

The Levitable Engine

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1.INTRODUCTION

This is a project to be achieved as early as possible to achieve a pollution less environment and a vehicle which can run through renewable fuels.

- In this project we are going to design a piston of engine using the magnetic levitation.
- In this, it is planned to run an engine, using battery and dynamo that gives the magnetism to the electromagnetic material used in piston cylinder.

2.PRINCIPLE

This is a electromagnetic engine, which runs using the electricity and magnetism.

In the engine the Cylinder is designed with the magnetic material in such a way that the piston will have to and fro motion and with less friction and the piston is designed in such a way that it will have repulsions with the walls of the cylinder so that there will be only air friction that gives a high torque.

The advantages are

- ❖ **It can achieve high speed due to less friction.**
- ❖ **It is fuel less engine which gives high efficiency than a motor engine.**

3.CONSTRUCTION

The things involving the construction of this levitation engine:-

In this engine we are going to include all the parts that belonging to IC engine i.e carburetor, fuel injection system, exhaust and spark plug.

- ❖ **This engine construction is totally different when compared to IC engine. The engine consists of piston & cylinder, but there will be no contact between the cylinder and piston because the principle used in the engine is to decrease friction between the cylinder and the piston.**
- ❖ **This engine runs using battery and dynamo.**

4.COMPONENTS

Components play a main role in the designing the engine and the components to this engine , and engine are made of different materials the main components of the ***Levitable engine*** are as follows

Main components of the engine are:-

- a) Piston
- b) Cylinder
- c) Crank shaft
- d) Clutch
- e) Gears
- f) Magnetic material
- g) Dynamo
- h) Batteries

a) Piston

Shape of piston is rectangular cuboid.

We know that piston plays the major role in the construction of the engine is different, when compared to that of I.C engine (Internal combustible engine).

In this engine we are going to design the piston using the diamagnetic material.

The reason behind the designing the piston using diamagnetic material are as follows.

Reason behind the diamagnetic material :-

1. As we know diamagnetic repels each other similarly there will be repulsion between the piston and the cylinder surface so that the friction is negligible that is air friction so that we can attain high speeds.
2. The piston is made with NDFEB (Neodium ferrous bismuthe) which is a permanent magnet .
3. The connection rod is made with non magnetic material, so that the connecting rod does not attract to the cylinder.
4. As we know that we are not using any combustibile material, we doesn't require any material with high melting points.
5. The same material is used to make the rectangular cuboids of the piston.
6. In this engine there are no oil rings for piston.
7. This piston is going to be designed in such a way that there will be a built in sensor to control the inner temperature due to air friction.

8. Regenerating the magnetic property will not be gone as there will not be any heat applied on it .
9. Regarding the maintenance there will not be any problem in the working of piston for 30years.

b) Cylinder

(Shape of cylinder is rectangular cuboid)

1. The cylinder and piston plays the main role in the engine design.
2. The cylinder is the most important part in the engine.
3. In the cylinder there is a design of the magnetism in such a way that the piston should move to and fro.
4. in this cylinder we are going to give the current to the top surface and the sides are designed with diamagnetic materials in such a way that there is no deflection in the angle of piston head.
5. The cylinder is also designed using the dia-magnetic material in order to have diamagnetic repulsion between the cylinder and piston .
6. The design of circuit is as follows .

c) Crank Shaft

1. This is the shaft which connects the piston.
2. The crank shaft is designed in similar way that of an IC engine.
3. The crank shaft is made of non magnetic material.
4. The connecting rod to the crank shaft should be made by the diamagnetic material.

d) Clutch

1. This engine also consists of the clutch as that of the IC engine.
2. We are going to design a vehicle which is running with gears, so as to control the speeds .
3. So, a clutch is required for the vehicle to change gears.

e) Gears

1. Gears are required for controlling the speeds.
2. In this engine the piston move with high speeds
3. In order to control the speed of engine, we require gears.
So the gears are designed in such a way that is efficient to control the speed of the engine.
4. The gears are made with cast-iron such that there will be less friction.
5. Therefore the gears are made with cast-iron so as to bear the temperature that may arise due to friction.
6. In this engine, the gear system is automatic gear system.

f) Magnetic material

1. The magnetic material used in this engine are pure dia magnetized.
2. The piston is made of copper.
3. The cylinder with 4 surfaces are made with dia magnetic material so as to levitate the piston head as shown in figure.

g) Dynamo

1. As we know that we are going to use battery in this for the running of the engine.
2. So we need a source for charging the batteries.
3. Dynamo is used as the source for charging the battery.
4. And we can also use the dynamo as alternate source.

***h)* Batteries**

1. As we know the engine is going to run by using electricity.
2. So the source of electricity is using the lead acid battery or any other new batteries for AC currents
3. We are going to use the batteries which are efficient enough to produce electricity of 230 volts.

Changes from first design

At first we have started an idea that we will use levitation and propulsion later there are many changes in the design of the engine the changes are as follows

- The change in shape of piston head design from cylindrical to cubical.
- The change in concept of levitation and repulsion.
- Change in the cylinder material to diamagnetic material.