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PROFESSIONAL WOOD CUTTING JIG SAW MACHINE

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***Abstract*—As this project gives out with the views of cutting operation, functioning and new growth of jig saw machine which are being used for cutting operation of any work pieces which is of wood. As the operations of cutting are very important. In day-to-day life's, because of demand dense and quality of design product. As we have taken survey and notice of cutting of workpiece. As traditional machine used in factories, industries. As they use heavy design as there is high maintenance. The blades can be wear and crack at any time. Because of these workers are not safe. As this operation required lot of accuracy and depends upon the skill of operator. To abolish the problem we believe to modify this machine with abolishing of old design with new concept and design with assets of "Jig Saw Cutter".**

***Keywords*—Pulley[1], Cutter[2], Belt[3], Motor[4], Slider[5], Connecting rod[6]**

I. INTRODUCTION

Jig Saw is type of a one machine; this machine is used to cut wooden workpiece in different forms or structures. It cuts in different size and shape with finishing. As it works on stock of blades which blade cuts the workpiece of profile like straight, curves, circle and other tangled parts. As it works slide and the mechanism used in this is crank rod link mechanism. This mechanism allow up and down the movement to blade as we are using pulleys in a correct ratio to control the rpm of motor and ultimately this machine cuts the wood exactly with the finishing. As in workshop having mechanical work press. As it is also practicable to make the parts as given dimensions. Operation in point of views so as it can be advantage to the company for having such type of machine. .

II. PROPERTIES OF MATERIAL

The materials which is being selected for this purpose is necessary to have good properties for the proposed application and these requirement has to be pleased can be weight surface finish rigidity, be on environmental strike from chemical properties, the reliability, service life etc.

There are four types of properties of material

- Decisively affect their selection
- Mechanical
- From manufacturing point of view
- Chemical
- The physical various properties will get melting point, specific heat, thermal conductivity, specific gravity, magnetic purpose, electrical conductivity etc.

The different mechanical properties are bending, tensile compressive shear, Buckling load and torsional fatigue resistance, elastic limit, hardness, endurance limit et

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III. WORKING PRINCIPLE

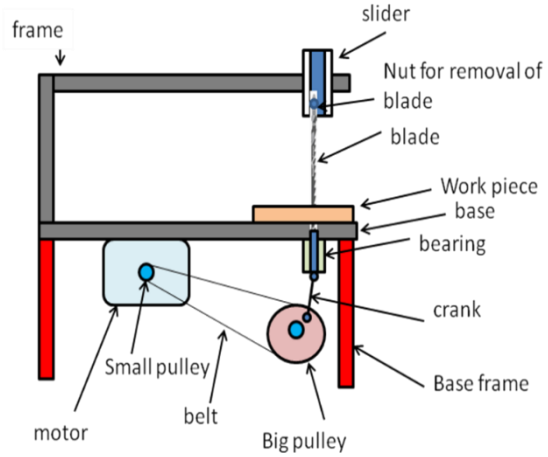


Fig 2.1 : Jigsaw Machine

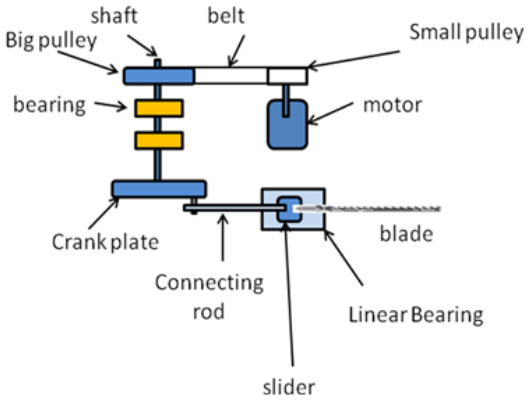


Fig 2.2 : Slider Crank Mechanism

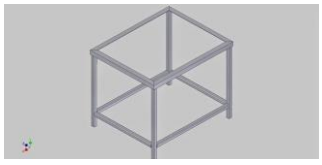
This machine is used for cutting wood and various operation on wood. By using this machine for example profile cutting, straight cutting, circular holes and decorative cutting, curves are done by this machine. Method of cutting workpiece with a linear edge of wooden and utilization of two space part rotational cutting tools which cutting edge reflex one another and mounted for rotational to its parallel axis. This invention is generally to remove material of workpiece have gain such as workpiece of wooden and related more specially to means and this cutting method of the profile along the corner edge of workpieces.

