H. F. TAYLOR.

METHOD OF AND MEANS FOR PREVENTING CONFLAGRATIONS.

APPLICATION FILED DEC. 27, 1915.

1,236,622. Patented Aug. 14, 1917.

Fig. 1

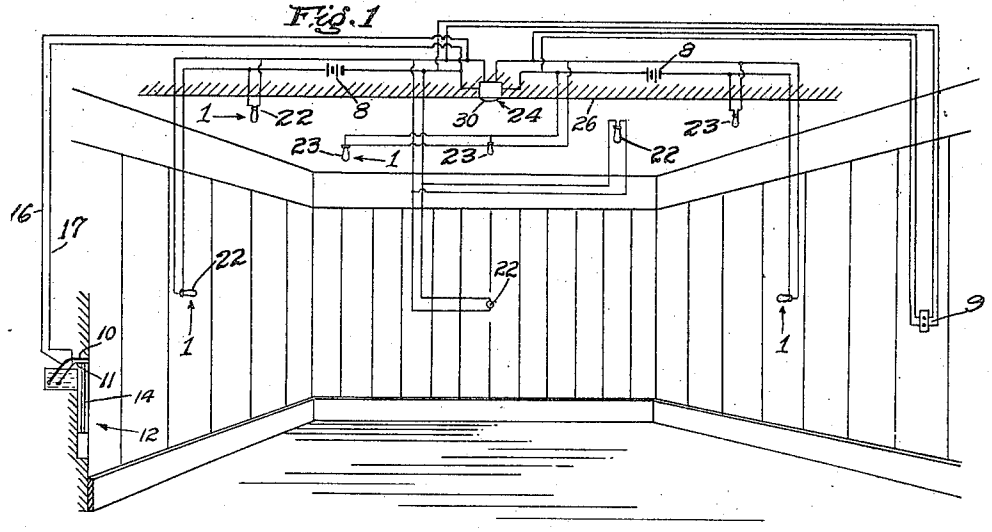
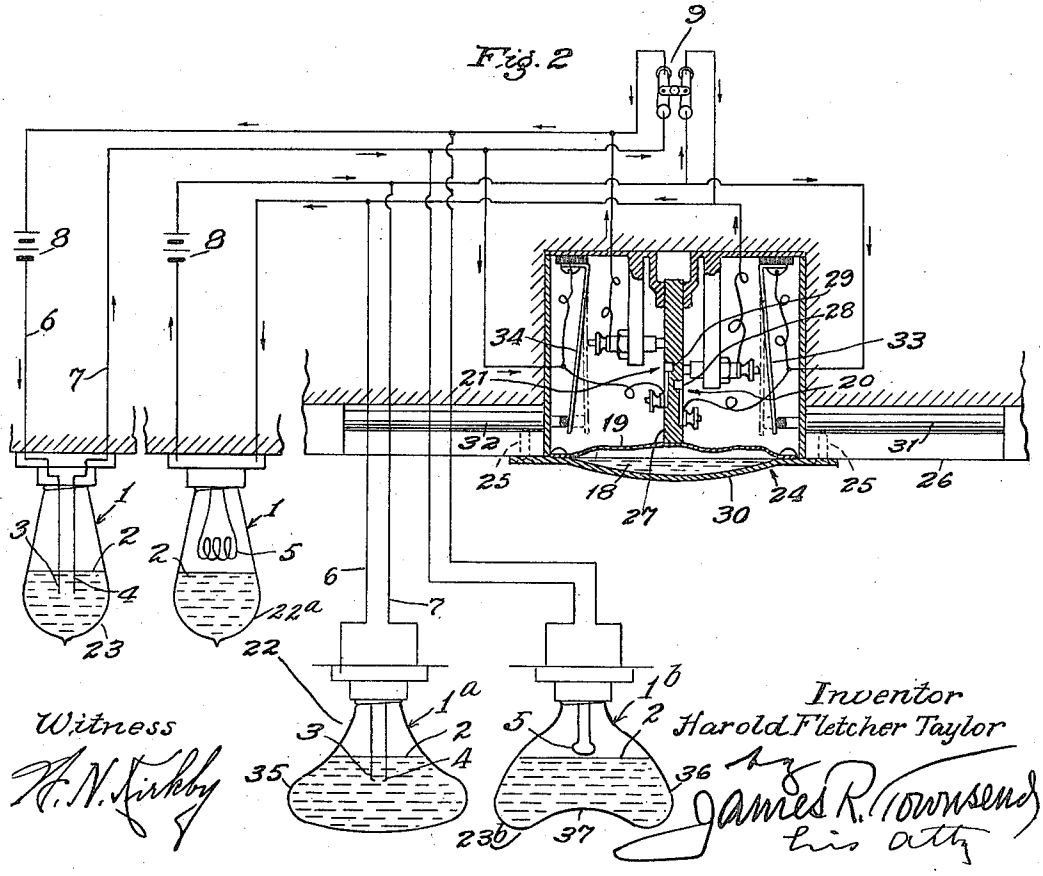


