

FABRICATION OF AUTOMATED PAPAD MAKING MACHINE

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Abstract:

India has largest industries of Papad creating machines that serves in each corner of country. Machines on the market in Indian market area unit costlier to afford for little scale industries like ‘Grihaudyog’ WHO area unit still creating papad camp-made. therefore to beat this and looking out on numerous parameter, it's set to “Design and Fabricate papad creating Machine” with advanced options on the market on reasonable costs. The mechanism can use drives, pulley, belt, motor, roller mounted on spring, pedal operated vertical post. This machine would facilitate to boost quality of product with the facilitate of its less large and smaller size. It will use to create papad for multi grains.

Currently papad production and sale area unit disbursed reception level or as a small scale trade, that is generally within the unorganized sector. Even giant producers of fashionable brands of papads like “Lijjat” or “Amani” are essentially home industries. As practiced presently these area unit largely operated by hand units, that have smallest capital investment. The capital desires area unit met by daily sales currently papad makers, aiming at export markets, area unit in would like of the semi or totally automatic plants and therefore area unit on the lookout for such developments. Demand for papad is seasonal in nature. It peaks throughout Diwali and within the wedding season and at that point sizable amount of players uprise. the overall market is concerning four tonnes per day.

Hence we have a tendency to created automatic papad creating machine, by victimization the machine we have a tendency to reduced human efforts similarly as human stress and pain therewith reduced times similarly. The our machine needed less house than alternative machines.

Keywords — Rack, Pinion, Bolt, Lever, Round plate, etc...

I. INTRODUCTION

Papad could be a in style and attractive food item within the Indian diet since several centuries. it's basically a wafer-like product, spherical in form and made of dough of fine-grained pulses, spices, fine-grained chilly and salt. form of pulses and proportion of pulses and spices varies from region to region relying upon preferences of native

individuals whereas bound varieties area unit in style on a bigger scale. historically this activity was confined to family papad creating however visible of skyrocketing demand and availableness of machinery (mechanization) it's currently been developed in house and little scale sector.

papad machine consist serious duty gentle duty invented structure coated with chrome steel sheet. forged iron chrome plated (chrome steel facultative) feel rotate by zero.5 H.P. (0.375 kW)

motor. low-carbon steel chrome plated revolving guide having four numbers deep groove bearing that is drive by polpate. moving of revolving guide is completed by foot. specialised limit switch is provided with machine therefore once revolving guide & polpate is came to bear motor can begin.



Fig.1 Rolling Automatic Papad making machine

Jas enterprise has developed a straightforward cheap foot operated press to form concerning five hundred papad / hour from dekalitre flour dough. The thickness of the papad altered within the machine by adjusting the clearance between the roller & polpat. Being leg operated it's easy and straightforward to work. This machine adopted for house scale production of papad. Raw materials needed for papad creating square measure regionally accessible in rural areas. Urad dhal, any pulses flour, salt, farinaceous material and spice combine square measure needed. The papad business incorporates a sensible scope for promoting.

Papad is nothing however the skinny Indian wafer, which may be refereed as a cracker or flat bread. Papad is usually made of dried pulses; it may be ingested cooked or cooked. There square measure

types of papad flavors accessible within the market that square measure created to suit the necessity of every and each individual. The dough ready by kneading the grains/dal mixture is remove balls and hand-rolled victimisation roller and plate. the foremost downside of this manual method is that the rolling capability which may manufacture solely concerning 30-40 Papad/ hour. Papad is either leavened or flat flat bread consumed throughout the Indian landmass and different elements of geographic area. it's typically ready from whole grains and generally yeast and fat is additionally enclosed within the formulation to boost the dough handling, combining and textural properties. the merchandise is ready by combining the grains with water and different ingredients to develop the dough, sheeted and dried for brief time. they need creamish brown color usually ready in households, forming an inexpensive supply of supermolecule and energy. The grains is mixed with water, shortening and salt, bitter dough or yeast, and is creamish brown to brown in color.

