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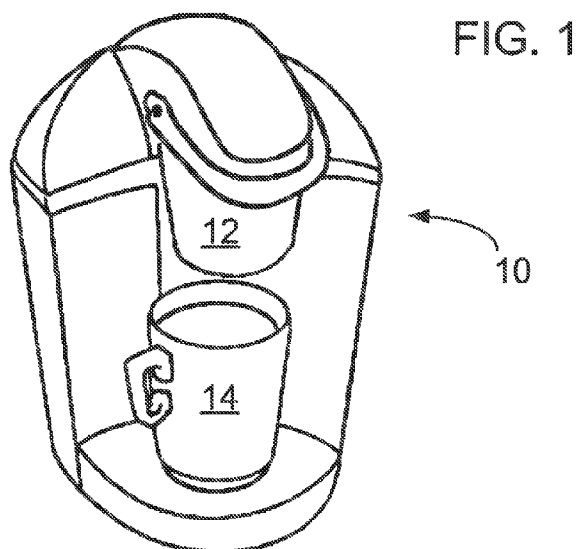
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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(54) Title: FOOD PRODUCT CONTAINER



(57) Abstract: A food product container is configured to be received in a receiver of a beverage forming device. The container having an outer surface defining an interior space and a food or beverage liquid contacting medium disposed within the interior space. The container has a side wall peak compression force of less than 5 Newtons.



FOOD PRODUCT CONTAINER

BACKGROUND

- [0001] Food products such as beverages have been packaged in single serving portions. These single serving beverage portions can be utilized by known single serving brewing machines to produce a single cup of coffee, tea, hot chocolate and the like. These single serving beverage portions may or may not include a filter depending on the type of beverage dispensed by the single serving brewing machine.
- [0002] The single serving portions have been referred to as cartridges. Cartridges for use with beverage forming machines are known, and may include one or more filters as well as a beverage medium, such as ground coffee beans, tea leaves, etc. In some cartridges, the filter is located between two or more portions of an interior space of the cartridge, e.g., one portion in which a beverage medium is located, and a second portion into which liquid that has passed through the filter may flow.
- [0003] An example of one such cartridge is disclosed in U.S. Pat. No. 5,840,189 and/or U.S. Pat. No. 6,607,762, which may be used with a beverage making machine like that described in U.S. Pat. No. 7,398,726, which patents are hereby incorporated by reference in their entirety. In use, the beverage forming machine introduces a fluid into the cartridge to interact with the beverage medium. In some machines, a piercing outlet needle of the machine is used to pierce a surface of the cartridge (e.g., a bottom wall of the cartridge container) permitting the liquid that has interacted with the beverage medium to flow through the filter and exit the cartridge.
- [0004] Improvements in food product containers are desired.

SUMMARY

- [0005] The present disclosure relates to food product containers that are configured to be received in a receiver of a beverage forming device. The food product container is a thin film article. The thin film container can be thermoformed and have an average sidewall thickness of less than 150 micrometers.
- [0006] In many embodiments, a food product container is configured to be received in a receiver of a beverage forming device. The container has an outer surface defining an interior space and a food or beverage liquid contacting medium disposed within the interior space. The container has a sidewall peak compression force of less than 5 Newtons.
- [0007] In some embodiments, a method includes disposing the container described herein within a container receiver of a beverage forming machine and piercing the container outer surface with the beverage forming machine. Then contacting water from the beverage forming machine with the food or beverage liquid contacting medium with the water to form a food or beverage liquid. Then dispensing the food or beverage liquid from the beverage forming machine.
- [0008] In further embodiments, a method of forming a food product container includes thermoforming a first polymer film having a thickness of less than 150 micrometers to form a cup form having an open rim top end and a closed bottom end, the cup form defining an interior space. Then disposing a food or beverage liquid contacting medium into the interior space and sealing a second film on the open rim top end to form a food product container.
- [0009] These and various other features and advantages will be apparent from a reading of the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

- [0010] The disclosure may be more completely understood in consideration of the following detailed description of various embodiments of the disclosure in connection with the accompanying drawings, in which:
- [0011] **FIG. 1** is a schematic diagram of an illustrative beverage forming device;

- [0012] **FIG. 2** is a perspective view of an illustrative container;
- [0013] **FIG. 3** is a schematic diagram of a container being placed in a receiver of a beverage forming device;
- [0014] **FIG. 4A-4E** are a schematic diagram of a thermoforming process for making the illustrative container; and
- [0015] **FIG. 5** is a schematic diagram of an illustrative food product forming system.

