Workshop Practice : Fitting Shop
Job 2 : Making a 'V' groove on a M.S plate
Material : 70 x 50 x 5 thk. M.S plate

(A) Steps to be followed :

Operation Sequence	Instruction	Operation	M/C or Tools or Gauge
1.	Make a layout of sketch on the job (already prepared by covering with chalk pest) according to dimension.	Marking	Steel Rule, Divider, Center Punch, Hammer, Odd leg Caliper, Scriber, Try Square.
2.	Clamp the material in Bench Vice & then start Sawing by using Hacksaw to remove material as per dimension.	Sawing	Hacksaw Bench Vice
3.	Make the rough surface smooth and check for parallelism and squareness of relevant surface.	Filling	Flat File, Square File, Triangular File

B) 1.(a) How files are specified ?

→ Files are used to remove very small piece of metal with ordering a file. It should be specified and named according to following factor –

1) length → The measurement of the file from top to bottom.

2) Shape → It is the structure of the file specified, like square, triangular, etc.

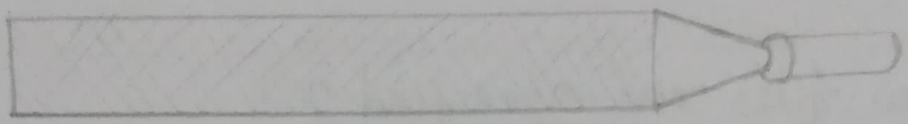
3) Single or double Cut → It refers to the thickness of the file whose cutting will be done.

4) Roughness → It is the unevenness or irregularness produced on the surface of the file for which the smoothness of the surface is lost.

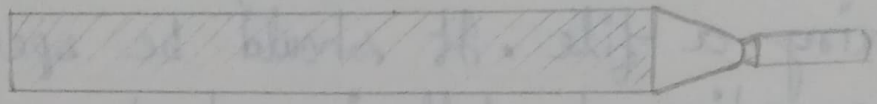
b) How files are classified ? Describe with sketches ?

→ Files are classified or named according to three principal factors — Size, type or cut of teeth and Sectional form.

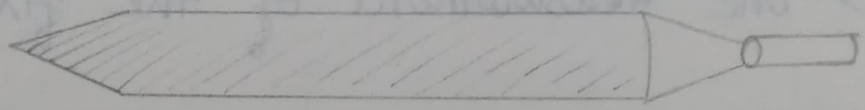
- File Size :- The size of the file is the length, this is the distance from the point to the heed without it, files for coork are usually from 100-200 mm and those for heavier coork are 200-450 mm in length.



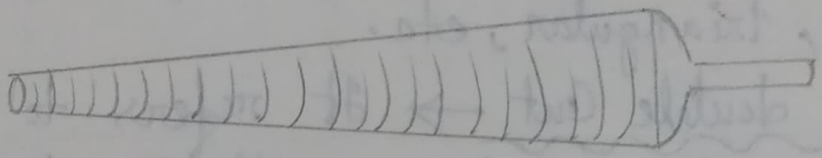
CROSS CUT FLAT FILE



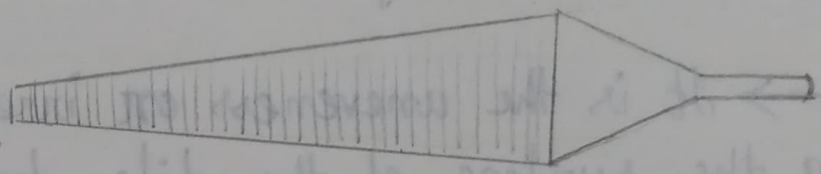
SINGLE CUT FLAT FILE



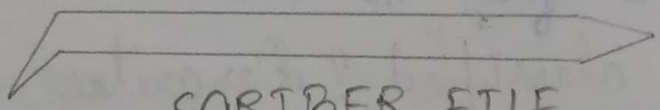
TRIANGULAR FILE



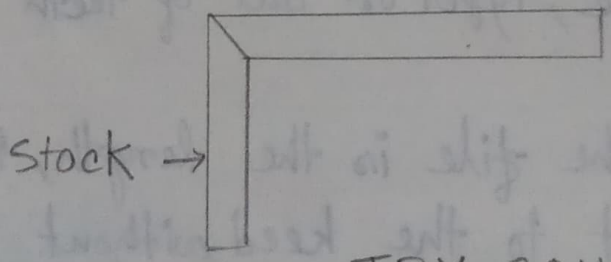
ROUND FILE



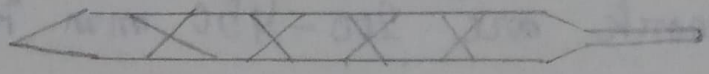
SQUARE FILE



SCRIBER FILE



TRY SQUARE



RECTANGULAR FILE

• Cut of teeth :- Cut of file are divided into two groups shown in the figure. These groups are —

1) Single Cut, 2) Double Cut

In the single cut, the teeth are not parallely at the angle of 60° to the centre line of the file. Such after are generally turned as "Cut of teeth" and are used on every hard metal.

