Atishay Jain, 2021, 9:3
ISSN (Online): 2348-4098
ISSN (Print): 2395-4752

Design and Development of Green Coconut Peeler Machine

Atishay Jain
Department of Mechanical Engineering,
VIT Vellore, Tamil Nadu,
India,
atishayj062@gmail.com

Abstract- This paper represents an approach for designing a perfect Coconut peeler machine. Coconut peelers nowadays are readily available at stores and also at many online shopping sites like amazon, flipkart etc. Most of them are very expensive and are bulky. They are generally not very efficient due to problems like having poorly manufactured component parts, wrong choice of materials, wrong choice of machining and joining process and so on. These problems have been mentioned by many consumers in the product reviews section. The current most popular coconut peeler consists of sharp edged blades which even though might seem fit for the job, can be dangerous to use if performed carelessly. It can cause harm to small children if the blades are fidgeted with. Even the cleaning of the blades is a problem since sharp edge can tear through cloth or sponge which might be used for cleaning. Moreover the price of the product is itself high. Considering these points our product is a shape, efficient, compact and powerful machine which performs its operation without a lot of human effort as our peeler uses the simple 4 bar mechanism in which oscillatory motion is used to give the output whereas the current peelers use rotary blades which requires constant human engagement for its working. It has a lever which is connected to two connecting rods and as we press the lever two rods oscillate and perform a scissor like mechanism to remove the outer layer of coconut in only 3-4 repetitions.

Keywords:- Green coconut, Dehusker machine, small scale industry etc.

I. INTRODUCTION

In the early stages the coconuts are dehusked by using the knife edged wooden stripes. But nowadays the coconuts are dehusked manually by using many mechanical instruments. This is one of the most adaptive and effective manual coconut peeler, which is operated by using Lever. And this manual coconut dehusker consists of two connecting rods attached with lever. Cutting of coconut is done by blade which is attached to lever, coconut is placed on the box attached to the frame, lever is pressed down which results in cutting of outer skin of coconut.Then coconut is placed in adjusting platform where scissor like mechanism is used to make hole in coconut.

1. Need for Designing:

Since coconut peeler is not a very demanded item, that is why it has not been innovated much. We have designed a coconut peeler which has taken into account these drawbacks and is simple, efficient, safe, and also cheaper when compared to other coconut peelers in the market. The existing products in market are very large and bulky and that is not space efficient when to be used in bulk. The problem

International Journal of Science, Engineering and Technology

An Open Access Journal

of efficiency is also present as it requires a lot of time and human effort.

Safety is also a very serious concern in the current designs as the current cutting tools are not properly designed for use whereas the cutting tool used in GCP is sharp but not harmful like the sharp edged blades.

II. CUSTOMER NEEDS

Table 1. Customer Needs.

COCONUT PEELER	No complex design	3
COCONUT PEELER	is affordable	5
COCONUT PEELER	Total weight	5
COCONUT PEELER	Ease to assemble design	3
COCONUT PEELER	Unit manufacturing cost	4
COCONUT PEELER	Safety of user	4
COCONUT PEELER	is lightweight.	4
COCONUT PEELER	Can be maintained with readily tools	2
COCONUT PEELER	Is safe in crash	5
COCONUT PEELER	Reduce maintenance cost	4

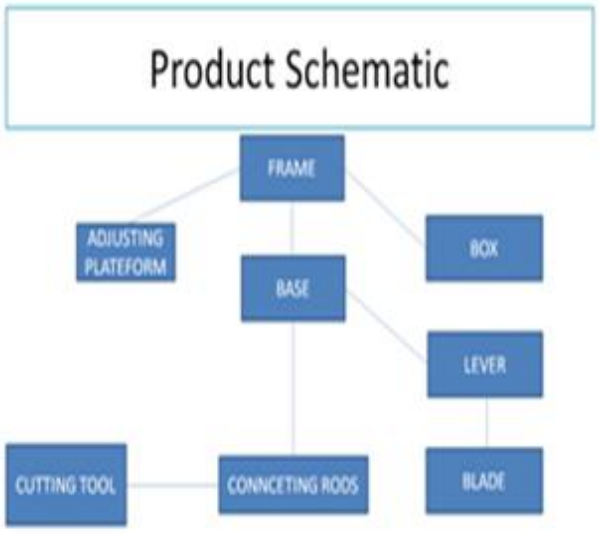

Fig 1. Product Schematic.

