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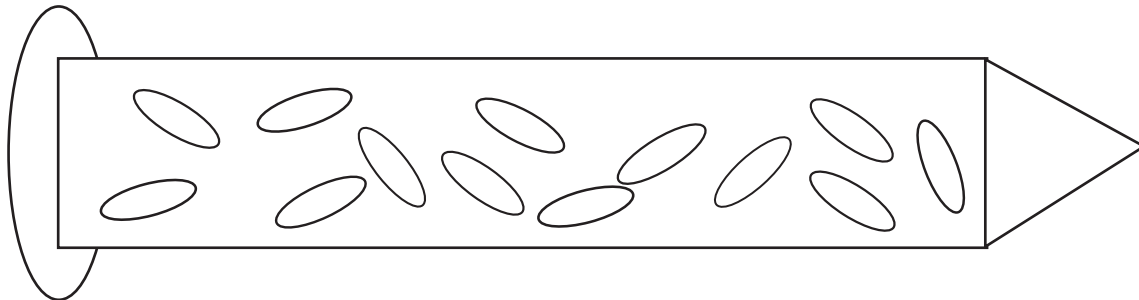
Making a Compass *(cont.)*

Making a Magnet

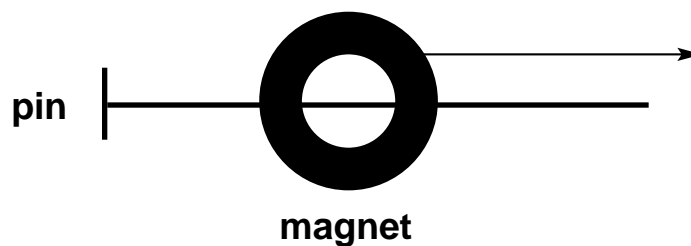
In an ordinary pin, the atoms are not arranged in any particular order. As you run the magnet over the pin, the atoms line up with the positive end pointing one way and the negative the other. Stroking the pin many times strengthens this alignment.

The pin is only a temporary magnet, however, and the magnetism gets weaker with time. If the pin is hit hard with a hammer or is heated, it will lose its magnetism.

