International Journal of Advanced Technology in Engineering and Science
Vol. No. 09, Issue No. 07, July 2021
www.ijates.com
ijates
ISSN 2348 - 7550

Multi Operative Green Coconut Machine

Mudit Dubey[1] ,Avinash Thakur[2] , Kishan Vishwkarma[3] ,
Harsh Kumar Mall[4], Dhirendra Kumar[5]

[1,2,3,4]Student, Dept. of Mechanical Engg , Buddha Institute of Technology Gida, Gorakhpur,India

[5]Assistant Professor, Dept. of Mechanical Engg , Buddha Institute of Technology Gida, Gorakhpur,India

ABSTRACT

The paper explains the purpose, working principle , advantages and application of the new made machine named "Multi Operative Green Coconut Machine" The main purpose to design this machine is to ease the street vendor work. Making of this machine is operating the green coconut to order to consume water inside it and also designed considering the two main factor safety or cost.

Keywords: vendor, street, ease, operative

I. INTRODUCTION

There are huge number of coconut tree cultivation and wide range of its consumption in India. Drinking the fluid inside the coconut is one of the major consumption of green coconut. Usually a labour is trained to cut the coconut. As the labor/farmer are disappearing gradually , this machine
helps to overcome or substitute this action. In India, coconut is cultivated manly in the coastal tracts of Kerala , Tamil Nadu , Karnataka , Andra Pradesh , Orissa , West Bengal , Puducherry and Maharashtra and in the island Lakshadweep , Andaman and Nicobar. The main purpose of this machine is to make "Green Coconut" directly available for consuming with reduced intermediate a
labor. We designed a new machie which make the punching , dehusking, crushing and cutting the green coconut easier and also make it economically and flexible by all kind of man and woman.Tender coconut vending is one of the common street vending business. It is at its peak especially in summer season. Our machine help the vendor to reduce high force because high force used by the vendor affect the nerves , blood vessel or tissues inside the hand.

II. OPERATIONS AND MECHANISM

Basically there are 4 working operation which are used to operate green coconut:-

2.1 CRUSHING OPERATION:-

With the help of screw jack and blade we can crush the coconut and collect the water into small container. The manual screw jack is used which can lift upto 800 kg. The platform is made to placed the coconut at screw jack.

We made a lever which is used to lift the jack easily level work in rotating motion. The length of machete is 40-45 mm. When the screw jack lift upward the coconut comes upward and when it starting to come in contact with blade it starts crushing the coconut and the coconut water collect in a small container. In container a tap is used to transfer water into glass.

Fig.1- Crushing Operation

2.2 CUTTING OPERATION:- With the help of Machete we can cut the green coconut . Initially coconut is placed on circular box. The pressure is applied in the level and it cut the coconut tip. The spring is used to take back lever to its original position. Angle between lever where spring is connected and second side of frame where spring is connected is 30 degree. Maximum Hand Force is 45 Newton of a human. The length of Machete is 40-45 mm.

Fig.2 Project Figure

2.3 PUNCHING OPERATION:- The basic principle of this operation is to punch the hole on the coconut shell a bar rod is connected to the lever to punch the coconut shell and with the help of spring lever come back to its original position. The bar rod side which punch the coconut shell is like a machine tool which between rake face and flank angle is 45 degree. The coconut is placed in a semi circular box.

2.4 DEHUSKING OPERATION:- In this concept the cycling paddle with chain gear give to drive to small chain gear sprocket , small gear chain sprocket is attached with large wheel , and large wheel will give drive to the smaller wheel with the help of belt drive , which is connected to gears. Coconut with untapped husk is plced in between barrels. Round coconut shell is removed by hand after the operation and separated fibre material is collected in sack below.

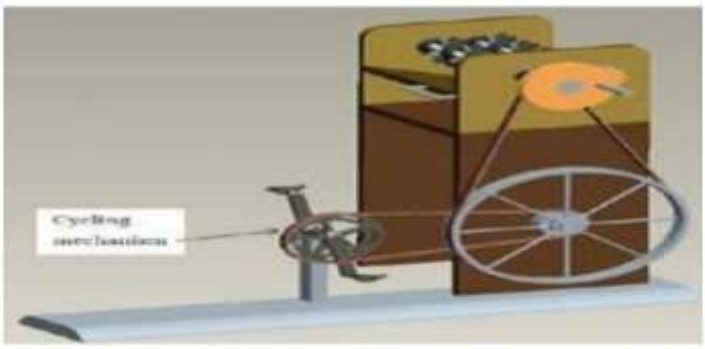

Fig. 3 Dehusking Machine

III. OBJECTIVE

The main objective of our project is to create a machine which do four operation on coconut and have space to store coconut and easily travel from one place to another.

- It is portable and movable.
- Low cost
- Men and women both can use it.
- Women Empowerment
- It is totally look like a portable ice cream parlour.

IV. MATERIAL USED

- Frame is made with low carbon steel.
- Screw Jack is made up of Stainless Steel.
- Lever is made up of low carbon steel.
- 4 wheel is used to make machine portable.
- Gear Spocket
- Pedal and chain used in dehusking
- Spring is use in mechanism of cutting and punching.
- Low carbon steel and steel sheet is used to make the storage for green coconut

- Low carbon steel is used to make the platform for coconut which operate in crushing , punching and cutting.

