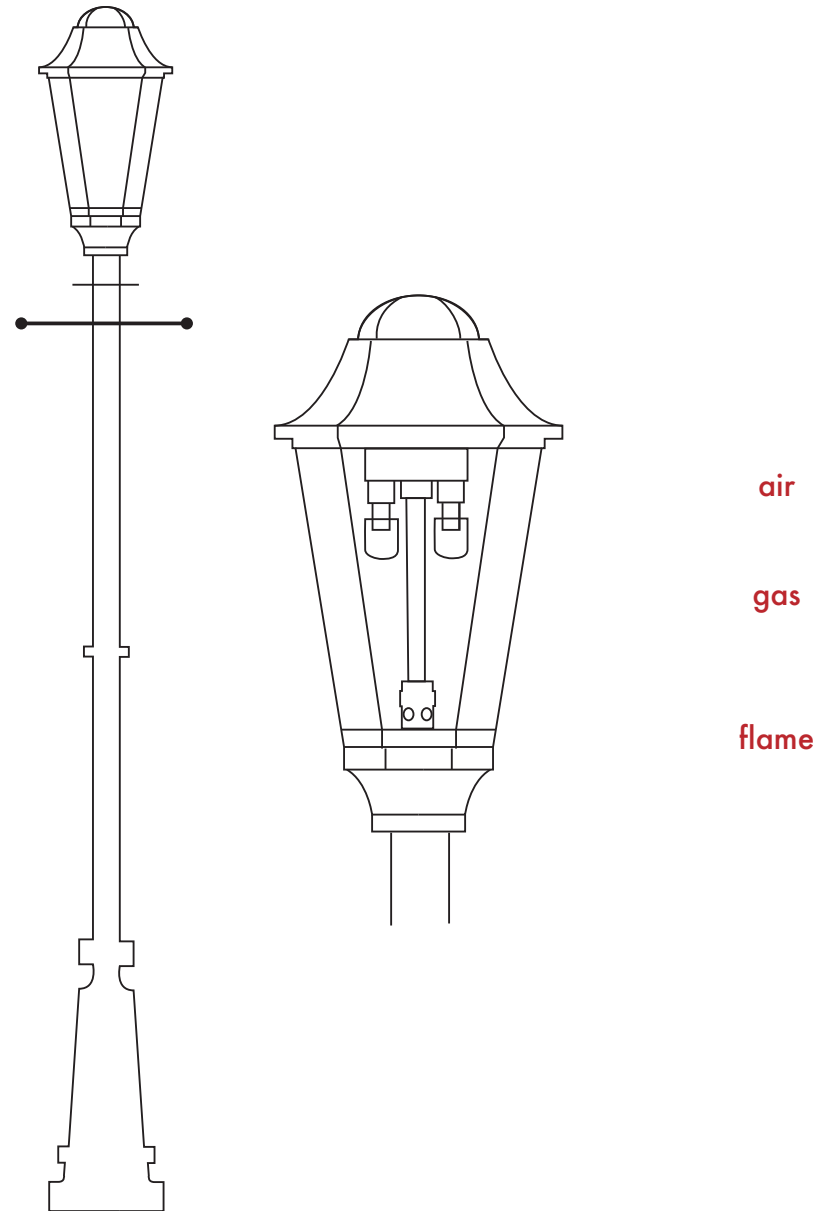


circa 1790 gas (street) lamp

Gas lamps are fueled by flammable gas, which creates a flame when the gas is lit up. They are often accompanied by gas mantles, which can generate a bright light when heated with the flame of the gas.

William Murdoch experimented with gas lighting in his own residences during the 1790s. Frederick Winsor lit a row of gas lights on Pall Mall, London in 1807.

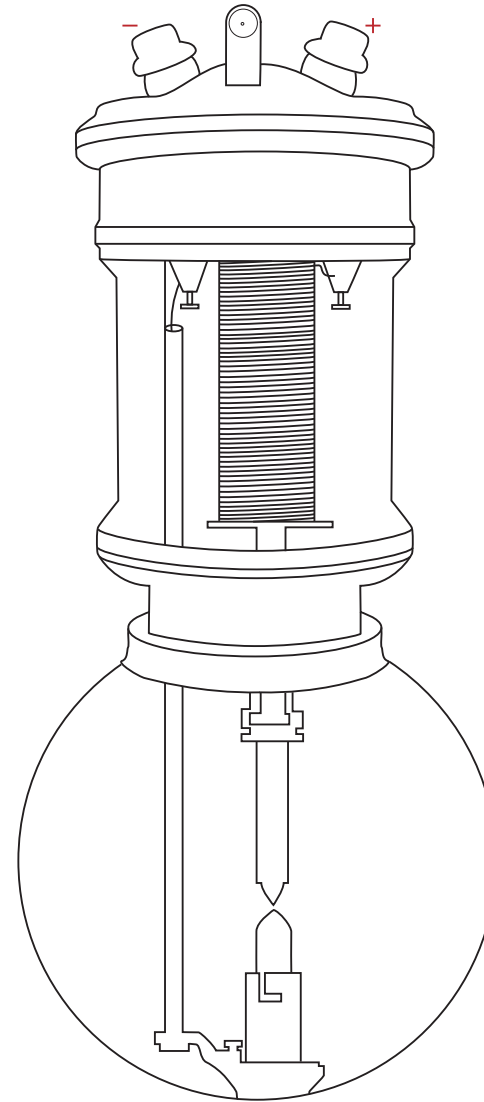


circa 1800 carbon arc lamp

When electricity runs through the carbon arc lamp, the gap between the two carbon rods creates an electric arc, which generates a bright spark.

