Impulse Power Secrets

Philipp M. Kanarev
Professor Emeritus of Physics
Pushkin Str. 11, Apt. 19, 350063 Krasnodar, RUSSIA
e-mail: kanphil@mail.ru

Water is the main source of future environmentally-friendly power; that's why the search for ways to tap this resource increases continually. But there exist forces which seriously prevent advancement.

1. Introduction

I think it is necessary to take into account an attitude of our contemporaries towards us and our scientific achievements. The fate of Stanley Meyer, a talented American inventor [1], gives conclusive evidence that such consideration is necessary. If you have seen a video concerning Meyer's fate, it is clear from it that I am the next to be done away with. I think that it is enough for you to understand that my life is dearer to me than the scientific secrets which I possess. Certainly, I have already published the larger part of the results of my scientific investigations (the monograph concerning microworld in 1050 pages [2] and the textbook in 824 pages [4]), and I am sure that many future generations will be grateful to me for such a present.

But I have many other scientific results that I cannot publish; I cannot even commit some of my thoughts to paper. That's why I must apologize that I shall not reveal the essence of all energy secrets which I possess; instead I shall give a popular presentation of advantages which will benefit future generations.

It is possible to consider that the demands for energy are met at any given stage of development of Earth's civilizations. But this process is accompanied by a worsening of the ecological situation. It can be stopped only if water is used as an energy source. It is known that water can decompose into hydrogen and oxygen when an impulse excitation, which is directed to its ions and molecules, takes place. This principle is used in the operation of the main natural motor- the hearts of men and animals. The heart operates one third of the period approximately, and it rests two thirds.

Mankind has created powerful energy systems involving continuous energy production and consumption, rather than the impulse system such as the heart uses. Continuous energy production is highly uneconomical and will continue to be so. The impulse power systems will decrease energy costs for us considerably. It has already been established that the stand-alone inertial impulse electromechanical energy sources decompose water into hydrogen and oxygen in the most economic way. Magnetic field excitation is ten to a hundred times more expensive per watt of power produced. The stand-alone power sources, which implement the given effect, have already been tested. This effect is strengthened considerably when the inertia of gyrating masses ~~of~~ in mechanical systems is used.

An extended delay in implementing the above-mentioned effect is caused by an error in understanding the larger part of Newton's dynamics, as well as a lack of comprehension regarding power formation in electric circuits. New laws of mechanodynamics describe separately all motion phases of physical bodies: accelerated motion, uniform motion and decelerated motion. These laws make it possible to solve ~~the~~ problems which Newton's dynamics cannot resolve. The reality of the law of power formation in electric circuits has been proven experimentally. Implementation of this law will considerably decrease electric energy expenses for its consumers, based on the operation an impulse system.

Implementation of the electromechanical electric pulse generator (Fig. 1) for a power supply of the electrolyzer has made it possible to obtain such experimental confirmation of this law of power formation in electric circuits. The power expended in water electrolysis by this method, in which water is split into its components, is far less expensive than known to science previously. As it turns out, direct costs for production of one cubic metre of a mixture of gases (hydrogen and oxygen) from water are considerably less than previously expected; the cost is less than the cost of natural gas.

Fig. 1. Electromechanical electric pulse generator

It has also turned out that this problem can be solved in two ways: in the electric way and in the electromechanical way. We'll not reveal the secrets of the first way, and we'll reveal the secrets of the second way only partially. The joint use of these secrets will increase the power effect considerably.

2. Theory

It is known that the starting torque M_B (Fig. 2) greatly exceeds the operating torque M_P when an electric motor is started. This is evidenced by the fact that a generator beginning to run undergoes accelerated rotation. The acceleration process is impeded not only by the mechanical and operating resistance forces M_M, but also by the inertial moment Mi (Fig. 2).

When the initial acceleration is complete, a process of ~~a~~ uniform rotation begins (Fig. 2, BC). When mechanical and operating rotating resistance forces M_M reach their maximum, they preserve their values (Fig. 2, B'C'). The inertial moment Mi behaves otherwise. When it begins its uniform rotation, it changes its negative sign to a positive one (Fig. 2, AA') and becomes the inertial moment, which supports the rotation of the electric motor and its drive, but then also becomes a partial consumer of its own mechanical energy.

