

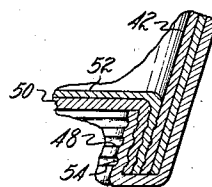
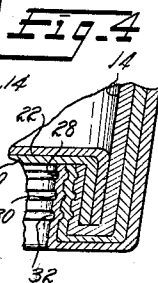
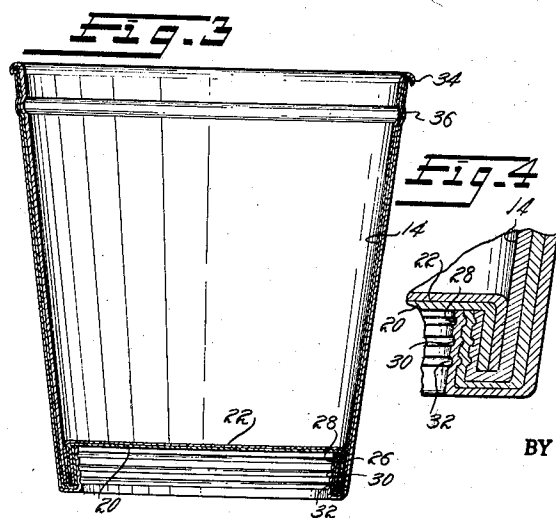
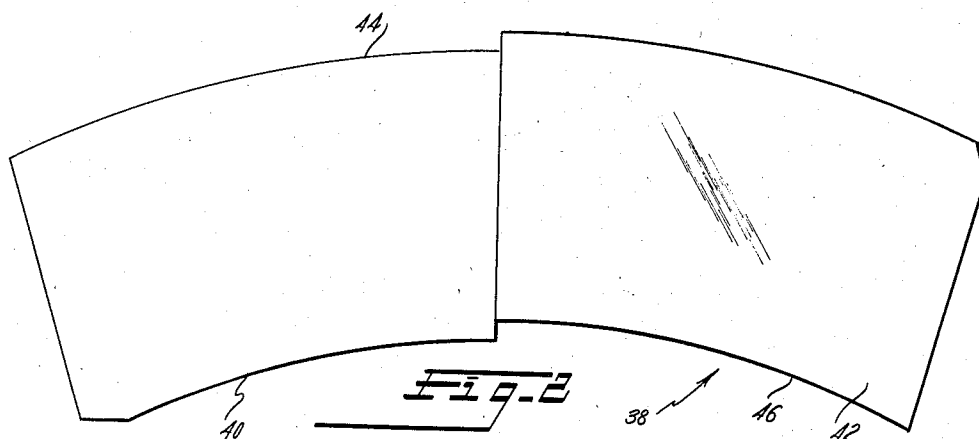
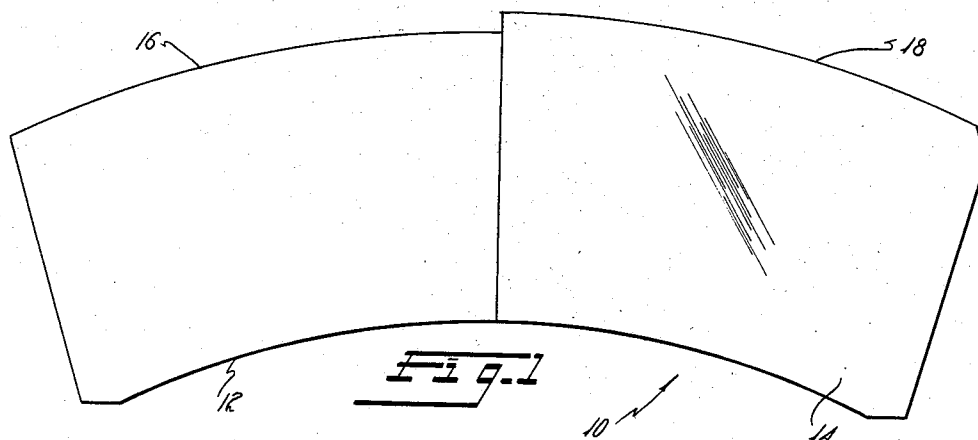
July 8, 1958

