Filed on behalf of Converter Manufacturing, LLC

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IPR2021-00918

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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TEKNI-PLEX, INC.
Petitioner

v.

CONVERTER MANUFACTURING, LLC
Patent Owner

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Case No. IPR2021-00918
U.S. Patent No. 10,189,624

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# PATENT OWNER SUR-REPLY

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## PATENT OWNER'S EXHIBIT LIST

| EXHIBIT | DESCRIPTION |
|---|---|
| 2001 | Transcript of PTAB Conference Call held on December 16, 2021. |
| 2002 | Patent Owner's Revised Discovery Requests To Petitioner in IPR2021-00916. |
| 2003 | Excerpts of D.I. 26-2 filed in *Clearly Clean Prods., LLC et al. v. Tekni-Plex Inc. et al.*, Case 2:20-cv-04723-CDJ (E.D. Pa. Dec. 21, 2020). |
| 2004 | Excerpts of D.I. 25-1 filed in *Clearly Clean Prods., LLC et al. v. Tekni-Plex Inc. et al.*, Case 2:20-cv-04723-CDJ (E.D. Pa. Dec. 21, 2020). |
| 2005 | Petitioner's U.S. Provisional Patent Application Serial Number 62/793,187 and filing receipt. |
| 2006 | Petitioner's Information Disclosure Statement filed in the prosecution of U.S. Patent Application Number 16/739,795. |
| 2007 | Expert Declaration of Mr. James Clements |
| 2008 | Curriculum Vitae of Mr. James Clements |
| 2009 | January 20-21, 2022 Deposition of Mr. Glenn May |
| 2010 | August 12, 2015 Request for Examination with Claim Amendments to Intellectual Property Office of New Zealand from Alto Packaging Limited in Australian Patent Application No. 2011326886. |
| 2011 | U.S. Patent Application Publication No. US2019/0358890 A1 |
| 2012 | December 5, 2019 Response and Request for Reconsideration in U.S. Patent Application Serial Number 16/536,843 |
| 2013 | U.S. Patent No. 3,746,497 to Neil ("Neil") |
| 2014 | Declaration of Glenn May in IPR2021-00916 |
| 2015 | Declaration of Glenn May in IPR2021-00919 |
| 2016 | Forming Temperature Guidelines |
| 2017 | WO2018/007183 to Aplix SA |
| 2018 | U.S. Patent No. 10,889,049 to Aplix SA |
| 2019 | Apr. 14, 2020 Non-Final Office Action In U.S. Patent Application Ser. No. 16/314,473 |
| 2020 | JPH08-108494 to Oyama et al. with Certified English Translation |
| 2021 | JP 58-205705A to Iguchi with Certified English Translation |
| 2022 | *Reserved* |
| 2023 | *Reserved* |

| EXHIBIT | DESCRIPTION |
|---|---|
| 2024 | Slavin-Bond, Chandler, "How to Robotically Handle Trays for Parts Packaging," Packaging Digest, Apr. 23, 2021 |
| 2025 | Chapter 600 of Manual of Patent Examining Procedure, Revs. 55-56 (July 1978) |
| 2026 | Excerpts of July 1, 1978 Title 37 of Code of Federal Regulations |
| 2027 | U.S. Patent No. 4,239,727 to Myers et al. |
| 2028 | Excerpts from Thomas, Ian MacIntyre, "The Blending and Permeability of Polymers for Packaging Applications," Thesis to Brunel Unitversity of West London, Dept. of Materials Technology, Dec. 1995 |
| 2029 | U.S. Patent No. 3,739,052 to Ayers et al. |
| 2030 | Declaration of Jeff Maguire |
| 2031 | July 13, 2018 Email from Kevin Grimes to Jeff Maguire |
| 2032 | 2019 Ameristar Award - Clearly Clean Products, LLC - Roll Over-Wrap Tray from Institute of Packaging Professionals |
| 2033 | November 27, 2019 Email from Kevin Grimes to Jeff Maguire |
| 2034 | March 18, 2020 Email from Kevin Grimes to Jeff Maguire |
| 2035 | Certified File History of AU2011326886 (served but not filed) |
| 2036 | Declaration of translation of JPH08-108494 to Oyama et al. |
| 2037 | Declaration of translation of JP 56-150606A to Saito et al. |
| 2038 | Declaration of Joni Mattera (served but not filed) |
| 2039 | Supplemental Declaration of Jeff Maguire (served but not filed) |
| 2040 | Supplemental Expert Declaration of Mr. James Clements in Response to Evidentiary Objections |
| 2041 | Photographs of a Model 2S tray made and sold by Clearly Clean Products, LLC |
| 2042 | Photographs of a Model 3D tray made and sold by Clearly Clean Products, LLC |
| 2043 | Photographs of a Model 3P tray made and sold by Clearly Clean Products, LLC |
| 2044 | Photographs of a Model 3S tray made and sold by Clearly Clean Products, LLC |
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| 2047 | Photographs of a Model 4S tray made and sold by Clearly Clean Products, LLC |
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| 2053 | Photographs of a Model 15D tray made and sold by Clearly Clean Products, LLC |
| 2054 | Photographs of a Dolco Tray 2 made and sold by Real Party In Interest, Dolco LLC |
| 2055 | Shipping label for trays sent from Clearly Clean Products, LLC to Mr. James Clements (served but not filed) |
| 2056 | JP S56-150606A to Saito et al. with Declaration of English Translation |
| 2057 | Form PTO-892 (Rev. 01-2001) accompanying Apr. 14, 2020 Non-Final Office Action In U.S. Patent Application Ser. No. 16/314,473 |
| 2058 | May 18, 2022 Deposition of Mr. Marc Adler |
| 2059 | Translation of archived Dexter MT Dutch-language webpage, with Declaration of Jena van der Kolk |
| 2060 | March 5, 2018 Email chain between Pieter-Jans Willemse and Tim McKeever with attachments |
| 2061 | February 26, 2018 Email between Pieter-Jans Willemse and Tim McKeever with attachment |
| 2062 | February 26, 2018 Email between Pieter-Jans Willemse and Tim McKeever with attachment |
| 2063 | Declaration of Millard Wallace (served but not filed) |
| 2064 | Altered Screenshot from Ex. 1045 Paragraph 10 (served but not filed) |
| 2065 | Annotated version of drawings from Ex. 1045 Paragraph 14 (served but not filed) |

