

Dec. 10, 1935.

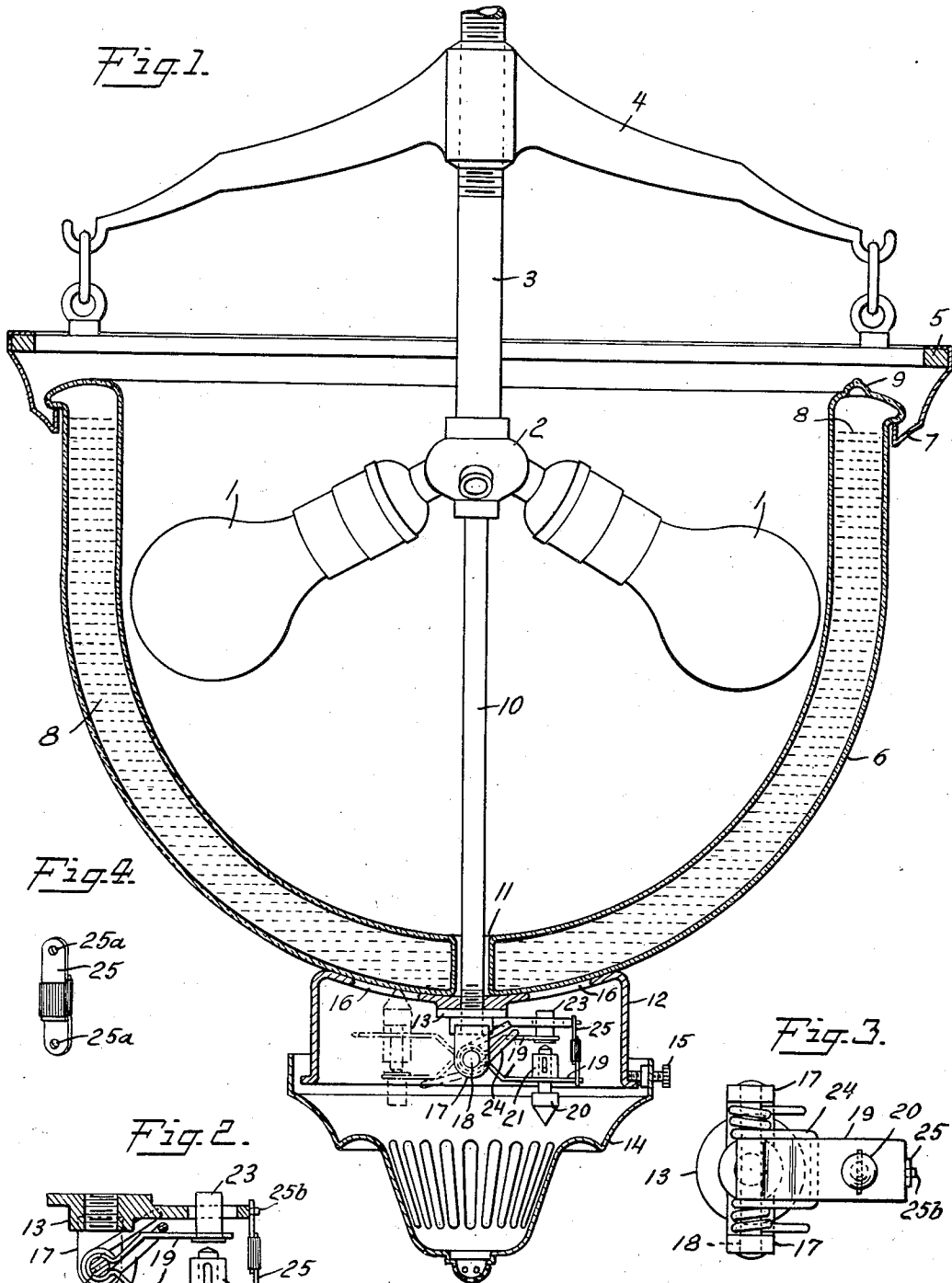
L. C. LOEWENSTEIN

2,023,848

FIRE EXTINGUISHER

Filed Sept. 15, 1933

3 Sheets-Sheet 1



INVENTOR

Louis C. Loewenstein

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3 Sheets-Sheet 2

Fig. 5.