Fig. 2



Witness

H. N. Kirkby

Inventor

Harold Fletcher Taylor

by James R. Townsend

his atty

UNITED STATES PATENT OFFICE.

HAROLD FLETCHER TAYLOR, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO JOSEPH MESMER, OF LOS ANGELES, CALIFORNIA.

METHOD OF AND MEANS FOR PREVENTING CONFLAGRATIONS.

1,236,622. Specification of Letters Patent. Patented Aug. 14, 1917.

Application filed December 27, 1915. Serial No. 68,927.

To all whom it may concern:

Be it known that I, HAROLD FLETCHER TAYLOR, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Method of and Means for Preventing Conflagrations, of which the following is a specification.

An object of the invention is to make provision whereby fires in buildings may be readily extinguished without injury to the contents of the building from the action of the fire extinguishing medium and to make certain the constant readiness of the extinguishing means without deterioration from atmospheric action or from evaporation of the material depended upon to act to extinguish the fire.

The invention is regarded as broadly new and pioneer in that the extinguishing of the fire is effected by the application of heat to a liquid to produce therefrom a body of fire-extinguishing gas or vapor to envelop the fire and extinguish it.

In carrying out this invention a receptacle is provided at an appropriate place where danger from fire may occur, and from which the vapor or gas may settle upon the fire or may expand to fill the room or chamber for the purpose of extinguishing any fire that may occur; and means are provided to produce heat within the receptacle sufficient to heat the liquid to the vaporizing point, said receptacle being air tight, and rupturable by a pressure produced by vapors formed by the heat thus applied within said receptacle. A heat source capable of being energized from a source of heat located outside of the receptacle is provided and provision is made for energizing said heat source at an appropriate time in case conflagration is threatened, all of which will hereinafter more fully appear.

An object of the invention is to avoid the necessity of employing a highly frangible receptacle and a liquid capable of expanding sufficiently under a temperature of say 150° Fahrenheit to rupture the receptacle; and an object is to rupture the receptacle by the expanded gases while the temperature outside the receptacle is too low to cause the necessary expansion of the gases.

An object of the invention is to avoid subjecting the protected room or chamber to a destructive heat before setting the system into operation where such action is automatically effected by heat from the fire that is to be extinguished, and in carrying out this invention in its automatic aspect provision is made through a thermostat and electrical system; there preferably being a number of thermostats distributed at different points adjacent to the places where fire is likely to occur and connected with the heat producing resistance that is depended upon to generate from the liquid the active vapors above referred to.

Said heat-producing resistance may be a portion of the vapor producing liquid and the receptacle may be a common electric lamp containing in its bulb a charge of said liquid.

The heat may be generated in the bulb or receptacle by a current of electricity turned on by a thermostatically operated electric switch or by a push button or other form of electrical switch.

The invention may be carried out in various ways and I do not limit its application to any specific construction.

The vaporizable substance may be of any effective chemical composition or character and it may be contained in any character of vessel capable of releasing the same under the pressure generated inside the receptacle by the heat produced in said receptacle by the electrical means. The rupture of the containing receptacle may be either by destruction of said receptacle or by movement of the parts of the receptacle caused by the internal pressure produced by the internally-applied heat.

