July 5, 1932. J. G. WITTE 1,866,496

PAPER CONTAINER

Filed June 19, 1930 2 Sheets-Sheet 1

Fig. 1

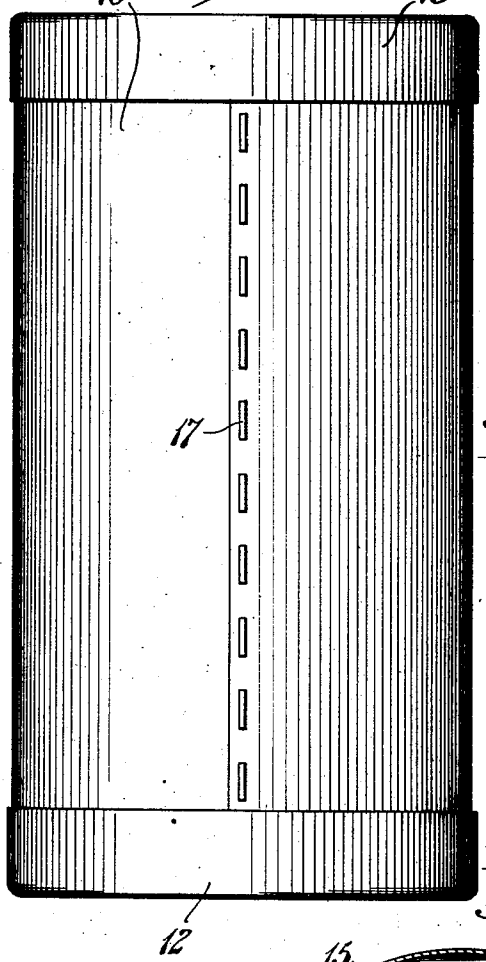
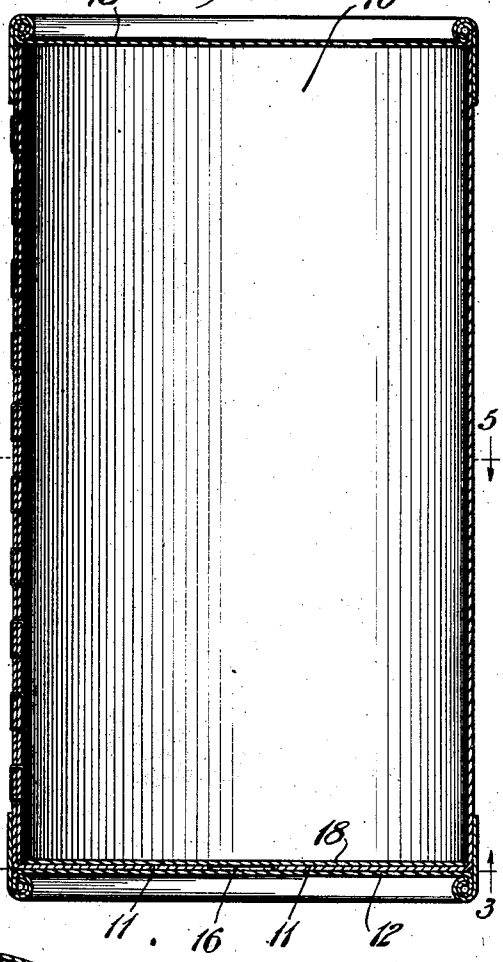


