

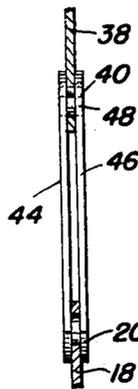
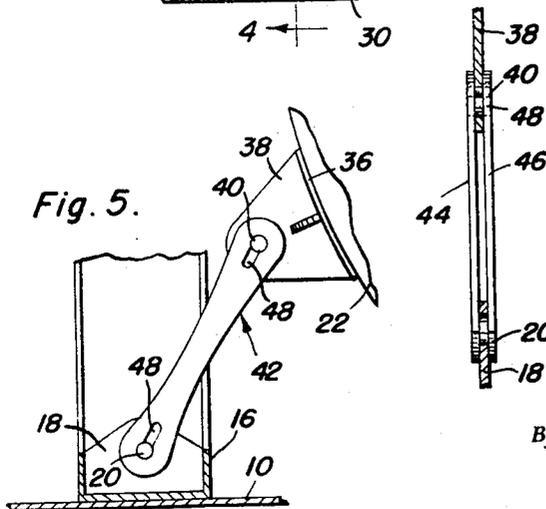
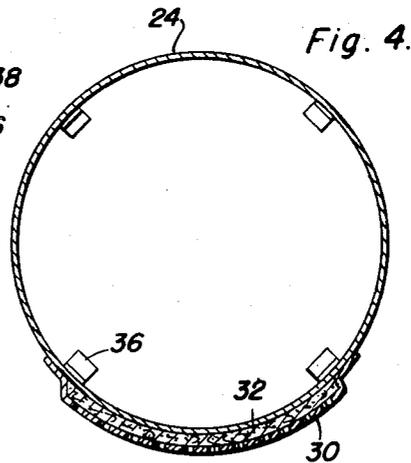
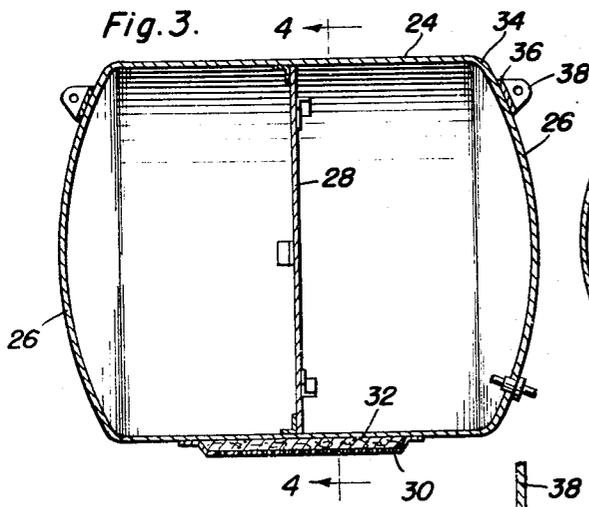
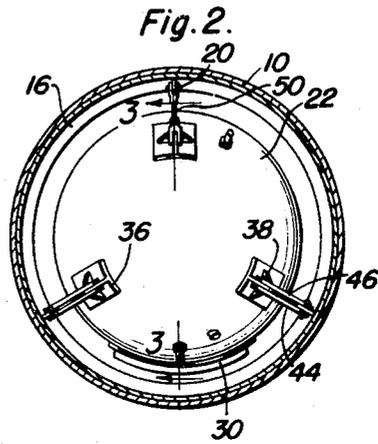
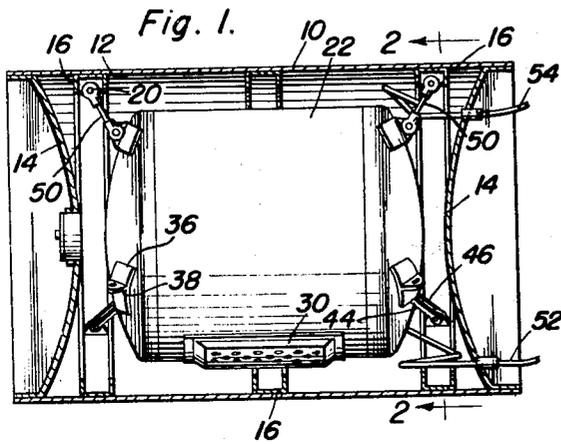
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SUSPENSION LIQUID GAS CONTAINER

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SUSPENSION LIQUID GAS CONTAINER

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2 Claims. (Cl. 220—15)

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This invention relates to a receptacle of novel construction, the primary object of which is to provide a means for safely storing and transporting liquefied gases, such as liquid air, liquid oxygen and liquid nitrogen.

As is well known in this art, to store and transport liquefied gases, it is necessary to retain the latter in an inner metallic container suspended in the interior of an outer metallic container which has been or is subjected to high vacuum. The outer surface of the inner container and the inner surface of the outer container are highly polished to prevent high evaporation through radiation and minimize the possibility of having gas cling to certain surfaces. It is well understood that high evaporation in vacuum containers is primarily due to heat and conductivity and it is therefore an important object of this invention to provide a special means for suspending the inner container within the outer container so that a proper spacing of the two containers can be retained at all times during storage and transportation of the liquid gases.

