

New approaches for electricity production

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Abstract: In the present scenario power becomes major need for human life. Due to day by day increase in population and stock position of the conventional source, it becomes necessary to shift non conventional source for power generation. This paper emphasizes on the idea that the kinetic energy getting wasted while people walking in rush railway station/market. This energy is used for railway station appliances like tube light, fan, digital display etc. It is totally renewable source of energy. This human kinetic energy can be utilized to produce power by using a special arrangement called "POWER BLOCK".

INDEX TERMS :-Piston Spring, Connecting shaft, Generator, Battery set and powerBlock.

Date of Submission: 01-06-2020

Date of Acceptance: 16-06-2020

I. Introduction

This paper attempts to show how energy can be tapped and used at a commonly used system at the platform, power block (power block means that the block which produce electricity with the help of pressure). The number of people passing over the power block and the power block produce electricity which is used for railway station devices/equipments.

This type of mechanism is depends on the hydraulic pressure means when any people come to the power blocks than with the help of hydraulic pressure press the piston than it produce electricity. In india or any country there are many railway station and daily many passenger comes for travelling with train.

II. Background

The utilization of energy is an indication of the growth of a nation. For example In india the railways use electricity consumption is 2269.41million kWh in a year. one might conclude that to be materially rich and prosperous, a human being needs to consume more and more energy and railway platform use electricity is very important.

A earlier survey on the energy consumption in india had published a pathetic report that 25 million passenger per day in India and it consume 2269.41 million kwh in a year and 8 to 10 % of this energy is used for platform and we know that Indian consumption is 684kwh per day. In this paper the mechanism is introduce is very useful for proper electricity to platform without any cost and it is renewable source of energy.

