Semi-Automatic Glass Tumbler Cleaning Machine

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***Abstract*- This project work titled "SEMI AUTOMATIC GLASS TUMBLER CLEANING MACHINE" has been conceived having studied the difficulty in washing the any type of Glass Tumblers.**
Our survey in the regard in several bakeries and bottle companies, revealed the facts that mostly some difficulty occurs in cleaning the glass tumbler in Hand.
Now the project has mainly concentrated on this difficulty and hence a suitable device has been designed. Such that the Tumbler washing can be done without application of any impact force.

I.INTRODUCTION

Glass tumbler washing is an need that's to be performed every day, repeatedly.
Automation available in those machines is so complicated and strength consuming and also available one in market also big in size & power consuming.
So to store the electricity, it is crucial to apply Semi-Automated one.
From many years of research and automation is done in this machine, but still it is hard to invent such machine that will be used in day-today life.
The DC motor is coupled with the rotating plate by spur gear mechanism. The shaft rotates depends upon the rotation of D.C motor by spur gear mechanism. The high forced water is sprayed to the rotating plate by water pump. This is a simple type of semi-automation project.

II. COMPONENTS AND DESCRIPTION

The major components involved in the fabrication of the Semi-automatic dish washing machine are as follows.

1. Battery
2. D.C Motor
3. Spur Gear Mechanism
4. Bearing with Bearing Cap
5. Rotating Plate
6. Water Pump

1. BATTERY:-

In isolated systems far away from the grid, batteries are used for storage of excess solar power converted into electricity. The sole exceptions are isolated sunshine load like irrigation pumps or beverage supplies for storage.
In fact for little units with output but one kilowatt. Batteries seem to be the sole technically and economically available storage means. Since both the photo-voltaic system and batteries are high in capital costs. it's necessary that the general system be optimized with reference to available energy and native demand pattern. To be economically attractive the storage of solar electricity requires a battery with a particular combination of properties:

1. Low cost
2. Long life
3. High reliability
4. High overall efficiency
5. Low discharge
6. Minimum maintenance

a. Ampere hour efficiency
b. Watt hour efficiency

2. D.C MOTOR:-

An electric motor may be a machine which converts electricity to energy. Its action is predicated on the principle that when a current-carrying conductor is placed during a magnetic flux, it experiences a magnetism whose direction is given by Fleming's left rule.
When a motor is operational, it develops torque. This torque can produce mechanical rotation. DC motors also are like generators classified into shunt wound or series wound or compound wound motors.

3. SPUR GEAR MECHANISM:-

In engineering and technology the term "gear" is defined as machine equipment used to transmit motion and power between rotating shafts by means of progressive engagement of projections called "the teeth".

Spur gears are cylindrical in form and operate parallel axis. The teeth are straight and parallel to the axis. they're mounted on shafts parallel to every other. Spur gears are wont to transmit power between parallel shafts. They impose only radial loads on their bearings. In our project the spur wheel is employed to transmit the facility from the motor to the rolling shaft. The spur gears, which are designed to transmit motion and power between parallel shafts, are the foremost economical gears within the power transmission industry.

4. BEARING WITH BEARING CAP:-

The bearings are pressed smoothly to suit into the shafts because if hammered the bearing may develop cracks. In our project, the 6202 bearing with bearing cap is employed. The bearings are pressed smoothly to suit into the shafts because if hammered the bearing may develop cracks. Bearing is formed from steel material and bearing cap is low-carbon steel.

5. ROTATING PLATE:-

This is made from low-carbon steel. it's the rotating plate of the whole dish above placed. This plate is rotated with the assistance of d.c motor.

6. WATER PUMP:-

The pump is employed in our system to pump the water. The pump that raises water from lower level to higher level by the utilization of force is understood because the pump. These pumps convert the mechanical energy's of a shaft in to kinetic and pressure energy of water.

III.WORKING

It consist of a 12 voltage battery, D.C motor, Spur gear Mechanism and water pump. D.C motor is drawn supplies from the battery. The spur gear mechanism is used to transmit the power from the motor shaft to the dish washing main shaft. The rotating plate is jointed in the end of the main shaft.

The water pump is used to supply the pressurized water in to the dish washing plate continuously with the help of multi-hole nozzle. The outlet water is collected to the inlet tank once again with proper arrangement.

IV. 2D DRAWING

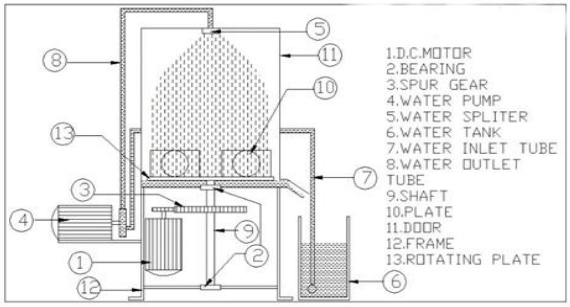

Fig. Front View of the machine Assemby

V. CONCLUSION

This cleaning machine can be used to clean glass tumbler of any size which primarily used in bakeries etc. This cleaning machine is easy to manufacture as well as easy to use.

VI. FUTURE SCOPE

This project is extremely useful within the smart city project. This project are often further also modified as a mechatronics machine (this will make this machine fully automatic and more user friendly)

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