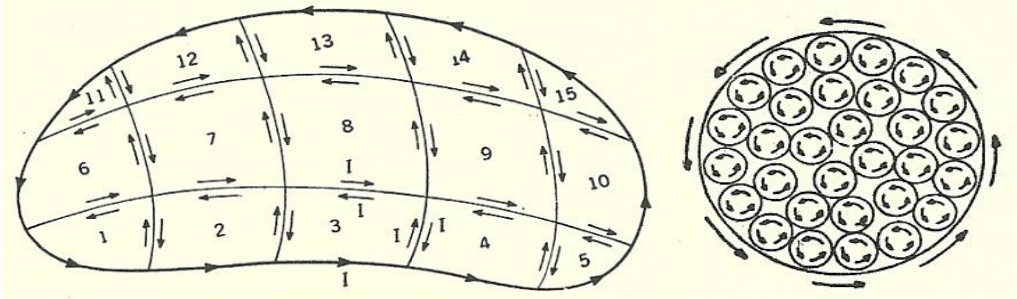

**Plan 1**

The metal disk is rotated and every rotation is a kWh, it is found on the larger of its part, between two electromagnets, $E_1$ and $E_2$. The alternative current of the company, which we will consume, passes into of two electromagnets. The below one electromagnet creates two cyclic currents in the disk (plan (2)) and the above one, with the magnetic field that it creates, pushes the disk to rotate. Because the current is alternative in all electromagnets, the result is to push the disk to the same direction.



**Plan 2**

The plans (3) and (4) depict the element electric currents in the disk, which are joined in two rotating currents and the disk is rotated.




**Plan 3** **Plan 4**

The plan (3) depicts a cyclic electric current which is analyzed in small currents and the plan (4) depicts the element cyclic currents which are created by a magnet and they create a cyclic large current, as the two poles of the under electromagnet create these.

When the current passes in the electromagnets, we have fall of the voltage, 220 volts (110 for USA) isn't constant voltage, for the formula P=VI that is in force and it corresponds to the rotations of the disk (for the power it is the product 220 Volts by the number of the rotations). That is the reason for the following. The disk is pushed of the currents which are cyclic and they pass it. So it accelerates it. But, there is the magnet M (plan (1)), which acts like a friction to the disk. Differently, it would be accelerated with the constant current of the supply. So, the disk accepts force F of the pass current and a force of friction T= -bI (b=constant) and I is related to the linear velocity of the disk, where is the magnet M, when the current is constant.

The friction is T=-b′v′, where b′ is a constant and v′ is the linear velocity of the disk, on M position. And then, as it is proved above, the current is v=I/neS, and v′=dv, where d is a constant and I is the current that is consumed. Then,

F=-T=bI και I=F/b

The rotations of the disk, are related to the current I which passes trough it and not to the power P. This is because v′=ωr and r is the radius of the magnet M from the center of the disk. Then v′=2πrν and ν are the rotations of the disk. So, I=(b′/b)2πrν=k′ν and k′ is a constant.

So, the rotations of the disk must be taken in the calculation of the current economic cost and specially in the relation of the rotations in the cubic power ($P=kI^3$), as the voltage is changed by the electromagnets. We ignore the constant k, which is the same for all counters and we have to allocate the economic cost on every consumer, in relation to the rotations in the third power, that the disk brings.

It is marked, that the analysis of the apparatus operation, has been for the first time and that is why it was wrong the previous estimation. The method shown by me on the electric power cost is absolute the right method.

## 5. CONCLUSIONS

The method that is proved, gives by an absolute way, the right units of consumption of every consumer's electric energy.

The advantage of this method is the fact that it allocates the economic cost of the electric power with absolutely right way, without the units of consuming to be the kWh, as we don't calculate the constant k in the power $P=kI^3$ and energy is E=P.sec (the kWh is energy).

The disclosure of the method, has been after the patent 1008351/2013 was given to me.

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