DETAILED DESCRIPTION

- [0016] In the following detailed description, reference is made to the accompanying drawings that form a part hereof, and in which are shown by way of illustration several specific embodiments. It is to be understood that other embodiments are contemplated and may be made without departing from the scope or spirit of the present disclosure. The following detailed description, therefore, is not to be taken in a limiting sense.
- [0017] All scientific and technical terms used herein have meanings commonly used in the art unless otherwise specified. The definitions provided herein are to facilitate understanding of certain terms used frequently herein and are not meant to limit the scope of the present disclosure.
- [0018] Unless otherwise indicated, all numbers expressing feature sizes, amounts, and physical properties used in the specification and claims are to be understood as being modified in all instances by the term “about.” Accordingly, unless indicated to the contrary, the numerical parameters set forth in the foregoing specification and attached claims are approximations that can vary depending upon the properties sought to be obtained by those skilled in the art utilizing the teachings disclosed herein.
- [0019] The recitation of numerical ranges by endpoints includes all numbers subsumed within that range (e.g. 1 to 5 includes 1, 1.5, 2, 2.75, 3, 3.80, 4, and 5) and any range within that range.
- [0020] As used in this specification and the appended claims, the singular forms “a”, “an”, and “the” encompass embodiments having plural referents, unless the content clearly dictates otherwise. As used in this specification and the appended claims, the term “or” is

generally employed in its sense including “and/or” unless the content clearly dictates otherwise.

- [0021] “Include,” “including,” or like terms means encompassing but not limited to, that is, including and not exclusive. It should be noted that “top” and “bottom” (or other terms like “upper” and “lower”) are utilized strictly for relative descriptions and do not imply any overall orientation of the article in which the described element is located.
- [0022] As used herein, a “food product” is a food produced by combining two or more edible ingredients. Food products include both solid and liquid foods and beverages.
- [0023] As used herein, the phrase “sidewall peak compression force” refers to peak force required to compress the sidewall of the container. This is a physical property of the sidewall structure of the container.
- [0024] The present disclosure relates to food product containers. The food product container is a thin film pressurized article where the pressure can assist in maintaining the structural integrity or form of the container. The thin film container can be thermoformed and have an average sidewall thickness in a range from 5 to 100 micrometers or in a range from 5 to 50 micrometers. The container has an outer surface defining an interior space and a food or beverage liquid contacting medium disposed within the interior space. The container can be pressurized to provide a sealed interior space where the pressure within the container provides sidewall structural support for the container. This pressurized container can have a peak compression force of greater than 40 Newtons or greater than 50 Newtons. When the pressure is released, the container is easily crushed with an applied compressive force. This container can have a sidewall peak compression force of less than 5 Newtons. While the present disclosure is not so limited, an appreciation of various aspects of the disclosure will be gained through a discussion of the examples provided below.
- [0025] **FIG. 1** is a schematic diagram of an illustrative beverage forming device **10**. The beverage forming device can be a single serve beverage forming device such as the device described in U.S. 7,165,488. A beverage cartridge is received in a receiver **12** of this

single serve beverage forming device **10** and the beverage is dispensed into a cup **14** below the receiver **12**.

[0026] The beverage forming device utilizes a needle or piercing element that forms a hole in a top surface and a bottom surface of the beverage cartridge. The needle or piercing element can have a diameter of up to a few millimeters and forms a hole or a void in the beverage cartridge that is substantially equal to the diameter of the needle or piercing element. The containers **20** described herein are able to be pierced with the needle or piercing elements of the beverage forming device even though the pressurized sealed interior space provides sidewall structural support for the container.

[0027] **FIG. 2** is a perspective view of an illustrative container **20** that can be received in the receiver **12** of a single serve beverage forming device **10**. The container of **FIG. 2** has a frustoconical shape with a side surface **22** extending between a top surface or lid **24** and a bottom surface **25**. The side surface **22** and bottom surface **25** cooperate to define a “cup form” of the container **20**. **FIG. 3** is a schematic diagram of a container **20** being placed in a receiver **12** of a beverage forming device **10**.

[0028] A food or beverage liquid contacting medium can be contained within a sealed interior space of the container **20**. The food or beverage liquid contacting medium can be any useful food or beverage material. In preferred embodiments the food or beverage liquid contacting medium is agglomerated to assist in quick dissolution into the water stream. In some embodiments the food or beverage liquid contacting medium includes soluble food material and/or insoluble food material. The solid food material can include any useful food item that can be infused or hydrated such as soup solids, dried fruit, nuts, croutons, and the like for example. The soluble food material can include any useful food item such as flavorings, spices, starches, protein, soluble fibers, vitamins and minerals, dairy solids, and the like for example. Liquids can also be present in the food or beverage liquid contacting medium such as flavors, fats, emulsions, oils and the like for example.

[0029] In some embodiments, the container **20** includes a removable (e.g., peel-off or tear-off) lid **24**. In these embodiments, food or beverage liquid contacting medium includes solid or insoluble food or beverage material that is dispensed into the food product by removing the lid of the container **20** and removing the food or beverage liquid contacting medium from the container **20** to form the food product.

