

DESIGN, ANALYSIS AND PERFORMANCE INVESTIGATION OF ELECTRO MAGNETIC ENGINE

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ABSTRACT: *The magnetic engine is according to the concept appears to be a so-called "perpetual motion machine". Here you will find its images, patent, and also you will learn information from his production and testing. The Black pointer on the disk indicates the position of piston. It is evident that with the closed shutter the piston is located stably in the upper position, and shutter renders the valuable screening of magnets, fulfilling the functions described by me. Further, with the discovery of shutter piston accomplishes reciprocating motion. The stored energy of flywheel continues to move piston to the upper position.*

Work: *the displacements of the shutter = of 0,444 the displacement of piston = 1,251*

I. INTRODUCTION

1. Magnetic engine, in housing of which are placed the permanent magnets, the first of which is established with the guarantee of a possibility of the accomplishment of reciprocating motion under the action of the forces of magnetic field, in the housing is also established the shaft, connected with the first magnet with the aid of the means, which makes it possible to convert the reciprocating motion of the first magnet into the rotation of shaft, that is characterized by the fact that the second magnet is securely fastened on the housing opposition first, both magnets are oriented by poles counter, magnetic engine is supplied with the ferromagnetic screen, made with the guarantee of a possibility of its displacement in the clearance between the magnets perpendicular to the line of forces of magnetic field, ferromagnetic screen is supplied with the means, which ensures its displacement under the action of the rotation of shaft, ferromagnetic screen is also supplied with the means, which ensures its recurrent displacement.

2. Magnetic engine on p. 1, which is characterized by the fact that the mentioned means, which ensures the reciprocating displacement of magnet, is executed in the form of crank gear.

3. Magnetic engine on p. 1 or 2, which is characterized by the fact that the mentioned means of the displacement of ferromagnetic screen contains the rotating lever interacting with the ferromagnetic screen and the cam gear, whose kulachek is fixed on the shaft, and the pusher, which interacts with the fist, is fixed in line with rotating lever.

4. magnetic engine on any of pp. 1-3, that is characterized by the fact that the shaft is supplied with the storage battery of

mechanical energy, made, for example, in the form of flywheel.

A. DC Battery

We use a 48V dc battery to supply power to the whole system. Lithium ion batteries can be used as they can have efficiencies of around 99%.

B. H-bridge inverter

A device that converts dc power into ac power at desired output voltage and frequency is called an inverter. The dc power input is obtained from the dc battery used here. Since half bridge inverters require 3-wire dc supply, we use a single phase full bridge voltage source inverter to convert the dc supply into AC (square) wave. The output voltage is therefore doubled and the output power is increased by four times. MOSFETs are used as switching elements since self commutation with base or gate drive signals can be employed for their turn-on and turn-off.

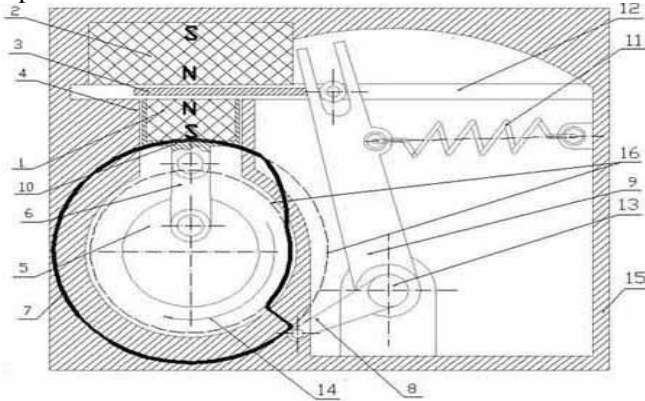
C. Hall effect sensor

We use hall effect sensors to trigger the MOSFETs. Hall effect sensor is a transducer that varies its output voltage in response to changes in magnetic field. With a known magnetic field, its distance from the Hall plate can be determined. Using groups of sensors, the relative position of the magnet can be deduced.

