

## Fabrication of zig zag Bending Machine



### Engineering

**KEYWORDS :** Hydraulic Jack, Heat Transfer, Maintenance, Force

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### ABSTRACT

*The hydraulic jack has to give the manual pressure the horizontal bar move towards the work piece the work piece which bend towards the zig zag position the final work has obtained .The zig zag position is used to heat transfer take place and it is also used in different types of grill works. Copper is one of the heat transfer material the refrigerant flows inside the tube the large amount of heat transfer take place due to the zig zag position gradually heat will be reduced. Mild steel work piece is one of the zig zag stylish work has to be obtained by the machine more force than that of the conventional one. No maintenance is required since it's an easy mechanism, reduced man power*

### 1. INTRODUCTION

The main aim of our Project is to develop a model of Zigzag bending machine which is a developed one that of the conventional one. It is more advantageous for making Zigzag bending in work piece, such that it can form Zigzag profile using normal hydraulic press. Here our project consists of a hydraulic bottle jack which is placed vertically. The top portion of the jack is welded to a beam which slides on two pillars which are placed parallel to each other. The bending tool is welded to the beam which is attached to the upper end of the hydraulic cylinder. The bending tool is also welded to the upper beam in a relative position, which results in forming Zigzag profile. There will be a gap provided between the bending tools to form the bending accordingly.

### 2. TYPES OF JACK:

- ❖ House jack
- ❖ Hydraulic jack
- ❖ Bottle jack
- ❖ Pneumatic jack
- ❖ Strand jack
- ❖ Farm jack

#### House jack

A house jack, also called a screw jack, is a mechanical device primarily used to lift buildings from their foundations for repairs or relocation. A series of jacks is used and then wood cribbing temporarily supports the structure. This process is repeated until the desired height is reached.

#### Hydraulic jack

Trolley jack lifting a car Hydraulic jacks are typically used for shop work, rather than as an emergency jack to be carried with the vehicle. Use of jacks not designed for a specific vehicle requires more than the usual care in selecting ground conditions, the jacking point on the vehicle, and to ensure stability when the jack is extended. Hydraulic jacks are often used to lift elevators in low and medium rise buildings.

#### Bottle jack

A shape, having a cylindrical body and a neck, from which the hydraulic ram emerges. In a bottle jack the piston is vertical and directly supports a bearing pad that contacts the object being lifted. With a single action piston the lift is somewhat less than twice the collapsed height of the jack, making it suitable only for vehicles with a relatively high clearance.

#### Pneumatic jack

A pneumatic jack is a hydraulic jack that is actuated by compressed air - for example, air from a compressor - instead of human work. This eliminates the need for the user to actuate the hydraulic mechanism, saving effort and potentially increasing speed.

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**FIG 1 MODEL OF THE PROJECT**



**3. Uses:**

Iron and steel are used widely in the construction of roads, rail-ways, other infrastructure, appliances, and buildings. Most large modern structures, such as stadiums and skyscrapers, bridges, and airports, are supported by a steel skeleton. Even those with a concrete structure employ steel for reinforcing. In addition, it sees widespread use in major appliances and cars. Despite growth in usage of aluminum, it is still the main material for car bodies. Steel is used in a variety of other construction materials, such as bolts, nails, and screws.

Other common applications include shipbuilding, pipelines, mining, offshore construction, aerospace, white goods heavy equipment such as bulldozers, office furniture, steel wool, tools, and armour in the form of personal vests or vehicle armory.

**Long steel:**

- As reinforcing bars and mesh in reinforced concrete
- Railroad tracks
- Structural steel in modern buildings and bridges
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- Wires
- Input to reforming applications

**Flat carbon steel:**

- Major appliances
- Magnetic cores
- The inside and outside body of automobiles, trains, and ships.

**Stainless steel:**

- Cutlery
- Rulers
- Surgical instruments
- Watches
- Guns
- Rail passenger vehicles

**4. COST OF PROJECT:**

Sl.No.	PURPOSE	RATE
1	METAL	900
2	HYDRAULIC JACK(2 ton)	650
3	BENDING TOOL	250
4	PROJECT WORK	200
	TOTAL	2000Rs.

**5. APPLICATION:**

It can be installed in all small machine shops and sheet metal shops to bend sheet metal with higher efficiency with low cost. Wiggle wire, Wire fence

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