

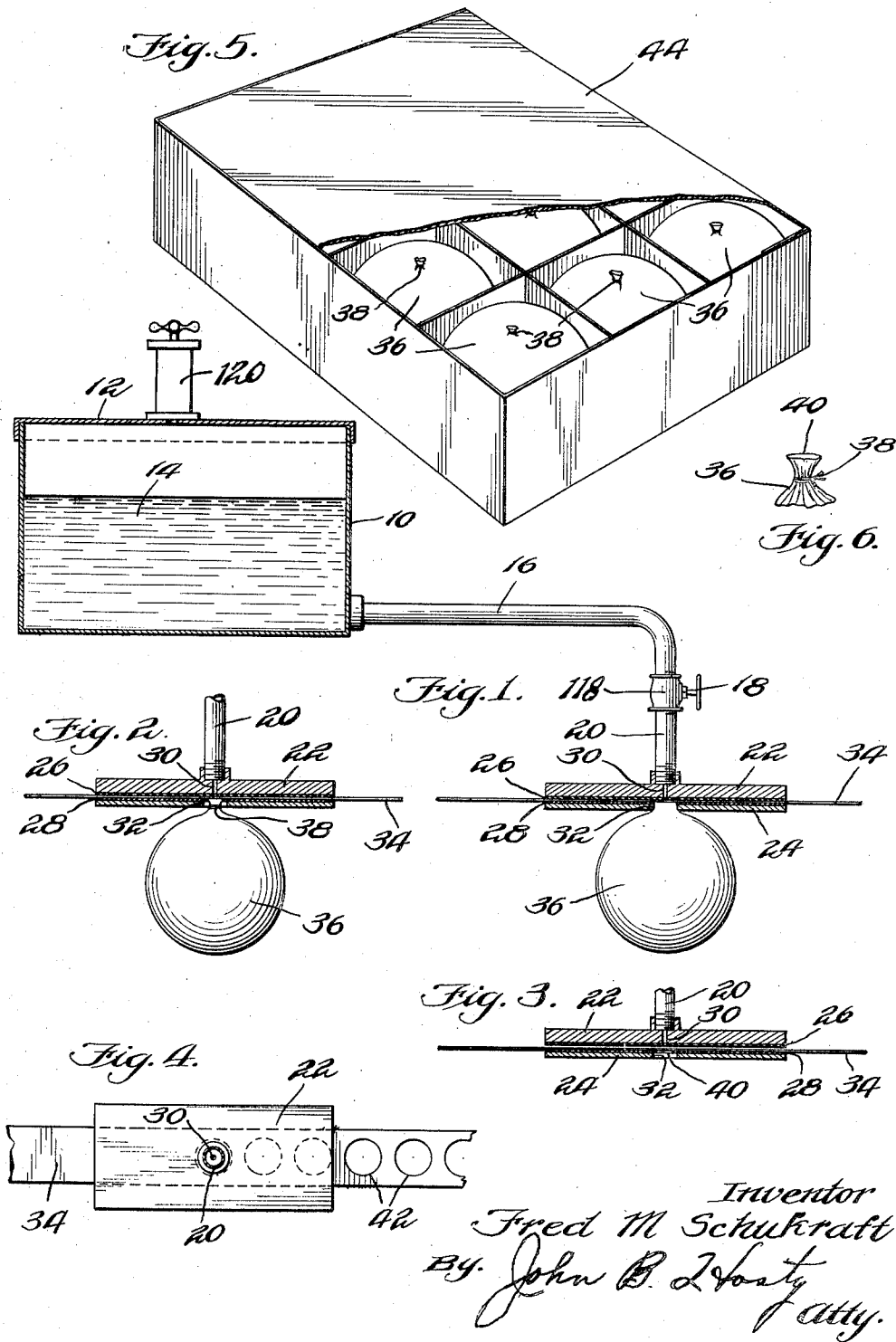
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METHOD OF AND APPARATUS FOR PACKAGING LIQUIDS

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METHOD OF AND APPARATUS FOR
PACKAGING LIQUIDS

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8 Claims. (Cl. 226—73)

The primary object of my invention is the provision of an economical container for liquids, particularly for beverages and juices such as sauerkraut, tomato juice and the like. In recent years fruit and vegetable juices packed in bottles and cans have acquired considerable popularity with the purchasing and consuming public. An important element entering into the cost of production of such items has been the container. This is particularly true where the attempt has been made to package the same in small, compact, convenient receptacles of a few ounces. When packaged in larger containers for household use, the cost of the container is still a pressing factor, and owing to the lack of convenient sanitary closures, the contents of the larger container may become saturated with dirt, dust, and pathogenic organisms. Unless kept substantially hermetically sealed the flavor may be lost, and the beverage or juice become flat and insipid.