II. WORKING PRINCIPLE

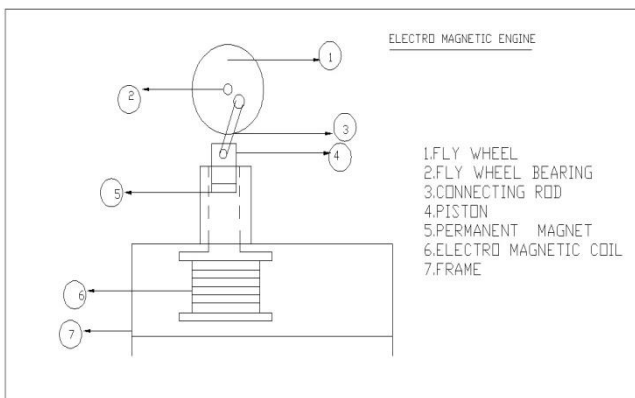
The working of the magnetic engine greatly resembles the working of a two-stroke engine. To start, let us begin from the situation, when piston is located in the upper position, but shutter is not yet opened (see sketch 2 above). The Piston passes top dead center under the action of the inertial forces. The Cam causes the pusher to be rotated, and the force of spring produces the sharp displacement (removal) of the shutter. The magnets are now close to each other in the repelling state. The repelling magnetic force pushes the piston down. The resistance of shutter is nil in the initial section of piston stroke, because a radius of the cam does not change, so the shutter is not moved, and resistance is equal to the work of the pressure of pusher on the coefficient of rolling friction. The kinetic energy of piston begins to accumulate by the flywheel of the shaft (it is not depicted on the sketches). The piston gains speed. With the approximation of piston to bottom dead center the cam profile begins to change to rotate the pusher. The shutter

gradually is moved, and overlaps upper magnet. The shutter finally is shut after the passage of bottom dead center, and cam profile again becomes constant. The resistance of the action of shutter again becomes very small. The piston under the action of inertia, accumulated in the flywheel, is pushed upward, and it reaches the upper position. The cycle is repeated.



ELECTRO MAGNETIC ENGINE

- 1 - mobile magnet (piston);
- 2 - upper fixed magnet;
- 3 - ferromagnetic shutter;
- 4 - cylinder of engine;
- 5 - crankshaft;
- 6 - connecting rod;
- 7 - profile of Cam;
- 8 - rotary pusher;
- 9 - lever to drive the shutter;
- 10 - piston of engine;
- 11- spring of the backward motion of shutter;
- 12- guides of shutter;
- 13- axis of lever;
- 14 - direction of rotation of the shaft of engine;
- 15- engine block;
- 16 - circle of the minimum and maximum displacement of the pusher.



III. ADVANTAGES

- Easy to Handle.
- Repairing is easy.
- Replacement of parts is easy.

IV. DISADVANTAGES

- Initial cost is high.
- The system is complicated one.

V. APPLICATIONS

- It is very much useful for Car Owners & Auto-garages.
- Thus it can be useful for the two wheeler application

VI. FEATURES

This innovative technique allows extraction of energy in a clean way which reduces the emissions due to which pollution is minimized to a large extent. So health disorders arising due to pollution can be eradicated to some extent. The salient feature of this engine is that it does not require fossil fuels to run. Also, it does not need motor for operation. The starting torque of the engine is high. The life of the battery source is increased since the battery is charged simultaneously while the engine is running. The greatest advantage is that these engines need not be specially manufactured, as existing engines can be easily modified to work this way. The weight of the vehicle is reduced, thus improving the efficiency of the vehicle. The maintenance cost is optimum.

VII. CONCLUSION

In this paper, we have depicted a revolutionary engine which need not be separately manufactured, but existing engines can be easily modified to work this way. The proposed engine is a simple and excellent technique to run the electric vehicle in a highly efficient manner.

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