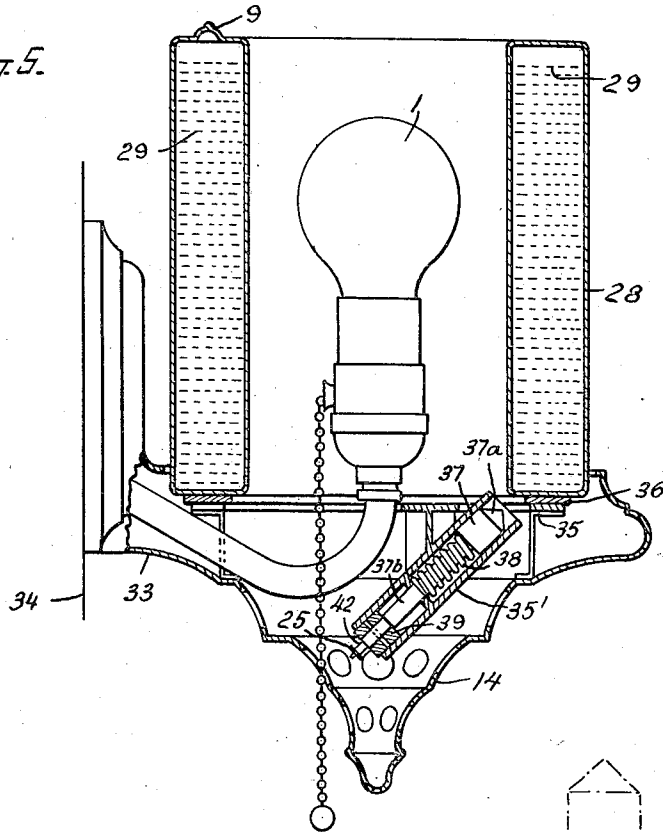


Fig. 6.

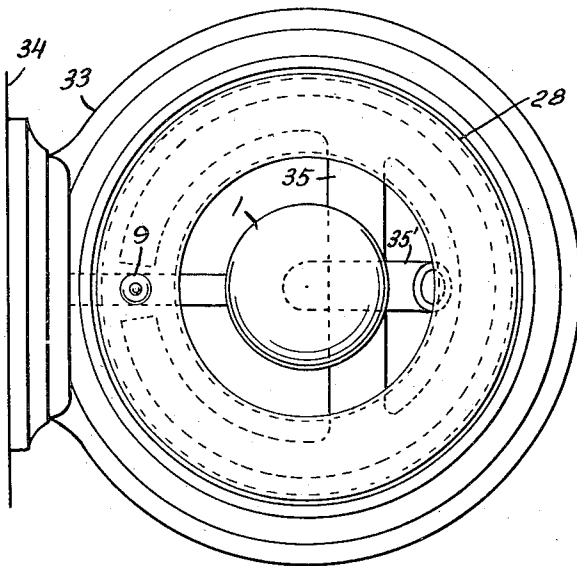
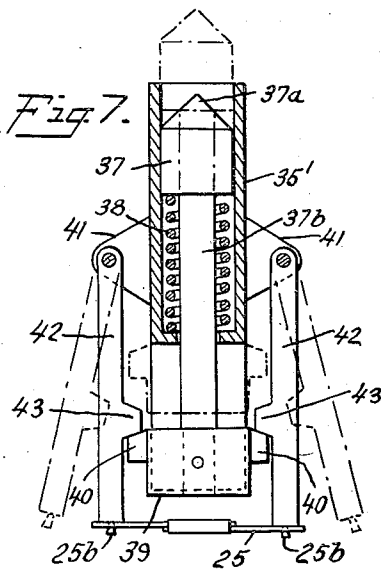


Fig. 7.



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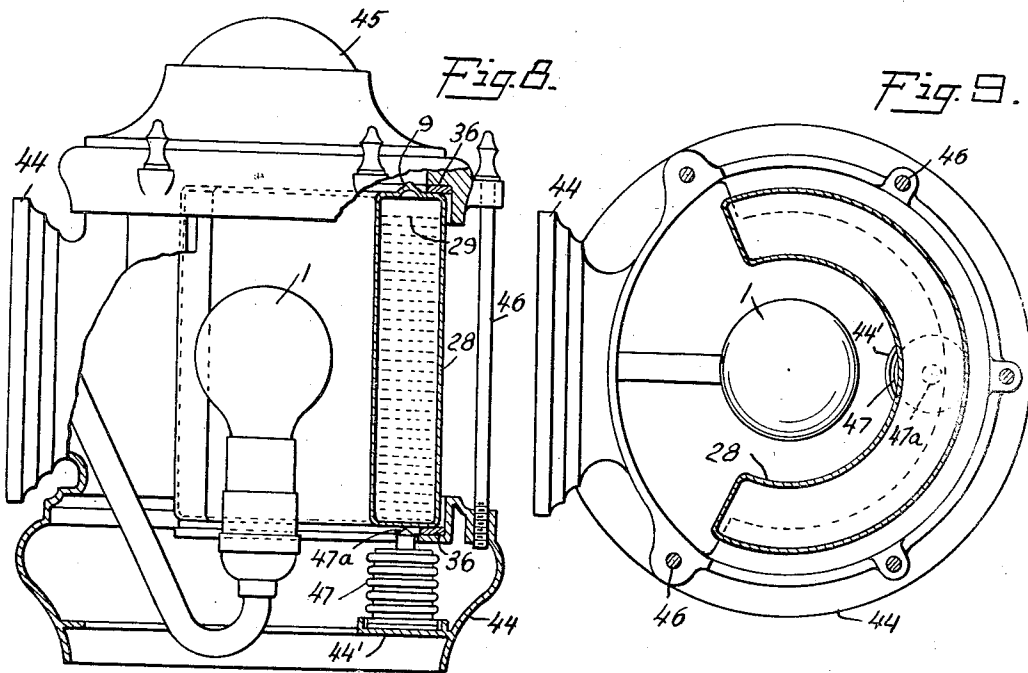
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3 Sheets-Sheet 3



INVENTOR

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UNITED STATES PATENT OFFICE

2,023,848

FIRE EXTINGUISHER

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Application September 15, 1933, Serial No. 689,530

26 Claims. (Cl. 169—26)

My invention relates to the installation of an automatic fire extinguisher in a lighting fixture.

