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H. M. SMITH

HEAT INSULATED CONTAINER

Filed May 12, 1924

Fig. 1.

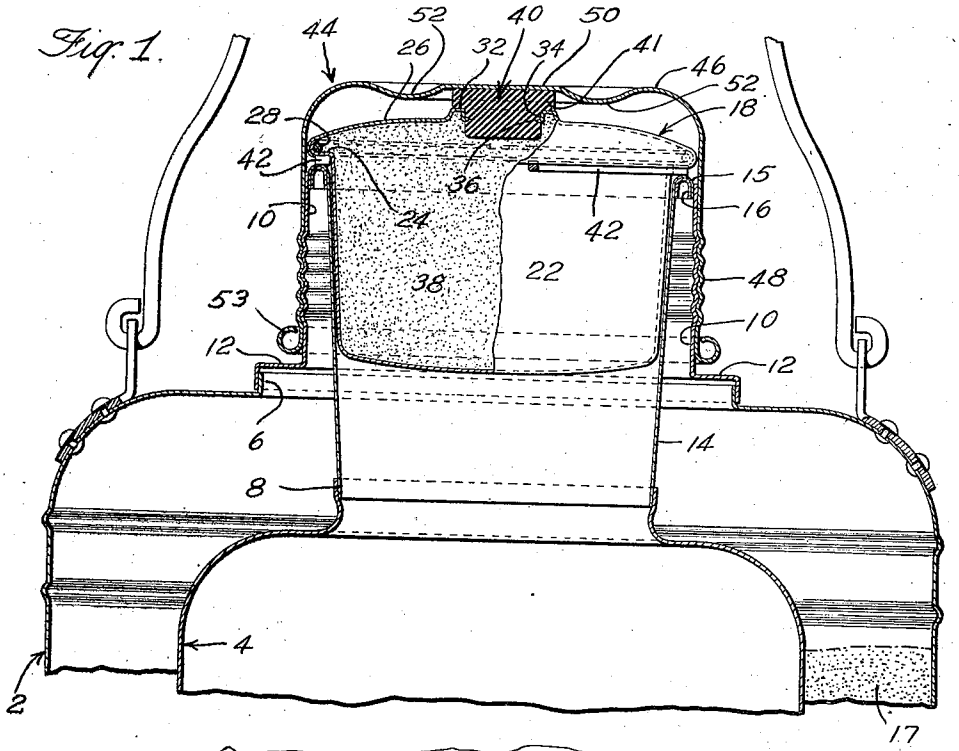
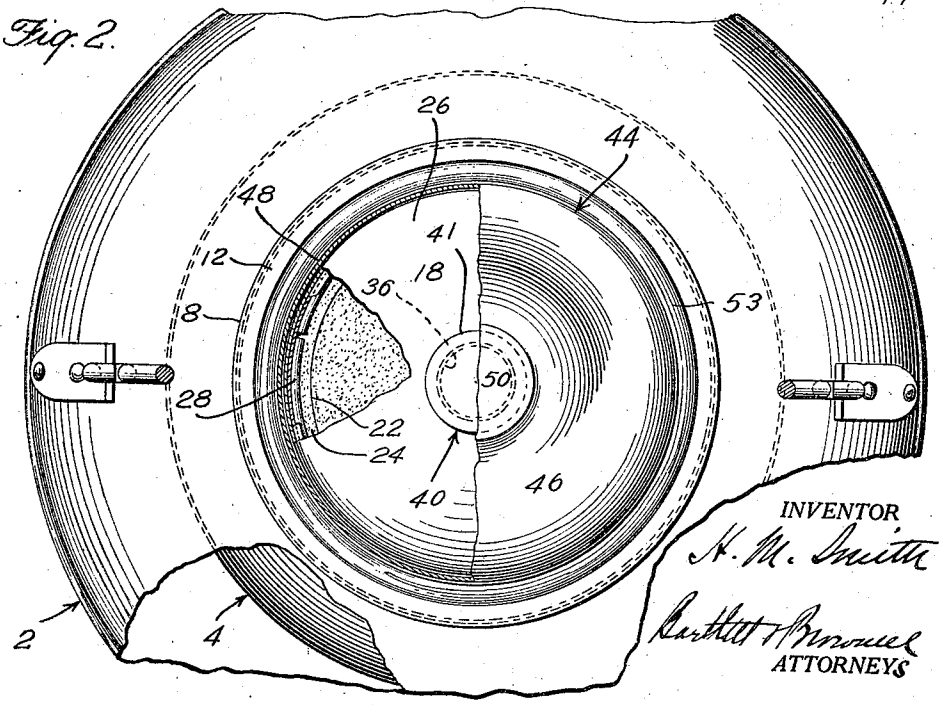


Fig. 2.



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HEAT-INSULATED CONTAINER.

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My invention relates to heat insulated containers, and has special reference to such containers that are in the form of a jug.

The object of the invention is to provide a container of this character which is simple, inexpensive, strong and durable in construction, and convenient and efficient in use.

The following is a description of an embodiment of my invention, reference being had to the accompanying drawings, in which,

Figure 1 is a vertical sectional view, partly in elevation, of the upper portion of the container in its preferred form; and

Fig. 2 is a plan view of the same, partly in section and partly broken away.

