In a two gear system, the smaller gear is called pinion and the larger gear is called bull gear.

Working of Crank and Slotted Link Mechanism :- The radial slide is bolted to the centre of the bull gear. This radial slide carries a sliding block into which the crank pin is fitted.

As the bull gear will rotate, the crank will revolve at uniform speed.

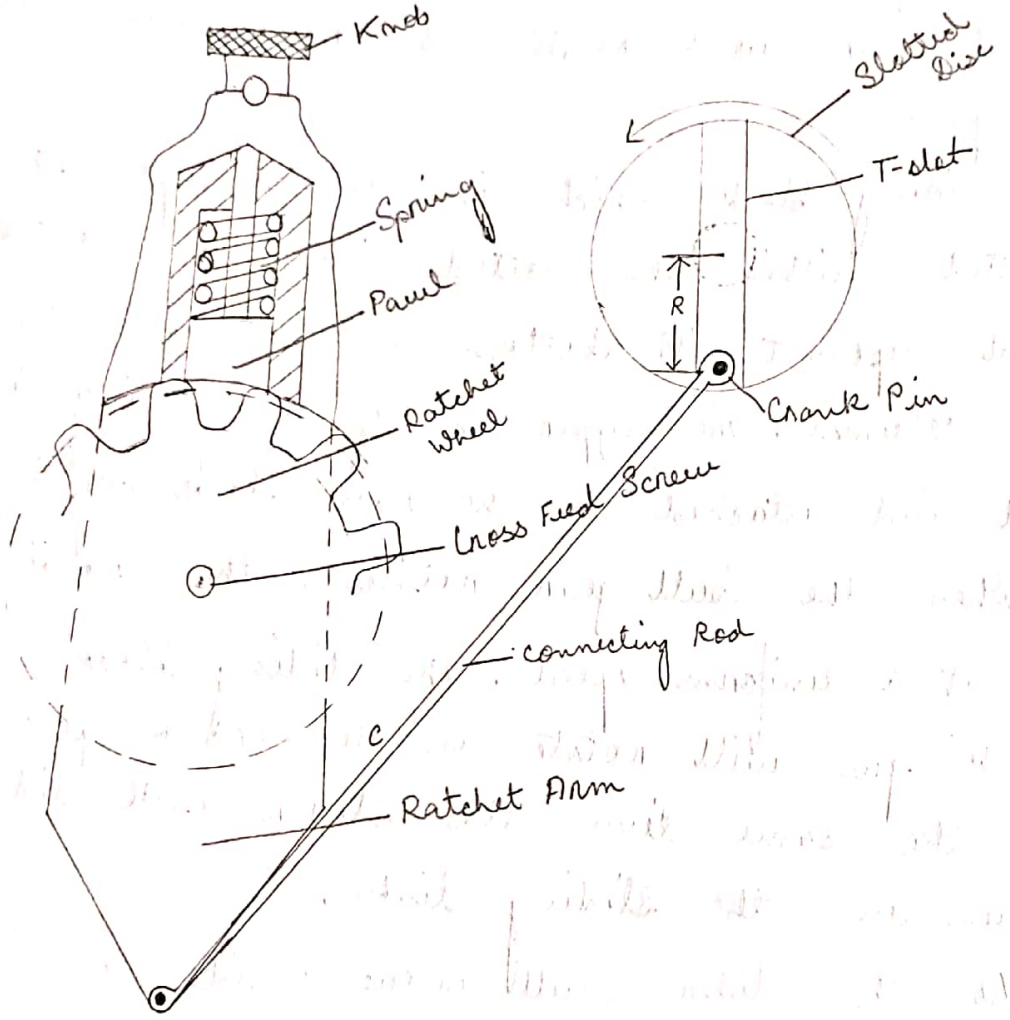
The sliding block which is mounted upon the crank pin is fitted within the slotted link. This slotted link is pivoted upon at its bottom end attached to the frame of column. The upper end of the sliding link is bifurcated and attached to the ram block by a pin.

When the bull gear rotates, the crank pin revolves at a uniform speed. The sliding block fastened to the crank pin will rotate on the crank pin circle and at the same time this slider will slide up and down in the sliding link.

As the slider will move inside the sliding link, it will provide a rocking movement to the sliding link and this movement will be transferred to the ram providing it a reciprocatory motion.

Hence the rotary motion of the bull gear is converted into reciprocatory motion of ram.

Automatic Table feeding mechanism of shaper :- The automatic



feed mechanism of the table is very simple. This is done by rotating a ratchet wheel, mounted at the crossfeed screw. This enables a corresponding equal rotation of the connecting rod is attached to the lower end of the rocker arm of the feed mechanism.

Shaper Machine - Specifications

(a) Length of Ram stroke : (457 mm)
(b) Range of Ram speeds : (12, 24, 40 & 72 strokes per minute)
(c) Working surface of table : (483 mm * 330 mm)
(d) Max Table Travel - Horizontal : (610 mm)
(e) Max Table Travel - Vertical : (457 mm)
(f) Angular movement of table on either side : (60°)
(g) Maximum size of Tool Shank in Tool Head : (51mm * 21mm)
(h) Maximum vertical travel of Tool Slide : (152 mm)
(i) Maximum swivel of Tool Head : (60°)
(j) Main Drive Motor (3 H.P. / 950 rpm)

Cutting parameters of a Shaper

Cutting Speed :- It is defined as the average linear speed of the tool during the cutting stroke in m/min, which depends on number of ram strokes (or ram cycles) per minute and length of the stroke.

Feed :- Feed f is the relative motion of the work piece in a direction perpendicular to the axis of the reciprocation of the ram. In shaper, feed is normally given to the work piece and can be