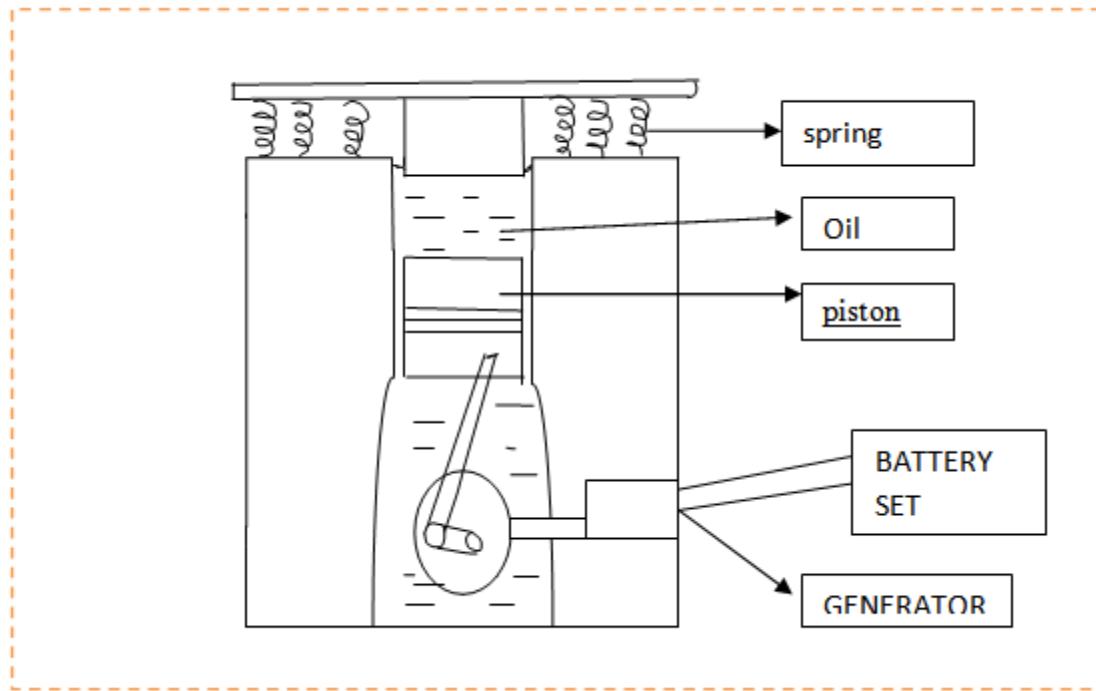
III. Working

Today, the utilization of electricity in platform is very important. And in india there is many platform it use more electricity means 10% of total electricity which consume by railway. In this paper attempt to reduce this percentage to show a mechanism which work on hydraulic system and it working process is when any person come to the power block than it compress the floor with the help of spring and the hydraulic process is going on. than it compress the piston. Piston rotate and connecting shaft rotate and the generator shaft and it produce electricity and it store in the battery set. this battery supply is use for platform instrument.

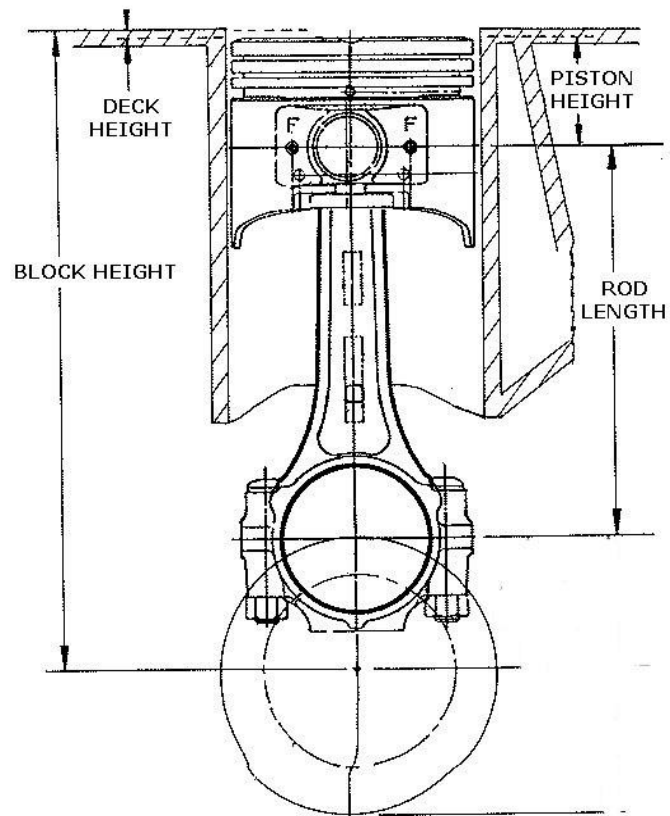
We take many power block are connected parallel to battery set and all power block produce electricity and all power block are connected parallel to battery set because any one power block is fail than the system work properly without any problem and all energy store in battery and it give to platform instruments like tubelight, fan digital display, computer etc...

This all arrangement on the under tiles of railway platform this means that one tiles means that one power block and we use DC shunt generator of generation...

