

March 26, 1963

J. BARAN

3,083,100

PACKAGE ADAPTED TO CONTAIN GRANULATED BEVERAGE
MATERIAL AND METHOD OF MAKING THE SAME

Filed Aug. 14, 1959

4 Sheets-Sheet 1

FIG. 1

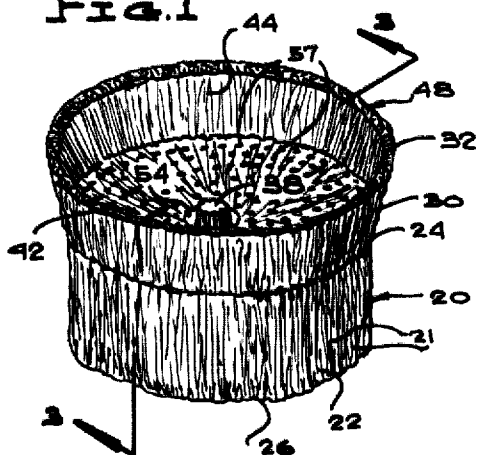


FIG. 2

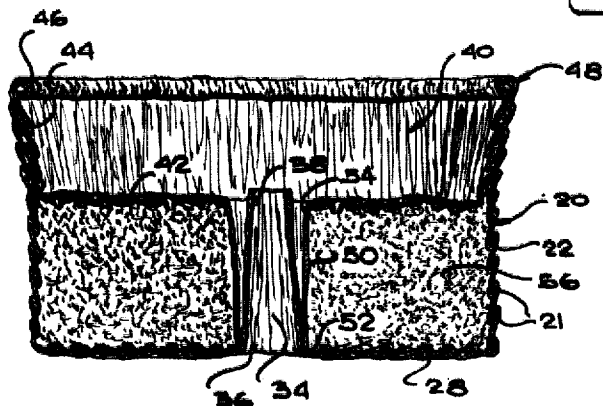
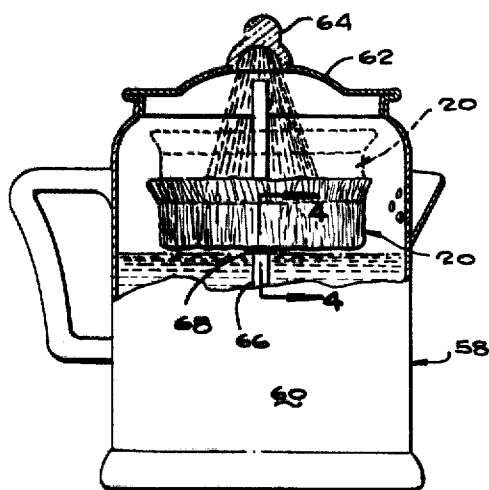


