Dec. 26, 1933. S. M. GREEN 1,941,298

FIRE EXTINGUISHER

Filed June 8, 1932

Fig. 3.

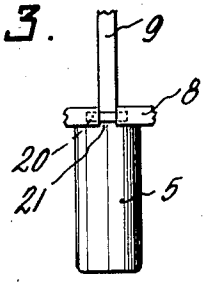


Fig. 2.

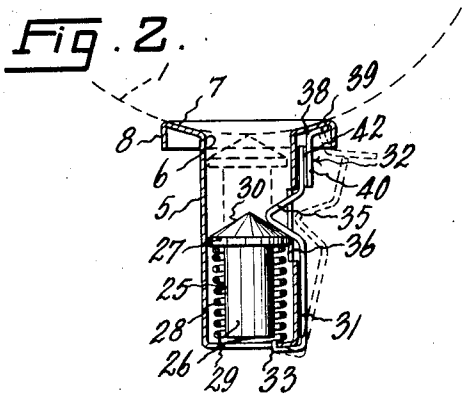


Fig. 1.

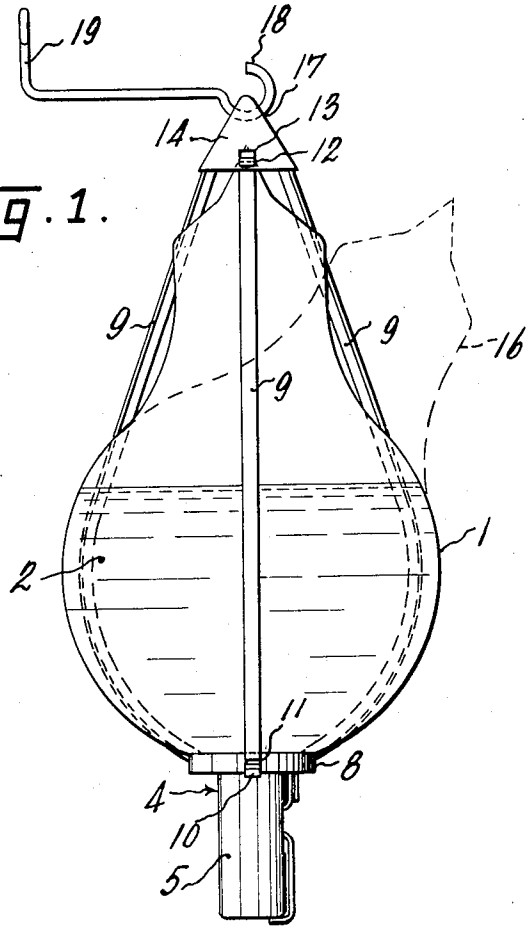
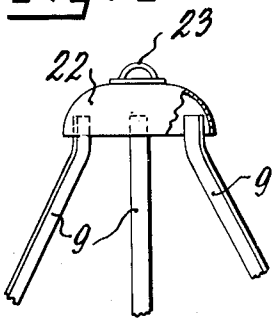


Fig. 4.



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FIRE EXTINGUISHER

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6 Claims. (Cl. 169—26)

This invention relates to fire extinguishers of the type in which the fire extinguishing material is confined in a glass container and is released by fracturing the container.

One object of the invention resides in an improved mechanism, automatically responsive to a predetermined degree of heat, to shatter the container and release its contents.

Other and further objects reside in the construction of the support, facilitating the use of the container as a hand grenade, and in details of the heat responsive mechanism which together with other advantages will be apparent from the following specification and claims.

In the accompanying drawing which illustrates an embodiment of the invention:

Fig. 1 is a side elevation of the complete device;

Fig. 2 is a detail view partly in section showing the structure for automatically shattering the container;

Fig. 3 is a detail view showing a modified form of connection for the supporting straps; and

Fig. 4 is a detail view showing a modified form of suspension member and still another manner of connecting the supporting straps.

Referring to the drawing 1 designates a shatterable container, formed of glass or the like, carrying a quantity of fire extinguishing liquid such as carbon tetrachloride or other suitable material 2. The container is carried on a support generally indicated at 4 which comprises a hollow cylindrical portion 5, the upper end of which is open as shown at 6 and provided with a flaring seat 7 upon which the container 1 rests. The flared seat 7 is formed at its edge with a downwardly extending flange 8.

