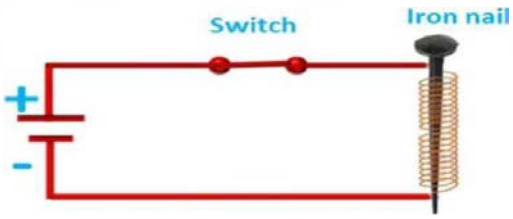
Electromagnets

A current-carrying coil of an insulated wire wrapped around a piece of iron iscalled an electromagnet. Electromagnets are temporary magnets.



Electromagnet Set – up

Uses of Electromagnets:

1. The electromagnets are used to separate magnetic material from non-magnetic materials.

2. Doctors use tiny electromagnets to take out small pieces of magnetic material that have accidentally fallen in the eye.

3. Electromagnets attached to large cranes to carry heavy loads of magnetic substance mainly used in shipyards.

4. Electromagnets are used in electric bells, telephones, transformers, speakers etc.

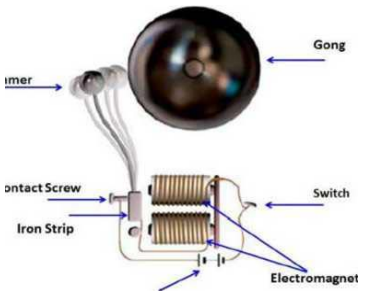
Electric bell:

Anelectric bell is a device which is used for ringing, it is based on the principle of an electromagnet.

Example: Explain the working of an electric bell.

Solution:

1. An electric bell consists of the gong, switch, electromagnet, battery, iron strip, contact screw, and hammer.



2. A current-carrying coil of insulated wire wrapped around a piece of the iron core.

3. When the switch is closed, the current starts flowing through the winding of an electromagnet.

4. In this process, the iron strip is pulled towards the electromagnet, the hammer at the end of the strip strikes the gong of the bell to produce a sound. As a result of which contact screw and iron strip move away from each other and the circuit is open again.

5. When the circuit is open, the electromagnet in the circuit loses its magnetism. It means the coil is no longer an electromagnet due to which the iron strip moves to its original position i.e., again it comes in contact with the contact screw and completes the circuit.

6. As long as the switch is closed hammer will strike on the gong and produces sound. This is how the bell rings.