

# Rice Husk Remover and Crusher Machine

Mayur Baviskar<sup>1</sup>, Gaurav Sawant<sup>2</sup>, Mahesh Dhamane<sup>3</sup>, Parag Ghumare<sup>4</sup>, Amit Patil<sup>5</sup>

<sup>1234</sup>B.E Students, Department of Automobile Engineering, Saraswati College Of Engineering, Kharghar, Navi Mumbai, India

<sup>5</sup>Assistant professor, Department of Automobile Engineering, Saraswati College Of Engineering, Kharghar, Navi Mumbai, India

## ABSTRACT

In this paper an attempt has been made to review the use of Rice Husk Crusher Machine. Now- a-days removal and crushing of rice husk is done by manually. So to reduce manpower and time we design a machine which crushes the rice husk litter deposited on the floor and also it spread all the crushed rice husk on floor for further use. The innovation in this project is to increase the economy of farmer and reduce manpower as well as time.

## KEY WORDS

AC motor, AC motor speed controller, Crusher, Conveyor belt.

## INTRODUCTION

Poultry is one of the fastest growing segments of the agricultural sector in India. India is 18<sup>th</sup> largest producer of broiler. To obtain good quality and hygiene product, cleanliness perform most important role in poultry farm. The rice husk is used as a flooring in poultry farm. Rice husk gives the comfort for birds and also produce heat for better development of birds.

The birds are stay on rice husk floor therefore their litter like feather, waste etc. spread in all over poultry farm. All the wasted litter are deposited on the floor. And it increases the thickness of floor. After several time the floor get hard. So it is required crushed rice husk deposited on floor. 2000 birds can generate over 4000lbs of litter per flock. Now a days this process is done by manually.

Doing this work manually is take approximately 3-4 hrs. to complete the work. For healthy life of birds the crushing of rice husk is necessary 4 times in a week. To reduce manpower and time we will design rice husk crusher machine.

In our machine it will crushed the rice husk which get hard day by day. We provide sharp edged at front which will separate the rice husk cake from ground and send

it to crusher with help of conveyor belt drive. This crushed litter is throw out from crusher on the floor and makes proper level. The entire machine will work on HP centrifugal motor.

The main part of the rice husk crusher machine are- Power-motor, speed controller, pulley, wheels, belts, grill, crusher, blades.

The motor is used for a machine to give power to wheels, crusher and belt with the help of pulley. The conveyor belt is used to move the litter from blade to crusher. The crusher is made in such a way that it will crush all the litter in definite granules. The motor shaft is connected with two pulleys, one is bigger and another is smaller. The bigger pulley drives the shaft which is connected to a wheel. The another smaller pulley is connected to the crusher with the help of pulley. The wheel power is use for the transmitting to move the conveyor with the help of belt.

The working principal of our machine is given below-

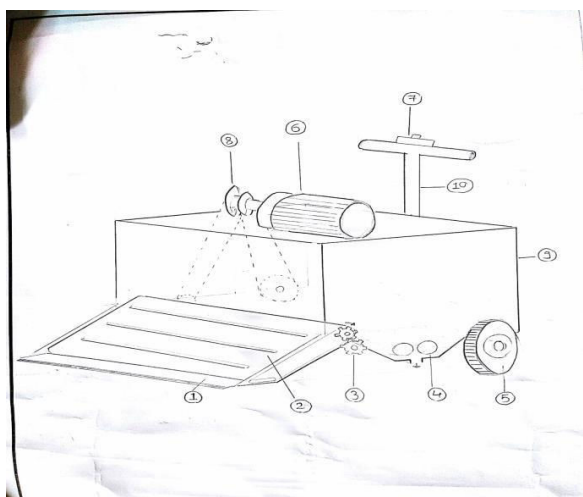
Firstly motor drives two pulley. The power or speed of the motor is controlled by the AC speed controller. The smaller pulley transmits the power to the axle with the help of belt drive and then the axle gives rotary motion to the wheel. Bigger pulley of the motor transmit power to the crusher via belt. Then crusher also starts rotating. Due to rotation of the wheels the machine started to move forward. Therefore rise husk get excavated due to blade and then this rise husk go to the crusher with the help of conveyor belt. After crushing of rise husk in crusher it is spread on the floor in equal amount.