The container is normally retained in position on seat 7 by means of a plurality of flat resilient straps 9. Three straps are shown in the drawing but it will be understood that the number may be varied to accommodate different sizes or shapes of containers. As shown in Fig. 1 the lower ends of straps 9 are bent to form hooks 10 engaging in slots 11 formed in 8. The upper ends of straps 9 are bent to form hooks 12 engaging in slots 13, in a cap or upper suspending member 14. The flat form of straps 9 tend to keep them in position against the sides of the container 1 and to keep the latter in position on the seat 7 but due to their resilience they may be distorted from this position to permit ready removal of the container from the support, as indicated at 16 in dotted lines in Fig. 1 when it is desired to use the container as a grenade. Cap member 14 is provided with aligned openings 17 adapted to engage over the hooked end 18 of a wall bracket 19, or other suitable hanger. It will be understood that the straps 9 may be secured to flange 8 in any suitable manner, for example, in place of hooks 10 the straps may be provided with an enlarged head 20 as shown in Fig. 3, in which case the flange 8 is provided with open notches 21 of a width to receive the body of the strap, the enlarged head 20 engaging the inside face of the flange 8 to hold the strap in place. If desired one end of the straps may be permanently secured in place as indicated in Fig. 4 where the upper ends of the straps 9 are welded or otherwise secured to a cap member 22 which is shown as dome shaped and provided with an eye 23 by which the extinguisher may be suspended from any suitable hanger. The support 4 carries means for automatically shattering the container in response to a predetermined temperature. For this purpose a bolt 25 is positioned in the cylinder 5. The bolt includes a shank 26 and a head 27 projecting radially beyond the shank. As best shown in Fig. 2, a coil spring 28 surrounds the shank of the bolt and is adapted to be compressed between the head 27 of the bolt and an inwardly turned flange 29 which forms the base of the cylinder. The head of the bolt is provided with a conical cam face 30 for a purpose later to be fully described. The bolt is retained in retracted position in cylinder 5 by a fusible link which comprises a retaining member 31 and a thrust member 32. The retaining member is formed of a flat metal strip, bent at its lower end into the form of a hook 33 adapted to engage around the flange 29. Member 31 is provided, intermediate the hook 33 and its upper free end, with an inwardly bent portion 35 adapted to project through an opening 36 cut in the wall of cylinder 5 into contact with the cam 30 of the bolt head to hold the bolt in retracted position against the action of spring 28. The action of the spring tending to project the bolt into contact with container is taken as tension by the retaining member in the portion between the inwardly projecting bend 35 and the hooked end 33. Due to the cam 30 spring 28 also exerts an outward thrust against member 31 tending to force portion 35 outwardly of opening 36 and to pivot member 31 about its hooked connection with the base of the cylinder. Member 31 is normally held in bolt retaining position against this outward thrust exerted through cam 30 by thrust member 32 which is also in the form of a flat metal strip and is bent intermediate its end as at 38 to form a portion 39 engageable

with the inner face of flange 8 and a portion 40 of a length to overlap the free end of retaining member 31. The overlapping ends of members 31 and 32 are secured together by means of fusible solder as indicated at 42. It will be seen that the outward thrust of spring 28 acting through cam 30 is transmitted by member 32 to flange 8 and that this thrust tends to pivot member 32 about the flange 8 as shown in dotted lines in Fig. 2. No shear is imposed on the solder 42; the separation of the soldered ends of members 31 and 32 being effected by a pulling apart in directions substantially at right angles to their faces.

Until released by the fusing of the solder the bolt is held in retracted position as shown in full lines in Fig. 2. When a fire occurs the container may be removed from its support as shown in dotted lines in Fig. 1 and used as a hand grenade. When operated automatically, the solder 42 fuses when a predetermined temperature is reached permitting the cam 30 to pivot the members 31 and 32 outwardly, thus releasing the bolt which is projecting by spring 28 into shattering contact with the base of the container through the open end 6 of the cylinder 5.

It is to be understood that the terms upper and lower as used in the specification and claims are used for convenience of description only and that the invention is not limited to any specific orientation of the parts by the use of such terms.

