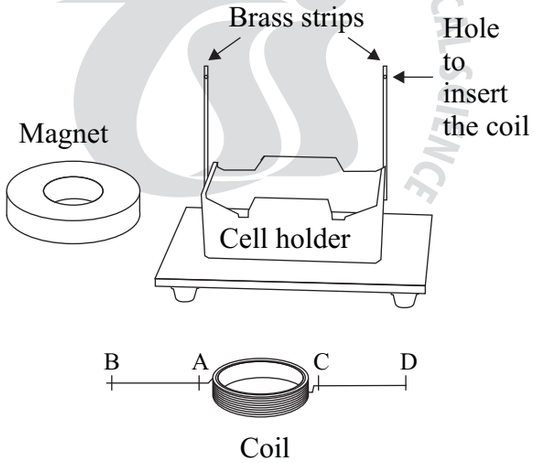
SIMPLE MOTOR

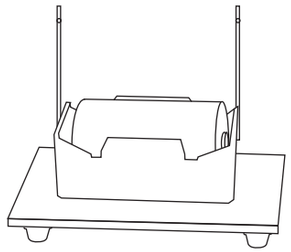
Assembly :

Consists of a single cell holder fixed on a clear plastic base. Two brass strips are fixed on either side of the cell holder. A small hole is made at the top of each brass strip so as to insert coil in between them. A circular coil made of insulated copper wire having 20 turns (21 guage) and a circular magnet are the parts of the kit.



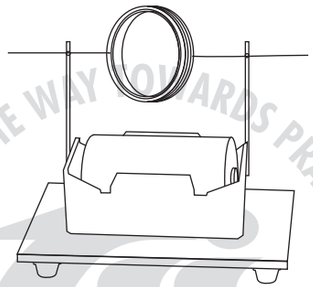
The insulation is removed along the half cylindrical portion from A-B and C-D on lower (same) side.

To do and observe



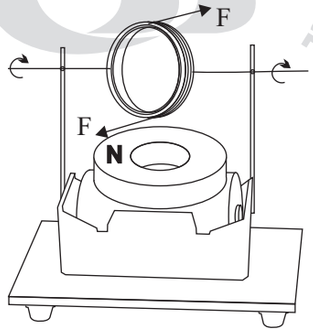
Step-I

Insert cell in the cell holder.



Step-II

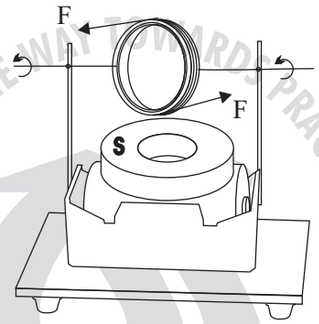
Insert the coil in between two brass strips.



Step-III

Place the magnet below the coil and above the cell. You will notice that the coil starts oscillating. If you tap it starts rotating. (Observe

the direction of rotation of the coil



Step IV

Remove the magnet away. The coil stops after some time. Now place the magnet with reversed pole. You will notice that the coil starts rotating in a direction opposite to the earlier one.

What is going on?

The current flows in the coil only during half rotation as half of insulation is removed. There is magnetic field along the axis of the coil due to the current in the coil for half cycle. There is a constant magnetic field due to permanent magnet. Hence the resultant of two fields act on coil for half cycle. The diametrically apposite current elements carry current in opposite direction. Hence according to Fleming's left hand rule, the forces on two elements are in opposite direction. Therefore they constitute couple and results in rotational motion of the coil. The rest half cycle of the rotation is due to inertia.

John Ambrose Fleming
(1849-1945)

TARANG SCIENTIFIC INSTRUMENTS

THE WAY TOWARDS PRACTICAL SCIENCE

Simple Motor

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DHARWAD
Phone : 0836–2775204
Cell : 94482 31960