- [0030] The container **20** has an outer surface defining an interior space and a food or beverage liquid contacting medium disposed within the interior space. In many embodiments the interior space is pressurized and sealed to form a pressurized sealed interior space. The pressurized sealed interior space provides sidewall structural support for the container **20**. When the pressure is released, the container **20** is easily crushed with an applied compressive force. In other words, the cup form or sidewall **22** of the container **20** do not provide vertical structural support so that a compressive force applied to the top of the cup form or sidewall **22** will collapse the sidewall **22**.
- [0031] A physical property of the sidewall of the container is the “sidewall peak compression force,” that is the peak force required to compress the sidewall of the container. This physical property can be measured with a force tester available under the trade designation MTS Instron Sintech ReNew, from MTS Systems Co., Eden Prairie MN. This physical property is measured when the container is not in a sealed or pressurized state, in other words the container has one or more vent holes to allow air to leave the container as it is compressed. The containers described herein have a sidewall peak compression force value being less than 5 Newtons or less than 3 Newtons or less than 2 Newtons. Typical containers commercially available under the trade designation K-CUP have a sidewall peak compression force of about 200 Newtons or greater.
- [0032] In many embodiments, the outer surface is formed of a thin film material. The thin film material can be a polymeric film having a thickness of 150 micrometers or less or 125 micrometers or less or 100 micrometers or less that can be thermoformed into the cup form and final container. The cup form or final container can have sidewall thickness of less than 125 micrometers, or less than 100 micrometers, or less than 75 micrometers.
- [0033] The polymeric film can be formed of any thermoplastic polymer material that is capable of being thermoformed and containing the food or beverage liquid contacting medium and the gas pressure. In many embodiments, the polymeric film is formed of a polyolefin or polyester. Illustrative examples of thermoplastic polymer material that exhibit dimensional stability sufficient to allow the material to maintain a desired expansion potential, during extended storage periods, include certain types of polyethylene terephthalate (PET, or PETE), APET (amorphous polyethylene terephthalate, or polyester), APET base material with EVOH nylon (polyethylene sealant or polypropylene-

based sealant); PETE; and oriented PET (oriented PET polymer with PE sealant base with various levels of nylon); APET-cross direction; APET-machine direction; OPET machine direction; OPET cross direction.

- [0034] In some embodiments, the top surface **24** of the container **20** is formed of the same type of polymer material as the remaining cup form of the container **20**. In other embodiments, the top surface **24** of the container **20** is formed of a different type of material (polymer or film) as the remaining cup form of the container **20**.
- [0035] In some embodiments, the container **20** outer surface is transparent to visible light so that the food or beverage liquid contacting medium disposed within the sealed interior space is observable by a user of the food product container. For example the polymeric film forming the sidewall **22** of the container **20** is visible light transparent. In some embodiments, a portion of the outer surface is transparent to visible light and a portion of the outer surface is opaque to visible light. In other embodiments, the container **20** outer surface is opaque to visible light so that the food or beverage liquid contacting medium disposed within the sealed interior space is not observable by a user of the food product container.
- [0036] In some embodiments the container **20** is formed of a thermoplastic porous layer, such as a filter or mesh material. The thermoplastic mesh layer can be thermoformed into the cup form and a lid can be fixed to the cup form to form the final container. This container would not be able to be sealed or pressurized and can have the same physical properties and dimensions described for the sealed and pressurized containers above.
- [0037] The container **20** outer surface is defined by a top surface **24** sealed to a thermoformed cup form **22**. In many embodiments, The thermoformed cup form or side wall **22** has an average thickness in a range from about 5 to 75 micrometers or from about 5 to 50 micrometers or from about 5 to 30 micrometers.
- [0038] In contrast, traditional containers have a sidewall thickness of at least 200 micrometers and preferably more than 250 micrometers. These traditional containers have polymeric or metallic sidewalls with these greater thicknesses. These thick polymeric or metal sidewalls provide structural support and resist compressive forces. In other words, when these traditional containers are pierced and depressurized, the sidewalls themselves resist

compressive forces so that the container will not crush under compressive forces that will crush the containers described herein.

[0039] In some embodiments the container sealed interior space includes a filter element to contain the food or beverage liquid contacting medium. This is particularly useful for any type of infusion-type beverage such as tea, coffee and the like. A portion of the filter can be attached or fixed to a lid or top portion of the container. In many embodiments the filter mimics the form of the container, such as a cup form.

[0040] FIG. 3 is a schematic diagram of a container 20 being placed in a receiver 12 of a beverage forming device 10. Once the container 20 is received in the receiver 12 of a beverage forming device 10, the sidewall of the receiver 12 contacts the sidewall 22 of the container 20. Then in illustrative beverage forming device 10 a needle pierces the container 20 outer surface at both the top surface 24 and bottom surface 25 at the same time or substantially the same time. Then water from the beverage forming machine contacts the food or beverage liquid contacting medium with the water to form a food or beverage liquid and dispenses the food or beverage liquid from the beverage forming machine 10.

