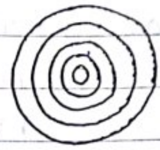
and pinion arrangement) the mirror M_2 is moved and the no. of fringes appearing or disappering at the Centre of the field of view are Counted.

Suppose on moving the mirror M_2 through a distance d, n fringes disappear at the Centre. Then,

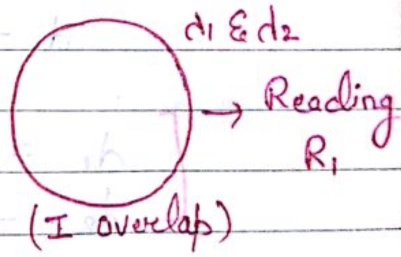
$$d = n \times \lambda/_2$$



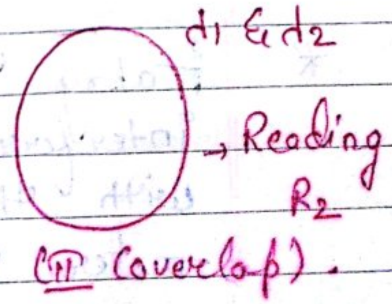
$$\boxed{\lambda = \frac{2d}{n}}$$

ii) Determination of difference b/w two wave length :-

With the help of Michelson's interfe--rrometer, we can find the difference of two close W.L. say λ_1 & λ_2. there will be fringes due to λ_1 as well as λ_2. The mirror M_2 is adjust in such a way that the bright fringes corresponding to λ_1 and λ_2 overlaps. →



This position of the mirror M_2 is noted. Now again the mirror M_2 is moved and pattern corresponding to maximum intensity (overlapping) is obtained again record the position of mirror M_2. →



The distance moved b/w two successive maximum intensity pattern: $d = R_2 - R_1$

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The condⁿ corresponding to maxima of d_1.

$$2d = n_1 d_1 \quad —(1)$$

Similarly the condⁿ corresponding to maxima of

$$2d = n_2 d_2 \quad —(2)$$

Suppose $d_1 > d_2$ So $n_1 < n_2$

For successive maxima intensity pattern -

$$n_2 - n_1 = 1$$

$$n_2 = n_1 + 1 \quad —(3)$$

from eqⁿ (1) & (2)

$$n_1 d_1 = n_2 d_2$$

$$n_1 d_1 = (n_1 + 1) d_2$$

$$n_1 (d_1 - d_2) = d_2$$

$$d_1 - d_2 = \frac{d_2}{n_1}$$

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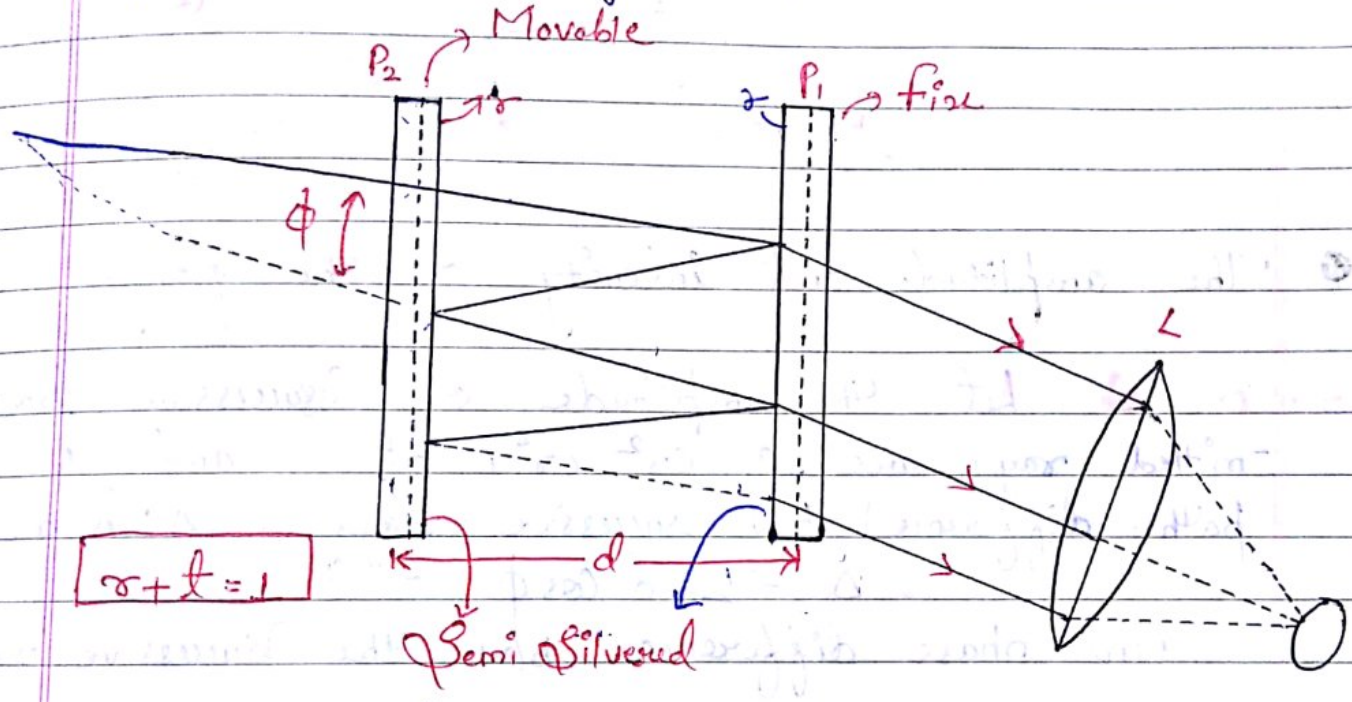
placed at a certain distance the inner surface of the two plates are partially silvered i.e. the inner surfaces are reflecting.