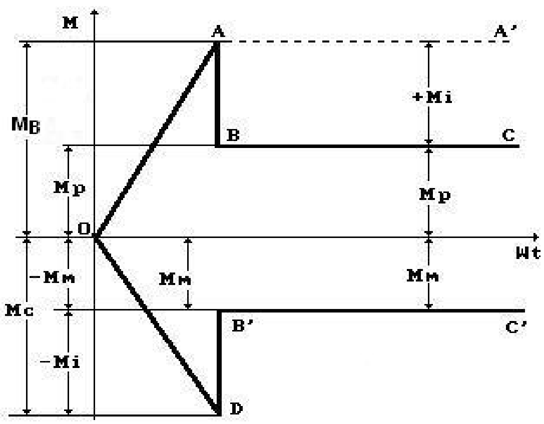

Fig. 2. Diagram of a change of the mechanical moments of the body, which rotates with acceleration

Thus, a uniform rotation of the electric motor is provided first of all by the inertial moment Mi, and the operating torque M_P (Fig. 2, BC) which overcome the moments of mechanical and operating resistances. As these moments of resistance are non-uniform, the operating torque should exceed them. Therefore, ($M_P > M_M$) in order to provide stability to the rotation process. The above-mentioned excess is required because of the irregularity of the moment of mechanical and operating resistances M_M.

The question then arises as to whether it is possible to use the inertial moment Mi for a performance of useful mechanical work. Engineers tried to make the installation to implement this idea only once, but it proved to be unsafe and, consequently, ineffective. The above-mentioned idea was fulfilled only in the case of using the impulse for the inertial moment. It has turned out that if the inertial moment is increased by impulses and then a connection to the electric motor shaft is established, while the mechanical energy shaft is disconnected with the help of an overrunning clutch, then there exist operating modes where the electric energy consumption for the drive of the electric motor (which is equipped with the impulse device increasing the inertial moment) is decreased. The electric motor is equipped with a device which uses the impulses to increase the inertial moment. (Fig. 3). [5]

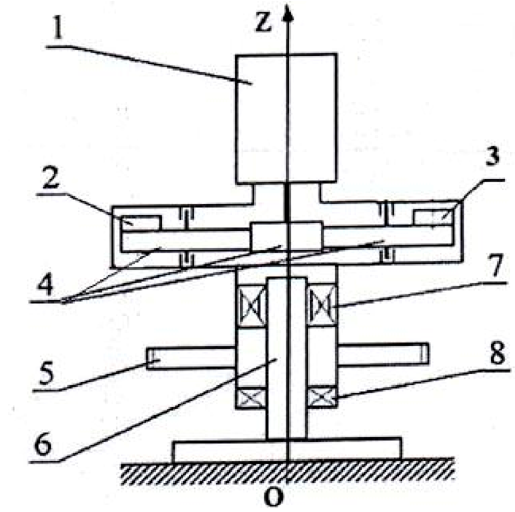

Fig. 3. Centrifugal power amplifier: 1 - electric motor; 2 and 3 - unbalanced weights; 4 - gears, 5 - gear wheel; 6 - stationary axle; 7 - overrunning clutch, 8 - bearing, r - rotation radius of centre of mass of unbalance.

If one installs unbalanced weights in the electric motor drive system, they will generate impulses of the moments of forces, which increase the operating torque M_P (Fig. 4, points A1, A2, A3, …). These impulses are transmitted to all rotating parts. As a result, the inertial moment M_i is increased by these impulses. (Fig. 4, points B1, B2, B3, …). If one breaks the mechanical connection of the electric motor with the mechanical energy consumer via the help of the overrunning clutch, the electric energy consumer will go on rotating for some time because of inertia, and the operating torque M_P of the electric motor shaft will be decreased to the value of moment of its idle run M_{XX} (Fig. 4). As a result, for some time the electric motor will consume only the electric power needed for idling. (Fig. 4, a-b).

