



Design, Development of Cotton Seed Separation Machine

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ABSTRACT

We know our nation economy is depending on agriculture. Partially in india issued like how to increase productivity and profit, how to cut cost. Cotton ginning is play vital role in separation of fiber from cotton seed and convert field crop into a sealable commodity. Cotton ginning gives us output one is fiber second is seed and third is stalk. The fiber is used for further operation i.e carding and seed recycled and used to grow more cotton and if it is badly damaged used for making mustered oil, cattle feed production and stalk is used for to make various item such as wood pallets, particle board, biogas , energy generation and compost making.

The cotton ginning section developed during 1980s and its onc of the most important sectors of economy. Carding is define that a machine for combing and paralleling fibers of cotton , flax etc prior to remove short undesirable fibres and produce untwisted fiber. Also carding process is used for making fiber silky remove impurities like dust and produce continuous web and fragment

Keywords: cotton and seed separation

1. Introduction

The aim of the project is to design, development of cotton seed separation machine in which we combined cotton ginning and carding process in one machine. Previously there are two separate machine is used for cotton ginning and carding. These types of machine are very high cost ine and required more man power and more power consumption. By combining these two machine ginning and carding we reduce operational and labour cost and rate of power consumption.

The four ginning technologies i.e saw ginning, double roller ginning , rotobar or rotary knife roller gin and single roller being used in the world . These technologies are having their own considerations and the competitiveness of the cotton processing which in turn affects their adaptations. In the carding process the fibers are separated and then brought together into a loose. The process involves use of machine that splits up the locks and tangled clumps of fibre and then lines up each fibre so that all the fibres are almost parallel with each.

1.1 Need of project

Nowdays most of farmer sell there cotton to large ginning machine. And when they sell cotton they didn't get a profit as they required. So we developed machine which can ginning and carding cotton both operation in one machine. Small scale farmer can ginn there cotton in home and separate cotton and seed. And sell them in different price and achived more profit. The new farmer or small scale farmer start there own business by investing capital to achived seed without breakage and maximum length of fibre

2. Objectives

Indian small farmers can profit from the introduction of cotton ginning and carding machine. It would raise the level of life for Indian farmers by lowering the cost ginning and carding.

- Creation of a machine that combines cotton ginning and carding
- Reduce manpower costs and cotton processing costs by creating new machinery.
- It is possible to effectively boost productivity.
- Correct seed cotton lint humidification, improved lint quality, current research being done in universities in conjunction with the ginning business, and minimal cotton handling practises all contribute to reduced wastage.

3. Construction

It consist of following main component which is given below:

1. Main frame
2. Teeth roller blade
3. Ginning roller
4. Bearings
5. Shaft
6. Motor
7. Pulley
8. Belt
9. Circular wire brush

These are main component of combine ginning and carding machine .first is main frame which consist of iron material having good strengthen and harden quality. The main function of the frame is to hold the all accessories which is mounted on it. Bearing is used to hold the shaft and for smooth rotation. Motor is used to transmit the power to shaft. Belt is used to connect one shaft with another shaft and rotate it. Circular wire brush is also used.

4. Working

We used cotton as a primary component of these. The separation of cotton's seed and fibre used to be quite difficult, but now it is simple thanks to ginning machines. The goal of our project is to extract cotton seeds for usage as cotton seed oil and other products. Cotton will be fed into a hopper that separates it into the cotton and seed sections, which will then be separated in the ginning section. The raw cotton is gathered in one area. We generated power for the shaft that houses the teeth roller with the aid of the motor. Between the cotton collector and the shaft is an iron plate with slots that allows the blade to revolve while sucking cotton fibre and separating the seed. These were powered by a motor with a horsepower of one. With the aid of a belt that transfers power to the shaft, there is a shaft that is connected to the motor.

Advantages

1. It required less power
2. Labour cost is less
3. Occupies less area

Features

1. Two operation perform on same machine which can be reduces operation cost
2. Rate of power consumption is less
3. Built for small scale farmer and businessman.

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