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METHOD OF EXTINGUISHING FIRES IN
INFLAMMABLE FLUIDS

Xavier B. Tansill, New York, N. Y.

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This invention is concerned with a novel method of quickly and efficiently extinguishing fires in burning fluids, such as oil, gasoline, benzine, naphtha, kerosene, and the like.

More specifically, the method is concerned with the novel practice of immersing relatively large blocks or pieces of solid carbon dioxide in burning fluids of the above nature whereby the solid carbon dioxide rapidly sublimates to form carbon dioxide gas which bubbles to the top of the body of burning liquid and blankets out the fire on the surface thereof.

An important aspect of the method herein disclosed resides in my discovery that, particularly in the lighter inflammable fluids of which gasoline, benzine, naphtha, kerosene, and the like are examples, the blocks, lumps, or pieces of solid carbon dioxide when immersed therein sublime more rapidly than they would in the open air at the same temperatures, with the result that large quantities of carbon dioxide gas are rapidly released.

As is well known in this art, when large tanks of inflammable fluids catch fire it is exceedingly difficult to extinguish the flames. Because of the terrific heat generated it is practically impossible to get very close to the burning tank. Of course it is of little avail to attempt to extinguish the flames with water. Attempts have been made to spray liquid carbon dioxide onto fires of this type for the purpose of employing the carbon dioxide snow that this forms when proper equipment is used. However this has proved ineffective because the rapid convection currents resulting from the high temperatures involved causes the light fluffy carbon dioxide snow to be carried away and in any event supplied in such small quantities as to be of little effect. Desirably, of course, the carbon dioxide gas should be released at the surface of the burning liquid and it is clear that the carbon dioxide snow method cannot accomplish this purpose.

I am aware that suggestions have been made to submerge, as part of a permanent installation, pipes in oil, gasoline and similar tanks through which carbon dioxide can be released in the case of fire. The disadvantages of such arrangement include such factors as cost and likelihood of failure of the system at the time it is most needed. Such systems after being installed are often not called into use for many years with the result that they are frequently not ready for use when required.

Of course there are many many tank installations where no special provision has been made

for extinguishing fires should they occur and it is an object of this invention to provide a novel method which is practical and which is available to fire fighting organizations in the event of emergency.

My method consists in placing in contact with the burning fluid blocks, lumps or pieces of solid carbon dioxide which because of their relative weight will sink to the bottom of the body of fluid. I have discovered that under such conditions solid carbon dioxide sublimates very rapidly, releasing large quantities of carbon dioxide gas which bubbles to the surface of the body of liquid and issues therefrom right at the burning surface where because of the quantity thereof, a blanket of carbon dioxide gas forms separating the fuel from the atmosphere. In addition, because of the extremely low temperature of the released gas and because of the immersion of the cold bodies of carbon dioxide in the liquid, the temperature of the liquid is so reduced as to tend to bring it below its flash point.

I anticipate that many different methods of immersing the carbon dioxide into the liquid will occur to those skilled in the art. I suggest, for example, that it may be catapulted into the tanks during the fire, dropped therein from airplanes, or introduced into the tank through special trap-door equipment which can be readily devised for the purpose. The particular manner of introducing the solid carbon dioxide into the fuel is not the essence of this invention.

A particular advantage of this method is found in the fact that solid carbon dioxide is available in large quantities at all important centers and fire fighting organizations can be readily equipped to transport sufficient quantities thereof to the scene of serious fires of this nature, thereby making available a fire fighting implement not heretofore employed for such purposes.

What is claimed is:

1. A method of extinguishing a fire on the surface of a body of inflammable fluid which comprises, immersing bodies of solid carbon dioxide in the fluid while it is burning.

2. A method of extinguishing the flames on the surface of a body of burning oil, gasoline, benzine, naphtha, kerosene, and the like, which comprises submerging a plurality of bodies of solid carbon dioxide in the body of burning liquid fuel whereby the carbon dioxide gas resulting from sublimation bubbles to the surface of the burning fluid and forms an atmospheric excluding blanket on the surface thereof.

3. A method of extinguishing a fire in a tank

of fluid fuel which comprises dropping a plurality of bodies of solid carbon dioxide into the burning fuel body.

4. A method of extinguishing a fire in a liquid fuel tank which comprises catapulting a plurality of bodies of solid carbon dioxide into the burning fuel body.

5. A method of extinguishing a fire in a body

of burning fuel which comprises contacting the body of burning liquid fuel below the surface thereof with a plurality of pieces of solid carbon dioxide so that the released carbon dioxide gas may bubble to the surface whereby the fluid is chilled and the released carbon dioxide forms a surface blanket therefor.

XAVIER B. TANSILL.