| EXHIBIT | DESCRIPTION |
|---|---|
| 2066 | Australian Patent No. AU2018220971 to Starnes (served but not filed) |
| 2067 | Annotated version of drawings from Ex. 1045 Paragraph 14 |
| 2068 | Demonstrative of images from Ex. 1044 and Ex. 2066 (served but not filed) |
| 2069 | July 6, 2022 Deposition of Mr. James Naughton |
| 2070 | June 30 and July 1, 2022 Deposition of Glenn May |
| 2071 | 2004 Sealed Air Corp Form 10-K (served but not filed) |
| 2072 | Alto Tray (not filed) |
| 2073 | Portion taken from Ex. 2072 (not filed) |
| 2074 | July 12, 2022 Deposition of Millard Wallace |
| 2075 | July 12, 2022 Deposition of Glenn May |
| 2076 | Transcript of PTAB Conference Call held on July 11, 2022 |

## PATENT OWNER SUR-REPLY

Patent Owner ("PO") explained in its corrected response ("POR") how and why Petitioner's cited references neither anticipate nor render obvious any Challenged Claim [1] of U.S. Patent No. 10,189,624 (the "'624 Patent" or "Challenged Patent"). In reply, Petitioner resorts to fictional comparisons between its cited references and post-critical date photographs of articles whose relevance to the Challenged Claims was never analyzed by its expert, Glenn May ("May").

Petitioner's reproduction of a 2016 brochure from global thermoforming company, Dexter Mould Technology ("DexterMT"), on page 31 of the Reply is fatal to its enablement position. In that 2016 brochure, DexterMT stated that rim-rolling non-circular thermoformed articles "has been ***impossible*** until now!" Ex. 1055 at 5;[2] Ex. 1009, ¶[0003] (as of 2015, "there has not been a process which can remove the sharp flanges and burs on rectangular shaped PET and HDPE packaging at high-speed production levels.") These exhibits demonstrate how the POSITA could not make any Portelli or Long embodiment without undue experimentation before the earliest effective filing date of the '624 Patent, August 31, 2015 (the "critical date").

Petitioner does not dispute evidence of PO's commercially successful, industry-acclaimed, patent-practicing Roll Over-Wrap® trays. Petitioner does not

[1] *See* Pet. at 1.
[2] All bold emphasis is added unless otherwise stated as being in the original.

deny it copied PO's patent-practicing trays. Absent evidence of pre-critical date commercial examples, Petitioner cannot deny the testimony of Mr. Jeffrey Maguire that only PO satisfied global food producer demand for a rolled-edge rectangular thermoformed food tray. *See* Ex. 1052, 23:12-25. Petitioner's expert, May, ***ignored*** PO's objective evidence of non-obviousness in formulating his reply obviousness opinions.

Lacking evidence of pre-critical date enablement in an unpredictable art field, such as thermoforming, and relying on expert opinions devoid of consideration of PO's undisputed objective indicia of non-obviousness, Petitioner cannot establish unpatentability by a preponderance of evidence.