[0041] It is surprising that the top surface 24 and bottom surface 25 of the container 20 can be pierced since the sidewall 22 of the container 20 does not resist crushing once the pressure is released from the container 20. In other words, the piercing step substantially eliminates the sidewall structural support of the container 20, and yet both the top surface 24 and bottom surface 25 of the container 20 can be pierced.

[0042] FIG. 4A-4E are schematic diagrams of a thermoforming process for making the illustrative container 20. The method includes thermoforming a first polymer film 21 to form a cup form having an open rim top end and a closed bottom end and the cup form defining an interior space. A form 50 is pressed into the first polymer film 21 and against the mold 55 to deform the first polymer film 21 into the cup form. FIG. 4B illustrates the form 50 and mold 55 in place with the first polymer film 21 conforming to the mold 55 and form 50 shape. A thickness of the first polymer film 21 can decrease during the thermoforming process.

[0043] FIG. 4C illustrates placing a filter media 30 into the cup form. The filter media 30 can be formed of any suitable material. The filter media 30 can have a similar cup form as the

container **20**. The filter media **30** can be fixed to the sidewall **22** of the container **20** or lid or top surface **24** of the container.

[0044] **FIG. 4D** illustrates disposing a food or beverage liquid contacting medium **26** into the interior space of the filter media **30**, for example. Then the process includes pressurizing the interior space to form a pressurized interior space and sealing a second polymer film **24** or top surface on the open rim top end to form a food product container **20** having a pressurized interior space. In some embodiments the method does not include the filter element **30** within the interior space.

[0045] Before the first polymer film **21** is thermoformed to form a cup form, the first polymer film has a thickness of 150 micrometers or less or 125 micrometers or less. The thermoformed cup form has an average thickness in a range from about 5 to 75 micrometers or from about 5 to 50 micrometers or from about 5 to 30 micrometers. A plurality of containers **20** can be joined to form a web of containers **20**. This web of containers **20** can be sub-divided into single containers **20** or a connected set of containers **20** that a consumer can detach for use.

[0046] **FIG. 5** is a schematic diagram of an illustrative food product forming system **50**. The system **50** includes a container **20** as described above and a portion packaged food product **30, 40** that is associated with the food or beverage liquid contacting medium within the container **20**. In some embodiments, two or more of the food product forming systems **50** can be packaged together and sold to a consumer in a convenient package **100**.

[0047] The portion packaged food product **30, 40** can include a pre-set portion of dry food ingredients **40** or wet food ingredients **30** within a pouch or package that is combined with the liquid component formed with the food or beverage liquid contacting medium within the container **20**. In some embodiments the portion packaged food product **30, 40** can include a pre-set portion of frozen or refrigerated food ingredients. The portion packaged food product and liquid component formed with the food or beverage liquid contacting medium can be combined in any order.

[0048] In many of these embodiments the portion packaged food product includes a retort pouch **30**. A retort pouch refers to food packaging created by aseptic processing and made from one or more flexible barrier layers that allow for hermetic packaging of the food product. A retort pouch can be formed of plastic or metal foil layers and can be an alternative to

traditional canning methods or any method that extends a shelf life of a food product. In some embodiments the retort package is a rigid container that can be utilized to combine portion packaged food product and liquid component formed with the food or beverage liquid contacting medium.

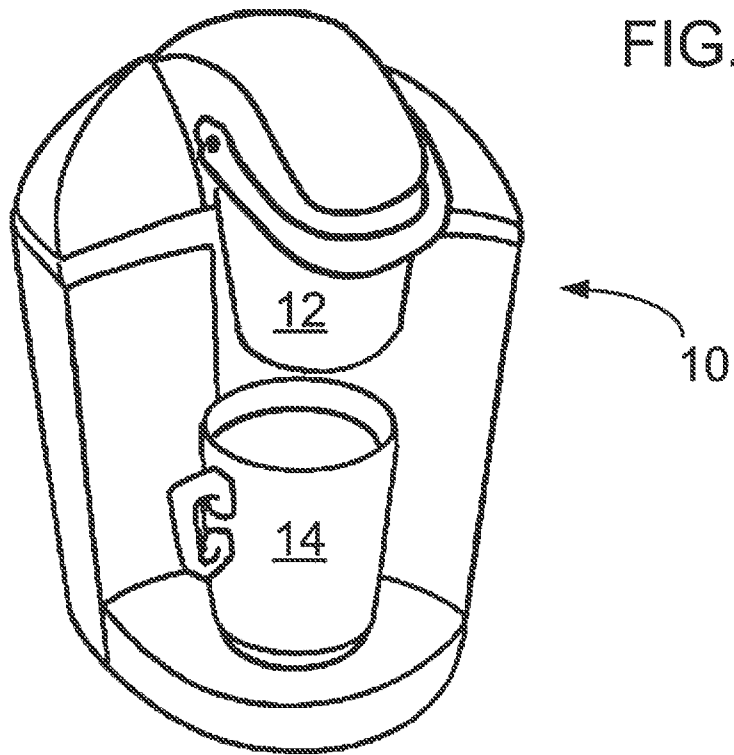
[0049] Thus, embodiments of FOOD PRODUCT CONTAINER are disclosed. The implementations described above and other implementations are within the scope of the following claims. One skilled in the art will appreciate that the present disclosure can be practiced with embodiments other than those disclosed. The disclosed embodiments are presented for purposes of illustration and not limitation.

