

UNITED STATES PATENT OFFICE.

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PROCESS OF EXTINGUISHING FIRES.

1,010,870.

Specification of Letters Patent.

Patented Dec. 5, 1911.

No Drawing. Original application filed April 5, 1910, Serial No. 553,570. Divided and this application filed September 27, 1910. Serial No. 583,997.

To all whom it may concern:

Be it known that I, EDWARD M. DAVIDSON, a citizen of the United States, and resident of the city, county, and State of New York, have invented certain new and useful Improvements in Processes of Extinguishing Fires, of which the following is a specification.

This invention relates to an improved process for extinguishing fires, particularly fires of a refractory nature, such as burning oil, gasoline, cotton, jute, etc.

The process consists in establishing at the seat of combustion a lingering blanket of dry, combustion-arresting gas by throwing on the fire a liquid substantially devoid of water and capable of being volatilized by the fire to produce such gaseous blanket.

A further object of the invention is to provide a process of extinguishing fires caused by electricity, such as burning insulation on electrical machinery and fires around electrical machinery, where the use of water would cause serious damage to the machinery and injury to the user.

The process when extended to cover fires of this latter class consists in establishing a blanket of dry gas, such as above described, and also causing an electrically non-conducting deposit to be thrown down. This deposit prevents short-circuits and effectually protects the user and the machinery.

This application is a division of my application filed April 5th, 1910, Ser. No. 553,570.

The compound used in this process is described and claimed in my application above referred to and consists of a liquid, substantially devoid of water, containing carbon-tetrachlorid having ammonia gas in solution and a gas, such as carbon-dioxid, in solution.

When the compound is to be used in extinguishing electrical fires there is added to the same one or more electrically non-conducting ingredients, such as oil of amber and nitro-benzol, known as oil of mirbane. These latter ingredients render the compound substantially non-conducting to the electrical current and when the compound is volatilized by the heat of the fire the same are thrown down as a thick, gummy, electrically non-conducting deposit which not only protects the user from injury from

the current but assists in smothering and extinguishing the fire and, in the case of a short circuit, stops the flow of the current by destroying the arc.

This compound may be formed by taking a quantity of carbon tetrachlorid and adding 1½% by volume of oil of amber and the same quantity of nitrobenzol, then passing 15% by volume of anhydrous ammonia gas into the solution under pressure, agitating the solution, passing approximately 22% by volume of anhydrous carbon dioxid into the solution under pressure and again agitating the solution, causing a complete chemical reaction in which the original ingredients are entirely changed.

This compound when volatilized by being thrown upon the fire produces a blanket of dry gas having a specific gravity greater than that of air, and, consequently, the same envelops the burning material shutting off the supply of air and effectually extinguishing the blaze by a process of smothering assisted by the action of the gas comprising this blanket, which will not support combustion. This gaseous blanket on account of its great specific gravity does not mingle readily with the gases of combustion, and, consequently, is not carried away and dissipated thereby, as would be the case with lighter gases.

An exceptional advantage of the present process resides in the fact that in carrying out the same, the blanket of gas formed is absolutely homogeneous insuring against the likelihood of the flames breaking through the blanket as would be the case were the latter not coherent or homogeneous. Again, the gas when generated and the blanket produced are non-poisonous preventing likelihood of asphyxiation of an operator, a prerequisite of a commercial process of the nature of the present invention.

When the process is used to extinguish fires of a smoldering nature, as in bales of cotton or jute, the gas not only envelops the smoldering mass, but penetrates the same, remaining long after the fire has been extinguished.

When used on burning liquids, such as oil or gasoline, the gaseous blanket immediately settles over the surface and does not scatter the liquids but remains over the

surface thereof a considerable time and smothers the blaze.

I do not wish to be understood as confining myself to the use of the particular ingredients mentioned for the compound, although the result of many experiments leads me to believe that the same are most efficient for use in this process.

In the following claims I have defined what I believe to be a novel process of extinguishing fires.

What I claim is:

1. The process of extinguishing fires which consists in establishing at the seat of combustion a lingering, cohering blanket of dry, combustion-arresting gas, and simultaneously causing an electrically non-conducting deposit to be thrown down.

2. The process of extinguishing fires which consists in establishing at the seat of combustion a lingering cohering and homogeneous blanket of dry, combustion-arresting non-poisonous gas, by throwing

on the fire a liquid substantially devoid of water and capable of being volatilized by the fire to produce such gaseous blanket.

3. The process of extinguishing fires which consists in causing the burning material to be enveloped with a lingering, cohering and homogeneous blanket of dry gas which also penetrates the burning mass, by applying a liquid in such a manner that the heat of the fire causes the same to be volatilized and to produce such gaseous blanket.

4. The process of extinguishing fires which consists in enveloping the burning material with a lingering, cohering blanket of dry, combustion-arresting gas, inherently penetrative of the burning materials.

Signed in the city, county, and State of New York this 18th day of August, 1910.

EDWARD M. DAVIDSON.

Witnesses:

GEO. F. SHAVER,
C. GRANT WILBUR.