

A Review on Power Generation by Gravity and Buoyancy

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Abstract--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. Despite all of this, gravity has a bad name that it is a weak force when compared with chemical, thermal forces or radioactivity or electro-magnetism. But this weakness is due to uniformity or steady state. Due to this weakness, it cannot be efficiently converted into electrical energy or in other form. 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.

I. INTRODUCTION

In this project we designed a methodology wherein gravitational energy is further amplified in terms of its magnitude by using perpetual motion mechanism and buoyancy hence can be successfully transformed into usable electrical energy. Perpetual motion describes "motion that continues indefinitely without any external source of energy impossible in practice because of friction. It can also be described as "the motion of a hypothetical machine which, once activated, would run forever unless subjected to an external force or to wear". In science **buoyancy** is an upward force exerted by a fluid that opposes the weight of an immersed object. In a column of fluid, pressure increases with depth as a result of the weight of the overlying fluid. Thus a column of fluid, or an object submerged in the fluid, experiences greater pressure at the bottom of the column than at the top. This difference in pressure results in a net force that tends to accelerate an object upwards. The magnitude of that force is proportional to the difference in the pressure between the top and the bottom of the column, and is also equivalent to the weight of the fluid that would otherwise occupy the column, i.e. the displaced fluid. For this reason, an object whose density is greater than that of the fluid in which it is submerged tends to sink. If the object is either less dense than the liquid or is shaped appropriately (as in a boat), the force can keep the object afloat. This can occur only in a reference frame which either has a gravitational field or is accelerating due to a force other than gravity defining a "downward" direction. In a situation of

fluid statics, the net upward buoyancy force is equal to the magnitude of the weight of fluid displaced by the body. The normal procedure for generating power from gravity is as follows:

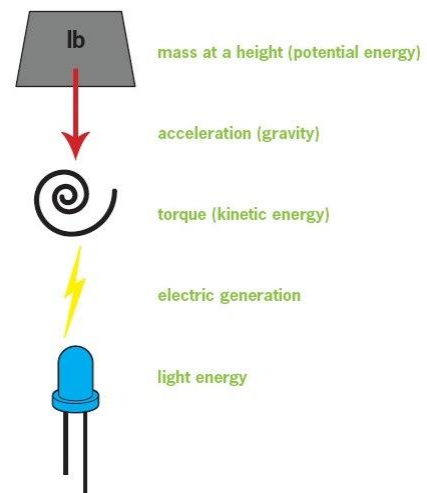


Fig.1.1. Procedure for Power generation

II. PROBLEM FORMULATION

Whether developing a nation with ambitions of economic growth, or an industrialized region moving towards a low carbon economy, the challenges of future electricity production are shared. Therefore an attempt is made to generate electricity with an eco-friendly concept. The various non renewable sources like solar, wind, hydal etc, are used to generate the power but they cannot produce motion continuously. So an effort is made to generate the power from the utilisation of the forces like gravity and buoyancy such a machine will keep on producing electricity forever and ever without the need of inputs like air, light or fossil fuel. this machine can be so small that it can be installed on the backyard of anyone's home or on a rooftop that will generate sufficient electricity to meet the needs of the house hold .or it can be big enough to power the cities.

III. LITERATURE REVIEW

Claude a naar in 2004 has worked on gravity based vehicle power system. The invention is about gravity based vehicle power system. The prior art is not confined to the rim of the vehicle wheel thus changing tires and otherwise working upon the wheel is made prior difficult. The instant invention can provide both fluid and electrical power generation in one vehicle and protect the power generation component of wheel assembly especially if the tire should fail. Thus this pattern is helpful to improvements in vehicular energy generating systems and more particularly to mechanical means and preferably hydraulic pumps inside its tires for recovering Wasted tire flexure energy and putting that recovered energy to useful Work. [1].

