Jan. 5, 1937. W. L. ROESSNER 2,066,648

FIRE EXTINGUISHER

Filed Feb. 24, 1936 2 Sheets-Sheet 1

Fig. 1.

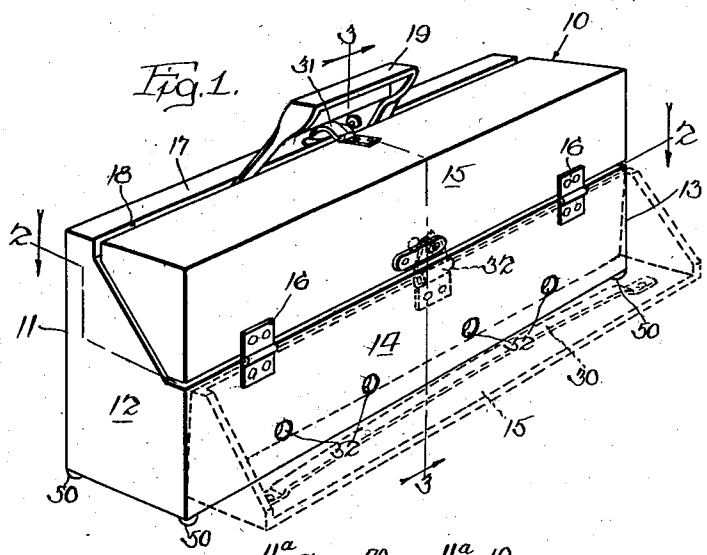


Fig. 2.

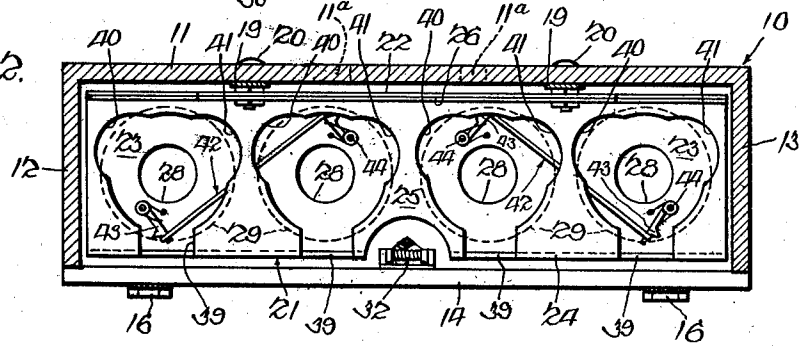
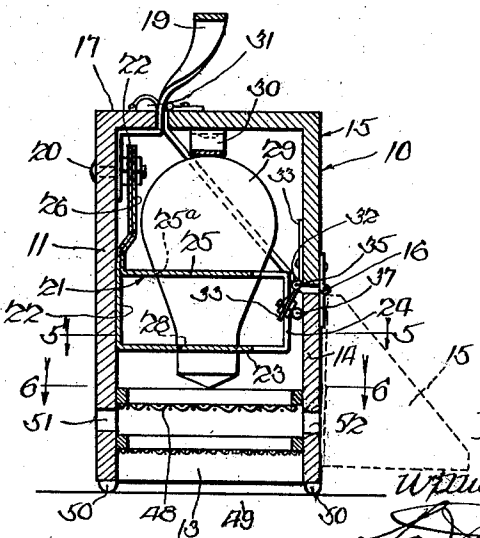


Fig. 3.



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Fig. 4.

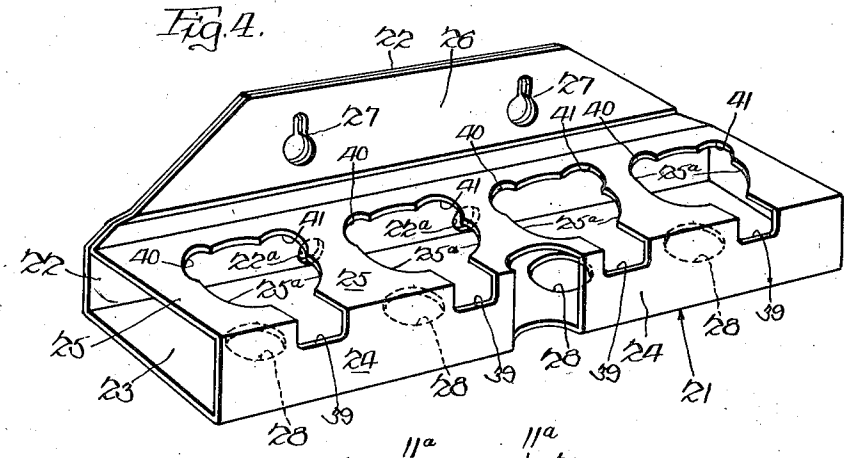


Fig. 5.