M. O. ALBERT
CONTAINER

2,842,301

Filed Aug. 2, 1955

2 Sheets-Sheet 1



INVENTOR
Marcel O. Albert

BY

Diggins & Le Blanc

ATTORNEYS

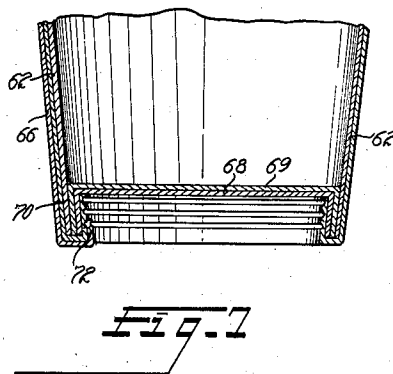
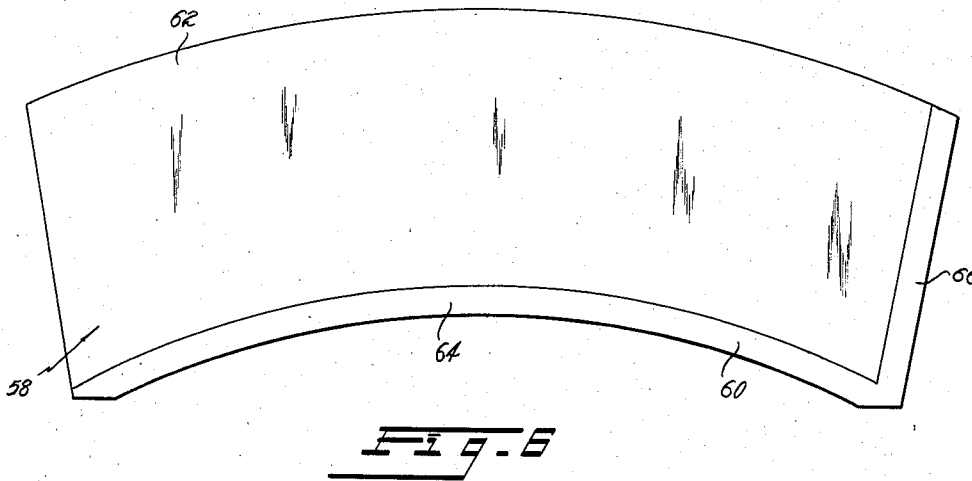
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Marcel O. Albert, Washington, D. C.

Application August 2, 1955, Serial No. 525,988

1 Claim. (Cl. 229—1.5)

This invention relates to improvements in containers of the general character of flat bottomed paper drinking cups and more particularly relates to metal lined paper drinking cups which are highly desirable for use in connection with the serving or carrying of hot or cold liquids or substances, such as for example, coffee, ice cream, cottage cheese, and even alcoholic beverages.

Difficulty has been experienced in providing containers, such as drinking cups, from paper and similar sheet material of a desired strength and fluid tightness without using material of a character that is prohibitively expensive. Frequently, containers made out of relatively light material begin to sag after containing a liquid for a relatively short length of time, and it has been found that paper containers tend to develop leaks when used for sugary or alcoholic fluids. Paper and plastic cups also tend to impart a distinct artificial taste to the liquid contained therein.

In addition to the foregoing, it is a popular belief, whether psychological or otherwise, that cold drinks served in paper cups or containers are never quite as cold as the same drinks served in glass or metal cups or containers.

With the foregoing in mind, it is an important object of the present invention to provide a container of the general character of a paper drinking cup made from a commonly known paper stock, but so lined as to greatly enhance the strength and fluid tightness of the resultant container and to render it a more satisfactory purveyor of cold drinks.

