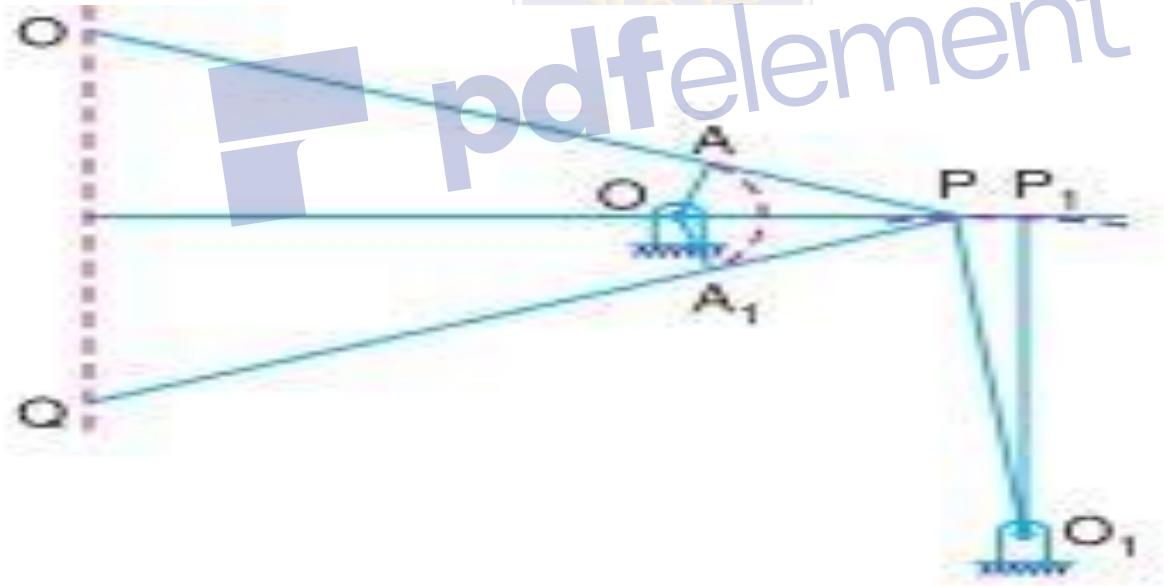
The link OA oscillates about O through an angle AOA1 which causes the pin P to move along a circular arc with O1 as centre and O1 Pas radius. For small angular displacements of OP on each side of the horizontal, the point Q on the extension of the link PA traces out an approximately a straight path QQ′, if the lengths are such that OA = (AP) 2 / AQ



4. Tchebicheff's mechanism.

It is a four bar mechanism in which the crossed links OAand O1 Bare of equal length, as shown in Fig. 9.9. The point P, which is the mid-point of ABtraces out an approximately straight line parallel to OO1 . The proportions of the links are, usually, such that point Pis exactly above Oor O1in the extreme positions of the mechanism i.e. when BAlies along OAor when BAlies along BO1.It may be noted that the point Pwill lie on a straight line parallel to OO1

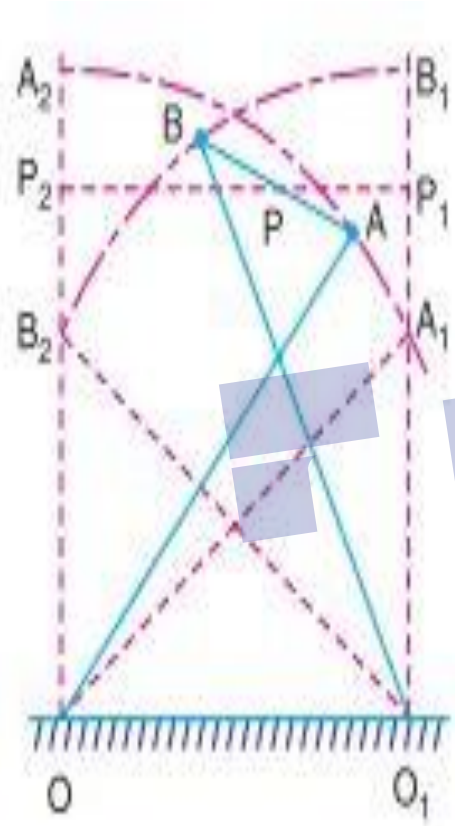
, in the two extreme positions and in the mid position, if the lengths of the links are in proportions

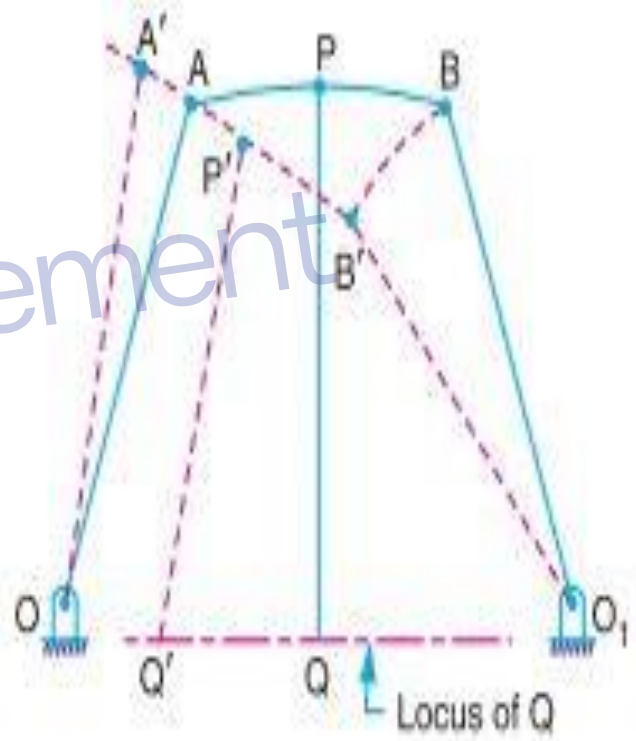
AB: OO1 : OA= 1 : 2 : 2.5.

5. Roberts mechanism.

It is also a four bar chain mechanism, which, in its mean position, has the form of a trapezium. The links OAand O1 Bare of equal length and OO1 is fixed. Abar Pqis rigidly attached to the link ABat its middle point P.

A little consideration will show that if the mechanism is displaced as shown by the dotted lines in Fig. 9.10, the point Qwill trace out an approximately straight line.





Steering Gear Mechanism

The steering gear mechanism is used for changing the direction of two or more of the wheel axles with reference to the chassis, so as to move the automobile in any desired path.

Usually the two back wheels have a common axis, which is fixed in direction with reference to the chassis and the steering is done by means of the front wheels.

In automobiles, the front wheels are placed over the front axles, which are pivoted at the points Aand B, as shown in Fig.

These points are fixed to the chassis.

The back wheels are placed over the back axle, at the two ends of the differential tube.

When the vehicle takes a turn, the front wheels along with the respective axles turn about the respective pivoted points. The back wheels remain straight and do not turn.

Therefore, the steering is done by means of front wheelsonly.

FACULTY OF ENGINEERING & TECHNOLOGY