Certain types of automatic fire extinguishers are installed on the ceilings or on the walls of rooms. They consist of a glass container holding a liquid fire quenching medium and an automatic means for breaking the glass container and releasing the fire quenching medium when the temperature of the surrounding atmosphere has exceeded a predetermined amount.

For purposes of illustration, I shall chiefly confine myself to carbon tetrachloride as a fire quenching medium, although other well known fire quenching liquids can be used. I have chosen carbon tetrachloride because it is admirably suited for fire quenching purposes and because it is inexpensive. Carbon tetrachloride will not damage or stain fabrics, will not remove the finish on furniture and will not rust metal parts. It will evaporate quickly at a temperature of 170° F., and its vapor has a volume several hundred times its volume as a liquid. Moreover, the index of refraction of carbon tetrachloride is such that it adds to the light value when the rays of light pass through the container near the source of light.

There are a number of automatic means for breaking the glass container when the surrounding atmosphere has reached a certain predetermined temperature. One of these means consists of a spring-actuated hammer or a spring-actuated plunger, held normally in a spring-tensioned position by means of a link held integral by a fusible solder. When the surrounding atmosphere rises to a predetermined amount above the normal room temperature, say to 135° F., the fusible solder melts and releases the spring-stressed hammer or plunger and allows it to strike and break the glass container holding the fire quenching medium—in my case the carbon tetrachloride. Another automatic means for breaking the glass container consists of a bellows type of syphon diaphragm. This syphon diaphragm contains alcohol, ether, or other liquids highly volatile at low temperatures. When the alcohol or ether is heated, say to 135° F., it expands the bellows of the syphon diaphragm. If one end of the syphon diaphragm is held stationary and the other end moves due to the expansion of the bellows, it can be made to press against the glass container sufficiently to break it as soon as the surrounding air temperature exceeds, say 135° F.

When the glass container is broken, the carbon tetrachloride drops to the floor, and the heat of the room changes it from a liquid form to a

heavy vapor form which spreads throughout the room and robs the burning material of the oxygen in the air, and in this manner chokes or quenches the fire.

I have found in moderate sized rooms, having moderate height ceilings, that at least 30 cubic inches of liquid carbon tetrachloride are required to give fire protection to about 100 square feet of floor space. This necessitates spacing the carbon tetrachloride containers, holding 30 cubic inches, or about a pint of liquid, when suspended from the ceiling for fire protection, at a distance of 10 feet apart. In rooms having many windows or doors, more than 30 cubic inches of liquid carbon tetrachloride should be used when the containers are spaced 10 feet apart. The present tendency, however, is to keep the containers as small as possible, because even the small ones detract considerably from the artistic or decorative effect of a room. In fact, whereas automatic fire extinguishers are installed in cellars, closets, attics, kitchens, linen rooms, and storerooms, there is usually much opposition to installing these automatic extinguishers in living rooms and the like, because the usual type of fire extinguisher detracts considerably from the good appearance of the room.

I have found that most lighting fixtures in rooms are installed not over 10 feet apart, and that these fixtures are made as a part of the decorative effect of a room. I have also found that by installing an automatic fire extinguisher within a lighting fixture, no sacrifice of artistic effect need be made. In fact, the fire extinguisher can be made to add to the artistic appearance of a lighting fixture, and at the same time, in most cases, secure for the lighting fixture, a better distribution of light, as will be explained later. Besides this, the installation of an automatic fire extinguisher in a lighting fixture permits the use of much larger individual units of fire extinguishers. This gives an additional factor of safety for fire protection because a large carbon tetrachloride container can easily be made a part of the decorative design of a lighting fixture.

I have also found that if the glass container is so designed, in combination with the lighting fixture, that all or part of the light is made to pass through this glass container, that is, also through the liquid carbon tetrachloride, there results a very pleasing lighting effect. The index of refraction of liquid carbon tetrachloride is 1.46 which is greater than water, the index of refraction of water being 1.33. By passing the light through the glass container holding the liquid

carbon tetrachloride, it is diffused and has the effect of doing away with the glare of the source of light. It therefore gives a better distribution of light and hence adds to the illuminating effectiveness of the lighting fixture. This better distribution of light does away with the necessity of using specially designed and expensive glass globes, now so commonly used for securing this better distribution of light. The glass container holding the fire extinguishing fluid can be made of either transparent or translucent glass, depending upon the decorative or lighting effect desired. The liquid fire quenching medium, (in my case the carbon tetrachloride), may also be dyed by various color dyes in order to secure artistic coloring effects.