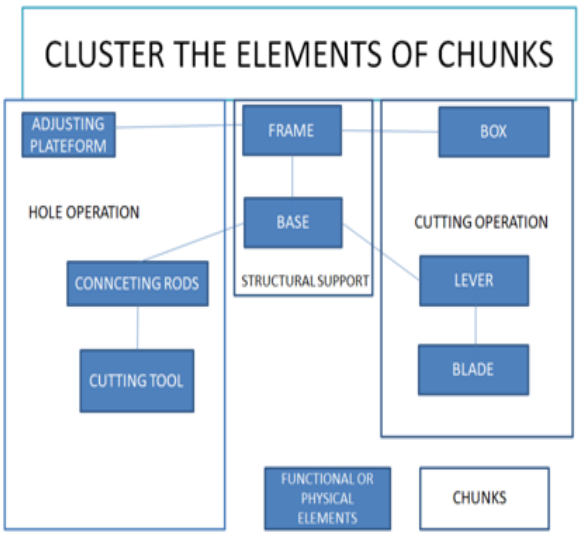

Fig 2. Cluster the elements of chunks.

III. WORKING MECHANISM

Step 1: Cutting of coconut is done by blade which is attached to lever, coconut is placed on the box attached to the frame ,lever is pressed down which results in cutting of outer skin of coconut

Step 2: Then coconut is placed in adjusting platform where scissor like mechanism is used to make hole in coconut.

1. Design of the overall body of the machine:

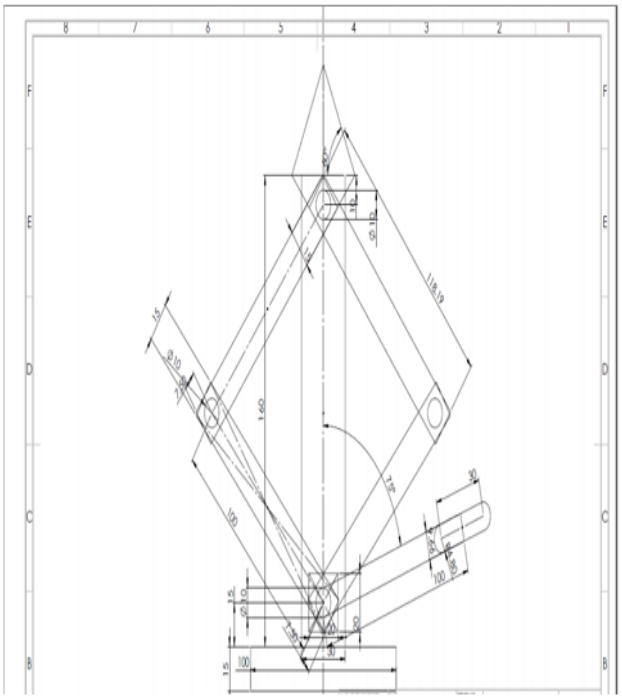

Fig 3. 2d Design With Specifications.

International Journal of Science, Engineering and Technology

An Open Access Journal

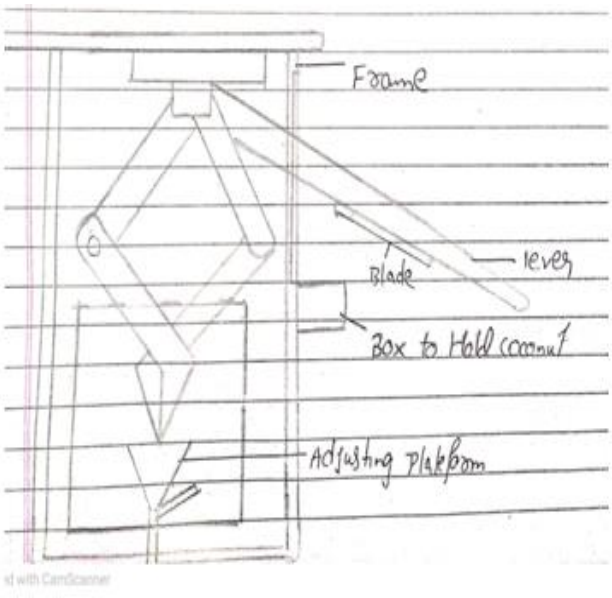

Fig 4. 2d Model.