FIG. 3

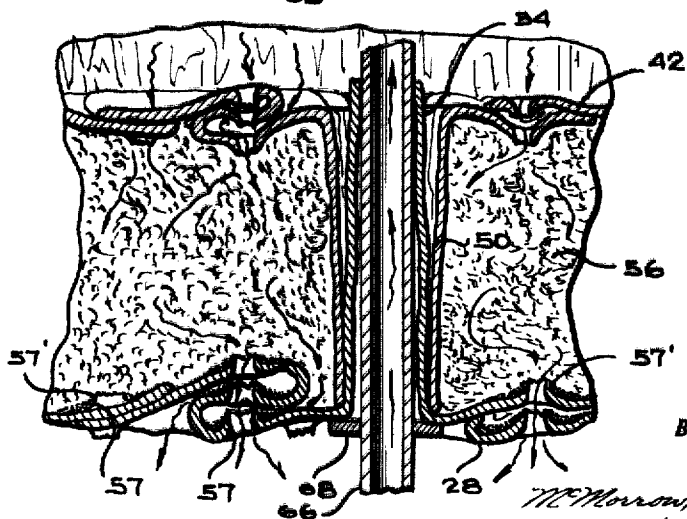


FIG. 4

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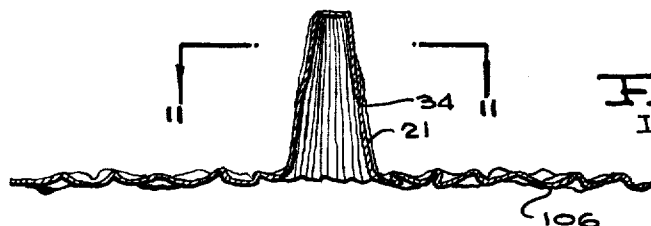
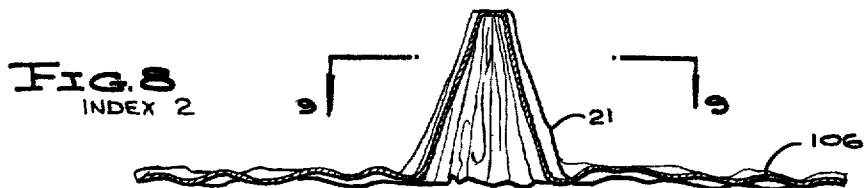
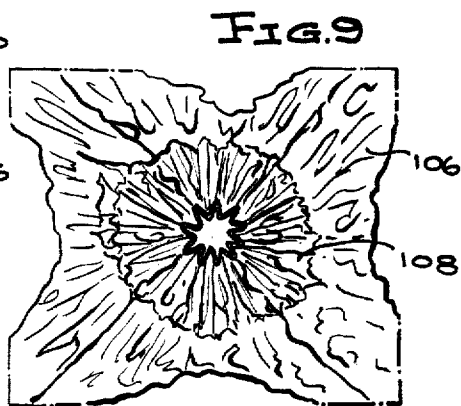
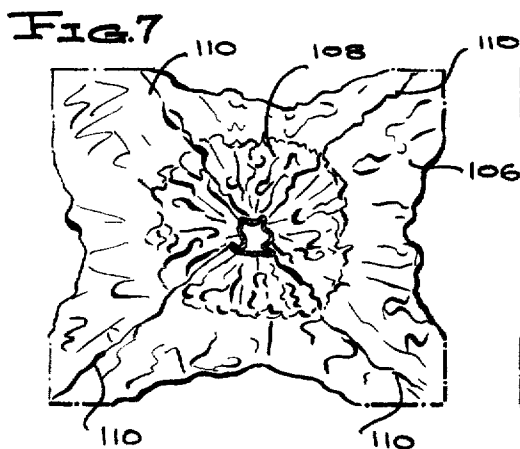
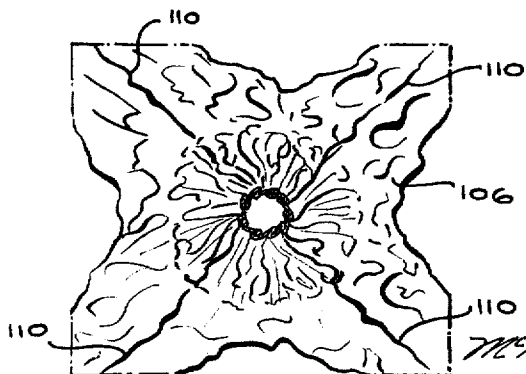


