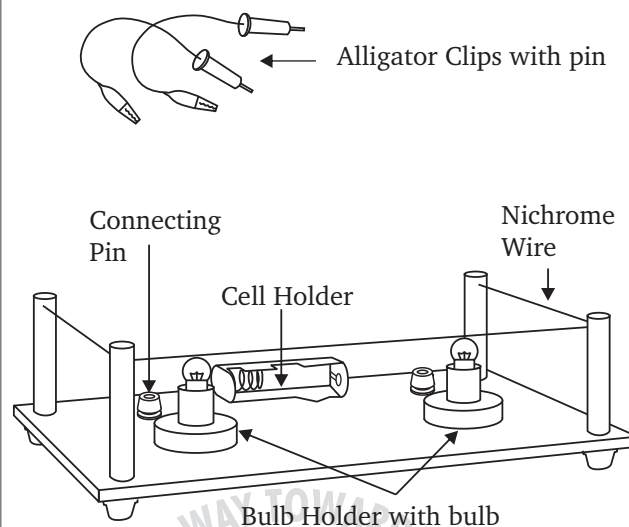


POWER LOSS

Loss of power by resistance of transmission line.

Assembly :

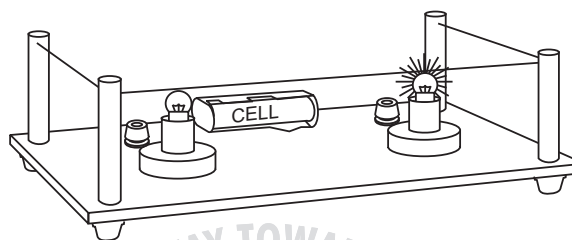


Consists of Nichrome wire (of 26G and 533 mm in length) stretched between 4 poles of acrylic. The poles are fixed at the outer edges of an acrylic base using screws. Two bulb holders with bulbs, a plastic double cell holder and two female pins are also fixed on the base. The circuit arrangement is such that one bulb is directly connected to the source, other bulb will be in series with source Nichrome wire when connected using alligator clips.

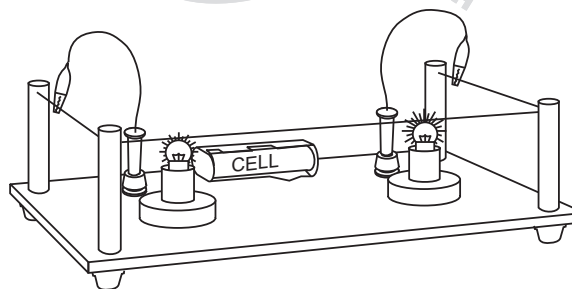


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To do and observe :



Step 1 : Insert two pencil cells inside the plastic cell holder with proper polarity. Now one bulb starts glowing with greater intensity as it is directly connected to the source.



Step 2 : Take the two alligator clips with connecting pins and connect them as shown in the figure. Now observe the intensity of the bulbs.



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What is going on :

When you insert the cells in the cell holder one bulb glows. This bulb is directly connected to the source and there are no other components in between which can use the current. Therefore it glows with more intensity.

Here you can compare the two cells to the power generating point and the bulb which glows is nearer to the power generating point, with no other circuit elements in between. When you connect the other bulb using connecting clips as in the step 2, you will be connecting the 2nd bulb to the source (power generating source) through the Nichrome wire (transmission wire). Since the wire is having resistance, this resistance of wire reduces the amount of power available to the second bulb. Therefore the second bulb glows dim.

Additional :

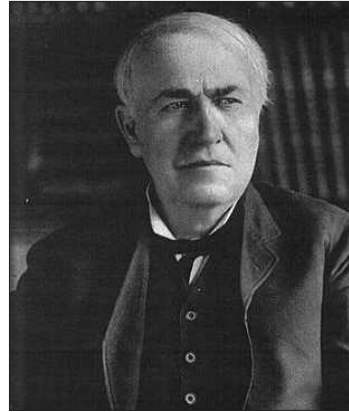
A tremendous amount of electricity that power plants generate is wasted by resistance in the transmission wires that carry the electricity from the plant to our homes. While the resistance of the wire is very low, the total resistance in thousands of kilometers of wire becomes very significant. When Thomas Edison wired a town to bring electric lights to every home, he noticed that the lights were brighter nearer to the power plant than those across the town from it. The resistance in the long runs of wire reduced the amount of power available to homes located far from the plant. Today, improvements have been made to reduce wasted electricity in transmission wires, but significant losses still remain a problem. Step-up transformer are also used to supply proper constant voltage.



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Thomas ALva Edison

"Genius is one percent inspiration, ninety-nine percent perspiration." - Thomas Alva Edison,

Born : February 11, 1847(1847-02-11)
Milan, Ohio

Died : October 18, 1931 (aged 84)
West Orange, New Jersey

Occupation : Inventor, entrepreneur



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POWER LOSS

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