Fig. 2



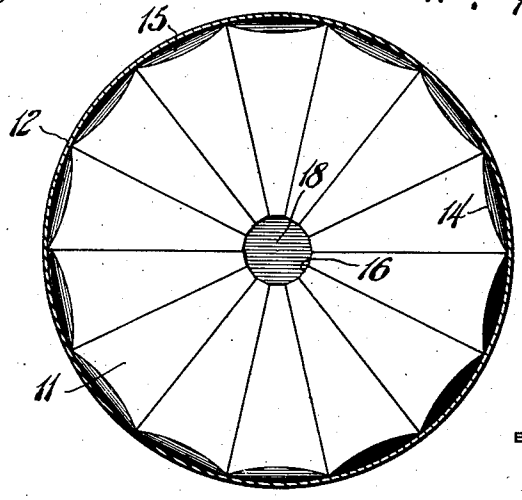


Fig. 3

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Fig. 4

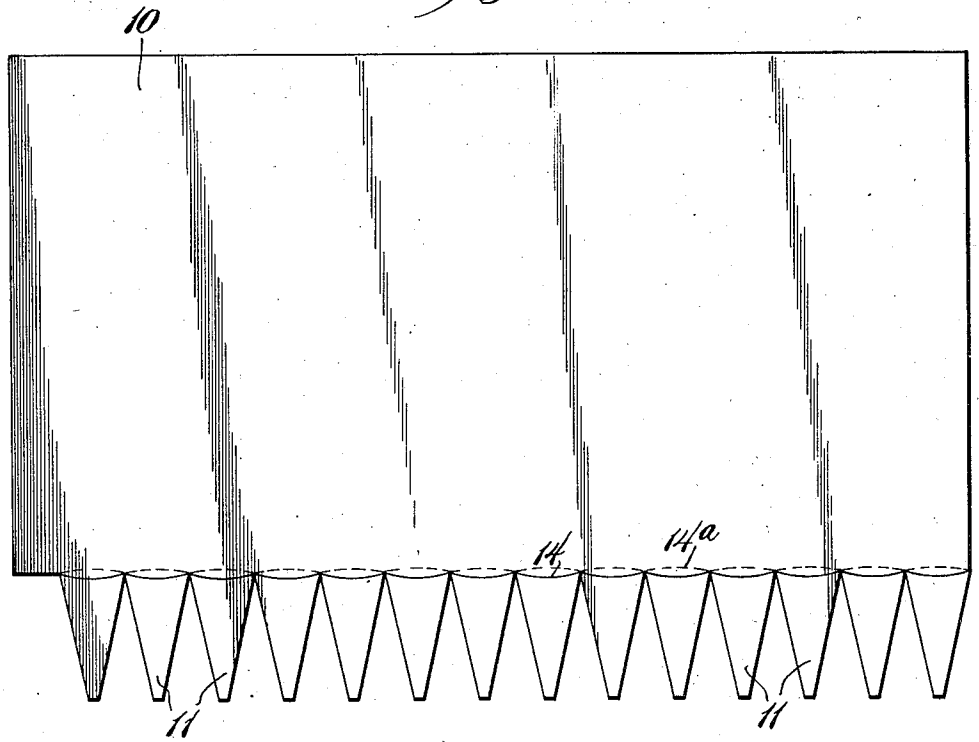
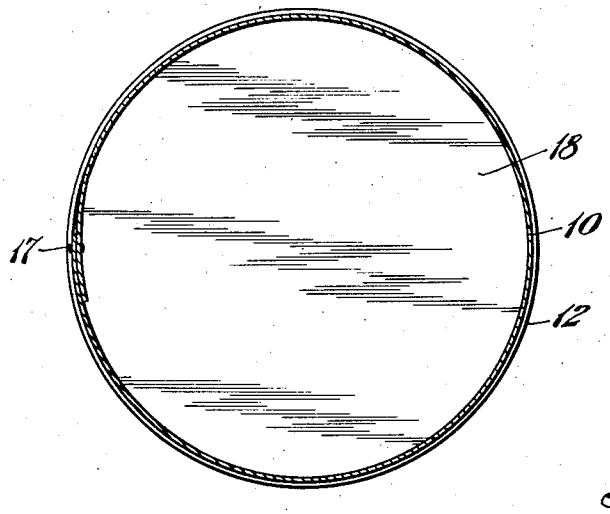


Fig. 5



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UNITED STATES PATENT OFFICE

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PAPER CONTAINER

Application filed June 19, 1930. Serial No. 462,322.