The spark created by the carbon arc lamp is so bright that initially it could only be used in public outdoor areas.

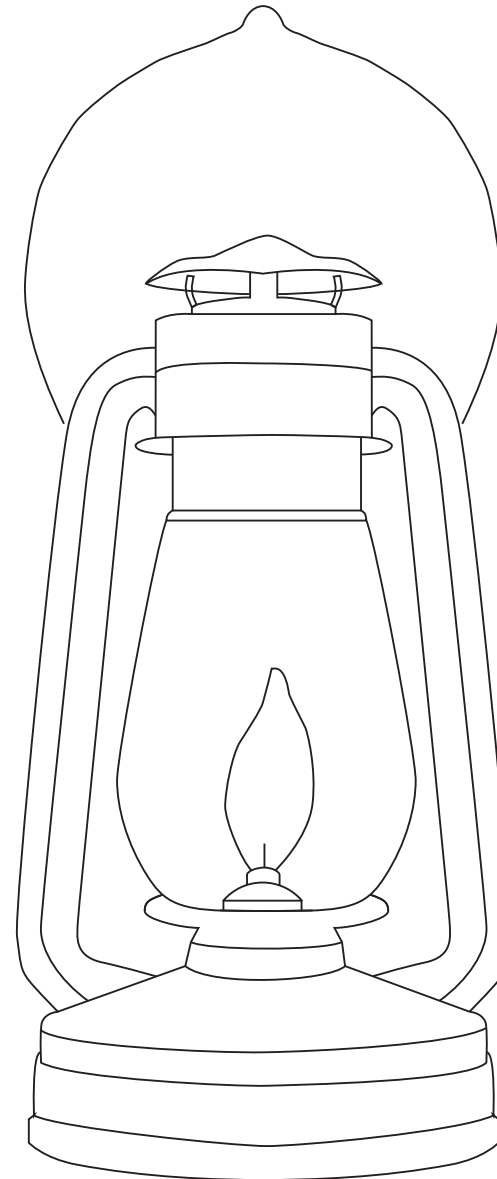
The first arc lamp was developed by Sir Humphry Davy, who used charcoal sticks powered by a battery to create a lamp.



circa 1853 kerosene lantern

Kerosene lanterns are portable devices which create a light by burning kerosene, a flammable oil that can be extracted from petroleum, with a wick, or in later models, with a pressure pump.

The modern form of the kerosene lamp was invented by Ignacy Łukasiewicz in 1853.

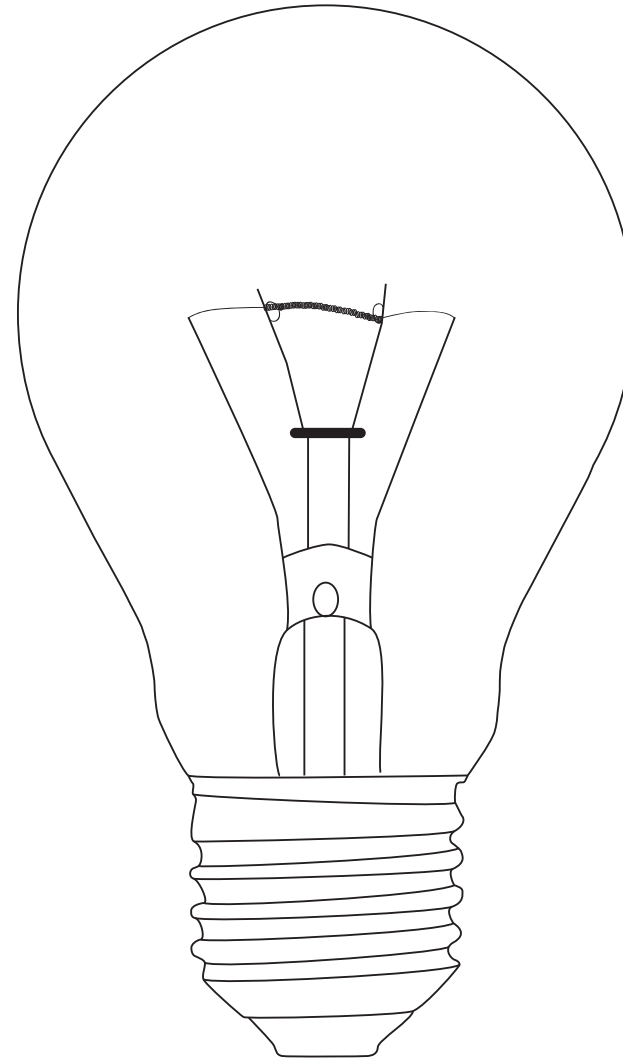


matches

circa 1879 the light bulb

When the wire filament inside a light bulb is heated to a high temperature, it can glow to create a visible light source. The wire filament has to be a conductive material with a strong resistance and a high melting point. The interior of the bulb is either filled with inert gases or replaced with a vacuum.