One of the plate is fixed while the other plate is movable. The distance b/w plates can be adjusted.



The fringes are of Haidinger fringes; i.e. constant inclination fringes.

Here again circular bright and dark fringes are obtained by moving the plate P_2

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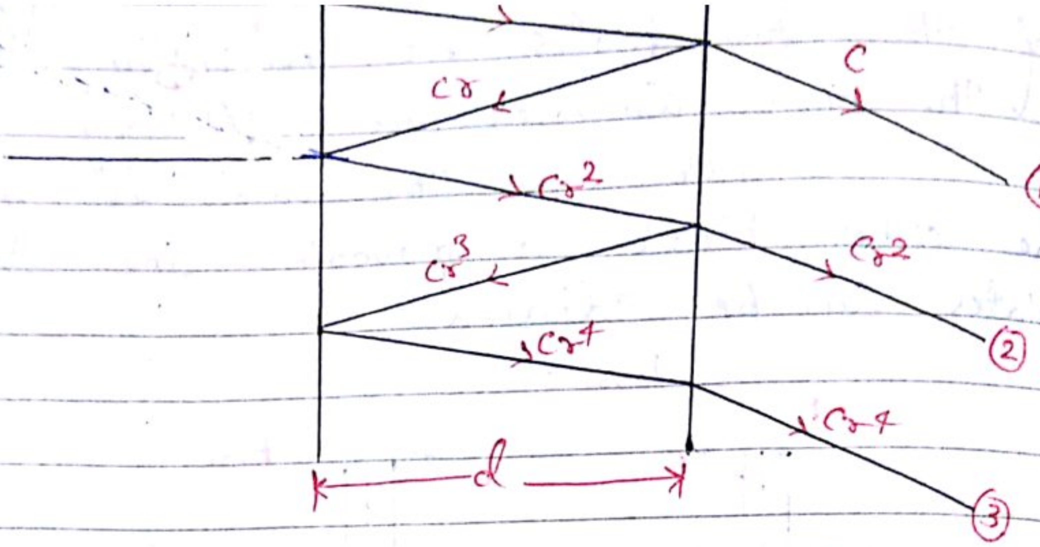

* The amplitude and intensity of the fringes :-

Let the amplitude of successive trans-mitted ray's are $c, cr^2, cr^4, cr^6 \ldots$ and the path difference b/w successive ray's is Δ ; is given

$$\Delta = 2\mu d \cos\phi \quad \text{--- (1)}$$

The phase difference b/w the successive ray

$$\delta = \frac{2\pi}{\lambda} \times \Delta = \frac{2\pi}{\lambda}(2\mu d \cos\phi)$$

The resultant amplitude can be calculated by the principle of polygon law of vector addition

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