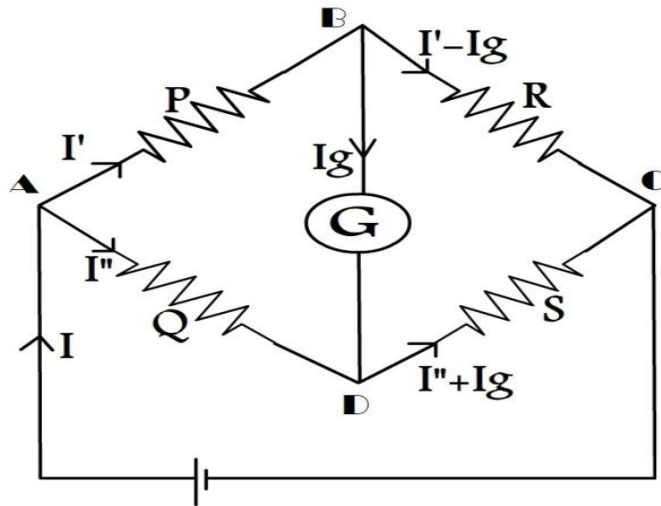


Wheatstone bridge



Wheatstone bridge is an instrument used to measure unknown resistance amounn 3 resistances. It consis of 4 resistances P,Q,R & S.

The connection diagram of wheastone bridge is shown in figure.Applying Krichoff's second law, in closed circuit ABDA,

$$-I'P - I_g G + I''R = 0$$

When the Bridge is balanced Galvanometer shows no deflection,

$$I_g = 0$$

$$-I'P + I''R = 0$$

$$\text{So, } I''R = I'P$$

$$I''/I' = P/R$$

Applying Krichoff's second law, in closed circuit, BCDB

$$-(I' - I_g)Q + (I'' + I_g)S + (I_g)G = 0$$

When the Bridge is balanced then $I_g = 0$

$$-IQ + I''S = 0$$

$$\text{So, } I''S = I'Q$$

$$I''/I' = Q/S$$

Considering These equations

$$P/Q = R/S$$