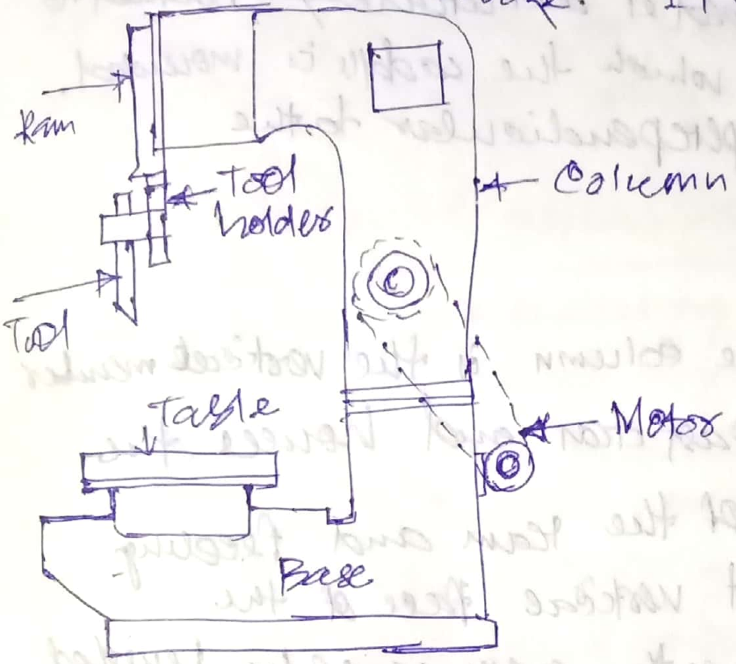
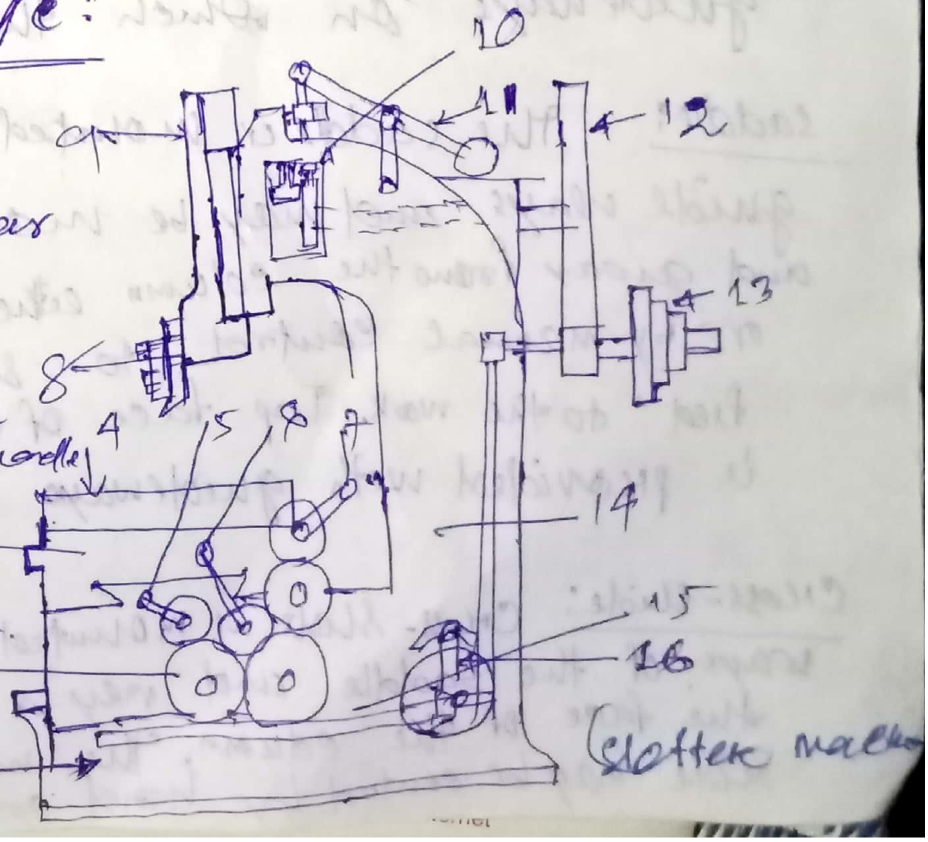
Slottere Machine:

The Slotting Machine (Slotter) is a reciprocating type of machine tool similar to the a shaper or a planer machine. The ram holding the tool reciprocates in a vertical axis and cutting action of ~~of~~ the tool is only during the downward stroke. It is useful for making keyways, machining square holes, cutting of external & internal teeth on big gears, machining of dies, punches etc.