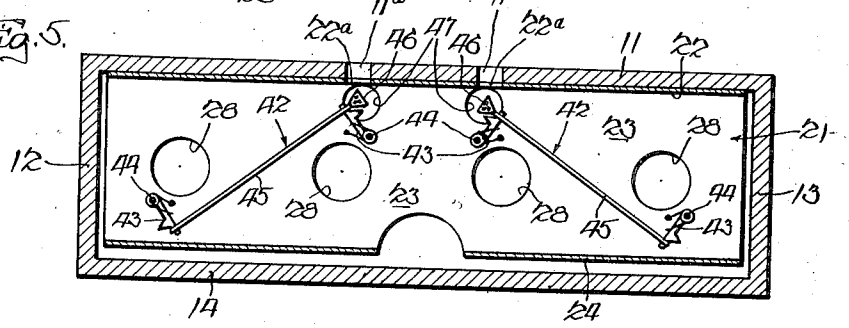


Fig. 6.

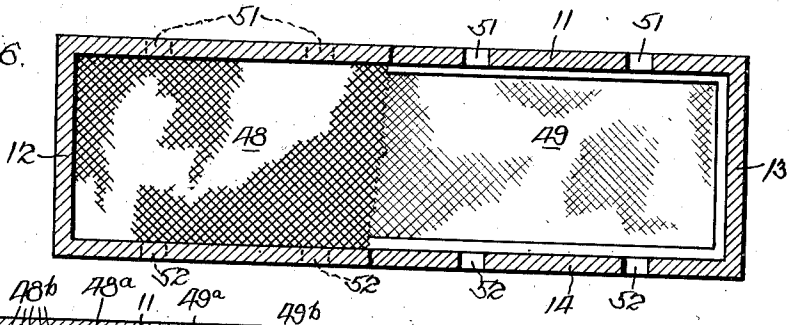


Fig. 7.

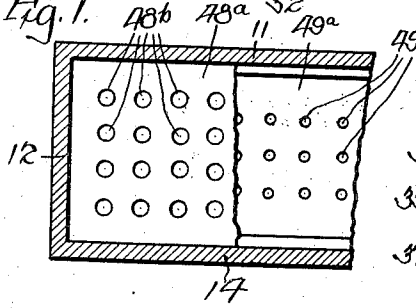
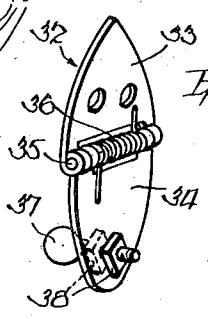


Fig. 8.



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UNITED STATES PATENT OFFICE

2,066,648

FIRE EXTINGUISHER

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Application February 24, 1936, Serial No. 65,254

11 Claims. (Cl. 169—26)

This invention relates to improvements in fire extinguishers utilizing sealed glass grenades that contain a fire extinguishing liquid such as carbon tetrachloride, and is more particularly directed to a portable kit in which the grenades are positioned to prevent breakage and which kit is arranged and constructed in a novel manner, providing an automatic and manually operable extinguisher.

The extinguisher comprises a portable kit, which is provided with supporting means therein, into which the grenades may be placed in spaced relation with each other, and in a manner whereby they may be readily gripped to be manually removed, the kit being provided with a cover adapted to be instantly opened, rendering the grenades accessible.

A fire extinguisher of this type may be easily transported to a fire so that the grenades can be thrown thereon, and for this purpose it is necessary to provide a kit capable of carrying several grenades, and which can be carried in one hand, being constructed in a manner that it will securely and resiliently retain the grenades until the kit is opened.

The automatic means functions when the heat attains a predetermined degree and this automatic means also functions as a safety device, in that a person carrying the kit to a fire may be suddenly enveloped in a quantity of smoke or flame and lose consciousness before being able to remove and throw the grenades and in a relatively short space of time the automatic means will become sufficiently heated to be released and effect the collapsing of the grenades to quench the flame.