V. AIM OF PROJECT

With green coconut cutting machine we aim to provide:-

- Provide employment to migrants who came back during pandemic whether they are skilled or not.
- Reduction in human effort.
- Reduction of manpower requirement.
- Improvement on number of nuts processed per hour.

VI. USE OF USED SHELL

- Coconut shell powder is used extensively in the manufacturing of mosquito coils and incense sticks.
- It is also used in plywood manufacturing as a phenolic extruder and as filler in the manufacturing of resin glue.
- Green Coconut shell have potential of use in the production of gardening products , handicraft , and briquettes.

Figure.4 – Coconut Shell as a gardening product

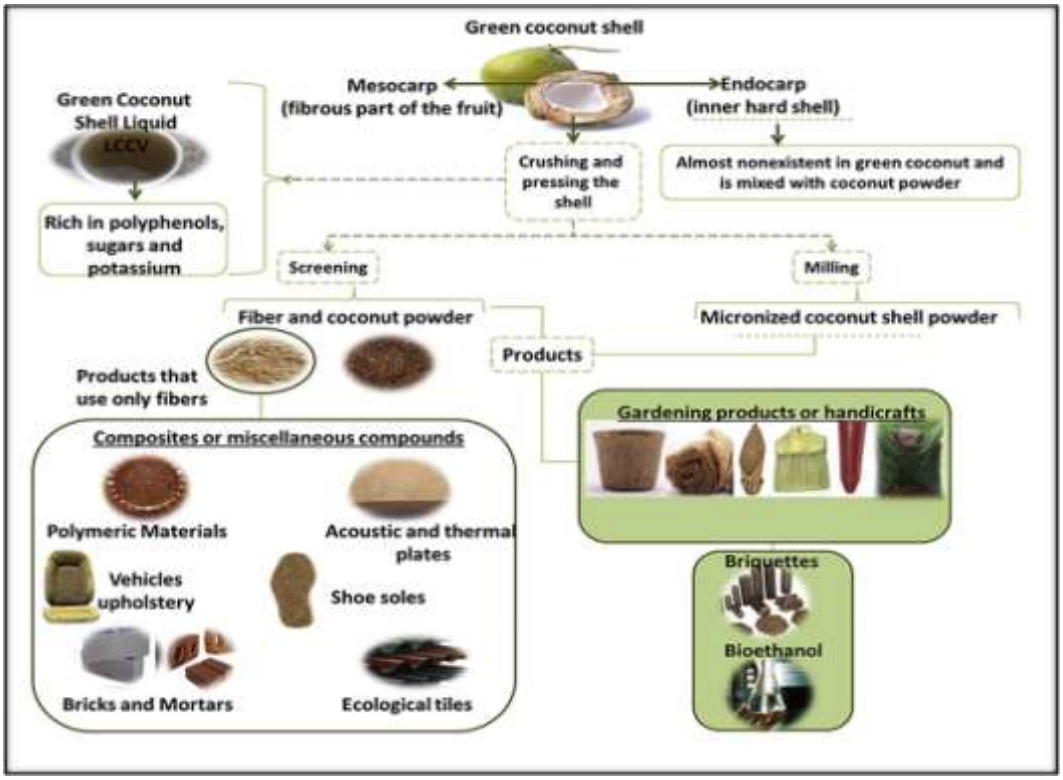

Fig.5- Use of Green Coconut Shell

VII. CONCLUSION

- High efficiency compared to traditional method.
- The device is easily assemble and dismantled.
- Faster than existing traditional method.
- Human effort almost eliminated and also productivity is increased.
- Easy to operate with minimum skill level.

REFERENCES

- Nagarajan, Sundararajan.P.N " Fabrication of husk remover with shell cutter" May 2019
- Prof. S. M. Fulmali , Prof. A. A. Bhoyar "development of multipurpose coconut cutting machine" November 2017
- Raw Cashew and Machinery. URL: http://www.cashewmachineryindia.in (2016)
- Raw Cashew and Machinery. URL: http://www.cashewmachineryindia.in (2016)
- H. Rajanikanth , Prof. Reddy Naik : "Product Design and Development of Tender Coconut Punching and Splitting Machine" November 2015

- Roshni, T., Jippu, J., Ratheesh, C.S., Sachin, J and Sreevisakh, K.L. 2009. Development of a household coconut punch cum splitter. Agricultural Engineering International: The CIGR E journal. XI.
- R.K. Rajput, A Textbook of Manufacturing Technology (Firewall Media, New Delhi, 2007)
- R.K. Singal, Mridual Singal, Rishi Singal, Basics of Mechanical Engineering (I.K. International Publishing House Pvt. Limited, New Delhi, 2007)
- Yong, J.W.H., Ge, L., Ng, Y.F and Tan, S.N. 2009. The chemical composition and biological properties of coconut (Cocos nucifera L.) water. Molecules. 14(12):5144-5164.
- Poduval, M., Hasan, M.A. and Chattopadhyay. (1998). Evaluation of coconut cultivatorrs for tender nut water for West Bengal.Indian Coconut Journal. 29(1):3-6