Placing the automatic fire extinguisher in a lighting fixture gives another important advantage to the prompt functioning of the fire extinguisher. When the lighting fixture in a room is illuminated, the source of light produces heat. This heat rises towards the ceiling and creates a draft of air from various parts of the room towards the lighting fixture where the air is heated and conducted upwards from the lighting fixture. In the event of fire, the air heated by the fire follows the natural currents of air towards the lighting fixture and thereby necessarily surrounds the fusible link, or other functioning means, of the automatic fire extinguisher. Thus, the air heated by the fire is more quickly brought to the fusible link, or other heat sensitive element, and therefore assists in having the temperature of the fusible link, or other functioning means, more quickly brought to its operating temperature. Hence, the automatic fire extinguisher will function more promptly when installed in a lighting fixture, when the latter is lit, than if installed separately and away from the lighting fixture as is the method now used.

An object of my invention is to have an automatic fire extinguisher so installed in a lighting fixture that there is no sacrifice of artistic effect when placed in a room.

Another object of my invention is the ease with which large capacity fire extinguisher units can be used without detracting from the decorative or architectural effect of the room.

Furthermore, the invention contemplates improving the light distribution of the lighting fixture by having the light first pass through a liquid fire quenching medium.

The invention also contemplates improving the artistic illuminating effects of the lighting fixture by coloring the liquid fire quenching medium through which the light passes, and in this manner, securing more artistic coloring effects than can be secured by the usual coloring of an incandescent electric bulb, or by coloring the lighting fixture globe.

Another object of my invention is the additional fire protection obtained through the more prompt functioning of the automatic fire extinguisher due to its being installed in a lighting fixture, which facilitates the circulation of the heated air from a fire towards the fusible link, or other functioning means of the fire extinguisher.

For a more detailed understanding of my invention, reference is to be made to the following description, and the accompanying drawings of practical embodiments of the inventive idea, and in which drawings,—

Fig. 1 is a sectional view of a combination of a ceiling type of lighting fixture and an automatic fire extinguisher, in which the glass container of

the fire quenching medium is also used as the globe of the lighting fixture; and in which a spring-actuated hammer is the means for breaking the glass container.

Fig. 2 is a sectional view of the spring-actuated hammer with a fusible link, shown in Fig. 1.

Fig. 3 is a bottom plan view of the spring-actuated hammer shown in Fig. 2.

Fig. 4 is a perspective view of the fusible link shown in Figs. 1, 2 and 3.

Fig. 5 is a sectional representation of a wall bracket type of lighting fixture combined with an automatic fire extinguisher, in which the fire quenching medium is contained in a hollow cylindrical glass container surrounding the electric light bulb, and in which a spring-actuated plunger is the means for breaking the glass container.

Fig. 6 is a top view of the wall bracket type of lighting fixture combined with an automatic fire extinguisher of Fig. 5.

Fig. 7 is a sectional view, to an enlarged scale, of the spring-actuated plunger shown in Fig. 5.

Fig. 8 is a view partly in section of another embodiment of wall bracket lighting fixture combined with an automatic fire extinguisher in which the glass container holding the fire extinguishing medium extends only part way around the electric light bulb and in which the means for breaking this glass container is a bellows type of siphon diaphragm.

Fig. 9 is a top view of Fig. 8 with the upper cover of Fig. 8 removed.

Referring to the ceiling type of lighting fixture and automatic fire extinguisher shown in Fig. 1, the electric incandescent bulbs are shown at 1, which are suspended as usual from a socket 2, hung by means of a tube 3 from the ceiling. Mounted on a portion of the tube 3, is hanger 4 to which is attached the frame 5 for suspending the combination glass globe and liquid fire quenching container 6.

This glass container is carried by a number of retaining means such as spring clips 7 attached to the frame 5. The glass container 6 is filled with a fire quenching medium, as for example, carbon tetrachloride, up to a level shown at 8 so as to allow a small space within the container above this level for the expansion of the liquid with rise of room temperature. After the carbon tetrachloride has been poured into the glass container to the proper level through the filling teat 9, this filling teat is permanently sealed in the usual manner.

Extending vertically downward from the socket 2, is a rod 10 secured into socket 2 and passing through an opening 11 in the glass container. The bottom of this rod 10 is shown threaded so that carrying plate 12 and hammer base plate 13 may be mounted thereon. Carrying plate 12 is so designed that its upper surface forms a support for the glass container 6, while its lower end supports the open grill work cover 14. The latter is fastened to the carrying plate 12 by means of a plurality of set screws 15 equally spaced about the circumference of the cover 14. The upper surface of carrying plate 12 is provided with suitably spaced apertures 16—16 so arranged that the spring-actuated hammer used for breaking the glass container 6 can pass through one of these apertures when functioning to break the container.

