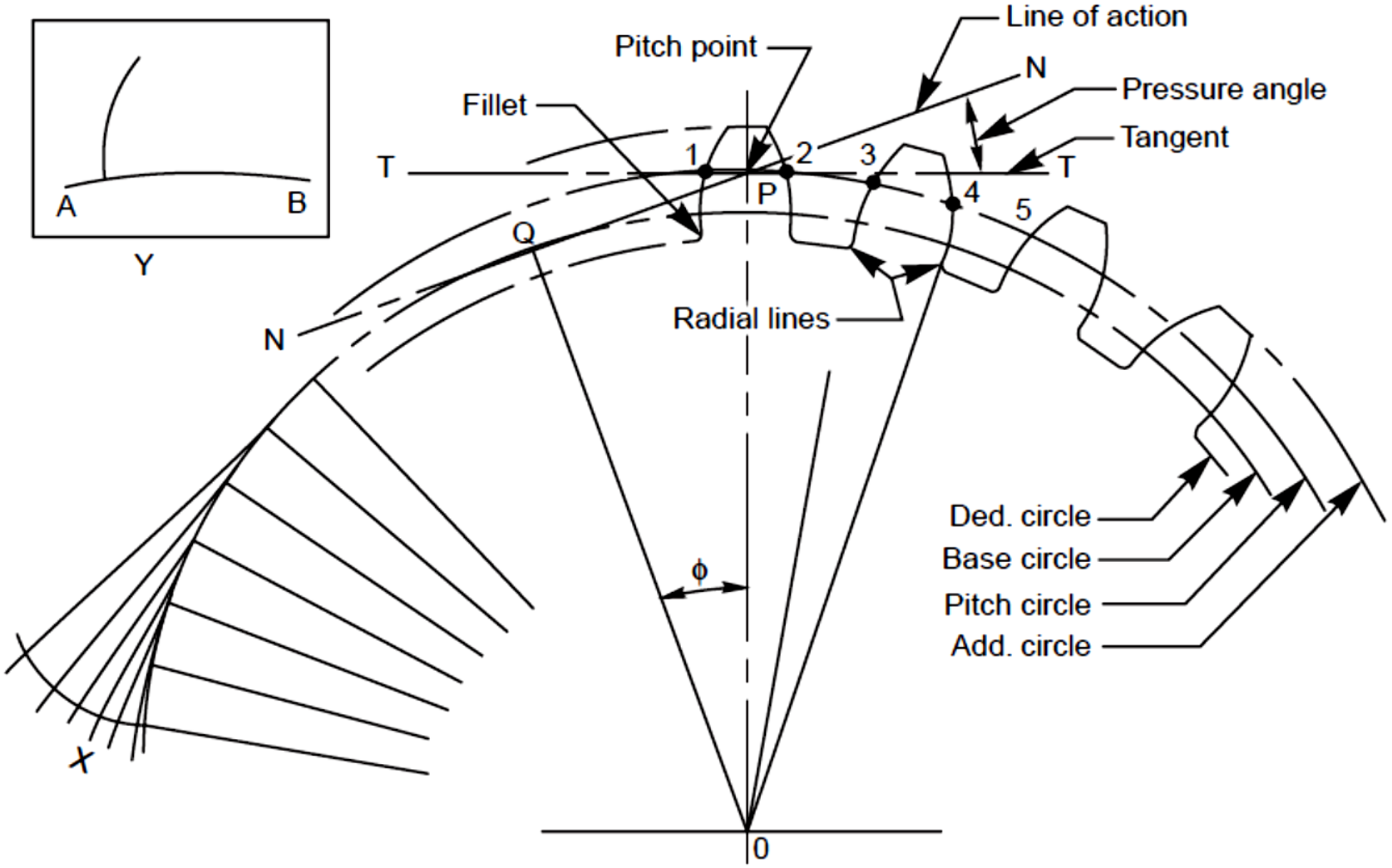

Fig. 13.6 Method of drawing involute tooth profile

1. With O as centre and radius equal to the pitch circle radius, draw an arc.
2. At any point P on it, drawn a line T-T, tangential to the above arc.
3. Through the point P, draw the line of action N-N, making an angle equal to the pressure angle ϕ, with the tangent line T-T.
4. From the centre O, draw the line OQ, perpendicular to the line of action (it will make an angle ϕ with OP).
5. With O as centre and radius equal to OQ, draw an arc, representing the base circle.
6. With O as centre, draw arcs, representing addendum and dedendum circles.
7. Starting from any point on the base circle, construct an involute curve, as shown at X.
8. Trace the curve and a part of the base circle, on a piece of tracing paper, as shown at Y.
9. On the pitch circle, mark points 1, 2, 3, 4, etc., separated by a distance equal to half of the circular pitch.
10. Place the tracing paper, such that the arc AB coincides with the base circle and the curve passes through the point 1.
11. Prick a few points on the curve, lying between the addendum and base circles.
12. Join these points by a smooth curve.
13. Draw a radial line below the base circle and join it with the bottom land, by means of fillet of radius r, which may be taken as 0.125 p_c.
14. Reverse the tracing paper, follow the steps 11 to 13 and complete the curve through the point 2; obtaining one tooth profile.
15. Repeat the steps 11 to 14 and construct the other tooth profiles.