It is another object of the invention to provide a container of flexible sheet material having a thin metal lining.

It is another object of the invention to provide a container of the general character of a paper drinking cup in which the inside and bottom of the cup is lined with aluminum foil.

It is another object of the invention to provide a container of the general character of a paper drinking cup having a multi-thickness paper wall formed from a single paper blank at least partially lined with aluminum foil.

It is another object of the invention to provide a container of the general character of a paper drinking cup which is lined with metal foil and which may be manufactured from standard paper cup blanks on conventional automatic cup machines.

It is another object of the invention to provide a container of the general character of a paper drinking cup having a metal foil lining and a plural ply paper wall wherein one ply of paper is adhered to another ply of paper by an adhesive layer encircling the cup body.

It is another object of the invention to provide a container of the general character of a paper drinking cup having a multiple ply paper body but having a single ply paper bead at the top thereof and a single ply paper foldover for sealing the bottom.

It is a further object of the invention to provide a container capable of being made of relatively light sheet

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material and of such construction that it is very substantial and durable.

Further objects and advantages of the invention will become apparent upon reference to the following specification and claim and appended drawings wherein:

Figure 1 shows a plan view of a composite blank for manufacturing a cup according to one embodiment of this invention;

Figure 2 is a plan view of a composite blank for manufacturing a cup according to another embodiment of the invention;

Figure 3 is a vertical cross section of a cup manufactured according to the invention;

Figure 4 is an enlarged cross section of a portion of the bottom of the cup shown in Figure 3;

Figure 5 is an expanded cross section of the bottom of a cup made with the composite blank shown in Figure 2.

Figure 6 is a plan view of a composite blank for manufacturing a cup according to another embodiment of the invention; and

Figure 7 is a vertical cross section of the bottom of a cup manufactured with the composite blank of Figure 6.

Referring more particularly to the figures of the drawing, there is shown in Figure 1 a composite body blank 10 which is made up of a paper blank 12 which has an aluminum foil 14 secured to one-half of the upper side thereof. The upper margin of the paper blank is cut back or offset along one-half thereof at 16, so that the other half of the upper margin protrudes at 18. The aluminum foil may be secured to the paper blank by any suitable adhesive.

In the making of the container body, the body blank 10 is rolled around a mandrel to form a cup or container body in a shape substantially that of an open-ended cylinder with tapering side walls and during this operation the half of the paper blank which is not lined with aluminum foil has a suitable adhesive applied thereto. The length of the blank is such that two revolutions of the mandrel are permitted with the aluminum lined half of the blank forming the inner face of the cup body and with the unlined half of the paper blank adhering to the outer face of the lined half. The adhesive seal which holds the container body together is effective over the entire periphery of the container body and seals paper to paper to thereby avoid the difficulties which are encountered in attempts to adhere metal to paper or metal to metal.

Either during formation of the blank 10 into the tubular body or thereafter, as may be deemed most feasible, a paper bottom member 20 lined with aluminum foil 22 is placed inside the bottom of the body and the bottom margin is then turned inward as shown at 24 to effect a bottom seal. Adhesive is preferably applied to the inner face of the depending flange 26 on the composite cup bottom. The bottom may then be further locked into position by forming grooves 28, 30 and 32 in the bottom peripheral edge of the container. The margin 18 of the right half of the body blank 10 at the top of the cup is turned outwardly over the upper edge of the left half of the blank 12 to form a rolled drinking rim 34, and a hollow bead may be formed in the body wall of the cup a short distance below the rolled rim 34 to provide a cover receiving groove as indicated at 36.

One of the major features of the invention resides in the construction of the body so that the adhesive is effective between two layers of paper rather than between paper and aluminum. The same construction which brings about this result produces a minimum thickness cup wall so that the cup may be manufactured upon

known automatic cup forming machines designed for forming similarly shaped containers without the aluminum foil lining. Similarly the off-set portion 16 in the top of the body blank permits the drinking rim 34 to be formed of only one thickness of paper and a thickness of aluminum foil.

