

A Review on Performance improvement of Non conventional air compressor

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ABSTRACT

In this century, most of machine runs by electricity and for produce that electricity we use non-accessible element or fuel like: coal but these non-accessible element or fuel will not available in near future. This model run by some physics laws. This model produce compressed air without electricity and this compressed air can use for domestic, industrial, drying purpose. For make this project model we are use stand, bearing with housing, c-shape GI sheet, spring, pump etc. By this project we can also run hacksaw machine without electricity by using special attachments and by this project we can save electricity.

Keywords–non conventional energy, pendulum, compressed air, developed design

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I. INTRODUCTION

Now a day's scenario is that conventional sources is too much available on our earth, so all the nations, industries, countries must think about that and many of them already started to find out alternate solutions. So on this goodwill we are try to development which usage of non conventional way replaced to non renewable source for same application.

Energy generated by using wind, tidal, solar geothermal heat and biomass including farm and animal waste as well as human excreta is known as non-conventional energy. All these sources are renewable or in exhaustible and do not cause environment pollution. More over them do not require heavy expenditure. "Non-conventional" sources of energy mean that these are renewable and are inexhaustible completely. Such energies are found abundantly naturally on mother Earth and can be used largely by masses for a better innovative and cost effective future. These energies assure a constant supply which will never finish as long as the earth exists.

Standing committee on energy, India during fifteen lok sabha, 2011-12 [4], announce that coal, oil, natural gas and their use id invariably associated with problem regarding pollutions, diseases which cannot stoppable in near future unless its usage is stopped.

Recently worldwide nation's gives warning that within 4 years overall temperature of earth will raised by 2 degree Celsius due to global warming. So this is the serious symptoms about future.

II. NON CONVENTIONAL AIR COMPRESSOR

[3] Souvik Das at all give review on non conventional energy sources in India. They think that still there is great scope in non conventional utilization. Innovation and research scope on this field will give great break through to our country.

[1] F.Z.Kagzi at all design model in which non conventional way is utilized to produce mechanical output and by this normal pressure air can compressed up to desired pressure and then it can use for further process. However there is some deficiency or less amount of output is thinkable point; this is over probable work to enhance the output of existing model. They conclude that air can be compressed by some special attachment to their design and this is work on all three laws of Newton's. Ball is rolling on curvature shape and due to continue rolling motion curvature shape is continuously fluctuated. One end of this shape attached to simple air pump and its give pressurized air.

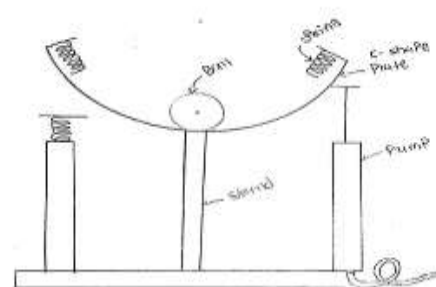


Fig: - 1, Existing design

We focused on their future work and improved the output of same existing design with their duly reference.

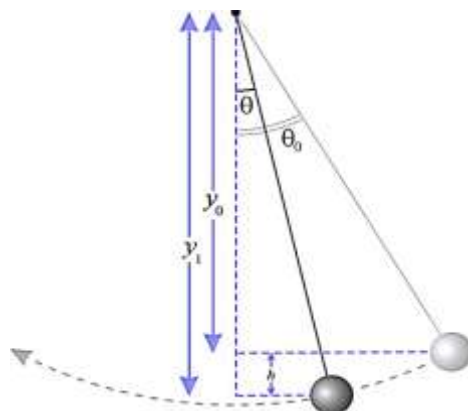


Fig: - 2, Working of pendulum

First modification is attachment of pendulum at centre of curvature shape. And ball of pendulum is hollow type so we can partially filled by water. Due to this its center of resultant is always move towards C.G of filled water. Its working is simple like revolving partial filled bucket of water as shown in Fig: - 3.

Energy conversion by pendulum is as follow,

When $\theta = 90^\circ$ then at top pint of pendulum. The $\text{COS } 90^\circ = 0$, and $h = Y (1-0) = Y$, and Potential Energy = $mgY(1 - \text{COS } \theta) = mgY$ When the pendulum is at its lowest point, $\theta = 0^\circ$ $\text{COS } 0^\circ = 1$ and $h = Y (1-1) = 0$, and $\text{PE} = mgY (1 - 1) = 0$

At all points in-between the potential energy can be described using Potential Energy = $mgY (1 - \text{COS } \theta)$

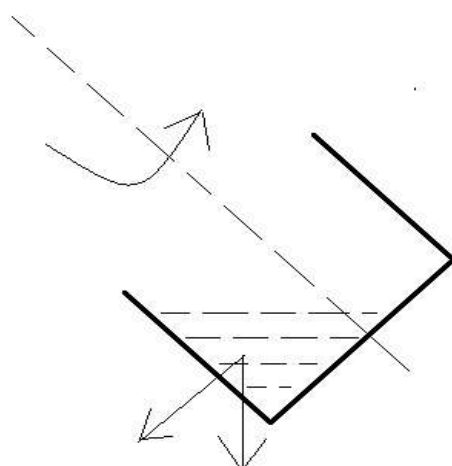


Fig: -3, Partial filled bucket of water

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Another modified way is using of hollow steel ball as a rolling element on curvature shape instead of plastic and cement filled ball. As well as using of proper stiffness spring, flexible air pump, smooth and plain bearing instead of rolling bearing can decreased wastage of power so ultimately we can improve the output or performance of design.

By all such discussed changing parameters in existing design our new developed is May give output with makeable changed. As shown in Figure 4.

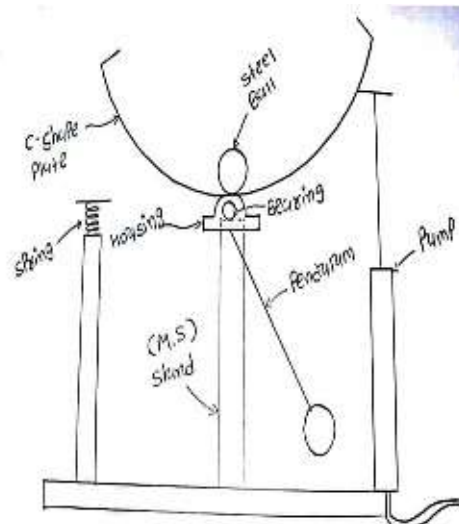


Fig: - 4, developed design

III.CONCLUSION

From our development it can concluded that fluctuation of curvature shape can increased minimum up to 20% and its major effected of efficiency of the design. This increment is based on energy conversion by pendulum, partial filled rolling hollow steel ball and stiffness changed spring.

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