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ESTD: 2015 **Siromonipur, Bishnupur, Bankura, 722122 (W.B.)**



1.3 Filing

The process of finishing a surface using a file is known as filing.

Following three methods are used for filing :

1. Straight filing
2. Draw filing
3. Cross filing

1. Straight Filing : This process is specially useful for long and narrow workpieces whose width is less than that of the file. In this process, the workman stands exactly in front of the vice and the file is moved straight, to and fro with respect to the workpiece to make the surface smooth. This process removes sufficient amount of material but it is difficult to maintain balance while operation.

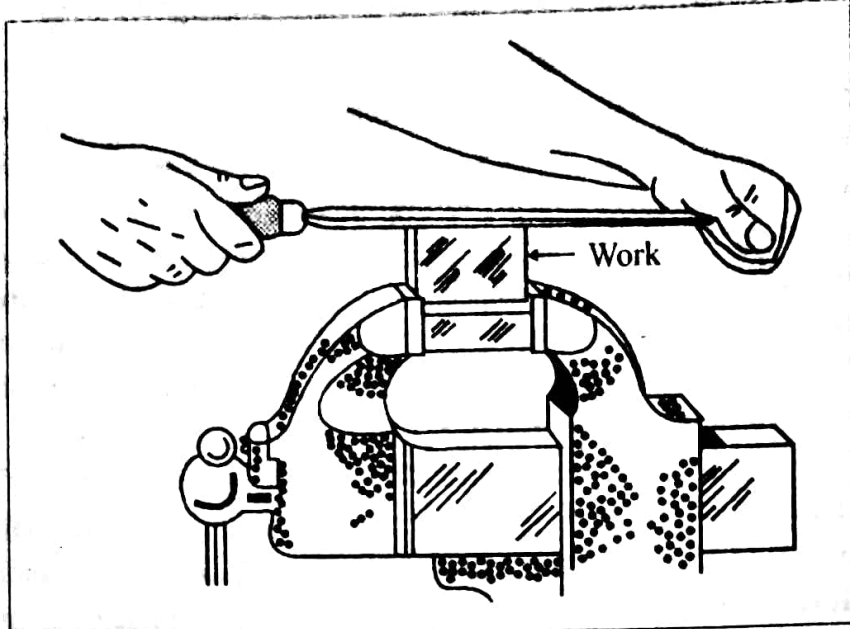


Fig. 10 : Straight Filing

2. Draw Filing : This process is used to finish the metal surface by removing high spots present on its surfaces. In this process, filing is done by holding the file with both the hands and not by holding the handle.

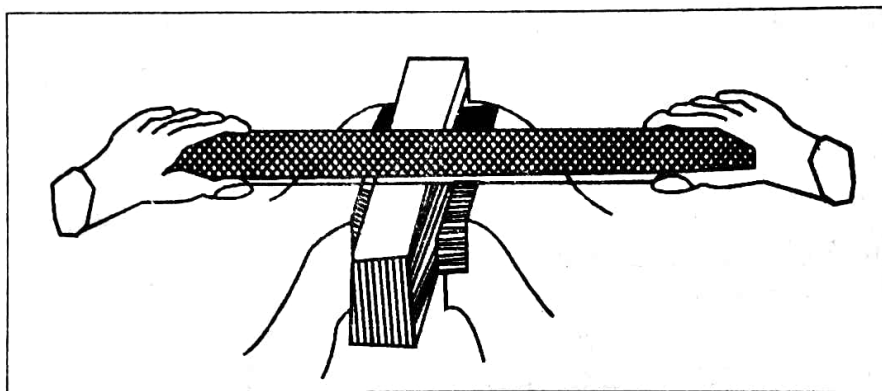


Fig. 11 : Draw Filing

3. Cross Filing : It is the most common method of filing which is used to remove high spots from the centre of workpiece. In this filing, the movement of the file is carried out from one corner to the other corner over full length of stroke, and sufficient material is removed in lesser time. It is also known as diagonal filing.

