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Safety guard for power press machine

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ABSTRACT

This paper is about avoiding the dangerous incidents accruing during the working of punching machines till now there is no importance given to the safety of works by implementing this idea workers will be confident and safe to work and the safety measure will increase immensely. Improve safety a gear mechanism with a safety guard is used this mechanism required no external sources (i.e. electrical energy) to work instead it uses the punching motion to operate the mechanism. This mechanism convert linear motion into rotational motion. Due to this motion is movement in safety guard. By doing this we analysis the efficient working of safety guard.

INTRODUCTION

This safety guard for power press machine is provide the safety on punching or forming of metal sheet process for the operators. It is the result for the better and simple safety guard on press machines. The contract is bearing setup mechanism or gear setup mechanism. This main advantage is simple in function, easy to install, less maintains, more safety, good comfort. The safety systems are mainly used for industries. It is mainly design for the safety. The power press machine create the injuries to the finger on the pressing process, some time to body from broken tool float project the eyes or tool clamping element. There are some power press machines are pillar type, bending roller type, C type power press machine and H type power press machine. These are used on various factor and various load different. The safety guard system is used on the powers press machine.

LITERATURE REVIEW

[1] says that dynamic behavior is more complicate for a connecting rod than other parts in a press machine. To analysis the dynamic behavior of connecting rod we use lump mass method, but is shows the result inaccurately. If we can't get the result properly we use suitable parts for the machine. This cause vibration problems. [2] shows a technique to develop high force precision in press machine. An online smart tuning fuzzy PID (OSTFPID) approach based on a robust extended kalman filter (REKF) to control the force of press machine. An membership function occurs is the error, it is reduced using fuzzy PID as the input along with REKF. This reduces the control error. [3] created a simulation for safety development during work press. The simulator is developed to evaluate workstation design for switches and buttons. Also, is to be safe as possible to operate. [4] tells that any transformation in anything is to transform the safety knowledge in the circularity. The ways of spreading safety knowledge is

through knowing and learning in organizations, ongoing practices, artifacts, social participation, case study, etc. [5] Takei investigated a mechanism that has a danger in spreading the rack shaft from the pinon shaft on the outside of the rack shaft. To reduce, this we use wire rod of compressed coil spring . [6] are invention relates to

a safety guard for power presses, Such, for example, as punch presses, forming presses and foot press or punch press type, and has for an object to provide an improved and simplified construction of the sweep type of safety guard which will be operated by movement of the press plunger or ram.

RACK AND PINION

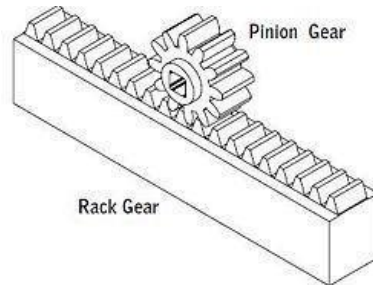


Fig1 Rack and Pinion.

Rack and pinion is the linear actuator gear it is convert rotational motion into linear motion a circular gear is called pinion the engages teeth on

linear bar is called rack .The rotational motion is applied to pinion.

POWER PRESS MACHINE



Fig.2 Power press machine.

It is the metal forming machine. This used to tool designed to cut or sheet metal forming. Press machine tool easy to mass production work. The

fastest and acquired cutting function. This machine works on different mechanism types.

CONCEPT DESIGN

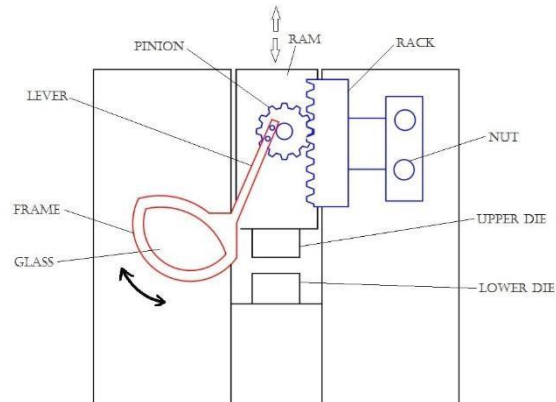


Fig.3 Concept design

This is the project concept design with parts assemble. Safety guard, Rack and pinion, liver and shaft are connecting on power press machine. It is the model diagram of the project.

downwards direction the safety guard frame is cover the die.

WORKING METHODOLOGY

The Machine Start to working a die is moving upward and downward moving. If a die moves up and down motion using on Mechanical Power transmission of Cam. A rack and pinion setup is fixed to the moving ram or upper die of a power press machine. Then the rack and pinion is extra component of safety guard frame is fixed. While ram is moving upward direction the safety guard frame is away of the die. Then the ram is moving

CONCLUSION

As a safety guard system for power press machine work has been done in designing of safety guard system which is discussed briefly in this report, on the basis of this study, problems in overall make the safety and confidence level on operator by using safety guards are identified. Many of the authors suggested various methods of designing, manufacturing and analyses of moving guards and the setup of bearing mechanism. After studying all the available literature. It is create the more can be easily setup.

REFERENCES

- [1]. Gerald J. Felix, Wyoming, Mich. :Press safety device inventor: 73) assignee: steelcaseinc., grand rapids, mich. 21 appl. no.: 138,930 22 filed: 51) int. cl. f16p 3/06 52 u.s.c.74/615; 100/53. 1980.
- [2]. Harold Josephs, 25311 Ronald :Safety guard system for band saws and similar equipment oak park, mich. 48237 appl. no.: 138,799 filed: 1993.
- [3]. Stephon F Gassinwillisonvile :Band saw with improved safety system app/no: 10/46,527 field-may 15,2002 prior publication data 2002.
- [4]. SmithDavid:Installing and leavelingprushon it fontation “stamping quartely” summer 1993.
- [5]. Stephen F. Gass, Wilsonville, or (us) assignee Safety systems for power equipment sd3, llc, tualatin, notice: subject to any disclaimer.
- [6]. Silvia Gherardi and Davidenicolini :The term of this patent is extended or adjusted under 35 u.s.c. 154(b) by 305 days. appl. no.: 10/100,211 filed: mar. 13, 2002 prior publication data us 2002/0170399 a1 2002.