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Fabrication and Performance of Layer Peeling Machine

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ABSTRACT: This invention is a new proposed model of peeling the garlic skins with mechanical functionality. Working with the simple and basic mechanism, this is used to peel the skin of garlic cloves. The mechanism which is used for this invention is slider crank mechanism. This device consists of components like motor, connecting rods, metallic cylindrical box and side frames for reciprocation of the cylindrical box. It reduces the time consumption and protects the fingers from the health issues like irritation in fingers and nail breaking s.






KEYWORDS: Garlic, Peeler, Reciprocate, Hammer blow and vibration

I. INTRODUCTION

The garlic is the basic ingredient for cooking, pickle industries, hotels, wedding halls, and also for some medical purposes etc. Removing of garlic peel is a tedious process in our day today life. It takes more amount of time when it comes in cooking. Though, large quantities of garlic time consumption for removing the peels is much more and creates some health issues like irritation in fingers and nail breaking s in the kitchen. The breaking of nails creates pain in the fingers and disturbs other works too. To address these problems and to peel the skins of the garlic, we invented a new mechanical device to peel the garlic skins. It ensures that reduction in time consumption and protects the fingers from the health issues like irritation in fingers and nail breathings.

II. COMPONENTS USED

The various components used in this project are listed below.

-  Motor
-  Crank
-  Connecting rod
-  Cylindrical box
-  Frame with guideways

SPECIFICATIONS:

The technical specifications of the used components are discussed below.

MOTOR:

Type: universal motor [1, 2]

Speed: 5000-15000 rpm

Phase and power: Single and 350 watts

ENGINE LIKE STRUCTURE

Stroke length: 5 inches

Type: single crank and slider mechanism [3-5]

Crank radius: 2.5 inches

CYLINDRICAL BOX

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Radius: 5 inches
Height: 5 inches
Capacity: based on size

III. DEVICE SETUP & WORKING

The various components of experimental setup are described below. The device consists of components like motor, connecting rods, metallic cylindrical box and side frames for reciprocation of the cylindrical box. The figure 1 shows the line diagram of the fabricated model.

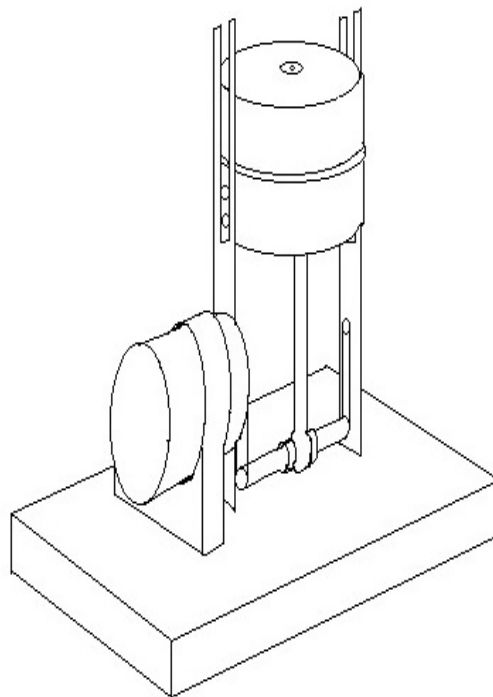


Figure (1) Garlic peeler Machine.

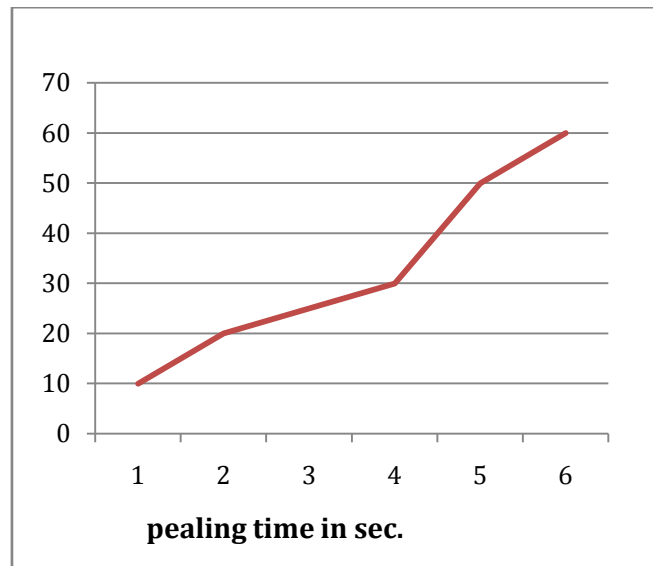
The basic and simple mechanism is the solution of peeling garlic skins, reduce time consumption and free from health issues like irritation in fingers and nail breakings. A machine is created called garlic peeler that will peel the skin from garlic by a simple and basic mechanism. The device consists of components like motor, connecting rods, metallic cylindrical box and side frames for reciprocation of the cylindrical box as shown in figure 1. The garlic can be placed inside the metallic box by opening the metallic box. The metallic box with legs is mounted on the grooves of the side frame, which is enabling to reciprocate in vertical direction with the help of the motor and connecting rods on the bottom of the box. Once the garlic is placed inside the box, then reciprocate the box rapidly with motor and connecting rods. The garlic inside the box hits top and bottom side of the box. When the motor is rotated, the hammer blow vibration acts on the garlic to remove the skin. Finally the peeled garlic is deposited on bottom of the box. The efficient output of peeling garlic can be attained by reciprocate rapidly in vertical direction.

The which shows the variation between time of peeling operation Vs speed of reciprocating mentioned below:

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IV. OTHER SOLUTION TO THE PROBLEM

Some of the products which are relevant to the garlic peeler are listed below.

- ✚ knife edge on side walls of the machine
- ✚ Rotating box with water flow for peeling
- ✚ Compressed air is passed to peel

SIGNIFICANCE OF THE MODEL

The fabricated model has some special features compared to the existing Garlic peeler Machines. Some of the features are given below.

- ✚ No Air compressor
- ✚ No water
- ✚ Usage of Hammer blow vibration
- ✚ Less power consumption
- ✚ No complicated design
- ✚ Light weight
- ✚ Easy to use
- ✚ Can be used for domestic purpose
- ✚ Low cost

V. ADVANTAGES

Some of the advantages of this machine are listed below

- ✚ Compact
- ✚ Portable
- ✚ Reduce time consumption
- ✚ Eco friendly
- ✚ Can peel without damage
- ✚ Less energy consumption
- ✚ Cost effective
- ✚ Less maintenance required

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Risk free and easy to use

VI.CONCLUTION

We conclude that, this device can be reduction in time consumption and protects the fingers from the health issues like irritation in fingers and nail breakings. Hence the fabricated model is a simple solution for peeling the Garlic. The model consumes very low power and saves time of the user by providing better efficiency with low cost.

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