## SUMMARY

The idea of project came from the poultry farm. When farmers are removes the rice husk manually with help of shovel. With use of shovel it requires more manpower and time, therefore after searching on internet and reference books the crusher machine idea is developed.

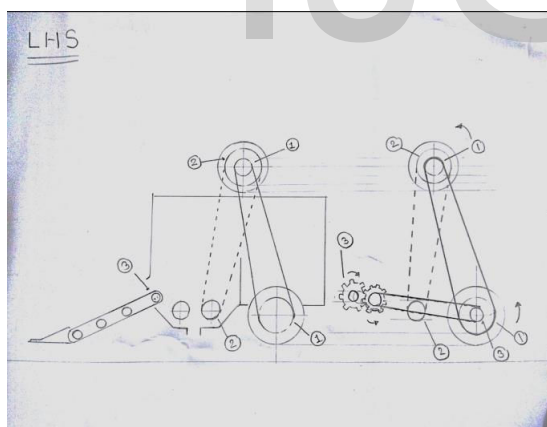
**HELPFUL HINTS**

**Figures**



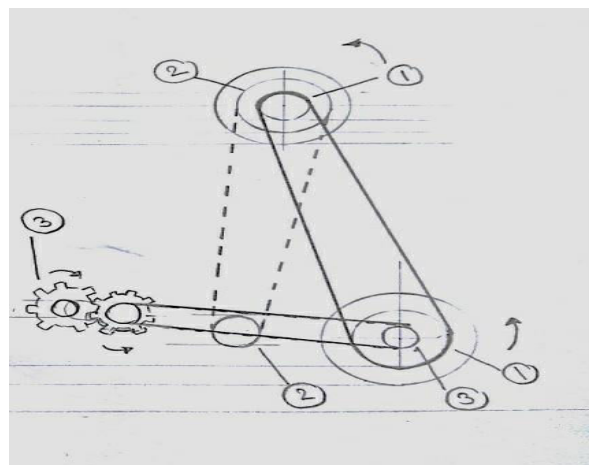
**Figure 1: Design of machine**

1. The parts of the machines are given as follows-
2. Cutting edge
3. Conveyor belt
4. Conveyor gears
5. Crusher with blades
6. Wheels
7. Single phase ac motor
8. Ac motor speed controller
9. Pulley on shaft
10. Body
11. Handle



**Figure 2: Belt Drive Arrangement**

1. Wheel pulley
2. Crusher pulley
3. Conveyor gear



**Figure 3: Power Transmission**

- 1-1 motor to wheels
- 2-2 motor to crusher
- 3-3 wheels to conveyor gears

**LITERATURE SURVEY**

In February, 1882 Nikola Tesla was credited for successfully invented the

1<sup>st</sup> electro-magnetic alternating current. In summer of 1883 while in Strassburg, France he built is 1<sup>st</sup> actual induction motor and saw it run. Tesla’s AC induction motor is widely use throughout the world in industry and household appliances.

The objectives of these were as follows:-

- The selection of motor for machine.
- Ac current is easily available.

In 1891, Thomas Robinson invented conveyor belt for carrying coal and ore. A belt conveyor system consist of two or more pulleys with and endless loop of carrying medium-conveyor belt-that rotates about them in which one of the pulley is power, moving the belt and the material on the belt forward.

Elias Badillo, Ibarra James Smith invented the controller of ac motor. The combination of universal motor and phase control is a simple and elegant means of providing control motion from ac line power.

The objectives of this are as follows:-1) To control the ac motor speed.

- 2) Selection of speed controller.

**REFERANCE**

- Poultry digest vol. 28 number 5 April-May 2013

- Litter regenerator frantumix-by CMC industry Italy
- Chicken litter regenerator Model AL 130- by tornado pumps and sprayer PVT LTD
- Poultry digest vol. 26 number 6 June 2013
- ISSN 2278-0149 vol. 4, number 2 April 2015

IJSER

IJSER