

Automated Double Hacksaw Machine

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Abstract:- The goal of this project was to design and build an automatic hacksaw that could cut metal into various sizes and lengths using a hacksaw. The goal of this project was to reduce metal cutting labor and time to increase production. Automation now plays an important role in the global economy and in everyday industrial applications.

The scotch yoke mechanism is used in two pairs in the automatic hacksaw and we arrange it with a hacksaw. This type of hacksaw has two hacksaw blades that can cut two workpieces at once in a precise number of cycles. Therefore, it will help increase output by saving time when stopping and restarting the process. Effort is needed.

Keywords:- Hacksaw machine.

I. INTRODUCTION

Various hacksaws of different brands with different specifications are now offered for workshop use. These machines are so precise that they can cut metal bars made of many different materials in a short time, but they have one major drawback: they can only cut two bars at a time. Metal rods need to be cut at a rapid rate for industries to achieve mass production. As a result, traditional single-frame hacksaws are unreliable, requiring advances in technology and design.

Two metal bars can be cut simultaneously using this two-way hacksaw, resulting in high cutting speeds and mass production for maximum profit for the businesses involved. Due to its simple operation, this machine is also very useful for small businesses, as it eliminates all the limitations and disadvantages of a traditional hacksaw.. To do this, we need to reduce downtime and machine time per unit. By reducing time per unit and increasing productivity, the two-way hacksaw improves on these factors. Electrical and hydraulic equipment currently in use; however, their performance is not satisfactory.

II. DESIGN OF MODEL

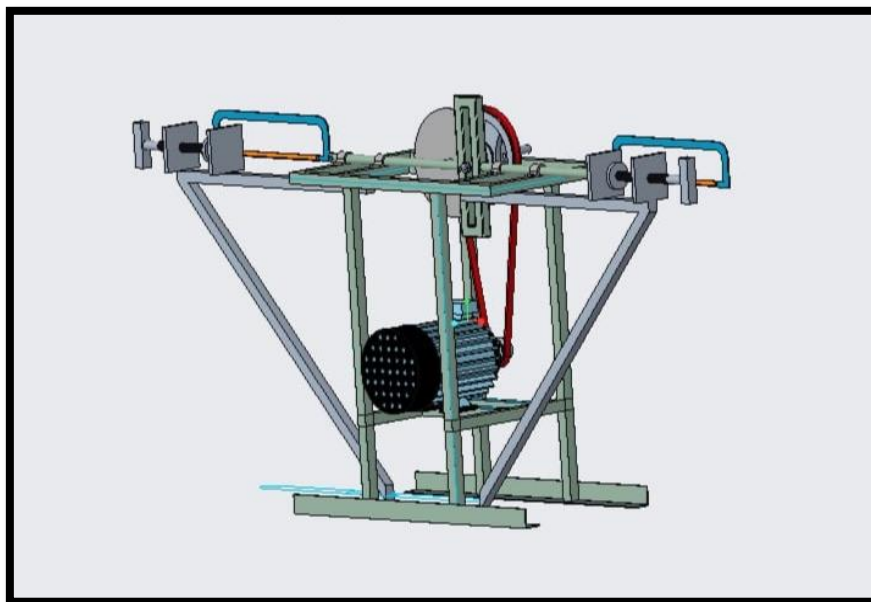


Fig. 1: Design of Actual Model

III. MATERIALREMOVALMECHANISM

A. Gravity Feed Machines –

The thrust pile is formed by the gravity of the saw arc in this type of machine, which is usually a light developed device for general use. The most common workpiece width and length limits for this machine are 150 to 200 mm (6 and 8 inches) and are perfect for small shops.

B. Hydraulic Machines –

In this type of machine, a pressure device creates thrust between the sharp edge and the workpiece. The weight can be generated in the stack chamber by a limiter inversion frame, or a separate pump can feed it. Methods for curved cutting operation combined with a fully water controlled frame, allowing better performance from the saw blade, are provided in many of these machines, allowing for adaptive control higher response.

C. Positive Displacement Machines –

Although these are not as common as gravity or water feeders, two or three are available where the edge feed rate and therefore the metal ejection rate are directly limited by a mechanical screw device, which outputs the active feed.

IV. DESCRIPTION OF COMPONENTS

A. Motor

The feedback motion of the hacksaw blade, due to which cutting occurs, is provided with the help of a motor, which acts by a principal component to change the rotation of the key in the switch. Feedback motion of the edge of the hacksaw. The motor is started after the workpiece has been permanently fixed in the pneumatic thrower. Motor torque is increased by transmitting power to the pulley by means of a belt drive.

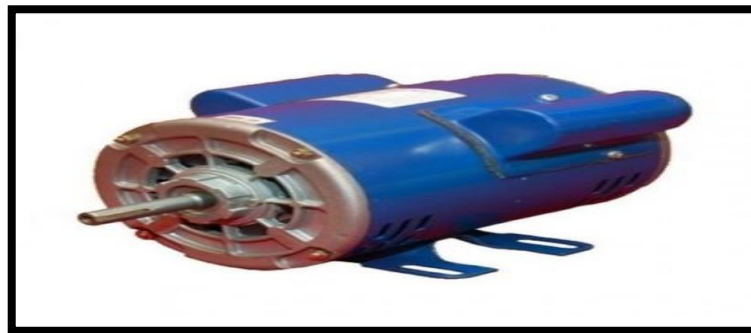


Fig. 2: Motor

B. Hacksaw Blade

The edges of the Hacksaw are bimetallic. In a hacksaw like most box saws, the edge can be attached with the teeth pointing towards or away from the handle, resulting in a cut. Works on push or pull stroke. In typical use, cutting up and down with work with bad sitting habits, the hacksaw blade

must be adjusted to cope with the advances. Some box saws, including head saws and hole saws, have their sharp edges facing the handle because they are used for cutting by pulling on a flat surface, using a loaded tool. By scotch. The blade of the hacksaw is connected to the connecting rod by a direct socket.