The job is generally supported on a round table, which has rotary feed in addition to the usual table movement in cross direction.

Slotting M/c:



1. Base 2. feed gear
3. Cross slide
4. Table
5. Cross feed handle
6. longitudinal feed handle
7. Circular feed handle
8. Tool. 9. Ram &
10. Crank disc
11. lever for counter balance weight.

(Slotting M/c)

(Slotter machine)

Main Parts of the Slotting m/c:

1. Base or bed
2. Column
3. Saddle
4. Cross-slide
5. Rotating table
6. Ram and toolhead assembly.
7. Ram drive mechanism.
8. Feed Mechanism.

Base or bed: The base is built rigidly to take up all the cutting forces and entire load of the machine. Top of the bed is accurately finished to provide guideways on which the saddle is mounted. The guideways are perpendicular to the column face.

Column: The column is the vertical member which is made of cast iron and houses the driving mechanism of the ram and feeding mechanism. The front vertical face of the column is provided with accurately finished guideways on which the ram reciprocates.

Saddle: The saddle is mounted on upon the guideways and may be moved towards and away from the column either by power or by manual control to supply longitudinal feed to the work. Top face of the saddle is provided with guideways for the cross-slide.

Cross-slide: Cross-slide is mounted upon the guideways of the saddle and may be moved parallel to the face of the column. The movement of the slide may be control by hand or power to supply cross

Rotarey table:

The rotarey table is a circulare table which is mounted on the top of the cross-slide. The rotation of the table may be effected either by hand or power. In some of the machines the table is graduated in degrees that enables the table to be rotated for indexing or dividing the periphery of a job in equal number of parts. To Slots are cut on the top face of the table for holding the work by different clamping devices.

Ram and tool head assembly:

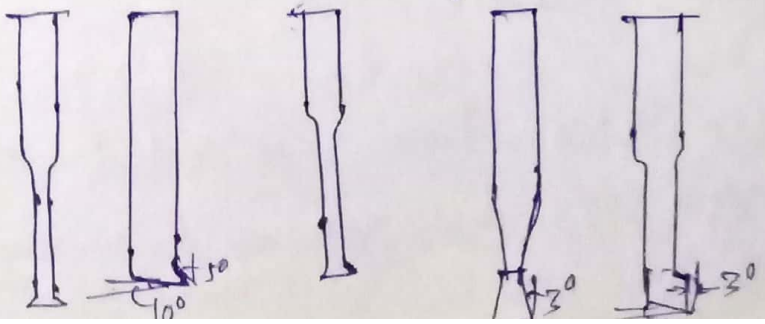
The Ram is the receiprocating member of the machine mounted on the guideways of the column. It moves in vertical direction between the vertical guideways. The ram supports the tool head to which the tool is attached & cutting action takes place during the downward movement of the ram. A Slot is cut on the body of the ram for changing the position of the Stroke.

Ram drive Mechanism: A cutter removes metal during downward cutting Stroke only whereas during upward return Stroke no metal is removed. To reduce the idle return time, quick return mechanism is incorporated in the machine.

