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HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG,

(54) Title: INJECTION MOLDING SYSTEMS FOR FORMING POD HOLDERS AND BEVERAGE PODS, AND ASSOCIATED DEVICES AND METHODS

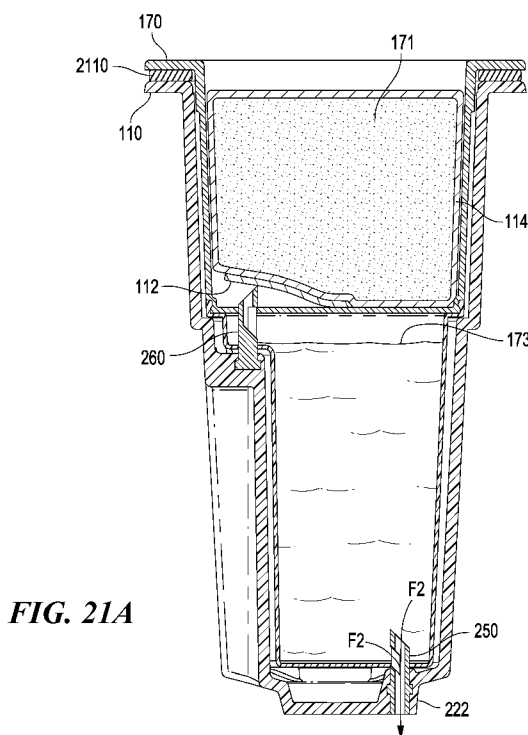


FIG. 21A

(57) Abstract: Injection molding systems for forming pod holders and beverage pods, and associated devices and methods are disclosed herein. In some embodiments, an injection molding system including an injection molding apparatus, a feeder, a driver, and a controller. The injection molding apparatus can include a positive molding part comprising a tapered component, and a negative molding part that defines a tapered cavity and a gate in fluid communication with the tapered cavity. The gate can be coupled to receive a melted polymer. The feeder can be configured to inject the melted polymer from a source to the gate of the negative molding part. The driver can be configured to move the positive molding part toward or away from the negative molding part. The controller can be operably coupled to the feeder and the driver, and perform a process for operating the injection molding system.



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16 January 2025 (16.01.2025)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CA2024/050759

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **B65D 85/804** (2006.01), **A47J 31/34** (2006.01), **B29C 45/76** (2006.01)

CPC: A47J 31/3676 (2013.01), A47J 31/3695 (2013.01), B29C 45/76 (2016.05), B29C 45/762 (2013.01), B65D 85/804 (2016.08) (more CPCs on the last page)

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)
B65D 85/804, B65D 85/8043, B65D 85/8067, A47J31/0673

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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

Questel Orbit (fampat); KEYWORDS: chambers, (separator, spacer, divider, partition), (pin, spike, pierc+), (upper and lower, top and bottom)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US9149149 06 October 2015 (2015-10-06) *whole document*	1-16
A	ES1167109 GARRIGA 03 January 2017 (2017-01-03) *whole document*	1-16
A	US9227778 AVILES et al. 05 January 2016 (2016-01-05) *whole document*	1-16
A	US20210362941 FOOTZ et al. 25 November 2021 (2021-11-25) *whole document*	1-16

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

☒ See patent family annex.

* "A" "D" "E" "L" "O" "P"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance document cited by the applicant in the international application earlier application or patent but published on or after the international filing date 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) document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed	"T" "X" "Y" "&"	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 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 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
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Date of the actual completion of the international search
27 November 2024 (27-11-2024)

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INTERNATIONAL SEARCH REPORT

International application No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US10173834 TALON 08 January 2019 (2019-01-08) *whole document*	1-16
A	US9204751 PETERSON 08 December 2015 (2015-12-08) *whole document*	1-16
A	GB2023086 KITAHARA 28 December 1979 (1979-12-28) *whole document*	1-16

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CA2024/050759**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of the 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. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claim 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. ☐ Claim Nos.:
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:

Group A (Claims 1-16) is directed towards a multi-chamber beverage pod having a brewing pin-receiving shoulder.

Group B (claims 17-21) is directed towards a pod holder having a groove and a lip.

Group C (Claims 22-27) is directed towards system for adapting a single-serve beverage brewing machine.

Group D (Claims 28-32) is directed towards a dual-chamber beverage pod having a groove extending along a sidewall of the lower portion.

Group E (Claims 33-42) is directed towards an injection molding system.

Group F (Claims 43-55) is directed towards a method comprising: piercing a multi-chamber beverage pod using a plurality of brewing pins.

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 claim 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 claim Nos.:

Group A (Claims 1-16): directed towards a multi-chamber beverage pod having a brewing pin-receiving shoulder, a pierceable separator, a gap between the shoulder and the separator such that when a brewing pin passes upwardly through the pin-receiving shoulder and the separator and a liquid mixes with the first beverage material, a first beverage flows downwardly from the upper chamber, along the gap, and into the lower chamber to mix with the second beverage material.

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.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CA2024/050759

IPC:

CPC:

B65D 85/8067 (2022.08)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CA2024/050759

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
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