

W. J. PHELPS.

CAN.

APPLICATION FILED SEPT. 30, 1911.

1,049,763.

Patented Jan. 7, 1913.

Fig. 1.

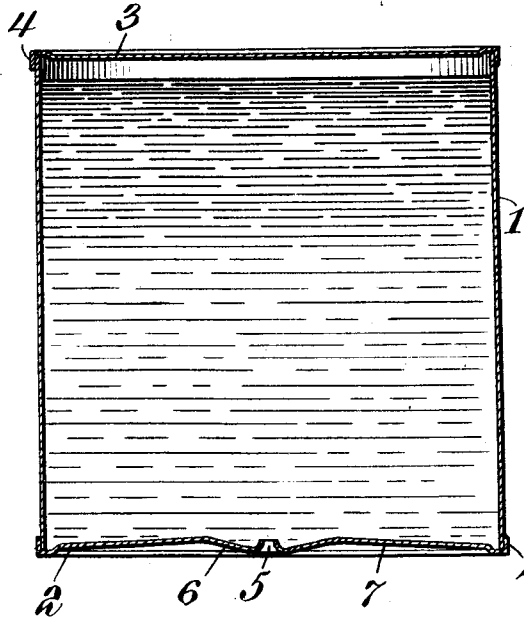


Fig. 2.

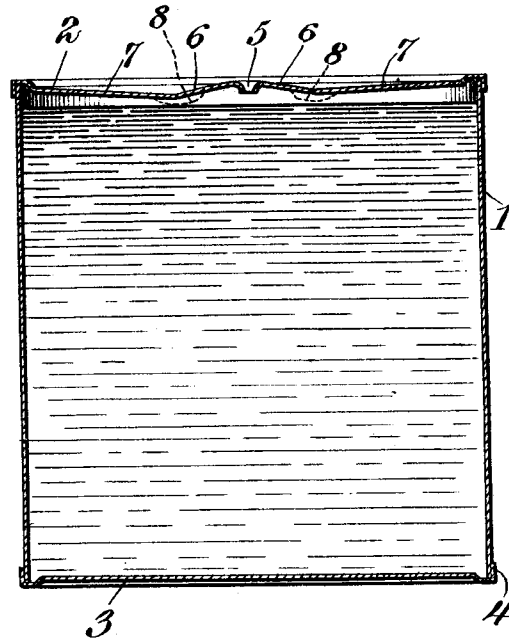
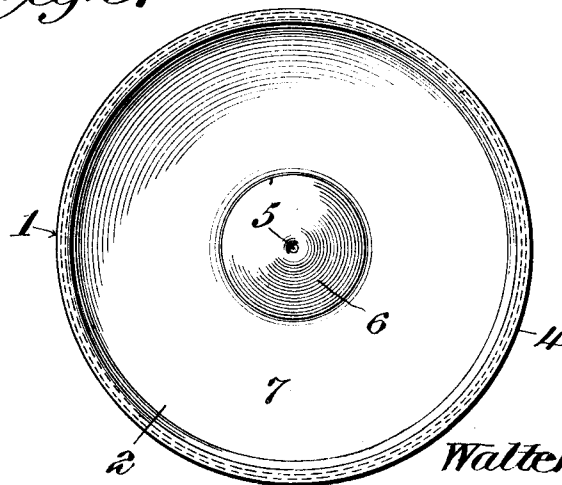


Fig. 3.



Walter J. Phelps,
Inventor.

Witnesses

Howard D. Orr.
F. J. Chapman.

By

E. J. Siggers.
Attorney.

UNITED STATES PATENT OFFICE.

WALTER J. PHELPS, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF TO FRANK
GEBBIE, OF ROCHESTER, NEW YORK.

CAN.

1,049,763.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALTER J. PHELPS, a citizen of the United States, residing at Baltimore, State of Maryland, have invented a new and useful Can, of which the following is a specification.

This invention has reference to improvements in cans, more particularly metal cans designed for the reception of evaporated milk, although not necessarily confined to such particular commodity, and its object is to provide a can wherein the milk may be filled into the can through a single small central orifice while the can is in an inverted position, and wherein milk will not accumulate about the filling orifice when the can is placed with the top uppermost, wherefore there is no interference with the closing of the filling orifice by solder.

In my application No. 634,052, filed June 19, 1911, for can filling apparatus, there is disclosed an apparatus for filling cans with evaporated milk, the filling being performed through a small central filling orifice of such diameter as to be readily closed by a small drop of solder after the filling operation has been completed. For reasons which need not be entered into here, but which are fully explained in the aforesaid application the cans are placed in an inverted position during the filling operation so that what may be termed the top of the can is lowermost and the bottom of the can uppermost. When the filling operation is completed the cans are reversed so that the cover or top of the can is then uppermost, the can resting on the end which may be termed the bottom of the can. During the filling operation the inner wall of the perforated top of the can has become wetted by the milk and when the can is restored to the ordinary upright position there will accumulate about the filling orifice a considerable body of milk unless provision be made to prevent such accumulation and an accumulation such as stated is found in practice to interfere very materially with the final sealing of the can by the application of a small drop of solder at the small filling orifice, which latter may

be of a diameter as small as, or smaller than one-sixteenth of an inch. If there be any material accumulation of milk about the filling orifice on the inner face of the top of the can, the liquid constituents of the accumulated milk must be evaporated before the temperature of the particular portion of the can being soldered can be raised sufficiently to cause the solder to unite with the metal of the can.