FIG. 10
INDEX 2-A



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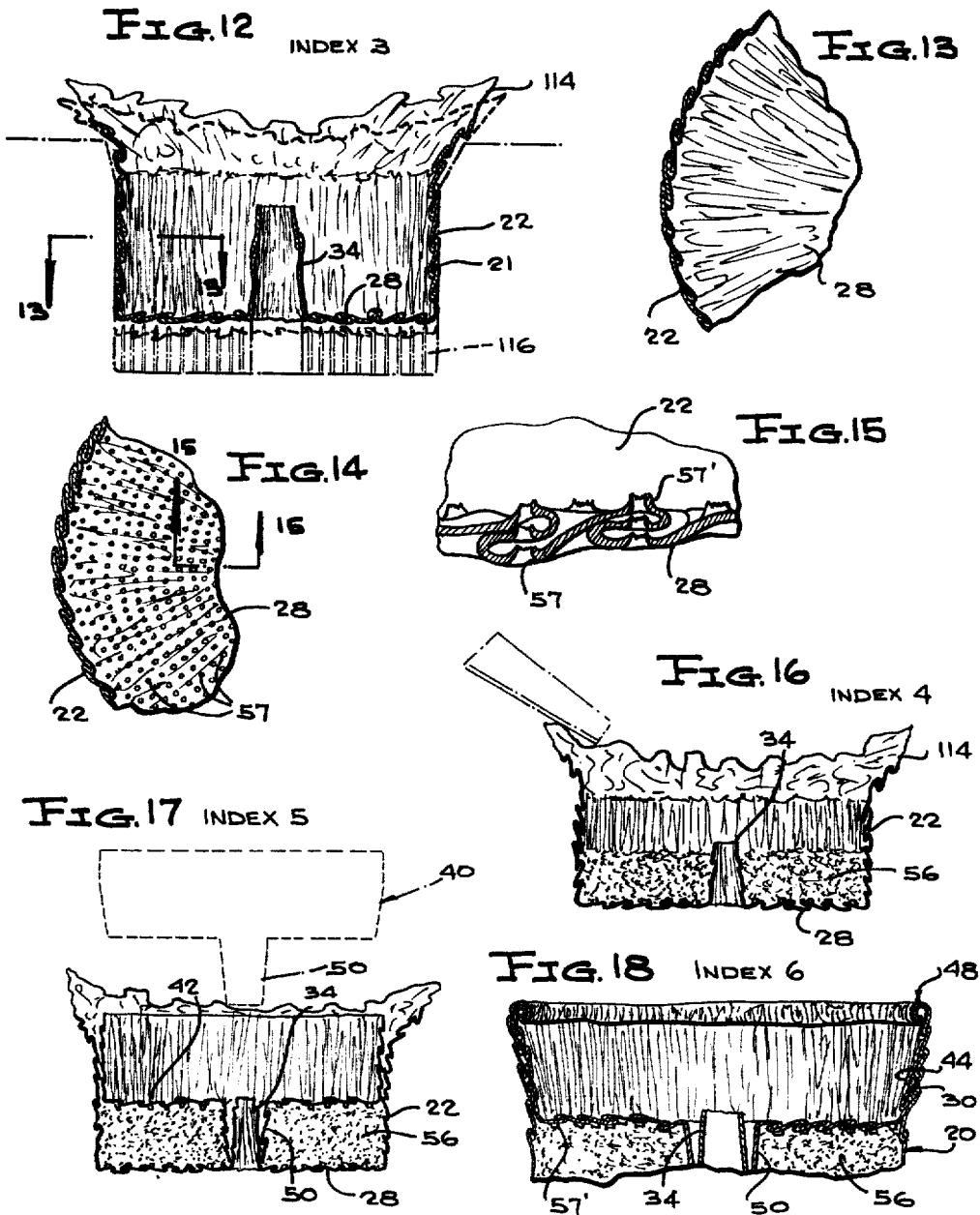
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3,083,100

PACKAGE ADAPTED TO CONTAIN GRANULATED BEVERAGE MATERIAL AND METHOD OF MAKING THE SAME

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Filed Aug. 14, 1959, Ser. No. 833,720
8 Claims. (Cl. 99—77.1)

This application is a continuation-in-part of my United States application Serial No. 765,816, filed October 7, 1958, now abandoned.

The invention hereinafter described and illustrated pertains generally to a package adapted to contain granulated beverage material, and to a method of making said package. More specifically, the package has, as one of its primary intended functions, the containing of coffee in a suitably granulated form, the package being especially adapted for use with a coffee brewing appliance of the type generally known as a percolator.

An objective of this invention is to provide a disposable percolator package which is intended to be substituted for the conventional cup or basket which is provided as a part of the usual type of coffee percolator. The coffee package envisaged by the present invention is intended for a single use, and may be discarded after it has been utilized.

Another object of this invention is to provide a coffee package of the type described above which is filled with a suitable amount of coffee during manufacture, said amount corresponding to the number of cups of coffee intended to be brewed with the package, for example, the package being filled with the proper amount of ground coffee to brew a single cup of coffee. It is a further objective of this invention to provide coffee packages in such manner that they may be used in series, so that a desired number of cups may be brewed, the range of the number of cups being limited only by the size of the percolator. For example, three packages stacked upon each other would be used to produce three cups of coffee.

