

The chemical fire-extinguisher is for the purpose of generating a gas that will not support a flame of fire. Science has taught us that such a gas is carbon dioxide, or carbonic oxide (commonly called carbonic acid). This gas is very hurtful to animal life as well, even when largely diluted with air. It acts as a narcotic poison. Hence the danger arising from imperfect ventilation, the crowding together of many individuals in houses and ships without efficient means for renewing the air; for carbonic oxide is constantly disengaged during the process of respiration, which, as every one knows, is nothing but a process of slow combustion, which is an ample reason for free ventilation in crowded districts. This gas is sometimes emitted in large quantities from the earth in volcanic districts, and it is constantly generated where organic matter is in the act of undergoing fermentative decomposition. The fatal "after damp" of the coal mines contains a large proportion of carbonic oxide. A lighted taper plunged into carbonic oxide, or thrown upon it, is instantly extinguished, even to the red hot snuff. When diluted with three times its volume of air, it still retains the power of extinguishing light. It is upon this principle that our extinguisher was invented. It can be made in several ways, but that used in our Babcock extinguishers is by decomposing a carbonate with one of the stronger acids. A copper jar is filled with water, and a quantity of carbonate of soda is thrown into it to dissolve. When you wish to generate the gas, a small quantity of diluted sulphuric acid is thrown into it, and at once the generation begins, and by its own forcible decomposition it can be emitted through a pipe or hose upon a flame, which is immediately extinguished by it.

I am, sir,

Yours obediently,

HOMER BAKER.

22 Victoria Square.