Sept. 13, 1932. L. J. DUGAS 1,877,649

FIRE EXTINGUISHING METHOD

Filed Sept. 19, 1927

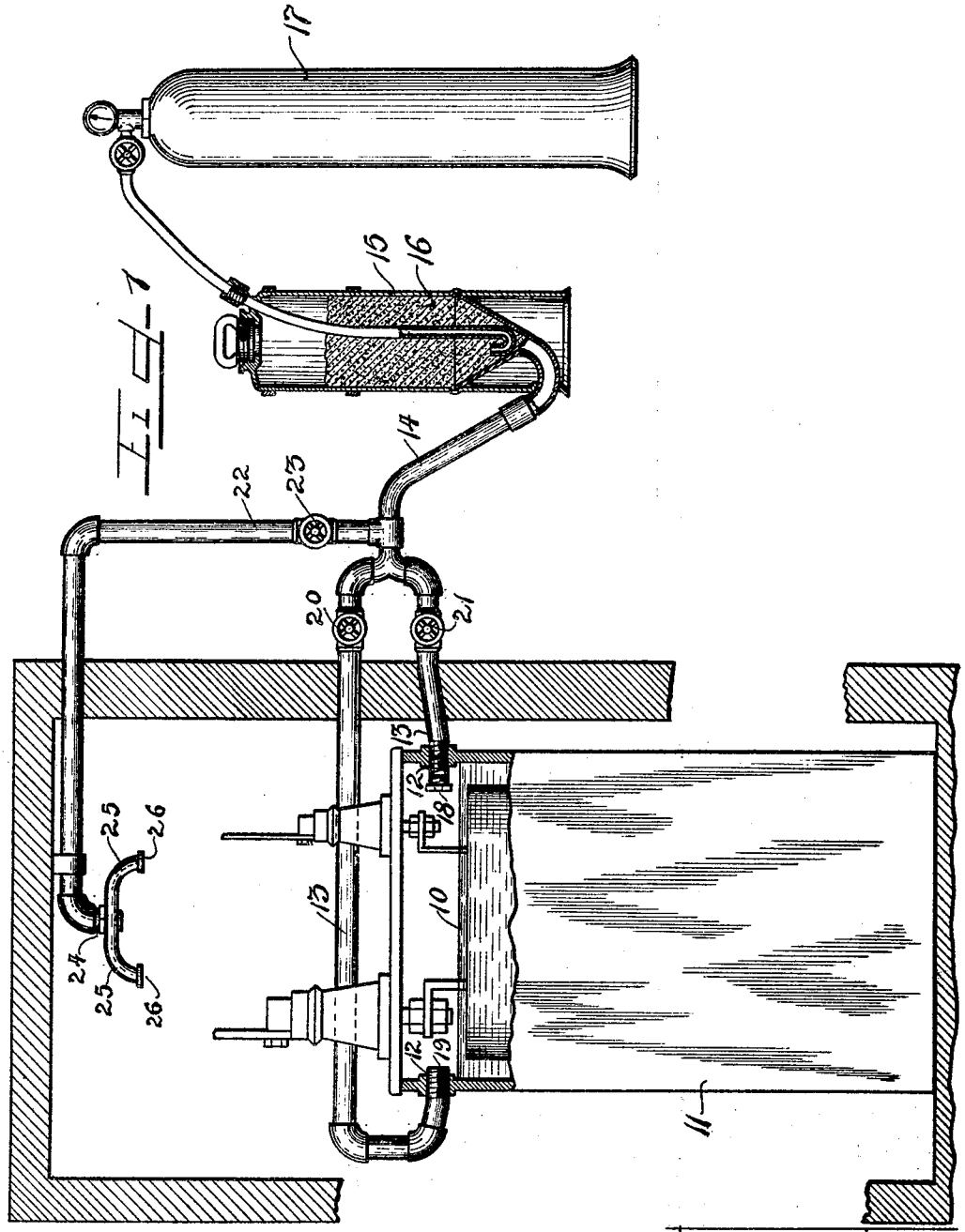

Fig. 1

Inventor
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by Parker & Miller Attys.