What is Papad

Papad is nothing however the skinny Indian wafer, which may be refereed as a cracker or flat bread. Papad is usually made of dried pulses; it will be ingested deep-fried or cooked. There square measure styles of papad flavors out there within the market, that square measure created to suit the need of every and each individual. the essential composition of the papad varies from variety of ingredients like cereal flour, pulse flour, soya flour, spice mixes, chemical mixes and completely different vegetable juices for rising each organoleptic and biological process characteristics. Before creating any papad, its dough is needed to create. That dough contains salt and groundnut oil and a few flavors to create the special regional papad. saleratus is additionally one in every of the most ingredients for creating smart papad. The dough is formed into a skinny, spherical flat bread and so dried (traditionally within the sun). Papad will be au gratin by deep-frying, preparation over AN open flame, preparation or microwaving. In

India, Papad includes a very important place in each meal. it's extremely served or accompanied either as a snack, chaat or with main course recipes. Papad is AN example of the genius of Indian cooking. Originally there square measure 2 kinds of Papad – North Indian papad and South Indian papad. they are available into completely different sizes and textures like mini papad, big papads, cooked papad, khakra and lots of a lot of. Papads of assorted brands square measure simply out there within the market. one in every of the foremost illustrious market complete is Lijjat. you'll be able to get sort of tasty and flavorsome Lijjatpapads with completely different shapes and sizes. continually confirm they're dry and not cursed with one another.



Fig.4 Papad

II. PROBLEM IDENTIFICATION

While analysis, In household mostly papad making seasonally in summer. At in one house one or two kg papad making one women by manually hand rolling, when the making lots of pains occurs. Risk factors associated with Papad making by machine were

posture, repetition, contact stress and task duration WERA score of physical risk factors

In previous papad making machine many of the problems arise during papad making. Major health hazards encountered at selected Papad and Vermicelli enterprises were accidents of finger cut off, muscles pain and discomfort, hence developed Automatic Papad press machine, but the automatic papad making machine it is large quantity for manufacturing purpose make, the automatic machine used only in industry, the machine not used in residential, because the space and cost required more.

So, our project made for the residential area or household purpose. Our project is takes less space, and cheapest. Not required electricity.

It is seen that there are traditional separate machines available in the market for chapatti and papad items. These machines are manually operated with the capacity of 100 items/hr. Also large quantity and hygienic items are not prepared by traditional rolling methods. Hence, there is need to develop a semi automatic machine which will be operated for different size(roll diameter) and items integrated in a single machine. The machine can cater to the large requirement of items in a short span of time.

III. OBJECTIVE

Our Objective for the project are:-

- 1) Reduce Space and weight of the machine:-
The product move easily from one place to another with low effort
- 2) Minimization of cost:- People can easily purchase the product.
- 3) Reduction of women effort, i.e. pain reduction.
- 4) Time storing:- In less time more papad making.
- 5) To eradicate mounting complications.

IV. REVIEW OF LITERATURE

International Journal of Recent Scientific Research Vol. 10, Issue, 05(F), pp. 32506-32511, May, 2019. ERGONOMICS FOR WORK IMPROVEMENT INSELECTED FOOD PROCESSING ENTERPRISES Jayshree Zend, Manjusha Revanwar and Swati Gaikwad

In this paper, they worked on ladies health and food process, Major health hazards encountered at elect Papad and pasta enterprises were accidents of finger bring to a halt, muscles pain and discomfort. digital computer analysis listing score was negative for these enterprises that showed that workstations were lacking in essential needs. Risk factors related to Papad creating by machine were posture, repetition, contact stress and task period WERA score of physical risk factors was highest for Papad creating by automatic followed by Papad creating by rolling machine and pasta creating by machine abstract frame work of product intervention package was developed supported listing, muscle fatigue and WERA analysis. Product intervention method was effective in reducing low back pain and MSD knowledgeable by ladies staff in elect food process units. modification because of intervention was measured in terms of perception of respondents for comfort, speed and safety in work. Time and time and motion study of elect food process activities indicated that point needed for assortment of Papad was considerably reduced by fifty p.c . thus it may be all over that developed intervention package for Papad and pasta creating enterprises was effective for rising Posture, Speed of labor and products Output & was acceptable by all ladies staff.