An additional object of the invention is to provide a coffee brewing package which is readily disposable without handling of the coffee grounds per se in order that a percolator may be easily cleaned and the coffee grounds discarded without spillage.

A further object of the invention resides in the provision of a coffee package formed of an extremely thin gauge of aluminum foil, or the like, but possessing sufficient rigidity to retain its intended configuration during handling and shipment and in use in a percolator.

Another objective of the present invention is to provide a coffee percolator package wherein the water which is expelled from the water riser of the percolator is evenly distributed throughout the grains of coffee contained in the package.

Another object of this invention is to provide a coffee brewing package formed of a thin gauge of metallic foil and having a relatively large amount of openings formed therein, but one which will reduce to an absolute minimum the amount of coffee grounds which escape through such openings.

While it was formerly believed impractical to construct and assemble a package of the type hereinafter described of thin gauge aluminum foil or the like, the present invention includes a new and useful method for forming a package of this character from such material at a relatively low cost of manufacture, the method being one wherein great quantities of the packages may be produced in an extremely small amount of time.

In addition to the foregoing, it is an additional object of this invention to provide a package of the class described

supra, which is non-complex in construction and assembly, extremely inexpensive to manufacture, and to provide a method of producing such packages.

Other and further objects and advantages of the present invention will become more readily apparent from a consideration of the following specification when read in connection with the annexed drawings, in which:

FIGURE 1 is a perspective view illustrating a package adapted to contain granulated beverage material constructed and assembled in accordance with the teachings of the present invention;

FIGURE 2 is a side elevational view, partly in cross-section, illustrating a conventional coffee percolator and showing one of the coffee packages of this invention in place thereon in full lines with a second one of said packages being illustrated in a stacked position thereon in phantom lines;

FIGURE 3 is an enlarged cross-sectional view of the package seen in FIGURE 1, the section being taken substantially on section line 3—3 of that figure;

FIGURE 4 is an enlarged cross-sectional view taken on the line 4—4 of FIGURE 2, looking in the direction of the arrows;

FIGURE 5 is a diagrammatic showing of the various steps in the method utilized in producing the package of this invention;

FIGURE 6 is an enlarged sectional view showing the blank from which the main body of the package is formed at the completion of the first step of manufacture;

FIGURE 7 is a top elevational view, partly in section along line 7—7 of FIGURE 6, of the blank seen in FIGURE 6;

FIGURE 8 is a side elevational view in cross-section of the blank at the completion of the operation performed at Index Station No. 2 in FIGURE 5;

FIGURE 9 is a top plan view, partly in section taken along line 9—9 of FIGURE 8;

FIGURE 10 is illustrative of the blank at the completion of the step of manufacture denoted Index 2A in FIGURE 5;

FIGURE 11 is a top plan view of the article seen in FIGURE 10, the view being partly in section along line 11—11 of FIGURE 10;

FIGURE 12 shows the main body of the article at Index Station 3 in FIGURE 5, preparatory to the piercing of the base portion thereof;

FIGURE 13 is a fragmentary sectional view taken on line 13—13 of FIGURE 12;

FIGURE 14 illustrates a fragment of the base portion of the main body subsequent to the piercing operation performed at Index Station No. 3 in FIGURE 5;

FIGURE 15 is an enlarged fragmentary sectional view taken on line 15—15 of FIGURE 14;

FIGURE 16 is a side elevational view representing the filling of the body portion with granular material which takes place at Index Station No. 4 in FIGURE 5;

FIGURE 17 illustrates the article as seen at Index Station No. 5 in FIGURE 5, a portion of the cover assembly of the package being shown in dotted lines as it is moved into position; and,

FIGURE 18 is a fragmentary side elevational view which illustrates the finished package as it appears upon completion of the rolling and crimping exercise performed at Index Station No. 6 in FIGURE 5.