## I. EVERY CHALLENGED CLAIM EXCLUDES PAPER AND INJECTION MOLDING

Applicant's argument to the USPTO in Ex. 2012 at 8 shows two different acts of lexicography: "thermoplastic sheet (i.e., not paperboard…)" and "thermoformed (i.e., not injection molded …)." *See Edwards Lifesciences, LLC v. Cook, Inc.*, 582 F.3d 1322, 1334 (Fed. Cir. 2009) (affirming that "i.e." is signal for lexicography to narrow ordinary meaning of claim term). Petitioner accepts the former but not the latter despite admitting that the Challenged Patent "relates to a ***thermoformed*** tray…." Reply at 1. The intrinsic evidence provides that "thermoformed" means something other than "injection molded." May's contrary

extrinsic evidence does not control. *See* Ex. 1044, ¶327; s*ee Seabed Geosolutions (US) Inc. v. Magseis FF LLC*, 8 F.4th 1285, 1287 (Fed. Cir. 2021).

## II. THERMOFORMING IS AN UNPREDICTABLE ART

Petitioner cites nothing that proves "predictability" in thermoforming. Thermoforming is an interdisciplinary art encompassing chemistry, physics, materials, mechanical engineering, and thermodynamics competences. Ex. 2070, 8:5-18; Ex. 1036 at "x". May admitted that thermoformed article rim/flange shapes can "vary considerably" based on numerous factors and deviations of "a fraction of a millimeter" in trimming thermoformed flanges can have unintended consequences. *See* Ex. 2070, 45:21-47:9; Ex. 2014, ¶74.

May's 1996 Florian textbook describes thermoforming as an unpredictable art field:

- "[W]ith a newly acquired thermoforming product or project, the outcome could be ***uncertain***. ***A multitude of trial approaches has to be made before satisfaction can be claimed***. … [M]anufacturing problems may require complete retooling, a new thermoforming method, or even a change of equipment to achieve satisfactory results."

*See* Ex. 1056 at 361-362. Even as of 2001, Illig provided that "[t]hermoforming is still a process of high craftsmanship and experience." Ex. 1035 at 4.

PO provided evidence that the rim/flange of a thermoformed article is "[its] ***most frustratingly-inconsistent feature***" due to cutting tolerances and shrinkage, each of which "***isn't an exact science***," but "is a calculation based on experience, and ***trial and error***." Ex. 2024 at 2, 4. As recently as of 2018, global thermoforming manufacturer, DexterMT, admitted that its processes could not produce a specific rim geometry without an "extensive series of tests and optimisations" to "see if what [they] think will happen, really happens." Ex. 2060 at 1. This is consistent with Petitioner's "authoritative" Throne textbook: "***there appears to be no science in determining the dimensions of a rim in a rim roll design***… ." Ex. 1049 at 570; *accord* POR at 70-72.

In sum, PO clearly proves unpredictability in thermoforming, which Petitioner identifies as one of the "most relevant *Wands* factors," and which militates towards non-enablement of Portelli, Long, and Meadors.

## III. LONG IS NOT ENABLED (GROUND 1)

### A. There Are No Pre-Critical Date Working Examples Of Long

Every finished article supposedly made according to "Long technology" existed in or after February 2017, *viz.*, ***years after*** the critical date. *See* Ex. 2069,

28:6-29:10.[3] This is consistent with record evidence that attempts to roll rims of non-circular articles were "impossible until [2016]!" *See* Ex. 1055 at 5.

The absence of working examples of Long prior to and after the critical date proves non-enablement. *See Raytheon Techs. Corp. v. Gen. Elec. Co.*, 993 F.3d 1374, 1382 (Fed. Cir. 2021).

### B. There Is No Evidence That Any Allegedly Commercialized "Long Technology" Practices Any Challenged Claim

May never considered whether any article supposedly made using so-called "Long Technology" satisfied any challenged claim. Ex. 2070, 389:9-22, 393:3-16. Petitioner cannot prove that any alleged commercial embodiment is within the scope of any challenged claim. *See* Reply at 2-18; *See In re Chudik*, 851 F.3d 1365, 1372 (Fed. Cir. 2017).

### C. Long's Non-Standard Technology Was Purposefully Not Disclosed

In the POR, PO stated that Long was "incomplete" and "omitted what equipment to use or how to achieve the desired results." POR at 4, 37. According to PO's expert, Mr. James Clements ("Clements"), and Petitioner's fact witness, Mr. James Naughton ("Naughton"), Long merely discloses a "concept." Ex. 2007, ¶¶120, 122, 153-165; Ex. 2069, 90:10-19. Like Clements, Petitioner's witnesses cannot find any disclosed equipment in Ex. 1004 to execute Long's tray "concept."

[3] Naughton had never used the term "Long Technology" before Petitioner placed it into his declaration. *See* Ex. 2069, 152:9-15, 201:24-203:3.

*See* Ex. 2009, 361:15-19; Ex. 2069, 110:11-112:8, 186:2-25; Ex. 2070, 346:21-348:12, 352:11-353:4, 358:7-359:10, 364:22-368:23. Indeed, despite having access to the Long reference (Ex. 1004), neither Naughton nor his engineers could make Long's "concept" because they didn't have the tooling expertise. *See* Ex. 2069, 88:16-90:19.

