

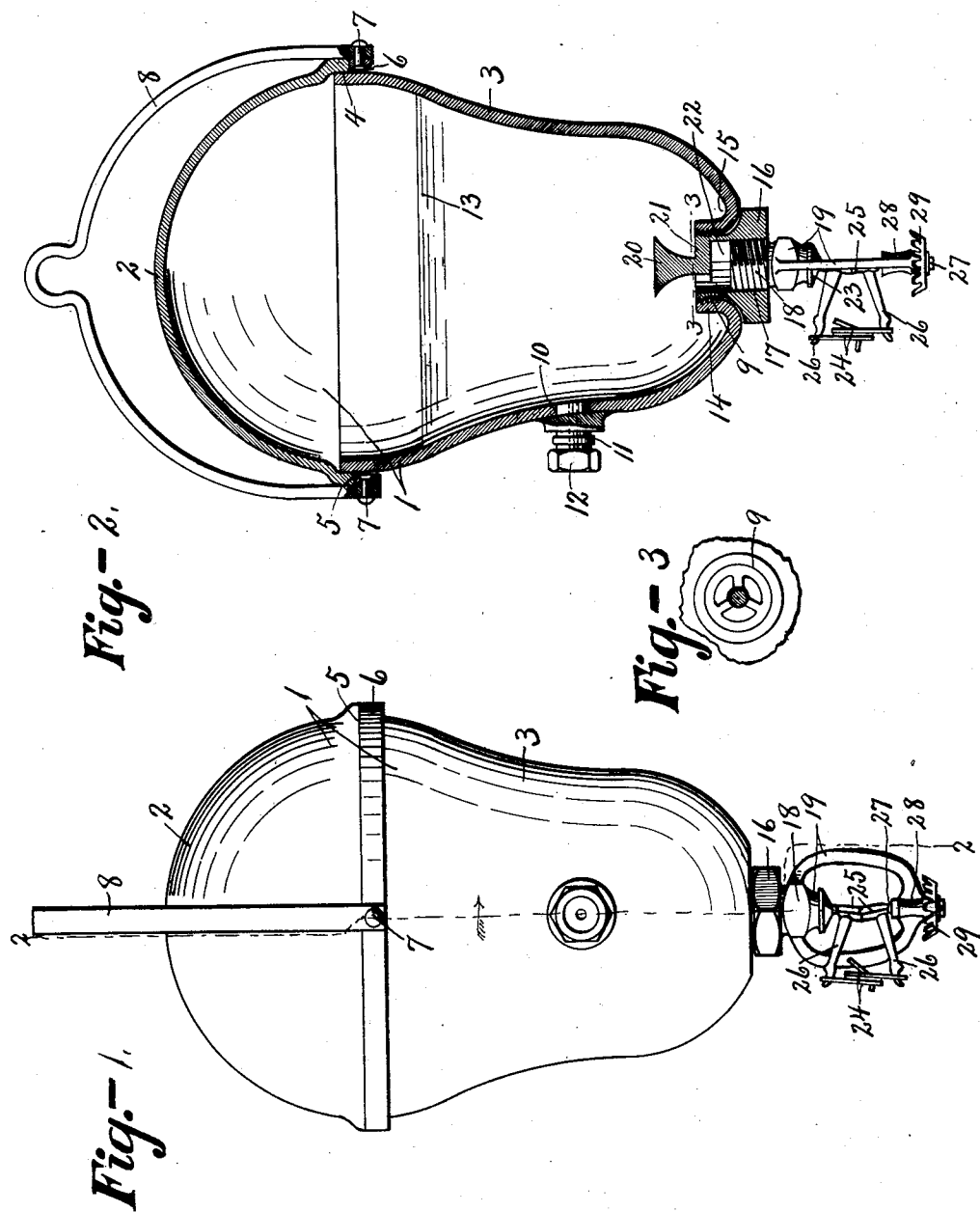
April 8, 1924.

1,489,613

W. C. SERRELL ET AL

THERMALLY CONTROLLED FIRE EXTINGUISHER

Filed Nov. 22, 1921



Inventor
W. C. Serrell and
By C. E. Widmeyer
Howard R. Denison
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM C. SERRELL, OF SYRACUSE, AND CHARLES E. WIDMEYER, OF BEAVER FALLS,
NEW YORK.

THERMALLY-CONTROLLED FIRE EXTINGUISHER.

Application filed November 22, 1921. Serial No. 517,011.

To all whom it may concern:

Be it known that we, WILLIAM C. SERRELL and CHARLES E. WIDMEYER, of Syracuse and Beaver Falls, respectively, in the counties of Onondaga and Lewis, respectively, in the State of New York, have invented new and useful Improvements in Thermally-Controlled Fire Extinguishers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to a thermally controlled fire extinguisher adapted to be suspended from an over-head support and containing a fire extinguishing fluid normally retained under pressure by an automatic sprinkler secured in the bottom of the receptacle and provided with a thermally controlled valve which under abnormally high temperature will be automatically released to discharge the contents of the receptacle in case of fire in the immediate vicinity thereof.

The main object is to provide a device of this character which may be suspended preferably over head in any part of the building where protection against fire is needed and which will be capable of discharging the fire extinguishing fluid in case of fire in the immediate vicinity thereof.

Another object is to provide means within the receptacle for deflecting the discharging fluid from a direct course along the axis of the container through the discharge opening when the valve of the sprinkler head is released.

Other objects and uses relating to specific parts of the device will be brought out in the following description:

In the drawings:

Fig. 1 is a side elevation of a thermally controlled fire extinguisher embodying the various features of my invention.

