

of bamboo or cotton fibre at a very high temperature, is attached to conducting wires and inclosed in a pear-shaped globe, from which the air is then exhausted. The conducting wires where they are fused into the glass are of platinum. When a sufficiently strong current is passed through the carbon filament, which has a high resistance, it is heated to incandescence and yields a bright steady light. The carbon is infusible, and does not burn for lack of oxygen to unite with it. Lamps in which the filament is a fine wire of the metal tungsten are becoming common.

268. Arc lamp. Sharpen two small carbon pencils and connect them by means of copper wires to the poles of a battery of several cells, close the circuit by bringing the points of the carbons together loosely. You will notice a bright point of light at the tips of the pencils.

This experiment illustrates in a feeble way the principle of the *arc light*.

When two carbon rods, or pencils, are connected by conductors with the poles of a sufficiently powerful battery or dynamo, touched together, and then separated a short distance, the current continues to flow across the gap, developing intense heat and raising the terminals to incandescence, thus producing a powerful light (Fig. 273).

The arc lamp is provided with a regulator, by which the carbons are kept at a constant distance apart.



FIG. 273.—The arc light.