June 1, 1937. C. O. G. WITTIG 2,082,089

BRACKET TYPE FIRE EXTINGUISHER

Original Filed Dec. 15, 1933

Fig. 1.

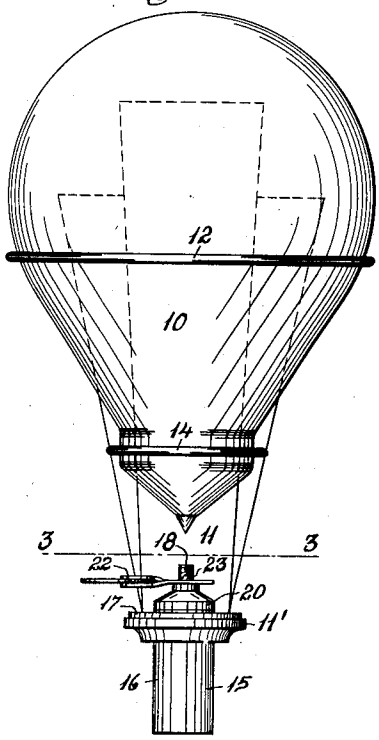


Fig. 2.

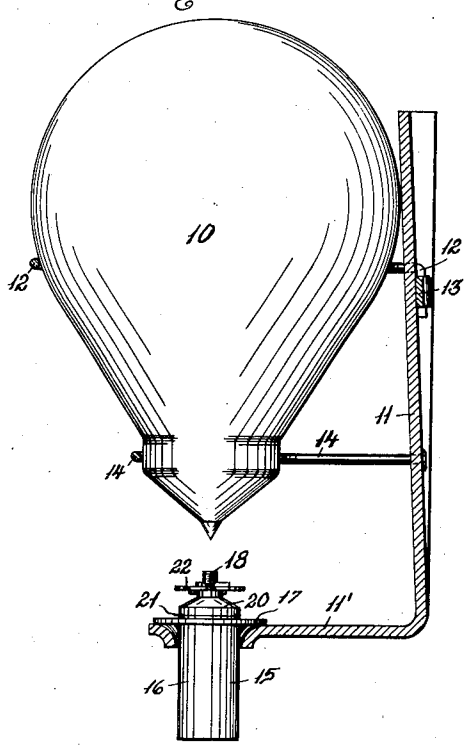


Fig. 3.

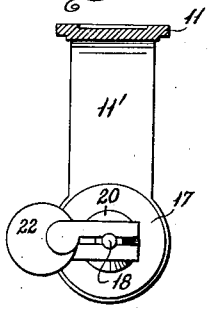
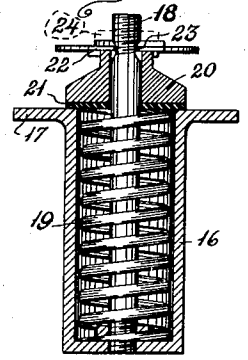


Fig. 4.



Inventor:
Carl O.G. Wittig.
By Howard C. Sweet.
Attorney.

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BRACKET TYPE FIRE EXTINGUISHER

Carl O. G. Wittig, Golden, Colo.

Application December 15, 1933, Serial No. 702,613
Renewed October 10, 1936

7 Claims. (Cl. 169—26)

An object of this invention is to provide an improved fire extinguisher.

A further object of the invention is to provide an improved automatically heat-operable fire extinguisher.

A further object of the invention is to provide an improved combination of frangible container and supporting means in an automatic, heat-operable fire extinguisher.

A further object of the invention is to provide an improved combination of frangible container supporting means and automatically heat-operable actuating means in a fire extinguisher.

A further object of the invention is to provide an improved unitary, heat-operable actuating assembly adapted for cooperation with a frangible container in a fire extinguisher.

A further object of the invention is to provide an improved combination of frangible container and unitary, heat-operable, projectile-type actuating means in a fire extinguisher.

A further object of the invention is to provide an improved combination of solution-charged, frangible container with automatically heat-operable means adapted to fracture said container and release the solution therefrom.

A further object of the invention is to provide improved means for supporting a solution-charged, frangible container for either manual or automatic operation in a fire extinguisher.

A further object of the invention is to provide an improved unitary, heat-operable, projectile-type actuating assembly arranged for removal and replacement relative to a frangible container in a fire extinguisher.

A further object of the invention is to provide a complete fire extinguisher unit which is simple and inexpensive of manufacture, susceptible of ready and convenient installation, positive and efficient in action, arranged for convenient rehabilitation after operation, and instantly available for either manual or automatic use in the event of fire.