The hammer base plate 13 is shown provided with ears 17—17, more clearly illustrated in Figs. 2 and 3, for the support of the hammer shaft 18 which passes through bearings in the ears to 75

secure shaft 18 in position. Located on shaft 18 is hammer supporting plate 19 which, in a preferred embodiment of the invention, is shaped as is clearly illustrated in Figs. 2 and 3. On the lower leaf of the hammer supporting plate 19, is mounted the hammer 20 which may consist of a conically pointed head and shank. The latter extends through hammer guide 21 and allows the shank of the hammer 20 to move freely in the hammer guide, its total motion being limited by the stop pin 22 secured to the hammer shank and projecting through a slot in the hammer guide. The hammer and shank 20 is made of a non-rusting material, such as brass, so that it will not rust tight in the steel guide 21. The guide 21 is securely mounted on the lower leaf of the hammer supporting plate 19. The upper leaf of the hammer plate carries a blank explosive cartridge 23, securely mounted on the upper leaf of the hammer plate 19. In this embodiment, the hammer actuating means is shown as a coil spring 24. This spring 24 extends around the hammer shaft 18 on each side of the hammer plate 19, and its looped end presses against the hammer plate 19. The two free ends of the coil spring are shown held on the hammer base plate 13. The lower leaf of the hammer plate 19 is shown attached to one end of a fusible link 25. The other end of the link engages the hammer base plate 13. The fusible link 25 is provided with suitable retaining means, shown in Fig. 4 of the drawings as two small holes 25a, one on each end, which holes fit over notched pins 25b extending out from the hammer base plate 13 and the lower leaf of the hammer plate 19, thus keeping the hammer in the position shown in Fig. 2 under the tension of the spring 24. The fusible link 25 may be of any desired formation, and in Fig. 4 is shown consisting of two parts, an upper part and a lower part, held together by solder which is fusible at a predetermined temperature. When this solder fuses, it releases the two parts of the fusible link and the spring-actuated hammer plate 19 and hammer 20 swing about their supporting shaft 18. This permits the hammer 20 to strike the glass container 6 a blow sufficient to break it, thereby releasing the fire quenching medium, carbon tetrachloride. In Fig. 1, the hammer and hammer plate with cartridge are shown in dotted lines in their striking position. When the hammer 20 strikes the glass container 6, its shank moves in the hammer guide 21 permitting the end of the hammer opposite the head to strike the blank cartridge 23 and explode it, giving thereby an audible signal that the automatic means for breaking the glass container 6 has functioned.

It will be noted that the glass container 6 holding the fire quenching medium 8 is supported, both at its upper and lower ends. The upper end is supported by the spring clips 7, while the lower end is supported by the carrying plate 12 suspended on rod 10.

If a colored lighting effect is desired, the liquid fire quenching medium 8 may be colored by suitable dyes so as to give this colored lighting effect when the light from the incandescent bulbs 1 is diffused through the fire quenching medium 8.

Fig. 5 illustrates a lighting fixture of the wall bracket type combined with an automatic fire extinguisher. The electric light bulb 1 is carried in the usual manner on wall bracket 33 and its method of support is not shown completely in the drawings. The line 34 in the drawings represents the wall to which wall bracket 33 is fas-

tened. The frame 35 is carried in the wall bracket frame 33 and is used to support the glass container 28 with its liquid fire quenching medium 29. The glass container 28 is shown hollow cylindrical in shape and surrounds the electric light bulb 1 so that the light from this bulb first passes through the liquid fire quenching medium 29 and is properly refracted before it is used for illumination. Suitably mounted on frame 35 is a hollow cylinder 35', as shown in Figs. 5 and 6, in which a spring-actuated plunger 37 operates. The spring-actuated plunger and its mechanism are shown more clearly and to a larger scale in Fig. 7. This plunger 37 acts as a piston in cylinder 35', the top end of the piston being conically pointed as at 37a. The lower end of the piston is in the form of a shank or rod 37b, and forms a support for the helical spring 38. The plunger below its head, in the form of a rod 37b of smaller diameter than the head, passes through the bottom of the cylinder 35' and has securely pinned to it at its lower end, a collar 39 having a plurality of projections 40, 40 thereon. The protruding ribs 41, 41 may be integral with the cylinder 35'. The links 42, 42 are shown pivotally connected to these ribs 41, and may have projecting catches 43, 43 to engage the sloping surfaces of the projections 40, 40 on the collar 39 when they are in the normal position as shown in full lines in the drawings. (See Fig. 7.) The lower end of the links 42 are shown secured by a fusible link 25 similar to the link shown in Fig. 4. The apertures near the ends of the fusible link fit over notched pins 25b at the lower ends of links 42. The catches 43 engage projections 40 and therefore hold the plunger in the position shown in full lines in Fig. 7, in which the spring 38 is under compression. When the elements of the fusible link 25 separate under the action of heat, the links 42, 42 are thrown out to the position shown by dotted lines in Fig. 7 due to the spring load forcing the catches 43 away from the sloping surface of projections 40. The plunger 37 under spring tension flies upward to its dotted position shown in Fig. 7 and in so doing strikes and breaks the glass container 28, thereby releasing the liquid fire quenching medium 29. Suitable washers 36 are placed between the glass container 28 and frame 35.