IV. COMPONENTS AND DESCRIPTION

Main components of this project are listed below

1. Frame
2. Saw
3. Cutter
4. Bearing
5. Motor

1. Frame:



Frame provides stability to all the components.

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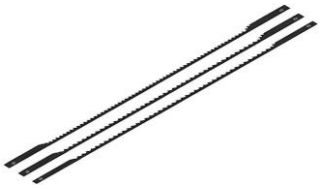
2.Saw:



It is considered as the major element used in this project.

3. Cutter:

A rotating cutter has a power saw toothed to cut materials using circular motion. There are different types of circular saw, a hole saw and ring saw are one of them.

4. Bearing:

A Bearing is an element that constrains relative motion to desired motion. It reduces friction between moving parts. The draft of the bearing provides free linear motion to the moving parts. It reduces motion by governing the vector of forces that bearing bears.

05. Motor:

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Electrical energy is converted into mechanical energy with the help of electric motor. Alteration of mechanical energy into electrical energy can be done by electric motor.

V. ADVANTAGES AND APPLICATIONS:

ADVANTAGES:

- Easy in handling.
- Availability of parts
- Less maintenance
- No man power required
- Maintenance is easy because main parts are tightened.

APPLICATIONS:

- Jig saw machine can be used widely to cut various materials like wood, plastic, ceramic, plywood etc.
- It can make straight cut, curved cut and required cutting design.

VI. CONSTRUCTION

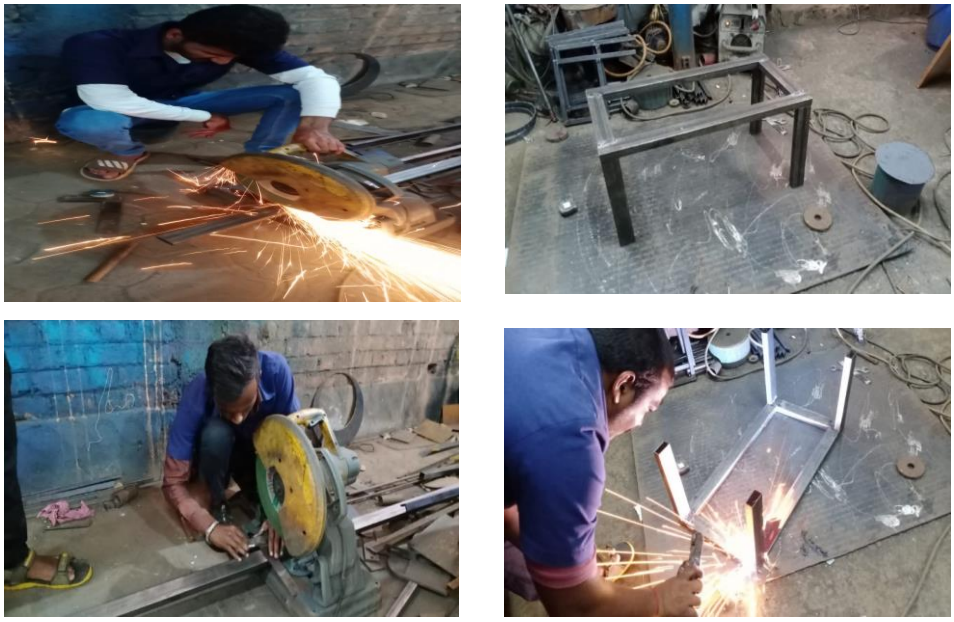

Fig 5.1 : Construction

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VII. CONCLUSIONS

Jig saw machine has given us an opportunity to use our knowledge and produce excellent work piece. In This assembly is precisely embedded in auto desk inventory the main cause of work include evaluation of jig saw machine's performance. Outcome of this project are on some assumptions. The effect generated is useful in knowing the ability of project before actual work done.

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