Fig. 2 is a vertical sectional view of the same device taken on line 2—2, Fig. 1.

Fig. 3 is a detail horizontal sectional view taken in the plane of line 3—3, Fig. 2.

As illustrated, this device comprises a bulbous receptacle —1— divided diametrically through its larger diameter and consisting of a substantially semi-spherical upper section —2— and an inverted truncated conical lower section —3— fitted one upon the other and permanently brazed or otherwise secured together at —4— to form a

liquid and gas tight joint, the lower edge of the upper section —2— forming an annular shoulder or abutment —5—.

A band —6— encircles the upper end of the lower section —3— against the annular abutment —5— and to this band is pivoted at —7—, the lower ends of a bail —8— by which the receptacle with the parts mounted thereon may be suspended from the ceiling or any other over-head support in the building in which the fire extinguisher is to be installed.

The lower section —3— is provided with a central opening —9— in the apex or bottom thereof and is also provided with an additional opening —10— in one side normally closed by a bushing —11— having a coupling member as —12— by which it may be attached to a hose or other conduit leading from any suitable source of supply for partially filling the receptacle with a fire extinguishing fluid as —13— and suitable gas or air which is introduced into the receptacle to occupy the upper portion of the interior thereof for placing the fire extinguishing fluid under pressure.

The bushing —11— may be any suitable check valve to permit the entrance and prevent the exit of the fluid and air, or the coupling member —12— may be capped to additionally close the opening in the bushing.

The inlet opening —10— is preferably located substantially midway between the outlet —9— and top of the section —3—, while the normal level of the liquid —13— is above that of the inlet and below the top of said lower section, thereby normally maintaining a liquid seal at both the outlet and inlet opening.

The opening —9— is formed in an annular flange —14— projecting a short distance into the interior of the lower section —3— below the inlet —10— to form an annular channel —15— around the flange, which serves to deflect the fluid upwardly immediately preceding its discharge through the outlet for agitating and mixing purposes said flange being threaded internally to receive a bushing —16— which is tightly screwed therein. This bushing is provided with a central lengthwise opening there-through and is threaded internally at its lower end for receiving the threaded tubu-

lar nipple —18— of an automatic sprinkler head —19—, the upper end of the bushing being provided with a deflector central upwardly flaring —20— projecting upwardly from a grid wall —21— across the top of the bushing —16—.

The object of this deflector —20— is to prevent the discharge of the fire extinguishing fluid in a narrow stream along the axis of the container by causing it to be deflected laterally in all directions around said axis into the channel —15— and thence upwardly and outwardly through the opening as —22— in the bushing whence it passes through the tubular nipple —18— of the sprinkler head when the valve as —23— of said sprinkler head is released by the thermal disintegration of the fusible link as —24—.

The valve —23— is held in place by toggle struts —25— having laterally projecting arms —26— to which the fusible link —24— is connected, the upper strut being engaged with the under side of the valve while the lower strut is engaged with an adjustable screw abutment —27— which is screwed in a threaded opening in the lower side of the frame —28— of the sprinkler head, and holds in place a distributor-plate —29— for spreading the discharge liquid over a considerable area in case the valve —23— should be open by the release of the fusible detent —24— from over heat or fire in the vicinity of the extinguisher.

In operation, the device is suspended from an overhead support by means of the bail —8— with the fire extinguishing fluid in a container normally under air or gaseous pressure capable of expelling the liquid through the outlet —22— with considerable force in case the valve —23— should be released by the fusing of the detent —24— under which conditions, the deflector —20— will cause the liquid to spread out within the container in transit through the opening —22— and the tubular nipple —18— being again deflected by the plate —29— to more effectively extinguish the fire.

The curved inner contours of the bulbous receptacle —1— together with the contracted or conical lower portion thereof tend to concentrate the discharging fluid

toward the outlet and to facilitate the easy flow of said liquid from the receptacle.

After the fire extinguishing fluid has been discharged, the receptacle may be refilled and placed under air or gaseous pressure through the opening —10—, while the valve —23— and its retaining struts —25— may be replaced and held in operative position by a new fusible detent —24—.

What I claim is:

1. In a fire extinguisher, of the character described, a receptacle for the fire extinguishing fluid having a downwardly tapered lower portion provided with an opening in the apex thereof and an inturned annular flange surrounding the opening forming with the outer walls of the main body, an annular channel around the flange to deflect the liquid upwardly just preceding its discharge, a bushing secured in the opening and provided with a central upwardly flaring deflector projecting above said flange, a tubular nipple secured in the bushing and provided with a discharge opening, a stopper for the discharge opening, and a thermally controlled detent for holding the stopper in place and thereby to agitate the fluid for mixing purposes during its discharge.

2. A thermally controlled fire extinguisher comprising a receptacle containing a fire extinguishing fluid normally under pressure, an automatic sprinkler head secured in an opening in said receptacle, and an upwardly flaring deflector within the receptacle across the inner end of the opening.

3. A thermally controlled fire extinguisher comprising a receptacle containing a fire extinguishing fluid under pressure and provided with a central opening in the bottom thereof, a bushing secured in the opening and provided with an upwardly flaring deflector across the inner end thereof, and an automatic sprinkler head secured in said bushing.

In witness whereof we have hereunto set our hands this 10th day of November, 1921.

WILLIAM C. SERRELL.
CHAS. E. WIDMEYER.

Witnesses:

H. E. CHASE,
HOWARD I. LE FEVRE.