The Package

Proceeding primarily to a more detailed description of a coffee package constructed and assembled in accordance with the teachings of the present invention, and with specific reference to FIGURES 1 to 4, inclusive, of the drawings, reference numeral 20 has been applied to the package per se. As stated above, the package is formed

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of aluminum foil, or the like, of extremely thin gauge, and it will be seen with reference to the drawings that a plurality of folds or gatherings 21 are distributed through the entire surface thereof, and that the body portion of the package has a substantially cylindrical, imperforate, side wall 22 which includes an oppositely disposed upper open end 24 and base end 26, the base end 26 being substantially closed by a discoidal base portion 28. An annular rim projects upwardly and outwardly from the open end 24 of the side wall 22, and is identified in the drawings by reference character 30, the rim 30 including an outer end edge portion 32.

A substantially hollow, frusto-conical stem 34 is located centrally of the base 28 and includes a larger base end 36 and an opposing lesser end 38 which projects upwardly beyond the open end 24 of the side wall 22. As seen in FIGURES 3 and 4, the base end 36 of the stem 34 is secured to the base portion 28 of the main body 20, and defines a central opening therein.

A closure assembly 40 is provided for the main body 20, and comprises a substantially discoidal, perforate cover member 42 which is adapted to be fitted across the open end 24 of the side wall 22. An annular cover rim 44 is secured, either integrally or otherwise, to the peripheral edge of the cover member 42 and projects outwardly and upwardly therefrom. The cover rim 44 includes an outer end edge portion 46 which, when the device is in its final assembled state, is joined to the outer end edge portion of the rim 30 by a crimp or rolled fold means indicated in the drawings by reference character 48. The cover member 42 is provided with an inverted, substantially hollow frusto-conical stem 50 which projects downwardly from substantially the center thereof, the stem 50 having a smaller end 52 and a larger end 54. The larger end 54 defines a central opening in the cover 42, and the entire stem 50 is adapted to be fitted over the stem 34, with the small end of the stem 50 engaging against the sides of the stem 34 adjacent the base end 36 thereof.

It is to be noted that the dimensions of the base 28, and the cover 42 are substantially identical so that a plurality of packages may be nestingly stacked one upon the other.

It is also of importance to note that the cover 42 and the base 28 are each provided with a great number of openings or piercings 57, and that during formation, annuli or side walls 57' are formed therearound for a purpose dealt with more fully below.

As seen in the several views, the package 20 is filled with a granulated material 56, such as ground coffee, at a suitable stage during its manufacture.

In use, as seen in FIGURE 2, the package 20 is substituted for the conventional basket portion which is supplied along with a percolator. In this illustration, the percolator is denoted by reference numeral 58, and is of conventional construction including a body portion 60, a lid 62, and a cup-shaped dome 64. The percolator 58 further includes a water riser 66 having a bead 68 intermediate its ends which prevents downward displacement of the coffee basket. Either one, or a plurality, of packages 20 may be utilized, and when this is done, the operation is substantially the same as if the conventional coffee basket were utilized. However, the improved construction supplied by this invention has been found in practice to produce coffee of an improved quality over that obtained when using the conventional apparatus.

As stated above, both the cover 42 and base 28 of the package 20 are perforated during the assembly of the package, and with special reference to FIGURES 3 and 4, it is to be noted that the aforesaid perforations 57 extend through the folds or gatherings 21 in the foil. The fact that the folds or gatherings 21 are present results in a great number of perforations 57 being formed by a single stroke of the perforating apparatus inasmuch as several layers of material may be pierced at one time. While the aforesaid perforations are co-aligned when orig-

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inally formed, the basket will expand during utilization, therefore providing a greater distribution of said perforations.

It is also of importance to note, that the walls 57' aid in attaining the stated objective of the elimination of granules in the brewed coffee. In practice it has been found that ground coffee is not uniform in granulation, that is, that the ground coffee consists of larger granules and very small granules. It has further been noted that, during handling of the packages 20, the smaller granules sift downwardly through the larger granules and come to rest at the base 28 of the package. Thus, during the actual brewing of the coffee, the escape of the small granules is prevented by the walls 57', and by the folds or gatherings 21 in the base 28.

