IJSRD - International Journal for Scientific Research & Development| Vol. 7, Issue 01, 2019 | ISSN (online): 2321-0613

Four Way Hacksaw Machine

Yogesh Bhuwaneshwar Bhure[1] Vishal P. Hadge[2] Taisan K. Hatwar[3] Zikesh D. Madankar[4] Prof. Santosh P. Alone[5]

[1,2,3,4]Student [5]Professor

[1,2,3,4,5]Department of Mechanical Engineering

[1,2,3,4,5]MPCE Bhilewada, Bhandara, India

Abstract- It is needed to machine the spherical or sq. rod on totally different completely different) machines to form different machine elements like shaft, bolts and screws etc. for a production there's have to be compelled to cut the stuff into variety of items and this can be conventionally perform on an influence hack saw or easy hack saw machine which consume more time. To achieve this process within a less time the four way hack saw is developed.

This project proposes the model of four means hacksaw machine that is in a position to chop four items (may be of same or totally different material) at the same time with a very less time consumption. The model using dc motor for its operation. Conversion of movement of dc motor into reciprocal motion is obtained by using eccentric cam. This model will perform a cutting operation on four totally different parts of various material at the same time. It becomes very helpful in business because of its potency, dependableness and compatibility.

Key words: Hacksaw blade, Motor, Scotch yoke mechanism

I. INTRODUCTION

There square measure several electrically operated power metal saw machines completely different of various} configurations and different manufacturers square measure out there for the utilization in workshop. These machines will cut rods of various material exactly at in no time, rate however they will cut rods of one material at a time which suggests they can't in a position to cut dissimilar material at a same time. Now in business, it's necessary to chop metal bars with very high rate to attain production necessities. So there's got to move for a replacement technology which provides United States of America a production with less time and fewer energy input. It is not possible to rely on standard hacksaw machine.

By victimization this four means hacksaw machine the four metal bars, pipes or rods will be cut at the same time to realize high speed cutting rate and production for max profit in manufacturing industries. This machine overcomes the drawbacks and limitations of single frame metal saw machines. It will be utilized in alittle workshops and industries because it is obtainable in very low worth and its smaller size and high potency. The setup of four way hack saw machine is very simple, it operates with mechanism of eccentric cam disc arrangement. Disc is rotate with DC motor, move of wheel is regenerate into the mutual motion of the cutlery (hacksaw). This reciprocating motion is used to obtain the linear motion of blades and material is cut .The size and shape of this setup is small. Bed is provided for placing the workpiece to be cut. A low power DC motor is required for its operation. Length of crank and connecting rod is selected using trial and error method. Motion of hack saw is guided by guiding rods placed over the hack saw frame. The vertically downward motion is occurred due to self-weight of frame, so it can be called as gravity feed hack saw.

II. LITERATURE REVIEW

1. Cakir, et. al. (2007) explained in his research paper in a machining operation high temperature in a cutting tool results due to friction between workpiece and cutting tool and cutting tool chip interface. There area unit some effects of this generated heat that area unit higher surface roughness, shorter tool life and lower the dimensional sensitiveness of the work material. This result is more important when there is need to machining harder material which are difficult to cut due to high heat production. There are different methods of protecting cutting tool from heat generation during machining operation. One of the alternative is to select the coated which is expensive an only suitable for machining of material like heat resistance alloy, titanium alloy etc. apply the cutting fluid on tool and workpiece while machining is another approach, which can provide coolin effects and lubrication between cutting tool and workpiece and chip during machining operation. Hence effect of generated heat on cutting tool and workpiece can be elminatad fully or partially. Use of cutting fluid gives advantages like easy chip flow, longer tool life and highest machining quality in machining process. It is required to select the cutting fluid by considering various parameters so that to get optimum result in machining process. The parameters to be considered are as cutting tool material, workpiece material and method of machining process.
2. Nitinchandra R. Patel, et al. (2013) explained in his research paper "Material selection and testing of hacksaw blade based on mechanical properties" stated that to obtain better operation, appropriate blade must be selected. To obtain fine cutting choice of teeth per inches of blade is very important. There are four types of blades in the market which are based on the material namely Alloy steel blade, high speed steel blade, high carbon steel blade and alloy steel blade. The best suitable blade out of these four is bimetallic blade on the basis of wear resistance cutting performance and properties of material.
3. Sreejith K., et.al. (2014) explained the target of this paper was to fabricate, style and by experimentation investigate the operating of Pedal Driven hacksaw (PDH).a slider crank mechanism is employed PDH for its operating. The experiment on plyboard material and PDH was performed.