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FIRE EXTINGUISHING TANKS


Continuation of application Ser. No. 643,194, Feb. 28, 1957. This application Nov. 7, 1958, Ser. No. 772,481

3 Claims. (Cl. 220—3)

This application is a continuation of my copending application Serial No. 643,194, filed February 28, 1957, which was abandoned in favor of the present case.

This invention relates to containers for fire extinguishers of the type in which the fire-extinguishing fluid is maintained under pressure in a tank, ready for release when a fire breaks out. Such containers are subject to severe conditions in use, and customary methods of fabrication have not been satisfactory.

Such devices have normally been made of drawn brass, or equivalent material, having the bottom closed by a disc, the edges of this disc and the lower edge of the shell being rolled or spun to hold them in place, and then the parts soldered together. It has been proposed to dish the bottom disc downwardly to give it greater strength, but the heavy pressures within the container tend to cause a leak, permitting the pressure to be lost. Whatever the cause, such containers have not proved reliable.

Extensive tests upon the device of the parent application in connection with the fire-extinguishes have demonstrated that that device would withstand all of the pressures to which it would be subjected without leakage. During that testing however, it was discovered that a modification of the lower seam very clearly improved its strength and resistance to leakage, and this application is filed in place of the former in order that these important changes may be included in it.

It is one object of this invention to provide a device which will resist the strains put upon it, and which will not fail after long periods, even if subject to rough treatment or considerable change in condition.

This invention comprises the structure hereinafter described, and shown in the accompanying drawing, in which FIGURE 1 is a longitudinal central section of a fire extinguisher tank embodying the invention, and FIGURE 2 is a fragmentary view showing a construction modified at the point where the bottom support meets the shell.

In FIGURE 1 of the drawing, the numeral 10 is a cylindrical tank shell having a head 11 at its upper end adapted by a suitable valve mechanism (not shown) to maintain a pressure within the tank, and to permit its discharge at will.

The numeral 12 represents the bottom element of the tank, hereinafter called the bottom, which is in the form of a hemisphere, fitting tightly within the bottom portion of the shell 10, and having its upper edge portion 13 fitting tightly against the side wall of the shell 10, sufficiently far above the bottom of the side wall of the shell 10, so that the shell may rest on its own lower periphery without having the bottom 12 touch a supporting table. Because the bottom 12 is a hemisphere, or substantially so, there is no tendency for the pressure within the tank to pull the edges 13 of the bottom 12 away from the side wall of the shell.

The shell wall is rolled inwardly below the upper edge of the bottom 12, as shown, to bring the shell wall into intimate contact with the surface of the bottom 12 throughout a considerable area, creating an inwardly extending rib 14. This rib also helps to hold the bottom 12 in place.

A bottom support 15 has its body curved to contact the bottom element 12 throughout its entire central portion. At its periphery, just before it reaches the rib 14, this support is bent downwardly to form a downwardly extending cylindrical flange 16 of a size and shape to fit closely within the lower portion of the wall of the shell 10, and this flange 16 is of a length to extend substantially but not quite to the bottom of the shell wall.

The lower portion 17 of container 10, and the lower portion of flange 16 fit tightly together and are jointly shaped to provide an outwardly extending rib at the bottom of the device. The lower end 18 is bent slightly inwardly at its lower end 19 while the lower end of 17 is bent around 18, and inwardly, to form an inner flange as shown on the inside. This formation causes the lower end 19 to become slightly imbedded in the flange 20.

With this construction it will be seen that the lower bent up edge of the shell forms an annular pocket in which the doubled back portion of the flange of the bottom support 15 rests; and because the sides of this pocket are substantially cylindrical and parallel there is no substantial tendency for downward pressure upon the bottom of the pocket to open the pocket. This is particularly true because the parts are held firmly against each other. Normally, the parts will be soldered together, and sufficient solder will be provided to fill all the cavities between them. The support 15 has an opening 21 in the center to facilitate the exit of air between the parts and permit a more perfect soldering connection.

Extensive tests have shown that a device in accordance with this invention will stand extreme pressures for prolonged periods of time, even when subjected to vibration, without any leakage, and without opening at the seams. In fact, tests made with the device even with the solder omitted, show the mechanical structure would retain compressed gas.

With the construction described above, it will be clear that the pressure of the liquid within the tank presses the peripheral walls of the bottom 12 out against the walls of the shell 10 above the rib 14.

In the construction shown in FIGURE 2, the bottom supports and the bottom edge of the shell are further strengthened by a plurality of circumferential inwardly pressed interengaging grooves 19, which not only help to resist the downward thrust upon the bottom due to the internal pressure, but also strengthen the bottom against any lateral blows that might result from careless handling.

What I claim:

1. A fire extinguisher container comprising a shell having a top adapted to be closed by a dispensing mechanism, and cylindrical walls extending downwardly therefrom, a substantially hemispherical bottom member fitted within said shell with its upper edge portion touching a supporting table, said bottom member having its central portion concentric with said bottom element, and in engagement therewith, and having peripheral downwardly extending...
flanges of a diameter to fit tightly within the walls of said shell below the body of said support, the lower edge of said shell extending below the lower edge of the flange of said support and being bent inwardly back upon itself around the lower edge of said flange.

2. A device according to claim 1 having rib pressed inwardly from said shell just below the point of engagement between said shell and said hemispherical bottom to assist in supporting said bottom.

3. A device in accordance with claim 1 in which the lower edge of the flange of the bottom support is bent back upon itself and is enclosed by the bent back portion of the shell.

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