

KINEMATICALLY OPERATED NUMBER of HACKSAW: A REVIEW

Dinesh Gaikwad¹, Shruti Jambhulkar², Mahesh Jadhav³, Prof. S. S. Pawar⁴

Final Year Students^{1,2,3}, Associate Professor⁴

Department Of Mechanical Engineering,

S.R.P.C.E.Nagpur

Umrer Road, Nagpur – 440009, India

ABSTRACT:

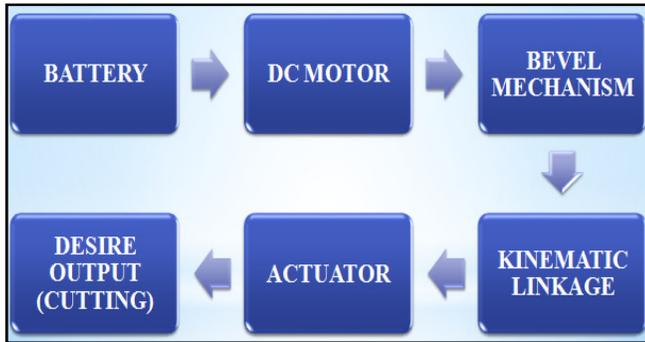
This undertaking is premise on the plan and development of a kinematically worked no. of hacksaw machine for slicing of metal to various size and length with the assistance of hacksaw. The target of this venture is to spare labor and time in slicing metals keeping in mind the end goal to accomplish high profitability. This is the undertaking in light of kinematic linkage which is worked utilizing rotational movement and change over it into response movement. This task gives most likely method for generation rate through cutting segment. In the new changing period it is important to spare time under way process, it implies that create most extreme generation rate in least time. The capacity of this machine in cutting productivity coordinating with this periods require in assembling process. This hacksaw machine has four hacksaw sharp edges which is cut four work pieces with in one time and in exact number of cycles.

Key words: - Kinematic link, Gear Drive, Linkage, Hacksaw, coupling .

INTRODUCTION :

Keeping in mind the end goal to satisfying the requirements of new changing period we creating refreshing structure in existing once machine to giving expanding generation rate as want this is the refreshing structure of oar worked single hacksaw machine, here we utilizes no. of sharp edges at once and working same keeping in mind the end goal to getting expanding cutting rate. This is the machine developed keeping in mind the end goal to expanding generation rate in cutting segment. The name kinematically worked no. of hacksaw demonstrating their significance and their primary purpose of working. Kinematics identified with the movement of any question it is possible that it is responding or rotational movement. Here we use opened lever instrument rule that is to changing over rotational movement into responding movement for getting cutting rate. Yet, in this machine we work four hacksaw at a same time at various stage for acquiring same cutting rate. The prime mover which is soul of this machines giving pivot to alternate parts of

the machine. These machines can cut poles of various material unequivocally at quick rate however they can cut poles of one material at any given moment which implies they can't ready to cut different material at a same time. This task is valuable for the cutting of wood, metal, pipe, point, channel, and numerous different things. It is anything but difficult to introduce by the client and most valuable keeping in mind the end goal to acquiring greatest cutting rate. With help of this machine we can cut four bar of same material at same time, so it giving most extreme cutting rate in less time, it lessening time of cutting and using power in more beneficial way.



Block diagram of kinematically operated number of hacksaw

LITERATURE SURVEY

1. **“Design and Fabrication of Automated Hacksaw Machine”**: D.V.Subarinanda (2014): In this investigation creators objective The target of this work is to computerize the traditional power hacksaw machine with a specific end goal to accomplish high efficiency of work-pieces than the power hacksaw machine utilizing Microcontroller. The robotized machine procures two contributions from the client in particular the quantity of pieces to be cut and the length of each piece that is required to be cut. The sources of info are given by the client with the assistance of a keypad and a LCD show, which will help the client to confirm the information given by him. The administrator require not gauge the length of the work-piece that will be sliced and to stack and empty the work-piece from the throw each time after a piece has been cut. Subsequent to procuring the two contributions from the client, the machine consequently sustains the given length of work-piece in to a hurl and begins to cut till the given number of work-pieces has been cut. The machine encourages the work-piece with the assistance of a transport, which is driven by a DC engine and an IR sensor guarantees that the sustaining stops when the predetermined length has been come to. A pneumatic barrel is utilized for holding the work-piece when cutting task is finished. An AC engine is accustomed to achieve thereciprocating movement required for cutting the work-pieces.

2. **“Design& Fabrication Of Human Powered Wood Cutting Machine: Zoeb Khan(2012)**:The creator clarify in his paper about the wood cutting machine. This is enhanced plan of the human controlled wood cutting machine which gives the less endeavors of man and normally utilized as a part of country zones where there is no power supply. The plan guarantees a smooth task amid the cutting procedure. The cutting power is given by methods for chain drive, adapt gathering and other kinematic instrument and all the parameter should be streamlined to get greatest cutting power. This machine is

utilized for substantial obligation wood cutting procedure for various activities like furniture, cultivate equipment's, workshop and development territories and so forth. It is light in weight and convenient machine.

