Power Wheel

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Abstract –*In the automobile industry wheel is the very important component or machine. Wheel is very important invention in the world. By this paper I introduced a new concept by which we produced electricity by the wheel easily. By assembling a bearing, copper winding and strong cylindrical magnets inside the wheel in proper manner we generate electricity from wheel. Principle of operation of wheel is same as a generator. Wheel operates on the principle of dynamically induced EMF in the conductor.*

***Key Words*: principle of working, type of bearing, construction, working, power generation, storage.**

Introduction

Wheel is the one of the greatest invention. In the transportation it's play important role. Wheels main function is to give forward or backward motion to the object which is loaded on it.

As like as wheel, Electricity is very important invention for our modern society. We used in our daily life many appliances, things which make our life so much easy, many of them work on the electricity. So it is clear that our modern society is so much dependent on the electricity. So it makes need to produce electricity on large scale. To fulfill this condition we need to produce new technique for generation of electricity.

Wheel and electricity are the greatest invention for modern society. This 2 invention we use separately as the requirement of application, but there is no way to combine this 2 inventions. This paper give a way to combine this 2 greatest invention & helps to makes things better.

Production of electricity is vital role, but for the modern society it is very important. For the betterment of the modern generation I combined this 2 greatest invention and develop a new concept **power wheel**. By using power wheel we can generate electricity from the wheel. Power wheel means a wheel which produces electricity at the time of its working period.

Principal

Principal of operation of power wheel is same as generator. A Power Wheel operates on the principle of dynamically induced EMF in a conductor. The dynamically induction of the EMF can be explained with the help of Faraday's law's of electromagnetic induction.

If the flux linkage with a conductor changes due to the relative motion between the magnetic and conductor then EMF induced into the conductor. This is the principle of operation of power wheel.

The relative motion is produced by either moving the conductor or magnetic flux which is produced by strong magnets. Generally the moving magnet option is used. The copper winding is stationary.

Object

In this century the world comes to near due to the better transportation. In our daily life we use bicycle, bike, cars, buses for transportation & this transportation vehicle used by peoples on large scale. Only think that if we able to produce electricity from the wheels of the vehicle then how much amount of electricity is produced. Generated energy is use for many applications if we stored this generated electricity.

For the development of the nation power makes a matter. Power plays important role in the development of the nation. Power is in many form, but most important form of power is electricity. For production of electricity it's need to developed new technique. This paper aim is to give another technique for the production of electricity.

Construction

The **c**onstruction of the Power Wheel is simple. For the better understanding we see the construction in different types:-

1. Construction of **Bearing**
2. Construction of Copper **winding**
3. Construction of strong **Magnets**
4. Construction of **Wheel**

Construction of Bearings:-

There are 2 types of bearings. a) Ball Bearing b) Rolling bearing.

Ball bearings are use for low weight applications & Rolling bearings are used for high weight applications. Load bearing means rolling bearing in is also classified as cylindrical, needle, tapered & spherical bearing as shown in fig. In the Power wheel we used Special application bearing which is modified version of the cylindrical bearing.

Special application bearing has a feature that it's outer disc is stationary and inner is rotating which is connected to the shaft. Here 2 circular discs with different diameter are use which are similar to the outer disc of traditional bearings as shown in figure & 1 circular hollow pipe (which is similar to the structure when we extend the inner disc of bearing), the length of the pipe is greater than the 2 circular disc & it's diameter is less than the both. The hollow pipe is used as inner diameter of the bearing above which roller are placed in circular manner. The length of the pipe is greater so after placing the roller on the middle of the pipe then the remaining area on both side is connected to the ring of the wheel with the help of spokes or arrivals. On the sliding rollers which is fitted on hollow pipe placed the 1st circular disc which length is equal to the length of the roller. We provide the curve edges to circular disc for surrounding the outer side of the roller to avoid sliding. On the 1st circular fit the roller but this rollers are not slide, they are stationary. We put or fit a small bar in the 2 rollers which are place on the 1st circular disc & it's another end is fitted to the inner side of the 2nd disc which diameter is slightly greater than 1st disc with curve edges. We provide stationary bar to avoid rolling of the outer side of bearing. In this way the outer side of bearing became stationary and inner side is rotated, which is require for working of power wheel.

This special function bearing is placed at the central of the wheel & connected to the shaft which provide rotational energy.

Construction of copper winding:-

For the production of the electricity we need a conductor for this we used copper as a conductor. A copper winding is placed on the outer side of the 2nd disc. This disc is placed near the strong magnet. As shown in fig.