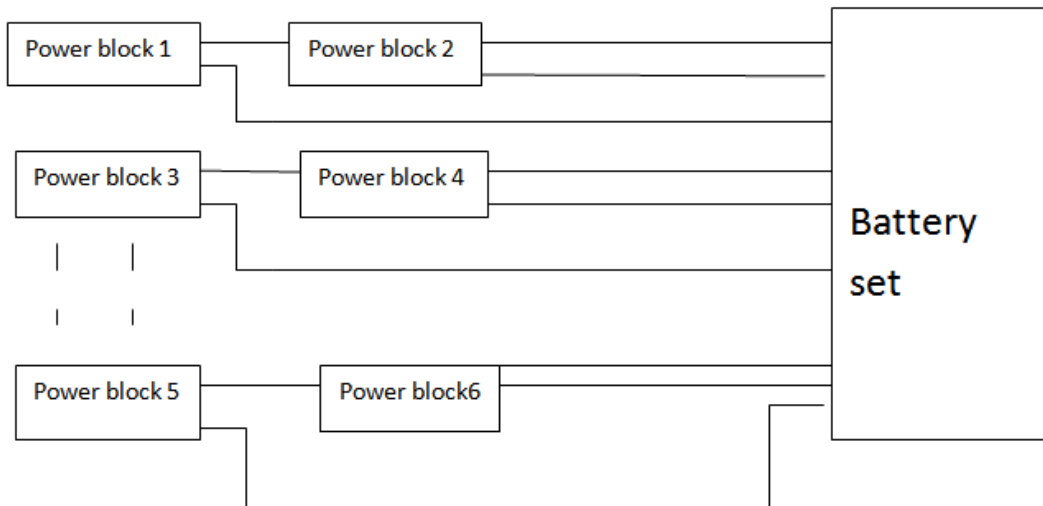
1. POWER BLOCK



2. PISTON



Block Diagram



Formula

FOR PRESSURE:-

Pressure of fluid = FORCE/AREA

FOR example-

FORCE= 50N (mass of body)

AREA= 80cm*50cm (area of upper block)

$$=0.8m*0.5m$$

$$=0.4m^2$$

Pressure of fluid= 50/0.4

$$=125 \text{ pascal (pressure on another body)....}$$

FOR GENERATOR:-

Let take shunt generator

Suppose , P= 30kw , Ra = 0.05 ohm , Rsh= 50 ohm , Pi+f=1000w , V= 200v

Then,

$$I=P/V= 30*10^3/200 = 150 \text{ A}$$

$$I_{sh}= V/R_{sh}= 200/50= 4 \text{ A}$$

$$I_a= I+I_{sh}=150+4 =154 \text{ A}$$

Generated emf

$$E= V +I_a R_a =200+154*0.05 =207.7V$$

Copper loss

$$=I_a^2 R_a + I_{sh}^2 R_{sh}$$

$$(154)^2 *0.05+4^2*50$$

$$=1985.8W$$

Efficiency

$$= \text{output} / (\text{output} + \text{copper loss} + \text{iron loss} + \text{friction loss})$$

$$30*10^3 / (30*10^3 + 1985.8 + 1000)$$

$$0.9095 \text{ p.u. or } 90.95\%$$

ADVANTAGE

Following advantages may be the used of the technique mentioned in this paper.

- Pollution free power generation.
- Simple consumption, mature technology and easy maintance.
- No consumption of any fossil fuel which is non –renewable source of energy.
- No fuel transportation required.
- No external source is needed for power generation
- Energy available all year rount.
- No manual work necessary during generation.

IV. Conclusion

In railway station is more important because without electricity the railway station not work properly and more problem for passenger. we know that fuel is decrease day by day than after approx 20 year the fuel is finished than we use non conventional source of energy . This concept is of non conventional source of energy. Which is work on movement of people on platform .Now the time has come to put forte there type of innovation ideas, and researches should be done to upgrade there implication.

ASSUMPTION

For this concept following assumption are taken in mind.

1) we take railway station where very rush of peoples are there.

Reference

- [1]. Mukherjee.D Chakrabarti.S, 2005, Fundamentals of renewable energy systems, New Age international limited publishers, New Delhi.
- [2]. Sharma.P.C, 2003, Non-conventional power plants, Public printing service, New Delhi.
- [3]. Principles of renewable energy systems, Sharma.P.C, 2003,
- [4]. Non-conventional power plants Mukherjee.D Chakrabarti.S, 2005,
- [5]. Fundamentals of renewable energy systems, New Age international limited publishers, New Delhi.
- [6]. Non-conventional power engineering, Public printing service, New Delhi.
- [7]. miller,R.,” power system operation ”, McGraw-Hill , new York ,1970
- [8]. Dr . r.k. bansal , “fluid mechanics and hydraulic machines”, laxmi publication ,new delhi.
- [9]. Power System Dynamics and Control’ , K R Padiyar, Interline Publishers Bangalore.
- [10]. Power System Stabilizers’ by Mitsubishi Corporation-A release notes from Mitsubishi Co

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Namesh kumar. “New approaches for electricity production.” *IOSR Journal of Electrical and Electronics Engineering (IOSR-JEEE)*, 15(3), (2020): pp. 06-09.