CORN SHELLER MACHINE

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Abstract: Maize, known in many English-speaking countries as corn, is a grain domesticated by indigenous people in prehistoric times. The Aztecs and Mayans cultivated it in numerous varieties throughout central and southern Mexico, to cook or grind in a process called nixtamalization. The crop spread throughout America and later around the 1250 BC it spread to all corners of the region. Any significant or dense populations in the region developed a great trade network based on surplus and varieties of maize crops. After European contact with the Americas in the late 15th and early 16th centuries, explorers and traders carried maize back to Europe and introduced it to other countries through trade. Maize spread to the rest of the world due to its popularity and ability to grow in diverse climates. The existing methods of corn de-husking in agriculture industry consist of breaking the grains by hand or by using large machinery for deseeding, both of which are not effective for a developing economy like India where farmers have little money for investment. Hence there is a need for an innovative idea or product that is feasible, safe, cost effective and productive for the Indian farmer.

1. Introduction

In today's industrial world man's innovative ideas has taken him towards all directions concerning about the production and safety in industrial establishments. Some instruments are of shear excellence where as others are the result of long research and persistent work, but it is not the amount of time and money spend in the invention of device or the sophistication of it operation is important, but its convenience, utility and operational efficiency that are important in considering the device. De-seeding of corn is the process of removal of its inner layers, leaving only the cob or seed rack of the corn. Deseeding is the process of removing the hulls (or chaff) from beans and other seeds. This is sometimes done using a machine known as a huller. To prepare the seeds to have oils extracted from them, they are cleaned to remove any foreign objects. Next, the seeds have their hulls, or outer coverings, or husk removed. There are three different types of De-seeding systems that can be used to process soybeans: Hot De-seeding, Warm De-seeding and Cold De-seeding. Hot De-seeding is the system offered in areas where beans are processed directly from the field. Warm De-seeding is often used by processors who import their soybeans. Cold De-seeding is offered to plants that have existing drying and conditioning equipment, but need to add De-seeding equipment to produce high protein meal. The different De-seeding temperature options are for different types of production, beans and preparation equipment.
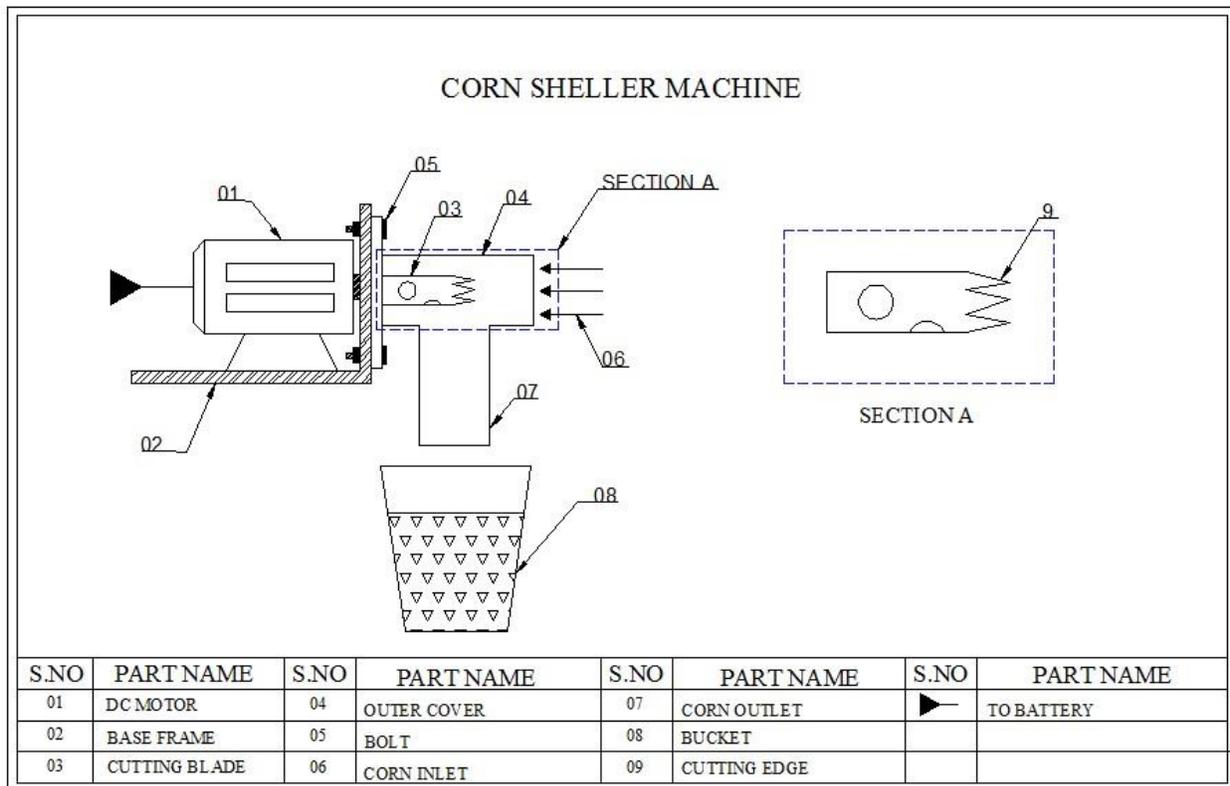
2. Literature Review