What is claimed is:

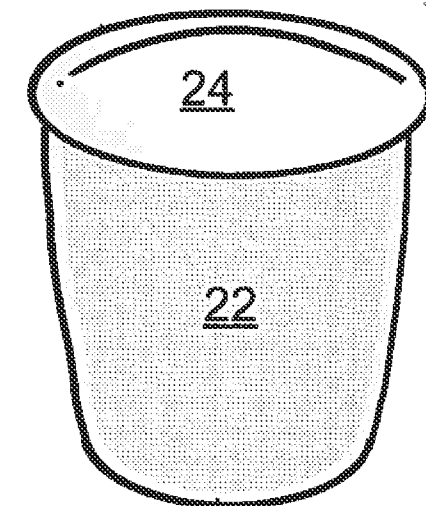
1. A food product container comprising:
a container configured to be received in a receiver of a beverage forming device, the container having an outer surface defining an interior space and a food or beverage liquid contacting medium disposed within the interior space, the container has a sidewall peak compression force of less than 5 Newtons.
2. The food product container according to claim 1, wherein the outer surface is formed of a polymeric film having a thickness of 150 micrometers or less.
3. The food product container according to any of the preceding claims, wherein the outer surface is formed of a polyolefin or polyester.
4. The food product container according to any of the preceding claims, wherein the container outer surface is defined by a top surface sealed to a thermoformed cup form, the thermoformed cup form having an average thickness in a range from about 5 to 100 micrometers.
5. The food product container according to any of the preceding claims, wherein container has a sidewall peak compression force of less than 3 Newtons.
6. The food product container according to any of the preceding claims, wherein the interior space comprises a filter element.
7. The food product container according to claim 6, wherein the filter element has a cup form.
8. The food product container according to any of the preceding claims, wherein the outer surface is transparent to visible light so that the food or beverage liquid contacting medium disposed within the sealed interior space is observable by a user of the food product container.

9. A method comprising:
disposing the container according to any of the preceding claims within a container receiver of a beverage forming machine;
piercing the container outer surface with the beverage forming machine and contacting water from the beverage forming machine with the food or beverage liquid
contacting medium with the water to form a food or beverage liquid; and
dispensing the food or beverage liquid from the beverage forming machine.
10. The method according to claim 9 wherein the piercing step reduces the peak compression force of the container to less than 5 Newtons.
11. A method of forming a food product container comprising:
thermoforming a first polymer film having a thickness of less than 150 micrometers to form a cup form having an open rim top end and a closed bottom end, the cup form defining an interior space;
disposing a food or beverage liquid contacting medium into the interior space; and
sealing a second film on the open rim top end to form a food product container.
12. The method according to claim 11, wherein the cup form has an average thickness in a range from 5 to 100 micrometers.
13. The method according to claims 11 to 12, further comprising disposing a filter element within the interior space before the disposing step.
14. The method according to claims 11 to 13, wherein the first polymer film has a thickness of 100 micrometers or less.
15. The method according to claims 11 to 14, wherein the first polymer film and the second film are formed of different materials.