Thomas Edison and Joseph Swan both filed for patents for a form of the lightbulb in their respective countries around 1880.



circa 1902

NEON

Applying electricity through a low pressurized glass tube filled with neon gas will cause neon to produce a glow. Pure neon glows red, but can create many other colors when mixed with other gases.

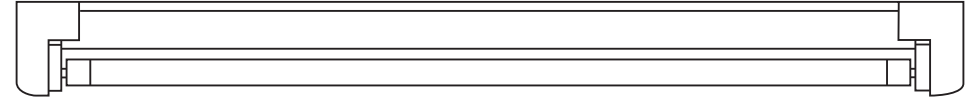
In 1898, neon, the gas, was discovered by William Ramsay and Morris Travers. Its name is derived from "neos", the Greek word for new.

Neon lighting was created by Georges Claude around 1902, and was displayed to the public in 1910.

circa 1926 fluorescent light

Fluorescent substances can absorb radiation and then emit a light visible to the human eye. Passing current through a glass tube filled with vapor mercury will cause the mercury to emit ultraviolet radiation, allowing the phosphor coating on the inner wall of the tube to produce fluorescent light.

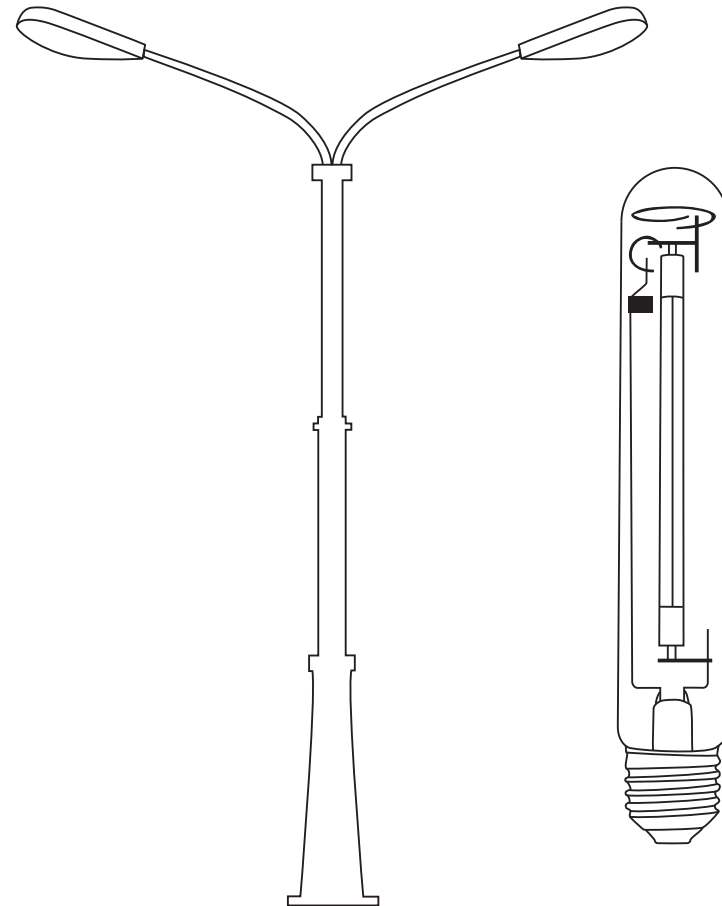
In 1926 Friedrich Meyer, Hans Spanner, and Edmund Germer patents a fluorescent lamp. After further development, fluorescent lamps were revealed to the public in 1939.



circa 1962 high pressure sodium lamp

Enclose vaporized sodium in a highly pressurized tube, apply an electrical discharge, and the ionized sodium will generate light. Since sodium is highly corrosive under high pressure, finding the right material to contain the sodium was a key component to the development of this light.

Joseph Burke and Robert Coble found that aluminum oxide mixed with magnesium created a stable and translucent container. Along with William Loudon and Kurt Schmidt, they debuted the HPS lamp in 1962.



circa 1962 light-emitting diode

Light-emitting diodes, more commonly known as LEDs, are semiconductors that emit light when electricity is passed through.

Although red LEDs were invented by Nick Holonyak Jr. in 1962, and green ones quickly followed, blue LEDs were not created until the 1990s by Isamu Akasaki, Hiroshi Amano and Shuji Nakamura.

