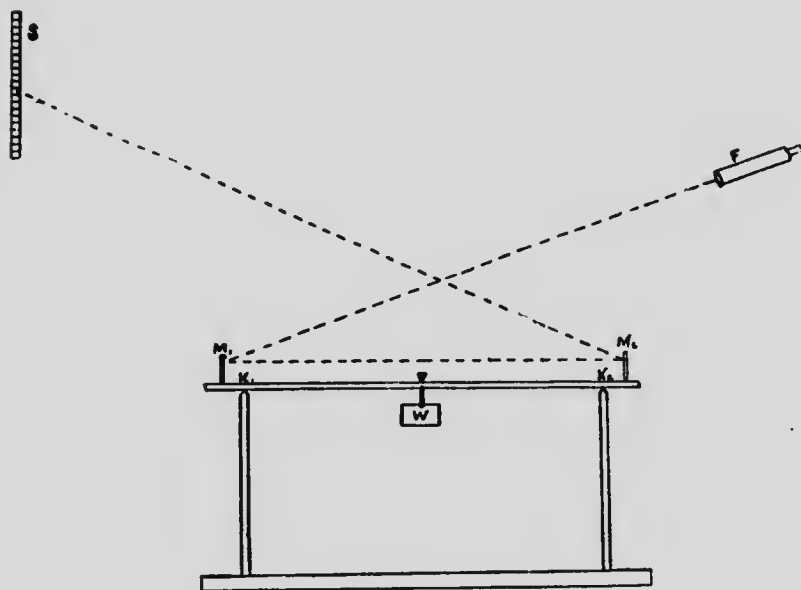


2. Determination of the Isothermal Young's Modulus.

The statical method used depends on observing the depression produced at the centre of a bar, supported on two knife-edges, when a known weight is added at the centre of the bar. The depression was found by a method, due to König, illustrated in the figure below.



The rod rests on two knife-edges, K_1 and K_2 , and mirrors, which are at right angles to the rod, are rigidly attached to it. The vertical scale S is reflected first from the mirror M , then from M_1 and read through the telescope F . The weight is applied at a knife-edge which is just midway between the knife-edges K_1 and K_2 . On looking through the telescope we see one division on the scale coinciding with the cross hair of the telescope; on loading the beam another division of the scale will come on the cross hair, and by measuring the distance between these divisions we can determine the angle φ through which each free extremity of the bar has been bent. If d_1 is the distance between the mirrors, D the distance of the scale S from the mirror M_2 , and v the total alteration in the scale reading,