By the present invention the arrangement is such that any milk which may adhere to the inner face of the top of the can when the can is returned to normal position after being filled, will gravitate away from the filling orifice so that there is a considerable area about this orifice quite free from any milk except perhaps the merest film which may adhere by capillary attraction, but if present at all the film is so thin that the liquid constituents are driven off almost instantaneously and practice has demonstrated that such film if present does not interfere to any sensible extent with the soldering operation, and, furthermore, there is no drying out and possible scorching of an appreciable body of milk on the inner face of the cover, for such body of milk is not present.

In carrying out the present invention the cover is so made that for a considerable area about the filling orifice the material of the cover slopes downwardly, considering the can as being supported upon the bottom end on a level surface, and consequently any milk which may adhere to the inner face of the cover or top of the can will gravitate away from the filling orifice toward the lower portions of the cover, thus preventing any accumulation in the immediate neighborhood of the filling orifice so that there is no interference with the soldering operation to any noticeable extent.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of this specification, with the understanding, however, that while in the drawings

there is shown a practical embodiment of the invention it is not limited to any exact conformity with the showing of the drawings, but the structure may be changed and modified so long as the salient features of the invention are retained and results aimed at are accomplished.

In the drawings:—Figure 1 is a diametric section of a can constructed in accordance with the present invention and in the filling position. Fig. 2 is a similar view with the can in the upright or normal position after being filled. Fig. 3 is a plan view of the top or filling end of the can.

In the drawings there is shown a can 1 comprising in the particular structure shown a cylindrical body with a top or head end 2 and a bottom 3, both ends being provided with a respective marginal flange 4 designed to embrace the corresponding end of the body of the can, the top and bottom members being usually soldered in place, and it is also customary, though not absolutely essential, to dish both ends of the can to a slight extent. The head 2 is provided at the center with a small filling orifice 5 customarily at the center of the head or top end of the can and having its margins intumed, since this orifice is usually produced by a tool displacing the metal of the can without removing any of it in the formation of the orifice.

For the purposes of the present invention that portion of the top 2 containing the orifice 5 is nearer the plane of the outer edge of the top than the portion of the walls surrounding it, and these walls slope away from the orifice in the form of a flat cone or conoid 6, the base of which where joining the rest of the head or cap member 2 is of an appropriate diameter.

For manufacturing reasons the upper portion of the cone should not extend higher than the plane of the margin of the top, nor should the base of the cone extend into the can to a greater extent than the plane of the margin of the flange 4 of the top of the can, but the slope of the cone 6 when the can is resting on a level surface with the head uppermost should be such that any accumulations of milk or other material filled into the can where clinging to the inner surface of the top of the can about the orifice will gravitate toward the base of the cone and, furthermore, the cone should be of a diameter such that any milk accumulating at the base of the cone by gravitation along the inner walls of the cone will be sufficiently removed from the filling orifice to permit the heating of the latter by the soldering tool to such a degree as to cause the proper adherence of the solder to the walls of the top of the can at the filling orifice.

To impart the requisite slope to the walls of the cone 6 the top of the can may be dished more or less, as indicated at 7, wherefore the top of the can is then not in a plane, but in the form of a shallow inverted frusto-cone from the smaller end of which rises the cone 6, provided with the orifice 5. In practice the slope of the cone 6 need not be so pronounced as indicated in the drawings, and the portion 7 of the top or cover of the can may be nearly or quite a plane, depending upon the degree of dish given to the cover of the can, but whatever be the structure the inclination of the walls of the central conical portion 6 should be sufficient to cause the gravitation of any milk clinging within the zone defined by the conical portion 6 toward the basic margins of said conical portion 6 when the can is in the upright position. In Fig. 2 the gravital accumulation of milk from the region of the orifice 5 is indicated at 8 by dotted lines adjacent the basic portions of the cone 6.

While cans constructed in accordance with the present invention may be used with other commodities than milk, they are especially adapted for the packaging of evaporated milk and for manufacturing and other reasons the cans are wholly sealed before filling with the exception of the single central small perforation, through which the can is ultimately filled with the milk, the perforation though relatively small being amply large for the introduction of the milk and the outflow of air displaced from the can by the inflowing milk. Because of the minute filling orifice the final sealing operation is very expeditiously performed and requires but a minute portion of solder to complete the sealing.

It is not uncommon to provide cans with large filling orifices, so large in fact as to require an additional cap member to close them, such cap member being finally united with the top of the can by solder, but the amount of solder required is many times that necessary for the closing of the cans of the present invention and where the margin of profit is small, the difference in cost due to the sealing operations is very material.

What is claimed is:—

A can having one head permanently closed and the other head permanently connected to the body of the can, said last-named head having a central portion provided with a centralized perforation, the walls of the central portion defining a low frusto-cone, and the remainder of the walls of said head defining another low frusto-cone in inverted relation with respect to the first-named frusto-cone with the basic end of the first-named frusto-cone and the smaller end of the second-named frusto-

cone uniting, said second-named can head
being provided with a marginal flange pro-
jecting axially from one face of said head,
and the frusto-conical portions of the can-
5 head being confined substantially within
the limits defined by the planes of the two
edges of the flange.

In testimony that I claim the foregoing
as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

WALTER J. PHELPS.

Witnesses:

JOHN H. SIGGERS,

FRANCES PEYTON SMITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
