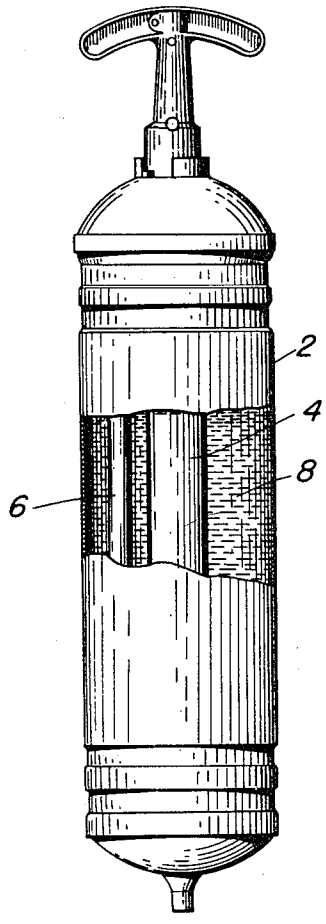
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FIRE EXTINGUISHER

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FIRE EXTINGUISHER

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1

This invention relates to fire extinguishers of the so-called carbon tetrachloride type, and to a method of preventing the corrosion of non-ferrous metal parts within such extinguishers.

Fire extinguishers charged with a fire-extinguishing liquid principally composed of carbon tetrachloride are customarily made of non-ferrous metals such as copper, brass and bronze, lead and tin; and sometimes the internal parts of such extinguishers show deterioration by corrosion. Such corrosion may be due to a variety of causes such, for example, as the presence in the charge of a very weak solution of hydrochloric acid which may be formed by the reaction of the carbon tetrachloride with water which may enter the extinguisher in the form of atmospheric moisture or be otherwise introduced.

The general object of the present invention is to insure that in such fire extinguishers, in which the fire extinguishing liquid is principally composed of carbon tetrachloride, substantially no corrosion of the internal metal parts of the extinguisher will occur for any reason, including the presence of hydrochloric acid or other acid reagents in the charge as above mentioned. To this end, I have found that corrosion of those non-ferrous internal metal parts of such a fire extinguisher may be prevented by producing and maintaining an adhering metal sulfide film upon the surfaces of those metal parts within the fire extinguisher. I have found that the production of such a metal sulfide film on the surfaces of the internal non-ferrous metal parts of an extinguished of the so-called carbon tetrachloride type may be achieved satisfactorily only by pretreating those parts within the extinguished with a mixture of the fire extinguishing liquid which contains a considerable amount of carbon disulfide; and that the metal sulfide film thus produced on the surfaces of the internal non-ferrous metal parts of the extinguisher may be maintained, after the fire extinguisher is filled with the fire extinguishing liquid, by including in that fire extinguishing liquid only a very small amount of carbon disulfide.

In the pre-treatment of the non-ferrous metal parts within the extinguisher to coat them with an adhering sulfide film, the time of treatment required depends upon the proportion of carbon disulfide in the treating liquid. For example, if the treating liquid contains 30% carbon disulfide and 70% fire-extinguishing liquid containing principally carbon tetrachloride, the desired sulfide film will form in a few hours. As the proportion of carbon disulfide in the treating liquid

2

is decreased, the length of time required for the formation of the sulfide film on the non-ferrous metal parts increases. For example, if the treating liquid contains only 1% of carbon disulfide and 99% of carbon tetrachloride fire-extinguishing liquid, the time of treatment necessary to form the desired metal sulfide film on the non-ferrous metal parts will be many days or weeks. Therefore, in practicing the invention, it is preferable to use in said pre-treatment of the non-ferrous metal parts within the extinguisher a treating liquid containing sufficient carbon disulfide to produce the desired adhering metal sulfide film within a reasonably short time. After the adhering metal sulfide film has been formed on the non-ferrous metal parts within the extinguisher by the pre-treatment just described, said film may be maintained on said parts by including in the fire extinguishing charge only a very small percentage of carbon disulfide.

According to my experience, the only way of practicing the invention is to fill the fire extinguisher with a mixture of fire extinguishing liquid containing principally carbon tetrachloride, and carbon disulfide, in the approximate proportions of 95% to 70% and 5% to 30% respectively. After the extinguisher has been left filled with this mixture at room temperature for about one week or less depending upon the above-mentioned proportions of carbon tetrachloride and carbon disulfide, the surfaces of its internal non-ferrous metal parts become coated with an adhering metal sulfide film. Similar protective coatings may be produced in much shorter time by increasing the temperature at which the extinguishers are treated. For example, if the extinguishers are maintained at a temperature of 100° F. to 120° F. during the time they are left filled with the mixture of carbon tetrachloride and carbon disulfide, the time required for the formation of the metal sulfide film on the internal non-ferrous metal parts may be shortened to about a day instead of a week. The treating mixture is then decanted from the extinguisher; and it is then filled with a charge of said fire-extinguishing liquid containing about 1% of carbon disulfide. This charge prevents the deterioration of the adhering metal sulfide film on the surface of the non-ferrous metal parts within the extinguisher, with the result that deterioration of those parts of the extinguisher by corrosion is substantially prevented, even though corroding elements such as hydrochloric acid may exist within the extinguisher.

The drawing shows a fire-extinguisher (of well

known form) of the so-called carbon tetrachloride type, with a portion of the casing broken away so as to reveal some of the internal parts of the extinguisher.

From the foregoing description of the invention, it will be understood that the casing 2, the pump cylinder 4, the tube 6 forming part of the pick-up device, and the other parts of the extinguisher which are wet by the fire-extinguishing liquid 8, are made (as is customary) of non-ferrous material such as copper, brass and bronze, lead, and tin. It will also be understood that said non-ferrous metal parts are coated with an adhering non-ferrous metal sulfide film in the manner hereinbefore described; and that the extinguisher is filled with the charge of carbon tetrachloride fire-extinguishing liquid 8 containing a minor proportion of carbon disulfide, for example, about 1% of carbon disulfide.

What is claimed is:

1. A fire extinguisher having internal non-ferrous metal parts coated with an adhering non-ferrous metal sulfide film, said extinguisher being filled with a charge of carbon tetrachloride fire-extinguishing liquid containing a minor proportion of carbon disulfide.

2. A fire extinguisher having internal non-ferrous metal parts coated with a non-ferrous metal sulfide film, said extinguisher being filled with a charge of carbon tetrachloride fire-extinguishing liquid containing about 1% of carbon disulfide.

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