

POWER GENERATION USING SPEED BREAKER

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Abstract— *In this paper we illustrate the generation of electricity with the help of road hump. As various techniques has been used for this experiment. We implemented the rack and pinion mechanism. This technique is useful for rural areas to produce electricity which fulfills their needs. Various methods for generating the power by use of speed breakers. In this publication we have attempted to generate energy by the use speed breakers through the mechanism of rack and pinion.*

Keywords— *Power generation, rack and pinion mechanism, vehicles, speed breaker*

I. INTRODUCTION

Nowadays,electricity have become a important aspect of our life. The replenishable soures are commonly the non-renewable source of energy. The major problem in the world is Energy Crises. To resolve this problem power generation using speed breakers can be applied. We know that on-road vehicles do not give any contribution in power generation, so as we know there are vehicles increasing. These increasing vehicles can help us to generate the required power.

Energy is generated with the help of moving vehicles over the road hump (speed breaker mechanism). As the vehicles passes on the mechanism they induce kinetic energy which is then converted into the mechanical work then further the work is converted to the electric power by the means of generator or dynamo.

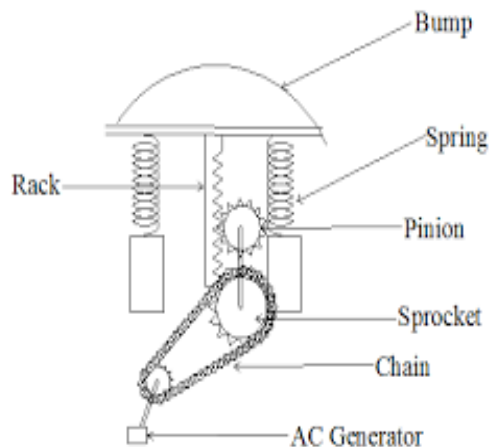
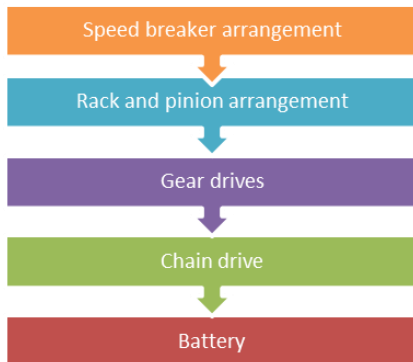


Fig 1.1 Power Generation setup

II. POWER GENERATION SETUP

The speed breaker frame is placed at the top portion of the setup which is used to assist the pressure of the moving vehicle. Then the frame is connected to the spring arrangement whose function is to absorb or control the pressure created by the vehicles. Rack and pinion mechanism is attached at the bottom of the bump. This converts the linear motion of the rack to the circular motion of pinion. The sprocket and chain is arranged with the rack. A shaft is connected dynamo (generator) through belt drives, which converts the mechanical work to electric power.



III. WORKING PRINCIPLE

The power generation setup consists of three basic components, speed breaker frame, rack and pinion mechanism and the dynamo/ generator. as the vehicle passes it dominates the kinetic energy due to the load of the vehicle. This kinetic energy is employed to create the power. The vehicles are allowed to pass over the dome which gets pressed, in the vertical direction which results in spring compression. The rack and pinion is attached at the bottom of the speed breaker frame. In rack and pinion mechanism the rack is connected to the gear, where the linear motion of rack is converted into rotary motion of pinion. The shaft is connected to the dynamo with the help of gear; the dynamo converts the mechanical work into the electric power. The generated power is stored in the battery and further it can be used for lighting of street lights.

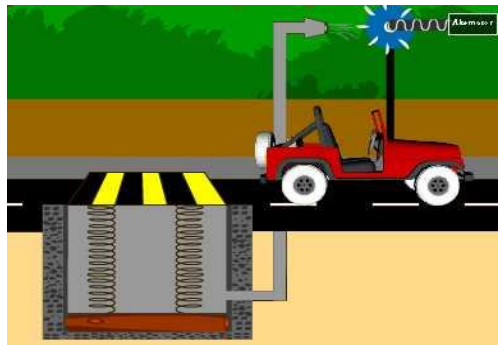
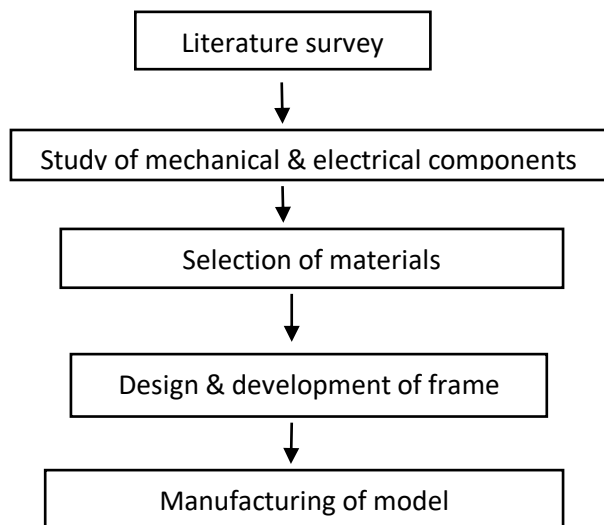


Fig. 3.1 Working Principle of power generation using speed breaker

IV. SPECIFICATIONS:

- 1) Speed Breaker Frame
- 2) Rack and Pinion
- 3) Electric Dynamo/Generator
- 4) Body
- 5) Sprocket and Chain
- 6) Bearing
- 7) Spring
- 8) Gear
- 9) Wires
- 10) Nut, Bolts and Washers

V. IDEA DEVELOPMENT



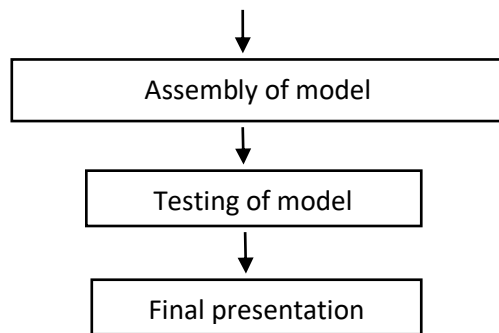


FIG. 5.1 IDEA DEVELOPMENT OF THE PROJECT

As per shown in above diagram it consists basic process without any complication and error.

This project consists of simple structure and the process to get the final output. Proper working of model is defined by its working process and this model stands for its good quality product and for high efficiency.

VI. ADVANTAGES:

The main advantages of our project are:

1. It is economical and easy to install.
2. It reduces the pollution.
3. The construction is simple and easy to maintain.
4. It is eco-friendly.

VII. CONCLUSION

Finally, we conclude that our project produces the electricity or power by using replenishable sources. It over comes the energy crises. Our project is all about saving the energy which is created by vehicles while moving. As we are using the non-conventional sources to produce the power we can reduce the pollution.

.VIII. References

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