



MECHANICAL WORKSHOP

ASSIGNMENT NO 1

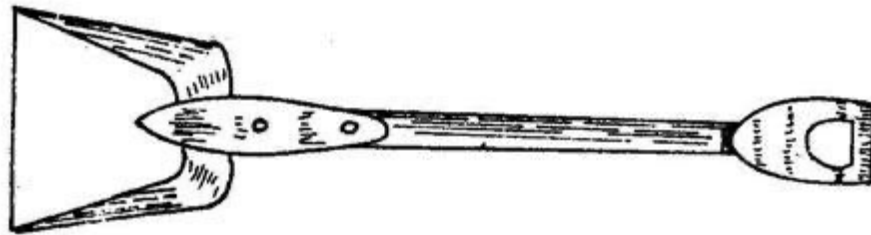
PARTH JOHRI

2K20/B17/33

FOUNDRY SHOP HAND TOOLS

1. Showel:

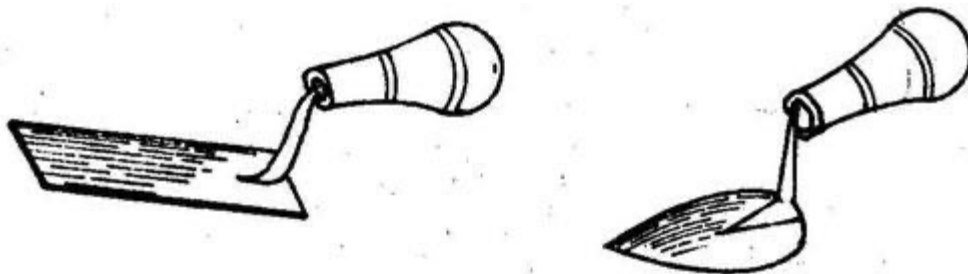
It consists of iron pan with a wooden handle. It can be used for mixing and conditioning the sand.



Showel

2. Trowels:

These are used for finishing flat surfaces and comers inside a mould. Common shapes of trowels are shown as under. They are made of iron with a wooden handle.



Trowels

3. Lifter:

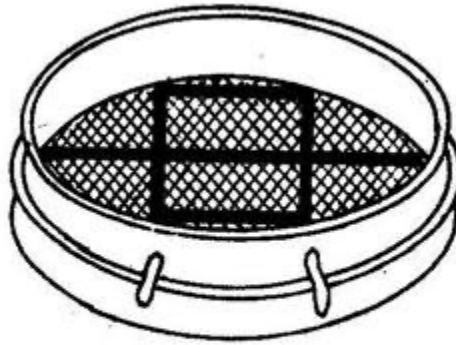
A lifter is a finishing tool used for repairing the mould and finishing the mould sand. Lifter is also used for removing loose sand from mould.



LIFTER

4. Hand riddle:

It is used for ridding of sand to remove foreign material from it. It consists of a wooden frame fitted with a screen of standard wire mesh at the bottom.



Riddle

5. Strike off bar:

It is a flat bar, made of wood or iron to strike off the excess sand from the top of a box after ramming.

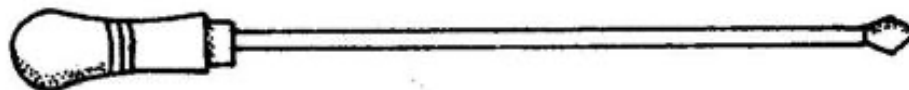
It's one edge made beveled and the surface perfectly smooth and plane.



A strike off bar

6. Vent wire:

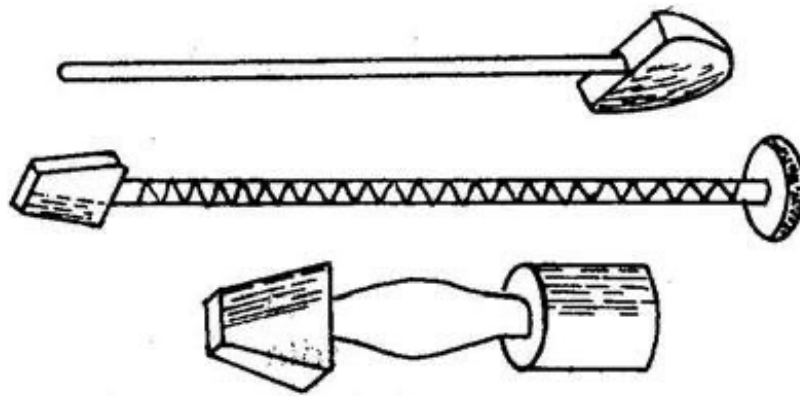
It is a thin steel rod or wire carrying a pointed edge at one end and a wooden handle or a bent loop at the other. After ramming and striking off the excess sand it is used to make small holes, called vents, in the sand mould to allow the exit of gases and steam during casting.



