G. C. LEE.

COMBUSTION PREVENTER.

APPLICATION FILED JUNE 7, 1920.

1,369,179. Patented Feb. 22, 1921.

Fig. 1.

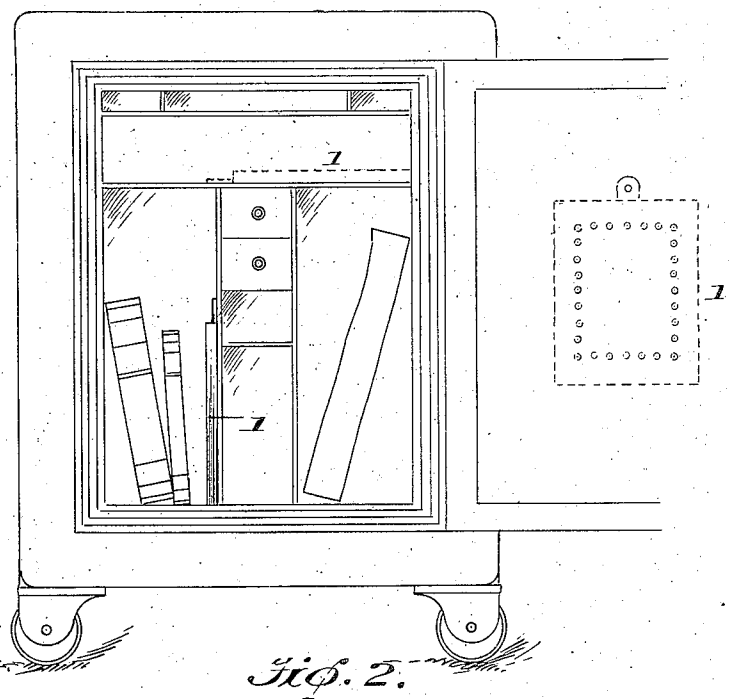


Fig. 2.

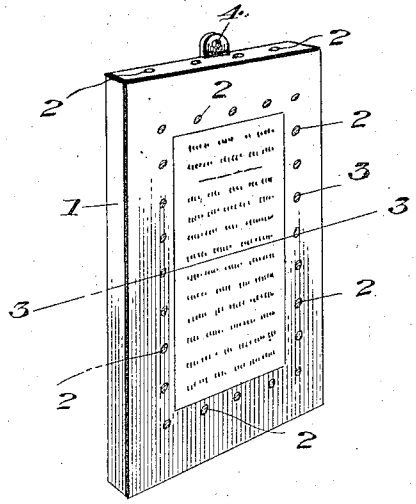
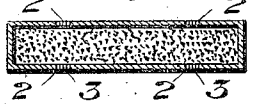


Fig. 3.



Witness

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UNITED STATES PATENT OFFICE.

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COMBUSTION-PREVENTER.

1,369,179. Specification of Letters Patent. Patented Feb. 22, 1921.

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To all whom it may concern:

Be it known that I, GILBERT C. LEE, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Combustion-Preventers, of which the following is a specification.

Heretofore manufacturers of safes have resorted to either one of two methods for keeping down the interior temperature of the safe when it is going through a fire. One method has consisted of the use of a very wet compound of cement or concrete for the wall and door filler which has depended upon the heat which strikes the outer wall of the safe, when the latter is subjected to fire, causing the wet compound to give off moisture thereby creating a moist vapor inside the safe. Another method has been to place within the safe walls and doors various chemicals in crystal form which contain a considerable amount of moisture, the purpose being for the crystals to give off moisture inside the safe when the chemicals reach their melting point due to exterior fire. Both of these plans were good for only a limited number of years. With the first method, it is only a few years before practically all of the water evaporates from the cement or concrete, thus destroying its efficiency. With the second method, the crystals become dry after a certain period and serve no useful purpose when fire occurs.

A third method for protecting the contents of safes has been to provide either inside or outside of the safe a container within which is a gas designed to prevent combustion, said gas being released to the exterior of the safe to prevent or kill combustion around the exterior of the safe. Devices of this character, when located inside of the safe, have been provided with a conduit or pipe leading to the exterior of the safe which, in itself, is not only cumbersome and expensive but opens the interior of the safe to the exterior thereof, thus violating a fundamental rule of safe construction which is the complete sealing of the interior from the exterior thereof. In such of these earlier proposed devices as have been located outside the safe, special constructions have been resorted to requiring modification of the safe itself.

A fourth method for protecting the contents of safes is to use either dead air space or dry insulating material, either of which allows heat to pass through the walls and doors to the interior of the safe at a very low rate of flow.

These methods of insulating are limited in their ability to keep the temperature down below the burning point. The present invention supplements, and in most cases gives double, the protection to safes or other containers so insulated and does not require any modification of the safe itself.

So far as I am aware the foregoing methods, and the ordinary sprinkler systems having a fusible device to release the valve which controls the flow of water, are the only means heretofore known for safeguarding the contents of a safe by attempting to prevent combustion or to kill combustion already begun in the neighborhood of the safe.

It is a well known fact that when fire strikes the walls of a safe the heat is quickly transmitted to the interior thereof. If the temperature rises above 325° F. in the interior of a safe, papers therein will be burned or carbonized.

My invention is a combustion preventer having for its object the provision of a box or container which will be readily portable, containing chemicals, preferably carried by a filler within the box or container, which are of such a nature that when exposed in a temperature of say 140°, they will melt and when the temperature rises to 212° to 230° F. (the boiling points), will start a steaming action, giving off moist vapor and gas which will reduce the temperature in some cases almost immediately by forty to fifty degrees, thereby moistening and protecting the contents of the safe in which the container is placed.

