

Job No.: 03

SHEET METAL Date of performance:

Date of completion:

## SECTION: - SHEET METAL

Title of job: - Dust Pan

Material specification: - G.I. Sheet (24 Gauge)

Raw Material size:- 300 × 260 mm &amp; 180 × 45 mm

Tools Used :- Steel Rule, Try Square, Handshear (Snip), Wooden Mallet, Scriber, Ball Pen Hammer, Flat File, Hand Gloves, Bending Machine, Shearing Machine, Rivets And Riveting Stock, Drilling Machine, Drill Bit, Plair etc.

Procedure:

1. Take the material for planning operation.
2. Mark the material as per given dimensions.
3. Cut the material into one piece of size 300 × 260 mm and also maintain 90° angle for all the corners.
4. Draw the different dimensions as per given diagram.
5. Do the Cutting, Drilling and Bending operation as per given instruction.
6. Do the riveting working with help of riveting stock and Ball Pen Hammer.
7. Do the malleting work where we require.
8. Now take G.I. sheet material for dust pan handle operation.
9. Cut the material 180 × 45 mm and do the marking as per drawing.
10. Do the drilling and bending operation as per given instructions.
11. Joint the dust pan & dust pan handle with help of riveting work.

Skill :-

Planning, Marking, Cutting, Filing, Bending, Drilling, Riveting, Assembly, Finishing.

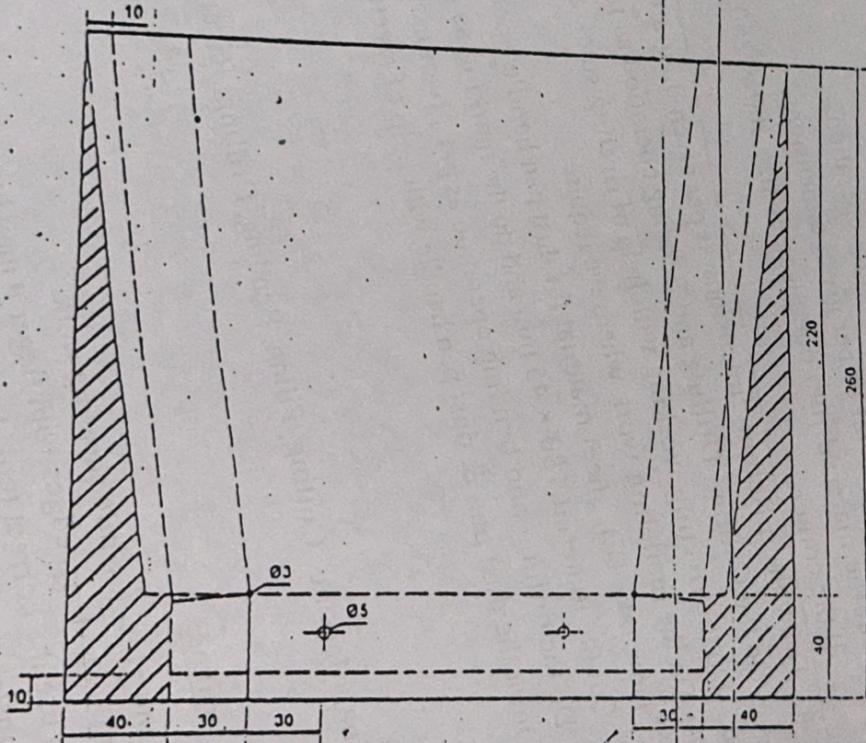
Safety Precautions:

- 1) Use hand gloves while shearing work.
- 2) Do not touch sharp edges with finger it may hurt due to sharpness of the edges.
- 3) Always use the correct tools for various operation.
- 4) Handle instruments carefully.
- 5) Take caution while removing material and cut it to its exact dimensions.
- 6) Do not use cutting tools without handle.

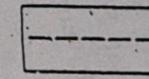
# THEEM COLLEGE OF ENGINEERING (BOISAR)

SECOND SEMISTER

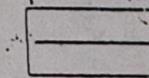
NAME OF EXPT : DUST PAN (SHEET METAL SECTION)  
MATERIAL : G.I. SHEET (21 GAUGE)  
TOLLERANCE :  $\pm 0.02$  MM  
NOTE : ALL DIMENSION ARE IN MM.