Construction of Magnets:-

Magnet is placed on the inner side of the ring of the wheel. It is placed in the circular way as like wheel. The gap between the winding and the magnet is very less. Magnets are placed in such a way that as wheel is rotates the magnet also rotates in same direction of the wheel.

Diagrams:-

1. Wheel
2. Ring of wheel
3. Bearing
4. Copper winding
5. Principle of generator
6. Type cylindrical small length Magnet(which fitted on the ring of wheel).
7. Battery

Fig.1- Wheel

Fig.2- Ring of wheel

Fig.3- Bearing

Fig.4- copper winding

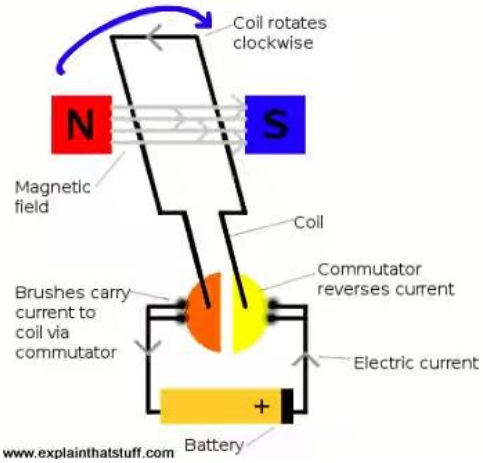

Fig.5- Principle of generator

Fig.6- cylindrical magnet

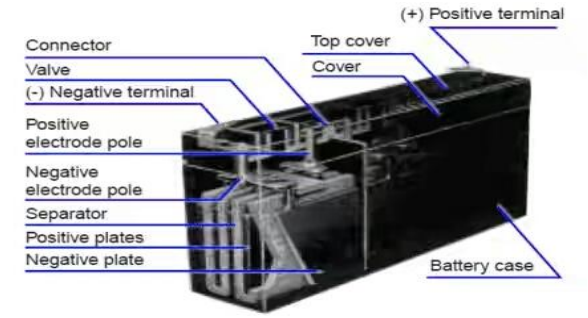

Fig.7- Battery

Working:-

The power wheel is act as a generator. The dc generator operates on the principle of dynamic induction. The part of generator is like follow.

1. Magnets or field winding which act as the electromagnets, they produce magnetic field.
2. Copper winding which act as the conductor. Which may be movable or stationary.
3. A mechanism to rotates the conductor. Which also called as prime mover. Prime mover can be water turbine steam engine or diesel engine.

In the power wheel magnets which placed on ring of wheel, they produce magnetic flux. The copper winding is act as conductor & EMF is induced on the surface of the copper winding. From this it clear that power wheel is act as generator.

The actual working of wheel is as, The shaft which give rotational motion to the wheel is connected to the bearing. The shaft is poured into the hollow pipe of the bearing means bearing is fitted on the shaft of the wheel. The outer side of bearing the copper winding is fitted on outer side of the bearing. And the magnets are fitted on inner side of the wheel rings. The air gap between copper winding and magnets is very small. The ring of the wheel is connected to the bearings hollow pipe with their help of spokes and arrivals. As the shaft rotates by the engine the inner part means hollow pipe is also rotates and due it's rotation the ring of the wheel is rotates and also the magnets which are assemble on the ring is also rotates. The outer side of the beating copper winding is fitted. The copper winding is stationary. As wheel rotates the rotating magnetic flux is produced which cuts the stationary copper winding. Due to the mutual induction the EMF is induced in the copper conductor. In this way power wheel works. The EMF is induced on the surface of the copper winding, EMF is stored in the batteries. The direction of induced EMF is given by Fleming's Right Hand rule.

Statement:- Let the first finger in the direction of the line of force (N to S pole) and this cuts stretched thumb point into the direction of conductor motion. Then second finger indicates the direction of the induced EMF (or current).

Advantages:-

1. We can generate electricity from the wheel at its working period.

2. Simple in construction .

3. Chief in construction

4. Do not effect the main work of wheel.

5. The reduction in the speed of the wheel is negligible. Because if you have a strong enough magnetic field all matter is magnetic. But copper is so weakly magnetic that we can't observe it without very, very large magnetic fields. So the short answer is "No, copper isn't magnetic." This can quickly be tested by trying to pick up a penny with a magnet.

Disadvantages:-

1. Do not produce electricity at the time when wheel is in not work.

Applications:-

1. This wheel is used in cars and buses.
2. Use in robotics.
3. Use in industrial machinery.
4. Used in electrical wheel chair
5. Used in trolley to produce electricity.

Conclusion:-

From this invention we can generates electricity with cheaper and simple manner. This invention is useful in automobile, robotics sector also had many application in industrial area.

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