The invention will be understood by reference to the accompanying drawing in which—

Figure 1 is a diagrammatic representation of apparatus arranged inside a room and constructed with various appliances adapted to operate to apply a lesser or greater amount of the fire-extinguishing vapors to various parts of the room or building as occasion may determine.

Fig. 2 is an enlarged detail of the diaphragm thermostat shown in Fig. 1 with other portions of the apparatus connected thereto. There is also shown in enlarged detail, various forms of receptacles of vessels with electrical resistance to generate heat in the receptacles for vaporizing the liquid contents of the vessel to produce pres-

sure therein and liberate fire extinguishing gas or vapor.

The vessel or receptacle 1, 1^a, 1^b, may be of glass or other suitable material capable of containing the liquid depended upon to produce vapors under the applied heat and rupturable or otherwise subject to being opened by the expansion of such gas or vapors so generated in the receptacle, to allow their emission therefrom. In the drawings a body 2 of such liquid is shown within the receptacle.

A liquid which may serve the purpose with good effect is the fire-extinguishing liquid such as carbo-tetrachlorid or others known to the trade, found in the general market and at present used with a squirt gun arrangement or pump for extinguishing fires in automobiles and other places where emergency fire extinguishing may become necessary.

The liquid may in some instances form a resistance between two electrodes or terminals 3, 4 inside the receptacle 1 and in other instances said receptacle may be provided with a resistance element as a wire or filament 5; said electrodes or terminals being connected through leads 6, 7 and suitable switches with an external source of electrical energy as battery 8.

The circuit may be controlled by a manually operated key or switch as at 9 and by a thermostatically operated switch, or the source may comprise a voltaic couple comprising copper and zinc elements as 10, 11 normally separated but capable of being brought together by any suitable means as by action of a thermostat 12 subject to the heat from the anticipated fire.

Various kinds of thermostats and heat producing means may be employed and they may be variously disposed and variously connected for energizing the resistance or otherwise producing heat inside the receptacle to vaporize the liquid therein and causing its emission therefrom.

In Fig. 1 two forms of thermostat are indicated in the fire-extinguishing system, each adapted to set extinguishing means into operation. An arrangement is also shown whereby at one temperature heat is generated within one or more of said receptacles to cause generation and emission of fire extinguishing gas or vapor, and in case a higher heat occurs heat is generated in one or more other receptacles for like purpose.

In the thermostat 12 the voltaic member 10 is stationary and the free end of the voltaic member 11 is adapted to move into and out of contact with the member 10, and the thermostatic element 14 is connected to the member 11, so that when the element 14 is subject to a certain degree of heat the elements of the galvanic couple are brought into contact, thus sending a current through the leads 16, 17 to heat the resistance inside the receptacles 1 connected with said leads. A second thermostat comprising elements 18, 19 is connected through switches 20, 21 with two sets, 22, 23, and 22^a, 23^b, of receptacles 1, 1^a or 1^b so that the first application of heat to a thermostat may cause one switch to operate to turn on the current to produce heat in one set of receptacles to burst the same and liberate the fire extinguishing substance, and if the heat continues to be applied so as to expand the thermostat element sufficiently to close the second switch, heat will be generated in the second set of receptacles to produce vapor therein to burst such receptacles and liberate an additional amount of fire extinguishing fluid.

It is thus seen that the system may be installed with any desired number of receptacles and that the same may be successively put into action if that is required in case of a fire of considerable proportions or extent, and yet if the fire is not of great proportions or extent and is easily extinguished, only a part of the system will be exhausted by the fire-extinguishing operation.

The thermostatic element 19 is a diaphragm wall of the chamber 24 that may be fastened by screws 25 to a suitable support as a ceiling 26. The flexible diaphragm 19 is provided with a post 27 which carries the movable contacts 28, 29 for the switches 20, 21 respectively. The member 18 of the thermostat chamber 24 is a body of ether, capable of being vaporized by heat applied to the lower wall 30 of the chamber, which is practically stationary, while the superposed diaphragm 19 is capable of expansion under the force of the vapor generated from the body of ether 18. The switch 20 may be set to operate to turn on the current at a comparatively low temperature as say, for instance, 140° Fahrenheit, so that when the temperature of the bottom 30 of the chamber 24 reaches 140° one set of fire-extinguishing vaporizers 22 will be put into action, and if the violence of the fire is so great as to further raise the temperature at 30, to, say 160° Fahrenheit, then the second switch 21 may be closed, thus turning on the second set 23 of the fire-extinguishing vapor generators.

