

UNITED STATES PATENT OFFICE.

JOSEPH HERB, OF WEST SUPERIOR, WISCONSIN.

FIRE-EXTINGUISHING COMPOUND.

SPECIFICATION forming part of Letters Patent No. 579,234, dated March 23, 1897.

Application filed November 13, 1896. Serial No. 612,025. (No specimens.)

To all whom it may concern:

Be it known that I, JOSEPH HERB, (having renounced my allegiance to the Emperor of Germany and declared my intention to become a citizen of the United States,) residing at West Superior, in the county of Douglas and State of Wisconsin, have invented a new and useful Art of Rendering Inflammable Substances Non-Inflammable, of which the following is a specification.

This invention relates to the art of rendering inflammable substances non-inflammable; and it has for its object to utilize, in combination with inflammable substances, a certain chemical providing positive and effective means for rendering such substances totally or partially non-inflammable, as desired in order to insure safety in handling the same.

With this object in view the invention primarily consists in combining with inflammable substances, such as hydrocarbons and the like, the chemical known as "carbon tetrachlorid," having the formula CCl_4 . The carbon tetrachlorid is known as a colorless liquid insoluble in water and whose vapor can be decomposed at a red heat, but besides these known characteristics the chemical is non-inflammable and is volatile.

It has been found that when carbon tetrachlorid is added to certain chemicals which are inflammable these chemicals lose their inflammable properties and can be handled without danger of fire, explosion, or the like, and in this manner inflammable hydrocarbons belonging to the different groups or series are rendered non-inflammable. To accomplish the result desired, it is only necessary to mix the carbon tetrachlorid with the chemicals to be rendered non-inflammable in substantially equal parts, and some of the substances belonging to the hydrocarbon group affected in the manner described by the carbon tetrachlorid are benzene, ligroin, benzol, toluol, and oil of turpentine. Ethyl alcohol and other alcohols are affected in the same way.

Besides rendering liquid hydrocarbons non-inflammable carbon tetrachlorid possesses the same property in connection with such hydrocarbon solids as naphthalin and other products of the distillation of coal-tar, and in this connection it may be observed that when such hydrocarbons are dissolved in carbon tetrachlorid the solution can be handled

with safety as a very powerful bedbug poison or insect-destroyer.

A practicable use of the carbon tetrachlorid with liquid hydrocarbons is found in connection with benzene, which has a very extensive use in cleaning establishments and for household purposes, and when added to benzene this substance is rendered much safer in its different uses and also more effective in dissolving fat and fatty substances in goods of different sorts.

It has been found by experiment that certain inflammable substances, such as sulfuric ether, petroleic ether, and the like, are not rendered entirely non-inflammable by the addition of carbon tetrachlorid thereto, for the reason that the boiling-points of these substances are considerably lower than that of carbon tetrachlorid, so for the purpose of this application it will be understood that carbon tetrachlorid is effective for the purpose stated in connection with such inflammable substances as have a boiling-point near to or higher than the boiling-point of the carbon tetrachlorid.

Many other uses and advantages resulting from the employment of carbon tetrachlorid for the purposes stated will readily suggest themselves to those skilled in the art, it being understood that the salient feature of the invention resides in the art of rendering inflammable substances non-inflammable by the addition of carbon tetrachlorid thereto.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. The art of rendering inflammable substances non-inflammable which consists in combining carbon tetrachlorid therewith in substantially equal parts.

2. The art of rendering substances non-inflammable which consists in combining carbon tetrachlorid in substantially equal parts with such inflammable substances whose boiling-point is near to or higher than the boiling-point of the carbon tetrachlorid, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOSEPH HERB.

Witnesses:

H. W. DIETRICH,
MINNIE LANDER.

It is hereby certified that in Letters Patent No. 579,234, granted March 23, 1897, upon the application of Joseph Herb, of West Superior, Wisconsin, the title of the invention was erroneously written and printed "Fire-Extinguishing Compounds," whereas said title should have been written and printed *Processes of Rendering Benzin, &c., Non-Inflammable*; and that in lines 43, 59, and 61 the word "benzene" should read *benzin*; and that said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 4th day of May, A. D., 1897.

[SEAL.]

JNO. M. REYNOLDS,
Assistant Secretary of the Interior.

Countersigned:

BENJ. BUTTERWORTH,
Commissioner of Patents.