

Energy generation using perpetual motion with combined effect of Flywheel and Magnetic Engine

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Peer Review Information	Abstract
Type: Article Received: 10 April 2024 Revised: 16 May 2024 Accepted: 17 June 2024 Published: 15 July 2024	Electrical energy demand is increasing in accordance with rapid growth of the human population. Since fossil fuels are the most widely used energy source, thus it is depleting very fast. Alternative energy sources are urgently needed to replace the use of conventional energy sources. Perpetual Motion Machine (PMM) which can be applied to produce electricity, which may be an alternative solution for the problem the world is facing today. The machine is designed to generate power from repulsive forces of permanent magnet without any external source. The device is mainly built using a permanent magnet, flywheel and a generator. The concept of perpetual motion, where a system can operate indefinitely without any external input of energy, is a system which develops, and converts kinetic energy stored in a flywheel to a usable form of electricity. Keywords: Flywheel; Magnetic Engine; Piston; Magnet; Shaft; Pulleys; Belts; Generator; Piston Sleeves; Bearings.

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Introduction

High demand of fossil fuels in accordance with rapid growth of human being population has caused a major concern to find renewable and alternative energy sources. The main problem of providing electricity is to provide cheap and continuous electrical supplies. Utilizing and alternative energy is currently needed, based on its financial benefits, economic sustainability and eco-friendly. One of the idea of creating that has been researched now a days is a scheme called perpetual motion machine (PMM). Perpetual motion refers to the idea of creating a machine that, once started, continues to operate forever without any external input energy. This concept is often categorized into two types: first -perpetual motion machine, which produce more energy than they consume, and second-which eliminate entropy and heat loss, thus achieving maximum efficiency. Coal, petroleum, natural gas, water and nuclear energy are the five main energy sources that have played important roles and have been widely used by human beings. Magnetic engines are defined as 2-phases engines which have no exhaust emission, higher efficiency such characters are seen in these kinds of engines. Unlike steam engines and Internal combustion engines, magnetic, piston engines is environmentally safe since they do not burn any fuel. Due to the rising fuel costs, environmental issues and diminishing natural fuel reserves, magnetic piston engines became a variable alternative to many exiting engines. The aim of the project is to generate maximum energy output using a flywheel. Flywheel is a mechanical device that stores energy kinetically in a rotating mass. When a flywheel is set in a motion, it continues to rotate indefinitely, making it an attractive option for energy generation. The concept of perpetual motion, where a system can operate indefinitely without any external input of energy, has been explored for centuries. While it is often considered a theoretical concept, recent advancement in a materials science and engineering have made it possible to design and develop systems that can harness the perpetual motion of a flywheel to generate electricity.

Literature Survey

Renewable energy is the energy obtained from continuous and infinite sources such as solar, wind, ocean and geothermal. Renewable energy is found to replace traditional energy sources efficiently in four areas: electricity generation, hot water reheating, engine fuel, and independent rural electricity systems. The concept of fuel less engine is based on the used of the gravitational energy to mechanical energy or electrical energy, with the help of hydraulic pump and the pressure of liquid the gravitational is converted into a mechanical energy [1]. The flywheel is used to produce energy using gravitational forces. A sequence of belts and pulley drives that make a gear train and more than double rpm at an alternators shaft are driven by the dc motor, the gear train is combined with the flywheel [2][3][4]. The perpetual motion machine concept is used to produce electricity, and the power is generated forces of permanent magnet without external sources, the energy is generated with the help of permanent magnet, rotating wheel and a generator [5]. The magnetic force of magnets is converted into a mechanical energy by using suitable mechanisms like sliders crank, electromagnet, digital controller, sensors. It works like the two-stroke engine [6]. The engine works on the repulsion principle of magnets, it consists of one magnet at the top of piston and one magnet fixed at the cylinder head. Both magnets are facing with each other with like poles. These engines do not require any input source and run on the magnetic force [7].

