



A-Review on Automatic Portable Hammering Machine

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ABSTRACT

In many industries various types of machines and equipment have been used for various operations such as forging, hammering, cutting etc. But different problem such as low power supply, less man power also heavy laborious work force, safety etc. This project relates to operation performed by can be achieved by either using electric motor power or by manually by means of simple rotating a hand lever attached to the shaft and hammering action can be provided. If there is a good power supply it can be run automatically. For automatic operation AC motor is provided belt derive governor are also provided for speed control purpose so that the suitable speed can be achieved. When no electric power supply is there the advance cam operated hammer can be used manually by simply rotating the hand lever. Also, the handling is simple and, maintenance is easy of the project. The model consists of motor, shaft, hammer, jigs and fixture. From this we fabricate conceptual model of automatic hammering machine. Automatic portable hammering machine is one of the new techniques proposed in design in order to achieve instant Hammering accurate repetition and impacting, fast hammering process. It should be user friendly without any risk and worker manual Effort can be used easily automatically. In the past, a labor used hammer for to drive nail, □t parts, break apart and more. It would be used manually with more effort and man power used in process. But now a day it is possible to make it process easy by invented automatic Hammering. There are very clear benefits that the industry sees while using automated systems. These advantages can be very beneficial in the long run. We assure that our products are one of the best and they are long lasting.

Key words: Introduction, CAD modeling, Impact velocity, Methodology, CATIA

INTRODUCTION

As an open die hot forging in which billet is compressed and deformed by continuous blows of upper die. In addition, for a given weight, parts produced by forging exhibit better mechanical and metallurgical properties and reliability than do those manufactured by casting or machining. Hammering is the most widely used industrial as well as construction activity hammering or screw, metal sheet, parts etc. required a lot of time and effort so here we proposed an automated hammering system that allows for fully automatic hammering whenever and whenever needed using the person just needs to insert work piece and start the This machine Can be used as for automatic hammering works as and when needed use here a DC motor consist of a pulley attached to it which is connected to a hammering machine . larger pulley for efficient power transfer and to increase torque this large pulley is connected to a shaft that has a connecting rod is used to achieve lateral motion from the spinning shaft we now connect the order end of hammer to this connecting a rod through a mid-swinging arrangement in order to achieve desired hammer motion with enough torque we can use a suitable bed where work piece can be placed .The advance cam operated hammer is a device which can be used for multi- purpose operation by either automatically of manually it is mainly used of hammering of work piece it can also be used for various purpose such an punching forging bending etc.

Hammering machine utilized as a part of the generation of material extending from instruments, to pivots, car frame forming, molding of metal and so forth. The present development identified with metal squeezing machine and forming machine included certain outstanding challenges in regard of to drive nail, fit parts, forge metal and break separated

question. The innovation has for its question cure this downside and to empower, by including helper implies, to drive nail, fit parts, manufacture metal and break separated protest the like. Hammering is the most generally utilized in mechanical operation and also development action hammering or screws.

Hammering Machine

The advance cam operated hammer is a device which can be used for multi-purpose operations by either automatically or manually. It is mainly used for hammering of work piece. It can also be used for various purposes such as punching, forging, bending, etc. This advance cam operated hammer is very essential for doing number of such operations like crushing, riveting, hammering of larger work piece and cutting of metal. As in forging industry, the temperature of forging operation is very much higher and it is very difficult to do manual hammering over the forging metal by manually or hand and also there is always a risk while handling such type of high temperature base metals or wok piece. So advance cam operated hammer neglects this type of problems in industry.

Types of Hammering Machine

1. Machine forging.
2. Pneumatic Forging machine.
3. Smith forging.
4. Drop forging.
5. Press forging.

Pneumatic Forging Machine

Here we have fabricated the pneumatic forging machine it's a new innovative concept forging is the term for shaping Metal by using localized compressive forced cold forging is done at room temperature on near room temperature Hot forging is done at a high temperature which makes metal easier to shape and less likely to fracture wham forging is done at intermediate temperature between room temperature and hot forging temperatures This machine has been main developed for metal forming to the required shape for and size in this machine we doing the manval process it consumes more time and large amount of man power required for forging by wing this machine we can save the time and man power requirement in the industries. Here we have fixed the pneumatic cylinder on the column of the machine which is fixed on the hammer here.