FIG. 1



20



25

FIG. 2

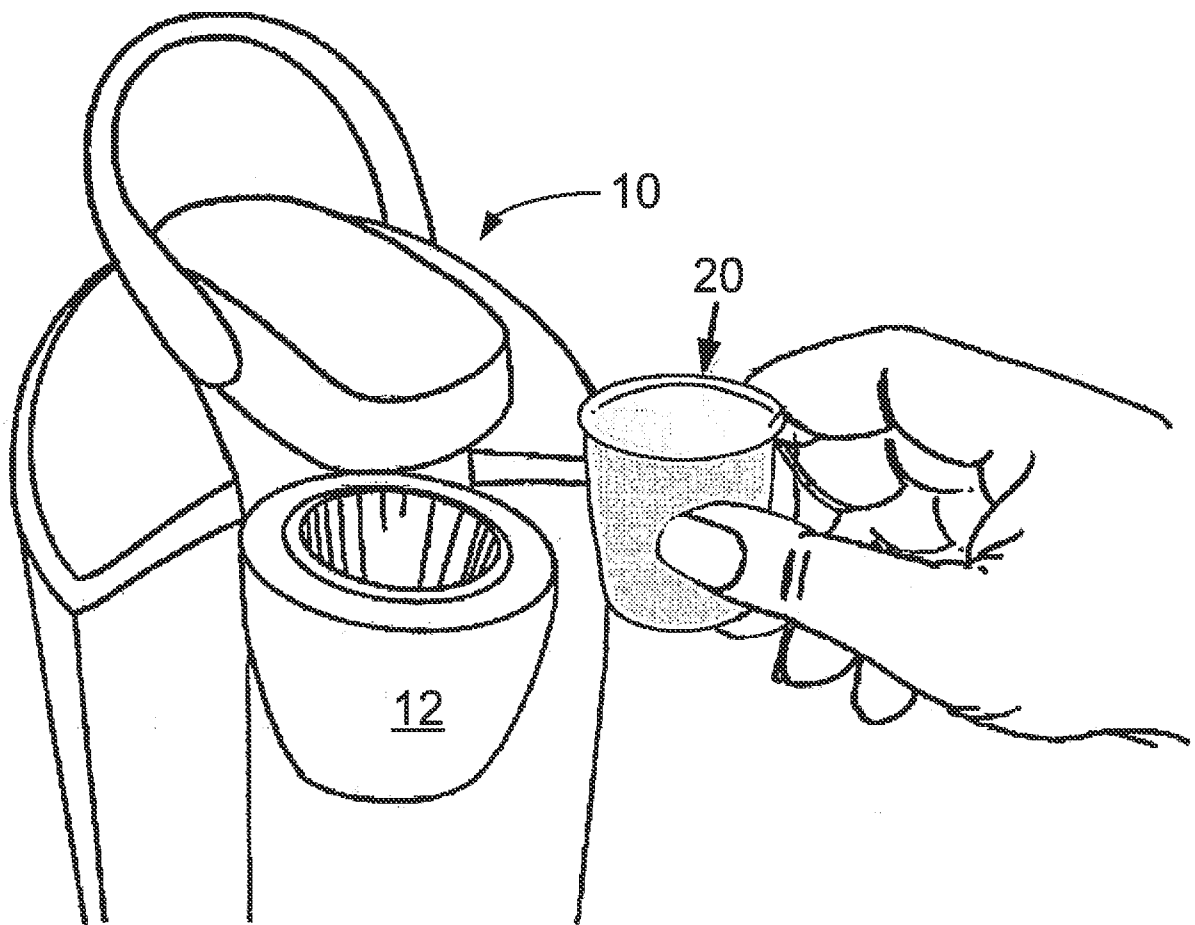


FIG. 3

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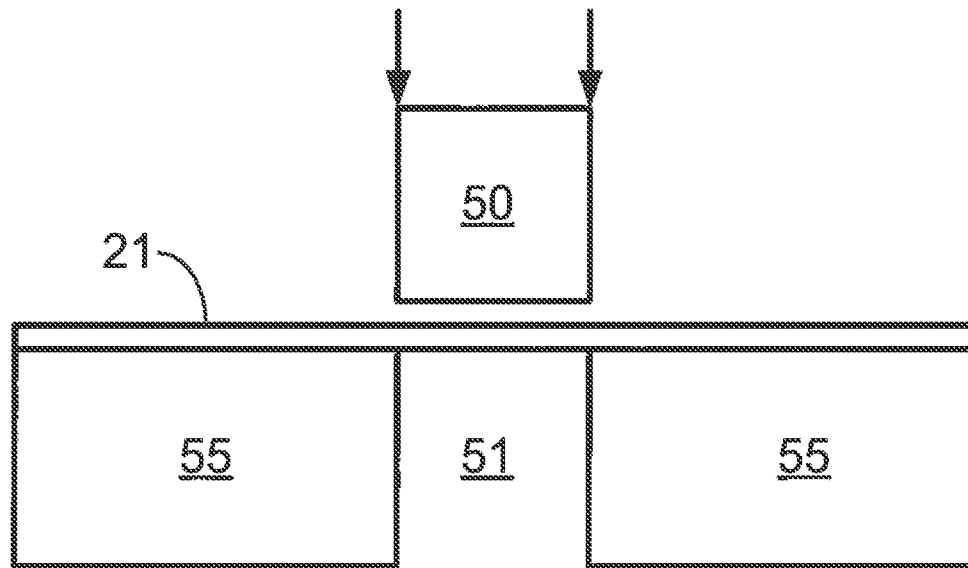