Literature Gap

The diminishing fossil fuel resources increase in energy costs and environmental concerns. Engines using alternate energy sources such as biofuel, solar power, wind power, etc. are being developed around the world. So, we have decided to develop a magnetic piston engine, which will be pollution free and at a lower cost. The objective of the project is to generate maximum output energy with minimum input energy without harming the environment and avoiding the use of fossil fuels and applying the method of renewable energy. As from the previous research the fuel less engine method was used [1], the flywheel was used to produce and store the energy [2][3], the concept of perpetual motion was used to produce power with help of magnet [5]. From the above research we have summarized the research gap and generated a idea of energy generation using perpetual motion with combined effect of magnetic engine and flywheel. In this we are going to combine all the concepts of perpetual motion, magnetic engines, and flywheel, which will help the system without any fossil fuels and will not harm the environment and will generate a, maximum output, minimum power input. The concept behind this idea is that once input is supplied, then the magnet attached to the piston will move up and down and the energy will be stored in the flywheel and then supplies to the generator. Hence if once the input is given the system will run continuously with the concept of perpetual motion. From this project we will understand energy conversation and generation technologies.

Scope

As the demand for electricity is increasing, we need to developed some advanced techniques which will reduce the need for fossil fuels and will not affect the environment. By this principle we can generate power without any need for fossil fuels, which will be pollutant free for the environment. The other advantage of this concept is that once input is given continuous output will be generated without any obstruction. This system can be used where long-term operations are carried out for energy generation and large electricity generation plants and this concept can be also used in electric vehicles to charge the batteries.

Methodology

The actual concept of perpetual motion is a fundamentally followed according to the laws of thermodynamics, discussing a methodology for a flywheel system design to operate continuously from a theoretical standpoint. Here is the methodology of the system:

1. Concept development: Defining the objectives and goals for the flywheel to maximize output energy minimize the loss.
2. Design framework: Selecting the material for the flywheel focusing on optimum strength.
3. Energy management: Monitoring the flywheel speed, energy storage and other parameters.
4. Further research: Identifying areas for further research particularly in the energy source department.

A flywheel is a simple mechanical energy storing device. Energy is stored by rotating disc or spin about the axis. The energy is proportional to its mass and square of its rotational speed.

Flywheel is the primary load bearing device inside flywheel power system. The flywheel is commonly fabricated from steel or carbon fiber. Carbon Fiber flywheels have higher energy density due to light weight and high strength; aluminum and composite of rotors are an economical alternative to the carbon fiber rotor. The flywheel consists of a heavy circular disc fitted with a strong axle projecting on either side. The axle is mounted on ball bearings into a fixed support. There is a small peg on the axle. One end of accord is loosely looped around the peg and fits the other end carries the weight hanger. The two stroke cycle engine was developed by Sir Dugald Clark around 1880 whose engines had a separate charging cylinder.

Generally, reciprocating has a piston slide that ably disposed of an cylinder and utilize a driving force to the piston in one or both directions inside the cylinders to rotate an output shaft, such as a crankshaft.

The magnets are assembled in such a way that they face each other such as north -north and south -south so they can repel each other and when they are meet each other, they can repel it to push the piston behind. Due to the up and down movement of pistons, the crankshaft rotates 180 degrees. Hence the movement starts the crankshaft rotates, and the connecting rod also starts rotating which relates to the help of chain pulley and the energy is stored in the flywheel which is further transformed into the generator.