Whereas the embodiment of the invention shown in Figures 1 and 3 involves the adherence of aluminum foil to paper in the formation of the bottom of the cup it is a further feature of the invention that aluminum foiled lined cups may be formed without any paper to aluminum seals whatsoever.

Referring to Figure 2 there is shown a composite blank 38 formed of a paper blank 40 having aluminum foil 42 attached to the right half thereof. The upper edge of the paper blank is cut back at 44 as in the preceding embodiment of the invention and, in addition, the lower right hand edge of the composite blank is also cut back or offset at 46. With this form of blank the lower peripheral paper edge 48 is wrapped inward around the depending flange of the cup bottom 50. The aluminum foil lining 52 on the cup bottom engages the aluminum foil lining 42 on the cup body while the inturned lower peripheral paper edge 48 engages the paper depending flange 54. This seal is likewise provided with grooves for forcing the various layers into intimate contact with one another.

It is another important aspect of this construction that a liquid tight metal to metal seal is provided for holding the fluid while at the same time a structurally strong seal is made between two paper layers.

While a plural ply cup having a paper to paper adhesive bond surrounding the metal foil represents the preferred embodiment of my invention, it is also contemplated that single ply cups may be manufactured in a similar manner. Thus referring to Figures 6 and 7 of the drawing there is shown a composite blank 58 formed of a paper blank 60 having aluminum foil 62 attached thereto. The aluminum foil terminates short of the bottom of the paper blank at 64 and also terminates short of its right edge at 66. When a single ply cup is formed from this blank adhesive is applied at 66 so as to join this unlined portion of the paper blank to the outer surface of the other end thereof as shown in Figure 7. A flanged bottom 68 lined with aluminum foil 69 is fastened in the cup body by means of an adhesive forming a paper to metal seal at 70 and a paper to paper seal at 72.

It will be apparent from the foregoing that I have provided a container which is stronger, more durable and fluid tight than conventional paper cups and is capable of holding either hot or cold, sugared or alcoholic or other liquids for a very considerable length of time. The construction utilized necessitates a minimum increase in the amount of material used and introduces no structural weakness through attempts to form the cup body by adhering paper to metal or metal to metal. The peculiar construction of the container bottom eliminates leakage and allows the container to be used with fluids which

heretofore were contained for only a short period of time by conventional paper cups. The container is particularly satisfactory as a means of serving cold drinks since it conveys the same impression of refrigeration as is obtained when consuming such drinks from aluminum glasses. The container as a whole will hold a liquid substance satisfactorily over an extremely long period of time and imparts no artificial taste to the liquid.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claim are therefore intended to be embraced therein.

What is claimed and desired to be secured by United States Letters Patent is:

20 A metal foil lined paper container comprising a body portion having two ply paper walls lined on the inside with metal foil, said body portion being formed from an initially substantially flat paper blank having metal foil covering substantially one-half of one side thereof, the upper margin of said paper blank on the unlined portion thereof being downwardly offset, the lower margin of said blank on the lined portion thereof being upwardly offset, adhesive between the adjoining paper plies of said two ply paper walls, the upper margin of said blank being turned down to form a rim bead consisting of a single ply of metal foil lined paper on an open end of said body portion, and a paper bottom portion having a depending flange securely engaged with the other end of said body portion, said bottom portion having a lining of metal foil on the upper side thereof and on the outside of said depending flange, the bottom margin of said blank being folded over around the inside of said depending flange, said folded bottom margin consisting of a single ply of unlined paper secured to the inner paper side of said depending flange by adhesive, said single ply and said foil lining being sealed to said depending flange and its foil lining by means of complementary interlocking grooves in said single ply and its foil lining and said depending flange and its foil lining whereby said bottom is sealed to said body portion by a first frictional seal between said grooved interlocked face to face foil linings and a second adhesive seal between said depending flange and said folded bottom margin.

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