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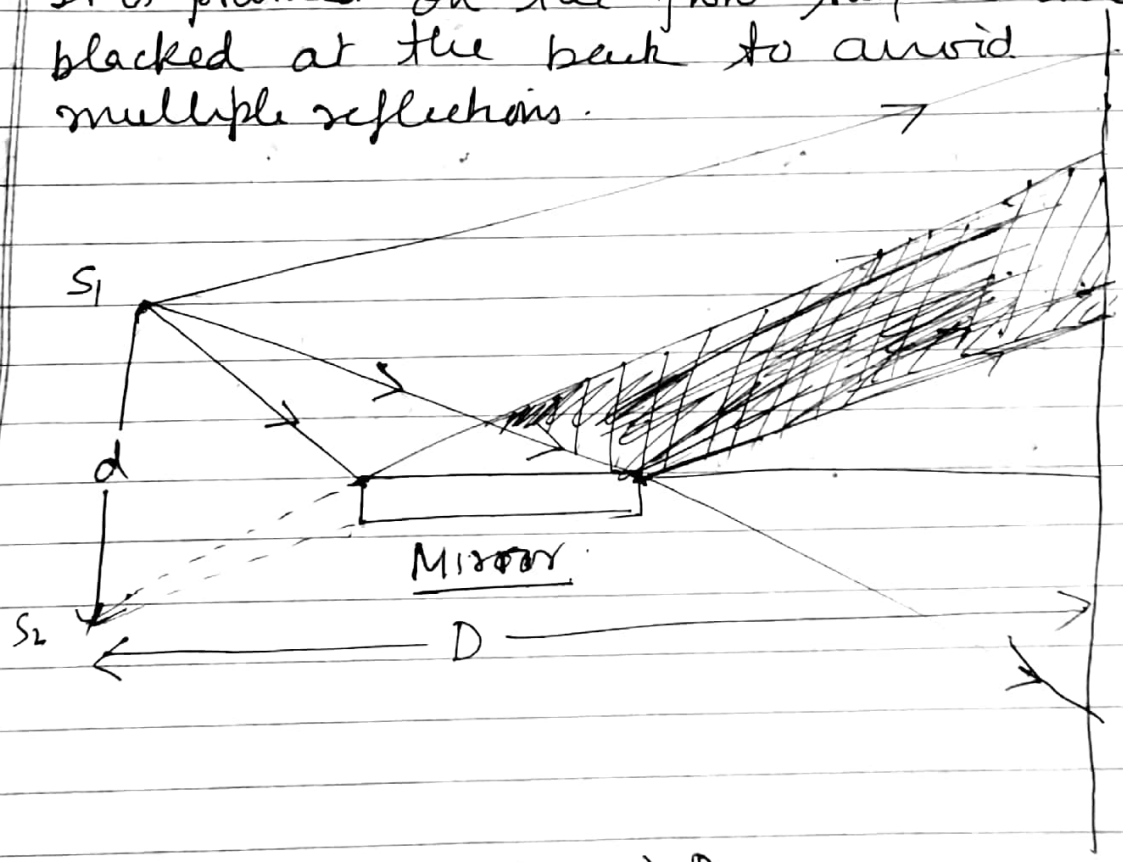
Lloyd's Single Mirror

In 1834, Lloyd [illegible] an interesting method of producing interference, using single mirror and using glazing angle incidence. The Lloyd's mirror consist of plane mirror about 30 cm length and 6 to 8 cm breadth.

It is polished on the front surface and blacked at the back to avoid multiple reflections.



