

PENDULUM BASED POWER GENERATION USING PNEUMATIC DRIVE

ABSTRACT

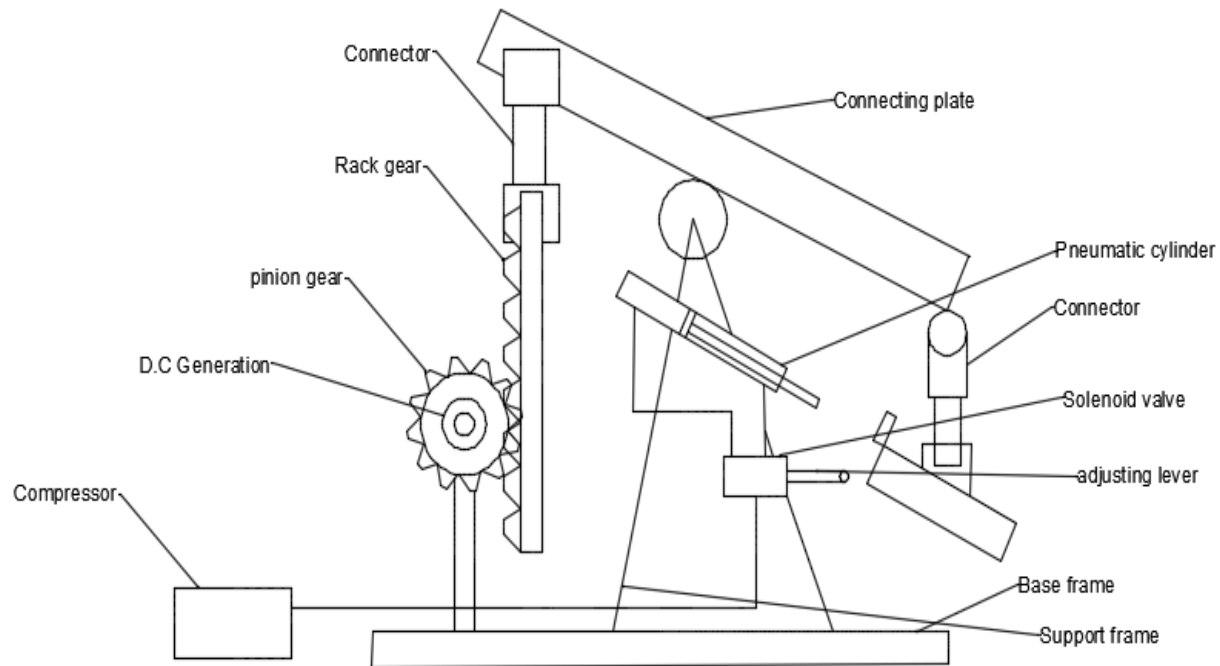
The more power demand has been occurring now a day in India. The main reason of the power demand is due to the lack of improper energy utilization and conservation. The pendulum generator deals with the power generation from the mechanical energy that has been wasted in many day today real time applications. The pendulum setup has been made, that is whenever it has been kicked off by the pneumatic cylinder tends pendulum to oscillate, generates the electrical energy. We can implement the pendulum based power generation system in real time application wherever the vibration produced. We can implement a pendulum based power generation system in such dynamic application we can generate power from it. The pendulum power generator is most efficient & ecofriendly power generator. The pendulum power generator is the machine which converts the motion of pendulum i.e. mechanical energy into electrical energy. This is most helpful source or machine for power generation in today.

INTRODUCTION

Energy has been universally recognized as one of the most important inputs for economic growth and human development. There is a strong two-way relationship between economic development and energy consumption. On one hand, growth of an economy, with its global competitiveness, hinges on the availability of cost-effective and environmentally benign energy sources, and on the other hand, the level of economic development has been observed to be reliant on the energy demand. In the recent years, India's energy consumption has been increasing at one of the fastest rates in the world due to population growth and economic development.

Man has always been in pursuit of energy to meet his ever increasing demand. In recent times due to effects of pollution and global warming there is a need for generating power from renewable sources. The reason for generating power using gravity is that it is available all over the Earth, abundant and consistent too and it cannot be efficiently converted into electrical energy. In this paper we designed a methodology wherein gravitational energy is further amplified in terms of its magnitude by using Perpetual Motion Mechanism and hence can be successfully transformed into usable electrical energy. The basic concept of a gravity power generating mechanism is simple. When a body moves down from a higher altitude to a lower one its potential energy is converted into kinetic energy. This motion is converted into circular motion and is then converted into electricity using a generator. The more power demand has been occurring now a day in India. The main reason of the power demand is due to the lack of improper energy utilization and conservation. The pendulum setup has been made, that is whenever it has been kicked off the kinetic energy of ball makes the pendulum to oscillate, generates the electrical energy. We can implement the pendulum based power generation system in real time application wherever the vibration produced. We can implement a pendulum based power generation system in such dynamic application we can generate power from it.

2D LAYOUT OF PENDULUM BASED POWER GENERATION USING PNEUMATIC DRIVE



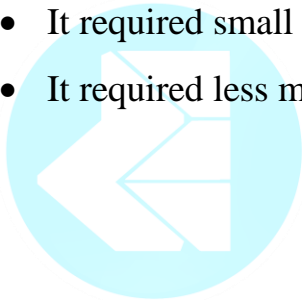
WORKING PRINCIPLE

The working prototype consists of rack and pinion arrangement for generating the electricity. The activation of rack and pinion is controlled by means of oscillating arrangement, here the oscillating setup consists of connecting plate end of which is connected to the adjusting lever through a connector. At certain height say the end contacting position of the oscillator pneumatic cylinder is placed which is activated by means of solenoid valve which is controlled by the limit switch which is placed at the oscillating path of the slider. Initially we need to start the oscillation manually when the slider reaches its maximum extent that is to contact limit switch due to this solenoid valve sends the compressed air to the pneumatic cylinder and the cylinder gets retracted this retraction forces the oscillating lever to retain its original position so this process gets repeated. Due to this oscillation the rack gets attached with it

tends to translate and this translation is converted rotation by means of coupling pinion with it. The pinion gear is coupled with the DC generator for generating the electricity.

ADVANTAGES

- It can be used in remote areas where power supply is not available.
- It does not require no running cost because it does not require any fuel.
- It can be installed in any place quickly as compare to solar, wind and other type of plant
- It is portable; it can be use as portable power generator.
- It is simple in construction like other conventional part.
- It required small area for installation
- It required less maintains than other power plant.



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