FIG. 4A

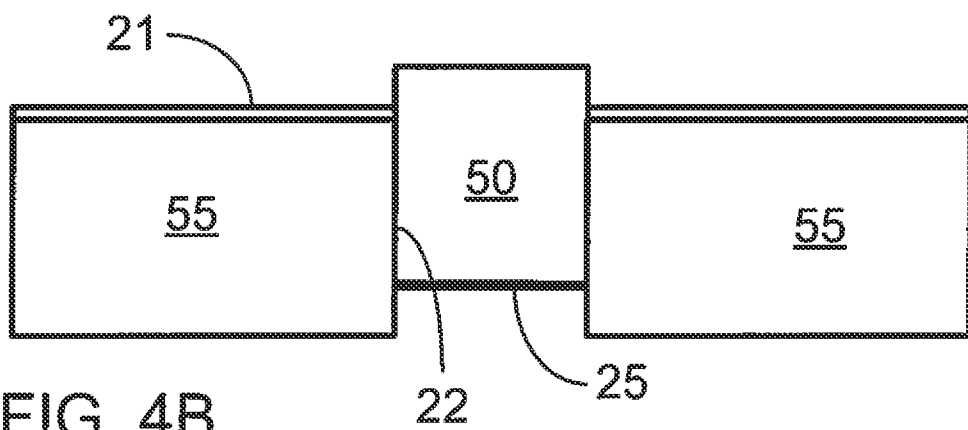


FIG. 4B

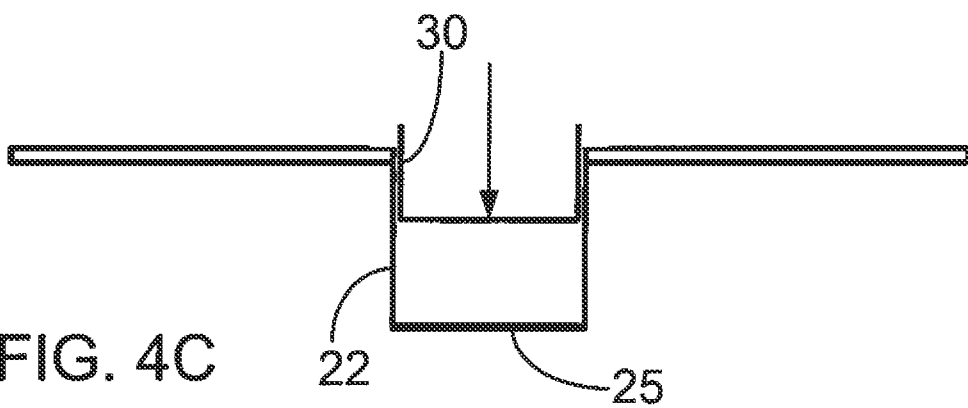


FIG. 4C

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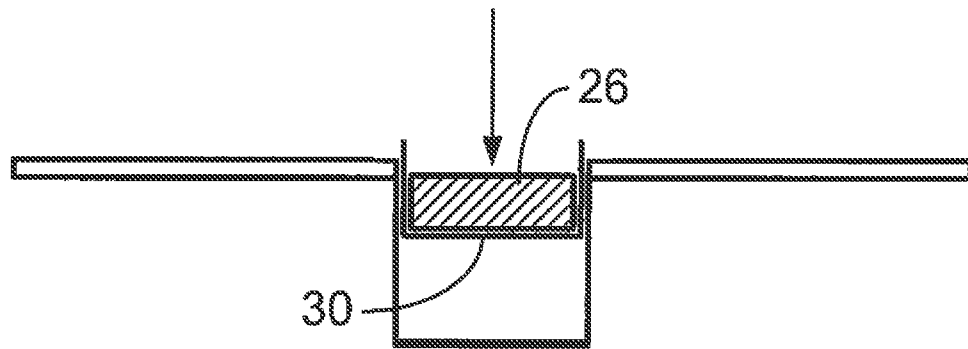


