

University Roll no. - T91/ECE/204058

Subject - Workshop Practice

Semester - 2nd

Paper code - ME 207

Date of examination - 03.08.2021

Signature - Archane Sri

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1.) a) MALLET :

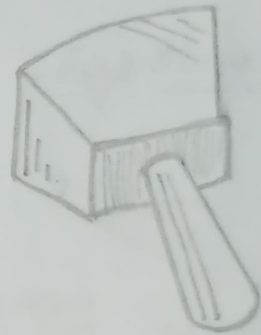
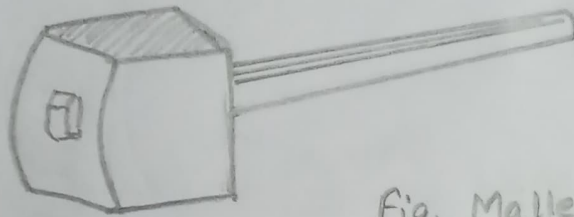


Fig. Mallet

→ Mallet is a hammering tool, used for driving chisel handle as well as assisting in assembling jobs. It is also used and called as wooden hammer.

→ It ~~has~~ has a long-handled wooden stick with a head-like a hammer often made of wood or rubber.

b) MARKING GAUGE

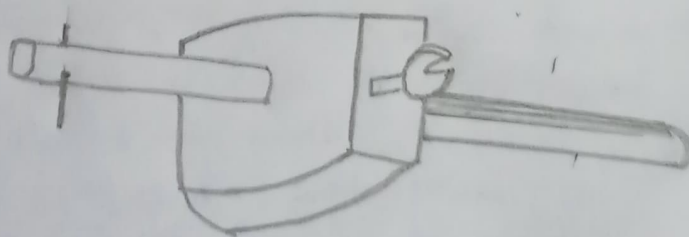


Fig. Marking gauge

→ Marking gauge is a marking tool, used for marking lines parallel to a face or an edge, basically a reference edge.

→ It consists of three parts mainly:-

- (i) Stock (ii) Stem (iii) Thumb Screw

→ It uses the small pin to mark the wood when the tool is dragged across it. The pin or scribe has a pointed tip.

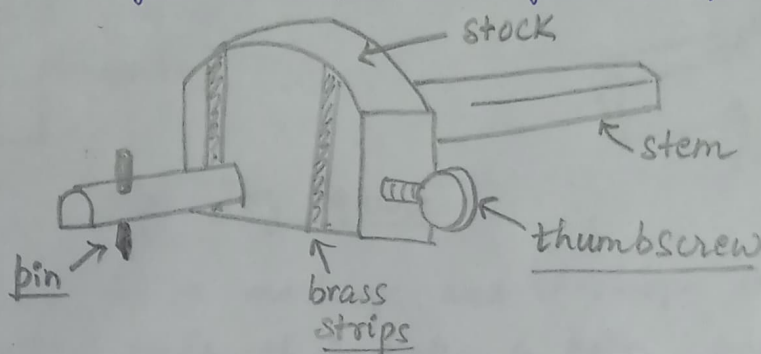


Fig2. Marking gauge

### c) Firmer Chisel:

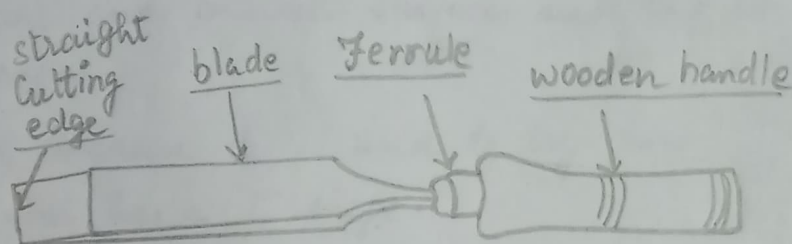


Fig. Firmer chisel

→ Firmer chisel is a cutting tool, which has a thick, strong blade that allows removal of large pieces of wood in a single strike.

→ Its size depends on the width of blade, range in ( $\frac{1}{4}$ ",  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 1" & 2") or (6, 12, 18, 25) mm upto 50mm. &

→ It has 2 main parts: i) Blade & ii) wooden handle.

