

Fabrication Of Wire Rope Making Machine

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ABSTRACT

A wire rope making machine is used for making wires according to utility. Thus fabrication becomes the most valuable part in making of wire rope making machine as design needs to be use in real making structure. The objective of the fabrication of wire rope making machine is to develop a heavy structure and make a real life working model. Fabrication needs different types of fabrication tools like cutting, welding, precision instruments, etc. tools for working model to be fabricated.

Today in every sector fabrication becomes the most important stage of developing the ideas and design of engineer in real life. Which include every factory, major and minor industry or else domestic purpose .Fabrication of rope wire making machine includes cutting of metal rods, welding of metallic frames, adjust the proper alignment and make a working model.

In this machine bevel gears, rotating shafts are used for their different uses and thus their proper alignment is necessary. In our machine we fabricated all this assembly in a very fine manner so that it can be work properly. This paper includes the whole process of assembly and work process of machine which comes under consideration. Other things like rope and and raw materials need not to be fabricated they are just designed.

Keywords:- Wire rope, Design, Fabrication, Welding, Cutting, Assembly.

I. Introduction

When the term fabrication gets used as an industrial term , it especially gets applied to the structure and building by shaping, cutting and making assembly of components. Machine fabrication is a process of creation of metal cutting, bending and assembling of various parts of machine. In this project, the whole machine parts are gone through the different process of fabrication[]. The metal used for the chassis is cast iron and for rotating parts stainless steel is used. For the chassis making a long metal rod is passed through cutting process. A cutting is a operation where the metal rods are fixed in chuck and fixed tightly , then a cutting tool is contacted perpendicularly and metal rod is cut down. Assembly of this parts includes the welding process. This is a process of fixing two metals permanently with the application of heat between them.

II. Objective

The main objective of fabrication of wire rope making machine is given below.

- ❖ To make a real life working model.
- ❖ To understand the various processes
- ❖ Cutting, welding, bending, machining process to understand.
- ❖ To make structure rigid and flexible so it can bear forces.

III. Methodology

The methodology of fabrication of wire rope making machine includes the following process.

- A. Cutting- Cutting is a process of separating a large metal piece into two different pieces by taking some proper measurements. Chassis is made up of a heavy cast iron which needs to be cut down into pieces.

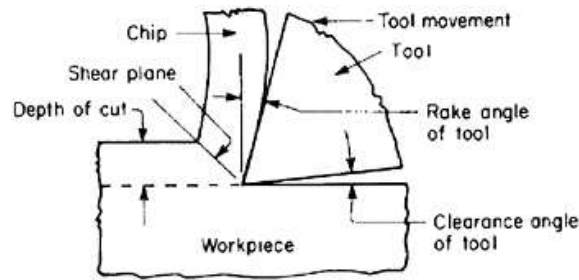


Fig. Cutting Process

Metal rod is fixed into the fastener rigidly and a sharp edge metallic rotating tool is passed over it. Due to the high speed of the rotating tool small pieces of metal from the surface starts to remove and metal gets cut down.

- B. Welding- Welding is a process of joining two metallic objects by the application of heat between them. The welding process used in this project is metal arc welding. In this the heat is generated by using the AC current. A consumable electrode is used in the process which gets molten due to the generation of heat and stick to the metal.

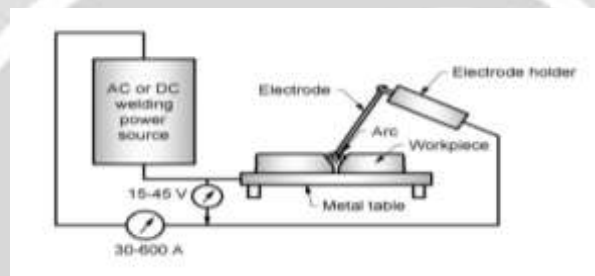


Fig- Metal Arc Welding

An electric current from the source in the form of alternating current from a welding power supply is used to form an electric arc between the metal and the electrode.

- C. Turning- Turning is a operation where a metal rod to be cut is fixed into a rotating churk and contacted with a not rotating single point cutting tool. A stainless steel metallic rod is used in this project which is used for the twisting the rope strands. This rod is turned for specification.

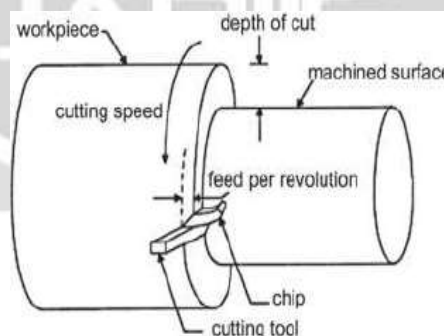


Fig. Turning Operation

The tool is set at a 45 degree angle and work piece is set fixed at horizontally in the churk. Churk has four jaw in which the work piece gets fitted tightly and starts rotating. The tool then contacted to the work piece and chips start to extracted.

IV. Components

- Chassis- Chassis is for to support the frame , on which body mounts and motor are attached.
Material:-Cast iron
Specification:-
Length:-16inch

Width:-25inch



Fig. iv . 1. Chassis

- Battery- Battery is used to supply the power to whole system.
Specification:-
Power :-1 HP
Volt :-12 volt



Fig. iv . 2. Battery

- Bundle- Bundle is a device used for holding the raw material and also for collecting the final rope after being produced. It is a plastic material holding cylindrical device which rotates in clockwise direction and winds the rope.



Fig. iv. 3. Bundle

- Holder- In a system there are two holders are present. It is used for holding the bundle at input and output side.
Specification:-
Material:-Steel
Diameter:-20mm



Fig. iv. 4. Holder

- Half HP Motor- Motor is used to generate the power to drive whole system.
Specification:-
Volt:- 12 V
Revolution: 300 rpm



Fig. iv. 3. Half HP Motor

VI. Conclusion:

The conclusion came out after studying and fabricating the machine is that the cast iron rods can bear high vibrations obtained during the operation. We have studied and implemented the various process of fabrication like cutting, welding, bending, turning, etc. The metal wire rope making machine is able to make ropes about 30 kg per hour. The rope produced has high tensile strength as well as load bearing capacity.

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According to the author this welding book is perfect for beginners who have little knowledge about welding. This book includes overview of how different welding process work and differ from one another. Understanding steel, stainless steel, and aluminum. Protecting yourself while welding.

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Farm and Workshop welding: Everything You Need To Know To Weld, Cut, And Shape Metal

According to the author this welding guide reference book covers getting started with the conventional process. Stick, MIG, TIG, gas, plasma cutting. This book is packed with helpful illustrations and photos. Including showing the differences between good and not so good welds.

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According to the author this book covers everything needed to get you started with any welding or cutting process safely. Practice lessons to help you to weld a specimen for your certification test.

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Cutting Tool Technology

According to the author cutting tool technology presents an important role in metal cutting. Cutting tool is a key factor for fabrication process. The present book can be used for learning the cutting process and dimensioning of the metal.

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Machining and Machine Tools

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