When two or more of the packages are used in superposed relationship, it has been found that the solvent (e.g. water) flowing through the water riser 66 penetrates and acts upon the coffee in the lower packages as well as if there were a single basket having no partitions between adjacent layers of the coffee. The explanation for this operation is that the coffee bean contains an oil which is reduced to a soluble state by the hot water and as the water flows through the upper package it becomes charged with the oil in the first package. It has further been ascertained that here is an affinity between coffee grounds that have not been subjected to hot water, and hot water in which certain of the oils discussed above have already been released. Therefore, there is a decided benefit obtained from the use of a plurality of the packages, in that coffee in the lower packages is dissolved more readily than if the hot water had previously not been passed through other coffee grounds.

An additional unexpectedly favorable result which is obtained through the stacking of a plurality of the containers is that the formation of the packages with the above discussed folds and gatherings results in a more even distribution of the solvent throughout the granular material than was the case when conventional coffee baskets were utilized.

Method

Both the main body 20 of the package, and the cover assembly 40 thereof are formed from single blanks of material which, in its untreated state, is relatively flexible. At present, aluminum foil of a gauge of .001 in. has been found satisfactory, but it is to be understood that other materials and materials of varying thicknesses may be substituted therefor and still remain within the broad scope of the present invention. Heretofore, it has been generally considered that foil of the gauge specified cannot be formed to the general shape illustrated, by inexpensive, mass-production methods.

FIGURE 5 illustrates diagrammatically, the various steps involved in the production of the main body 20 of the package. The formation of the cover assembly 40 is highly similar to that method described in the formation of the main body, and hence, a full description thereof would be superfluous, and the following description is limited only to the main body and assumes that the cover assembly 40 has previously been constructed and is ready for assembly.

With reference to the drawing, the foil 100 is fed from a roller or the like 102 onto a generally annular indexing table 104. Suitable means is provided adjacent the roller and feeding assembly to sever a blank 106 of suitable dimension, this step being performed immediately adjacent a first indexing station on the table 104. At this first indexing station, the precut blank 106 is fed into a substantially rectangular template (not shown) having a central opening formed therein. As a first actual step in performing the manufacture, the aforementioned template containing the blank 106 of material is brought sharply down on a tapered center pin (not shown) which forms a pyramidal concavity 108 at the center portion of the

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blank 106. This sharp striking of the blank 106 against a fixed object causes the blank to have a plurality of folds or gatherings 21 formed throughout its entire surface, the folds or gatherings 21 projecting radially from the pyramidal concavity 108 adjacent the center of the blank 106. In the drawing, FIGURES 6 and 7 illustrate the action which is taken against the blank during step 1. In FIGURE 6, the dotted line showing of a substantially flat piece at the upper portion of the figure, illustrates the blank to be acted upon, while the full line drawings subjacent thereto illustrates the blank 106 at the completion of step 1. In FIGURE 7 it will be noted that there are four main folds 110 formed in the blank 106 at the completion of this step.

At Index Station 2 in FIGURE 5, the blank 106 is acted upon to further compact the pyramidal concavity 108 thereof by decreasing the diameter of it at its base portion. For example, in one embodiment of the invention, the concavity 108 has, at the completion of the operation at Index Station No. 1, an apex diameter of about .303 inch, and a base diameter of approximately 2.5 inches. At the completion of the operation at Index Station 2, the apex diameter remains at substantially .303 inch, but the base diameter is reduced to approximately .560. In FIGURE 8, is seen that this step also increases the height of the concavity 108, and tends to compress the folds or gatherings 21 thereabout. In FIGURE 9, the top plan view of the blank 106 as shown in FIGURE 8 it is also to be noted that the side edges of the blank 106 surrounding the pyramidal concavity 108 have been drawn inwardly towards the center of the blank 106.

Subsequent to the operation on the blank at Station 2 the blank 106 is moved to an intermediate station denoted Index 2A in FIGURE 5, and the pyramidal concavity 108 is further acted upon to closely and firmly form this material into the frusto-conical stem 34 with the folds or gatherings 21 closely compacted against the sides thereof.