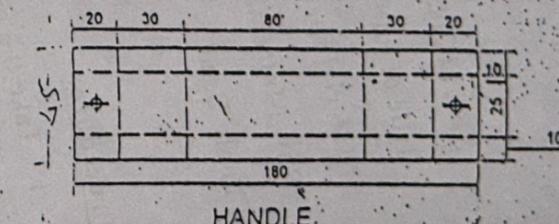
REMOVAL PART



BENDING LINE



CUTTING LINE



HANDLE

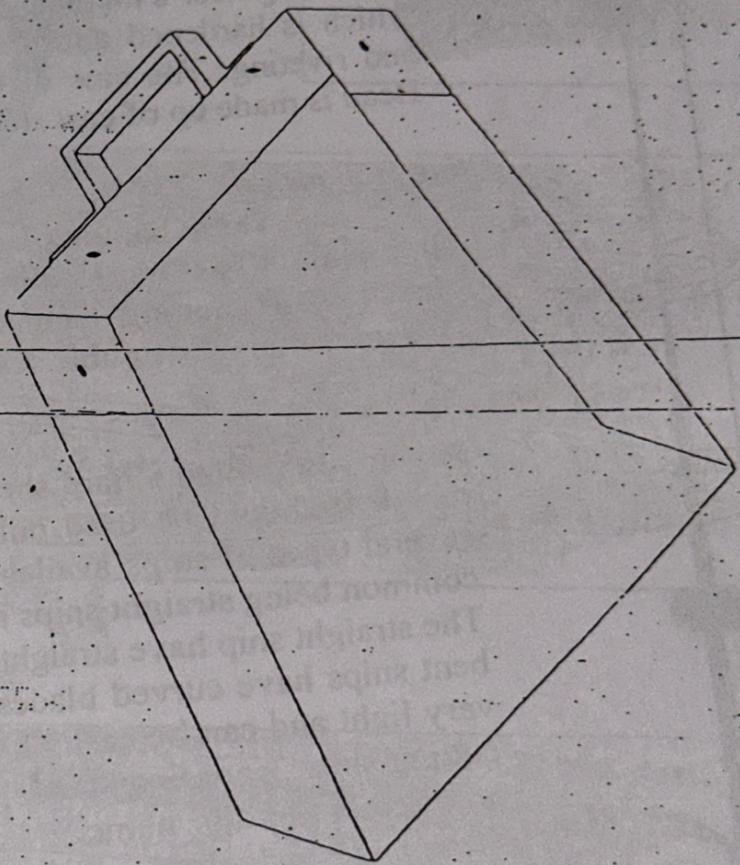
# THEEM COLLEGE OF ENGINEERING (BOISAR)

SECOND SEMESTER

NAME OF EXPT. : DUST PAN (SHEET METAL SECTION)

MATERIAL : G.I. SHEET (24 GAUGE)  
TOLERANCE :  $\pm 0.02$  MM

NOTE : ALL DIMENSION ARE IN MM.



ISOMETRIC VIEW OF DUST PAN

## Sheet metal

### ★ Introduction:-

The sheet metal shop is very important for every engineering concern. It deals with the working of metal sheets. It requires a thorough knowledge of projective Geometry particularly the Development of surfaces, because the laying out of pattern and cutting of metal sheets to correct sizes and shapes entirely depends up on the knowledge of workman. The various operations performed in a sheet metal shop are cutting, shearing, Bending etc.

### ★ Tools and application:-

#### Ball Pen hammer:

This is most common form of hammer and is sometimes called engineer's hammer, or chipping hammer. The pen has a shape of a ball which is hardened and polished. This hammer is chiefly used for chipping and riveting. The size of this hammer varies from 0.11 to 0.9kg. Hammer Head is made up of cast steel, the ends hardened and tempered.

#### Setting Hammer:-

These hammer are used for doming shapes while following raising throwing, off setting Hammer is one of the commonly used Metals for sheet metal work. Setting hammer is specially used for setting down the edge where making the double seam.