Double Cut files have to set the teeth. The other teeth being cut at about 60° and the upper cut of 75°-80° to the centre line.

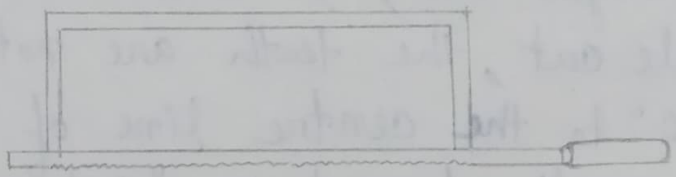
• Shape :-

(a) Flat file :- It is one of the most commonly used file for general workshops. They are always double cut on the face and single cut on the edge. It is tappered in thickness.

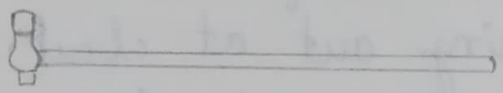
(b) Square file :- This file is square in cross section and double cut towards the point. This is used for filling square and slots where the width of the tail is uniform but tappered in thickness.

(c) Piller file :- It is similar to flat file but thiner and parallel to its thickness. They are double cut and narrow.

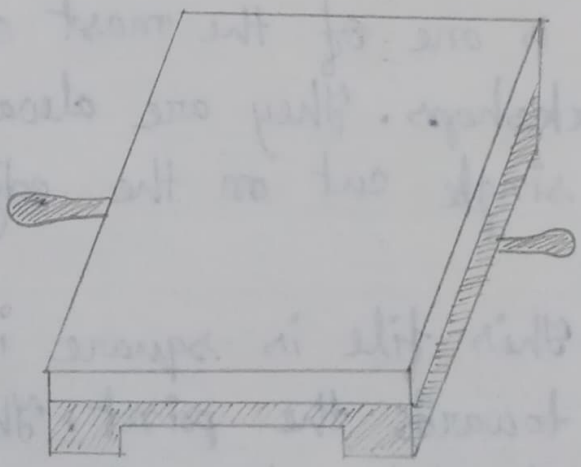
(d) Round file :- They are round in cross-section of tappered.



HACKSAW



BALL-PEEN HAMMER



SURFACE PLATE

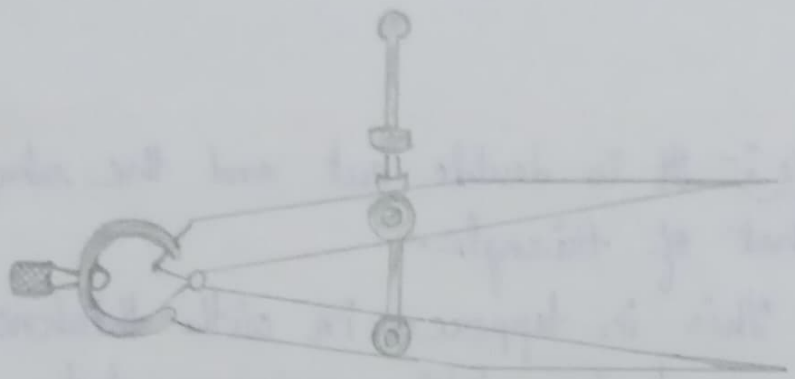
(e) Triangular file :- It is double cut and the shape is equivalent to that of triangle.

(f) Edge file :- This is tappered in with thickness and double cut. They are used for fitting narrow slot.

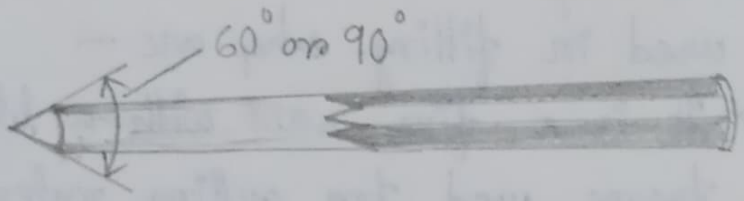
2) Write the names, classifications & sketches of other tools, used in fitting shop.

