

UNITED STATES PATENT OFFICE.

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FIRE-EXTINGUISHING LIQUID.

1,316,191.

Specification of Letters Patent. Patented Sept. 16, 1919.

No Drawing.

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To all whom it may concern:

Be it known that I, SAMUEL S. SADTLER, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Fire-Extinguishing Liquids, of which the following is a specification.

This invention relates to fire extinguishing liquids, and has for its object to provide a liquid which will have a lower freezing point as compared with present known liquids, and which will also have an increased flash point. A further object of the invention is to provide a liquid which will not attack metal containers, and which when heated by the fire will not produce inflammable or explosive vapors.

Carbon tetrachlorid has been found useful as a fire extinguishing agent, because of its property of forming heavy vapors when heated, which act to stop combustion by shutting off the oxygen of the air. Carbon tetrachlorid alone, or other halogen carbon compounds are objectionable in that they have too high a freezing point, and frequently attack metal containers, or deteriorate when stored, rendering them unsuitable for use in the numerous portable pump or pressure type fire extinguishers now on the market. Again, many of the liquids heretofore proposed more or less readily decompose when heated, and form explosive or inflammable gases. In some instances carbon monoxid is liberated, which is combustible.

After a long series of experiments, I have discovered that carbon tetrachlorid, substantially free of sulfur, will combine with certain saturated hydro carbons to produce a resultant composition which will have a freezing point about or below 50° F., which will not attack metal containers, nor act as a corrosive, even in the presence of moisture, having a flash point of upward of 2000° F., and a fire test of a number of degrees higher. Such a composition, by reason of these qualities, is eminently suited for fire extinguishing purposes, not only because of its non-corrosive properties, but because of its high fire test and its absence of inflammable vapors at high temperatures. Moreover, my composition will keep indefinitely in a sealed container, such as

a modern hand fire extinguisher, without deterioration or separation, and without chemical change.

My preferred composition is made by mixing upward of 90 parts of carbon tetrachlorid with not exceeding 10 parts of petroleum ether, which combine to produce a resultant liquid which has entirely different fire extinguishing qualities from that of its components. The carbon tetrachlorid is put in a closed tank, and the petroleum ether is admitted from a closed tank to the bottom of the carbon tetrachlorid tank, and owing to its lighter gravity it quickly permeates the entire body of carbon tetrachlorid without loss by evaporation, and preventing spread of the vapors. Petroleum ether is a saturated hydrocarbon of from 80° B. to 108° B., and carbon tetrachlorid has a specific gravity of 1.629. One composition made according to this invention having approximately five per cent. of petroleum ether and ninety-five per cent. of carbon tetrachlorid free of sulfur has a flash point of 2080° F., and a fire test of approximately 20° higher. The most common impurity in carbon tetrachlorid is carbon disulfid, and where I refer to carbon tetrachlorid of known purity, I mean carbon tetrachlorid free of carbon disulfid, or other sulfur containing material, or other impurity having a corrosive action under conditions of fire extinguisher use. Although carbon tetrachlorid is preferred on account of its cheapness and abundance of supply, other halogen compounds can be used.

What I claim is:

1. A fire extinguishing composition composed of carbon tetrachlorid, and less than 10% of a saturated hydrocarbon adapted to lower the freezing point and raise the flash point of the composition comparatively to the freezing and flash points of tetrachlorid.
2. A fire extinguishing composition composed of carbon tetrachlorid, and less than 10% of petroleum ether.
3. A fire extinguishing composition composed of approximately 95% of carbon tetrachlorid and approximately 5% of a saturated hydrocarbon having a specific gravity between 80 and 108° B., said compound having a flash point of approximately 2080° F.
4. The herein described liquid fire extin-

guishing composition having a freezing point about or below 50° F. and a flash point of above 2000° F. composed of carbon tetrachlorid and less than 10% of a saturated hydrocarbon.

5 . 5. The process of making a fire extinguishing compound having a high flash point and low freezing point which consists in passing upwardly from the bottom

through a body of carbon tetrachlorid less than 10% of petroleum ether.

Signed at Philadelphia, in the county of Philadelphia, and State of Pennsylvania, this 27th day of April, A. D. 1917.

SAMUEL S. SADTLER.

Witness:

F. P. FELTON, Jr.