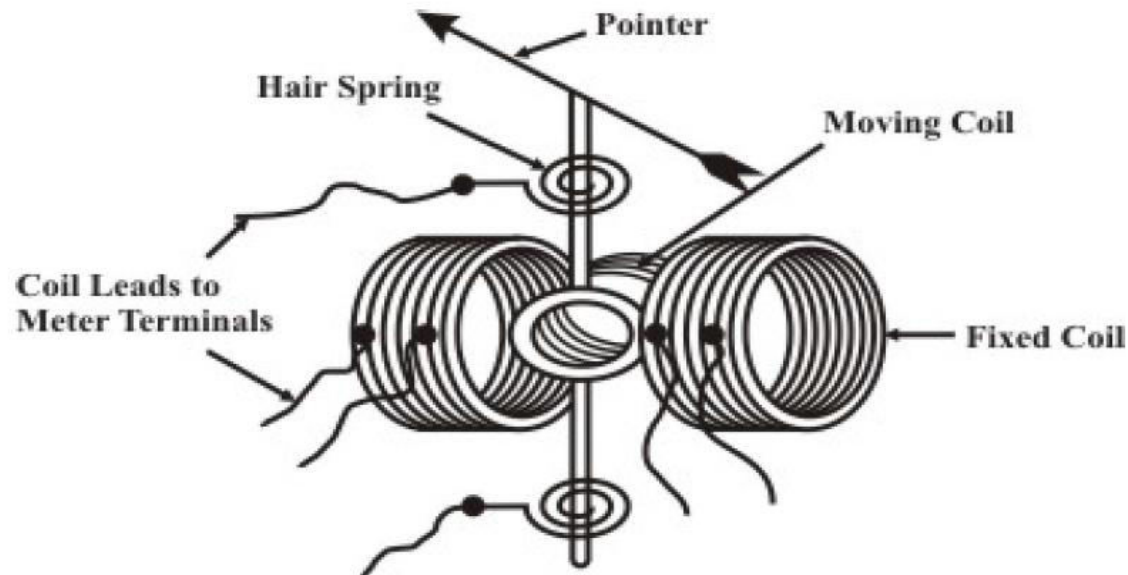


# **ELECTRICAL MEASUREMENT & MEASURING INSTRUMENTS**

Cont.

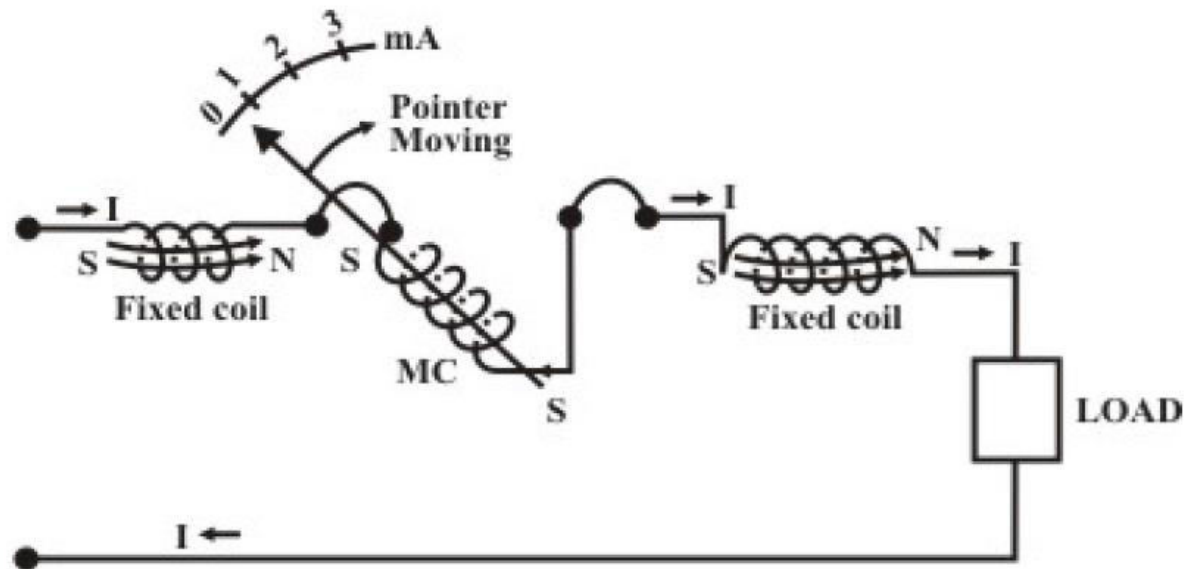
## Electrodynamic Type Instruments

- Electrodynamic type instruments are similar to the PMMC-type elements except that the magnet is replaced by two serially connected fixed coils that produce the magnetic field when energized



