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Abstract— it is literature review paper on Design & Fabrication of manual operated paper recycling machine. In any big institution, especially educational institutions like schools or colleges, generation of large quantity of waste papers is quite apparent. And effective use of recycled paper is also possible (craft papers, registers etc.). So, instead of disposing off the waste papers into trash, recycling them makes sense. This not only helps the institute in cost saving but will also ensure its contribution towards the protection of the environment. Designing manually operated small-scaled paper recycling plant, which can be used in schools and colleges, ensures that a cheap and non-complex method of production of paper product is guaranteed. Accordingly design of the machine unit has been prepared with all necessary component specifications. Also 3D modelling and drafting has been done.

Key words: Paper Recycling, Design, Modelling, Waste, Conversion, Defibre

I. INTRODUCTION

Paper is one of the most important products ever invented by man. Widespread use of a written language would not have been possible without some cheap and practical material to write on. The invention of paper means that more people would be educated because more books would be printed and distributed. Industry would grow because all the plans, blueprints, records and formulae it uses would be written down and saved, together with the printing press, paper provided an extremely important way to communicate knowledge.

The primary source of raw material for production of paper is vegetable fibers, obtained mainly from plants. To ensure that the forest is not depleted of these woods, there is need to provide alternative source of raw materials, this therefore leads to the invention of the process of recycling.

Recycling, which is the extraction and recovery of valuable materials from scrap or other discarded materials, is employed to supplement the production of paper. The designing and fabricating of a used paper recycling plant is therefore a welcome development as it will ensure that the source of raw material for paper production is multiplied and also waste paper that could have constituted into wastes are recycled for various productive purposes.

Designing a manually operated paper recycling plant ensures that a cheap and non-complex method of production of paper product is guaranteed. This is the objective of this project.


Published on July 2005.methodology and designing units are as follows:

The designer of a waste paper recycling plant included the determination of the volume of the refiner, hydro pulper and head box and also the selection of a convenient material for the construction of the individual units. The bulk of the parts of the plant were fabricated using mild steel, this is because it is the easiest to be joined among all other metals. It is a very versatile metal, necessitating its use by many industries for fabrication of process unit equipment. Apart from its versatility, it is also very cheap and readily available compared to other metals.

And the design units are disc refiner, hydro pulper, blade design, head box, felt blanket conveyor, dryers etc.

A. According to Journal of Emerging Trends in Engineering and Applied Sciences (JETEAS) (ISSN: 2141-7016)

The hydro pulper was operated after loading with waste paper and water to produce slurry. The agitator was operated after slurry was produced. The performance of the machines was satisfactory. A maximum load of 20kg of waste paper was converted to slurry in one batch process. It required about 16litres of water to disintegrate 1kg of wastepaper. The slurry produced was similar in properties to those from a hydro pulper operated industrially. It is hereby concluded that paper recycling machines can be fabricated locally and operated for production without compromising efficiency.

It is recommended that the slurry should be effectively flushed out during discharge to avoid blockage of the funnel and truncating of the entire system.

Fig. 1: Design Units

Fig. 2: Paper Recycling Machines
B. According to the International Journal on Recent and Innovation Trends in Computing and Communication ISSN: 2321-8169 Volume: 3 Issue: 2

Recycling of waste paper is beneficial not only from economic point of view but also for the protection of environment. It promotes conservation of one of our very important natural resource - trees. Considering this, a small-scale manually-operated paper recycling machine has been designed which can recycle waste paper for various productive purposes. The fabricated machine can serve dual purposes, it can be manned permanently at a stationary position or it could be shifted from one place to another as the case may be. The very low cost of running the machine, make it quite economically viable. The simplicity of operation of this machine ensures that no too much technical skill is needed to operate it.

C. According to the Fabrication of Paper Recycling Machine (IJSRD/Vol. 4/Issue 02/2016/199)

It has been conclude that paper recycling machine consume less time to produce paper as compared with manually operated machine.

This machine can be used in Gramudyog, home and colleges for the production of paper from waste paper which generated in that region.

There is only one operator is required to operate the machine.

With the use of some easily available chemicals and water, machine produces the printable paper sheets. (Caustic soda, bleaching powder and starch)

The use of this project work is the small scale producers of waste papers can contribute more than the large scale producers so that they will be able to make the nature go green and lessen the deforestation done for the production of the paper.

The development of an automatic paper-recycling machine is much cheaper as compared to machines in recycling industries.

The fabricated machine can serve dual purposes, it can be manned permanently at a stationary position or it could be shifted from one place to another as the case may be.

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Fig. 3: Paper Recycling Machine
Along with this technology in various equipment’s used in paper recycling we are going to done this pulp making in simple way in 3 steps.

In 1st step the defibration of paper is take place with the help of paper grander.

In 2nd step the layer formation of pulp in A4 size sheet is takes place in water tank. containing chemicals viz. starch, alum, caustic soda, silicate, acid orange, methyl violet etc.to obtain various grades of paper.

Fig. 4: Pressure punch remove the water contain
In 3rd step with the help of pressure punch remove the water contain in paper layer and hang it for drying in natural air or hot air.

REFERENCES