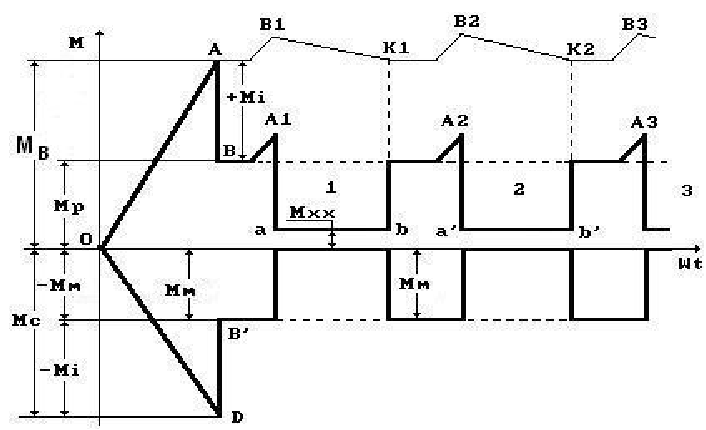

Fig. 4. Diagram of a change of the mechanical **moments** of the rotating body within unbalanced drive

At the time when the impulse of the inertial moment Mi is decreased to the magnitude of its mean value (Fig. 4, points K1, K2, K3…), the overrunning clutch is energized again, and operating torque M_P of the electric motor is increased to its former value.

Thus when an electric motor with an unbalanced drive operates, there will be moments of complete release of the electric motor from the workload (Fig. 4, areas 1, 2, 3 …) and inertial impulses Mi take over the drive of the mechanical energy consumer.

Figure 3 is a diagram of an electric motor with an unbalanced drive. It was tested and patented by E.I. Linevich, the Russian inventor [5]. It gave positive experimental results concerning electric energy conservancy. But the European engineers failed to profit by it, because they made a mistake connecting the unbalanced weight with the electric motor housing; producing a conflict with the above-mentioned process of inertial impulse formation (Fig. 4).

Let us give a mathematical description of the operation of an electric motor with an unbalanced drive. As its operation begins with an accelerated rotation, it is described by the first law of mechanodynamics, which reads: **the accelerated rotation of a body takes place under the influence of Newton's active starting torque M_B and the anti-torque moments in the form of the inertial moment Mi and the mechanical moments M_M of resistance.** The mathematical model of this law is as follows. [2-4]

$$M_B = Mi + \sum_{i=1}^{n} M_M \tag{1}$$

The components of this mathematical model are calculated in the following ways.

$$M_B = \sum_{i=1}^{n} I_i \cdot \varepsilon \tag{2}$$

where M_B is the starting toque; $\sum_{i=1}^{n} I_i$ is the sum of the moments of inertia of all rotating parts; ε is rotational acceleration, which is determined according to the formula

$$\omega = \omega_0 + \varepsilon t \tag{3}$$

ω_0 is the initial angular rotation velocity, which usually equals zero; ω is angular velocity of uniform rotation; t is time from the start of rotation to the transition to uniform rotation.

From the formula (3), if $\omega_0 = 0$, we have

$$\varepsilon = \frac{\omega}{t} = \frac{\pi \cdot n}{30 \cdot t} \approx \frac{0.10 \cdot n}{t} \tag{4}$$

Here n is the number of rotations per minute. $\sum_{i=1}^{n} I_i$ is the sum of the moments of inertia of all rotating parts, and is determined theoretically according to special formulas which take into consideration the mass of the part, its geometry and layout in relation to the axis of rotation.

The inertial moment Mi is the next component of the accelerated rotation law. It is calculated according to the formula

$$Mi = \sum_{i=1}^{n} I_i \cdot \delta_i = \sum_{i=1}^{n} I_i \cdot \varepsilon - \sum_{i=1}^{n} M_M \tag{5}$$

where δ_i is the inertial slowdown, which is generated by the moment of inertia Mi. $\sum_{i=1}^{n} M_M$ is the sum of all moments of mechanical and operating resistances, which, with some assumptions, can be shown to be equal to the operating torque M_P of the electric motor when uniform rotation is established.