The container illustrated in the drawings is in the form of a one gallon jug, and has a body portion comprising two shells 2 and 4 of sheet metal which are arranged one within the other and spaced apart. The upper end portions of both shells are bent inwardly, as shown, and their inner edges are bent upwardly to form cylindrical flanges 6 and 8, respectively. The lower end portion of a threaded sheet metal sleeve 10 fits over and is welded or otherwise tightly secured to the flange 6 of the outer shell. This lower end portion of the sleeve 10 is enlarged so as to provide a shoulder 12, and the portion of the sleeve above this shoulder forms the outer wall of the neck of the container.

The flange 8 on the inner shell 4 telescopingly receives the lower end of an upwardly and outwardly tapering sleeve 14 which forms the inner wall of the neck of the jug. The upper edge portion of the sleeve 14 is bent outwardly and downwardly to provide a depending flange 15, which is welded to the inner margin of the upper edge of the outer sleeve 10 so as to close the space at the upper end of the neck between the sleeves. This upper edge or lip of the neck is reinforced by an annular truss member 16 which is U-shaped in cross section and is fitted between the depending flange 15 and the body of the inner sleeve 14, the member being securely held by welding or otherwise. The inner sleeve 14 is of relatively thin sheet metal in order to give a high thermal resistivity, and it will be apparent that with the described lip construction the upper end of this inner sleeve is well reinforced and protected from injury, the lower end of the sleeve being adequately reinforced by its lap joint with the flange 8 on the inner shell 4. The spaces between the shells 2 and 4, and between the walls of the neck is filled with a suitable heat insulating material 17.

The opening in the neck or the jug is closed by a removable loosely fitting stopper 18 comprising a closed sheet metal casing which is made up of a cup-shaped member 22 having a downwardly curved bottom wall, and having an outwardly flaring flange 24 at its upper end. The stopper casing is further provided with a dish-shaped cap 26 which fits over the edge of the flange 24, the edges of the cap and flange being beaded together, and reinforced by a truss ring 28 on the inside of the bead of said flange. The cap 26 is provided with a central opening, the margin of which is provided with a flat raised annular portion 32, a depending portion 34, and the extreme lower edge of the wall of the aperture is bent inwardly to provide a narrow substantially horizontal flange 36. The stopper casing is filled with slightly compressed insulating material 38 for the purpose of reducing convection currents and for forming a heat barrier. After the insulating material is thus placed in the casing, a pressure pad 40 of rubber, constituting a plug, is forced into the opening, causing a flange 41 on the upper end of the pad to be seated on the flat annular raised portion 32, and the narrow flange 36 to cut into or be embedded in the rubber, thus making a tight fit. Before the pressure pad is inserted, it is covered with a non-drying oil, such as castor oil which forms a tight bond between the rubber and the metallic surface, preventing the seepage of water or other liquids into the stopper casing. The inner side of the stopper casing is coated with vitreous enamel for the purpose of giving it mechanical strength and decreasing its heat conductivity, and the outside is similarly coated for the purpose of preventing rust and making it sanitary. When the stopper is inserted, a rubber gasket 42 is placed between the flange at the upper end of the stopper and the rim of the neck of the jug.

A cup-shaped member 44 of resilient sheet metal is provided having a bottom wall 46, and a skirt or flange 48. The bottom wall

46 is provided with a flat central portion 50 and an annular raised portion or corrugation 52 surrounding said central portion. The lower edge of the flange or skirt 48 is turned over to provide a beaded rim 53, and the lower portion of the skirt has screw threads 54 formed therein. The cup 44 is placed over the neck of the jug and is screwed down, by the engagement of the screw threads 54 with screw threads formed in the outer wall or sleeve 10 of the neck, until the bottom wall of the cup by engagement with the pressure pad 40, compresses the rubber gasket 42 sufficiently to ensure a tight joint betwen the stopper flange and the rim of the neck of the container. The annular corrugation 52 in the bottom wall of the cap is for the purpose of stiffening the wall, and giving it the proper diaphragm or spring action necessary to hold the required pressure on the stopper, and to compensate for the expansion and contraction of the cup when it is subjected to sudden changes in temperature; for example from a shaded low temperature to the intense rays of the sun.

The metallic parts are preferably made of sheet steel.

As will be evident to those skilled in the art, my invention permits of various modifications without departing from the spirit thereof or the scope of the appended claims.

What I claim is:

1. A container of the class described having, in combination, a body portion and a neck portion, a stopper comprising a closed casing of sheet metal removably inserted in said neck portion and having an opening in its top provided with a downwardly extending wall terminating in an internally projected flange lying in a substantially horizontal plane, and a solid plug of resilient material engaging said wall and protruding through the opening within said flange so that said flange is partially embedded in said plug, and a cup-shaped member screw-threaded on the outer wall of said neck portion and having its bottom wall engaging the top of said plug.

2. A container of the class described having, in combination, a body portion and a neck portion, a removable stopper comprising a closed casing of sheet metal having heat insulating material in granular form filling said casing, having a reduced portion extending into said neck portion, a flange extending over the rim of said neck portion and a central opening in the top thereof, a plug of resilient material forced through said central opening so as to cause its lower portion to be imbedded in said granular insulated material, said plug being secured to the wall of said opening and projecting a distance above the top surface of said casing, and a cup-shaped member screw-threaded over said neck portion and having its bottom wall engaging the top of said plug.

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