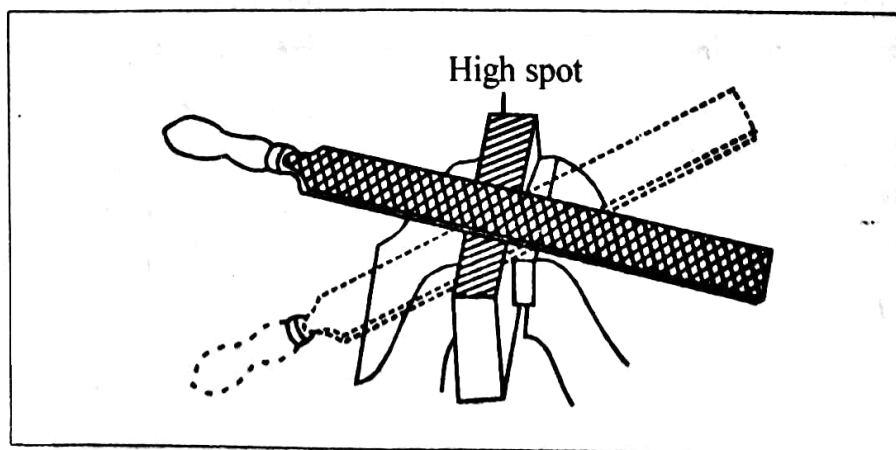


Fig. 12 : Cross Filing

FILE

A file is a hardened piece of high grade steel with slanting rows of teeth. It is used for removing the excess material to make the metal parts smooth. File is made of high carbon steel or tungsten steel, by forging. Then the teeth are cut, hardened and tempered. The filing allowance is kept as 0.2 mm to 0.5 mm. The size of file is measured from tip to heel.

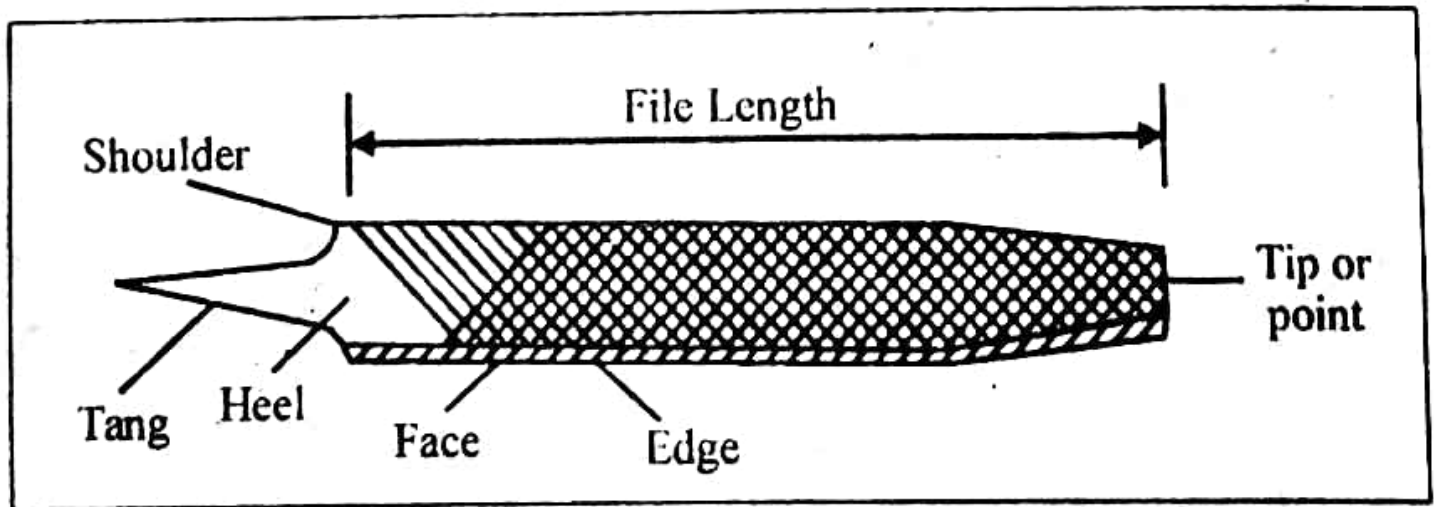


Fig. 1 : File

1.1 Parts of a File

1. **Tang** : The pointed part which fits in the wooden handle.
2. **Tip or Point** : The end opposite to tang.