This invention relates to paper containers and among other objects, aims to provide a container which may be used satisfactorily in lieu of the metal cans in which ice cream is packed for the retail trade. Small paper containers are in widespread use for holding small quantities of ice cream and other foodstuffs; but so far as I know, there has never been developed a satisfactory paper can for holding ice cream and other semi-solids in one to ten gallon lots, although the advantages of paper containers are manifold. The present invention meets all the requirements of the trade for a large container for ice cream and the like and has a number of important advantages over the standard metal cans now in use, as will be explained.

Referring to the accompanying drawings showing a preferred embodiment of the invention,—

Fig. 1 is an elevation;

Fig. 2 is a vertical diametric sectional view;

Fig. 3 is a section on line 3—3 of Fig. 2;

Fig. 4 is a plan view of the blank which is used to form the sides and part of the bottom of the container; and

Fig. 5 is a section on line 5—5 of Fig. 2.

Referring particularly to the drawings, and first to Fig. 4, the blank 10 there shown is initially rectangular, preferably formed from a hard-finished, flexible paper sheet, known commercially as pure kraft. The initially rectangular blank 10 is die cut to the shape shown, to provide a plurality of tongues or flanges 11 integral with the body of the blank, each tongue tapering almost to a point. These tongues are designed to reinforce the bottom of the container and hence are to be bent inwardly, as best shown in Fig. 3, when the blank is set up; and hence the taper of each tongue is such that there is edge contact between adjacent tongues along their entire length when they are folded and the edges of the blank are brought together.

As is clear from the drawings, the container is essentially a cylinder capped at both ends, as indicated at 12 and 13 (Figs. 1 and 2). The bottom, however, must be specially strengthened, not only because the weight of the ice cream tends to disrupt the bottom joint, but also because of stresses created by handling the full container. The plurality of tongues 11 provide a satisfactory means for reinforcing the bottom, their action being to transfer nearly all the load to the sides of the container, i. e. to the blank itself.

As the tongues are bent inwardly relative to a sheet of paper which is bent into a cylinder, and as the tongued end of the cylinder is to fit snugly inside a round bottom cap 12, provision should be made to obviate distortion of the bottom end of the cylinder, which would prevent close fitting of cap 12. I have discovered that by scoring each tongue at its base along an arcuate line 14 (Fig. 4), the tongues may be bent without distorting the circular bottom of the cylinder. If straight score lines were formed, the lower end of the cylinder would be distorted into a polygon as the tongues are bent over. The effect of the arcuate score lines is to make each of the tongues bend on two different lines, one, 14^a, just above the true base of the cylinder, and the other the score line 14 itself, so that there is an intermediate area 15 on each tongue, as indicated in Fig. 3, which does not lie in the plane of the bent tongue but in a plane at an obtuse angle thereto. In practice, the second lines of bending 14^a are arcuate but curved oppositely to the curvature of score lines 14; but as such lines are not score lines, they are indicated by dotted lines to Fig. 4.

The tongues 11 are not sharp pointed, because points will curl or be bent in handling the blank and will give trouble when assembling the parts which make up the complete container. The blunt ends of the tongues leave a circular central opening 16, as shown

in Fig. 3. This opening is closed, as will be described.

To hold the edges of the blank together, the edges may be overlapped, as shown in Fig. 5, and then stapled together by a stapling machine so made that the staples 17 will be quite flat, as shown in Fig. 2, and will hold the edges firmly together. The staples preferably are of non-rusting metal or alloy of any desirable composition. As the ice cream is partly frozen before being packed in the container, and thereafter is frozen solid, and as it is shipped and retailed in a well frozen condition, no melting takes place while the container is in use, and hence a lapped and stapled joint is entirely satisfactory. Furthermore, the container does not come in contact with ice and salt, because it is to be used in cabinets cooled by automatic refrigeration systems such as are in widespread use today; and hence no contamination of the ice-cream occurs. In shipping, the container is completely covered by a shipping receptacle such as is described and claimed in my Patent No. 1,809,953 issued June 16, 1931; and arrival of its contents in well frozen condition may be assured by placing a small piece of "dry ice" (solid carbon dioxide) in the shipping receptacle with the container. When the container is empty, it is discarded.

