

Brick Manufacturing Machine

Chetan C. Jadhav^{1*}, Nilesh Sanjay Kadam², Abhijeet Sunil Khote², Santosh Hanamant Patil²,
Akshay Balasaheb Pansare², Sandeep S. Wangikar³

^{1,3}Assistant Professor, Department of Mechanical Engineering, SVERI's College of Engineering, Pandharpur,
India

²UG Students, Department of Mechanical Engineering, SVERI's College of Engineering, Pandharpur, India

*Corresponding author

doi: <https://doi.org/10.21467/proceedings.118.5>

ABSTRACT

In past time people are building different structure by stone, soil, lime, wood etc. But as time passes, they improve themselves and they started constructing different kinds of construction by using bricks. They preparing those bricks by hands only, it is suitable for less number of bricks but for bulk amount of bricks lot of errors occurs and also high man power is required, this process is time consuming so to avoid this problem machine is required. Whatever machines are present in market is so much expensive. After understanding this problem, we prepared less costly brick manufacturing machine. This project is consisted of motor, meshed gears, input material storage, extruder inclined bed.

Keywords: Bricks, Error, Extruder, Time Consuming.

1 Introduction

Bricks Manufacturing Machine is the project which is going to solve maximum kind of problems which observed while making bricks with old methodology. If we see other countries, they are using most costly and heavy machineries for making bricks. In India, people are making bricks manually. Without using any kind of machine. This Brick Making Machine is going to help a lot while making bricks, by taking less time, less effort with more accuracy and it is affordable to all. Brick Making Machine is going to be a movable machine as bricks are going to be concern. Main objective of this project is to construct this machine is to produce bricks more efficiently and without any errors and also in affordable price. Another one is to complete given work within less time.

2 Problem Statement

- Today in our surrounding we can see in lots of places still people are using old methodology to make bricks.
- By that method that takes a lot of manpower as well as time to make bricks with lots of error may occurs. Whereas buying machines is not affordable to all.
- To overcome these all kinds of problems Brick Making Machine is going to be suitable machine.

3 Explanation of Equipment

3.1 Motor and Gear Box

To provide a drive to shaft without the help of human power we need an alternative such as Electric Motor. This Electric motor is used to rotate gears box.

In this construction of Machine, we require one electric motor having specifications of -

- No of phase - Single phase
- Voltage - 230 V



- Type of motor - AC
- Power Rating - 2 HP

The revolutions we obtain from motor are so much high and revolutions we required for extruder are so much less, for maintaining these revolutions we require gear box. Gear box is used for reducing revolutions of motor. The gear box has a series of gears and shafts to vary the speed of the gear box output shaft compared to the motor speed. When motor is connected with gear box, a fix speed is provided to the extruder.



Figure 1: *Motor*

3.2 Input Material Storage

It having a rectangular shape with nozzle type end which is connected to extruder. As name indicates it is used to store and supply raw material. It is made up of Steel, so it is durable & rust less. We can collect raw material in this.



Figure 2: *Input Material Storage*

3.3 Extruder

Extruder it is a component which is connected to shaft of meshed gears as well as input material. A material is pushed through a die of the desired cross section. A screw extruder is a type of mixer which moves the components through a cylinder using a screw which turns Extruder it is a component which is connected to shaft of meshed gears as well as input material.

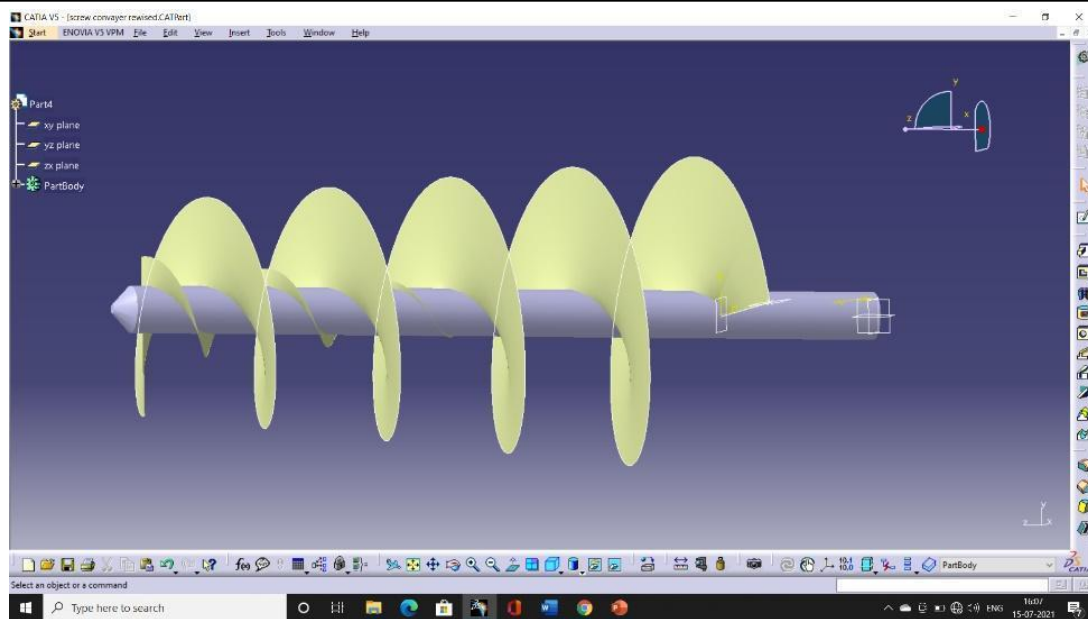


Figure 3: Extruder

3.4 Inclined Bed

Inclined Bed which is used as once bricks get formed , by using this inclined bed we can transfer formed bricks to the ground easily .Because of this without any deformation we can transfer it .This is detachable bed which we can handle easily without any help of machine.

