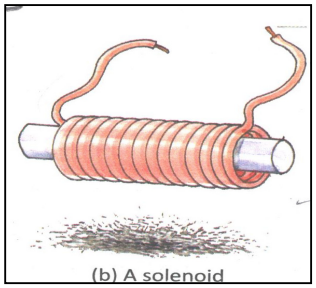
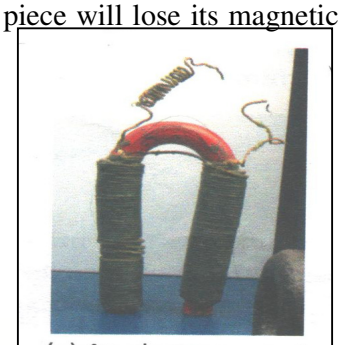
Magnetic effect of electric current: the magnetic effect of an electric current is used to make magnets. Wrap a wire around a soft iron piece (known as the core). A magnet made using such an arrangement is called an electromagnet. A solenoid is a device which can be used as an electromagnet. It is made of a long wire that has been wound many times (usually around a hollow metallic core). It has the shape of a long cylinder.


(b) A solenoid

The more the number of turns of wire around the core the more will be the magnetic effect. The iron nail attracts more number of safety pins when wrapped with a coil with more number of turns. If the current passing through the coil is switched off? The iron piece will lose its magnetic effect, i.e., it will stop behaving like a magnet such magnet are called temporary magnets because they behave as a magnet as long as electricity flows through them.


(a) An electromagnet

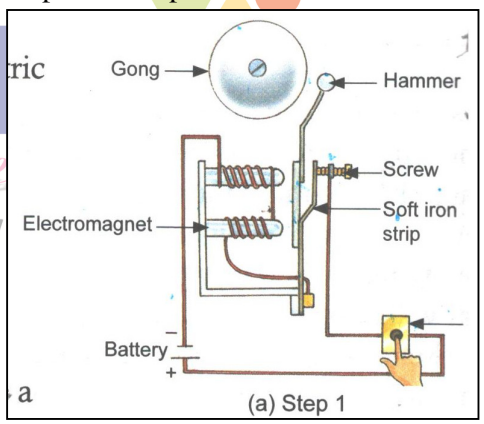
Use of electromagnet: electromagnets are used in cranes to pick up cars in scrap yard and also to separate iron from garbage dump. They are also used in loudspeakers, telephones, and in electric motors which are used in electric fans, washing machines, refrigerators, etc. electromagnets are also used in electric bell.

Electric bell: An electric bell has an electromagnet that pulls a strip of iron which makes the hammer hit the gong to ring the bell.

Step1. When you push the switch of the bell, an electric current flows through the electromagnet.

Step2. The electromagnet attracts the soft iron strip. The hammer attached to the strip then hits the gong, making it ring.

Step 3. When the soft iron strip gets attracted to the electromagnet, it no longer touches the screw (interrupter) and hence the circuit is broken. The soft iron strip returns to its initial position, touching the screw (interrupter). This result in the circuit being complete and current flows again.



Step 1 to 3 repeat in quick succession as long as the switch is on. This is how we hear a

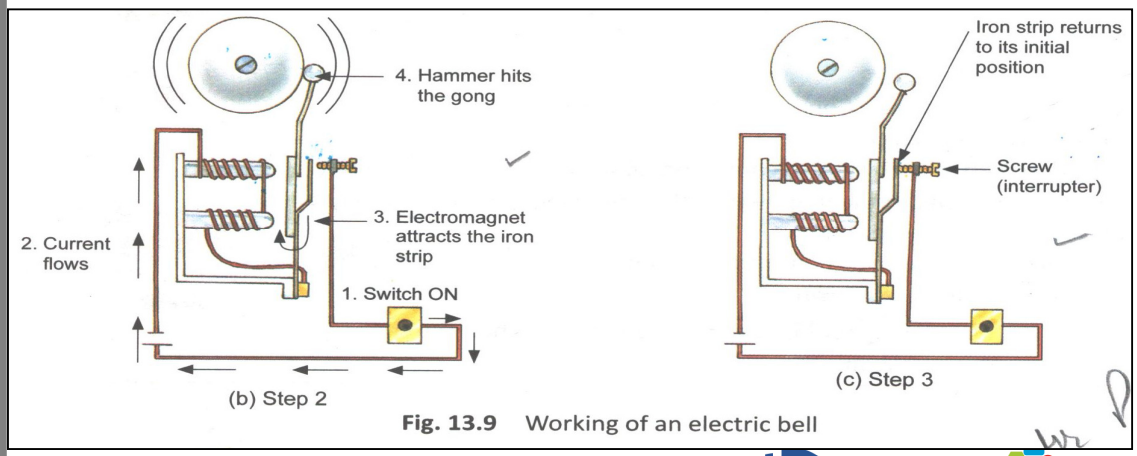


Fig. 13.9 Working of an electric bell

LEARNING WITH INNOVATION....

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continuous ring of the bell.

Precautions to be taken while using electricity

1. We should not touch switches with wet hands.
2. We should ensure that all the appliances are properly earthed.
3. We should not try to repair appliances without a proper technical knowledge.
4. We should get all electrical fittings done by a skilled person.
5. We should check the safety fuse and other appliances used by us.
6. We must ensure that MCB and fuses of correct strength have been used in the circuit.

Need to conserve electricity: The consumption of electricity is increasing day by day due to many reasons. Some of the reasons are listed below:

1. Since the population is increasing at a tremendous rate, the demand for electricity is also increasing.
2. With the advancement in the technology and the invention of newer gadgets and techniques in various fields, the use of electricity is increasing.
3. The high standard of living as well as the comforts of life has put in more pressure on the use of electricity, which needs to be cut down.

Methods to conserve electricity: Electrical fans, fluorescent tubes and bulbs should be switched off when not in use.

1. All electrical appliances like the radio, television, heater, geyser, etc., should be switched off immediately after use.
2. Tubelights & CFL should be used in place of electric bulbs to save electricity.
3. CFL (compact fluorescent lamp) and LED (light emitting diode) can be used in place of normal bulbs to reduce the wastage of electrical energy.

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