The liquid fire quenching medium, which may be colored if desired, is placed into the glass container up to the level as indicated, allowing a small space for heat expansion of the liquid.

Fig. 8 illustrates another embodiment of wall bracket lighting fixture combined with an automatic fire extinguisher. The electric light bulb 1 is carried in the usual manner on a wall bracket 44. The glass container 28, holding the liquid fire quenching medium 29, is supported at its upper end by the top cover 45. Suitable washers 36, 36 are placed between the glass container 28 and its supports. The top cover 45 may be held in position by a plurality of tie-rods 46 which are carried by the wall bracket 44. In this design the glass container 28 extends only part way, for example approximately 280°, around the lighting bulb 1, as is shown clearly in Fig. 9, the container 28 being omitted between the lighting bulb 1 and the wall.

A bellows type of siphon diaphragm 47 is used as a means for breaking the glass container 28 when the surrounding air has reached a predetermined temperature. This siphon diaphragm 47 is supported at its lower end on a suitable platform 44' which is a part of the

wall bracket 44. The upper end of the sylphon diaphragm is in the form of a pointed pin resting normally against the bottom of the glass container 28. Proper adjustments may be made to have this pointed pin 47a normally touch the glass container 28 by inserting suitable washers or liners between the bottom of the sylphon diaphragm 47 and its supporting platform 44'. The bellows type of sylphon diaphragm is of the well known construction, and for the present purposes, contains a volatile liquid such as alcohol or ether, which is hermetically sealed within the sylphon diaphragm. With rising temperature this volatile liquid in the sylphon diaphragm 47 vaporizes and increases in volume so as to force the bellows to expand and thereby causes the pointed pin 47a at the top of the bellows to break the glass container 28 at a predetermined temperature and thereby release the liquid fire quenching medium.

The use and mode of operation of the combined lighting fixture with automatic fire extinguisher is as follows:

When installed permanently in rooms, there is provided a larger glass container filled with a liquid fire quenching medium than would be usually provided if the automatic fire extinguisher were installed separately from the lighting fixture, because a separate automatic fire extinguisher detracts greatly from the artistic appearance of the room even if the glass container holding the liquid fire quenching medium is made small in size. The ability to have a larger quantity of fire quenching liquid adds to the fire protective security of the fire extinguisher.

When a fire starts in a room protected by my automatic fire extinguisher, the air in the room is heated and rises upwards. When this heated air reaches a predetermined temperature, say 135° to 140° F., it either melts the fusible link 25 which releases the spring-actuated hammer 20 (Figs. 1, 2, 3 and 4), or plunger 37 (Fig. 5), or expands the volatile liquid in the sylphon diaphragm (Fig. 8). In any case, the glass container holding the liquid fire quenching medium 8, 29 is broken. When the fusible link 25 releases either the spring-actuated hammer 20 or plunger 37, it allows the hammer or plunger to strike the glass container a blow heavy enough to break it. When the sylphon diaphragm 47 expands, it presses against the glass container 28 and breaks it.

The liquid fire quenching medium upon being released drops towards the floor and is quickly vaporized by the heated air in the room. This vapor is drawn towards the fire by the air currents set up by the fire in the room. As soon as the vapor surrounds the fire, it robs the burning materials of the oxygen in the air and thus quenches the fire. It will be noted that the operation of the fire extinguishing mechanism does not prevent the operation of the illuminating means. This feature will be found of great advantage in the event of conflagration.

The spring-actuated hammer shown in Fig. 1 can also have installed with it any suitable audible alarm, but in Fig. 2 the alarm is shown in the form of a cartridge 23. This cartridge explodes when the hammer 20 strikes the glass container 6, or 28 by having the shank of the hammer 20 act as a firing pin for the cartridge 23. In cases where it is desirable to omit the cartridge, the hammer 20 need not be made to slide in guide 21, but can be immovably attached to part 21.

It will be noted that in all the embodiments of

the invention herein disclosed the lamp 1 is surrounded by a globe (6 or 28) having a bottom opening which may be partially closed by the grill 14 as in Figs. 1 and 5, or may be left open as in Fig. 8. Also, in all embodiments the fire extinguishing element is mounted in the path of air which may flow through the globe toward the lamp. As has been explained, this circulation of air tends to cause the automatic means to be affected more quickly by the heated air from the results of combustion adjacent the fixture. Furthermore it serves to retard the tendency of freezing of the fluid in exceedingly cold weather when the lamps are burning.