Smith Forging

Open die forging is also known as smith forging in open-die forging, a hammer strikes and deforms the work piece, which is placed on a stationary anvil. Open-die forging gets its name from the fact that the dies (the surfaces that are in contact with the work piece) do not enclosed the work piece, allowing it to flow except where contacted by the dies. The operator therefore needs to orient and position the work piece to get the desired shaped surface for specialized operations. For example, a die may have a round, concave, or convex surface or be a tool to form holes or be a cut –off tool. Open–die forgings can be worked in to shapes which include discs, hubs, blocks, shafts, (including step shafts or with flanges), sleeves, cylinder, flats, hexes, rounds, plates, and some custom shapes. Open-die forging lends itself to short runs and is appropriates for act something and custom work. In some cases, open-die forging may be employed to rough-shape ingots to prepare them for subsequent operations. Open-die forging may also orient the grain to increase strength in the required direction.



Fig. 1 Smith Forging

Drop Forging

Drop forging is the process of Heating metal and shaping it using a metal die cast to produce products. Manufactures use this process to produce strong and durable parts for a range of industries. Forging is one of the oldest metals working practices and it can be traced back to 8000 B C. Parts can be produced from various types of metal including aluminum, brass and various grades steel.

There two type of drop forging open-die dropped forging and closed – die dropped forging and closed-die dropped forging.

Open – Die dropped Forging

Open-die forging is the shaping of heated metal between a top die and bottom die, after every press of the die the metal taken a new shape. Open- die forging is usually used for large, less intricate parts.

Closed - Die dropped Forging: -Die Forging is the most popular method of forging as it allows manufactures to produce smaller and more intricate parts. These include things like seat belt buckles, climbing gear, and spanner and tractor parts for harvesting.

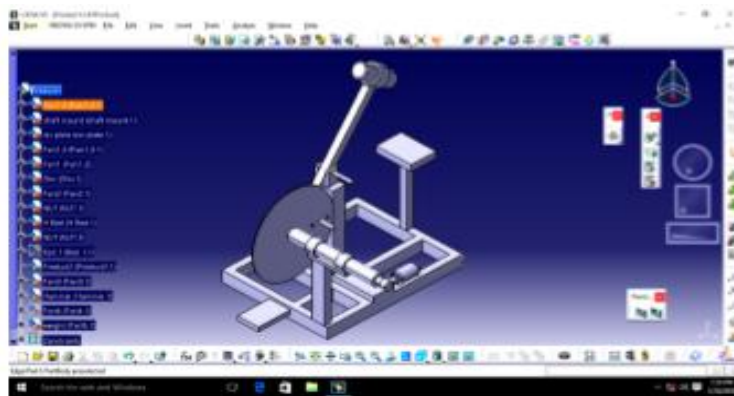
CAD DRAWINGS OF HAMMERING MACHINE

Fig. 2 Side view of automatic hammering machine

METHODOLOGY

In designing and hammering machine, a flow of methods had to be used the design and hammering machine. First of all, a process planning had to be charted out. This acts as a guideline to be followed so that, the final model meets the requirement and time could be managed. This would determine the efficiency of the project to be done. Regulating and analyzing these steps are very important as each of it has its own criteria to be followed.



Fig. 3 Original Model of the hammering machine

Features

- a) Instant Hammering.
- b) Fast Hammering Process.
- c) No Manual Effort.
- d) Portable System.
- e) Low Initial Cost.
- f) Low Tooling Cost.
- g) Accurate Repetition and Impact.
- h) User Friendly.
- i) Easy Maintenance.

CONCLUSIONS

The project work has provided us an excellent opportunity and experience, to use our limited knowledge. We gained a lot of practical knowledge regarding Planning, Perching, assembling and machining while doing this feel that the project work is good solution to bridge the gates project work. We are proud that we have completed the work with limited time successfully Automatic hammering machine is working with satisfactory condition. We have done to our ability and skill making ma work.

Future Scope

The concept of an automatic hammering machine in this paper has been shown to have a place in the actual market and to fill a need demanded by potential customer. IN this paper, the concept of automatic hammering machine prototype will have to fulfill the basic design requirement, let us add the proposed concept will a few more lines about our impression project work. Help in production line where many workers are used for the material handling purpose it also reduce the cost and threshing time requirement of more number of worker will completely eliminated as only two workers can carried out the be complete operation. The project objective originally is to reduce human efforts in manufacturing industries. The in future the complete stress analysis of the project model could be done. This analysis could be done by us. Moreover, for the automatic hammering machine to achieve fully success in the future, many collateral improvement must be done in terms of systems (autopilot technology, for instant) and time delay management (pedal operated control will be required) and some modification can will be done in this project.

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