

nated by a thin brass diaphragm having a central circular aperture of $\frac{3}{8}$ of an inch in diameter.

CONSTRUCTION :—THE TUBES.

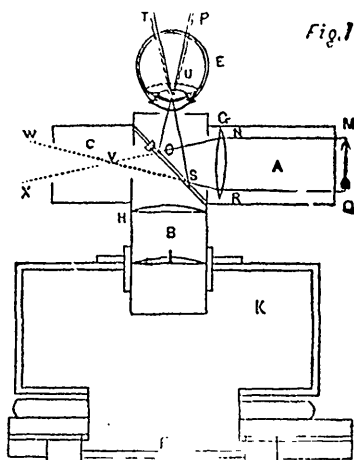


FIG. 1.

At the juncture of the tube A with B there is a circular aperture of one inch diameter, and between C and B an aperture of $\frac{1}{2}$ inch diameter—affording a communication between A and C through B.

THE PLATE GLASS.

At the juncture of the tubes there is placed an elliptical piece of highly polished thin plate glass with parallel surfaces, which is inclined at such an angle to the tubes that a portion of a ray of light falling upon it through the centre of the tube A from the direction M Q is reflected at right angles to its original direction, and in the same plane with the centre of the tube B which will be through the centre of the aperture in the diaphragm. A portion of the ray will be refracted by the plate glass and pass through the tube C parallel to its original direction.

THE LENSES.

At the inner extremity of the tube A and as close as possible to its juncture with the tube B, a double convex lens G is placed $1\frac{1}{4}$