



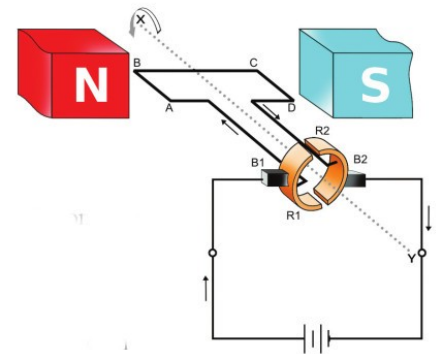
2 Magnetic Effect of Electric Current

Electric Motor

Working principle : Motor principle

The parts of an electric motor

- ◆ N,S - Magnetic poles
- ◆ XY - Axis of rotation of the motor
- ◆ ABCD - Armature
- ◆ B 1 , B 2 - Graphite brushes
- ◆ R 1 , R 2 - Split rings



Armature

- ◆ Armature is the metallic coil wound round a soft iron core so that it is free to rotate.
- ◆ It is fixed firmly on the axis XY.
- ◆ In the figure, are the forces acting on sides AB and CD in the same direction?
* No
- ◆ Find out on the basis of Fleming's Left Hand Rule and write it down.
* AB moves forward and CD moves backwards.
- ◆ What are the effects on the armature produced by forces thus developed?
* Force produced are in the opposite direction. They are experienced on the different positions of same object. So it rotates.

Split ring Commutator

- ◆ If the rotation of the armature is to be sustained the direction of current through the armature should continuously keep on changing.
- ◆ The split rings help to change the direction of current through the coil after every half rotation.
- ◆ It is also called split ring commutator.

* What is the energy change in Electric Motor?

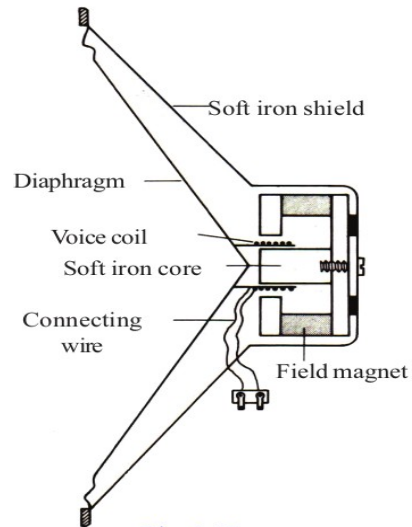
Electrical energy \longrightarrow Mechanical energy

7. Moving coil loud speaker – Structure and working

Working principle : Motor principle

The parts of a Moving coil loud speaker

- ◆ Voice coil
- ◆ Field magnet
- ◆ Diaphragm
- ◆ Soft iron core
- ◆ Connecting wire
- ◆ Soft iron shield



- * Where is the voice coil situated?
- In the magnetic field
- * To which part is the diaphragm connected?
- It is connected with the voice coil.
- * From where does the electric current reach the voice coil?
- Current reaches from the amplifier.
- * What happens when current is passed through the voice coil?
- It vibrates.

Working of a Moving coil loud speaker

Strengthened electrical pulses reaches from the amplifier.

↓
Sent through the voice coil of a loudspeaker.

↓
The voice coil, moves to and fro rapidly, in accordance with the electrical pulses

↓
These movements make the diaphragm vibrate,

↓
Thereby reproducing sound.

- * What is the energy change in Moving coil loud speaker?
Electrical energy → Mechanical energy

Assignment

1. Let us assess page number 42 to 44