

Development and Fabrication of Waste Paper Recycling Machine

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Abstract – This paper deals with the development of waste paper recycling machine. It encompasses the recycle and reuse of large amount of waste papers generated in institutes. The amount of waste paper is greater than indigenously collected paper. So instead of throwing away the waste papers in trash, recycling can be adopted. The process took several modifications and lots of efforts to finally end into a compact design of waste paper recycling machine. In institutes the paper recycling machine can be used to reduce paper waste and cost saving. The benefit of recycling is that it decreases the environmental destruction load. The modification is done as per experimentation data. Though some changes will come with time into the final product but the ultimate aim of development of waste paper recycling is achieved.

.Keywords- waste papers, recycling, compact design

INTRODUCTION

Paper in today's world is used in everyday life for countless purposes so its consumption has been increasing. According to recent reports almost one-fifth of the contents of institutional dustbins consist of paper, most of which are exam written papers. This is equivalent to almost 5-8kg each week. With the current scenario most of this paper is either go to landfills or other dumping yards, only limited amount is recycled. In order to solve the problem of sourcing raw material for paper production, it is better to develop technologies for sustainable recycling rather than sustainable forestry. Thus the main emphasis is to increase its recycling. Recycling and reuse is best situation to reduce disposal problem. Paper has an indisputable place in establishment of civilizations, saving information and passing it to next generations. It is previously thought that consumption of paper would decrease as a result of

developing technology but in contrast developed technology has caused an increase in paper consumption. It is well known the paper production (likewise the other brands of industry) has enormous effects on the environment. The using and processing of raw materials has a variety of negative effects on the environment. As the demand for paper has increased, paper producers are now forced to use waste paper as the raw material. Because there is a decrease in the quantity of natural resources such as wood, hay and cotton (which are used as raw material for production of cellulose, and cellulose is the raw material of paper), reforestation takes a long time and environmental pollution and cost of energy has increased. Waste management strategies are used to prevent fast depletion of natural resources, to avoid wastes being a threat to environment and human health and to transform wastes into an economic input and value. When it is taken into consideration that natural resources and their capacity to renew themselves are limited, in the frame of sustainable development approach, social, environmental and economic effects of recycling under waste management come into prominence.

METHODOLOGY

The waste paper recycling machine broadly consists of the following three units-

Pulper: This is an open cylindrical vessel consist of electric motor with one rotating element called as stirrer having 6 blades that serves both operations to circulate the slurry and to separate the fiber from each other. It makes the paper source become disintegrated, transformed and well blended into fiber slurry.

Strainer: It consists of a meshing system. Its main function is to remove excess of water from the pulp. Meshing system allows the water to percolate through the small holes and thus makes it to get rid of water.

Thus this implicates the first step towards removal of water from the pulp.

Pressing unit: It is the further process of water removal. This is a rectangular manually operated small pressing unit used to give the desired thickness to the paper and remove the excess water from the pulp. In order to remove it pressing plate is applied.

Table 1- Design specifications

Sr.No	Element	Height	Diameter	Length
1	Pulper	335mm	225mm	-
2	Stirrer	355mm	45mm	28mm
3	Strainer	415mm	-	335mm
4	Press	345mm	-	280mm

The capacity of pulper is 3.5litres.

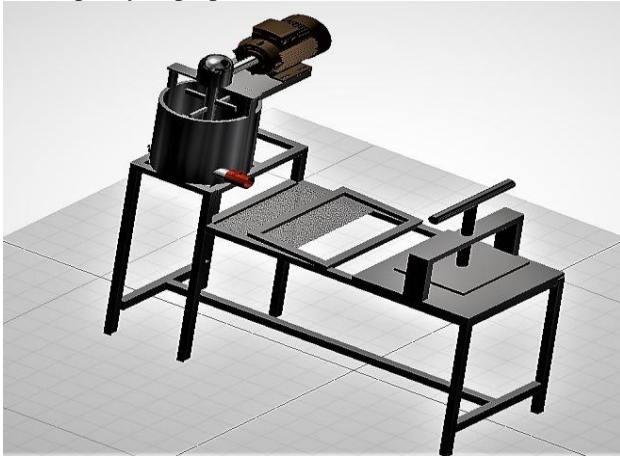


Fig. 1- Waste paper recycling machine model

DESIGN



CONCLUSION

The simplicity of operation of this machine ensures that no too much technical skills are needed to operate it. The development of a semi-automatic paper recycling machine is much cheaper as compared to machines in recycling industries. Larger institutions, generating hundreds, if not thousands of tons of paper waste every year, should be aware that paper recycling on their part can have a great environmental impact. This machine can be used in schools, colleges or small institutes.

FUTURE SCOPE

This machine can be used further for large scale recycling of wastage paper by using advance technology of automated system.

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