In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention together with the apparatus which I now consider to represent the best embodiments thereof; but I desire to have it understood that the apparatus shown is only illustrative, and that the invention can be carried out by other means.

What I claim is new and desire to secure by Letters Patent of the United States, is,

1. The combination of a lighting fixture having an illuminating element, a container holding a liquid fire quenching medium surrounding the illuminating element, said container being constructed and arranged for the passage of a substantial portion of the light from the illuminating element through it for direct illumination, and means located adjacent the container for releasing said fire quenching medium by normally tending to fracture said container including a fusible link element for normally preventing operation of said releasing means, said fusible element being rendered inoperative at a predetermined temperature, the said fusible element being placed below the said container and the latter constructed and arranged to provide for passage of air surrounding the fusible element to the illuminating element and through the container.

2. The combination of a lighting fixture having an illuminating element, a container holding a fluid fire extinguishing medium surrounding the illuminating element of the lighting fixture and constructed and arranged for a substantial portion of the light to pass through the container and its fluid, and automatic means responsive to a predetermined temperature to fracture the container.

3. In a lighting fixture having an illuminating element, a glass container holding a liquid fire quenching medium, said container being constructed and arranged for the passage of a substantial portion of the light from the illuminating element through it for direct illumination whereby the light is refracted by the said liquid fire quenching medium, and means responsive to a predetermined temperature to fracture said container.

4. In a lighting fixture, a fractureable container holding a fire extinguisher medium, and automatic means responsive to a predetermined temperature to fracture the container and release the fire extinguisher medium in the event of fire, the container serving both as the globe of the lighting fixture and as the holder of the fire extinguisher medium.

5. In a lighting fixture, an illuminating element, a fragile container holding a fire extinguisher medium, characterized by arranging the fire extinguisher medium container so as to surround the illuminating element to permit most of the light from the element used for direct

illumination to pass through the container and its fluid extinguisher medium and automatic means responsive to a predetermined temperature to fracture said container and release the fire extinguisher medium.

6. In a lighting fixture having an illuminating element carried thereby, an arcuate fracturable container holding a fire extinguisher medium partly surrounding the illuminating element and constructed and arranged for the passage of a substantial portion of the light used for direct illumination through the container and its fire extinguisher medium, and automatic means to fracture the container and release the fire extinguisher medium when the temperature of the surrounding atmosphere exceeds a predetermined degree.

7. In a lighting fixture having a lamp carried thereby, a fracturable container holding a color tinted fire extinguisher fluid and constructed and arranged for the passage of a substantial portion of the light through said container whereby the light is diffused and colored in passing through the fluid in the container, and automatic means responsive to a predetermined temperature to release the fluid in the event of a fire.

8. In a combination of a lighting fixture and an automatic fire extinguisher having a glass container holding a liquid fire quenching medium so constructed and arranged as to also serve as the globe for the lighting fixture and automatic means responsive to a predetermined temperature for breaking the container and releasing the fire quenching medium, said automatic means consisting of a syphon diaphragm filled with a low temperature volatile liquid so that at a predetermined temperature the volatile liquid creates pressure on the movable end of the diaphragm to break the glass container.

9. The combination of a lighting fixture having a lighting element, a container holding a liquid fire quenching medium, the container being mounted to surround the lighting element whereby a substantial portion of the light used for direct illumination passes through the container and whereby the heat of the lighting element is used to prevent freezing of the liquid fire quenching medium when the surrounding atmosphere has reached a sufficiently low temperature to ordinarily freeze the liquid fire quenching medium, and means responsive to a predetermined temperature for releasing said liquid fire quenching medium from the container.

10. In a wall bracket type of lighting fixture, a glass container holding a liquid fire quenching medium, the container being so mounted that the larger part of the light from the lighting fixture passes through the glass container and the fire quenching medium before that light is used for illuminating purposes, and means responsive to a predetermined temperature for breaking the glass container and releasing the fire quenching medium.

11. In a ceiling type of lighting fixture, an automatic fire extinguisher mechanism installed thereon having a glass container holding the liquid fire quenching medium and so mounted on the fixture that the larger part of the light from the lighting fixture used for direct illumination passes through the glass container and the fire quenching medium before the light is used for illuminating purposes, and means responsive to a predetermined temperature for breaking the

glass container and releasing the fire quenching medium.

12. In a wall bracket type of lighting fixture, an automatic fire extinguisher mechanism installed thereon having an arcuate glass container holding a liquid fire quenching medium, said container mounted on the fixture to extend partially around the source of light so that most of the light used for direct illumination passes through the glass container and the fire quenching medium therein, and means responsive to a predetermined temperature for breaking the glass container and releasing the fire quenching medium.

13. In a lighting fixture having a lamp carried thereby, a fragile container holding a fire extinguisher fluid mounted adjacent the lamp and constructed and arranged for the passage of a substantial portion of the light rays of the lamp through the container, and automatic means to release the fire extinguisher fluid at a predetermined temperature, said automatic means comprising a spring-actuated plunger to break the container and a heat sensitive element to maintain the plunger in a predetermined position until the temperature of the surrounding atmosphere has reached a predetermined degree.