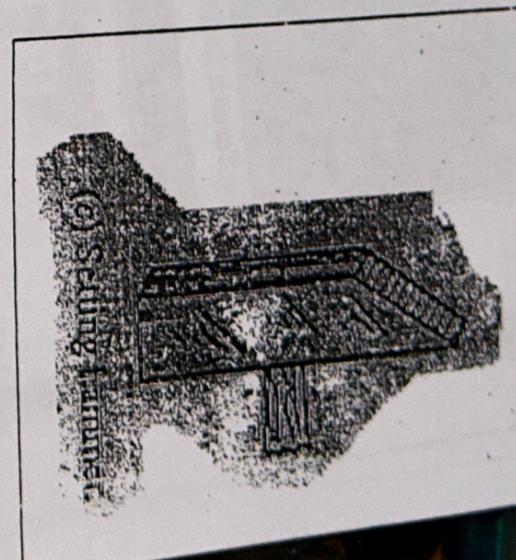
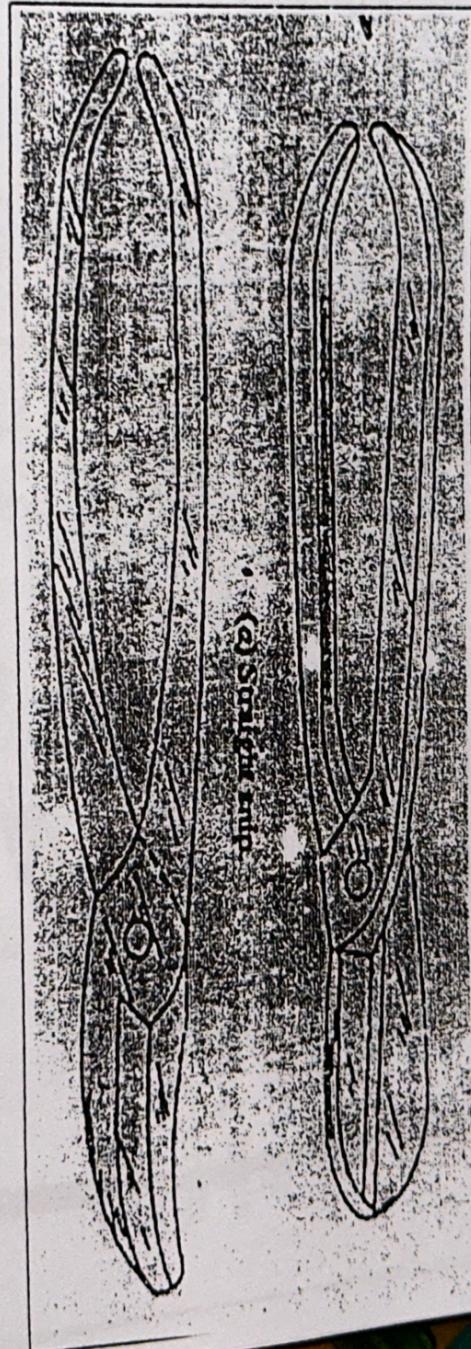
#### Head shear (Snip):-

A snip also called a hard shear is used like a pair of scissors to cut thin, soft metal. It should be used only to cut 20 gauge or thinner metal. There are several types of snips available for making straight or circular cuts, the most common being straight snips and curved snips.

The straight snip have straight blades for straight lines cutting while curved or bent snips have curved blades for making circular cuts. Both these snips are very light and can be easily handled by only one hand. These are also Double cutting shear, squaring shear, ring shear and circular shear used for particular requirement as the name indicates. The heavier classes are known as bench shear and block shear where one handle may be held in vice or bench plate while the other handle is moved up and down to do the cutting.

#### Steel Rule:-

The steel rule is one of the most useful tools in the shop of Taking linear measurement of blanks & articles to accuracy 1.0mm to 0.5mm. It consist of a strip hardened steel having the Line graduation etched depending up on