→ Firmer chisel is used for finish laps, mortise socket etc.

## ② a) TRY SQUARE

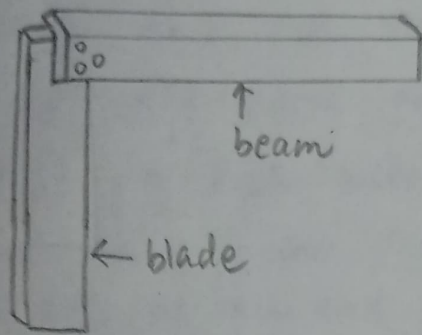
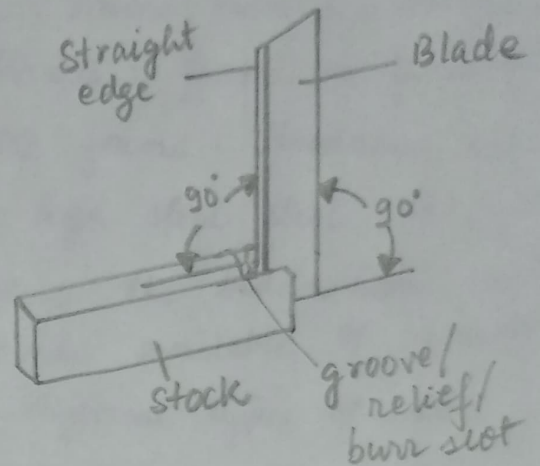


Fig. Try square



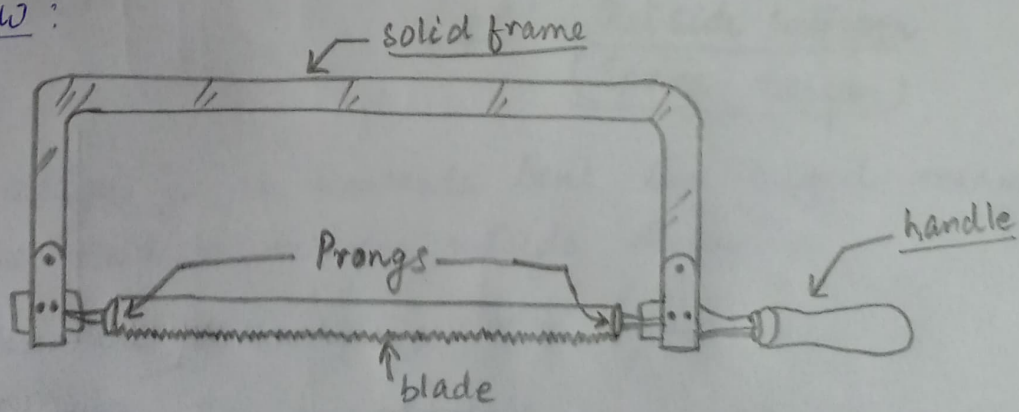
→ Try square is a marking and checking instrument of right angles. It is made of 2 parts, a beam and a blade, fixing right angle to one another. It is used to check-up the accuracy of right angles  $90^\circ$  on external and internal surfaces and to find the even flatness to right angles.

→ A try square is so called because it is used to try how square the workpiece is. and has a 'L' shape.

→ The blade is usually made of wood ~~and~~ or steel and is fixed into the stock.