International Journal of Current Microbiology and Applied Sciences ISSN: 2319-7706 Volume 9 Number 4 (2020). Performance Evaluation and Cost Estimation of Papad Making Process with Papad Press Machine & Prepared Papad Compared with the Commercial Market Sample
It is being factory-made on house or home scale and has been during a nice demand in Republic of India and abroad. historically, circular in form, made up of dough of fine pulses (black gram, inexperienced gram), spices, common salt, edible oil, papadkhar, containing salt or sodium hydrogen carbonate and metal propionate. Conventionally papads creating methodology involves preparation of dough mistreatment urid, spices, common salt, papadkhar, edible oil etc. with needed quality of water, beating of dough tip soft, creating dough rounds (ball) rolling into circular disc, mistreatment rolling pins (roller manually). ancient methodology of rolling with pins (roller) could be a terribly tedious and time consuming; thus yield of papad was conjointly terribly low. Keeping the aforementioned read, the hand operated papad press offered within the department of P.H.T. at C.A.E., Pusa, Bihar was planned to judge the Papad creating method. This machine is quicker, easy operating and really efficient; its capability is a hundred and fifty papads per hour. Since it's terribly simple to control, therefore girls also can operate with none problem. Its production is fourfold larger than previous system and it needs no power. Thus, the machine (hand papad press) may be used with efficiency for the assembly of papads by village ladies and might generate financial gain further as employment to several unemployed youth at village level.

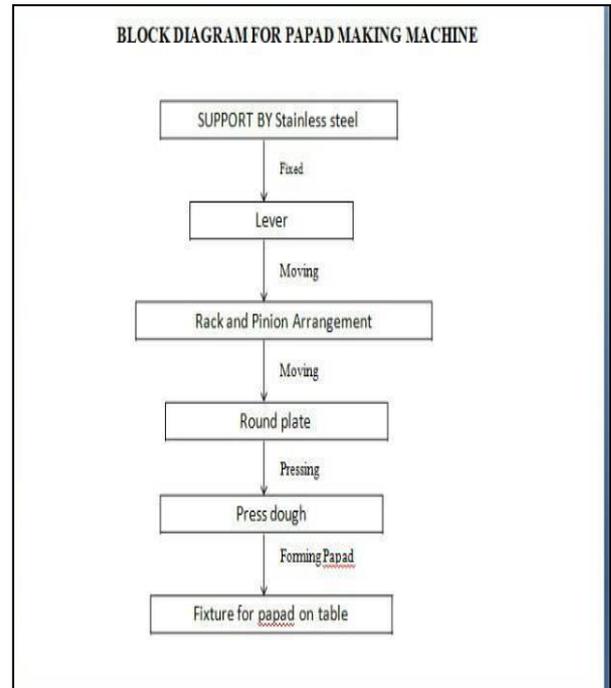
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ISSUE: 06 | JUNE 2019, DESIGN AND
FABRICATION OF PAPAD MAKING
MACHINE FOR GRIHAUDYOG Jyoti Bisane1,
Dr. A.V. Vanalkar2, Er. P.M. Zode3

In this paper, the Republic of India has the largest industries of Papad creating machines that serve in each corner of the country. Machines on the market in the Indian market square measure costlier to afford for tiny scale industries like 'Grihaudyog' who square measure still creating papad oversewn. Thus to beat this and looking out on numerous parameters, it's determined to "Design and Fabricate papad creating Machine" with advanced options on the market on reasonable costs. The mechanism can use drives, pulley, belt, motor, roller mounted on spring, pedal operated vertical post. This machine would facilitate to enhance the quality of the product with the assistance of its less large and smaller size. It will be used to create papad for multi grains.

CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE, MYSORE PROCESS KNOW-HOW ON PULSE BASED PAPADS

In this paper, the method of papad creating therewith market survey analysis, presently papad production and sale are dispersed reception level or as a small scale trade, that is generally within the unorganized sector. Even massive producers of standard brands of papads like "Lijjat" or "Amani" are essentially home industries. As practiced presently these are principally operated by hand units, that have nominal capital investment. The capital wants are met by daily sales lately papad makers, aiming at export markets, are in would like of the semi or absolutely automatic plants and therefore are on the lookout for such developments.

V. PROPOSED PLAN OF WORK



VI. COMPONENTS

The components used in our Automated Papad Making machine projects are:-

- 1) Rack and pinion Arrangement
- 2) Housing
- 3) Nut and Bolt
- 4) Bearing
- 5) Pipe
- 6) Round Plate
- 7) Lever

VII. WORKING OF 360 DEGREE FLEXIBLE DRILLING MACHINE

In our project we used helical rack, pinion, housing rod, pipe, angle, lever, plate, round plate, base and support. The rack has helical teeth hence it is called as helical rack. The pinion also has helical teeth. On the rack, pinion is mounted. When we provide the movement to the pinion, pinion is moving, the pinion transfer the movement to the rack the rack is moving up and down. For operating the pinion lever used, by using lever movement given to the pinion. The rack and pinion used for that steering wheel system.

Then, The base acts a support for the whole machine. It's made of a stainless steel. The base of the papad making machine supports the entire machine and when bolted to the floor, provides for vibration-free operation and best machining accuracy. The base fixed with the help of rod and pipe and angle, For the alignment of project need some support in between the height hence attached the plate for support the project for rigidity for fixed support.



Fig. 17 construction of Papad making machine

For making the papad shape the round plate is attached to rod by welding, and the distance between round plate and base of the table is 1mm. When by using rack and pinion rod is moving down and round plate also move down and pressing the dough and make the papad then again rotate the lever anticlockwise and take their position. The round plate have end point restriction is also given. Bearing used for the smooth movement when lever and pinion rotating if bearing is not used so the friction and movement not given properly, hence used bearing so with help of bearing movement given smoothly.

The project have light weight, easily move from one placed to another.

In our project, Dough make separately, When dough received, before placing the dough on table, plastic dough placed. used on the plastic after that the dough placed on table, because when making papad it is not stick the base and support of the machine is fixed. By using rack and pinion machine is moving up and down by rotating clockwise and anticlockwise with the help of lever.



Fig. 18 Experimental Working of the papad making machine

When unskilled or skill human operate the machine by using lever, the lever moving anticlockwise by

using rack and pinion machine get down the pipe attached to the arrangement for more down on that pipe round plate is attached, when machine get down the dough is pressed compactly, the dough is expanded and make 1mm thick papad. However pressed provide roti make thin only 1mm because the distance between plate and table is 1mm.

After making the papad, Machine moved anticlockwise by using the rack and pinion mechanism machine get up with their end position. Again the same process will be followed for making papad.

By using this method within one minute 15 papad made using the process, the method decreases body stressed and pain.

VIII. CALCULATION

The height of the project decide by human analysis and The round plate disc decide as per the standard size of the lijjatpapad is 7inch , and the thickness of the papad is 1mm.