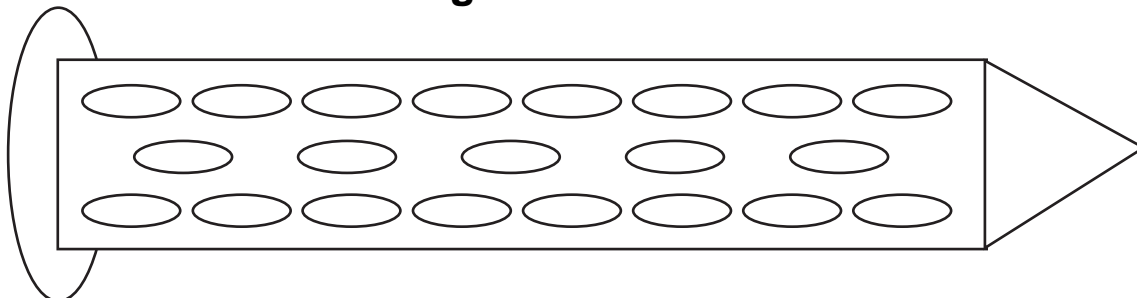
Unmagnetized Pin



Magnetizing the Pin

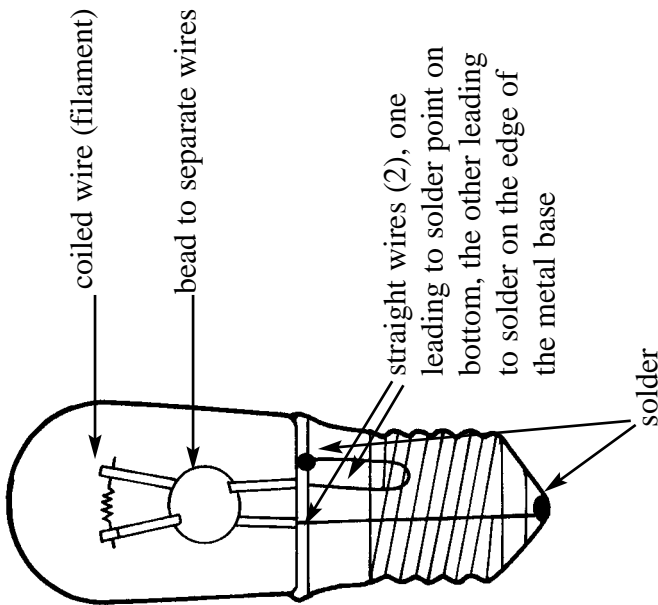


Magnetized Pin



Parts of a Light Bulb

2.5-volt bulb

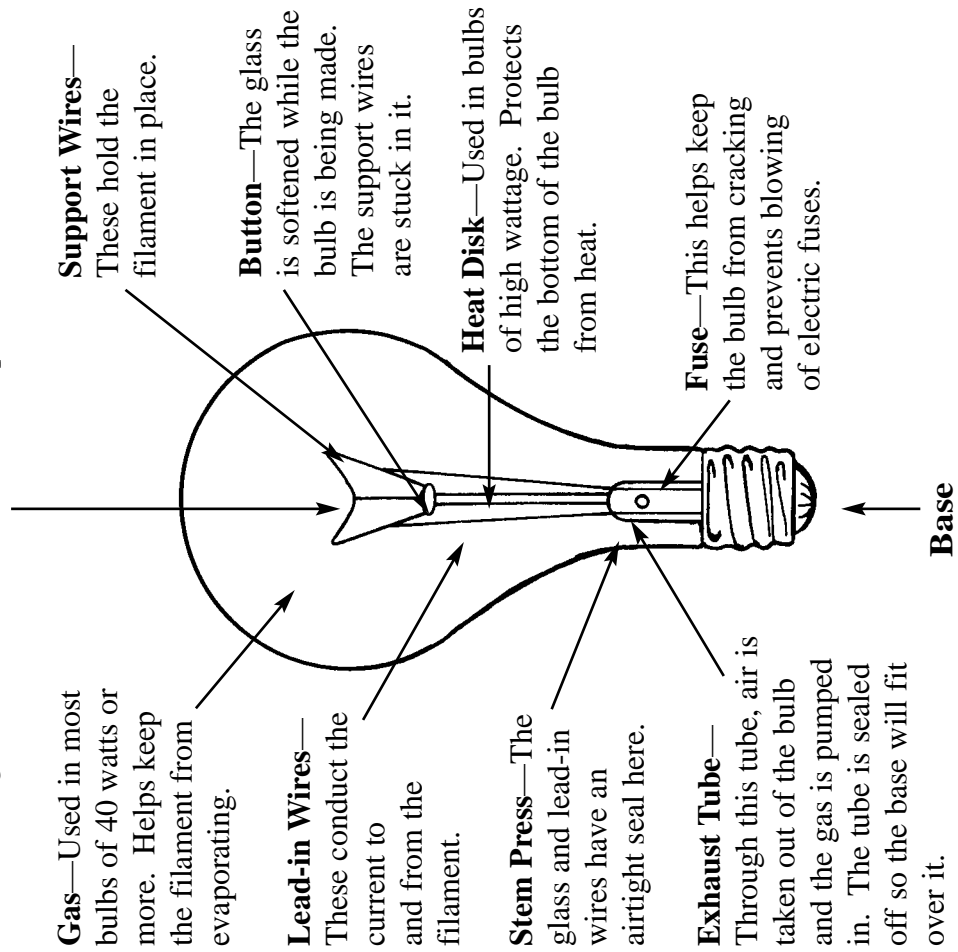


Completing the Circuit

1. Current passes from the negative end of the battery through wire soldered to the side of the metal casing on the light bulb.
2. Current continues through this wire to the support wire attached to one side of the filament, across the filament, and back into the other support wire which is attached to the bottom of the bulb.
3. Current passes back into the positive end of the battery and then to the negative end where it flows into the wire again.

100-watt bulb

Filament—The wire that heats up to *incandescence* (in-can-des-cent), or glowing, white heat. When Thomas Edison used a cotton sewing thread as his first filament, it burned to an ash. Today, the filament is made of *tungsten*, which does not melt except under extreme heat.



Light Bulbs and Batteries (cont.)