

Waterfall Power Generation System

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Abstract- Generating of power will be a very good usage in this present scenario. This is a hydro power plant to be implemented in the water falls which produces power not to meet the big demands, but for making at least few bulbs to glow. The principle behind this is similar to a hydro power plant. The plant produces power by using the water, falling from the top of waterfalls. The produced power is stored in battery and is used for further usage.

Keywords – Waterfall, Generation Set, Piezo-Electric crystals.

I. INTRODUCTION

India is a developing country, where along with the growing industries; the demand for the power is also growing. If this scenario exists then electrical power will become a biggest constrain for the development of India. The electricity is produced from all forms of energy, but in India still the demands are increasing day by day. “Power produced by this plant is power source saved for tomorrow”. The demand may be in any range, in industry it may high whereas for domestic usage it will be very less. Even the need of power to charge our mobile phone is also a demand. Our idea is about producing power for domestic usage equipment’s, and is to make hydropower plant to produce power with the help of waterfall. The hydraulic energy produced by the natural waterfall is not yet utilized. By using this hydraulic energy of waterfall, it is possible to produce power that can meet demands. With this idea we will be able to produce an amount of units to meet lower level demands.

II. OBJECTIVES

The main objective is to produce electrical energy from the mini hydro power plant to be implemented in the waterfall which produces power not to meet the big pressure available at the middle and bottom of waterfall to meet out small demands.

III. PRINCIPLE

The principle is same as that of the hydro power plant. The potential/kinetic energy of water is utilized to run the turbines which in turn run the electric generators. The energy of water is utilized for power generation which may be kinetic or potential the kinetic energy of water is its energy in motion and is a function of mass and velocity, while. The potential energy is a function of difference between two points. In either case continuous availability of water is a basic necessity. The fig (i) shows the flow of energy.

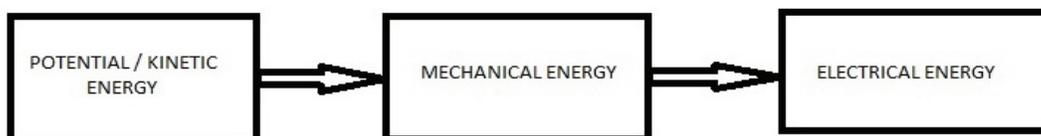


Fig. (1) The flow of energy

IV.METHODOLOGY

CONSTRUCTION DETAILS:

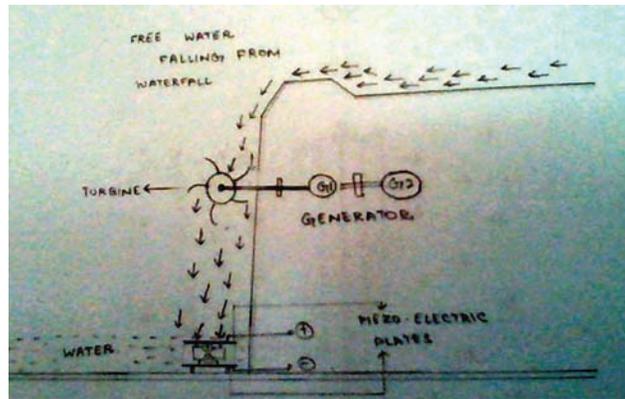


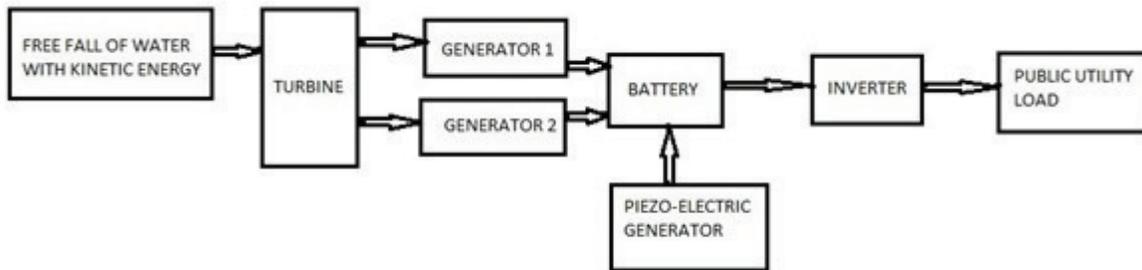
Fig. (2) Modified waterfall

Fig (2) shows the simple construction of waterfall power generation system. The concept of this waterfall hydro power plant is to generate power from the free falling water from the brink of waterfall and also to generate power from base of waterfall. The modified waterfall of this project is shown in Fig. (2).

