

Experiment No. 7

Statement:

To prepare a workpiece using marking, cutting and filing operations.

Apparatus:

1. Scriber
2. Hacksaw
3. Files
4. Try Square
5. Vice
6. Work bench
7. Workpiece

Theory:

Marking Out:

Marking out or layout means the process of transferring a design or pattern to a workpiece, as the first step in the manufacturing process. The marking is performed using various tools which are. The marking operation consists of following steps.

1. First of all, the surface of the work is coated with a paste of chalk and allowed to dry.
2. If the work is flat, uncoated face is normally supported against an angle plate keeping the surface to be marked at right angles to the surface of the surface plate.
3. Now the horizontal lines are first scribed by means of scribing block or surface gauge. The vertical lines are drawn by turning the work through 90° .
4. The circles and arcs on a flat surface are marked by means of a divider.
5. After scribing work is over. light indentations are made along the scribed lines, centers of circles and arcs by means of a center punch and a hammer. These punch marks serve as a guide for further operations like filing, chipping, drilling etc.

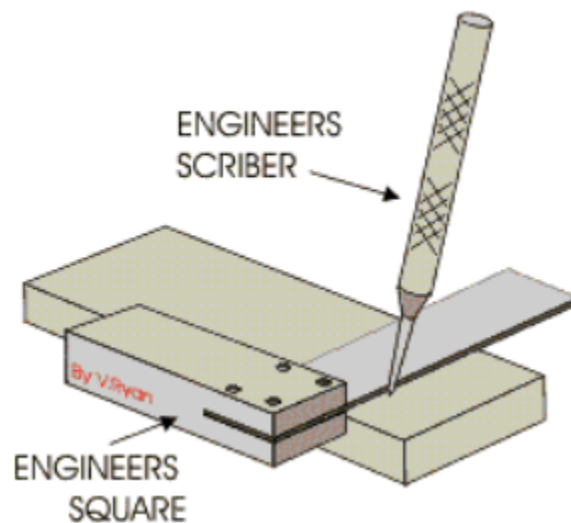
Scriber

It is basically used as a pencil when marking out in metalwork. If a pencil or pen was used to mark out in metalwork, the lines would easily rub off. The scriber scores a more permanent line on the surface of the metal which is easier to work with.



Try Square:

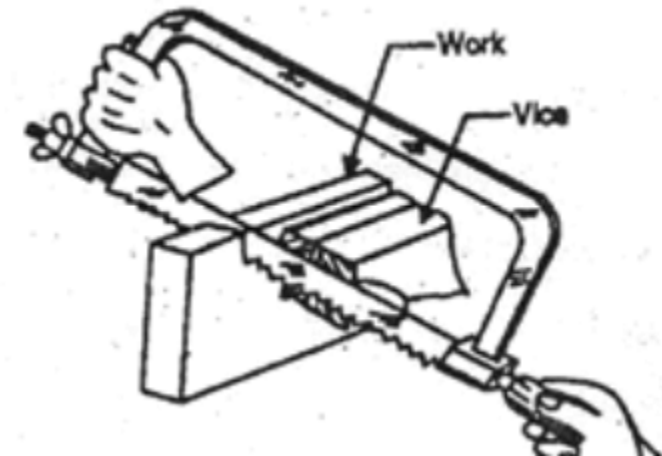
The square is pushed against a straight side of the material (e.g. steel). An engineer's scribe is then used to scratch a line onto the surface of the metal at right angles to the edge. Sometimes engineers blue (a dye/ink) is wiped onto the surface first so that the scratched line can be seen easily. The material is then cut down to this straight line.



Sawing:

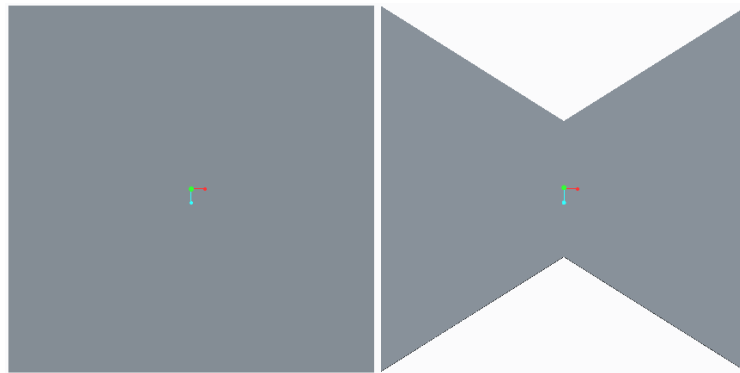
Place the saw on the work with the right hand on the handle and the left hand on the other end of the saw frame firmly, the sawing should begin with a backward stroke. The pressure is applied on the forward stroke and a little is necessary on the return stroke, because the blade cuts only in the forward stroke. Clean starting cuts can be achieved by first filing a notch close to the working line on the side of the piece which will fall off, using a triangular file to this end. Then the saw will be able to enter the material with some guidance. Further be sure to begin

sawing with short strokes and to apply the saw in a position somewhat inclined to the workpiece. Make almost all the blade do the cutting and make 50 – 60 strokes per minute.



Task:

Prepare the finished part from given raw material using suitable fitting operations like (marking, cutting, filling etc).



Conclusion:
