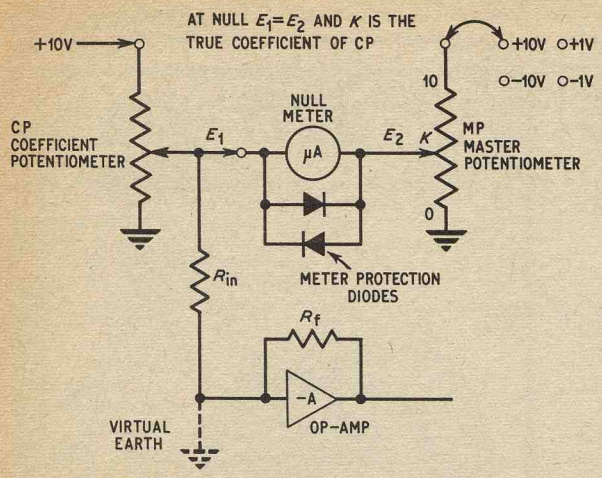

Fig. 6.4. Master potentiometer circuit for measuring coefficients

Fig. 6.5 (below). Circuit diagram of readout meter and master potentiometer

the voltage at the slider of CP is identical to the slider voltage of MP, no current flows through the null meter, and the true coefficient of CP can be read straight off the dial of MP.

Since no current flows at null point, no load is imposed, and the input resistance of the measuring circuit is virtually infinite. Meter protection diodes are included to preserve good meter sensitivity without allowing damaging currents to flow through the meter when the circuit is off balance.

READOUT METER AND MASTER POTENTIOMETER CIRCUITS

One meter movement serves for null indication and voltage measurement. Considering first the readout meter circuit Fig 6.5a, miniature pre-set resistors VR1–VR4 will permit calibration of each meter range to an external voltage standard, and also help to eliminate discrepancies between ranges.

The way in which meter protection diodes D1 and D2 are wired may be unfamiliar to the reader, so some explanation is called for. If a transistor is operated "inverted", that is with collector-emitter polarities reversed, it will exhibit a very low "on" resistance when the base is near emitter potential. With base connected straight to emitter, the transistor therefore becomes a diode with lower than normal forward resistance, and yet will still offer a high resistance