First a turbine is mounted at the brink, i.e., at the middle of the waterfall. This turbine is directly coupled with the generator.

A setup of piezo electric crystal for power generation is kept at the base of waterfall for producing electricity using vibrations and sound energy.

WORKING OF WATERFALL HYDRO POWER PLANT:



The fig.(3) Shows the overall functioning of the waterfall power generation system. The functioning of various parts is explained below.

TURBINE AND GENERATORS:

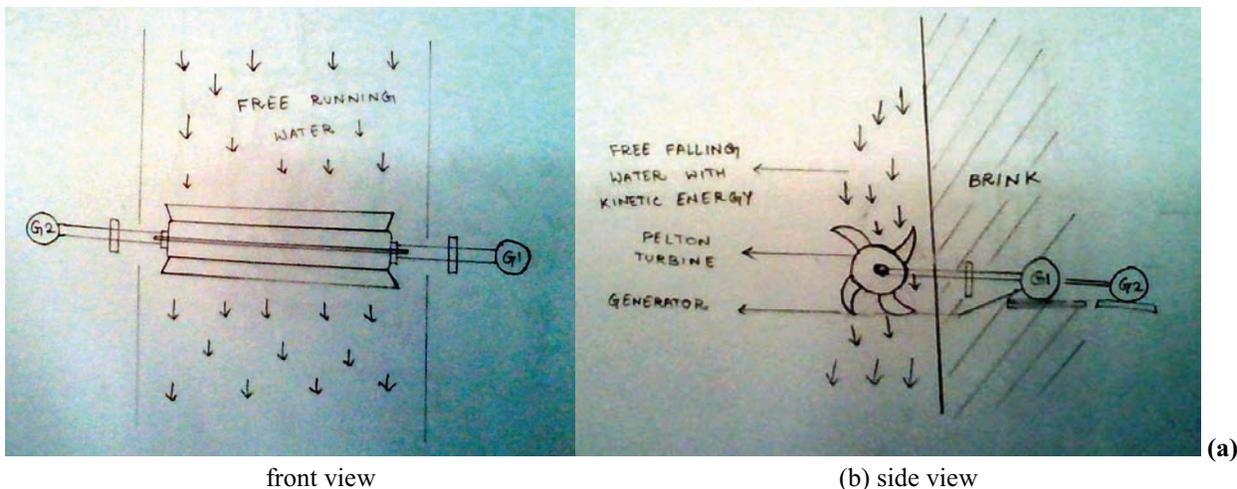


Fig. (4) The working of generator

Once when the water flows from the top of the waterfall, the water rushes and flows downward direction due to gravitational force of attraction. This high pressure water falls on the blades of the pelton turbine and thus produces a mechanical motion. The turbine is directly coupled with two generators on the either side of the prime mover. The mechanical energy of the turbine is thus converted into electrical energy by the generator.

PIEZO-ELECTRIC GENERATOR:

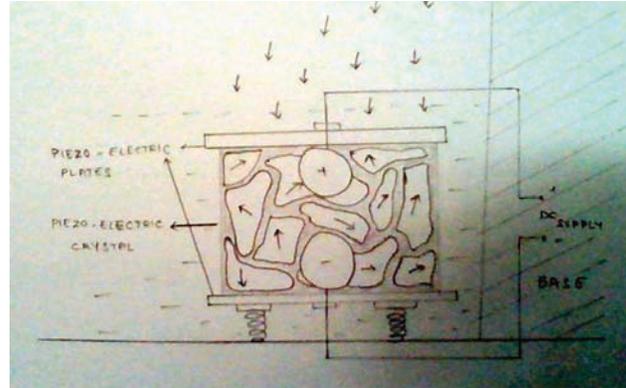


Fig.(5) Working Of Piezo-Electric Generator

Here the piezo-electric generator is mounted at the base of waterfall where the water reaches at a high pressure. The base part of waterfall acquires large amount of forced water fall which helps in the power generation from the vibrations and sound created by piezo-electric generator. Now it will be clear that the fixture of piezo-electric generator at the base of the waterfall.

BATTERY:

Here the power generated by the generator 1 and generator 2 are stored in the battery for the further use. The range of the battery is chose based on the power produced.

V.CONCLUSION

From this idea the beauty of waterfall is not alone admirable but also the kinetic energy of the waterfall can also be utilized to the maximum. Since the power generation is difficult to meet major crisis, this would also be a solution to reduce a few energy crisis.