In case of any emergency where a watchman might discover the fire before an operative heat had reached a thermostat the watchman may set the extinguishers into operation by pushing the push-button at 9.

In Fig. 2 additional thermostats 31, 32 are shown provided to operate auxiliary switches 33, 34 connected in the system to energize the electrical heat generating means in the receptacles substantially after the manner above described. The thermostats and switches may be of various forms and

the showing is intended to be diagrammatic and conventional.

The receptacles may be greatly enlarged at their lower ends as shown at 35, 36 so that when the same are burst by the vapor pressure from within, the liquid and vapor will be scattered. This effect may be heightened by the inwardly extending convex bottom 37 of the bulb as it is thus made more likely that breakage will occur around the rim of the bottom.

I claim:

1. The method of preventing conflagrations set forth which consists in applying electric energy to produce heat in a rupturable receptacle containing a substance that can be vaporized by such heat and thereby produce a fire-extinguishing vapor under sufficient pressure to liberate the vapor for the purpose of enveloping the fire and extinguishing the same.

2. Fire extinguishing apparatus comprising a receptacle containing a liquid reducible under application of heat to a vapor capable of extinguishing fire, said receptacle being adapted to release the liquid and produced vapors under the pressure of the vapors thus generated; electrical means for producing heat in the receptacle to generate the vapors under a pressure capable of effecting such release; and means to set such electrical means into operation to produce such heat.

3. Fire extinguishing apparatus comprising a receptacle containing a liquid reducible under application of heat to a vapor capable of extinguishing fire, said receptacle being adapted to release the liquid and produced vapors under the pressure of the vapors thus generated; electrical means for producing heat in the receptacle to generate the vapors under a pressure capable of effecting such release; and thermostatic means to set such electrical means into operation to produce such heat.

4. Fire extinguishing apparatus comprising a frangible receptacle containing liquid adapted to be transformed by heat into a fire-extinguishing vapor, electrical means for producing heat in said receptacle, and means connected to energize said electrical means to produce such heat.

5. Fire extinguishing apparatus comprising a frangible receptacle containing liquid adapted to be transformed by heat into a fire-extinguishing vapor, electrical means for producing heat in said receptacle, and thermostatic means connected to energize said electrical means to produce such heat.

6. Fire-extinguishing apparatus comprising receptacles containing liquid adapted to be transformed by heat into a fire-extinguishing vapor, electrical means for producing heat in said receptacles, thermostatic means connected to energize said electrical means to produce such heat, and manual switch means connected to energize said electrical means.

7. Fire-extinguishing apparatus comprising a receptacle adapted to hold liquid electrically-operated heat producing means for producing fire-extinguishing vapors from liquid in such receptacle, thermostatic means connected to energize said electrically-operated means, and manual switch means also connected to energize said electrically-operated means.

8. A fire-extinguishing system comprising sets of receptacles containing liquid adapted to be transformed by heat into fire-extinguishing vapor, electrical means to produce heat in said receptacles for creating such vapors under such pressure as to release said vapors from the receptacle, and thermostatic means operable under different degrees of heat to energize the electrical heat producing means of said sets respectively so that at one temperature the heat-producing means in one set will be energized and at another temperature the heat-producing means of the other set will be energized.

9. In a fire-extinguishing apparatus the combination of a receptacle adapted to contain a liquid capable of producing fire-extinguishing vapors under pressure, said receptacle being adapted to release said vapors under pressure; heat-producing means in said receptacle; electrical means for energizing said heat-producing means; a chamber adapted to contain ether and subject to external heat and provided with a diaphragm operable by vapors produced by heat from such ether; and a switch carried by the diaphragm and adapted to make connection whereby said heat-producing means will be energized to produce fire-extinguishing vapors in said receptacle.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 21st day of December, 1915.

HAROLD FLETCHER TAYLOR.

Witness:

JAMES R. TOWNSEND.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."