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Nov. 29, 1932. B. P. M. LE GOUZ DE SAINT SEINE 1,889,483

METHOD FOR EXTINGUISHING CHIMNEY FIRES

Filed June 18, 1929

Fig. 1

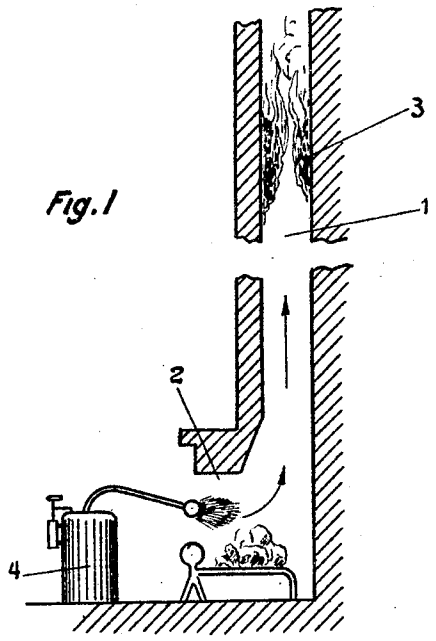
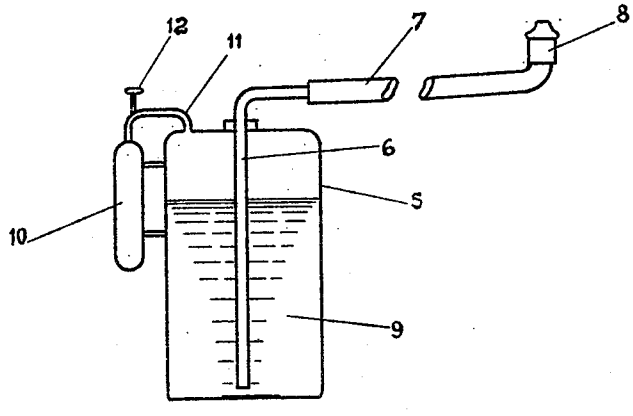


Fig. 2



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UNITED STATES PATENT OFFICE

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METHOD FOR EXTINGUISHING CHIMNEY FIRES

Application filed June 18, 1929, Serial No. 371,914, and in France June 26, 1928.

My invention has for its object a method for extinguishing fires in chimneys and similar spaces wherein a draught is created.

My invention consists in using a vaporizable liquid, the vapor of which cannot feed the fire, such as water with or without an addition of sodium bicarbonate, carbon tetrachloride, methyl bromide, solutions of ammonia salts and the like and bringing said liquids into contact with the fire, said liquids being suspended as minute drops in the draught. Thus the liquid is vaporized by the heat from the fire the vaporization lowering the temperature of the fire. The non-burning vapor is constantly renewed by the injection of fresh liquid, and fills the chimney. Thus the burning material in the chimney is isolated from the air. The draught decreases speedily and the chimney fire comes to an end.

As concerns chimney fires which are caused by the ignition of the soot deposited at a certain height in the chimney, while it is comparatively easy to extinguish such fires from above by closing the outlet for the gases or by injecting a suitable material in the flue, it is much more difficult to fight the fire from below. This is the case in large cities where the regulations forbid the firemen to go on to the roofs for fighting chimney fires owing to the danger arising therethrough.

Sulphur or carbon sulphide is generally made to burn in such a case at the bottom of the chimney which has been nearly completely closed so as to allow the burning material to be in contact only with gases containing no oxygen; but if the flue is too tightly closed, the sulphur will not burn and if on the other hand it is not sufficiently closed, a certain amount of oxygen passes along with the gases which feeds the fire.

My invention provides means for fighting chimney fires from below by atomizing, as stated, at the lower end of the flue, a volatile liquid the vapor of which cannot feed the fire; the atomized liquid particles being minute enough to allow them to be carried by the ascending draught into contact with the burning soot where it is vaporized and extinguishes the fire, by preventing the access of air thereto, this draught in the chimney may be created by the fire in the grate or by the chimney fire itself.

The vaporized liquid acts on the fire firstly by cooling it. When the liquid reaches the fire, the water absorbs the heat required for raising the temperature to the boiling point; still more heat corresponding to the latent heat of vaporization (about 540 calories) is required for transforming the water into steam.

The presence of steam prevents the burning and if the water contains bicarbonates such as sodium bicarbonate, the decomposition of such salts produces carbon dioxide which cooperates with the steam for completely extinguishing the fire. The steam and gases fill the chimney substantially and prevent the air from coming into contact with the burning material.

It should be noted that the water atomized into small particles allows a much speedier vaporization and thereby a more rapid and effective action of the non-burning gases than in the case of the same amount of water sent as a bulk on to the fire.

I have described hereinbelow by way of example, and shown on accompanying drawing a form of execution of a device used according to my invention for extinguishing chimney fires.

Fig. 1 is a sectional view of the chimney flue showing the position of the apparatus used for executing my invention.

Fig. 2 is a diagrammatical view, partly in section of said apparatus.

On Fig. 1 the flue 1 rises above the fireplace 2 and it is supposed that the soot at 3 is burning. The apparatus 4 serves for atomizing water or any other suitable liquid above the fire place but below the chimney fire. The water drops are partly vaporized and for the greater part carried up to 3 by the ascending draught produced by the chimney fire. When arriving near the burning soot, the remaining water is vaporized and produces a non-burning atmosphere which causes extinction.

The apparatus 4 may be built as shown on Fig. 2.

Inside the reservoir 5 is disposed a tube 6 passing nearly to the bottom of said reservoir and continued outside the same by a yielding pipe 7; to the end of this pipe is secured an atomizer 8 of any suitable type.

The reservoir 5 contains the extinguishing liquid, generally consisting of ordinary water which may contain substances such as bicarbonates, carbon tetrachloride, methyl bromide, ammonia salts and the like.

A pressure must be exerted on the liquid 9 contained on the reservoir to send it into the atomizer 8; this may be provided by a gas such as air or carbon dioxide, under high pressure in a bottle 10 which may be connected with the upper part of the reservoir through the tube 11 and the cock 12. The gases under pressure may also be produced by suitable chemicals introduced into the reservoir 5 at the time of use. The pressure required at 8 may also be obtained through a pump or any other suitable means.

My invention may be applied in a similar manner to fight fires in ships having chimney like spaces.

What I claim is:

A method of extinguishing chimney fires wherein a fire is capable of producing a natural draught, which method consists in injecting into said draught a liquid in such a fine state of atomization that it will be carried by said draught to the seat of the chimney fire where it will be gasified by the heat of said chimney fire, the gasification of the liquid effecting the lowering of the temperature and a zone of non-combustible atmosphere at the seat of the chimney fire.

In testimony whereof I have affixed my signature.

BÉNIGNE PIERRE MARIE LE GOUZ de SAINT SEINE.