To make and use the "Long technology," every known tooling designer of "Long technology" had to learn Alto's confidential methods under a non-disclosure agreement ("NDA").[4] *See* Ex. 2069, 32:22-33:11, 33:24-34:8, 91:20-92:23, 103:16-106:13. The design of the tools used by Alto to implement "Long technology" was considered confidential, even between licensed toolmakers. *Id.* at 103:16-106:13. This supports Naughton's testimony that "Long technology" is ***not*** standard thermoforming equipment. *See id.* at 132:4-20, 133:8-134:5.

The drawings on pages 13-14 of Ex. 1045 contain unexplainable errors and admittedly are just a "conceptual idea" to those seeking to design the tools necessary to practice Long's "concept." *See* Ex. 2069, 100:2-101:14, 153:5-165:2, 167:24-171:16; Ex. 2067. The omission of the "concept" drawings and the equipment on pages 13-14 and 24-25 of Ex. 1045 needed to even begin to accomplish "Long Technology" was purposeful because the stretch-and-cut tooling

[4] This explains why Clements could not find a "readily-available mechanism before the [critical date] that could be used as a 'second tooling assembly'" in Long. Ex. 2007, ¶159.

used by Alto is not publicly available. *See* Ex. 2069, 41:12-25. Naughton admitted that "it would … defeat the purpose of the NDA if Alto told people what the tooling was in a published document." *See* Ex. 2069, 110:11-112:13. Alto's preference to maintain secrecy over the means to make and use Long's prophetic teachings disqualifies Long as an enabling reference. *Cf. White Consol. Indus., Inc. v. Vega Servo-Control, Inc.*, 713 F.2d 788, 791 (Fed. Cir. 1983) (disclosure not enabling where "integral part of the disclosure to enable [POSITA] to 'make and use the same'" was a trade secret); *see also* Ex. 1056 at 259 ("[thermoforming equipment] modifications are kept secret … to keep such customization ideas from being leaked to the competition.")

### D. Petitioner Cannot Show A "Nexus" Between The Alto Trays And Long

Petitioner asserts that May demonstrated a "nexus" exists between the "concept" drawings and the Long reference. *See* Reply at 3-4. May admitted, "there would be no way in 2011 that the tooling that was later licensed and then produced by TSL and Marbach would have been in existence." Ex. 2070, 368:11-23. Only Alto could know whether any tooling that may have existed in 2011 was the same tooling used in 2016. *See* Ex. 2069, 41:4-43:22.

Furthermore, to create a "nexus" between Long's non-disclosure of tooling and the tooling in existence after 2016, Petitioner relies on extrinsic evidence, including tooling drawings from the year 2017 or 2018. *See* Reply at 4, 10-12; Ex.

2069, 164:16-171:2. Whether to establish "nexus" or otherwise, Petitioner's extrinsic evidence may not be used to expand the meaning of Long's generic recitations (e.g., "second tooling assembly"). *See In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991).

Absent disclosure of how to produce Long's so-called "second tooling assembly," undue experimentation to make and use the same is required. *See Auto. Techs. Int'l, Inc. v. BMW of N. Am., Inc.*, 501 F.3d 1274, 1283–84 (Fed. Cir. 2007).

### E. Petitioner Never Applied Clements' Industry Standard Overhang-to-Sheet Thickness Ratio Calculation To The Alto Trays

Petitioner asserts that Mr. Clements' opinion that Long depicts a precursor that cannot be demolded is "theoretical." Reply at 14. But its undisputed that severe overhangs in thermoformed articles prevent demolding. *See* Ex. 1018 at 14; Ex. 1019 at 315, 321. Naughton testified that he ran "lines that have had undercuts where you couldn't pull them out in a development project." Ex. 2069, 199:24-200:17.

Critically, Petitioner doesn't dispute Clements' analytical technique, yet none of its witnesses applied that technique to any commercial Alto tray, including to the "minimal undercut" that Naughton stated was used in the commercial samples. *See* Ex. 2069, 200:6-8, 208:12-20.

Petitioner's Illig reference (Ex. 1035) confirms Clements' opinions in Ex. 2007, ¶¶137-141, cited at POR pages 40-42, when it discusses Figure 7.11:

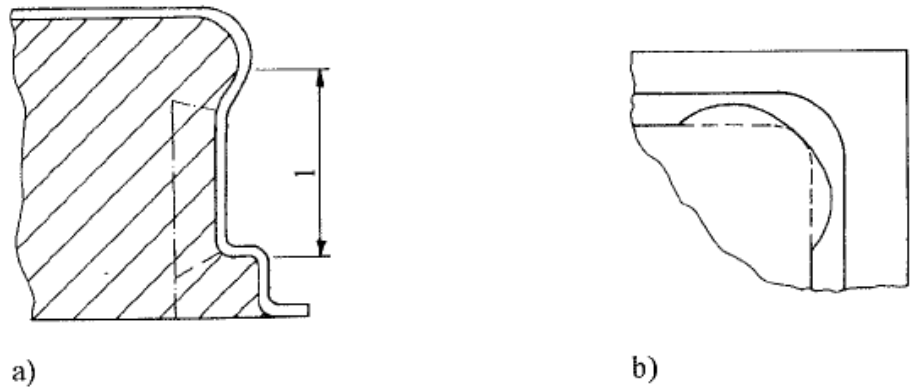
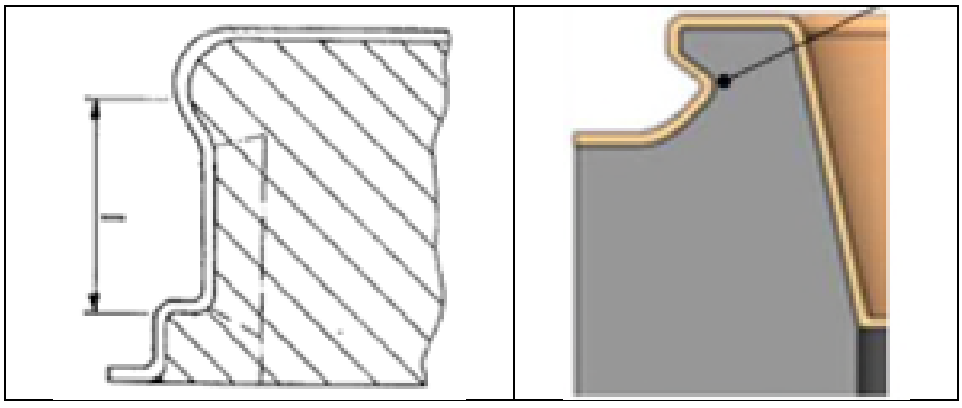



Fig. 7.11 Forced demolding of an undercut at stress-whitening by material-overstretching, a) sectional view, b) plan-view
*l* length of stress-whitening

Illig states, "If the undercut is too large (Fig. 7.11), white stress-marks ('stress-whitening') or permanent deformations occur on moldings of certain plastics through overstressing." Ex. 1035 at 162. Clements said the same thing. *See* Ex. 2007, ¶¶139, 165. The undercut in Long is much larger than that shown in Illig's "too large" undercut in Fig. 7.11:



Illig's teaching corroborates Clements' view that demolding defects would result when a POSITA attempts to demold the Long precursor.

Without any working examples to use in his analyses, Clements was forced to analyze Long's inoperative "teachings" based on (i) May's measurements of Long (Ex. 1002, ¶¶92-93;[5] *see also* POR at 41-42); (ii) the teachings of **FOUR** different prior art references from across the globe (Ex. 2018, 1:62-67, 3:67 – 4:3, 10:5-8; Ex. 2020, ¶¶[0013], [0024]-[0025], [0030]-[0031]; Ex. 2021 at 2; Ex. 2056 at Fig. 4; Ex. 2036-2037); (iii) the findings of the USPTO (Ex. 2019 at ¶¶21-26, 46); (iv) the teachings from two of Petitioner's reference exhibits (Ex. 1018 at 14; Ex. 1019 at 32 (page numbered 315)), and (v) his own experience. *See* Ex. 2007, ¶¶126-150, 183-186; Ex. 2040, ¶¶15-25.[6]

## IV. LONG DOES NOT ANTICIPATE ANY OF THE CHALLENGED CLAIMS (GROUND 1)

### A. The Elbow Prevents The Peripheral Edge From Being Turned At Least Approximately Opposite The Periphery

Petitioner argues that the dislocations between Cuts II-II and III-III of Long "do not appear in Long," but Petitioner contended that this "extra plastic" resulted

[5] Petitioner relied on those same measurements of Long's figures to show rim heights in "actual" Long articles. *See* Ex. 2070, 433:6-443:17.

[6] Contrary to the Reply at 14, Mr. Clements explained that while thinner sheets of plastic can be removed, they would fail to maintain their conformation during use, i.e., hold food or be overwrapped by plastic. *See* Ex. 1047, 87:9-17, 92:4-17; *see also* Ex. 2007, ¶152.

from formation of the "elbow" in Long's periphery due to trimming tolerances. *See* IPR2021-00916 Pet. at 138-141.

Other than trying to backtrack May's admission that "an elbow feature that Long teaches surrounding the entire tray" is "necessarily produced," Ex. 2009, 379:22-380:5, 380:8-20, 381:14-16, Petitioner does not deny that the "necessarily produced" elbow drawn by May and "surrounding the entire tray" places the location of the peripheral edge so that it is displaced toward and would intersect Long's overwrap path.