Vent wire

7. Rammers:

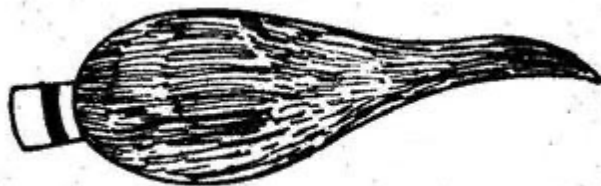
Rammers are used for striking the sand mass in the moulding box to pack it closely around one pattern. Common types of rammers are shown as under.



Rammers

8. Swab:

It is a hemp fiber brush used for moistening the edges of sand mould, which are in contact with the pattern surface, before withdrawing the pattern. It is also used for coating the liquid blacking on the mould faces in dry sand moulds.



Swab

9. Sprue pin:

It is a tapered rod of wood or iron, which is embedded in the sand and later withdrawn to produce a hole, called runner, through which the molten metal is poured into the mould.

10. **Smothers :**

According to the use and shape , they are given different names

They are also known as finishing tools which are commonly used for repairing and finishing flat and round surfaces , round or square corners and edges of molds

11. **Sprue cutter:**

It is also used for the same purpose as a sprue pin, but there is a marked difference between their use in that the cutter is used to produce the hole after ramming the mould. It is in the form of a tapered hollow tube, which is inserted in the sand to produce the hole.



Sprue cutter

12. **Hammers:**

It is used for packing or ramming the sand around the pattern , one of its ends is called peen end , is wedge shaped and is used for packing sand in pieces and corners in early stages of ramming , the other end called the butt end , has a flat surface and is used for compacting the sand towards the end of moulding

13. **Ladles**

They are used to receive molten metal from the melting furnace and pour the same into the mould. Their size is determined by their metal holding capacity.

14. **Crucibles**

They are used as metal melting pots, similar in shape to ladles. They can be made from any material with high temperature.

15. **Moulding Tools**

It is a wooden surface with a smooth surface. It supports the flasks and the pattern, while the mould is being made.

16. Molding boxes or flasks

Moulding box is a frame packed with moulding sand around a pattern to form a mould for molten metal. Some other names for molding boxes are carting flask and sand box , which are commonly known as moulding flask and moulding box respectively.

The lower part is called drag and the upper part is called cope and all the intermediate parts if used are called cheeks.

17. Roller

It is used for surface finish of moulds.

18. Slicks

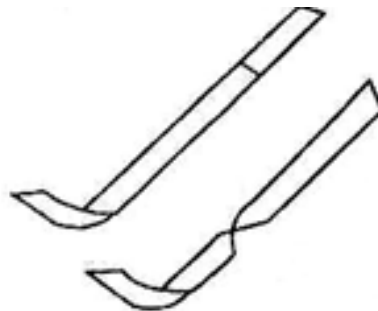
A slick is used for repair and finishing the mould surface after the removal of pattern. It is a double ended tool having a spoon on one end and a flat on the other end



19. Lifters

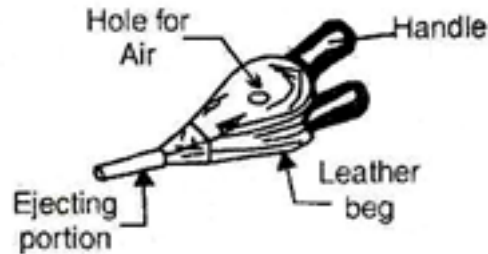
Lifters are made of thin sections of steel of various widths and lengths, with one end bent at right angles.

These are used for cleaning and finishing the bottom and sides of the deep and narrow pockets of the mould.



20. Bellows

Bellows are used to blow loose particles of sand from the pattern and the mould cavity, moulding machine is also provided with a compressed air jet to perform this operation.



21. Draw Spike

It is a tapered steel rod having a loop or ring at its one end and a sharp point at the other. It may have screw threads on the end to engage metal pattern for its withdrawal from the mold. It is used for driving into a pattern which is embedded in the molding sand and raps the pattern to get separated from the pattern and finally draws out it from the mold cavity.

22. Spike or draw pin

It is a steel rod with a loop at the other end. It is used to remove the pattern from the mould.

A draw Screw, with a threaded end may also be used for the purpose to draw metal patterns.