→ The tools used in fitting shop are —

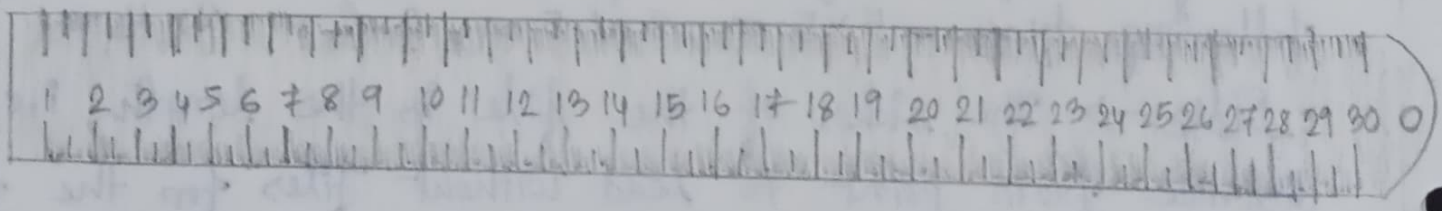
- Hackshaw → It is a fine saw with a blade under tension in a frame used for cutting materials such as metals.
- Surface plate → The surface plate is used for testing platform of working the plates which are of following types - 5×5 m, 3×1.5 m, 2×2 m, 2×4 m.
- Files → The sides of the file is the length, i.e. the distance from point to head without files for the files uses are usually 200-400 mm per length.
- Ball ~~Pein~~ Peen Hammer :→ It is a type of punching hammer used in metal working. It has semi-spherical head on its one side.
- Try-Square → The try square as shown in figure is made in one piece, both blade and beam. This is used when it is necessary to get another edge or surface and also for laying out work. The squares of any square may be tested by placing the beam



DIVIDER



CENTER PUNCH



SCALE

of the square against a straight edge with the blade resting on a smoother surface. While in this position a line may be scribed along the edge of the blade.

• Divider :→ Dividers are used for marking out work. Sharp points can be used to scribe the workpiece, creating areas and circles. They can also be used to measure the distance between two points.

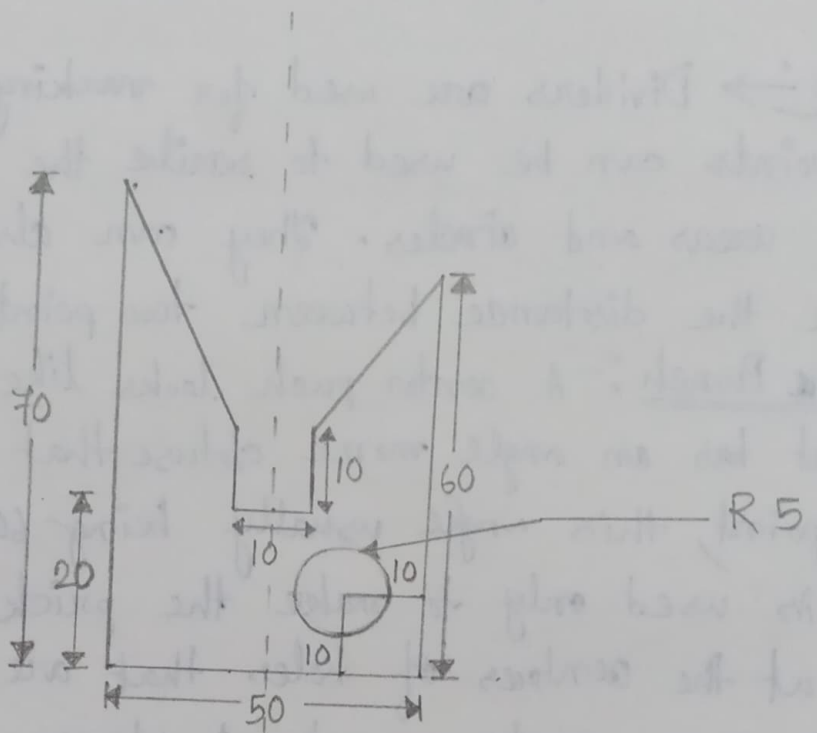
• Centre Punch :- A center puch looks like a prick punch. Its point has an angle more obtuse that of the prick punch point, this angle usually being 60°. The centre punch is used only to make the prick point marks larger at the centres of holes that are to be drilled, hence the name centre punch. A strong blow of the hammer is needed to the mark point.

In its body portion the punch is a steel road 90 to 150 mm long and 8 to 13 mm diameter.

• Scale :→ Scales are used to measure lengths and other geometrical parameters.

3) Describe the job performing in fitting shop with sketch.

→ Material :- 70 × 50 × 5 mm plate, steel rule, divider, centre punch, hammer, scriber, trisquare, hacksaw, flat side, square file.


70
20
10
10
60
R 5
10
10
50

- Step-1: A rectangular job and other necessary equipment were taken.
- Step-2: Clamping the job with benchwise. Each side of the job is to make plane with file and check with try square if it is perfectly rectangular.
- Step-3: On the perfect rectangular job, the given diagram is drawn and chalking by prick punch and ball peen hammer.
- Step-4: With the help of hacksaw the triangle part of the job has been done. Each side of the triangle of the job is to make plane with file after cutting with hacksaw.
- Step-5: Then with the help of the square file the square area of the job has been done.
- Step-6: Drill machine is used to make a hole on the drawn area of the job.

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