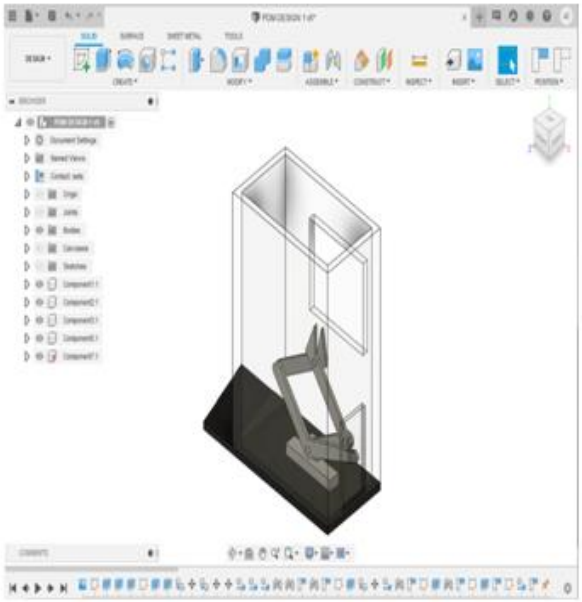

Fig 5. 3d Model Of Coconut Peeler.

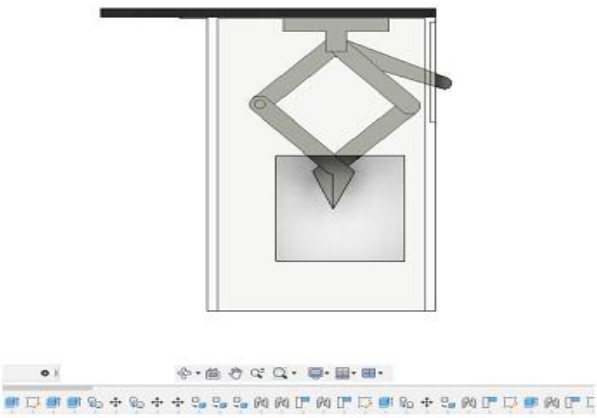

Fig 6. 3d Model Of Coconut Peeler.

2. Strengths:

- Our product's blades are not exposed while working preventing injuries.
- As compared to other products existing in market which have exposed blades.
- The cutting tool can be sharpened using abrasive surface instead of buying a new tool which further cuts down the maintenance cost.
- It is compact as compared to the other peelers.
- It doesn't require much human effort whereas the current peelers use Rotary blades which require constant human engagement for its working.
- It can be used for bulk operations.
- It requires less maintenance.

3. Materials Used:

The main body of the coconut peeler which consists of the joints and the links can be made of cast iron as it is cheap and readily available and has good mechanical Strength. The cutter can be made of stainless steel for its hardness, strength, wear resistance, and anti -corrosive properties.

4. Future Scope:

Improvements can be made in the type of material used in the body of the peeler and the cutting tool and further alterations can be made in the design to make it more efficient, light weight and cheaper.

IV. CONCLUSION

The design and fabrication of lever operated coconut peeler was carried out successfully meeting the required design standard. Due to its wide application in industries even in house. So it can be recommend for old persons and it will be economical and can affordable to common people. We can also add new technology (make it automatic). This system can be made highly efficient and effective. It is a onetime investment and it can last forever.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge Prof. Devedirans, (faculty VIT Vellore) for guiding through the project and providing appropriate tools and feedback for this project work.

REFERENCES

[1] Hamid, Arbizon, Yunan Helmi Lubis,Hafis, Husein Harahap, Yudistira, Irzal, Musdar Effy Djinis, and

International Journal of Science, Engineering and Technology

An Open Access Journal

Elvin Hasman (2019) Development of coconut dehusker machine for small scale industry.

[2] Prashant, Y., Gopinath, C., & Ravichandran, V. (2014). Design and development of coconut fiber extraction machine. SAS Tech Journal, 13 (1).

[3] ABI VARGHESER, J. J. (2014). A review of coconut husking machines. Journal Impact Factor, 5(3), 68-78.

[4] Ghosal, M. K., & Mohanty, S. K. (2012). A study on the comparative performance evaluation of different types of coconut dehuskers. International Journal of Agricultural Sciences, 8(1), 57-62.

[5] Ramadurai, K., Kutty, N. M. I., & Balaji, R. A. Coconut Dehusking Machine.

[6] Siva Kumar. V, Sathya Moorthy. K, Karthik Kumar., "Pedal Operated Coconut Dehusker" IJESC,ISSN XXXX XXXX © 2016, volume 6, issue 9.