What I claim is:

1. A fire extinguisher which comprises a shatterable container enclosing a quantity of fire extinguishing material, a support for the container, a bolt carried by the support, a spring adapted to project the bolt into shattering contact with the container, two members having their adjacent ends secured in overlapped relation by a fusible solder, the opposite ends of said members engaging said support for pivotal movement with respect thereto, and means carried by one of said members intermediate its ends and positioned to engage the bolt and hold it against the action of said spring, the engaging surfaces of said means and the bolt being inclined to the line of projection of the bolt so as to create a transverse component of the spring action tending to swing said members about their pivots to release the bolt upon fusing of the solder.

2. A fire extinguisher which comprises a shatterable container enclosing a quantity of fire extinguishing material, a support for said container, a recess formed in the support, a headed bolt positioned in the recess, a radially acting cam formed on the bolt, a spring adapted to project the bolt into shattering contact with the container, a fusible link comprising a retaining member pivotally engaged at one end with the support and provided intermediate its ends with an offset portion adapted to engage said cam to hold the bolt in retracted position against the action of the spring, a thrust member pivotally engaged at one end with the support, the free ends of said retaining member and thrust member being overlapped, the overlapped portions of said members being secured together by a fusible solder to retain the offset portion of the retaining member in bolt restraining engagement with said cam surface against the outward thrust of the spring exerted through said cam.

3. A fire extinguisher which comprises a shatterable container enclosing a quantity of fire extinguishing material, a support for said container including an open ended cylinder upon which the container rests, said cylinder being provided with a side opening, a headed bolt positioned in said cylinder, a radially acting cam formed on the head of said bolt, a spring positioned in the cylinder and adapted to project the bolt into shattering contact with the container through the open end of the cylinder, a fusible link comprising a retaining member pivotally engaged at one end with the lower end of the cylinder, and provided intermediate its ends with an offset portion, adapted to engage said cam, through said side opening, to hold the bolt in retracted position against the action of the spring, a thrust member pivotally engaged with the upper end of the cylinder, the free ends of said retaining and thrust members being overlapped and the overlapped portions secured together by a fusible solder to retain the offset portion of the retaining member in bolt restraining position against the outward thrust of the spring exerted through said cam.

4. A fire extinguisher which comprises a shatterable container enclosing a quantity of fire extinguishing material, a support upon which said container is adapted to rest, said support including a hollow cylinder, open at its upper end and provided at said end with a flaring seat portion upon which the container seats, the edge of said seat portion having a downwardly extending flange, an inwardly extending flange formed on the lower end of said cylinder, said cylinder being provided with side opening intermediate its ends, a bolt having a conical head positioned in the cylinder, a spring surrounding the shank of the bolt and adapted to be compressed between said inwardly projecting flange and the head of the bolt to project bolt through the open upper end of the cylinder into shattering contact with the base of the container, a fusible link comprising a flat-sided retaining member, the lower end of which is bent into hook form to pivotally engage about said inwardly extending flange, said retaining member having an offset portion intermediate its ends positioned to engage the head of said bolt through the side opening in the cylinder to retain the bolt in inoperative position against the action of said spring, and a flat-sided thrust member having its lower end overlapping the upper end of the retaining member, the overlapping portions of said retaining and thrust members being held together by a fusible solder, the upper end of the thrust member being bent outwardly to pivotally engage the inner face of said downwardly extending seat flange to thereby hold the retaining member in engagement with said bolt against the outward thrust of said spring.

5. A fire extinguisher which comprises a shatterable container enclosing a quantity of fire extinguishing material, a lower support upon which said container rests, said support including temperature controlled means for shattering the container, an upper suspending member, a plurality of straps hung from said suspending member and connected to said lower support to suspend the same with said container, said straps extending in embracing contact with the sides of the container and so spaced from one another as to normally restrain the container from tipping laterally off said support, the relative disposition of said straps, suspending member and support being such that the straps may be spread apart manually sufficient for the removal of the container laterally from between the support and suspending member.

6. A fire extinguisher which comprises a shatterable container enclosing a quantity of fire ex-

tinguishing material, a lower support upon which said container rests, said support including temperature controlled means for shattering the container, an upper suspending member, a plurality of flat straps hung from said suspending member and connected to said lower support to suspend the same with said container, said straps extending in embracing contact with the sides of the container and being of such width and so spaced from one another as to normally restrain the container from tipping laterally off said support, the relative disposition of said straps, suspending member and support being such that the straps may be spread apart manually sufficient for the removal of the container laterally from betwen the support and suspending member.

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