The value of the inertial slowdown δ_i of the electric motor rotation is determined according to the formula (5), leading to

$$\delta_i = \frac{\sum I_i \cdot \varepsilon - \sum_{i=1}^{n} M_M}{\sum_{i=1}^{n} I_i} \tag{6}$$

Thus, all components which are a part of the accelerated rotation law (1), are determined. The uniform rotation of the electric motor and of the consumer of its mechanical energy is described by the formula

$$M_P = \sum_{i=1}^{n} M_M - \sum_{i=1}^{n} Mi \tag{7}$$

The following physical and mathematical findings result from this mathematical model. The operating torque M_P of the electric motor overcomes all mechanical resistances $\sum_{i=1}^{n} M_M$, and the sum of the inertial moments $\sum_{i=1}^{n} Mi$ rotates the electric motor and the consumer of its mechanical energy uniformly.

Analysis of the process of ~~a~~ transition from accelerated rotation to a uniform one allows a simpler calculation method of the moment of inertia Mi. As it is a moment of resistance to accelerated rotation together with the moment of mechanical and operating resistances M_M, its value is a part of the starting torque M_B. If one takes into account the fact that in the case of uniform rotation, the operating torque M_P does not sufficiently exceed the moment of mechanical and operating resistances M_M, then inertial moment Mi can be determined as a difference between the starting moment M_B and the operating one M_P, i.e.

$$M_i = M_B - M_P \tag{8}$$

Thus, the methods of the calculation of all indices of accelerated rotation and uniform rotation of the electric motor and the consumer of its mechanical energy are given. A calculation of the unbalanced drive is the next step.

A diagram for a derivation of the equation of an inertial forces moment impulse, which is generated by the unbalanced weights D_1 and D_2, is given in Fig. 5. Let us pay attention to the fact that the central gear 1 on the electric motor shaft and ~~two~~ gears 2 and 3, with the unbalanced weights D_1 and D_2, are a unified mechanical system; that's why the projections of F_x and F_y of the centrifugal inertial forces $\overline{F}$, which effect both unbalances, form pairs with the moments (Fig. 5):

$$\begin{aligned} M_1 &= F \sin\omega_2 t \cdot L = m\omega_2^2 (r - r_0)^2 \\ &\cdot \left(2\mathrm{R} + 2\mathrm{r} + 2\mathrm{r}\cos\omega_2 t - 2\mathrm{r}_0 \cos\omega_2 t\right) \sin\omega_2 t \end{aligned} \tag{9}$$

$$M_2 = -F\cos\omega_2 t \cdot (r - r_0)\sin\omega_2 t = -m\omega_2^2 \cdot (r - r_0)^2 \sin\omega_2 t \cos\omega_2 t \qquad (10)$$

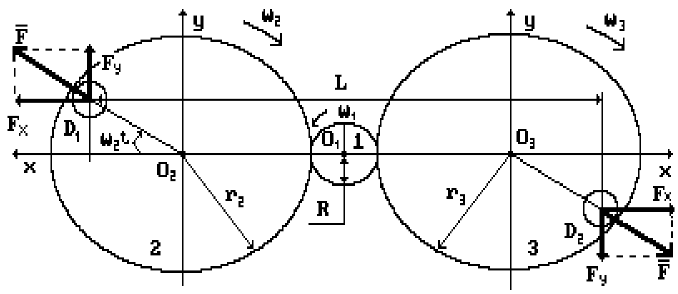

Fig. 5. Analysis of the **inertial** force effect $\overline{F}$ on the unbalanced weights D_1 and D_2 : R - radius of the central gear 1; r - radii of the unbalanced gears 2 and 3; r_0 - radius of the unbalanced weights D_1 and D_2

Let us also pay attention to the fact (Fig. 5) that at the initial moment M_1 promotes rotation of shaft 1 of the electric motor; that's why it is denoted by a positive sign. M_2 hinders rotation, and that's why it is denoted by a negative sign. Behaviour of the change of the moments of these pairs will form an additional effect on shaft 1 of the electric motor and the consumer of its mechanical energy.