I have invented a new form of container for items of this character that tremendously reduces the costs of production, and owing to its geometrical form and relatively light weight will likewise reduce freight charges and other expenses incident to shipping. This is because the shape of the containers will enable them to be packed in a relatively smaller carton or the like, while their light weight will, of course, reduce the cost of shipping. They will not occupy as much shelf space in stores and restaurants and homes. The containers have considerable sales appeal as they may be produced in any desired color, are neat and attractive. They will adapt themselves to the desired quantity of liquid, and may be discharged of their contents without the slightest waste. The empty container has the additional advantage of occupying only a fraction of the space of the filled container thus aiding the housewife in disposing of refuse, and practically eliminating the labor of garbage collectors. The container may be opened instantaneously without any special type of an opener, and without the slightest possibility of cutting or injuring the hand.

Other objects and advantages will be more apparent from the following description wherein reference is made to the accompanying drawing, upon which:—

Fig. 1 is a diagrammatic cross section of a vat or large receptacle containing a liquid in process of being packaged according to my process;

Fig. 2 is a detail cross section disclosing the closure means securely affixed to the neck of the balloon-like container;

Fig. 3 is a cross section similar to Fig. 2, after the container has been removed;

Fig. 4 is a plan view of the feed pipe and rubber stock;

Fig. 5 is a perspective view of a number of the rubber containers filled and neatly packaged in a carton preparatory to shipping, a portion of the top cover having been broken to disclose the contents, and

Fig. 6 is a view of one of the individual containers after the same has been punctured and the contents removed.

In the embodiment of my invention which I have chosen to illustrate, I provide a tank 10, with a removable cover 12, filled with the desired liquid 14. This liquid is kept under a predetermined amount of pressure by means of an air pump 120, or in any other desired manner. Reference numeral 16 indicates the outlet pipe from tank 10. 18 is a valve handle for a valve 118 for controlling the flow of the liquid through pipe 20. 22 is a flat metal plate with an annular orifice. 24 is the bottom plate similar to plate 22 except it may conveniently be of a narrower gauge. 26 and 28 indicate rubber packing or like material, to prevent the heavier parts 22 and 24 from coming in direct contact with the strip of rubber which is fed between them.

Reference numerals 30 and 32 indicate in plates 22 and 23 respectively the top and bottom feed orifices. It will be noted that aperture 32 and in the lower plate 24 is slightly larger than aperture 30 in the upper plate 22, to permit the distention of the neck of the balloon-like container.

Reference numeral 34 indicates the rubber stock from which the container is fashioned. Latex, or rubber similar to that found in the ordinary toy balloon is employed. The gauge of the rubber is extremely thin, although it may be reinforced by dipping depending upon the strength of container desired. As the liquid travels from tank 10, through horizontal pipe 16, and vertical pipe 20, it is as previously indicated under pressure. The pressure is sufficient to distend the rubber stock 34 so as to cause it to assume a shape similar to 36. The neck of the container may then be sealed by thread or string tightly encircling the same as indicated at 38. The stock 34 is then severed in any suitable manner to define the upper edge 40 of the filled container (Fig. 6) and permit the removal of same. A circular aperture 42 is left in the stock. The stock is then moved forward by any suitable means (not shown) and the operation repeated. Reference character 42, shows the amount of stock

removed from ribbon 34 to manufacture a container similar to 36. Each hole indicates that one container has been fashioned therefrom. Numeral 44 indicates a carton in which the containers 36 may conveniently be nested for shipment. The containers are discharged of their contents by the simple process of puncturing any portion of the same below the neck with a fork, toothpick, pin or like instrument.

It is, of course, obvious that before puncturing the container 36 to release the contents, the same should be held over a receiving vessel of sufficient size to receive the contents.