My invention consists in the construction, arrangement and combination of elements hereinafter set forth, pointed out in my claims and illustrated by the accompanying drawing, in which—

Figure 1 is a front elevation of my improved fire extinguisher completely assembled ready for practical use. Figure 2 is a vertical section axially of and at right angles to the showing of Figure 1. Figure 3 is a fragmentary, detail section on the indicated line 3—3 of Figure 1. Figure 4 is a detail section, on an enlarged scale, axially of the removable and replaceable actuating assembly employed in the extinguisher assembly.

In the construction of the improved extinguisher as shown, the numeral 10 designates a frangible container formed of any suitable, easily-fracturable material, such as glass, in any desired size and shape, the pear-shaped form of container illustrated being convenient and well-adapted to use with the other elements of the invention, though it will be obvious that the specific form of said container is in no sense fundamental to the invention. The container 10 is substantially filled with a suitable fire-extinguishing solution and subsequently sealed from the atmosphere, as is common and well-known practice, to produce a bomb-like unit of established commercial type, which in itself forms no part of the instant invention.

To support the container 10 and permit mounting thereof at strategic points within and about buildings and structures to be protected against fire, a bracket plate 11, preferably having a length in excess of its width, is formed of suitable material, such as metal, in any suitable shape and manner, the ornamental outline illustrated being preferred. The plate 11 is provided with suitable means, not shown, whereby it may be conveniently secured to a vertical support, such as a wall, post or the like. The plate 11 is extended longitudinally to form a tongue-like member 11', which member is bent upwardly and forwardly relative to the plate 11 to project substantially perpendicularly therefrom. From the upper portion of the plate 11 a circular wire loop 12 projects above and in parallel relation with the member 11', said loop having an inside diameter slightly less than the maximum external diameter of the container 10, thus permitting said container to be seated in said loop and supported thereby without other fastening, the ends of the wire forming the loop 12 being received through spaced holes formed in the plate 11 and bent downwardly against said plate, a clip 13 being employed to cover said wire ends, which clip is suitably secured to said plate 11 and acts to firmly position the loop 12 relative to the plate 11. Intermediate the loop 12 and the member 11', a second wire loop 14 projects from the plate 11 in parallel, concentric relation with said loop 12, said loop 14 being of a size to loosely embrace the reduced end portion of the container 10 and steady said container in axially perpendicular position, the ends of the wire forming the loop 14 being received through holes in the plate 11 and

frictionally held, riveted, or otherwise secured therein.

The device thus far described is complete for manual operation as a fire extinguisher, since, with the plate 11 secured to a support and the container 10 mounted and gravity-held in the loops 12 and 14, said container may be grasped manually and lifted from its seat to be carried to a fire and dropped or hurled as an impact bomb to release its solution for suppression of said fire.

To provide automatic, heat-operable means for releasing the solution from the container 10 in the event of fire, a unitary, removable and replaceable assembly, indicated generally by the numeral 15, is provided, which assembly is adapted to seat in and extend through a hole formed concentrically with the loops 12 and 14 in the projecting end of the member 11'. The assembly 15 comprises a tubular housing 16, of suitable length, closed at one end and formed with an annular flange 17 surrounding its open end, said housing 16 having an outside diameter such as to permit the same to be slipped through the hole formed in the member 11' for that purpose, the flange 17 bearing against the upper surface of the member 11' to position said housing 16 beneath and in alignment axially with the container 10, the open end of said housing being thus directed toward said container. A stem 18 has one end fixed centrally of the closed end of the housing 16 and extends axially through said housing to project at its other end some distance beyond the flange 17, and an expansive coil spring 19, having an uncompressed length considerably in excess of the housing length, is received loosely in the housing 16 about the stem 18. A projectile element 20, preferably tapered in elevation, is formed with an axial bore of a size to slide freely on the stem 18 and a base sufficiently large to overlap on and close the open end of the housing 16, and said element 20 is mounted on said stem 18 against the pressure of the spring 19 in closing relation with the housing 16, a gasket element 21 of suitable yielding material being interposed between the base of the element 20 and the flange 17 to seal the joint therebetween and prevent the entry of corrosive moisture, vapors or gases into the interior of the housing 16. The element 20 is normally held in closing relation with the housing 16 against the pressure of the spring 19 by the spaced fingers of a fusible clip 22 engaging in arcuate notches 23 formed in opposite sides of the stem 18 adjacent the position defined by the striking surface of said element when the latter is in its closing relation with the housing 16, said element bearing against and being restrained by the fingers of said clip and thus holding the latter in its engaging relation with the stem 18. The clip 22 preferably comprises similar fingers formed with enlarged end portions overlapped on and connected by fusible solder to a disc of material having high heat conductivity, the finger portions of said clip being arranged in parallel relation and spaced apart a distance equal to the thickness of the stem 18 between the arcuate notches 23, it being, however, obvious that any suitable, heat-releasable retainer may be employed to hold the element 20 against the pressure of the spring 19. The free end of the stem 18 above the element 20 is preferably threaded and thereby adapted for engagement by a nut 24, indicated in Figure 4 by dotted lines, which nut may be employed to lock the elements of the assembly 15 securely together and guard against accidental release of the element 20 during handling, transportation or storage of such assembly.