Ilori T. A., Raji A. O and O. Kilanko et al[2] In this paper the author studied about the economic situation in most developing countries have left farmers and processors operating at the small scale, hence the use of automated and electric power driven equipment is limited to the few large scale industries. The effect of the ergonomic parameters namely; weight, age, height and arm length in relation to the resulting efficiencies; shelling efficiency, cleaning efficiency, mechanical damage and percentage loss of a hand powered Corn Sheller were studied It was observed by the author that age is more correlated with weight than arm length. From the results obtained in this study, the following conclusions were drawn; the shelling efficiency increase with increases in weight of the operator and significantly with age and arm length. The weight of the operator has a great influence when driving the machine. The mechanical damage observed from the performance evaluation has very low correlation with the ergonomic parameters.

Oriaku E.C, Agulanna C.N, Nwannewuihe H.U, Onwukwe M.C and Adiele, I.D et al [5] Here the author told that, Agricultural products like maize, soya bean, millet and rice, when processed into quality forms not only prolongs the useful life of these products, but increases the net profit farmers make from mechanization technologies of such products. One of the most important processing operations done to bring out the quality of maize is de-cobbing or threshing of maize. Consequently, a de-cobbing and separation machine was designed, fabricated and its performance evaluated. Corn at moisture content of 15.14% db sourced locally was used in the experiment and the data collected were analyzed. Results showed that for a total 20kg of sample tested, the average feed and threshing time were 2.37 and 2.95 minutes respectively. The average feed and

threshing rates were 2.06 and 1.65 kg/min with an average threshing efficiency of 78.93 %. The average separation efficiency was 56.06 %. These results indicate that threshing and separation can be performed out satisfactorily with the designed machine and it can be used to process about 1 tonne of maize per nine-hour shift.

3. Methodology

The main components in this model are dc motor, cutting blade, cylinder, collecting tank and supporting frames. Cutting blade is placed in between the cylinder and DC motor. The cutting blade is rotated using DC motor. Corn has to be moved inside the cutting blade. The blade has been specially designed to remove the kernals from the corn. Thus rotating at high speed kernals are removed and are collected in the collecting tank.

CORN SHELLER MACHINE

S.NO	PART NAME	S.NO	PART NAME	S.NO	PART NAME	S.NO	PART NAME
01	DC MOTOR	04	OUTER COVER	07	CORN OUTLET	►	TO BATTERY
02	BASE FRAME	05	BOLT	08	BUCKET		
03	CUTTING BLADE	06	CORN INLET	09	CUTTING EDGE		

4. Conclusion

The project carried out by us made an impressing task in the field of agriculture. It is very usefully for the workers to carry out a number of operations in a single machine. This project has also reduced the cost involved in the concern project has been designed to perform the entire requirement task which has also been provided.

5. References

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