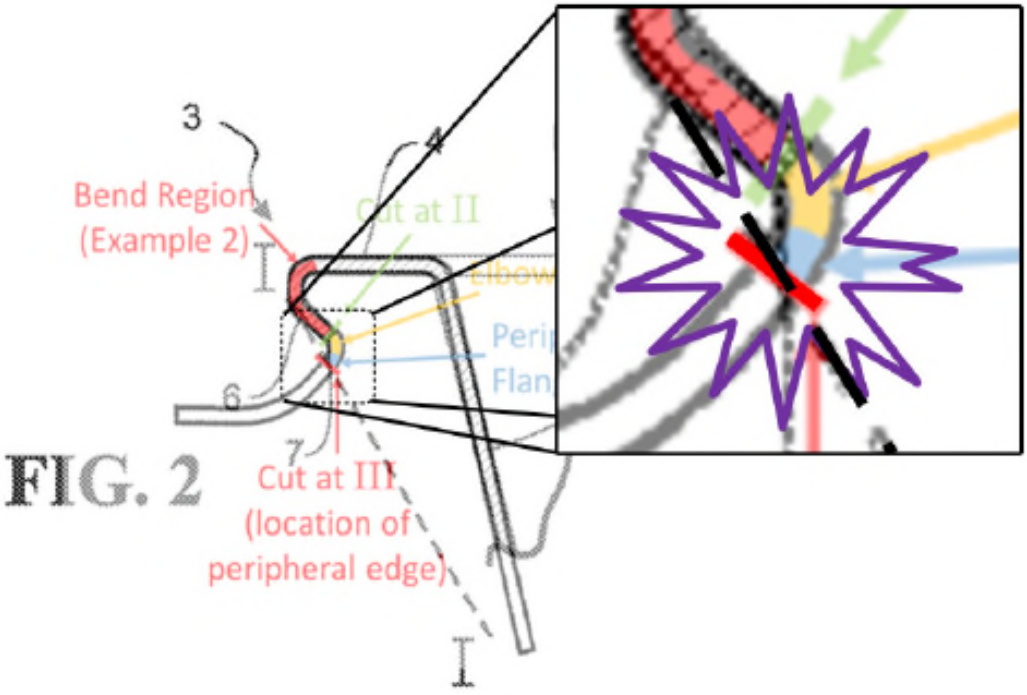



FIG. 2

*Cf.* Reply at 16; IPR2021-00916 Pet. at 140 ("In the above examples, the peripheral edge is at the line indicated as 'Cut at III.'")

### B. Petitioner Has Not Shown Long Necessarily Discloses the "Gap" Recited in Claims 4 and 5

The Reply still provides no evidence that Long necessarily has the required "gap" of the Challenged Claims in spite of its "necessarily produced" elbow, whichever "elbow" Petitioner believes will exist. *See* POR at 58-59; *see also* Ex. 2007, ¶¶182-188.

### C. Long Does Not Necessarily Disclose A Visually Clear Tray

Petitioner's reliance on non-optically clear PET trays is an admission that trays supposedly made according to "Long technology" are not necessarily visually clear. *See* Reply at 5-7; Ex. 2070, 184:24-185:12.

## V. PORTELLI'S FOURTH EMBODIMENT IS NOT ENABLED (GROUNDS 2, 6)

### A. There Are No Pre-Critical Date Working Examples Of Portelli

Petitioner tacitly admits there are ***no*** working examples of Portelli's First Embodiment (Figures 1-2, 9-11) and focuses on alleged working examples of Portelli's Fourth Embodiment (Figures 7-8). *See* Reply at 29-30, 35-37; Ex. 2070, 117:6-19. Petitioner's "working examples" are not double-stage (two step) thermoforming processes, like Portelli, but single step, in-mold cup-molding

technologies: rolled rim technology ("RRIM") offered by DexterMT and an undefined process offered by OMV. *See* Reply at 38-55.[7]

Moreover, all of Petitioner's commercialized "working examples" of Portelli's Fourth Embodiment existed in or after 2016, *viz.*, ***after*** the critical date.[8] *See* Ex. 2070, 179:2-6, 188:14-22; 191:14-192:3, 200:9-23; *see also* Reply at 41-51; Ex. 1044, ¶42; Ex. 1051 (October 22, 2016); Ex. 2054-2055 (flashcard media from 2016 K-Show); Ex. 2059.

### B. There Is Abundant Post-Critical Date Evidence of Non-enablement of Portelli

According to DexterMT's 2016 brochure provided to attendees at the "widely attended" K-show in Dusseldorf, Germany:

> "[T]he RRIM technology allows new shapes like triangular or square to be rim-rolled, ***which has been impossible until now!***"

Ex. 1055 at 5; Ex. 1044, ¶¶42-43. That Portelli's depicted results "had not been achieved through other means as of the [Challenged Patent's] priority date" proves non-enablement. *Raytheon*, 993 F.3d at 1382.