Because of the highly polished surfaces of the inner and outer containers as described hereinabove, the brackets secured to the inner and outer containers for retaining the suspension links must be spot welded to the respective containers. It is another important object of this invention to provide a special suspension means which will relieve unnecessary stress and strain on the spot welded joints of the attaching brackets.

Another important object of this invention is to provide a suspension means of the character described which also acts as a means for reinforcing the outer container, preventing collapse or breakage of the latter.

These, together with various ancillary objects and features of the invention which will later become apparent as the following description proceeds, are attained by the device, a preferred embodiment of which has been illustrated, by way of example only, in the accompanying drawings, wherein:

Figure 1 is a longitudinal sectional view through the receptacle of the instant invention;

Figure 2 is a sectional view taken substantially in the plane of section line 2—2 of Figure 1;

Figure 3 is a sectional view taken substantially in the plane of section line 3—3 of Figure 2;

Figure 4 is a sectional view taken substantially in the plane of section line 4—4 of Figure 3;

Figure 5 is a fragmentary side elevational view

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illustrating the manner of attaching a suspension link to the attaching bracket; and

Figure 6 is a longitudinal sectional view through that portion of the device shown in Figure 5.

Specific reference will now be made to the drawings. In the several views, in the accompanying drawings and in the following specification, similar reference characters indicate corresponding elements throughout.

Indicated generally at 10 is an outer, substantially cylindrical metallic container having an inner, highly polished surface 12 and inwardly struck or indented end walls 14. Welded to the inner surface 12 of the outer container 10 and longitudinally spaced therein are circumferentially extending U-shaped, T-shaped or L-shaped reinforcing ribs 16, the ribs adjacent the side walls 14 being provided with depending lugs 18 having laterally extending pins 20.

The outer container 10 is subjected to high vacuum and positioned within the outer container is substantially cylindrical inner container 22 having an outer highly polished wall 24 and bulging or outstruck side walls 26. The interior of the container 22 is provided with the conventional splash plate or baffle 28 and a porous container 30 for retaining an absorbent 32 such as carbon.

The container 22 is suspended within the interior of the outer container 10 in the following manner. Spot welded to the outer surface of the container 22 adjacent the corners 34 thereof and struck at a particular radius, as shown clearly in Figure 2, are relatively short plates 36 having upstanding lugs 38 carrying laterally extending pins 40. The suspension links 42 interconnecting the lugs 18 and 38 comprise a pair of spaced bars 44 and 46, see Figure 6, which straddle the lugs 18 and 38, each of the bars being provided adjacent their ends with elongated slots 48 for receiving the pins 20 and 40. The slots 48 are provided to allow for some adjustment in length of the links 42 and it will be seen that the inner container 22 is, in effect, suspended at a predetermined distance from the inner wall of the outer container upon the reinforcing ribs 16.

To allow further adjustment of the inner container relative to the outer container, certain of the links 42 may be made adjustable in length. It is preferred that the upper links be made adjustable while the lower links remain rigid for the proper type of suspension, the upper adjustable links being, in effect, conventional turnbuckles 50, as shown clearly in Figures 1 and 2. It will be understood at this point that the entire

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receptacle will be provided with an inlet line 52 and an outlet line 54 for filling the inner container and removing liquid therefrom respectively.

Thus, it will be seen that a sturdy receptacle is provided in which the inner container 22 is appropriately spaced from the inner wall of the outer container 10 to minimize stress and strain on the spot welded lugs 18 and 38 and to reduce to a minimum the evaporation losses due to radiation and conductivity.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention, the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. In a liquid gas receptacle having inner and outer substantially cylindrical containers; a means for suspending the inner container spaced from the outer container comprising spaced circumferentially extending reinforcing ribs secured to the inner wall of the outer container, plate-like lugs secured to the outer wall of the inner container adjacent the corners thereof and struck at a radius from the center of the inner container, and links interconnecting said ribs and said lugs, said ribs including radially extending, depending, plate-like brackets rigidly secured thereto and having laterally extending pins, said lugs also including laterally extending pins, each of said links including spaced bars straddling said plate-like lugs and brackets and holding them non-

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rotatably in a common plane, and elongated slots adjacent the ends of each of said links receiving said pins, certain of said links being adjustable in length.

2. A liquid gas receptacle comprising inner and outer cylindrical containers, said outer container having a smooth outer surface, and a plurality of spaced, circumferential ribs welded to its inner surface, said inner container being suspended within said outer container from certain of said ribs, plate-like lugs secured to the outer wall of the inner container adjacent the corners thereof and struck at a radius from the center of the inner container, links interconnecting said certain ribs and said lugs, said certain ribs including radially extending, depending, plate-like brackets rigidly secured thereto and having laterally extending pins, said lugs also including laterally extending pins, each of said links including spaced bars straddling said plate-like lugs and brackets and holding them non-rotatably in a common plane, and elongated slots adjacent the ends of each of said links receiving said pins.

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