It is an object of the present invention to provide a kit that is simple in construction, inexpensive to manufacture, strong and durable and which is dependable in operation whether used manually or automatically.

A further object is the provision of a kit arranged and constructed with thermoresponsive means for effecting a release of the liquid within the grenades when said means has been heated to a predetermined degree; to provide means for diffusing and retarding the outward flow of the liquid, permitting the same to be partially transformed to a gaseous vapor while flowing outwardly of the kit.

And a still further object is the provision of a kit arranged and constructed to permit of a current of air to flow therethrough while supported or suspended for automatic use.

Referring to the drawings:

Figure 1 is a perspective view of the kit in closed position and illustrating the cover opened, in dotted lines.

Figure 2 is a plan sectional view taken substantially on the line 2—2 of Figure 1.

Figure 3 is a cross-sectional view taken substantially on the line 3—3 of Figure 1.

Figure 4 is an enlarged detail perspective view of the grenade supporting means within the kit.

Figure 5 is a plan sectional view taken substantially on the line 5—5 of Figure 3, illustrating the thermoresponsive means coacting with the grenades for emitting the liquid therefrom when automatically operated.

Figure 6 is a plan sectional view taken substantially on the line 6—6 of Figure 3, illustrating the liquid diffusing means within the kit.

Figure 7 is a detail partial plan sectional view of a modified form of diffusing means; and

Figure 8 is a detail perspective view of the cover operating device.

The reference numeral 10 designates the kit as a whole, which may be constructed of any suitable material and which is provided with a back wall 11, end walls 12 and 13, and a relatively low front wall 14, to which a cover 15 of angular formation is hinged by means of the hinges 16, and which serves with a relatively narrow top wall 17 to enclose the container or kit. The cover 15 is arranged in spaced relation with the kit to form a space 18 along its adjacent edges and provides a space on its top portion adjacent the top wall 17 of the kit for a carrying handle 19, which is secured to the kit 10.

The back wall 11 of the kit supports the handle 19 by means of the bolts 20 which extend therethrough and through the free ends of the handle. The bolts 20 also serve to support a yieldable grenade supporting means designated as a whole as 21, and which is preferably formed L-shaped having a back wall 22 that terminates into a right-angled formation and provides a bottom wall 23 and is then directed upwardly and forms a front wall 24, and is then formed to extend rearwardly toward the back wall 22 and in parallel relation with the bottom wall 23, and forms a top wall 25, and is then directed upwardly to form a wall 26 parallel with the back wall 22. The walls 22 and 26 are provided with a pair of spaced apart bayonet slot opnings 27 which are adapted to be positioned over the bolts 20 to suspend the grenade supporting means in position within the kit. The top wall 25 of the grenade supporting means 21 is provided with a plurality of enlarged openings 25*a*, while its bottom wall 23

is provided with relatively small openings 28, arranged directly below and aligned with the openings 25a, and which openings serve to retain a grenade 29 positioned therein, within the kit.

It will be noted that the bottom and top walls of the grenade supporting means 21 contact the back wall 11 of the kit, while the front wall 24 thereof is in spaced relation with the front wall 14 of the kit, which provides a resilient support for the grenades 29 when positioned in the openings 25a—28 therein and are retained by means of a flexible band 30 secured to the cover 15 yieldably contacting the top portion of the grenades 29 when the cover is in closed position, and which is retained readily releasable by means of a manually actuating latch 31.

The handle 19 is formed to extend over a portion of the cover 15 and is aligned substantially with the grenades within the kit, so as to evenly distribute the weight, while the same is being carried about. The latch 31 is below the handle 19 and may be easily manipulated with the thumb or finger, and is of any suitable construction, which may be easily released with a slight pressure thereon.

Upon releasing the latch 31, the cover 15 is arranged to be urged to open position, (as shown in dotted lines in Figs. 1 and 3), by means of a spring-impelled device 32, coacting with the cover and the front wall 14 of the kit. The device 32 comprises two members 33 and 34 respectively, which are hingedly secured together at 35 and on which hinge, a torsion spring 36 is carried, having one end thereof engaging the member 33 and its other end engaging the member 34. The member 34 is provided with an adjustable unit 37 which is adapted to be regulated by means of the lock nuts 38, and which member is normally in contact with the inner surface of the front wall 14 of the kit, when the cover 15 thereof is in closed position, so that as the latch 31 is released, the cover will be spring-impelled to open position. (Figs. 1 and 3.)

