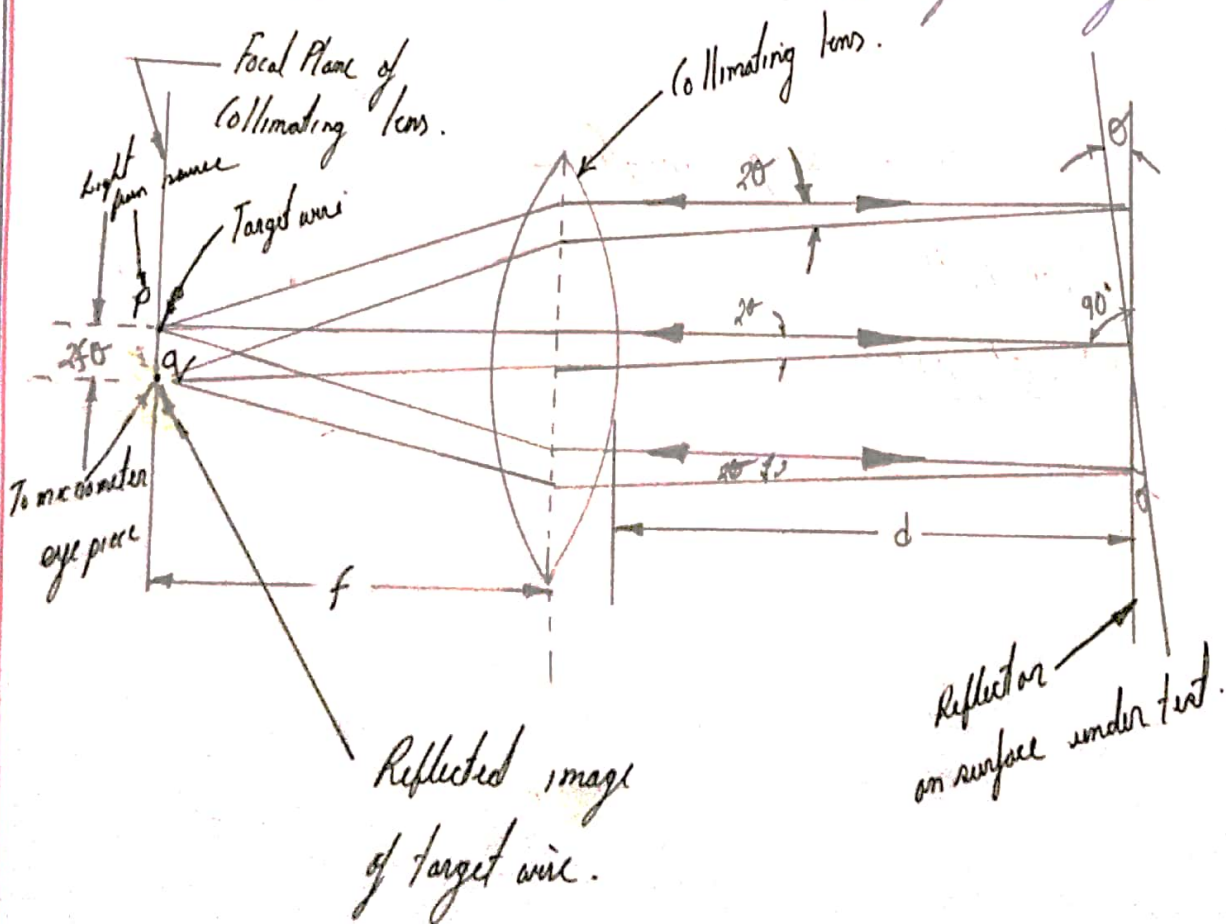


Imp Auto collimator: An autocollimator is an instrument designed to measure small angular deflections and may be used in conjunction with a plane or other reflecting surface. An autocollimator is essentially an infinity telescope and a collimator combined into one instrument.

An autocollimator is based on the principle that a collimating lens can project and receive a parallel beam of light and that the reflected beam of light will change its direction by changing the angle of the surface reflecting the light.



Principle of Auto collimator

The Auto-collimator's principle is shown in the above fig.
 It shows the collimator lens that project a parallel beam of light along the optical axis of the system when the light source is placed at the focus of the collimator lens. A reflector which can be a slip gauge block, optical flat or a mirror is attached to the surface under test. If this reflection is accurately normal to the optical axis, the reflected beam will return along its original incident path back to the lens and will be collected at a point 'P' exactly at the length of the lens where cross wires are placed. Therefore the image of the cross wires form by the reflected light beam will ~~coincide~~ coincide with the cross wires at point 'P'. If the reflector is slightly tilted at an angle θ , the reflected beam will change its path by 2θ . The reflected beam will therefore form an image ~~at~~ 'q' at the cross wire at distance 'pq'. The value of which is a measure of the angular deflection θ where $R \odot pq = 2f \cdot \theta$.