

July 29, 1924.

R. C. IDDINGS

1,503,125

FIRE EXTINGUISHER WITH A SINGLE DELIVERY TUBE

Original Filed April 10, 1919

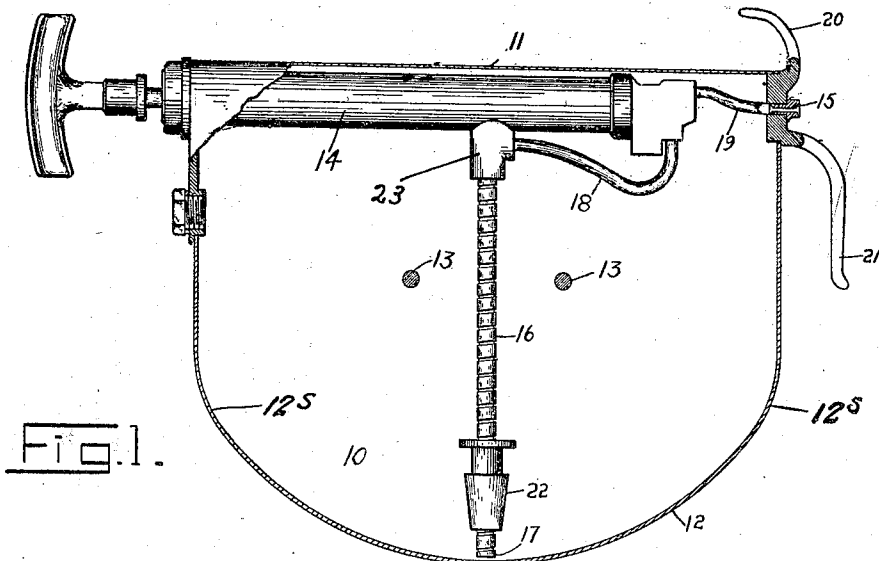


Fig. 1.

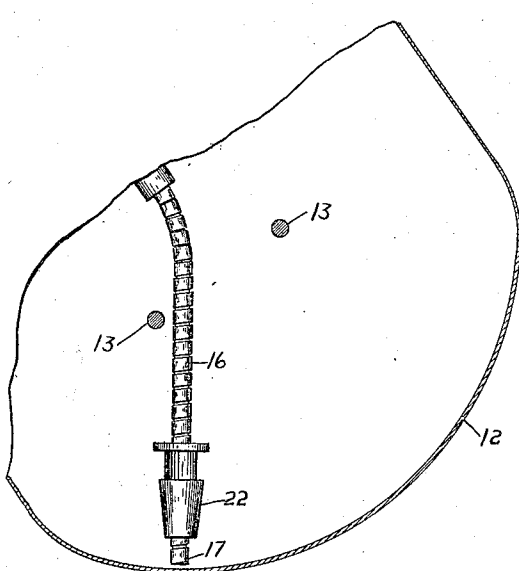


Fig. 2.

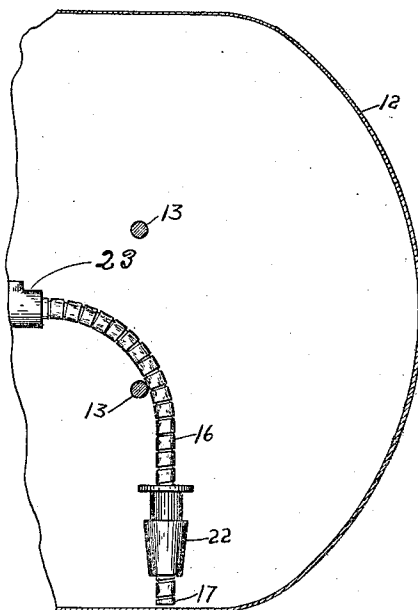


Fig. 3.

INVENTOR.

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FIRE EXTINGUISHER WITH A SINGLE DELIVERY TUBE.

Application filed April 10, 1919, Serial No. 288,931. Renewed December 31, 1923.

To all whom it may concern:

Be it known that I, ROSCOE C. IDDINGS, residing at Dayton, Ohio, have invented certain new and useful Improvements in Fire Extinguishers with Single Delivery Tubes, of which the following is a full, clear, and exact description.

My present invention relates to an improvement in fire extinguishers of the small portable type and has for its principal object to produce an extinguisher having much fewer parts than extinguishers adapted to similar service usually have. With this object in view I have made the container for the fire-extinguishing agent in a unique form, and within this container there is a pump whereby its contents is discharged at a nozzle. A single flexible delivery tube is employed to take the contents from the container, where in many other extinguishers two such delivery tubes are required and a rather elaborate gravity valve mechanism for cutting off the one of the tubes which happens to be uppermost and therefore liable to be unsubmerged. My new container is flat and approximately segmental in form, and by its peculiar shape, and suspending the delivery tube within it so that by gravity its mouth is made to constantly seek the lowermost portion of the perimeter of the segment, I am enabled to dispense with this valve mechanism and one of the delivery tubes and yet discharge all of its contents, no matter at what angle it may be necessary to hold the container to throw the contents on a fire. In order to give the container the required capacity without extending certain of its dimensions unduly I have arranged the flexible delivery tube to oscillate about its point of suspension while the position of the container is within certain angular limits and to swing around points of smaller radius when the angularity of the container exceeds said limits. And I have made the perimeter of such form that the distance between it and the mouth of the delivery tube will be substantially the same whether the tube is swinging freely from its supporting center or is engaged with and bent around one of the auxiliary centers. The container being flat and the space between the sides only about sufficient to admit the pump, even a small remnant of its contents will be concentrated around the

mouth of the tube so as to enable almost the last drop to be ejected.