At Index Station 3, the blank 106 is forced downwardly into an opening (not shown) in the indexing table 104 thereby creating a cup-shaped or basket-shaped main body including the side wall 22 and base 28 which surrounds the stem 34. The material 114 surrounding the cup-shaped main body remains in a flange arrangement projecting upwardly and outwardly from the side wall 22 of the basket. Simultaneously with the basket forming, or alternatively as an additional step, a plurality of dull, non-pointed, piercing means 116 are forced upwardly through the base of the cup thereby creating a plurality of openings 57 therein. In FIGURE 15, it is seen that these openings extend through the folds or gatherings 21 in the base 28 of the basket, and this particular feature results in the formation of a much greater plurality of openings from a single piercing than would be possible were the base 28 of the basket completely flat.

Upon completion of the cup forming and piercing operation, the blank 106 is moved to the fourth index station, wherein the beverage making material 56 is inserted and substantially fills the cup portion of the package.

At Index Station 5, the cover assembly 40, seen in phantom lines in FIGURE 17, is placed over the cup or basket with the stem 50 thereof engaging against the stem 34 of the cup or basket. The cover assembly 40 and the main body, at this stage of manufacture, each have the outer edges thereof in a relatively loose, but upwardly and outwardly projecting position.

At Index Station 6, the aforesaid flanges are trimmed to a substantially round condition, and as a final step in the manufacture the edges thereof are rolled together to form a fold means 48 more or less permanently sealing the basket together. The completed article 20 is then moved to Index Station 6A where it is ejected from the indexing table 104 and moved therefrom for final packaging.

Having described and illustrated the foregoing article and method in somewhat complete detail, it is to be under-

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stood that the description and illustration are offered merely by way of example, and that this invention is to be limited in scope only by the appended claims.

What is claimed is:

1. A beverage making package formed of metallic foil having a plurality of preformed, compacted folds therein and adapted for use with a percolator including a water riser, said package comprising a basket which contains a granulated beverage making product, said basket having a centrally located, substantially frusto-conical, hollow stem projecting upwardly from substantially the center thereof, said stem including an enlarged base portion and being tapered therefrom to a reduced upper portion, said stem being adapted for engagement around said water riser, a cover portion for said basket closing the basket, a central stem open at its ends depending from the cover portion, said last named stem being substantially frusto-conical and having an enlarged portion at its point of connection with said cover portion and being tapered to a reduced outer end portion, said last named stem being telescopically engaged with said stem of said basket with the reduced outer end portion thereof tightly engaging against the base portion of the stem of said basket, and said cover portion and said basket each being freely perforated to allow the passage of a solvent through said package.

2. A package as defined in claim 1 wherein said cover portion and said basket are each provided with a plurality of annuli individual to and surrounding the perforations thereof.

3. A beverage making package adapted for use with a percolator, said package being formed of a metallic foil which has a plurality of pre-formed, compressed folds therein, said package comprising a main body portion containing a selected quantity of granular beverage making material having an imperforate side wall, said side wall having an oppositely disposed upper open end and base end, said base end being closed by a perforate base portion, an annular rim projecting upwardly from said open end of said side wall, a substantially hollow frusto-conical stem located centrally of said base portion and having its larger base end secured thereto and its opposing lesser end projecting upwardly beyond the interior of said package, a perforate cover portion closing the upper open end of said main body, said cover portion including a centrally located depending stem, said stem of said cover portion being telescopically received on said stem of said base portion, an annular cover rim extending from the peripheral edge of said cover portion, and means connecting said cover rim and said flange together.

4. A beverage making package adapted for use with a percolator that includes a tubular water riser, said package being formed of two blanks of a prepared aluminum foil which have a plurality of pre-formed fold means projecting approximately radially from their center portions so as to extend throughout the package, said package containing a granular beverage making material and comprising a main body portion having a substantially cylindrical imperforate side wall, said side wall including an oppositely disposed upper open end and a base end, a discoidal perforate base portion for said base end of said main body portion, an annular rim projecting upwardly and outwardly from said open end of said side wall and including an outer end edge portion, a substantially hollow frusto-conical stem located centrally of said base portion and having its larger base end secured thereto and its opposing lesser end projecting upwardly therefrom, a closure assembly comprising a substantially discoidal perforate cover member fitted across said upper end of said side wall, an annular cover rim secured to the peripheral edge of said cover member and projecting outwardly and upwardly therefrom and including an outer end edge portion, said outer end edge portions of said rim and said cover member being secured to one another by a fold means, annuli on said base and one said cover member surrounding the perforations thereof, and an inverted frusto-conical stem

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projecting downwardly from said cover member and having its smaller end engaging said stem of said base portion.