14. The combination of a lighting fixture, a fragile container holding a fire quenching medium and constructed and arranged for the passage of a substantial portion of the light used for direct illumination through the container, and automatic means to break the glass container to release the fire quenching medium, said means including a fusible link and spring-actuated hammer adapted to be released automatically when the temperature of the surrounding air separates the members of said fusible link.

15. The combination of a lighting fixture, a glass container holding a fire quenching medium and constructed and arranged for the passage of a substantial portion of the light used for direct illumination through the container, and automatic means to break the glass container to release the fire quenching medium, said means including a spring-actuated plunger held under tension by a heat sensitive member, said plunger being released automatically when the temperature of the air surrounding the heat sensitive member has reached a predetermined temperature.

16. The combination of a lighting fixture having an illuminating element, a glass container holding a fire quenching medium through which most of the direct illumination of the lighting fixture passes, and automatic means to break the glass container to release the fire quenching medium, said means including a heat sensitive element actuated when the air surrounding the element has reached a predetermined temperature.

17. The combination of a lighting fixture, a lamp, and a glass container holding a fire quenching medium surrounding the lamp and constructed and arranged for the passage of a portion of the light used for direct illumination through the container, automatic means to break the glass container to release the fire quenching medium when the surrounding air has reached a predetermined temperature, and separate means to give an audible signal when the automatic breaking means function.

18. In an apparatus of the character described, a lighting fixture including a lamp, a container holding a fire quenching medium and having

automatic means for releasing the fire quenching medium when these means are subjected to a predetermined temperature, said container constructed and arranged so that the heat of the lamp heats the air between the lamp and the container thereby creating currents of air in a room so that in case of fire the heated air from the fire travels to the lighting fixture and before it is heated by the source of light is made to flow past the automatic means of the fire extinguisher, thereby causing the automatic means to function more promptly than it would if the said means were installed separately from the lighting fixture.

19. In a fire extinguisher, a fixture capable of supporting a lamp, an arcuate container holding a fire extinguishing fluid mounted on the fixture and constructed and arranged so that the said container also forms a part of the light globe, and means to automatically release the fluid when the temperature of the room in which the fixture is mounted reaches a predetermined degree.

20. The combination of a lighting fixture having an illuminating element, a container holding a liquid fire quenching medium, and automatic means for releasing the liquid fire quenching medium at a predetermined temperature in the event of fire, the said container constructed and arranged for part of the light used for direct illumination to first pass through said container and its liquid and also constructed and arranged to form an air passage between the illuminating element and the container, and the said automatic means placed below and adjacent the container so that when the air between the illuminating element and container is heated by the illuminating element it causes the air surrounding the automatic means to flow through the said air passage between the illuminating element and the container.

21. In a lighting fixture, a container holding a fire extinguisher medium surrounding the illuminating element of the lighting fixture constructed and arranged to serve as part of the globe of the lighting fixture, and automatic means for releasing the fire extinguishing medium at a predetermined temperature in the event of fire, the container and automatic means being embodied in the artistic design of the fixture.

22. The combination of a lighting fixture, a glass container holding a liquid fire quenching medium and constructed and arranged for the

passage of a portion of the light used for direct illumination through the container, and also constructed and arranged to form an air passage between said illuminating element of the lighting fixture and the said container, and automatic mechanism responsive to a predetermined temperature to break the container and release the fire quenching medium, said automatic mechanism having its operating means in the air before said air enters the passage between the illuminating element and the glass container.

23. In a combination of a lighting fixture, an illuminating element, and a glass container holding a liquid fire quenching medium so arranged that all the light used for direct illumination passes through and is refracted by the liquid fire quenching medium, the glass container having an opening in its lower part so that all the air to be heated by the illuminating element passes through this opening, and automatic operating members responsive to a predetermined temperature for releasing the fire quenching medium and so placed that the air to be heated by the illuminating element first passes around the said automatic operating members.

24. In an apparatus of the class described, a lighting fixture, an arcuate fragile container holding a fire extinguisher medium constructed and arranged to perform the combined functions of a container and a light globe and automatic means responsive to a predetermined temperature to fracture the container and release the fire extinguisher medium in the event of fire, said container and automatic means being embodied in the artistic design of the fixture and being a necessary part of such design.

25. In an apparatus of the character described, the combination of a lighting fixture having a lamp, a fragile light transmitting container holding a fire quenching medium, said container being constructed and arranged to serve also as the globe for the lamp, and automatic means responsive to a predetermined temperature to fracture the container and release the fire quenching medium.

26. A lighting fixture having an airtight container holding therein a fire quenching medium, the container being so constructed and arranged as to form a necessary part of the lighting fixture, and automatic means responsive to a predetermined temperature for releasing the fire quenching medium in the event of fire.

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