Justin Scott Roland in 2006 has developed a method and system using liquid dielectric for electrostatic power generation. An object of the present invention is to provide a system for conversion gravity and mechanical energy of strained leaf springs and two equal Weights to rotary motion to drive a car, an airplane, and a ship and their speed can be controlled by a hydraulic device, an electric device or a mechanical device as gearbox having speeds. Another object of the present invention is to provide a system for conversion the mechanical energy of two assemblages of strained leaf springs to rotary motion to drive an airplane, a car, and a ship instead of using any Weight to be this system having light Weight and great output. [2].

Taku Hirasawa and Jyunpei Matsuzaki in 2011 has developed piezoelectric power generating Mechanism with spring material. The present invention relates to a piezoelectric power generating mechanism that obtains electric power from mechanical vibration energy. In particular, the present invention relates to a piezoelectric power generating mechanism that converts energy of low frequency vibrations generated by movements of large-scale structures such as a high-rise building and a bridge, body movements, or the like into electric power With a piezoelectric element, thereby generating electricity. [3].

Jerry w robinso in 1986 has studied a system for rotating a device mechanism for power generation. A system for rotating a drive mechanism which can be connected to an electrical generator or the like. The system is particularly suitable for providing electrical power to a residence and includes a reservoir for containing a volume of liquid such as water. Weight is applied to the upper surface of the liquid for forcing it downwards. This liquid is discharged from the reservoir through a spout which concentrates the discharged liquid into a stream which is directed against a drive mechanism such as turbine for imparting rotational force. The discharged water is received in a catch basin from which it is the moved as by pumping back into the reservoir for further cycle of operation. [4].

Kuni Hashimoto, in 1997 has developed Power Generating Apparatus and Vacuum Generating apparatus by applying Vacuum. By applying balance between atmospheric pressure and gravity Torricelli's vacuum is formed and by utilizing the vacuum power is generated .When the operating tube directs to nearly the right above,

because of weight of weight of the liquid in the inside of the operating tube. The advantage of this are as follows:

1. It gives free source of power
2. It is ecofriendly.
3. It gives low maintenance [5].

IV. PROPOSED RESULT

The proposed result is to make a model that can somehow utilize this gravitational force and buoyancy force to rotate the turbine and generate electricity that can be used to light our bulbs, fans ,air-conditioning. Such a machine will keep on producing electricity forever and ever without the need of inputs like air, light or fossil fuel.

Below is the working of such an apparatus which utilise the gravity and buoyancy for the rotary motion.

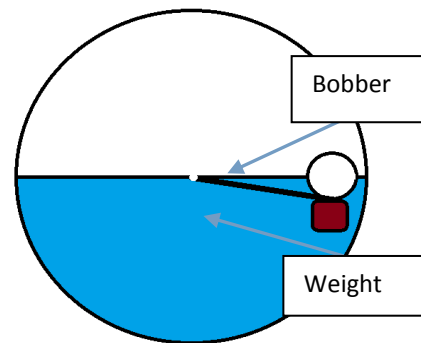


Fig: Sphere having perpetual motion

Working

An apparatus which generates electrical power from a combination of gravity forces and the inherent buoyancy is the sole concept of this project. The weight in the right section of the sphere is the source of potential energy. This potential energy is converted into kinetic energy of the sphere. At initial when a variable torque is given to the bowl, the bowl gains acceleration. After certain time the variable acceleration becomes zero and the bowl starts to rotate at constant speed. The acceleration slowly diminishes due to drag force applied by the water on the bowl surface. This drag force occurs, since water is fluid in nature and it always comes downward due to gravity this in turn pushes the weight on the top and doesn't allow the floating weight to move down. This cause permanent imbalance of weight in the system. Due to which there is continues rotation of bowl at constant speed. The conclusion drawn from this experiment is that as the weight in the right side of the sphere is increased the constant output speed increases.

V. CONCLUSION

In this paper we are mainly concerned with the study of power generation and recommended a technique which produces power from the utilization of gravity and buoyancy force which would overcome the problem like pollution and global warming faced by the other power generation methods. When compared to other sources of energy like hydal, thermal, tidal, wind, nuclear etc. Gravity is more abundant and available everywhere on the earth. Moreover it is eco-friendly. And also by the utilization of buoyancy force the rotational speed increase which will helpful for the increase in power output.

REFERENCE

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