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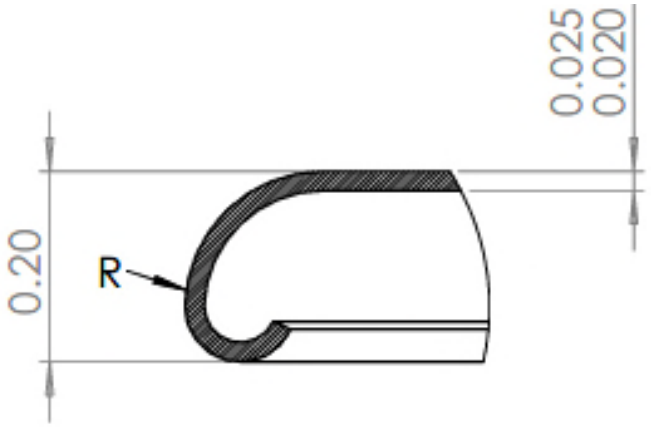
[7] Screw-fed cup rim-rolling processes (Ex. 1049 at 569-571) could not be used to roll the edge of a non-circular article. *See* Ex. 1001, 4:15-27; Ex. 1009, ¶[0003]; Ex. 2059 (as of 2016 "[r]olling the edge has only been possible with round products.")

[8] Petitioner's pre-critical date "evidence" of working examples of Portelli's Fourth Embodiment are all inauthentic hearsay. *Compare* Ex. 2070, 122:24-123:21, 125:15-126:24, 131:13-132:25, 136:25-139:18, 211:25-214:16.

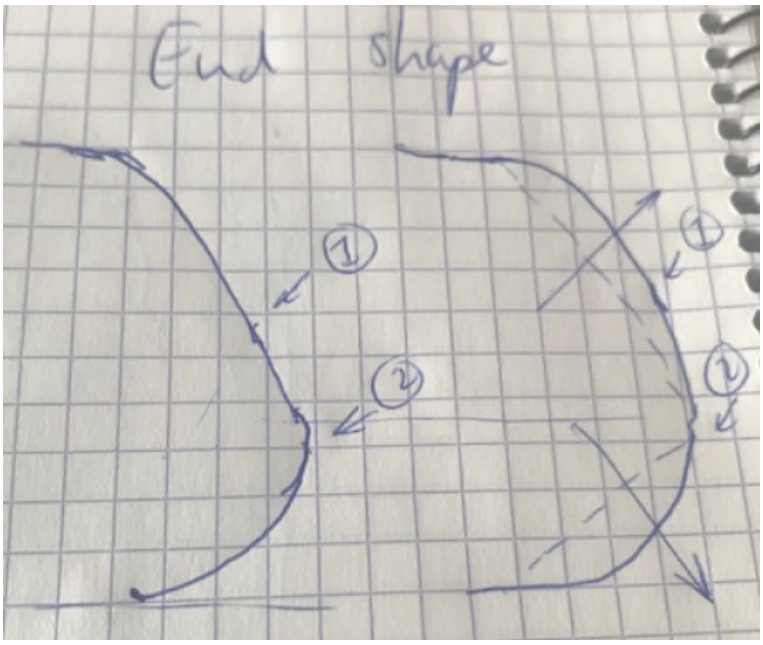
Additionally, PO provides evidence in the form of a 2018 email from Pieter-Jans Willemse ("Willemse") of DexterMT to PO's licensee, Clearly Clean Products, LLC ("CCP") providing his present sense impression that "all engineers involved in the RRIM® technology" at DexterMT could not roll a rim with a smooth radius on the outside "without performing quite an extensive series of tests and optimisations… ." The rim that DexterMT was asked to make is shown below:




DETAIL B

SCALE 4 : 1

Ex. 2060 at 4, 34; Ex. 2061 at 3, Ex. 2062 at 2; Ex. 2063, ¶¶3-5. This is the rim of CCP's patent-practicing 3P tray that is suitable for overwrapping. Ex. 2074, 35:5-36:3; Ex. 2062 at 2, Ex. 2007, A17, A22-A23. Willemse admitted that DexterMT could not use RRIM to make the 3P rim without creating a "sharp point" at point 1:




Ex. 2060 at 1-2, 34.

If DexterMT's RRIM has any "nexus" with Portelli, then Ex. 2060 corroborates the findings of Long, Alto, and Clements, that Portelli's process results in "puckering and distortions" of the rim. POR at 9-14; Ex. 1004, 6:29-33; Ex. 2007, ¶¶40-44, 55; Ex. 2010, p. 1; Ex. 2040, ¶¶9-10, 39. Petitioner admits that "puckering and distortions" often result from use of Portelli's methods. Reply at 38. Reading the word "often" in thermoforming literature suggested to May that it meant "more often than not." Ex. 2070, 416:25-417:14.