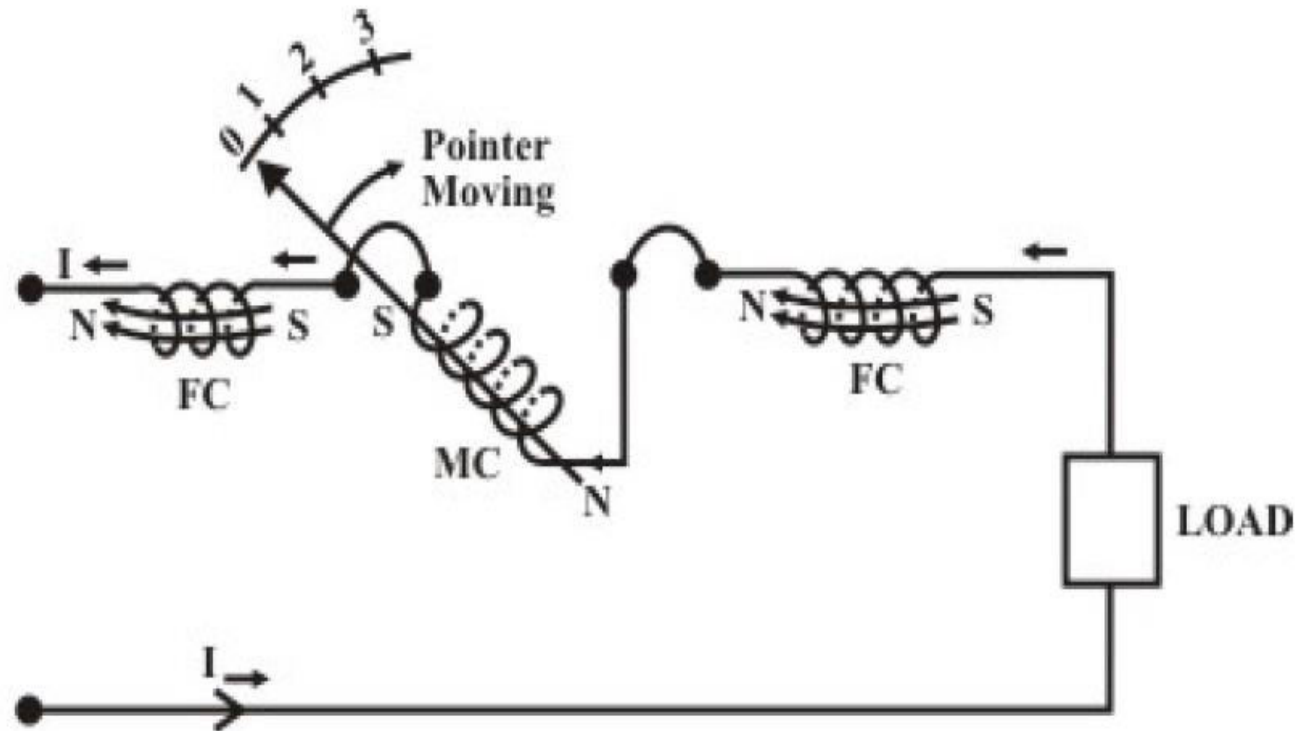
# Ammeter

- The flux direction through the fixed and movable coils due to current. it can be noted that the  $-$ pole of the moving coil flux is reflected from the adjacent  $-$ pole of the fixed coil and on the other side adjacent  $S$ -poles are also repelled each other. This results the pointer to move clockwise direction from 'zero position' to a steady position depending upon the magnitude of current flowing through the coils.



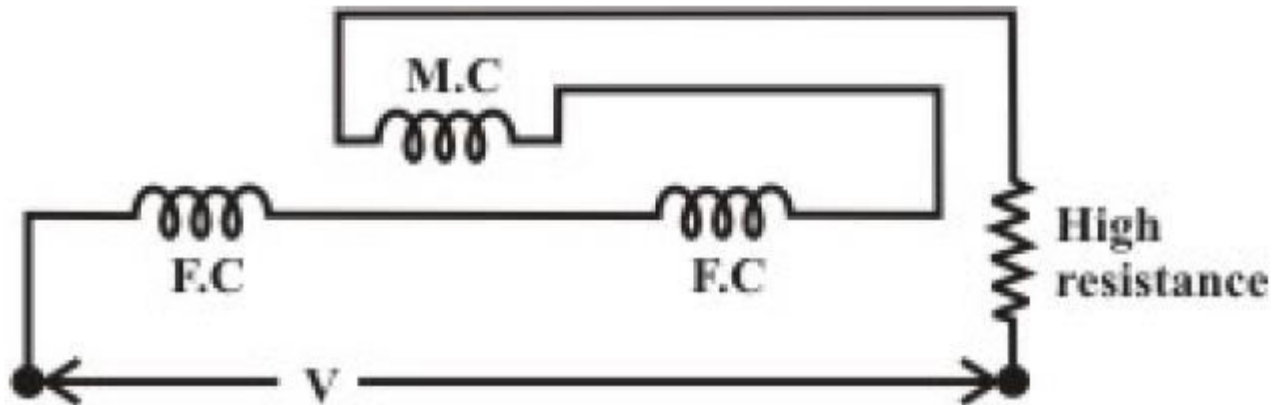
# Ammeter

- The effect of reversing the direction of the current through the coils and shows that the deflecting torque produces movement of the pointer in the same direction. This means that the dynamometer instrument suitable for both dc and ac measurements of current and voltage.



# Voltmeter

- The connection for use as a voltmeter is shown in Fig., in which fixed and moving coils are connected in series with a high series resistance having “zero resistivity coefficients”.



# Cont.

## Electrostatic type ammeters & voltmeters

- The **electrostatic type instrument use static electrical field to produce the** deflecting torque.
- These types of instrument are generally used for the measurement of high voltages as well as low voltage.

One of the plates is fixed and other plate is free to move, plates are oppositely charged in order to have attractive force between them. Due to attractive force movable plate will move towards the stationary or fixed plate till the moving plate stored maximum electrostatic energy.