The container is provided with holes or perforations closed with fusible material; for instance, solders adapted to fuse at a temperature from 140° F. to 206° F. which close different sets of the holes. When the temperature inside the safe rises to, say, 140° the fusible material filling certain holes in the container melts. When a higher temperature, say 206° is reached the sealing material for other holes fuses. When 230° to 250° is reached the sealing material for the last set of holes opens. Thus the holes vent the gas and moisture in instalments

which is then given off by the chemicals within the container. The chemicals must be of such a nature that the moisture and gas evolved on their exposure will reduce the temperature in the safe and prevent combustion therein. There are various chemicals and compounds which will serve the purpose above set forth and the disclosure, by way of example hereinafter given, is not in limitation of that particular feature of the invention but for the purpose of enabling those skilled in the art to understand the invention in that respect.

The metal container for the chemicals may assume different shapes and sizes and I do not limit myself to the particular form shown in the drawings. It is preferable, however, to have the container in the form of a flat tablet of relatively small size so that it may be conveniently placed inside a safe, vault, cabinet, room, filing device or other place where it is needed. The container is preferably provided with a device by which it may be suspended or fastened in place. The container is of any suitable metal, suitably varnished or coated inside to prevent corrosion by the chemicals and, preferably, enameled, on its exterior, with suitable directions and of a suitably distinctive color, for instance, red, so that it will be readily recognized.

My invention differs radically from the methods and devices hereinbefore set forth in that it is self-contained and complete and adapted to be installed at any point or in any position desired and changed from one point to another; further, the invention requires no modification of the safe, cabinet, or other container where it is used; third, the device may be applied at any time to either a new or an old safe, cabinet, or filing device or box containing papers which are to be protected.

My invention affords a means for preventing injury to, or destruction of, papers, records, or the like in safes, cabinets, or other containers which are not fire-resisting from any cause whether it be from age or construction. By placing a device made according to the present invention inside of an old safe or even a new one or other container for papers and valuables, the safe, or the like, is thereby rendered a great deal more fire-resisting, and I thus overcome, by my invention, the deficiencies in safes which, while originally designed to be fire-proof, have, from age, become practically worthless.

In the accompanying drawings,

Figure 1 is a view of a safe with my invention located therein;

Fig. 2 is a perspective of the device constituting my invention; and

Fig. 3 is a section on line 3—3 of Fig. 2, showing the fusible seals for the openings in the container and the chemicals inside the latter.

Referring to Figs. 2 and 3, the container 1 is of sheet metal and is preferably flat and thin so that it will only occupy a small amount of space. While I do not limit the invention to dimensions, a convenient size for most safes would be 8 x 11 x ¾ inches, the interior of the sheet metal container 1 is preferably coated or varnished to prevent corrosion from the chemicals contained therein. The sides, and preferably one or more of the edges of the container, have numerous holes or openings 2 of any suitable size. These are normally sealed by fusible plugs or fillings 3 of any material or compound which will withstand a temperature of up to 150 to 206° F., but will melt at such predetermined temperature which should, of course, be considerably below the boiling point 212° F. Preferably the container 1 is provided with an eye 4 or other suitable means by which it may be suspended or fastened in position.

Preferably the container 1 will be enameled exteriorly with some distinctive color as, for instance, red, so that it will be readily identified.

I do not limit myself to any particular formula or chemicals or chemical compounds or filler for holding said compounds or chemicals within the container 1, it only being necessary to provide chemicals or chemical compounds which will melt and become fluid at the temperature predetermined, 150 to 206° F., at which the plugs 3 fuse and which will, on further rise in temperature to the boiling point 212° F., start a steaming process, the evolved steam passing out through the holes 2.

One example of a compound which will serve the purpose of the present invention is as follows: sawdust which has been soaked in water, to allow it to spread as much as possible, is mixed with 80% sal-soda, and 20% ammonium carbonate, is placed into a glass tube or tubes and sealed by low melting point wax. The mixture should be by weight about 75% chemical and 25% soaked sawdust. This mixture is placed inside the container 1 and water is then poured in, or a saturated solution of sal-soda and water is poured into the container, with ammonium carbonate tubes embedded to prevent breakage. The container 1 may be provided with any suitable opening for the introduction of the above mixture within the container 1. After the introduction of the mixture this opening is sealed with ordinary hard solder, or, a regular box cover may be provided and hard solder used to seal it on the container.

The complete and self-contained device is placed in the position where it is desired to prevent or kill combustion. In Fig. 1

I have illustrated the use of the invention in three ways inside a safe. When the safe is subjected to fire or to a temperature sufficiently high to cause the temperature inside the safe to rise to the predetermined fusing points of the plugs 3, said plugs melt and the heat then has access to the interior of the container, whereupon the chemicals therein melt but do not run out as they are retained by the sawdust filler. When the temperature rises to the boiling point, a moist vapor is given off which passes through the openings 2 and moistens the contents of the safe and prevents combustion or charring of papers or the like which may be contained therein.

What I claim is:—

1. A combustion preventer comprising a self-contained and portable container having openings normally sealed by material adapted to fuse or melt within predetermined ranges of temperature, and combustion-preventing or suppressing means sealed within said container adapted, when released by fusing of the said sealing means, to pass from the container.

2. A container provided with a plurality of openings normally closed by fusible materials of different fusing points.

3. A self-contained portable combustion preventer comprising a normally sealed container having an outlet normally closed by fusible means, and combustion preventing and suppressing means within said container which is released for action when the material closing the outlet fuses.

4. A container provided with a plurality of openings normally closed by fusible materials of different fusing points, and chemicals or chemical compounds contained within said container which are released in gaseous form by the fusing of said fusible materials and discharge through said openings.

In testimony whereof I affix my signature.

GILBERT C. LEE.