

The other type of

85 The Ceylon Ghat Tracer.—The ceylon ghat tracer is extensively used in preliminary surveys of hilly areas for the measurement of angles slope and to set out grade contours. The advantage of this instrument over others is that the instrument is very cheap and the work can be conducted very quickly. It does not consist of costly main parts and it will not go out of order normally. The cons-

struction is very simple and if it goes out of order it can be set right in the local survey laboratory.

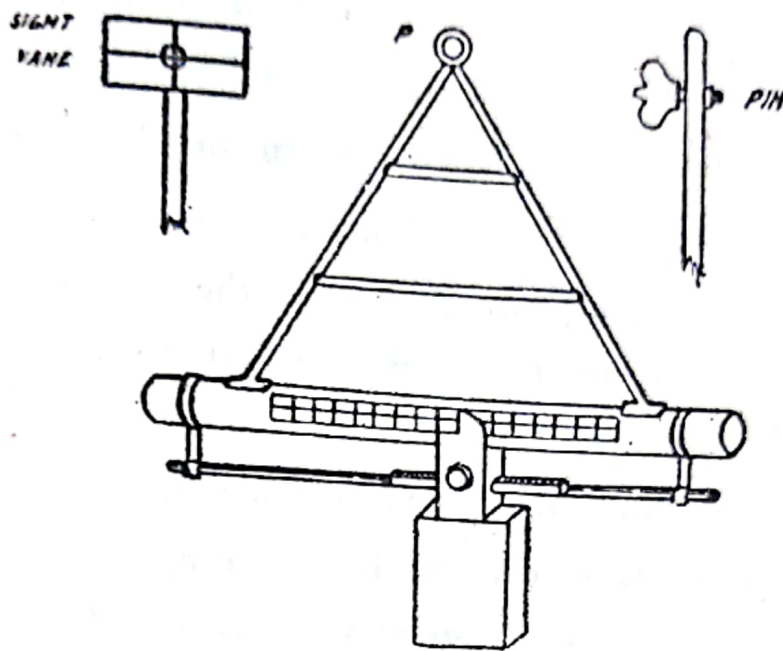


Fig. 309

The instrument consists of a hollow brass tube with a small eye hole at one end and two cross wires at right angles to each other at the other end. The tube is suspended from a bracket which in turn may be attached to a vertical staff. Thus the tube fits round the point A. A horizontal racked bar is rigidly fixed to the tube at its end. The racked bar is parallel to the brass tube and it is at a distance of about 2 cm to 3 cm. from the brass tube.

A sliding weight is mounted on the racked bar which can be moved along it with rack and pinion arrangements. The upper part of this weight almost touches the brass tube and forms the reading index. On the side at which the upper part of the sliding weight is in contact with the brass tube gradients are marked from 1 in 120 to 1 in 6 on both sides of the centre of the scale. This facilitates reading of the falling and the rising gradients. A T-shaped staff is provided with the instrument. The line of sight is defined by the line joining the centre of the eyehole to the

intersection of the cross wires. When the sliding weight is kept at zero of the scale on the sighting tube, the line of sight will be horizontal. The line of sight can be inclined by any known amount, downwards or upwards, by moving the sliding weight to the corresponding graduation on the sighting tube from Zero, away from the observer or towards the observer respectively. A mark is made on the T-shaped staff or the sighting vane such that the height of the mark above the foot of the staff is equal to the height of the axis of the sighting tube above the foot of the suspending staff. Thus when the mark on the sighting vane is bisected from the instrument, the line joining the foot of the suspending staff and the sight vane is parallel to the line of sight.

8.6 To lay out a gradient with the instrument.

Supposing it is required to layout a falling gradient of 1 in 60. hold the instrument at the given station and move the sliding weight from zero, away from the observer until the index reads 1 in 60 [for rising gradients the weight is moved from Zero towards the observer] on the scale at the side of the Sighting tube. Send an assistant with the sight vane down the slope and direct him to move up or down the slope until the intersection of the crosswires bisect the centre of the mark on the sightvane. Now the foot of the sightvane is the required Point and the line joining the foot of the suspending staff and the sightvane is having a gradient of 1 in 60. Similarly any number of Points may be located on the same gradient. By moving the sliding weight to the corresponding value on the scale any required gradient may be laid in the same manner.

(229)

87 To measure a slope. Hold the instrument at one end of the slope and the sightvane on the other. Move the weight along the rack such that the line of sight is bisecting the mark on the sightvane. The reading on the scale directly gives the required slope.