

Electricity Generative Fan

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Abstract –This technique is based on the principle of mutual induction. We used power generative assembly which is fitted on the rod of fan for the production of electricity. The electricity generative fan works on the faraday's law of electromagnetic induction. When fan is in working period, by using fan rotation energy rotates the magnets which placed around the copper winding in the power generative assembly. With the help of power generative assembly we produced electricity from the fan in it's working period. By using this assembly we produce electricity more effectively and efficiently.

Key Words: principle generator, principle of assembly, construction, working, generation of power, storage.

Introduction

In our daily life we used many electrical appliances like light, mixture, computer, lift, fan and many more. This all electrical machines make our life stress free & comfortable. All the electrical appliances use electricity as a input. Electrical energy is necessary for the all appliances for doing work eg. fan needs electrical energy or power for the rotation motion. Motor in the fan use electrical power and produce rotational motion, due to this we get air for cooling purpose. After the invention of the fan inventors make many changes in the structure, efficiency of the fan. Some inventor made such fan which consumed minimum electrical power for there working. But there is no way to produced power from fan very effectively and efficiently. Some generate electrical power from fan by using alternator but due to this speed of the fan is reduced. The main aim of this paper is give a new technique to generate electrical power from fan very effectively & efficiently.

Object

Fan is used for cooling purpose. Fan is make need of humans, in every house of India we see the fan. In all season of year we need fan. We know the function of fan which used electricity and give air for the cooling purpose. For this fan used electrical power. But at the time of electricity cut off we are not able to use fan and in Indian percentage of load

shedding is high. So there is no solution to use fan in load shedding period without buying the generator or inverter.

The main object of the Power Fan is to give a way to use fan at the time of load shedding. For that I transform the fan into the generator. The main aim of this fan is produced electricity at the time of it's working period and stored into battery. This stored power is used in the load shedding period.

Principle

The Power Fan works on the principle of generator. It works on the faraday's law of electromagnetic induction. The law is state that, When a electrical conductor placed in the strong magnetic field and when the magnetic lines of force cuts the conductor then EMF is induced on the surface of the conductor.

I assemble the copper winding on the shaft of the fan which is connected to the ceiling. This copper winding is act as a conductor. The copper winding is place in the circular way and around which strong magnets are place in circular way as like winding. This strong magnets are connected to the rotating disc of the fan (the disc to which blades of the fan are connected). As this disc is rotates magnets also rotates and rotating magnetic field (RMF) is produce. This RMF cuts the copper winding and EMF is induced on the surface of conductor by the principle of induction.

Construction:-

Construction is divided into 2 parts:-

- A) Mechanical construction:- which is related to the mechanical structure of the fan.
- B) Electrical connection:- which is related to the wiring of the fan.

A) Mechanical construction:-

1. We used the assembly as a generator which is mounted on the rod of the fan. We used

copper because copper is weakly magnetic. Copper is not affected by magnetic field.

2. Placed or assemble this copper winding on rod of the fan (the rod or shaft which connect the fan to the ceiling). This rod is made from the non magnetic & non conducting material.
3. Around this copper winding strong magnets are place in circular way. They assemble in such a way that all magnets surround the copper winding. The air gap between the set of magnet and winding is very small in few mm.
4. This set of strong magnets are fitted to the rotating disc with the help of thin rods and nuts & bold.
5. This rotating disc is connected to the shaft of motor of the fan to which blades of fan also connected.

- 2 The copper winding is stationary which is connected to the battery with the help of wires.

Diagrams:-

1. Ceiling fan with his parts.
2. Principle of assembly.
3. Copper winding.
4. Set of round magnets.
5. Working of battery.

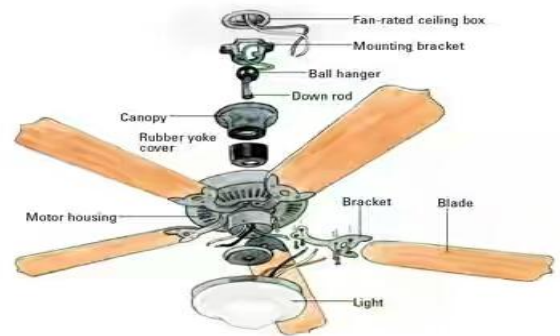


Fig.1- Ceiling fan with his parts.

B)Electrical connections:-

CONNECTION OF FAN:-

- 1 Give live supply to regulator through switch.
- 2 With the help of switch we on/off the fan.
- 3 With the help of regulator we control the speed of fan.
- 4 The regulator is connected between the motor winding of fan and switch from which supply is given.

