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FIRE-EXTINGUISHING LIQUID.

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So-called chemical and automatic hand grenades as fire-extinguishers, in which carbon tetrachloride is used as means for extinguishing fires have been known for some years. The carbon tetrachloride in those cases serves as a substitute for water and is, as a rule, applied in cases where the water acts unsatisfactorily or not at all, for instance, in extinguishing combustible or burning liquids.

Beside carbon tetrachloride fire-choking gases are used in similar cases. The gases are generated within the fire by heating sodium bicarbonate or they may be carried to the seat of the fire in the state of ready finished gases. In other cases a frothy matter can be used as extinguisher, which is prepared from froth generating substances; it may be applied mixed with carbon dioxide. The application of a frothy matter is accompanied with great disadvantages which need not be described here. The difficulty of applying sodium bicarbonate in the shape of a fine powder consists in the difficulty of carrying the powder to the seat of the fire, the gases issuing from the fire carrying away those powders and also any choking gases so that they do not even arrive at the real seat of the fire where the gases of the combustion are formed.

Those disadvantages are partially overcome by the application of carbon tetrachloride which is fed in a liquid state to the seat of the conflagration; owing to its weight it is not influenced by the generation of the gases. On the other hand the evaporation of the carbon tetrachloride fixes a certain amount of heat. The extinguishing effect is not only assisted in such manner but also by the formation of choking gases generated by the decomposition of carbon tetrachloride. But the latter is rather expensive and has also the disadvantage that in the heat of a fire considerable quantities of poisonous gases i. e. phosgene may be formed. Apart from that chlorine and hydrochloric acid will also be generated. The application of carbon tetrachloride is therefore not feasible in many cases because of the danger of poisoning.

The object of the present invention is to overcome those disadvantages of the application of carbon tetrachloride without sacrificing the advantages of using a liquid fire extinguisher for putting out burning liquids not miscible with water. The application of sulphur dioxide as an extinguisher for choking and smothering chimney fires is well known. Liquefied sulphur dioxide has been used as a fire-extinguisher but has been abandoned owing to its inconvenience.

Liquid sulphur dioxide surpasses the extinguishing efficiency of carbon tetrachloride if applied to burning liquid like benzene, benzol, petroleum and the like. The sulphur dioxide, however, can be badly handled owing to the danger of freezing the pumps and the delivery openings. The liquefied sulphur dioxide moreover must be kept in vessels with strong walls.

We have now found that mixtures of carbon tetrachloride and liquefied sulphur dioxide possess a very high efficient capacity of extinguishing burning liquids. Such Mixtures have a vapour tension lying between that of the carbon tetrachloride and the sulphur dioxide. It is possible without any difficulty to prepare mixtures which at ordinary temperatures possess a moderate vapour tension of about 1 atm., which is sufficient to eject the liquid automatically to the seat of the fire. The mixture does not require vessels with very strong walls for keeping. Since the evaporation of the mixture is greatly decreased there is no danger of freezing the delivery openings and the like.

In place of carbon tetrachloride other organic chlorine compounds can be applied for the same purpose with similar effect. It is even possible to apply to certain extent combustible hydrocarbons, like benzol, naphthalene and so forth mixed with liquefied sulphur dioxide as fire extinguishers since such hydrocarbons in a suitable relation to sulphur dioxide do no longer act as combustibles, but rather play the part of choking gases.

Another type of fire extinguishers is the application of sulphur dioxide mixed with certain salts in form of solutions which possess considerable extinguishing power by themselves, i. e. magnesium chloride, calcium chloride and zinc chloride. For instance, a strong solution of magnesium chloride, say the liquor produced as a by-product in the potash-industry of Stassfurt saturated with sulphur dioxide under pressure and ejected from a fire engine to the seat

of the most violent conflagration has an effect corresponding with the two components and surpasses the effect of each component by itself.

What we claim is:

1. Fire-extinguisher comprising a mixture of liquefied sulphur dioxide with carbon tetrachloride.

2. Fire-extinguisher comprising a mixture of liquefied sulphur dioxide with carbon chlorine compounds.

3. Fire-extinguisher comprising a mixture of liquefied sulphur dioxide with carbon tetrachloride and organic substances soluble in sulphur dioxide having fire extinguishing properties.

4. Fire-extinguisher consisting of a mixture of liquefied sulphur dioxide with carbon chlorine compounds and organic substances soluble in sulphur dioxide.

In testimony whereof we affix our signatures.

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