planer machine. It may be considered as a vertical shaper. The main difference between a slotter and a shaper is the direction of the cutting action. The slotting machine operates in a manner similar to the shaper. However, the cutting tool moves vertically rather than in a horizontal direction. The work piece is held stationary. The slotting machine has a vertical ram and a hand or power operated rotary table.

Principal Parts of a Slotting Machine

Bed or Case :- Bed or case is made up of cast iron. It supports column, tables, ram, driving mechanism, etc. the top of the bed carries horizontal ways which the worktable can transverse.

Cross-slide :- Cross-slide can be moved parallel to the face of the column. The circular worktable is mounted on the top of the Cross-slide.

Hand wheels :- Hand wheels are provided for rotating the table for the longitudinal and cross traverse.

Column is the vertical member :- They are made up of cast iron and it houses the driving mechanism. The vertical front face of the column is accurately finished for providing ways along which the ram moves up and down.

Ram :- Ram is provided to reciprocate to and fro motion. At the bottom of the ram it carries the cutting

tool. It is more massive and moves vertically, at a right angle to the worktable, instead of having the horizontal motion of a shaper.

Tables :- Table holds the workpiece and is adjustable in longitudinal and crosswise direction. The table can be rotated about its center.

Operations Performed on a Slotting Machine

It is a very economical machine tool when used for certain classes of work given as under.

1. It can be used to cut slots, splines keyways for both internal and external jobs such as machining internal and external gears.
2. Used for shaping internal and external forms or profiles.
3. Used for works as machining concave, circular, semi-circular and convex surface.
4. Used for machining vertical surfaces, machining angular or inclined surfaces, machining of shapes which are difficult to produce on a shaper machine and machining dies and punches.
5. Used for internal machining of blind holes.
6. Used for machining dies and punches.

Drive Mechanism of Slotter

There are four types of driving mechanisms used in slotter for driving the ram,

(i) Slotted disc mechanism.

(ii) Slotted link mechanism.
(iii) Variable speed reversal motor driving mechanism.
(iv) Hydraulic drive mechanism.

Specification of a Slotter

(a) The maximum stroke length.
(b) Diameter of rotary table.
(c) Maximum travel of saddle and cross slide.
(d) Type of drive used.
(e) Power rating of motor.
(f) Net weight of machine.
(g) Number and amount of feeds.
(h) Floor area required.

Work Holding Devices in Slotter

→ Vice
→ T- Bolts and clamps.
→ Special Fixtures

Slotter Tools

→ Bit Tools
→ Round nose tools for machining contoured surface.
→ Square nose tools for flat surfaces.

Cutting Parameters of Slotting machine

→ Cutting speed :- It is the rate at which the metal is removed during downward cutting stroke and is expressed in m/min.
→ Feed :- It is the distance the work travels per