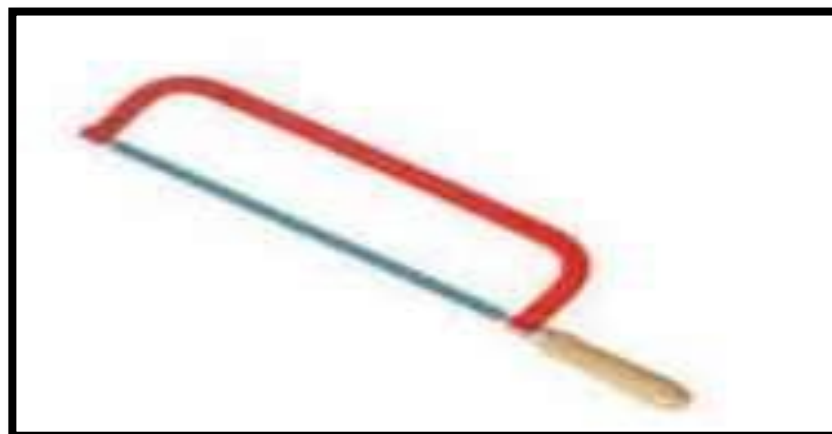


Fig -3 Hacksaw blade

C. V Belt



Fig. 4: V Belt

A belt is a loop of flexible material used to mechanically connect two or more rotating shafts, usually parallel. Belts can be used as a source of motion, for

efficient energy transfer, or for relative motion tracking. The belts are wound on the pulley and there can be twist between the pulleys and the shafts need not be parallel.

D. Pulley



Fig. 5: Pulley

A pulley is a wheel on an axle or shaft this is designed to help motion and alternate of path of a taut cable or belt, or switch of electricity among the shaft and cable or belt. In the case of a pulley supported via way of means of a body or

shell that doesn't switch electricity to a shaft, however is used to manual the cable or exert a force, the helping shell is known as a block, and the pulley can be known as a sheave.

V. COSTING OF EQUIPMENTS

MATERIAL	QUANTITY	COSTING
Motor	1	3000
Pulley	1	800
Square Tube	2	1500
Shaft	1	200
V Belt	1	300
Nut Bolt	20	100
Circular Plate	1	200
Hacksaw	2	400
Angle	2	500
Fabrication	-	3000
Total		10,000

Table 1: Costing of equipment's

VI. HARDWARE RESULT

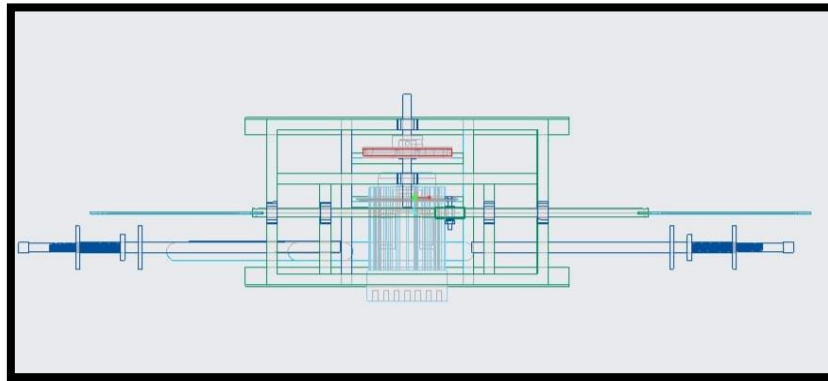


Fig. 6: Top view of model



Fig. 7: Actual Model Result

VII. ADVANTAGES

- Weight of the machine is less.
- It reduces the work of labor.
- Easy to make because of simple construction.
- High production rate.
- Maintenance is Easy and cost for it is less.
- It withstand all atmospheric effects.
- Efficient operation.

VIII. CONSTRUCTION

The machine has the main motor at the bottom of the machine. The pulley is attached to the body at the top and bottom of the side section. The pulley is connected to the disc type plate. The pulley and disc have separate connections with a small metal rod through the bushings.

The motor and the pulley are connected by a V-belt. The clamp is fixed to the disc and to the ends of the two shafts. Saw connected to each shaft at the end.

IX. CONCLUSION

While making the undertaking Automated Double Hacksaw Machine, We put our work to comprehend and investigate about Making the Double Hacksaw model for Commercial as well as Industrial Purpose.

To beat issues in ordinary hacksaw machines, because of high proficiency, simple to work and reasonable value the proposed model of two-way power hacksaw machine is useful and finishes every one of the assumptions required in the smaller than usual enterprises.

It can endure the vibrations, no dangers from jerk, no exceptional preparation expected to work it. Other hacksaw machines can cut each part in turn however; this machine can cut two sections all at once. This hacksaw machine has lighter weight contrast with other machine. The cost of the machine is less and the construction is simple and reasonable for all business.

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