While stapling is preferred, the joint or seam may be closed by a sewing machine, by an adhesive or by a crimped flange, as will be evident.

To close and seal the bottom of the container, a disk 18 is placed therein, and preferably is secured by an adhesive to the several tongues 11. The disk 18 is perfectly round, to fit snugly in the bottom of the cylinder, and thus to cover the adhesive so that none of it can contaminate the ice cream. In case no adhesive is used to hold the disk 18 in place, the weight of the contents of the container will obviously hold the disk against upward movement, while cap 12 will prevent the disk from falling out. The disk 18 may also be of pure kraft paper, and preferably is coated either before or after assembly, with paraffin (not shown) so as to be non-absorbent.

After the cylinder is set up and one end closed, as described, it may be immediately sterilized by dipping in a paraffin bath, and then immediately capped and used, or it may be shipped unparaffined to the ice cream manufacturer, who may dip each container body just before packing in the ice cream. In either event, the beaded and flanged caps 12 and 13 are put on over the ends of the cylinder to preserve its contents against contamination or to prevent dust collecting in the container when empty. The bottom cap 12 may be secured by friction, as indicated, or by a couple of staples (not shown) similar to staples 14 but passing through the flange of the cap 12 and through the sides of the container. The top cap 13, on the other hand, must be readily removable and hence is held merely by friction.

The specific construction of said caps is not described because it is the subject-matter of a prior patent and furthermore is clearly shown. Obviously caps of many different constructions may be used.

The described container is light-weight, is non-absorbent, does not affect the flavor of ice cream even after weeks of contact (as experiments have proved), is non-corroding, is quite strong enough, does not need to be returned and hence contributes to sanitary conditions, and is inexpensive.

Obviously the present invention is not restricted to the particular embodiment thereof herein shown and described.

What I claim is:—

1. A container for ice cream and other solid commodities comprising, in combination, a cylindrical body made from a single sheet of paper and having a plurality of integral tongues at one end, adjacent tongues having edge contact with each other when the body is set up and the tongues are folded inwardly and all the tongues terminating short of the center of the body so as to leave a small central aperture; a paper disk secured to and above said tongues and completely sealing off the interior of the body; a flanged paper cap on the bottom of the body below and supporting said tongues; and a closure for the top of the body.

2. A container for ice cream and other solid commodities comprising, in combination, a cylindrical body made from a single sheet of paper and having a plurality of integral tongues at one end, said tongues having edge contact with each other when the body is set up and the tongues are folded inwardly; each tongue being tapered and bent along an arcuate score line the curve of which projects in the direction of the taper, each score line extending between the points where two adjacent tongues meet; and means secured to said body to seal the bottom of the container.

3. A container for ice cream and other solid commodities comprising, in combination, a cylindrical body made from a single sheet of paper and having a plurality of integral tongues at one end, said tongues having edge contact with each other when the body is set up and the tongues are folded inwardly; each tongue being tapered and bent along an arcuate score line the curve of which projects in the direction of the taper, each score line extending between the points where two adjacent tongues meet; a paper disk completely covering the tongues on the inside of the container; a paper cap closing and reinforcing the bottom of the container; and a closure for the top of the container.

4. A container for ice cream and other solid

commodities comprising, in combination, a cylindrical body made from a single sheet of paper whose edges are brought together, overlapped and secured by staples extending longitudinally of the cylinder; tongues integral with said body and bent inwardly at the lower end thereof; a paper disk secured to and covering said tongues on the inside; a flanged paper cap on the bottom of said body outside of said tongues; and a closure for the top of said body.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

JAMES G. WITTE.