5. A package formed of two blanks of prepared aluminum foil which have a plurality of fold means projecting radially from their center portions, said package containing granular material and comprising a main body portion having a substantially cylindrical imperforate side wall, said side wall including an oppositely disposed upper open end and a base end closed by a discoidal perforate base portion, an annular rim projecting upwardly and outwardly from said open end of said side wall and including an outer end edge portion, a substantially hollow frusto-conical stem located centrally of said base portion and having its larger base end secured thereto and its opposing lesser end projecting upwardly beyond said open end of said side wall, a closure assembly comprising a substantially discoidal perforate cover member fitted across said upper end of said side wall, an annular cover rim secured to the peripheral edge of said cover member and projecting outwardly and upwardly therefrom and including an outer end edge portion, said outer end edge portions of said rim and said cover member being secured to one another by a rolled fold means, and an inverted frusto-conical stem projecting downwardly from said cover member and having its smaller end engaging said stem of said base portion.

6. A method of producing a package for granulated beverage making products from a blank of aluminum foil material, and a prepared cover assembly comprising the steps of: (1) feeding a measured blank of said material into a template at a first index station; (2) forming a pyramidal concavity at the center portion of said blank by bringing said template down sharply on a tapered center pin thereby forming a plurality of loose folds in said blank; (3) moving said blank to a second index station wherein the pyramidal concavity is compacted by decreasing the diameter of the base thereof; (4) moving said blank to an intermediate index station wherein it is acted upon to closely and firmly form said pyramidal concavity into a frusto-conical stem; (5) moving said blank to a third index station wherein is formed the main body of the blank into a basket with a circumferential flange extending upwardly and outwardly therefrom, said basket surrounding said stem; (6) bringing the base of the cup into contact with a piercing device for forming a plurality of openings in the base thereof; (7) moving said blank to a fourth index station wherein said cup is filled with said beverage making product; (8) moving said blank to a fifth index station where a prepared cover assembly including a cover member, a stem, and a flange is affixed thereto with the stem of said cover assembly engaging the stem of the main body, the cover member disposed over the open end of the basket and the flange of the cover assembly bearing against the flange of the basket; (9) moving the package to a sixth index station wherein the edges

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of said flanges are trimmed to a generally circular configuration; (10) rolling the edges of said flanges to form a fold means; and (11) moving said package to a final station from whence it is ejected from the indexing table.

7. A beverage making package formed of metallic foil having a plurality of compacted folds therein and adapted for use with a percolator including a water riser, the package comprising:

- (a) basket, including a base portion, containing a granulated beverage making product;
- (b) a cover portion for the package closing and sealing said basket,
- (c) tapering, expandable, stem means extending between the base portion of the basket and the cover portion and sealingly engaging said base portion and said cover portion, the stem means being adapted to engage about the water riser thereby to support the basket on the water riser; and
- (d) the cover portion and the base portion of the basket each being freely perforated to allow the passage of a solvent therethrough.

8. A method of producing a package for granulated beverage making material from a blank of metallic foil comprising the steps of:

- (a) forming a concavity at the center of the blank, the concavity having a plurality of loose folds therein;
- (b) compacting the folds in the concavity thereby decreasing the diameter thereof to form a frusto-conical stem open at its ends;
- (c) forming that portion of the blank surrounding the concavity into a cupped, upwardly opening receptacle including a base and circumferential flange;
- (d) piercing the base to form a plurality of openings therein;
- (e) filling the receptacle with a granulated beverage making product;
- (f) placing a perforate cover of the receptacle with the cover in sealing engagement with the stem; and
- (g) connecting the outer edges of the cover in sealing engagement with the receptacle flange.

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