→

## ⑥ HACK SAW :





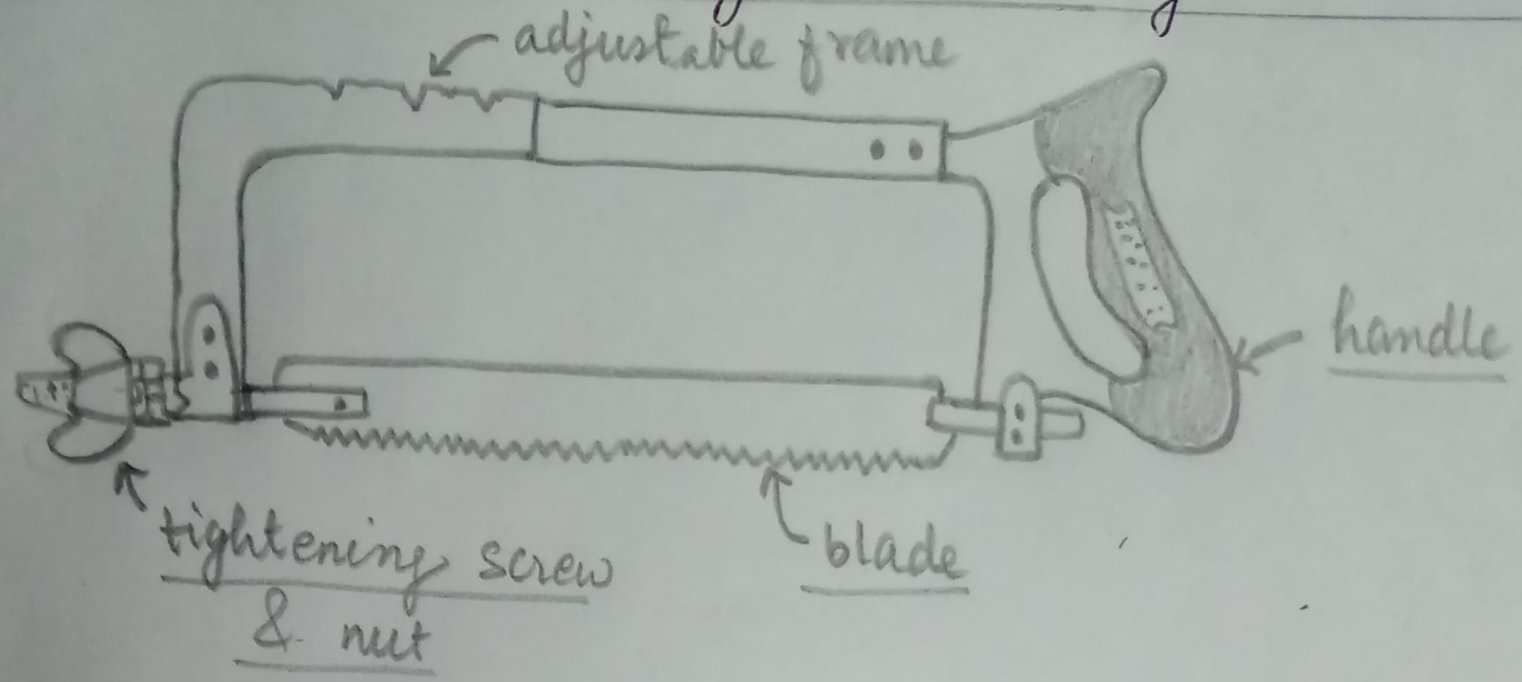


Fig. Different parts of a hand saw

- Hack saw is used to cut metals parts such as rods, flats and making a thin metal part in 2 pieces etc.
- A hand hacksaw consists of a blade, Frame, Handle, Prongs, Tightening screw and wing nut. Hacksaw frame is of 2 types: They are Solid frame and adjustable frame. Hacksaw blades are made of high carbon steel or high speed steel. The length of the blade is the distance between the blades holes centres of the holes at each end. Hacksaw blades available of 14 teeth, 18 teeth and 24 teeth to an inch for different types of work.
- Hacksaw is a hand-powered, fine-toothed saw.

### c) OUTSIDE CALLIPER



Fig 1 Outside calliper

(Firm-joint)

