

## SIR WILLIAM THOMSON'S QUADRANT ELECTROMETER.

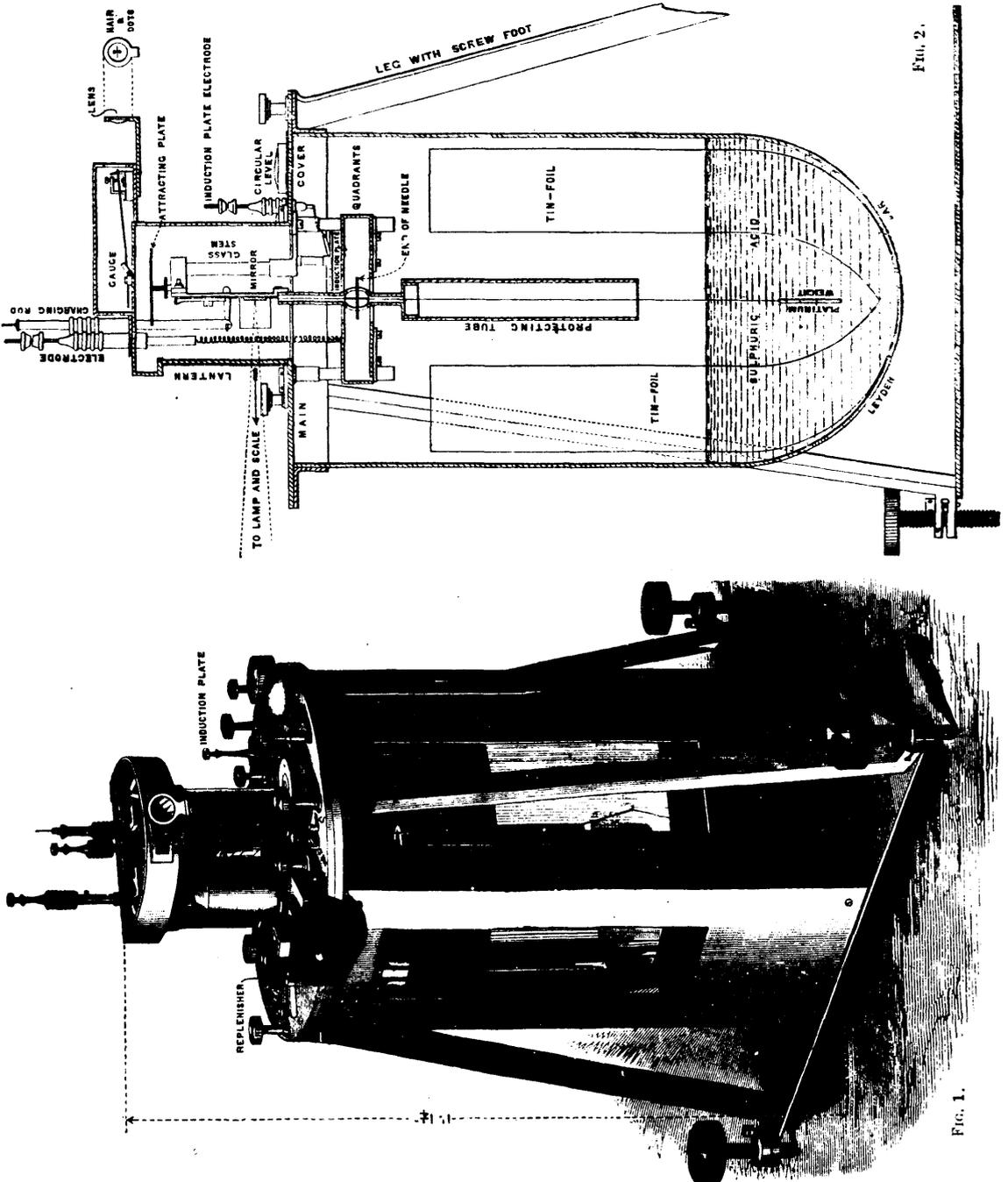


FIG. 2.

FIG. 1.

When the difference of potentials to be measured is comparatively great the light spot may be sent off the scale. To obtain a reading in such a case it is necessary to reduce the sensitiveness of the instrument, and this is effected by means of an oblong brass strip, called the *induction plate*.

This plate is fixed immediately over one pair of quadrants, so that if one point of an electrified conductor be connected with it, instead of with the underlying quadrant, the charge in the latter will be less than if direct connection had been made, and the deflection will be correspondingly reduced.

Fixed on the main cover, Fig. 2, is a small circular spirit-level which, together with the three foot-screws, permits of the instrument's being accurately levelled.

The readings of the quadrant electrometer may be converted into absolute measure when the *constant* of the instrument has

been, once for all, determined by comparison with an *absolute* electrometer. When this determination has been made it is evident that the position of the quadrants must not be altered, and the normal charge of the needle must always be exactly reproduced before a measurement is made.

Another means, and one of frequent use as well as of easy application, consists in comparing the obtained deflection with that given by a known difference of potential, such as that of a Latimer Clark's cell, or Sir William Thomson's standard Daniell.

The quadrant electrometer is also (at Kew) advantageously used as a self-recording instrument for registering, by means of photography, the variations in kind and degree of atmospheric electricity, and in this connection it has already rendered important services to meteorology.