

## Proposed Work on the Multi Operation by Single Mechanism

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**Abstract**— Industries are basically meant for Production of useful goods and services at low production cost, machinery cost and low inventory cost. Today in this world every task have been made quicker and fast due to technology advancement but this advancement also demands huge investments and expenditure, every industry desires to make high productivity rate maintaining the quality and standard of the product at low average cost. In an industry a considerable portion of investment is being made for machinery installation. This project is design and fabricates a Multi Operation Mechanical Machine or Universal operation machine. Our project is “MULTI OPERATION BY SINGLE MECHANISM”. This is the machine that can perform multi operation at the same time & required speed. Which is operated by battery or mains .It’s called “MULTI OPERATION MACHINE OR UNIVERSAL OPERATION MACHINE”. This machine is working on Single Shaft Mechanism based on mains. Main objective of our project is to save time and manpower because of multiple operations such as drilling, cutting, and grinding and power press are on a single motor power driven by single shaft. Machine can preformed more than one operation or more work such as combination of machine.

**Key words:** Drilling Attachment, Grinding Attachment, Power Show Cutter Attachment

### I. INTRODUCTION

It is duty of manufacturing engineering to bring the ideas and design into a reality by proper selection of material, machine and manufacturing process. We work on the project of the converting single operation machine into Multi operation machine. But for this process it should important that we have a proper knowledge about the drilling machine, cut off machine, power press and grinding machine. For that give a brief introduction of these all points in below. “The machine that can perform multi operation at the same time & required speed which is operated by battery or mains it’s called MULTI OPERATION MACHINE OR UNIVERSAL OPERATION MACHINE.” This machine is working on Single Shaft Mechanism based on mains. As we know that in manufacturing industries cutting, finishing, forming or Every Basic machine are required. It is very important for making product. In that type of machine only one operation is performed at that time by using different or separate motor or mains. And it’s required more space and labor in industries or workshop.

### II. WORKING PRINCIPLE

Here first in this project important point is how we get all attachment in one shaft, which is prime input by motor. We give power supply to electric motor and the motor shaft which is connected with rotary shaft. The three different attachments are attached on the main rotary shaft, first and

second attachment is two pulley drives on the shaft and third attachment is bevel gear at end of the shaft. Bevel gear connected with drilling attachment and first pulley drive connected with power saw cutter mechanism and second pulley is connected with grinding mechanism using belt drive. The motor is start so power transmitted through main shaft to rotary shaft. Three attachment connected with rotary shaft are working on same time by the help of two pulley and bevel gear mechanism. First pulley is for grinding, second for cutting and drilling machine work by bevel gear connected through rotary shaft.

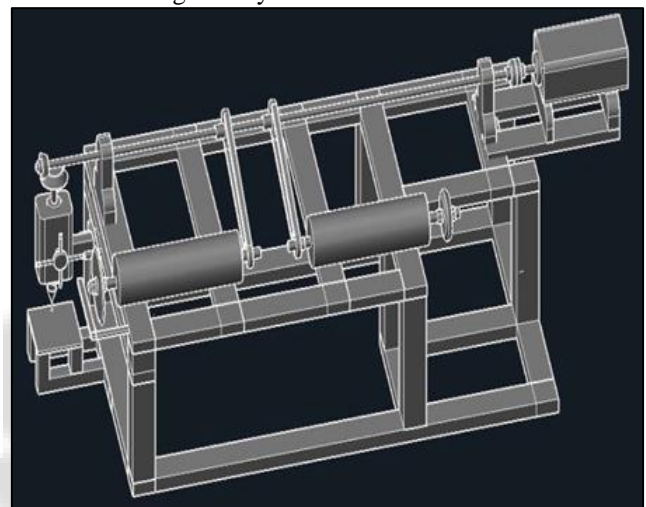


Fig. 1: Model in AUTO CAD



Fig. 2: Actual Model

#### A. Advantages

We can perform more than one operation in machine such as grinding, cutting, forming, drilling etc. This universal operation machine or multi operation machine is easily consisting in industries and workshop. Low man power is required; only one labour can do more than one operation. Labour cost is reducing. In pulley drive belt is removable so one time one attachment is working.

### B. Disadvantages

Maintains cost is high. Chances of power lose. High power required to work. Required rpm not generated. Proper area selection is required for foundation. Transportation cost is high.

### III. LITERATURE REVIEW

- 1) The review of literature will help in understanding the concepts, mechanisms in different element that reaction on the performance of machine. R.S.Khurmi in their book "Theory of machines" and V. B. Bhandari of "Design of Machine Elements" helps to find gear attachment and pulley attachment.
- 2) Prof. Jayesh Patel, Prof. Vikram Panchal and Prof. Manish Dobariya Who give use the way and guidance for development of this multi operation by single mechanism.

### IV. CONCLUSION

By making this project conclusion is that it is a machine on which three attachments drilling, grinding and cutting are provided. By this multiple attachment we can make a job which required these three operations on a single machine. And also there is no need to change work piece from one machine to another. And it can reduce inventory and power required.

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