In the automatic operation of the device hereabove described, the elements being assembled and arranged as illustrated in Figures 1 and 2, excessive heat in the vicinity of the clip 22 will act to soften the fusible solder connecting the members thereof and permit the clip fingers to spread apart under the pressure of the spring 19 acting to urge the element 20 upward along the stem 18, thereby releasing said element 20 and permitting the latter to be driven by the said spring into fracturing contact with the container 10, whereby the contents of said container may be released to extinguish the fire producing the excessive heat. Rehabilitation of the operated unit may be simply and rapidly effected by substitution of a new charged container 10 and assembly 15 for the previous corresponding units.

It is obvious that as many units of the improved device as may be necessary may be employed to protect a given structure against fire and that they may be mounted as may be desired relative to said structure. Further, the weight of projectile, length of its travel and pressure of the spring may be altered and adjusted in manufacture to deliver a blow of the intensity required to positively fracture the container, irrespective of its form or contour. To obtain certain obvious advantages, the spring 19 may be anchored at one end to the projectile element 20 and have its other end secured to the housing 16, thus preventing loss of said projectile element and guarding against hazards presented by an unanchored projectile element.

Since many changes and modifications in the specific form, construction and arrangement of the elements of my improvement may be had without departing from the spirit of the invention, I wish to be understood as being limited solely by the scope of the appended claims rather than by any details of the illustrative showing and foregoing description.

I claim as my invention—

1. A fire extinguisher comprising a frangible, solution-charged container, bracket means formed with angularly-related arms supporting said container and a heat-releasable, projectile-type unit assembly slidingly seated for removal and replacement in an arm of said bracket means in potential fracturing relation with said container.

2. A fire extinguisher comprising a frangible, solution-charged container, bracket means formed with angularly-related arms supporting said container and a unitary heat-releasable, spring-pressed projectile assembly slidingly seated for removal and replacement in an arm of said bracket means in potential fracturing relation with said container.

3. A fire extinguisher comprising the combination with a frangible, solution-charged container of bracket means formed with angularly-related arms provided with greater and lesser loops extending horizontally in spaced, parallel relation to receive and support said container a unitary heat-releasable, spring-pressed projectile assembly slidingly seated for removal and replacement in an arm of said bracket means in potential fracturing relation with said container.

4. In a fire extinguisher having a frangible, solution-charged container, an L-shaped bracket, greater and lesser loops extending horizontally from the vertical leg of said bracket in spaced, parallel relation to receive and support

said container and a unitary heat-releasable, projectile assembly slidingly seated in and gravity held for removal and replacement relative to the horizontal leg of said bracket in potential fracturing relation with said container.

5. In a fire extinguisher having a frangible, solution-charged container, an L-shaped bracket, greater and lesser loops extending horizontally from the vertical leg of said bracket in spaced, parallel relation to receive and support said container, an apertured terminal boss on the horizontal leg of said bracket and a heat-releasable, projectile-type unit slidingly seated in and gravity-held for removal and replacement relative to said terminal boss in potential fracturing relation with said container.

6. In a fire extinguisher having a bracket and a solution-charged, frangible container supported thereby, a heat-releasable, projectile-type unit removably and replaceably carried by said bracket in potential fracturing relation with said container, said unit comprising a base element adapted to seat in and be positioned by said bracket, a guide element in fixed relation with said base element, a projectile slidable along said guide element, expansive spring means acting between said base element and projectile and a heat-separable clip engaging said guide element to normally hold said projectile against the pressure of said spring means.

7. In a fire extinguisher having a bracket and a solution-charged, frangible container supported thereby, a heat-releasable, projectile-type unit removably and replaceably carried by said bracket in potential fracturing relation with said container, said unit comprising a tubular housing formed with a flanged, open, upper end, a straight stem axially within and extending upwardly beyond said housing, a projectile on and slidable relative to the projecting portion of said stem and arranged to close, at times, the open end of said housing, gasket means arranged to seal between said housing and projectile, an expansive coil spring within said housing about said stem and arranged to act between the base of said housing and said projectile to urge the latter axially of said stem, opposed, arcuate notches in said stem adjacent the upper margin of said projectile and a heat-separable clip engaged in said notches and bearing against the upper end of said projectile to retain the latter against the pressure of said spring and in closing relation with said housing.

CARL O. G. WITTIG.