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FIRE EXTINGUISHING LIQUID

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7 Claims. (Cl. 23—9)

This invention relates to improvements in fire extinguishing liquids, and more particularly to such liquids for use in mechanical fire extinguishers and sprinkler systems.

One of the main features of the invention resides in a fire extinguishing liquid which is highly efficient in its action for extinguishing fires, and which is less toxic than the liquids generally used in fire extinguishing apparatus.

Another feature of the invention is to provide a chemical fire extinguishing liquid which is highly volatile so as to rapidly vaporize when subjected to the heat of a fire, which vaporization consumes the heat of the burning material, thus lowering the temperature thereof, and at the same time, the vapor displaces the air and stops combustion.

A further feature of the invention is the provision of a chemical fire extinguishing liquid which is non-damageable to material contacted thereby; which is less harmful than other fire extinguishing chemicals, and which is non-corrosive so as not to affect the working parts of various apparatus used for dispensing the liquid in fighting fires.

Other features of the invention will be apparent as the following specification is proceeded with, and as pointed out in the annexed claims.

My improved fire extinguishing liquid consists of the following listed ingredients and substantially of the proportions set forth:

	Per cent
Tetrachlorethylene	15
Cellulose acetate (powdered form)	15
Carbon tetrachloride (100% dry)	29
Dibromdichlorethane	30
Bromoform	11
	100

In the mixing of the above chemical ingredients, I first place the 15% of tetrachlorethylene and the 15% cellulose acetate in an agitating vessel and effect a thorough mixing of these elements until a liquid mixture is obtained. I have found that by using an agitator for the mixing of these elements which consists of a rotating cylinder, and a series of rotating baffle plates within the cylinder, the cylinder and baffle plates rotating in opposite directions, that an approximate time period of twenty-four hours is required to thoroughly mix the tetrachlorethylene and cellulose acetate. The tetrachlorethylene serves as a solvent for reducing the cellulose acetate to a liquid state.

The next step in the process of mixing the several ingredients, is to add the 29% of carbon tetrachloride to the liquid mixture of cellulose acetate and tetrachlorethylene. This is performed by pouring the carbon tetrachloride into the previously mixed elements and these combined elements are agitated until thoroughly mixed. I have found that the most efficient results have been obtained after these three elements have been agitated for approximately twenty-four hours in an agitator similar to the type above described. It is most efficient to employ carbon-tetrachloride which is 100% dry, that is, free of any moisture. The fire extinguishing qualities of the vapors of carbon-tetrachloride is well known in the art, but when used alone, or in a large percentage in a mixture, the same has been found highly toxic in use. When used in the proportion herein set forth, and in conjunction with the other elements, I am able to utilize the fire extinguishing qualities of this element without the objectionable toxic effect.

Dibromdichlorethane is known to be highly volatile and the proper percentage thereof is next added to the mixture of tetrachlorethylene, cellulose acetate, and carbon-tetrachloride. This mixture is also placed in an agitator and thoroughly agitated for a period of about eight hours, at which time the several elements are thoroughly mixed. However, for a precautionary measure, this mixture is strained by passing the same through a chamois bag or other like strainer to remove any trace of solids which might be present therein.

To the strained mixture of elements, I add the 11% of bromoform. This last added element is also highly volatile and acts in the capacity of an anti-freeze for the fire extinguishing liquid. The bromoform when vaporized, is much heavier than the vapors of the carbon-tetrachloride, and coacts therewith in providing a vapor blanket for smothering the flames of burning material.

When used for fire extinguishing purposes, the herein described chemical liquid is stored in the extinguisher apparatus or system for use when needed for the extinguishing of a fire. When sprayed or squirted upon a fire, the heat or temperature of the burning material vaporizes the liquid which action lowers the temperature of the burning material due to the displacement of air by the vapors which stop combustion. The vapors from the chemical mixture being heavier than air, the same form a protecting wall about

the burning material and prevent air from reaching the same, thus smothering the fire.

In the mixing of the several chemical elements, the cellulose acetate has been liquefied by its mixture with the tetrachlorethylene, but when the chemical liquid is subjected to the heat of a fire, the cellulose acetate forms and deposits a film upon the burning materials, retarding the flash-back of the fire and stifles combustion.

The use of the chemical liquid herein described when combating fire, results in an increase of vapor over carbon-tetrachloride generally used as a fire fighting chemical, and also lowers the toxic effect thereover. Further, the weight by volume of my fire extinguishing liquid is less than that of carbon-tetrachloride which makes it more practical for handling in portable and hand type extinguishers.

Through experiments with this fire extinguishing liquid, I have found that it is very effective in the fighting of "Class A" as well as "Class B—2" and "Class C—2" fires as classified by the Bureau of Fire Underwriters.

While I have specifically mentioned certain proportions of the several elements which make up my fire extinguishing liquid, the same may be slightly varied without unnoticeable effects and I do not wish to be restricted thereto. Also, other elements having similar characteristics which may be deemed equivalents may be substituted for those set forth without departing from the spirit of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. A fire extinguishing liquid including a highly volatile non-combustible liquid substance, and cellulose acetate mixed with said non-combustible liquid, the cellulose acetate being substantially 15% of the total mass.

2. A fire extinguishing liquid including a highly volatile non-combustible liquid substance, cellulose acetate mixed with said non-combustible liquid, and an anti-freeze agent combined therewith, said cellulose acetate and anti-freeze agent combined being less than one-half of the total mass.

3. A fire extinguishing liquid comprising tetrachlorethylene, cellulose acetate, carbon-tetrachloride, and dibromdichlorethane, mixed in substantially the proportions described, the amount of carbon-tetrachloride being less than 50% of the total mass.

4. A fire extinguishing liquid comprising tetrachlorethylene, cellulose acetate, carbon-tetrachloride, dibromdichlorethane, and bromoform, mixed in substantially the proportions described, the amount of carbon-tetrachloride being less than 30% of the total mass.

5. A fire extinguishing liquid comprising a highly volatile non-combustible solution having therein a relatively small amount of carbon tetrachloride in proportion to the total mass, and a liquefied cellulose acetate in amount equal to substantially 15% of the total mass mixed with said solution.

6. A fire extinguishing liquid comprising a highly volatile non-combustible solution having therein a relatively small amount of carbon tetrachloride in proportion to the total mass, a liquefied cellulose acetate in amount equal to substantially 15% of the total mass mixed with said solution, and a volatile anti-freeze agent added thereto.

7. A fire extinguishing liquid comprising the following elements in substantially the proportions set forth:

	Per cent
Tetrachlorethylene	15
Cellulose acetate	15
Carbon tetrachloride	29
Dibromdichlorethane	30
Bromoform	11

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