The analysis shows that theoretical behaviour (11) of the change of the sum of the moments $M_1 + M_2$ as the scalar values is close to experimental behaviour (Fig. 6, continuous distorted sinusoid).

$$M = M_1 + M_2 = m\omega_2^2 (r - r_0)^2 \cdot (2R + 2r + 2r\cos\omega_2 t - 2r_0\cos\omega_2 t)\sin\omega_2 t - m\omega_2^2 (r - r_0)^2 \sin\omega_2 t \cdot \cos\omega_2 t \qquad (11)$$

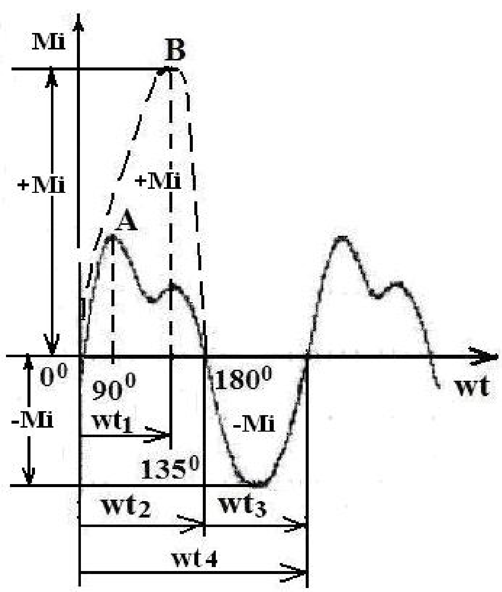

Fig. 6. Experimental maximum (A) and theoretical maximum (B) of the sum of impulses of the components M_1 and M_2 of the moments of the centrifugal inertial forces of unbalanced weights.

Attention should be paid to the fact (Fig. 6) that positive amplitude of the impulses of the moments of the centrifugal inertial forces of the unbalanced weights and an angle of rotation ωt_2 of unbalanced weights shaft, which forms positive amplitude, are larger than an angle ωt_3, which forms negative amplitude of the impulse.

The amplitude of the impulse is much less than its theoretical value when the angle of rotation of the unbalanced weights is 90° (Fig. 6, continuous distorted sinusoid). This is a result of the fact that this amplitude corresponds to the instant of the disconnection of the electric motor shaft from the shaft of the consumer of its mechanical energy via the help of the overrunning clutch. Thus the larger, theoretical value of the impulse is transmitted to the shaft of the consumer of its mechanical energy alone, and this increases its inertial moment Mi.

Now we'd like to attract attention of the European engineers who tried to commercialize the mechanical invention of E.I. Linevich, the Russian radio mechanic engineer. Installation of the unbalanced weight unit on the electric motor housing results in a parasitic pulse with negative amplitude (Fig. 5) affecting the electric motor shaft when it is disconnected from the consumer via the overrunning clutch. As a result, the energy output is greatly decreased.

An impulse amplitude change diagram (Fig. 6) shows that two clutches are necessary: between the electric motor and the unbalanced weights unit, and between the unbalanced weights unit and the consumer of mechanical energy. Both clutches should be de-energized when the angle of rotation of the unbalanced weights shaft is $\omega t_1 = 135^0$ and should be energized when angle $\omega t_4 = 180^0$. Only then can the effect of the parasitic negative pulse $-M_i$ can be eliminated (Fig. 6). Only ~~the~~ electromagnetic clutches can perform this function.

Those who have read this text attentively will understand that it is impossible to commercialize such inventions without knowledge of the new laws of mechanodynamics. [2, 3]

3. Conclusion

Impulse power can make its first steps toward commercialization. In order to understand how this can be done, it is necessary to understand the new laws of mechanodynamics and the new laws of electrodynamics as applied to the microworld. These laws describe the behaviour of electrons, which provide us with both thermal and electric energy.

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