

Automatic Sugarcane Bud Cutting Machine

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Abstract: *Sugarcane is a widely grown crop in India. It has been a large source of income for many farmers. India is one of the largest sugarcane producers in the world, which produces around 300 million tons of sugarcane per annum. The production of sugarcane is the second largest agro-processing industry in India, after cotton and textile industries. In India there are more than 566 sugar mills. About 4 million sugarcane farmers and many agricultural laborers are involved in the sugarcane cultivation and ancillary activities, which constitutes 7.5% of the rural labour force. We are trying to provide a solution by making a cheap system which has the capability to cut the sugarcane into buds. The idea behind this project is to reduce human effort required for bud cutting. This project involves the use of Chain Drive, Crank & Lever mechanism, Motor & Blade. With this system we can cut the sugarcane into buds.*

Keywords: Sugarcane Bud Cutting, Motor, Chain Drive, Blade, Crank & Lever Mechanism, Sugarcane, Human effort

I. INTRODUCTION

In our project we have designed a sugarcane bud cutting machine. This machine will help you to cut the sugarcane into buds for planting by reducing the human effort. In this project we used component such as Motor, Bearings, Chain Drive, Blade, etc.

The operator at the mechanized sugarcane extracting machine has to detect the bud and must have concentration on cutting action in every moment. He has to position the bud in workstation at the moment of cutting stroke. It needs one operator at each machine. Hence our team make a model by which we can reduce human effort required for bud cutting. Previously there was a small-scale sugarcane cutting machine for sugarcane harvesting to reduce farmer's effort and to increase production of agricultural goods. Compared to manual harvesting this machine has the capacity to cut canes at a faster rate. In agricultural harvesting we require maximum man power, ample of money and also it is more time-consuming process. In cutting process, we face various problems and this are not easily solved. The design of this machine is very simple & also easy to implement. In this manner we are designing the Sugarcane Bud Cutting Machine to reduce human effort and time.

For this project work we used different components such as:

- Chain Drive
- Crank & Lever Mechanism
- Motor
- Blade

1.1 Chain Drive

Chain drive is used for motion & power transmission. Chain drive includes chain, sprocket wheel and sprocket pinion. Sprockets and chains are used for power transmission from one shaft to another. Chain drive is chosen as it is more economical, easily available, has no slippage, is easy to assemble, etc.

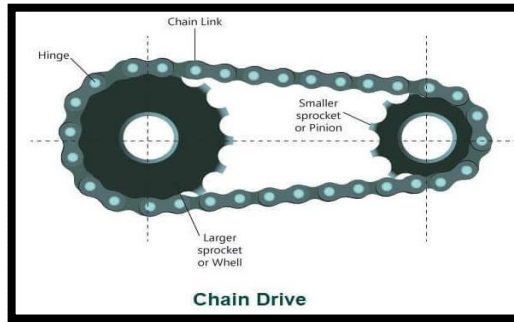


Fig-1

Crank & Lever Mechanism

It is a mechanism in which the crank is pivoted about any fixed link and is rotated about the same. This rotary motion of the crank is transmitted to the lever by means of the connecting rod. Simply this mechanism is used to convert rotary motion into an oscillatory motion.

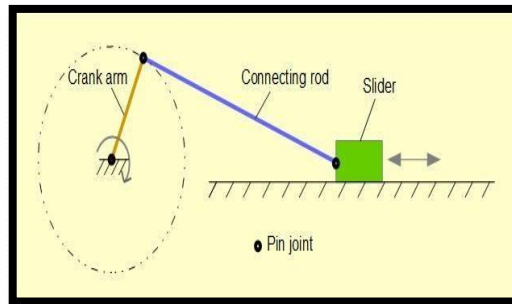


Fig-2

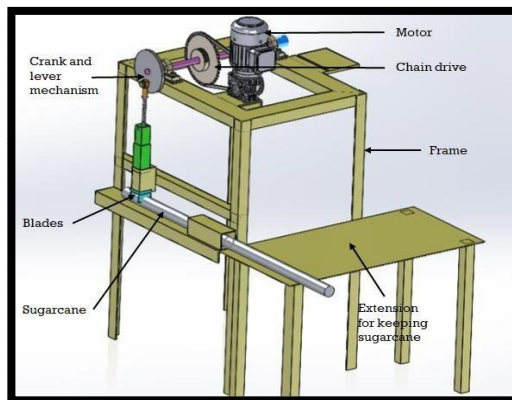
Motor

A single-phase motor is used. It is an electrically-powered motor which converts electric energy into mechanical energy. This motor works by using single-phase power supply.



Fig-3

II. FINAL RESULT



IV. CONCLUSION

Hence, we have successfully completed the project on a ‘**AUTOMATIC SUGARCANE BUD CUTTING MACHINE**’ by using components such as Motor, Chain Drive, Blade, Crank & Lever Mechanism. Hence, the sugarcane is cut into buds using the blade and reducing the human effort

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