Chisel

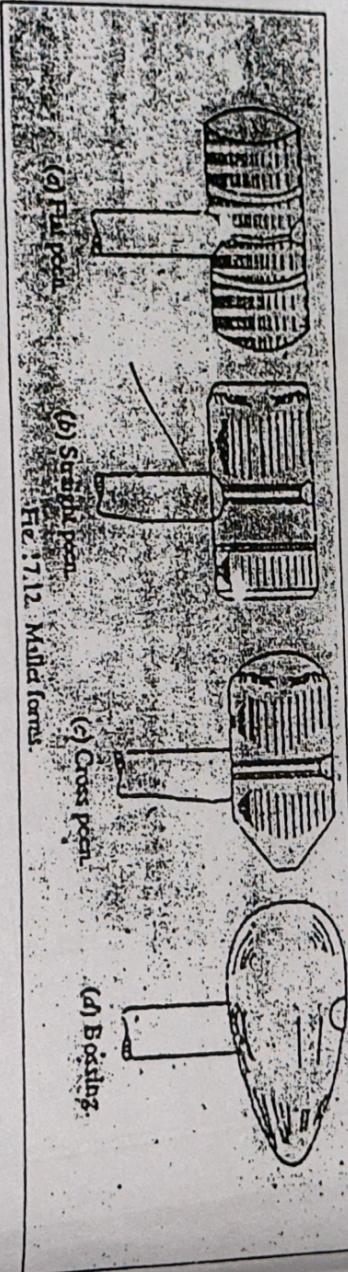
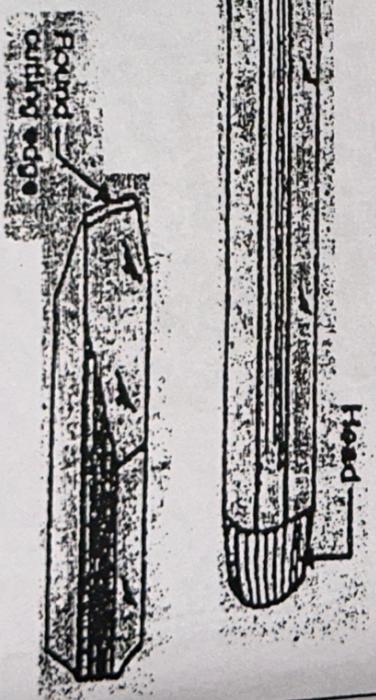
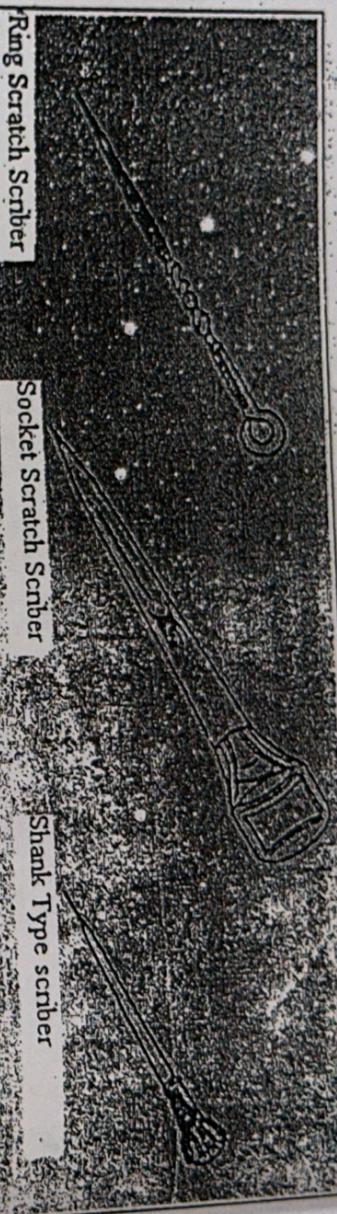


Fig.7.12. Mallet forms.



Sc

interior at which the Graduations are made. The scales can be manufactured in Different size & style. This is usually marked in both cm. & Inch. Metric rules with only mm. & cm. graduation are now used in this country. Steel rule which are 150, 300, 500 & 1000 mm. long. The width and Length up to 500 in 18 to 22mm. & Thickness is 0.4 to 0.6 Rules 0.8 To 1.0 thick steel rule particularly useful in measuring & laying out Small work. It can measure with an accuracy of 0.5mm.

#### Scriber: -

The scriber is a piece of hardened steel rod with 150 to 300 mm long and 3 to 5mm diameter pointed at one or both end. It is held like pen to scratch line in places where the straight end can not reach.

#### Caliper: -

An out side caliper is a tool with its bent in ward as Shown in figure It is used for comparing thickness, Diameter and other dimensions.

#### Mallet: -

The mallet may be made from hard fiber or wood. The best size of Mallet is 5cm.diameter. These may be obtained in various shapes to Suit special work.

#### Chisel: -

Cold chisels are used for cutting and chipping away pieces of metal and are made of carbon steel usually rectangular hexagonal or octagonal cross-section. They are forged to shape roughly ground and then hardened and tempered. Afterwards the edge is ground sharp to the correct cutting angle care being taken not to overheat the steel and draw the temper. The cutting angle given to the chisel is determined mainly by the nature of the metal to be chipped . It varies between 35 and 70, the less acute angles being for the harder and tougher metals.