Engine

A magnetic piston engine, also known as Maps or RAT engine, is a reciprocating engine that uses magnetism to create force and displace objects. It's an environmentally friendly alternative to engines that use fossil fuels or other energy sources. The engine uses electromagnetism where like poles repel and unlike pole attracts

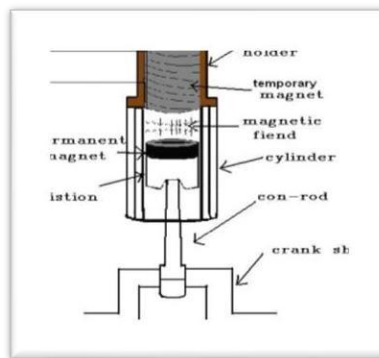


Fig. 1. Magnetic Piston Engine

The main part of the project is the magnetic engine which is designed with the help of pistons and the neodymium magnets. The piston used consists of outer diameter-90mm, diameter of pin hole-23mm, height of the piston-78mm, the piston is made up of alloy material which has a long service life. The piston is selected based on temperature and pressure factors hence it can withstand high temperature and high pressure generated by combustion and reciprocating up and down.

The magnets used for the assembly process is the neodymium iron boron magnets which has a thickness of 5mm, and the size and shape of the magnet is 25*25mm squared shape, and the load carrying capacity of the magnet is 25kg, the maximum energy produce under loading condition is 326KJ/m³, the minimum energy produce under loading condition is 286KJ/m³.

The flywheel is also the main component of the system. The flywheel is used of cast iron material and the weight of the flywheel is 7kg. According to it the crankshaft is designed to carry strength and rotate the engine and the connecting rod. The diameter of the flywheel is

150mm, and the diameter of the crankshaft is 50mm.

Design

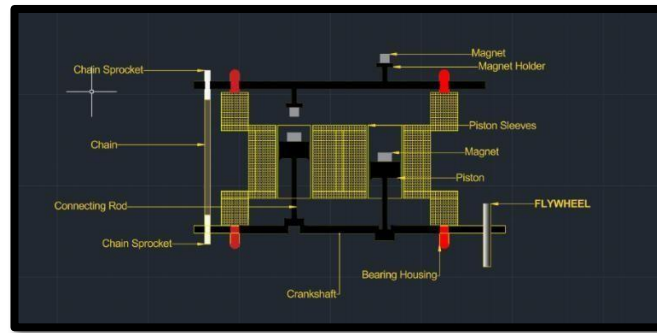


Fig. 2. 2D Model of System

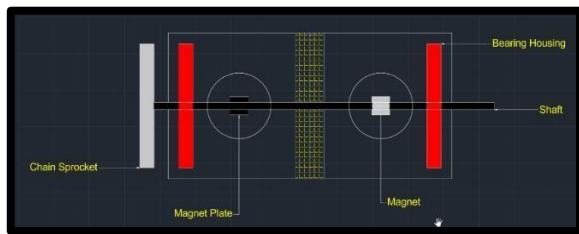


Fig. 3. Top View

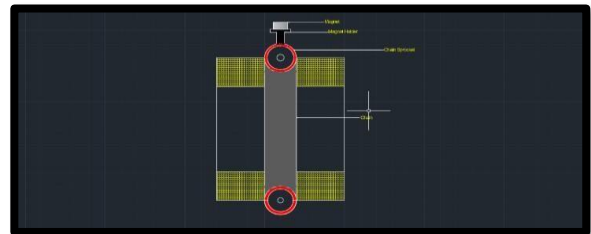


Fig. 4. Side View

Conclusion

As we know the world is facing the environmental problem due to fossil fuels which cannot be tolerated longer. The concept of perpetual motion is the better way to fulfil the electricity need of world. Flywheels are one of the most promising technologies do replacing conventional lead acid batteries as energy storage systems for variety of applications, including automobiles, economical rural electrification systems, and stand-alone, power remote units commonly used in telecommunications industry. The concept of perpetual motion is good research to fulfil electricity need it can be progress in various strategy such as flywheel Magnetic engine, gear trains, etc. the globally environmental pollutant of non-renewable resources can be longer permissible. In this project proper calculation and arrangement of the factor must be done correctly and carefully to get better performance of the system. There are greater opportunities of machine to be boost further for better result and more efficiency.

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