When the cover 15 is in open position and by virtue of its particular construction, the grenades are accessible from the top and one side of the kit, whereby they may be readily gripped for manually throwing them on a fire. The relieved portions 39, 40, and 41 terminate into the openings 25a in the top wall of the grenade supporting means which permits of the admission of the fingers to readily grip the grenades when the device is being used manually.

As thus far described, it will be seen that the kit retains the grenades in a vertical position to be manually manipulated, and the kit is also adapted to be automatically operated in the manner as will be presently described.

The bottom wall 23 of the grenade supporting means 21 carries grenade crashing means 42, which as shown, are arranged in pairs and designated as a whole as 42, (Fig. 5), and each pair simultaneously controls the flow of liquid from a plurality of grenades 29 when the same is released. This means 42 comprises a spring-impelled hammer 43 pivotally mounted on a pin 44 fixed to the bottom wall 23 of the grenade supporting means 21. A spring-impelled hammer is positioned adjacent each of the openings 28 and is normally retained against the tension of its spring by means of a strap 45 which encircles the ends of the pair of hammers 43 and which has a thermoresponsive unit 46 releasably secured to the free ends of the strap. The type of thermoresponsive unit herein employed is shown in my U. S. Patent, No. 1,894,425, issued Jan. 17, 1933. These units 46 of each pair of hammers, are positioned over the openings 47 in the bottom wall 23 and adjacent the openings 22a of the grenade supporting means 21 which are aligned with the openings 11a of the back wall 11 of the kit, so as to permit of the circulation of heat therearound to release them when the proper degree is attained.

The bottom wall of the kit or container is composed of screen or other pervious material or may be of a perforated material as shown in Fig. 7, and is preferably arranged to form a double bottom wall, being provided with a screen 48 of relatively large mesh and a second screen 49 of relatively small mesh, arranged parallel with and below the screen 48. In Fig. 7, the material forming the double bottom walls 48a and 49a is provided with a plurality of perforations 48b and 49b respectively, which serve to diffuse the liquid in the same manner as the screens 48 and 49, which will be presently described. The purpose of the screens or the perforated material is to form means for diffusing the liquid as it is emitted from the grenades after they have been crashed, and after passing through the top screen or perforated material, it will then be distributed upon the lower screen or perforated material before being permitted to flow outwardly of the kit. This action of the screens permits the carbon tetrachloride to partially volatilize and form a gas, while being retarded in its outward flow.

To permit the circulation of air within and around the kit, I provide the feet 50, which as shown, are at each corner of the kit to support the same in slightly raised position from the floor, to permit the air to circulate thereunder, through the screens 49 and 48 or the perforated material 49a or 48a around the grenades 29 and the thermoresponsive means 46 for the grenade crashing means and through the opening 18 formed between the adjacent edges of the kit and its cover.

The back and front walls 11 and 14 respectively, are provided with a plurality of openings 51 and 52 respectively, which are positioned between the screens and through which openings the air may circulate, as in the case of a fire, the heated air circulating between these two screens assists to volatilize the liquid.

While the form of fire extinguisher shown and described is admirably adapted to fulfill the objects primarily stated, it is understood that it is not intended to confine the invention to the form or embodiments herein disclosed, for it is susceptible of embodiment in various forms all coming within the scope of the appended claims.

I claim:

1. A fire extinguisher of the character described, comprising a kit adapted to retain a plurality of hermetically sealed grenades containing a fire extinguishing liquid such as carbon tetrachloride or the like and arranged for manual and automatic disposal of the liquid within the grenades, the kit having an opening provided with a cover enclosing the top and partially enclosing one side thereof, a grenade support in the kit, grenade crashing means on the support and having thermoresponsive means retaining the same readily releasable to crash the grenades when subjected to a predetermined degree of heat, the bottom wall of the kit being arranged and constructed to form diffusing means for the

liquid when the grenades are crashed by said crashing means.

