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Design and Development of Non-Conventional Air Pumping Model

(F. Z. Kagzi, P. K. Khokhariya, Y. D. Koradia, R. K. Kulkarni, R. A. Makwana, H. D. Lakhani,)[1],Mr. J. D. Ramani & Mr. S.S.Patil[2], Professor Y. S. Choupare[3]

[1](Scholar, Department of Mechanical Engineering, S.T.B.S. college, Surat Email: freeair.six@gmail.com)

[2] (H.O.D., Department of Mechanical Engineering, S.T.B.S. college, Surat Email: hod.me.stbs@gmail.com)

[3](Principal, S.T.B.S. college, Surat)

ABSTRACT

The main purpose of our project is to provide compressed air without any consumption of any other resources like electricity. We are trying to introduce basic design with parameters which will one kind of free and renewable energy and nevertheless no pollution and less maintenance as well as service is required. The design of the project is very simple. As the construction being simple and easy thus the initial cost is low. This project can be implemented in rural areas where there is power crisis.

Keywords – Gravitational Force, Free Energy, Air Compression, Curved Path, Non-Symmetric Dead weight

1 INTRODUCTION

1.1 CONCEPT

In 21st century the world is facing energy crisis. Here we present the solution of for the less or no electricity consuming devices. In this project we are going to generate free compressed air and free pumping energy with the help of special arrangements. The energy will generate due to a ball which is be able to slide from one end to another end of curved path. The ball used is a plastic ball which is be filled with ¼ cement. By filling cement we can experience change in its sliding properties. Due to this constant sliding of the ball reciprocating motion will be generated at its end where an arrangement of air pump is attached This in return will give a constant supply of compressed air.

All of newton's laws are introduce by our mechanism, application of first law is continues motion of ball on sheet by left and right, second and third law as ball push side spring through its mass followed by spring sustain energy and push ball in opposite direction in same magnitude.

Our tentative design is introduce over here by basic drawing as shown in figure with their elements name. Now onwards we are going to start physical model. [2] Prathamesh Natu at all(2015) prepared feasible model to generate electricity with help of free Gravity try this model impact is created which is the benefit leave for the social health and importantly economic situation Here they were introduced a model which create electricity by moving mechanical elements and electromagnetic force.

1.2 COMPONENTS OF THE MODEL

1 Foundation
2 Shaft
3 Bearing
4 Curved path
5 Dead weight
6 Hand pump
7 Helical spring

1.3 FULL CYCLE

Design of our project is in such a way that there is a curved path on which a deadweight or ball will roll and slide freely from one end to another end.

When the ball starts moving on the curved path, due to its weight and gravitational force the bearing attached at the center of the curved path allows the curved path to oscillate.

Due to this oscillation the air pump attached at one of the end of curved path will be compressed. Thus we can obtain compressed air. Due to strain energy of the spring attached at the end of the curve path the ball is pushed in its opposite direction and thus the curve path oscillates in the other direction because of the weight of the ball. When the ball moves to the opposite direction of the curved path the spring attached at the end again pushes the ball back and thus the process will continue, thus we can obtain compressed air freely.

Indentations and Equations

[1] Newton's first law

F=ma

By using this Equation we can calculate the amount of force which can be generated on the motion of the ball.

[2] Stiffness

S= P/ϱ

By using this equation we can find out the stiffness of the spring.[1] T. S. Manjunatha at all (2012)concluded that fiber composite helical spring for auto motive suspension is more efficient because of low weight as compared to Steel Spring and stiffness is higher than other composite spring as well as it has more Lord sustain capacity

As main thing to compress pump, maximum throw of ball in opposite direction must be attend by side spring. [3] Aakash Bhatt at all(2016) analyzed composite spring with loading condition in Ansys and they was get result that spring is more deflected in tension instead of compression.

I. FIGURES AND TABLES

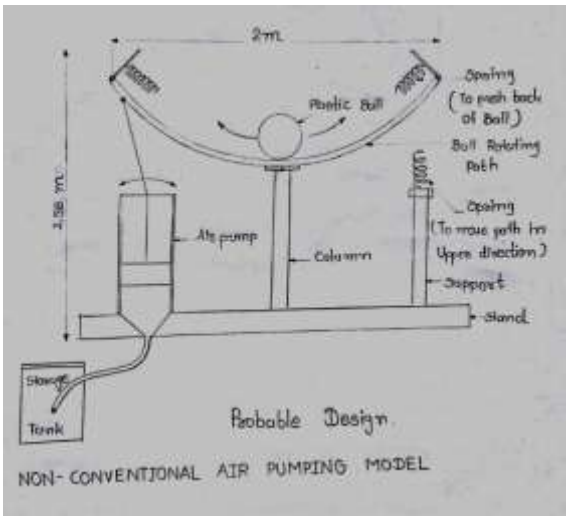

Figure. Non-Conventional Air-Pumping Model

II. CONCLUSION

By advantages this project uses gravitational force which is freely available. It provides us with compressed air freely. No requirement of any external sources and no electricity is required to run it. As there are no electrical parts used, hence there are no possibilities of accidents during application

So that it can be used in rural areas where there are power crisis. We can also obtain electricity by doing some modifications in the model.

However it has some limitation likes it required continuously disturbance to continue movement of ball from left to right or right to left so that air pumping will be continue.

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