Fringe width $\beta = \frac{\lambda D}{d}$

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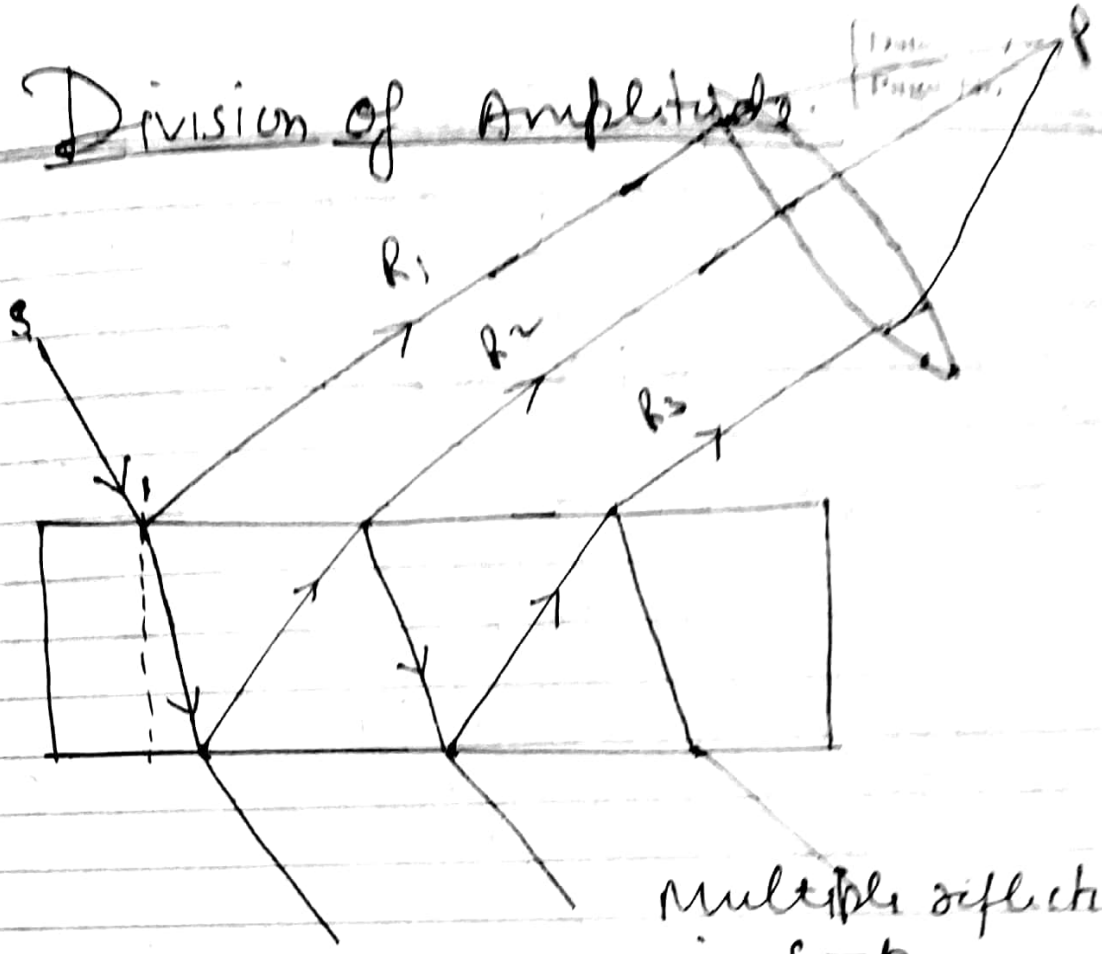
Difference b/w Fresnel and Lloyd's Mirror

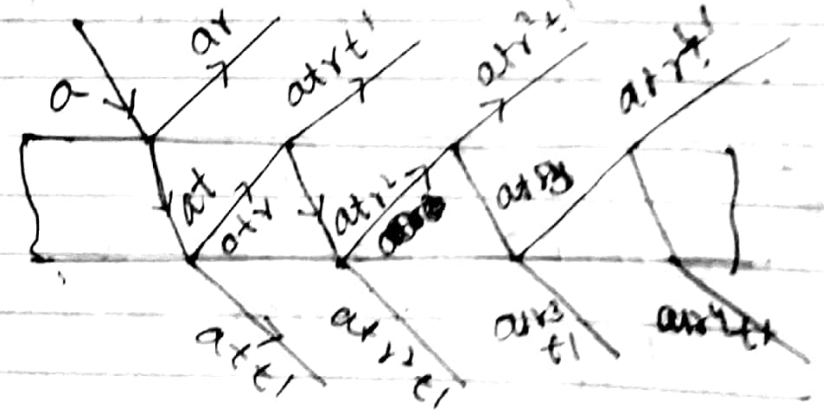
	Fresnel Biprism	Lloyds Mirror
(1)	The set of fringes is obtain	A few of fringes on one side of the central fringe are observed and central fringe is not visible.
(2)	Central fringe is bright	Central fringe is dark
(3)	The central fringe is less sharp	Central fringe is sharp.

Division of Amplitude



Multiple reflection in soap.

Amplitude of successive rays in multiple reflection



All the reflected ray on upper side

$$A = atrt' + atr^3t' + atr^5t' + atr^7t' + \cdots$$

$$A = atrt'(1 + r^2 + r^4 + r^6 + \cdots)$$

$$A = atrt' \cdot \frac{1}{1-r^2}$$

Plane

But from stokes theorem

$$tt' = 1 - r^2$$

$$A = ar$$

cylindrical wavefront

Wavefronts :- All the particles on such a circle are vibrating in phase, because these particles are the same distance from the source

The surface which envelops the particles that are in the same state of vibration is known as a wavefront

The wavefront at any instant is defined as the locus of all the particles of the medium which are same state of vibration.