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UNITED STATES PATENT OFFICE

LODIAS J. DUGAS, OF CHICAGO, ILLINOIS, ASSIGNOR TO DU-GAS FIRE EXTINGUISHER CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE

FIRE EXTINGUISHING METHOD

Application filed September 19, 1927. Serial No. 220,622.

I have invented a new and useful improvement in a method of extinguishing fires. My invention relates to the method of extinguishing fires in closed vessels and spaces containing inflammable liquids, such as oils, gasoline, and the like.

My invention is peculiarly applicable to extinguishing of oil fires in transformers employed in the distribution of electrical energy. Such fires are usually caused by overheating of the oil due to the overloading of the transformers and by the electric arcs set up when a portion of the winding fails; and the fire is usually confined, at the outset, to the space between the removable top and the oil in the casing of the transformer. Liquids cannot be used to extinguish such fires for the steam generated when they come in contact with the burning oil would probably result in an explosion and rupture of the top and casing of the transformer and the menace of burning oil spreading fire along the walls and floor of the building.

It is an important object of my invention to provide a method of extinguishing ignited inflammable liquids in substantially closed vessels or spaces.

On the drawing:

The drawing shows diagrammatically a preferred means for carrying out my method of extinguishing an oil fire in a transformer.

As shown on the drawing:

The numeral 10 indicates a transformer within its tank or casing 11. The transformer is shown in a fire-proof vault, and while this indicates a modern practice, nevertheless the essential features of my invention are applicable to transformers placed out-doors. The vessel or casing 11 is apertured as at 12 to permit conduits 13 to enter the vessel.

The conduits are suitably connected to a main conduit 14 which is connected with a device 15 containing a powder 16 and which device is suitably connected to a cylinder 17 containing nitrogen or air, or an inert gas under pressure to force the powder through the conduits. The device 15 with its pressure source 17 are capable of impelling a mixture of air and powder or gas and powder through the conduits, and when the powder enters the closed vessel and comes in contact with the ignited oil, it evolves a gas which instantaneously extinguishes the fire. The powder also forms a scum on the oil which effectively prevents reignition, even though the oil is boiling. A fire extinguishing composition suitable for use in the present device is described in my copending application Serial No. 220,621 filed of even date herewith. Such a composition comprises principally dry sodium bicarbonate with relatively small quantities of other ingredients, such as calcium chloride, sodium borate and the like.

It will be obvious that any other means of impelling the powder through the conduits may be employed.

In a preferred arrangement of apparatus for carrying out my invention a fusible plug 18 closes an end of the conduit 13 in the vessel so that the powder may be impelled into the casing when the temperature of the oil vapor reaches a predetermined value.

Another end of the conduit may be free as indicated at 19 so that the flow of powder may be controlled by a valve 20. A valve 21 is shown on the conduit branch having the fusible plug and may be closed when repairs or changes are being made in the conduit.

The drawing shows a simple installation of the conduits, but it will be understood that the conduits may terminate in nozzles of suitable form and may direct the powder towards deflectors or other means adapted to thoroughly contact the powder with the ignited material.

When the transformer is installed in a vault, a conduit 22 having a valve 23 therein may be connected to the main conduit 14 and terminate in a sprinkling device 24 having revolving members 25 closed at their ends by fusible plugs 26. Should the oil explode due to lightning or other electrical discharge entering the transformer and the top be blown off the casing, the flaming oil will melt the fusible plugs 26, and the sprinkler will operate to fill the vault with the fire extinguishing powder.

I claim as my invention:

The method of extinguishing and preventing reignition of a fire in a substantially

closed vessel containing an inflammable liquid by placing a material within the vessel adapted to generate a fire extinguishing gas when the liquid is ignited and to form a scum on the liquid to prevent reignition of the liquid when the fire is extinguished.

In testimony whereof I have hereunto subscribed my name at Chicago, Cook County, Illinois.

LODIAS J. DUGAS.