2. A container having an opening provided with a cover and means for locking the cover on the container to close the opening, a support having a plurality of grenades mounted therein and positioned adjacent the opening, grenade crashing means mounted on the support and adapted to be released to crash the grenades when heated to a predetermined degree, means within the container for diffusing the flow of liquid outwardly thereof when the grenade crashing means has been released to crash the grenades, said grenade crashing means being normally free of the grenades, said grenades being so disposed as to be readily removed through the opening of the container when the locking means of the cover is released.

3. The combination of claim 2 hereof in which there are yieldable means on the cover engaging the grenades for retaining them in the support when the cover is in closed position and the locking means thereof is applied.

4. In a fire extinguisher kit having walls defining the same and having a plurality of grenades containing a fire extinguishing liquid therein, the combination of resilient supporting means for the grenades, grenade crashing means carried on the resilient supporting means and having thermoresponsive means coacting therewith adapted to release said grenade crashing means when heated to a proper degree to crash the grenades, the bottom wall of said kit being of pervious material to diffuse and retard the flow of liquid outwardly of the kit.

5. In a fire extinguisher of the character described, comprising a kit having walls defining the same and having an opening therein provided with a cover and means on the cover for locking the same to close the opening, a plurality of grenades containing a fire extinguishing liquid, a resilient support for the grenades, grenade crashing means arranged adjacent each grenade on the supporting means and having thermoresponsive means coacting therewith adapted to be released when heated to a predetermined degree to release the grenade crashing means to crash the grenades, and diffusing means below the supporting means forming means to retard the flow of liquid outwardly of the kit when the grenade crashing means has been released to crash the grenades.

6. A fire extinguisher of the character described, comprising a portable kit having a cover hingedly secured thereto, a support for a plurality of grenades containing a fire extinguishing liquid therein and positioned within the kit, grenades, thermoresponsive means on said support adapted to coact with the grenades to crash the same at a predetermined degree of heat, and means forming a bottom wall for the kit to prevent accidental breakage of the grenades and to diffuse and retard the flow of liquid therefrom outwardly of the kit when said grenades have been crashed.

7. In a fire extinguisher kit having walls defining the same and having a plurality of grenades containing a fire extinguishing liquid such as carbon tetrachloride therein, the combination of resilient means supporting the grenades in vertical position, grenade crashing means carried on said resilient means adjacent the lower ends of the grenades having thermoresponsive means coacting therewith adapted to release them to crash the grenades when said thermoresponsive means is subjected to the proper degree of heat, and a bottom wall in said kit arranged and constructed to diffuse and retard the flow of liquid permitting it to partially volatilize before flowing outwardly of the kit.

8. In a portable fire extinguisher kit having a plurality of sealed grenades containing a fire extinguishing liquid therein, the combination of resilient supporting means for the grenades, grenade crashing means carried on the resilient supporting means and having thermoresponsive means coacting therewith and adapted to be released to crash the grenades when heated to a proper degree, and a double bottom wall of pervious material serving to diffuse and retard the flow of liquid outwardly of the kit.

9. In a fire extinguisher of the character described, comprising a kit having walls defining the same and having an open bottom, a resilient support releasably retained in the kit and provided with a double wall having vertically aligned openings therein, a plurality of grenades containing a fire extinguishing liquid and positioned within the openings of the support, spring-impelled grenade crashing means adjacent to and adapted to coact with the lower ends of the grenades, thermoresponsive means releasably retaining the grenade crashing means against their springs and adapted to be released when subjected to a predetermined degree of heat to release said grenade crashing means permitting them to be spring-impelled to crash the grenades, and a bottom wall of pervious material below the grenades forming means to diffuse and retard the flow of liquid outwardly of the kit, the kit being provided with relatively small pads for supporting the same in raised position to permit of the outward flow of the liquid through the bottom thereof.

10. The combination of claim 9 hereof in which the kit is provided with a cover adapted to freely fit the kit forming an opening therearound and to coact with the pervious bottom wall to permit of the circulation of air through the kit.

11. A container for storing fire extinguisher grenades, comprising, a kit having a porous bottom and a hinged cover forming an opening therearound with the kit, means within the kit for supporting the grenades, spring-impelled means for breaking the grenades, and thermoresponsive elements for restraining the breaking means, the bottom and the cover of the kit providing means for permitting the air to circulate through the interior of the kit for the purpose of effecting the thermoresponsive means.

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