While from the standpoint of economy of production I prefer to employ rubber of the type utilized in toy balloons, the liquid being under such a degree of pressure as to cause a piece of rubber of about the size indicated by hole 42 to assume the configuration and size indicated by numeral 36, it is obvious the rubber may be much stronger or thicker, and that the amount of pressure may be increased or decreased. Also, as indicated the container may be reinforced to the desired strength by dipping in latex.

For the less expensive types of staple food beverages that are daily consumed I find it convenient and profitable for the rubber walls of the container to have a degree of fragility somewhat comparable to the shell on the egg of a hen. When this degree of fragility is employed almost any convenient instrument such as a knife, fork or spoon can be used for puncturing the wall of the container; refrigeration when desired is quickly attained, and the container after puncturing shrivels to such an extent that the refuse is insignificant. There is likewise no loss in the contents clinging to the sides of the walls as in other types of container. For more expensive liquids where the accidental discharge of the contents might represent a substantial pecuniary loss, as in the case of several ounces of rare whiskey, the container may be dipped in a liquid rubber solution thereby adding to the thickness of the walls.

It is likewise obvious that my container is non-refillable thereby adding to the protection of the good will of the producer who features his brand name or trade name either directly on the rubber container, or by means of a tag affixed thereto. As the geometrical configuration of the container is substantially circular, a slight increase in the diameter of the same adds considerably to the enclosed volume permitting differences in sizes without adding greatly to shipping and storage problems.

While I have illustrated and described a specific embodiment of the invention, it will be apparent to those skilled in the art that changes and modifications may be made in the particular details shown, and I do not wish to limit my invention, rather what I desire to secure and protect by Letters Patent of the United States is:

1. A new process of packaging liquids, comprising applying the liquids to a relatively thin sheet of rubber to form a portion of said sheet into an enlarged container body filled with said liquid, simultaneously forming a relatively narrow neck on said container, and securely sealing the neck of said container.

2. A new process of packaging liquids, comprising applying the liquids to a relatively thin sheet of rubber to form a portion of said sheet into an enlarged container body filled with said

liquid, simultaneously forming a relatively narrow neck on said container, securely sealing the neck of said container, and severing said sealed container from the remainder of said sheet.

3. A method of packaging liquids, comprising sealing an exit of a liquid container with a relatively thin sheet of rubber, applying pressure to the liquid in said container to force the same out of said exit and distend a portion of said sheet to form a relatively large container body filled with said liquid, forming a relatively narrow neck on said container and sealing the neck of said package.

4. A method of packaging liquids, comprising sealing a relatively small, valved exit of a liquid container with a relatively thin sheet of rubber, applying pressure to said liquid in said container, opening said valve to permit said liquid to distend a portion of said sheet to form a relatively large liquid package having a relatively narrow neck, closing said valve, and sealing the neck of said package.

5. A method of packaging liquids, comprising sealing a relatively small, valved exit of a liquid container with a relatively thin sheet of rubber, applying pressure to said liquid in said container, opening said valve to permit said liquid to distend a portion of said sheet to form a relatively large liquid package having a relatively narrow neck, closing said valve, sealing the neck of said package, severing said sealed package from the remainder of said sheet, and moving said sheet to apply another portion thereof to said container opening to seal the same.

6. A new process of packing liquids, comprising applying the liquids to a relatively thin sheet of rubber to form a portion of said sheet into an enlarged container body filled with said liquid simultaneously forming a relatively narrow neck on said container, securely sealing the neck of said container, severing said sealed container from the remainder of said sheet, and then strengthening the walls and seal of said container by dipping the container in a liquid rubber solution.

7. A new process of packing liquids, comprising applying the liquids to a relatively thin sheet of rubber to form a portion of said sheet into an enlarged container filled with said liquid, forming a relatively narrow neck on said container, securely sealing the neck of said container, severing said sealed container from the remainder of sheet, and then thickening the walls and securing the seal on said container by dipping the container in liquid rubber.

8. Apparatus for packaging liquid, comprising a storage container for said liquid, means for applying pressure to said liquid, a relatively small valved outlet for said container, means for operating said valve to control the flow of liquid out of said container, a substantially rigid support below said opening in closely spaced relation thereto, an opening in said support in alignment with said valved opening, said valved opening and said support being adapted to mount a thin strip of rubber therebetween in sealing relation to said valved opening, a portion of said strip being adapted to be forced through said opening in said support by said liquid upon the opening of said valved opening and being adapted to be thereafter stretched into a balloon-like liquid filled package.

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