supplying a current,* and the resistance is so arranged, by means of the box of coils, as to obtain the same deflection as before.

Then, clearly,

$$C'_x=\frac{P}{r_b+g_s+\rho}$$

where P is the E. M. F. of the standard cell, and ρ its liquid resistance.

It will be noticed that the liquid resistance of the cell must be known. As it is difficult to measure this resistance accurately, it follows that this method is subject to the effects of polarization, and to the inaccuracy of the measurement of the liquid resistance, which latter inaccuracy is also due to polarization.

MEASUREMENT OF POWERFUL CURRENTS.

239. The following method of measuring powerful currents has been used by Major Armstrong, R.E.:

Two points, between which there is a small resistance r, are selected in the circuit carrying the current to be measured. The measuring apparatus, consisting of a box of coils and a shunted reflecting galvanometer, is connected to these two points, and a high resistance r_b is unplugged in the box of coils. A divided circuit is thus formed, as shown in Fig. 29, and clearly a very

Fig. 29.

small portion only of the main current will flow through the galvanometer, and this portion, c, can be measured as explained in § 238. It will be observed that the introduction of the measuring apparatus does not practically alter the strength of the main current, and hence,†

$$C_x=\frac{r_b+g_s+r}{r}.\frac{g}{g_s}.c$$

Example.—Let r_b=10,000 ohms, g_s=7 ohms, g=7,000 ohms, and r=0.2 ohm. It is found that $c=\frac{1}{500{,}000}$ weber.

*See § 159.
†See § 147.