3. **“ Fabrication Of Padal Powered Hacksaw Usingdoboule Chain Drive”**: R.Subhash (2014): In this Paper, Pedal worked hacksaw machine which can be utilized for modern applications and Household needs in which no particular info vitality or power is required. This venture comprises of a sprocket course of action, the wrench and slider component, the chain drive. In the instrument, chain drive is specifically associated with the hacksaw for the preparing of cutting the wooden squares. The target of the paper is utilizing the ordinary mechanical process which assumes an essential part. The primary point is to diminish the human exertion for machining different materials, for example, wooden squares, steel, PVC and so forth.

4. **“Fabrication Of Hecksaw Cutter Using Slider Crank Mechanism”**: Pothamsetty Kasi V Rao (2016):In this paper creator clarify the primary target is to manufacture the hacksaw shaper machine utilizing the guideline of slider wrench component. This can be utilized for modern applications like cutting the wooden pieces, metal bars and additionally Household purposes like cutting pvc funnels and different materials. At first demonstrating is done in solidworks according to measurements to accomplish required stroke and speed for the shaper. The slider in the wrench slider instrument is supplanted by hacksaw shaper to get the required model of Hacksaw shaper machine. The Kinematic examination is likewise done in Solidworks to get the Displacement, Velocity and Acceleration of the Cutter for the given design. The Fabrication of Hacksaw shaper incorporates different activities like boring, cutting, welding, pounding and so on., Importance of this undertaking lies in the very actuality that it is decreasing the human exertion. Furthermore, this shaper can be utilized and exchanged to our working spot effectively.

5. **“Experimental Investigation Of Padal Driven Hacksaw :Sreejith K. (2014)**:The standard of motivation behind creator is to develop hacksaw machine premise on slider wrench system. The goal of this paper was to configuration, create and tentatively research the working of Pedal Driven Hacksaw(PDH). PDH is taking a shot at Slider Crank Mechanism. The analysis was finished utilizing PDH and plywood work pieces. The principle parts of PDH are hack saw, responding bar welded to the pedal of a bike, flywheel, sprocket and chain drive. The hack saw is associated with the responding bar. By accelerating the bike the responding pole moves forward and backward, the hack saw will move with the bar. The plywood to be cut is put under the hack saw. In this way the

plywood can be cut with no outside vitality like fuel or current. Since this uses no electric power and fuel, this is extremely modest and best. The execution of the PDH was contrasted and Hand Hacksaw at various rpm. The outcomes demonstrate that the PDH had given better, exact and speedier cuts when contrasted and hand hacksaw at various rpm. PDH diminishes the exertion of slicing plywood all things considered. At the point when contrasted with the Power Saw the PDH requires just manual power along these lines decreasing the service charge significantly. Exploratory outcome demonstrates that cutting profundity of around 17 mm can be gotten in one cycle of strokes for around 100rpm.

6. “Thereotically Analysis Of Multy Way Power Hacksawmachine”: Kshirsagar Prashant R.(2015):There are numerous mechanical applications where round bar or square bars are required to be worked on various machines to make machine segments, for example, Shafts, Bolts, Screws and so on. This needs increasingly number of pieces to be cut for large scale manufacturing of those parts. To accomplish this objective the Multi-way control hacksaw machine is created. This paper proposes the model of multi-way hacksaw machine which can cut four pieces at the same time with no twitch and least vibrations. The model infers transformation of turning

7. “A Review On Multy Function Operated Machine”: Pradip R. Bodade(2016):Enterprises are essentially implied for Production of helpful merchandise and ventures at low generation cost, apparatus cost and low stock cost. So in this paper we have a proposed a machine which can perform activities like penetrating, pounding, cutting, manufacture of 'multi-function operating machine'. the idea of Multi-Function Operating Machine for the most part did for creation based ventures. Enterprises are fundamentally implied for Production of helpful merchandise and ventures at low generation cost, apparatus cost and low stock cost. The model encourage us to get the task performed at various working focus all the while as it is getting drive from single power source. Target of this model are protection of power (control supply), lessening in cost related with control utilization, increment in profitability, diminished floor space. This machine is might be utilized as a part of businesses and residential task.