In the accompanying drawing,

Fig. 1 shows the container in median position, the suction tube hanging midway between the stays;

Fig. 2 shows the container rocked to a position where one of the stays is about to engage the tube.

Fig. 3 shows the container rocked 90 degrees from the position seen in Fig. 1.

Referring now to the drawing, the container comprises two flat walls 10 joined by perimetrical walls 11 and 12. Rods or stays 13 serve the double purpose of tying the walls 10 together to prevent their bulging and as auxiliary centers for the flexible tube 16 to bend around. Other devices may be used for the latter purpose, and if desired the stays may be located elsewhere, or dispensed with if the walls are made sufficiently rigid. A reciprocating pump 14 located in the upper or straight part of the container, is used to eject the contents of the container at the nozzle 15, the fluid entering the flexible tube 16 at its mouth 17, whence it is conveyed by tubes 18 and 19 to the nozzle. The pump is fully described in my application Serial No. 288,933 of even date herewith. As an assistance in holding the container when the pump is being operated handles 20 and 21 are provided. The tube 16, which carries a weight 22 at its free end, is attached to and supported by the elbow 23, which in turn is supported by the pump. If the stays 13 were omitted the tube would readily sweep the perimeter of the container through an arc of 180°, or even more. But the path of the mouth of the tube would not be quite arcual. This is because of the gradual shortening of the tube as it bends either way from its median position. So each way from its median position the contour of the container is preferably slightly spiral. I have found, however, that to allow for the unobstructed movement of the tube requires a container of undesirable length, so to shorten the container I place the stays 13 in the path of the tube. Where the tube encounters either of the stays it bends around it. This substitution of a shorter radius of swing for the tube at each end of the container effects a very considerable reduction in its length. The portions 12^s of the perim-

eter, which are the parts swept by the tube while it is in contact with the stays, are also made slightly spiral, with the result that whether the tube is swinging free between the stays or its bending around one of them its mouth is a uniform distance from the perimeter, whatever the position of the container.

Two types of pump are used in fire extinguishers, one of which, as in the present case, stores air under pressure in the container which air ejects the contents, while the other type of pump draws fluid from the container to its cylinder and on the return stroke ejects it at the nozzle. This type of pump may also be used in my improved container. In the former type the stays prevent the walls from bulging and enable the walls to be lighter than they otherwise would need to be; but in case it is desired to omit the stays, or locate them where they are not available for co-operation with the tube, other means may be employed for controlling the movements of the tube.

While I have shown the container in combination with a pump for expelling the contents, it is obvious that it may be used in combination with other of the well known devices for ejecting fire extinguishing fluid from a container. That is, it may be used in combination with any means whereby the contents is ejected by pressure within the container. Other modifications might also be made within the scope of my claims.

What I claim is as follows:

1. A fire extinguisher, comprising a fluid container of flat and approximately segmental form, with stays uniting the flat sides to prevent their bulging; in combination with a pump, a flexible tube connected to said pump and suspended from a point in the container which approximates the axis of the segment so that its lower end may by gravity seek the perimeter of the container, said tube hanging between at least two of said stays, around which it bends when the inclination of the container exceeds a certain degree, the perimeter of the container being

of such form that the mouth of the tube will be substantially the same distance from it whether the tube is hanging free of the stays or is bent around either of them.

2. A fire extinguisher comprising a fluid container of flat and approximately segmental form, in combination with a pump, a flexible tube connected to said pump and suspended from a point in the container which approximates the axis of the segment and around which said tube is adapted to oscillate as a center, and means for compelling the tube to oscillate around a point of smaller radius when the inclination of said container exceeds a certain angle, the perimeter of the container being of such form that the mouth of the tube will be substantially the same distance from it whether the tube is hanging free from its support or is under the control of one of said centers of smaller radius.

3. A fire extinguisher comprising a fluid container of flat and approximately segmental form, with stays uniting the flat sides to prevent their bulging; in combination with a flexible tube suspended from a point in the container which approximates the axis of the segment, so that its lower end may by gravity seek the perimeter of the container, said tube hanging between at least two of said stays, around which it bends when the inclination of the container exceeds a certain degree, the perimeter of the container being of such form that the mouth of the tube will be substantially the same distance from it whether the tube is hanging free of the stays or is bent around either of them; a nozzle in communication with the fixed end of the tube and means for ejecting the contents of the container through said tube and nozzle.

In testimony whereof I affix my signature in the presence of two subscribing witnesses.

ROSCOE C. IDDINGS.

Witnesses:

WALTER J. BLENKO,
H. W. LINARD.