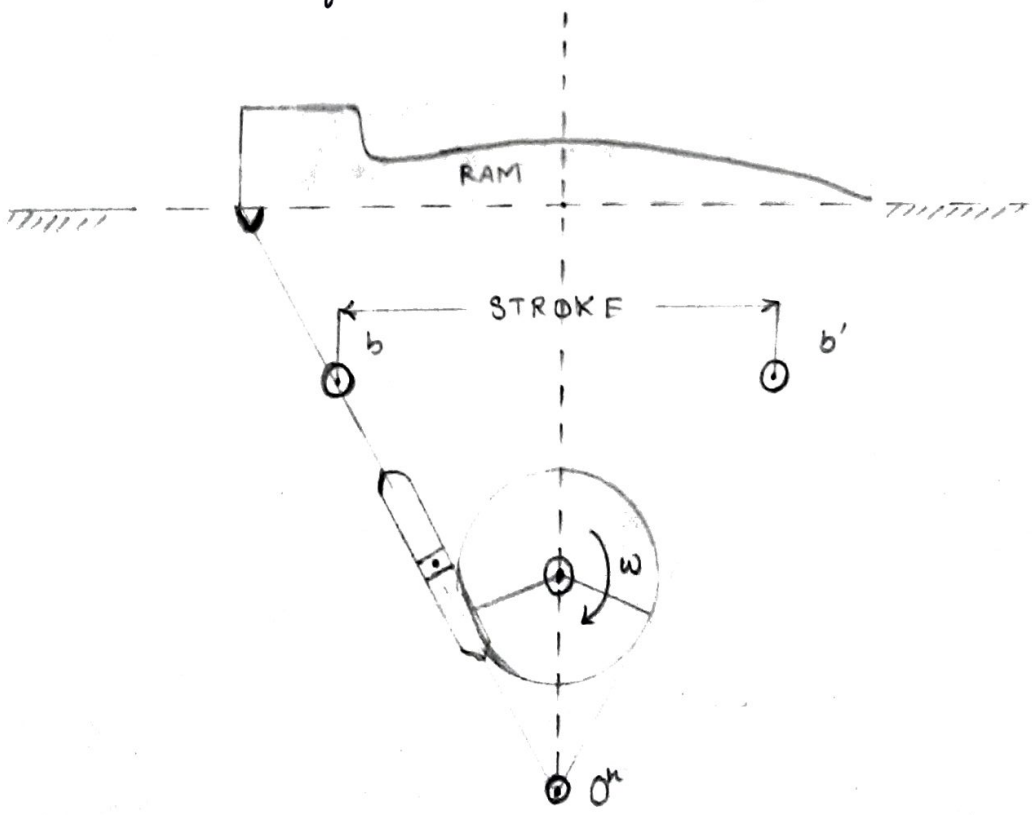
SHAPING MACHINE.

1. Draw and explain a quick return mechanism in a shaping machine.

Ans- A quick return mechanism is an apparatus that converts circular motion into reciprocating motion in presses and shaping machines, which are utilised to shape stocks of metal into flat surfaces, through out mechanical engineering.

The mechanism consists of an arm attached to a rotating disc that moves at a controlled uniform speed. Unlike the crank, the arm of the mechanism runs at a different rate than the attached arm, productivity increases because the amount of time needed for a cut is reduced.



Schematic diagram of slotted arm.
Quick return mechanism.

2. Explain the function of a clapper box.

Ans: The clapper box protects the cutting tool from damage while return stroke. As a result the work piece is also protected from damage and surface finish would be better.

3. How the stroke length and position of stroke in a shaping machine is adjusted?

Ans: Two adjustments have to prepared on ram proceeding to maching work piece. Initially, the stroke length has to be adjusted. It is ready by turning stroke adjustment shaft or stroke selector. The majority of shapers contain a scale on ram by a pointer to point out the length of stroke. Stroke length is adjusted while the ram is in its excessive return place.

Second adjustment is for position the tool. Ram is familiar so ram more machines the whole length of work for accurate position of ram to be set, the ram have to be at the intense return place of stroke.

4. Describe the feed mechanism into a shaper.

Ans: The feed mechanism in a shaper.

⇒ The shaping machine is used to machine flat surfaces, especially where a large amount of metal to has to be removed.

⇒ It can cut curves, angles and many other shapes. It is a popular machine in a workshop because its movement is very simple although it can produce a variety of work.

⇒ when high accuracy and surface quality are required, shaping is followed by other techniques, e.g grinding or scraping.

MILLING

1. How a Milling machine is specified?

Ans: A milling machine is defined or specified as a machine tool that removes metal as the work is fed against a rotating multipoint cutter. The cutter rotates at a high speed and because of multiple cutting edge it removes at a much faster rate.

2. What is the difference between UP milling and DOWN milling?

Ans:

UP milling	DOWN milling
(a) In UP milling, the cutter rotates against the direction of feed.	(a) In DOWN milling, the cutter rotates with the direction of feed.
(b) It is also known as conventional milling	(b) It is also known as climb milling.
(c) In this, clip width size is zero at initial cut and increases with feed.	(c) In this cutting process, clip size is maximum at start of cut and decreases with feed. It is zero at the end of feed.
(d) Tool life is low.	(d) Tool life is high

3. What operations may be done in a milling machine?

Ans: The following operations are done:-

1. Plane surface milling - cutter axis is parallel to work piece axis and this process is used to get a flat surface.
2. Face Milling - It produces flat surfaces perpendicular to the axis of the rotating cutter
3. End milling - it make flat surface, slots or finishing the edges of a work piece.
4. Slot milling - This is used to make T-slots, plain slots, dove tail slots, etc End milling cutter, T-slot cutter, dove tail, cutter side milling cutter can also be used.
5. Angular milling - operation to produce all type of angular cuts like V notches, grooves, serration and angular ~~sur~~ surfaces. A double angle cutter is used.