3. **Face or Side** : The broad part of the file with teeth cut on its surface.
4. **Edge** : The thin part of the file with single row of parallel teeth. Sometimes, one edge is known as safe edge and may not have any teeth. We make use of the safe edge while filing a surface at right angles to the surface already filed.
5. **Heel** : It is the broad portion of the file next to the handle. It does not contain teeth.
6. **Shoulder** : It is the curved part of the file separating tang from the body.
7. **Ferrule** : A protective metal ring provided on the handle to prevent the racking of handle.
8. **Handle** : It is made up of wood in which tang is fixed and used to hold the file.

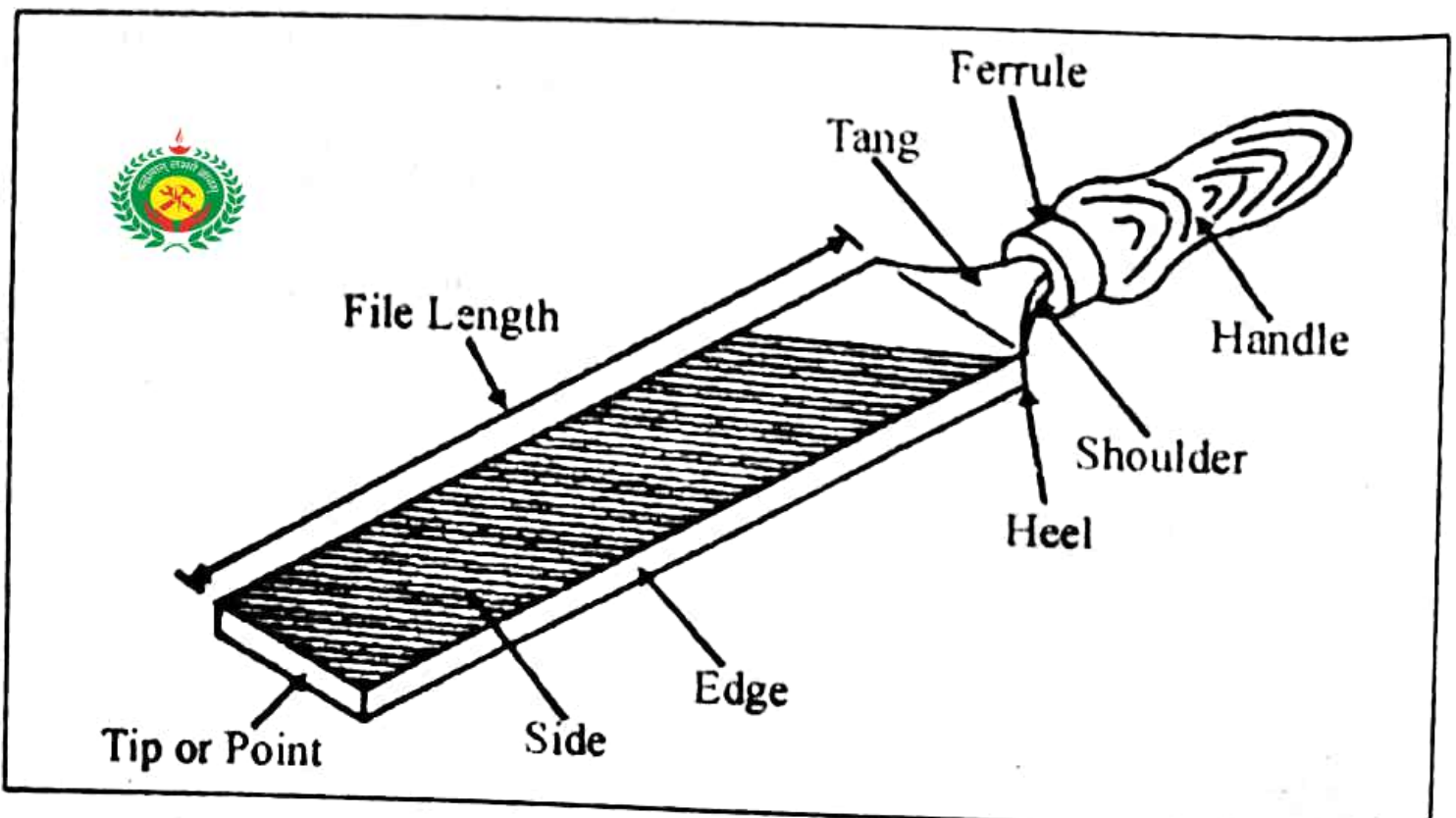


Fig. 2 : Parts of a File

Fig.4.2 Hacksaw main parts.

4.3 Types of hacksaw frames

There are two types of hacksaw frames:

- Solid hacksaw frame as shown in Fig.4.3a. In this type only a particular standard length of blade can be fitted to this frame.
- Adjustable hacksaw frame (Fig 4.3 b). In this type different standard lengths of blades can be fitted to this frame.



(a)



(b)

Fig.4.3: (a) Solid hacksaw frame.
