

Manually Operated Washing Machine

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Abstract- Manual Operated Washing Machine is a low cost washing machine. It made up of easily and readily available scrap parts in daily life. Peddling washing machine is a very great innovation in its own. Peddling washing machine is specially made for the purpose of its utilization to wash the cloth by means of applying pedal. Today due to non-renewable energy cries its basic need to utilize the energy from other way or save the energy. It includes the constructions of peddling washing machine, its raw material, it's working, benefits of the peddling washing machine with respect to actual electronics washing machine, also save the time, water, electricity and not very expensive. Its main expect is exercises with applying the pedal to wash the cloth.

Keywords- Shafting, Gearing, Bearings, Flywheel, Drums etc.

I. INTRODUCTION

This Design is very useful in daily life of household's activities (Washing clothes) and also very useful for body fitness. We all wash cloths by hand or by automatic electric powered washing machines. Hand washing is very time taking and laborious work, this model intends to solve the problem faced by so many persons in their day-to-day life. Women in India wash clothes manually, but the detergents are chemically harmful to their hands, and the motion of scrubbing is straining to the muscles. Our goal is to design an inexpensive and durable pedal-powered washing machine for use in rural areas to gently wash clothes. Due to cost constraints, the washing machine is to be shared among several families or can be used by a local entrepreneur to run a laundering service. The washing machine must be easy to build and maintain locally with local materials, easy to operate and easy to power by women or children. It must also be more comfortable to use than manual methods and culturally acceptable in India. Villagers could turn a day-long chore into a thirty minute event which would considerably alter their work/time ratio and begin to help channel energy and time into more important events such as securing a higher income. Not only would a clothes washer be more time effective, this may help educate on the importance for exercise in a community especially for females. Help improve environmental awareness when it comes to the safe disposable of chemical products like the laundry powder water mixture.

Counter stereotypical roles of certain groups in the community etc.

II. MAIN PARTS OF WASHING MACHINE

1) Shaft

We are using a iron-hollow shafting. It is a main base for the mounting the flywheel, fins and both the drums.

2) Gear

The machine uses a regular mountain bicycle transmission which can provide gear ratios between 1:1 and 3.5:1. It turn the pedals of the machine at about 60 rpm for the wash Cycle and a higher 80 rpm during the dry cycle, where the lack of resistance from water makes Pedaling easier.



Fig. Manual operated washing machine

3) Bearing

Bearing are used as a mechanical component to transfer the power and to move a certain part and is done by utilizing the small frictional forces of the bearing, which makes rotates easily withstanding the force and weight load acting against them.

4) Flywheel

We are using a 20 teeth flywheel for back wheel of the cycle. It is attached with the shafting and another end with the cycle big flywheel by means of chain drive.

5) Fins

We are using an opposite shaped fins to creates the turbulence inside the drum water and cloth. We are using second hand fins of the A.C. It is attached with the shafting by means of gas welding. When we applying the pedal shafting are attached by means of flywheel there for fins also rotated with the shaft in the drums.

6) Drum

Here we are using a galvanized drum. It has heavy structure drum of the galvanized drum both inner and outer. It is a main important part of the peddling washing machine because of all load of water; cloth is rotated by with drums. So it required heavy structure

III. WORKING

First of all open the both the door of the inside and outside drums, then put up the cloth in the drum. After that add the 5 to 10 liters water and the washing powder as per requirement. Now close the both the door. Then seat on the bicycle and start up the peddling slowly. After 15 to 20 minutes stop the peddling. Then removes the inside water with the help of below pipe. After removing the water, apply the some pedal. It gain the heat inside the drum and it helps to drying the cloths.

IV. ENVIRONMENTAL CONCERNS

The way in which a new design implementation behaves with its new surroundings in which it is placed; social, environmental and economically will largely determine whether the design is deemed successful, and continue throughout its product lifecycle. The main burden on the environment which exists with the current method of washing by hand in the river is the poor disposal of the detergents used, which are eventually washed away into the river flow. Detergents are chemically much different to that of soap; as they do not form hard-water, a scum which forms from calcium and magnesium ions found in the water, this forms a chemical reaction with the soap and greatly affects its cleaning abilities. Aside from this, detergents also contain phosphates, which when led into streams and rivers will cause frothing and aid in the breeding of algae, which will use up the oxygen supply in the water, meaning that all marine and plant life will die. With the new system implementation, the introduction of

the clothes washer is only the start, there must be knowledge taught of not only how to use the machine, but also the effects of not using it, how to provide maintenance and controlling spillover effects. When used, the clothes washer can overcome this unwanted environmental affect, detergents are still used, but are fed into the machine rather than the river, and by collecting this water after washing and safely disposing of it, its affects can be eliminated. When the new machine is in place, it proves to be environmentally friendly throughout all phases of its life cycle. The build and installing of the pedal powered washing machine is environmentally focused, as the body of the washer is built from pre-used washing machines, which is actually recycling, so the building of the machine is not only not hurting the environment, it is actually helping it. The rest of the machine can also be built from recycled materials, and there is no need for the use of nonrenewable resources, or even major resources such as wood. The fact that the clothes washers design allows one machine can be shared among a group of families means that there is not a demand for one per person, and hence this building process does not need to be carried out extensively. The running of the clothes washer also has aspects of environmental control; as it is powered by bicycle it does not require fuels, and does not release harmful toxins during its use. There are associated negatives however, as the clothes need to be cleaned using detergents, these will be lefts waste products afterwards and probably discarded with the dirty water. By not disposing of detergents into the countries water supply, this problem can be maintained proper knowledge on how to do this must be taught to locals.

V. CONCLUSION

A pedal-powered washing machine would allow women to wash clothes faster and with less strain. When asked what they would do with their free time, women said that they would try to generate income by making crafts or food to sell. Young daughters who help their mothers with domestic chores may also have the opportunity to concentrate more on their studies. Conditions vary in developing countries, but women in many regions are washing clothes manually while they could be doing more profitable or rewarding work elsewhere. We hope through our research and analysis we have designed or at least help clarify the design -concept of a pedal-powered washing machine.

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