CONNECTION OF ASSEMBLY MOUNTED ON THE ROD OF FAN:-

- 1 The function of this assembly is to generate electricity.
- 2 The EMF generated on the conductor is carried out by wires to the storage space.
- 3 This connection is exactly reverse as fan connection.
- 4 Only difference that at the place of voltage there is battery to store charge.
- 5 Direction of current is reverse. which flow form assembly to battery.

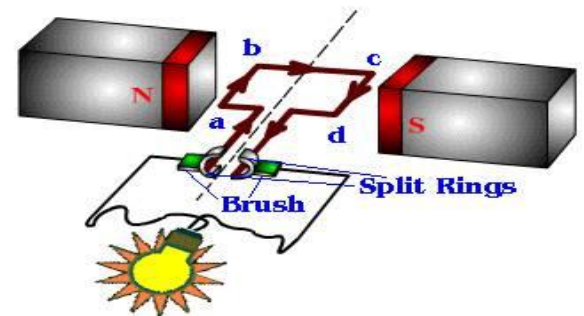


Fig.2- Principle of assembly.

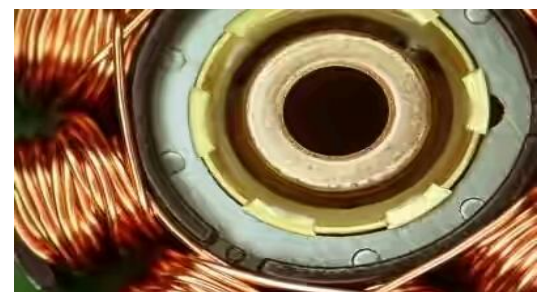


Fig.3- Copper winding.

CONNECTION OF BATTERY:-

- 1 The power is generated by the assembly mounted on the fan rod which is stored in battery.



Fig.4- Set of round magnets.

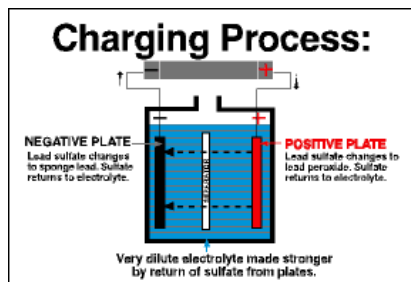


Fig. 5- Working of battery.

Working:-

There are main 2 units of this system:-

- A) Power generating unit
- B) Power storage and transmission unit

A) Power generating unit:-

As per the construction copper winding is placed on the fan rod which tie fan to the ceiling. Around the copper winding strong magnets are place and this set of magnet fitted to the rotating disc.

As electrical supply given to the fan motor the shaft of motor is rotating and this shaft is connected to the rotating disc along with fan blades and small, thin rods which are fitted to the disc by nut and bolts. This rods connect the circular magnet set and disc (the disc connected to the shaft). When disc is rotates the set of magnets is also rotates around the copper winding. Due to the rotation of magnets the rotating magnetic field is produced. This RMF cuts the stationary copper winding. There is interaction between the copper winding and RMF take place and due the mutual induction EMF is generated on the copper winding. In this way we can generate electrical power by fan. The generated EMF is carry by wires and stored into the battery.

B) Power storage and transmission unit:-

- 1 The EMF generated by the assembly fitted on the rod of fan is necessary to stored.
- 2 For this we used any type of rechargeable battery (we used lead -acid battery because of it's long life period).
- 3 The current generated by motor is alternating current.
- 4 We only store the dc current. For the conversion of ac to dc we used rectifier.
- 5 Rectifier convert alternating current (A.C.) into the direct current (D.C.).
- 6 Also need an inverter to convert store dc into ac.
- 7 Because all home appliances are works only on ac.

Advantages:-

- 1 We produced electricity from fan.
- 2 Simple in construction.
- 3 The cost of manufacturing is cheap.
- 4 Not much affect the speed of fan, because copper winding is less magnetized.
- 5 Do not affect the main work of fan, means give air for cooling.

Disadvantaged:-

1. Unable to produce electricity when fan is in stationary condition means not in working condition.

Applications:-

- It's used in ceiling fan, table fan, coolers.
- Motors, blower, exhaust.
- In robotics & industrial area.

Conclusion:-

By constructing a simple assembly we can able to produce electricity from fan at it's working period. We can produce electricity more effectively and efficiently.

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