8.”Material selection and testing of hacksaw blade based on mechanical properties”

Nitinchandra R. Patel (2013):.Testing of various material sharp edges like High Carbon Steel, Low Alloy Steel, Bi-metallic edge, High speed Steel edges for their hardness, cutting time execution, Wear Resistance, Tensile Strength and execution under clasping. Trial of Rockwell Hardness analyzer for getting Hardness Number on C-Scale for every unique kind of cutting edges, so their relative hardness of teeth of various edge edges can be thought about. For Cutting Performance test, Cutting of same breadth (25mm) occupation of various materials like Aluminum, Brass, Copper by all sharp edges and their cutting time is noted and thought about. For Wear Resistance capacity, Profiles of edges when cutting are produced with the

assistance of profile projector and analyzed. For making sense of Tensile Strength , we completed Tension test on Universal Testing Machine (UTM), by discovering Modulus of Elasticity (E) esteem and further diagnostic figuring should be possible for discovering Maximum Permissible avoidance. Here, we have discovered the better cutting edge material for various materials under various mechanical thought

9. “Technical Study On Design & Construction Of Padal Powered Hacksaw Cutting Machine”: Stephen Tambari (2014):This venture work manages the outline and creation of a pedal controlled hacksaw cutting machine. The point of this work is to build up a modernized and less unpleasant task for cutting wood, metals and plastic materials. It is extremely helpful for cutting PVC materials (pipes) and can be utilized generally in foam and in furniture making businesses. This work can likewise fill in as a practicing machine for wellness while cutting; it utilizes the guideline of a slider wrench instrument which changes over the turning movement of the flywheel to the responding movement of the hacksaw amid accelerating. The machine was tried and kept on being exceptionally proficient with a perfect mechanical Advantage of 0.5 (under 1), speed proportion of 0.65 (under 1), a power yield of 5.72KW and a productivity of 76.9%, which makes it extremely sufficient and fit for cutting

10. “Design &Fabrication Of Four Way Hacksaw Machine”: M D Harlapur (2016): Target of the venture is to manufacture a mechanized rapid 4-way hacksaw machine and to robotize and to adjust the traditional power hacksaw machine with a specific end goal to accomplish high efficiency of work-pieces than the power hacksaw machine utilizing cam component. The administrator require not gauge the length of the work-piece that will be sliced and to stack and empty the work-piece from the bad habit each time after a piece has been cut. This machine is worked with the 4 hacksaw machines to such an extent that tall the machines are worked at the same time with the assistance of an engine and cam system.

CONCLUSION

On the above dialog we reason that the purposed machine will point in the constraints of single piece cutting of material at the moment of time by presenting four path cutting of material at the same time. It is so minimal that will be involve less space, financially savvy so usable in small and extensive businesses. As in cutting it take less time of cutting per unit of workpiece, so machine sit without moving time is additionally lessened which likewise experiences on made strides effectiveness, reliability. It additionally takes a shot at limiting

REFERANCE

1. D.V.Sabarinanda, V.Siddhartha, B. Sushil Krishnana, T.Mohanraj , “Design and Fabrication of Automated Hacksaw Machine”, International Journal of Innovative Research in Science, Engineering and Technology, ISSN (Online): 2319-8753, volume 3, April 2014.
2. Zoeth Khan,Mr.Sushil Opekar “Design& Fabrication Of Human Powered Wood Cutting Machine” International Journal Of Recent Innovation Trends In Computing, ISSN:2321-8169, Vol.3,ISSUE 2012.
3. R Dubhash,C.M.Meenakshi,K.Sumed Jaylaram “ Fabrication Of Padal Powered Hacksaw Usingdouboule Chain Drive” International Journal Of Engg. & Tech. Vol.3 (2) 2014
4. Pothamsetty Kasi V. Rao “Fabrication Of Hecksaw Cutter Using Slider Crank Mechanism” International Journalofemerging Trends In Engg. Issue6,Vol.3(May 2016)
5. Shrijith K, Arvind K,Danie Davis “Experimental Investigation Of Padal Driven Hacksaw” Internation Journalof Engg.&Science, Vol.4issue7 July(2014)
6. Kshirsagar Prashant R, Rathod Nagan J,Rahat Prashant “Thereotically Analysis Of Multy Way Power Hacksawmachine” International Journal Of Research In Advent Tech.Vol.4,Issue7 July(2014)
7. Pradip K Bodade,Chetan K Khode,Shubham C Hiwanj “A Review On Multy Function Operated Machine” International Journalfor Engg. Application & Tech. ISSN:2321-8134,May (2016)
8. Prof. Nitinchandra R. Patel, Mohammad A. Vasnwala, balkrushna B. Jani, ravi thakkar, miteshkumar D. Rathwa, ”material selection and testing of hacksaw blade based on mechanical properties”, international journal of innovative research in science, engineering and technology, ISSN: 2319-8753, volume 2, issue 6, June 2013.
9. Stephontambari,Dan Orawari Gloria “Technical Study On Design & Construction Of Padal Powered Hacksaw Cutting Machine”Iosr Journal Of Mechanical & Civil Engg. Vol.12,Issue4 Aug (2015)
10. M.D.Harlapar,& A.B.Nidgandi “Design & Fabrication Of Four Way Hacksaw Machine” Internaional Journal Of Innovetion & Emerging Research In Engg. Vol.3,Issue7(2016)