(b) Adjustable hacksaw frame

4.4 Hacksaw blades

4.4.1 Classification of the hacksaw blades

The hacksaw blade is classified by:

1. Teeth pitch which is the number of teeth per 25 mm.
2. Blade length which is the length between the centers of its pin holes as shown in Fig.4.4.

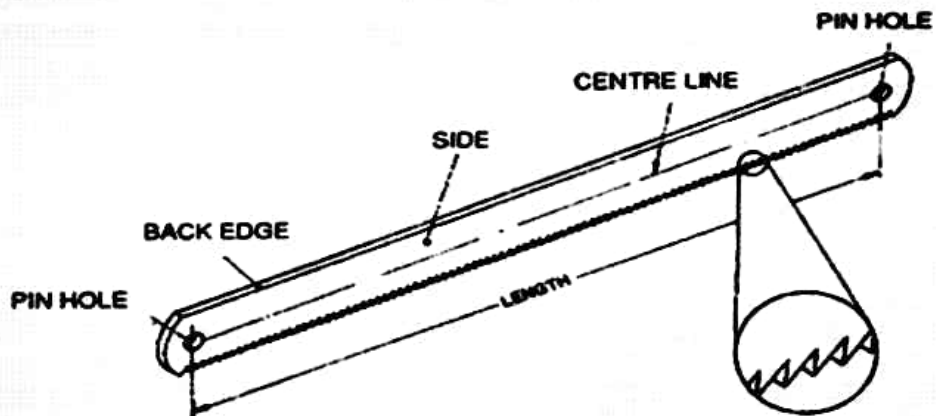


Fig.4.4: Hacksaw Blade.



4.5 Hacksaw safety tips

- Always wear safety goggles while using a hacksaw.
- Be sure the hacksaw blade is properly tensioned
- Do not brush away chips with your hand, use a brush.
- Never test the sharpness of a blade by running your fingers across its teeth.
- Keep saw blades clean, and use light machine oil on the blade to keep it from overheating and breaking.

4.6 Cutting with the hacksaw

- Hold the hacksaw properly at an angle as shown in Fig. 4. 10.
- When cutting, let your body sway ahead and back with each stroke.
- Apply pressure on the forward

stroke, which is the cutting stroke.

- Use the entire length of the blade in each cutting stroke
- The usual cutting speed is from 40 to 50 strokes per minute

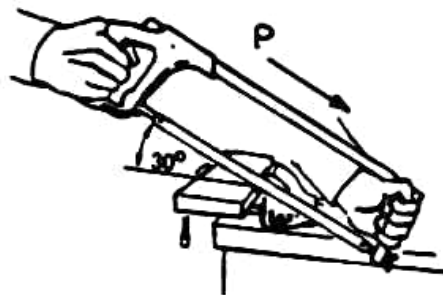


Fig 4.10: Cutting with the hacksaw.