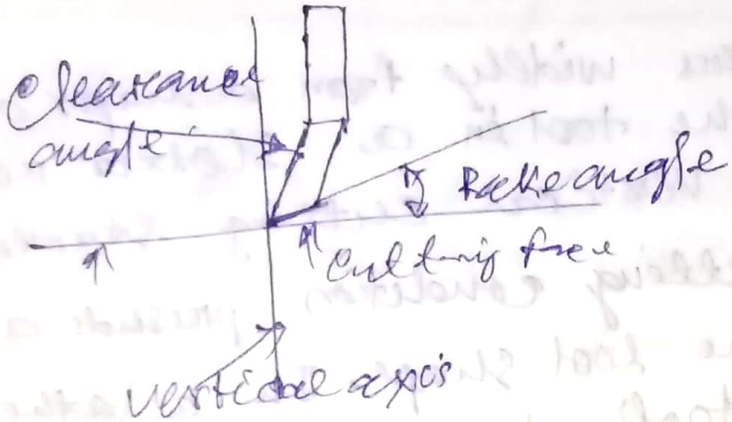
Slotter tools

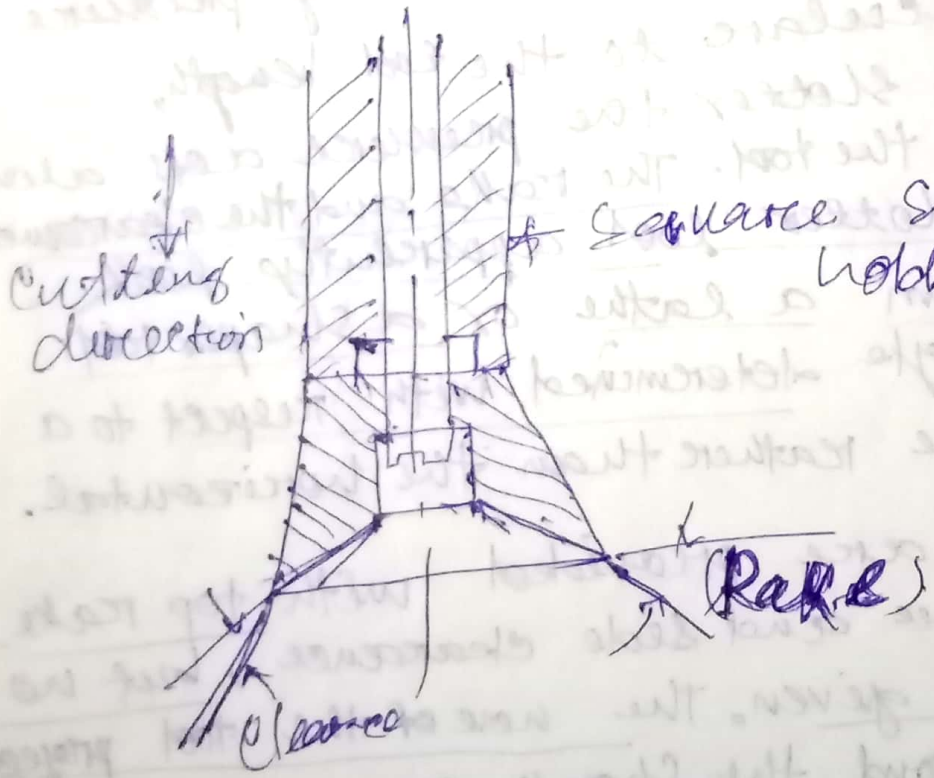
A slotting tool differs widely from a shaper or a planer tool as the tool in a slotter removes metal during its vertical cutting stroke. This changed the cutting condition results a lot of differences in the tool shape. In a lathe, shaper or a planer tool the cutting pressure acts perpendicularly to the tool length, whereas in a slotter the pressure acts along the length of the tool. The rake and the clearance angle of a slotter tool apparently look different from a lathe or a shaper tool as these angle determined with respect to a vertical plane rather than the horizontal.

Slotter tool are provided with top rake, front clearance and side clearance, but no side rake is given. The nose of the tool projects slightly beyond the shank to provide clearance. Slotter tools are robust in cross-sec and are usually of forged type. Bit type tools fitted in heavy duty tool holders are also used. Keyway cutting tools are thinner at the cutting edges. Round nose tools are used for machining circular or contoured surfaces. Square nosed tools are used for machining flat surfaces.



(Slotter tools)





(Holder tools)

Size of slotter:

(i) Maximum length of the stroke of the ram, in mm.
(ii) Diameter of the table in mm.
(iii) Amount of cross and longitudinal travel of the table expressed in mm,
(iv) Number of speeds available
(v) Floor space required.

12. Bull gear
13. Cone pulley
14. Column
15. Feed
16. Bull