4 2-D Diagram:

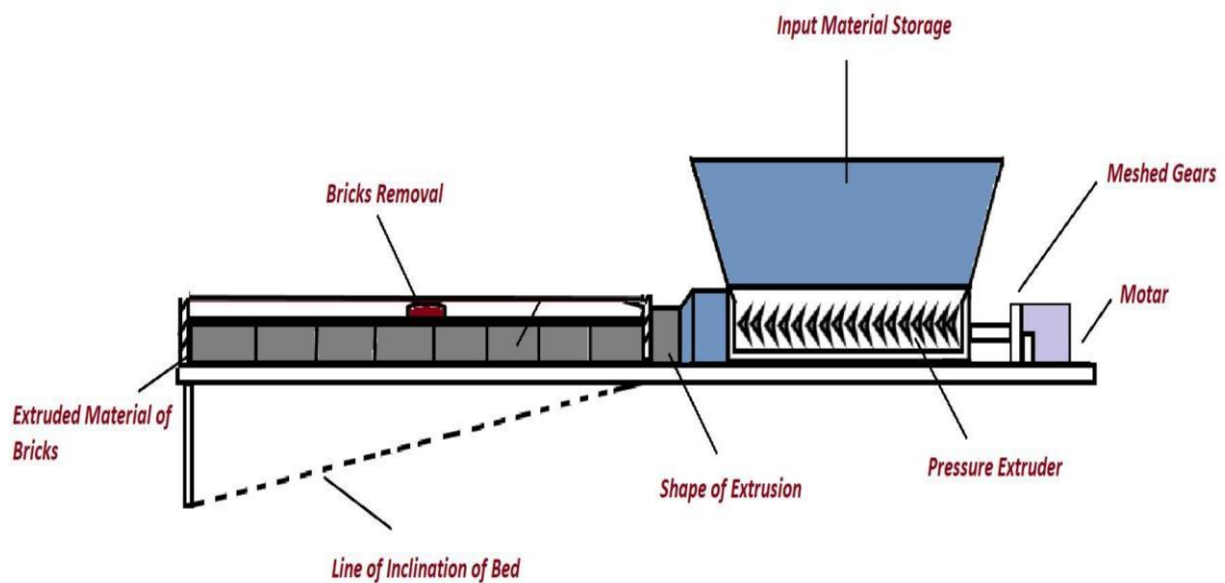


Figure 4: 2D drawing of Brick Making Machine

5 Working Principle

Firstly, taking mixture of raw material into input material storage. By starting motor, we get mechanical energy which will use to rotate extruder. In between motor and extruder meshed gears are applied to get suitable reduced rpm. By using extruder raw material gets extruded in the shape of brick. Brick shape we can get because of brick shaper which is connected at the end of extruder. By using brick cutter we can cut

extruded part in the size of brick. After cutting need to move bricks from one bed to another by using brick remover. By inclining bed we can transfer bricks from bed to ground.

6 Conclusion

The project done by us plays a vital role in brick making industry. It is very convenient for making bricks easily. It is not much expensive as like other machines. It is the best solution for problem gets before us. We can make bricks in shortest time by using this project.

References

- [1] P.K. Chaulia and Reeta Das, "Process Parameter Optimization for Fly Ash Brick by Taguchi Method", *Materials Research*, 11(2), São Carlos Apr. /June 2008.
- [2] Baumann v., Bauer G. E. A., "The Performance of Foundations on various soils stabilized by the vibrocompaction Method", *Canadian Geotechnical Journal*, 11: 509-530, 10.1139/t74-056, 1974.
- [3] M.F. Ashby, Y.J.M. Brechet, D. Cebon and L. Salvoc., "Selection Strategies for Materials and Processes", *Elsevier J Mater Des*, 2004; 25: 5167.
- [4] D. Cebon and M.F. Ashby; "Computer Based Materials Selection for Mechanical Design, In 'Computerization and Networking of Materials Databases', *ASTM STP 1140*, Philadelphia, 1992.
- [5] B. K. Sahu, "use of fly ash for stabilizing sub-standard road construction materials in botswana", *Proceedings of the International Congress on Fly Ash, India, New Delhi*, VIII, 10,1-VIII 10.9, 2005.
- [6] F. Tutunlu, U. Atalay, "Utilisation of Fly Ash in Manufacturing of Bricks", *International Ash Utilization Symposium, Center for Applied Energy Research, University of Kentucky*, Paper 13, 2001.