From Mahindra Xylo in that power rack and pinion steering system used hence taken rack and pinion mechanism for the project

Lever handle =13inch

Distance between round plate of the end and base is 6inch

Dough fixture to housing height= 26inch

Base of the table= 15*8inch

Support used at the end of plate restriction= 7.5inch

IX. ADVANTAGES

- 1) Minimization of cost
- 2) Reduce time
- 3) The Automatic papad making machines are highly effective as well as nonstop continuous process.
- 4) Easier operation & less maintenance cost.
- 5) Continuous production per shift and faster return on investment.
- 6) Compact design, occupies very little space.
- 7) A minimized power consummation by the way of friction loses and Low noise operation, no wastage of product and no pollution hazard.
- 8) Very easy operations, requires no skilled labor.

X. APPLICATION

- 1) Portable and compact machine for different applications like papad, chapatti, puri, karanj.
- 2) Middle class family can prepare business plan.
- 3) Decrease in Health issues – Backbone pain
- 4) Rural employment- Start business of making these items
- 5) Commercialization of the end product

XI. CONCLUSIONS

The automatic Papad creating machine operating satisfactory condition. This project is associate economical operation and competitive value. The papad creating machine is formed most papad in minimum time by reducing human stress.

Hence to cut back human effort and to cut back operating time for Papad flattening operation we've developed easy Papad creating machine for production of Papad that plays a vital role in class people's business. Our machine makes Papad with the assistance of pressing mechanism, with rack and pinion arrangement is employed to transmit power.

XII. FUTURE SCOPE

- 1) It is used for making, chapatti, puri, karanj
- 2) We can use automatic system with the help of electricity.
- 3) We can attached dough making system also with this system
- 4) We can use hydraulic system or hydraulic lubrication to operate the machine in smooth manner without including the less fatigue of man power.
- 5) We can use servo motor in our machine to provide the automation by giving auto feed

REFERENCES

- [1] Development of Integrated Multi size and Multi Item Semiautomatic Papad and chapatti making Machine By Prof. S. S. Kumbhar LHC- 213 IIT Delhi 16th – 17th November July, 2018
- [2] International Journal of Recent Scientific Research Vol. 10, Issue, 05(F), pp. 32506-32511, May, 2019, ERGONOMICS FOR WORK IMPROVEMENT INSELECTED FOOD PROCESSING ENTERPRISES Jayshree Zend, Manjusha Revanwar and Swati Gaikwad College of Community Science,Vasantrya Naik Marathwada Krishi Vidyapeeth, Parbhani-431402 (India)
- [3] IJISET - International Journal of Innovative Science, Engineering & Technology, Vol. 2 Issue 7, July 2015 Development of manually operated papad cutter for small scale papad making units P. A. Borkar1 , M. R. Rajput2 , R. P. Murumkar3 , M. M. Dange4
- [4] Balasubramaniam V.M., V.V. Sreenarayan, R. Vishwanathan, D. Balasubramaniam, 1993. Design development and evaluation of cassava chipper. Journal of Agricultural Mechanization in Asia, Africa and Latin America, 24: 60–64.
- [5] 3. Moore & A. Garg, Occupational Medicine: State of the Art Reviews 1992. 7 (4): 679-711 4. Varghese M. A., P.N.Saha and N.Atreya.A rapid appraisal of occupational workload from a modified scale perceived exertion. Ergonomic. 1994.37:485- 495.
- [6] Rodgers S.H. 'A functional job evaluation technique, in ergonomics, edited by s.
- [7] Rahman M., Abdul rani M. R. and Rohani J. M. An observation tool develop to investigate the physical risk factor associated with WMSDs, J. of Human Ergology, 2011.40(2): 19-36
- [8] Kumar S, Srivastava AK, Prasad Rao US, Haridas Rao P (2009) Studies on glute, Proteins and farinograph characteristics of wheat flour mill streams. J Food Sc-Technol 46(1):21–25 Sridhar BS (1991) An improved continuous chapatti making Machine. Indian patent No.177722.Advantages of Chain Drive Over
- [9] Shurpalekar SR, Prabhavathi C (1976) Brabender farinograph, research extensometer and highlife chapatti press as tools for standardization and objective assessment of Chapatti dough. Cereal Chem 53(4):457–469