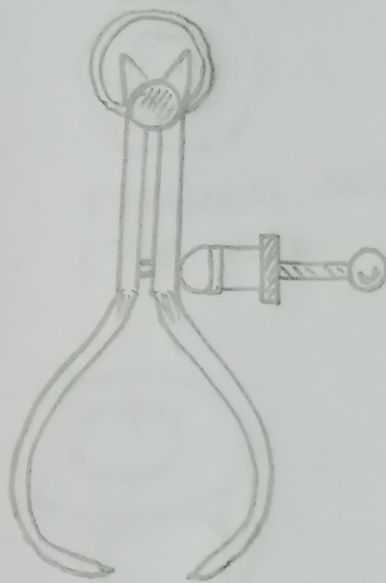
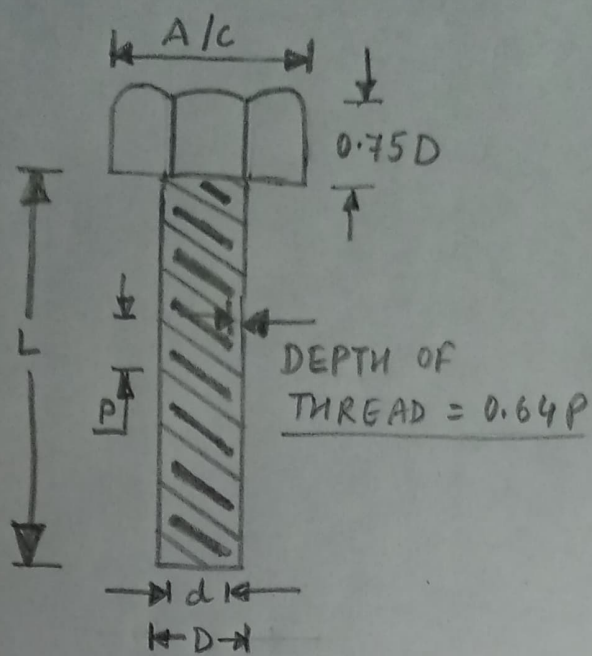


Fig 2: Outside calliper  
(Spring calliper)

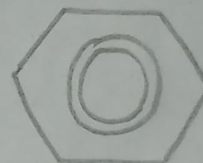
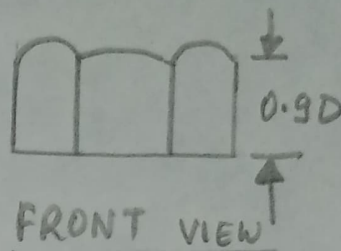
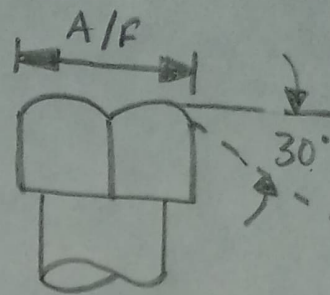
- Outside calliper is an inwards bent two legged measuring instrument used to measure outside dimensions.
- It measures the external size of an object.
- The spring calliper has an adjustable screw and nut (fig 2).
- While the fig 1. has firm joint callipers which are held at the joint together at the top with a nut.



$$d = D - 2 \times 0.64P$$

$$A/f = 1.25D + 6 \text{ mm}$$

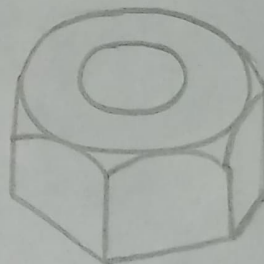
$$A/c = A/f \times 1.25$$



HEXAGONAL NUT  
(TOP VIEW)



HEXAGONAL  
HEADED  
BOLT





4) a) Weldability is defined as the capacity of being welded into inseparable joints having specified properties.

It depends on five major factors:-

- i) Melting points: Materials with low or medium M.P. are preferred.
- ii) Thermal conductivity (K): Thermal conductivity is indirectly proportional to weldability.
- iii) Thermal expansion: Metals should not deform more due to high heat generation during welding, metals with high thermal expansion coefficient are not preferred for welding.

b)

iv) Surface condition: Materials with oily surfaces, grease makes it difficult to weld.

v) Changing microstructure

b) List of tools & equipments used for welding process:

- 1.) AC machine
- 2.) Electrode
- 3.) Electrode holder
- 4.) Cable & cable connector
- 5.) Cable plug
- 6.) Chipping hammer
- 7.) Earthing clamps

- 8.) wire brush
- 9.) Helmet
- 10.) Safety goggles
- 11.) Hand gloves
- 12.) Aprons.