FIG. 4D

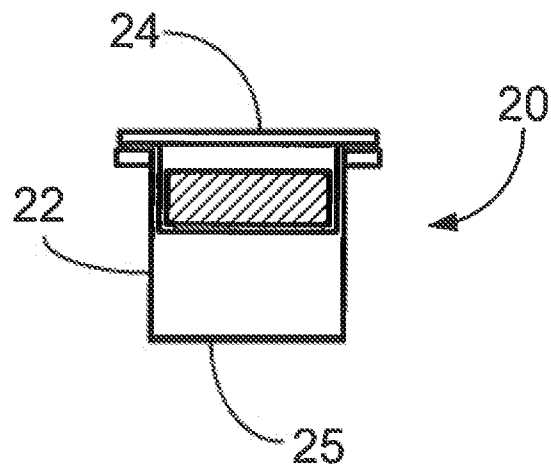


FIG. 4E

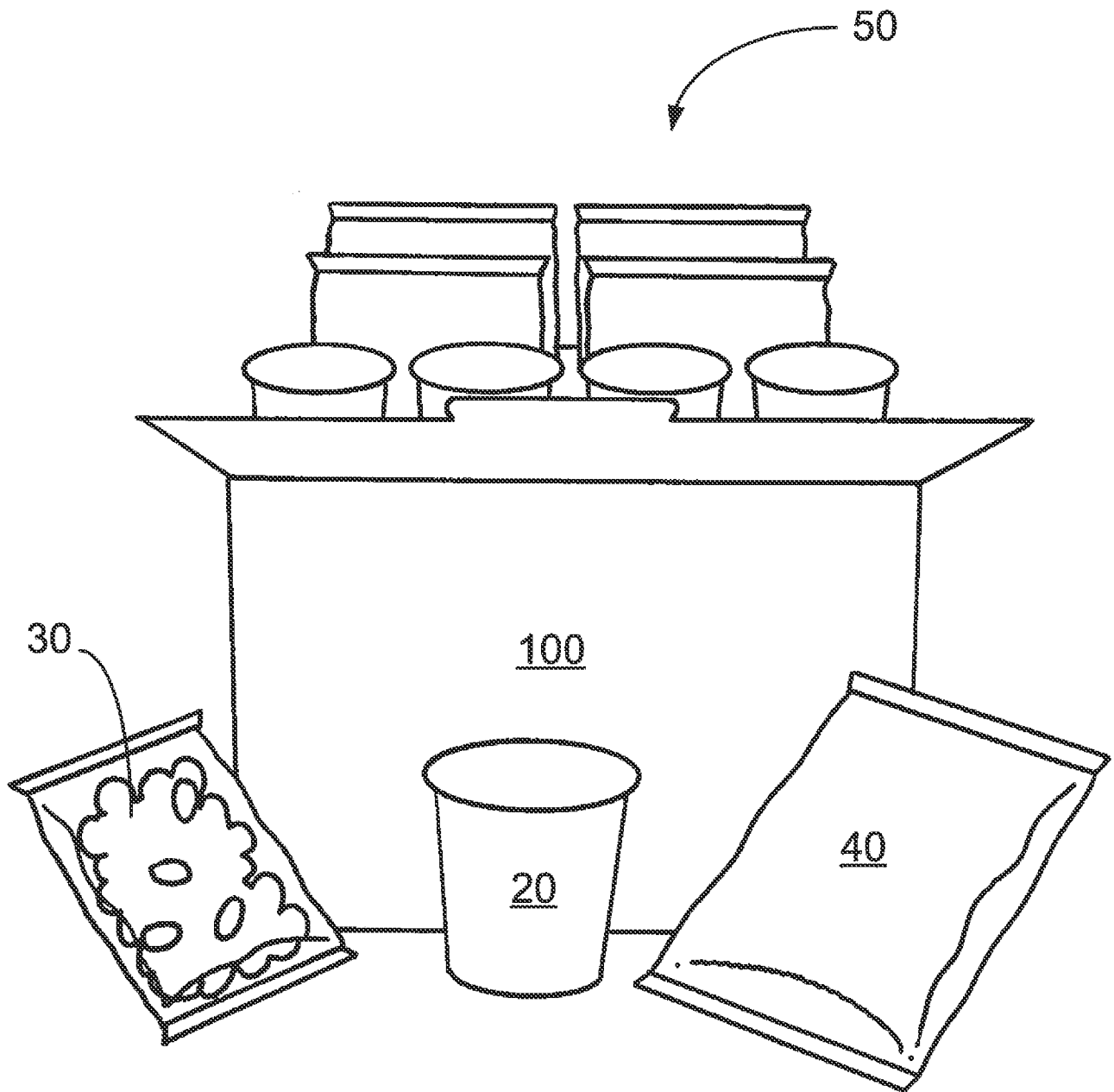


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 13/58187

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - B65D 88/08 (2013.01)
USPC - 99/646C,295;426/79,431

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC - 99/646C,295;426/79,431

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 99/646C,295;426/79,431; IPC(8) - B65D 88/08 (2013.01)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST(USPT,PGPB,EPAB,JPAB); PatBase; Google Scholar

Search Terms: container cartridge capsule package food liquid beverage compression force newton micron wall sidewall single-serve pressure strength rigidity

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,840,189 A (SYLVAN et al.) 24 November 1998 (24.11.1998), abstract; FIGS. 1-2, 4; col 2, ln 32-33, 57-58; col 2, ln 66-col 3, ln47; col 3, ln 49-62	1-3, 11-13
Y	US 2011/0233232 A1 (GREINER-PERTH et al.) 29 September 2011 (29.09.2011), FIG. 1A; paras [0015]-[0016], [0037]	1-3, 11-13
A	US 2007/0246488 A1 (CASH et al.) 25 October 2007 (25.10.2007), abstract; para [0006]; claim 10	1-3, 11-13

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

17 December 2013 (17.12.2013)

Date of mailing of the international search report

07 JAN 2014

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No. 571-273-3201

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 13/58187

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☒ Claims Nos.: 4-10 and 14-15
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.