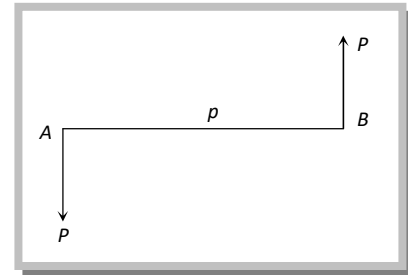


## Couples.

Two equal unlike parallel forces which do not have the same line of action, are said to form a couple.

Example: Couples have to be applied in order to wind a watch, to drive a gimlet, to push a cork screw in a cork or to draw circles by means of pair of compasses.

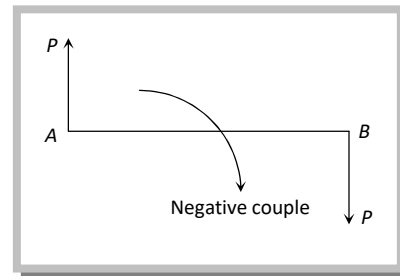
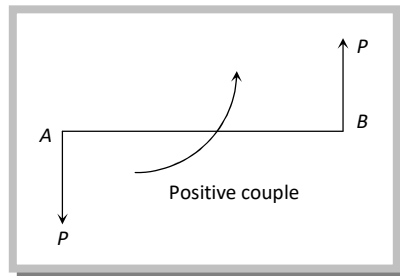


(1) **Arm of the couple:** The perpendicular distance between the lines of action of the forces forming the couple is known as the arm of the couple.

(2) **Moment of couple:** The moment of a couple is obtained in magnitude by multiplying the magnitude of one of the forces forming the couple and perpendicular distance between the lines of action of the force. The perpendicular distance between the forces is called the arm of the couple. The moment of the couple is regarded as positive or negative according as it has a tendency to turn the body in the anticlockwise or clockwise direction.

Moment of a couple = Force  $\times$  Arm of the couple =  $P \cdot p$

(3) **Sign of the moment of a couple:** The moment of a couple is taken with positive or negative sign according as it has a tendency to turn the body in the anticlockwise or clockwise direction.



Note: A couple cannot be balanced by a single force, but can be balanced by a couple of opposite sign.