Further, Ex. 2060 shows additional evidence of unpredictability in thermoforming. Willemse stated, "[f]or each step there are some parts that we [DexterMT] know and have experience in (by now), but also some that are new (due to the design), and these lead to the necessity to perform tests, to see if what

we think will happen, really happens." *See* Ex. 2060 at 1. He admitted the rim-rolling task required "work in partially unexplored territory" and "testing and finding good solutions for all unknows [sic.] that are in the process now." *Id.* at 2. These unbiased statements would easily suffice as non-enablement/"considerable experimentation" according to May. *See* Ex. 2009, 242:3-16 ("considerable experimentation" includes "tests that have unpredictable results…outside [POSITA's] normal scope of work… .")

Reports of failure to achieve Portelli's prophetic outcomes both before and after the critical date indisputably prove non-enablement of that reference's teachings. *Cf.* POR at 10-12; *In re Sheppard*, 339 F.2d 238, 242 (CCPA 1964); *In re Brown*, 329 F.2d 1006, 1011 (CCPA 1964).

### C. There Is No Evidence That Any Allegedly Commercialized "Portelli" Tray Practices Any Challenged Claim

To anticipate or render obvious, the alleged prior art must enable an embodiment within the scope of the claim. *See Chudik*, 851 F.3d at 1372. May never determined whether any DexterMT tray met any challenged claim. Ex. 2070, 307:19-311:15. The same is true for any OMV article. Therefore, Petitioner cannot prove that any allegedly commercialized "Portelli" tray was an embodiment within the scope of any Challenged Claim.

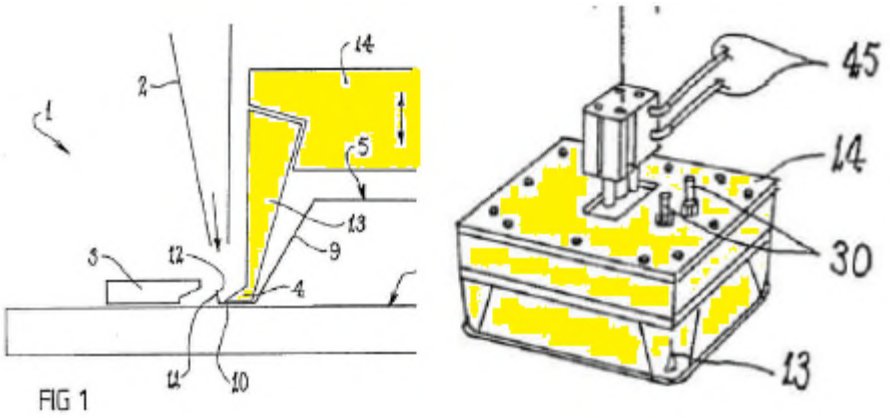
### D. Portelli's Figure 8 Is Not Reliable

May uses circular reasoning to explain how a POSITA should dismiss the myriad "anomalies" in Portelli's Figure 8 and accept an interpretation that favors Petitioner's case. *Cf.* Ex. 2070, 237:7-238:12; *see also* Ex. 1044, ¶59. Yet, he originally said Portelli's Figure 8 doesn't show "actual thermoforming processing." *Cf.* Ex. 1002, ¶305. Despite scrutinizing drawings in PO's evidence, Ex. 2070, 172:18-174:13, May's practiced ability to ignore abnormalities in Portelli's Figure 8 is as convenient as it is untrustworthy. Portelli's Figure 8 is ambiguous at best and cannot be relied upon for anticipation. *See* POR at 13 n. 6.

## VI. PORTELLI'S RELIANCE ON NON-EXISTENT EQUIPMENT RENDERS ITS FIRST EMBODIMENT NONENABLED (GROUNDS 2, 6)

### A. There Is No Such Thing As A "Clacker Box"

Portelli's First Embodiment requires an unspecific "clacker box," (highlighted in yellow below), which uses pivotally mounted clamping feet 13 and forming anvils 4.



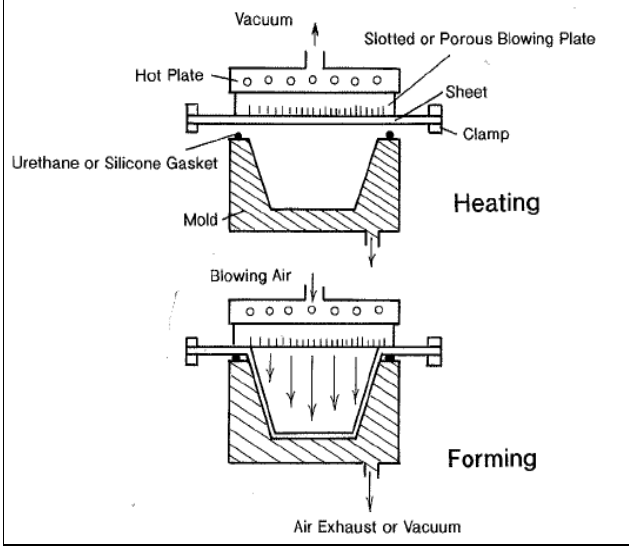
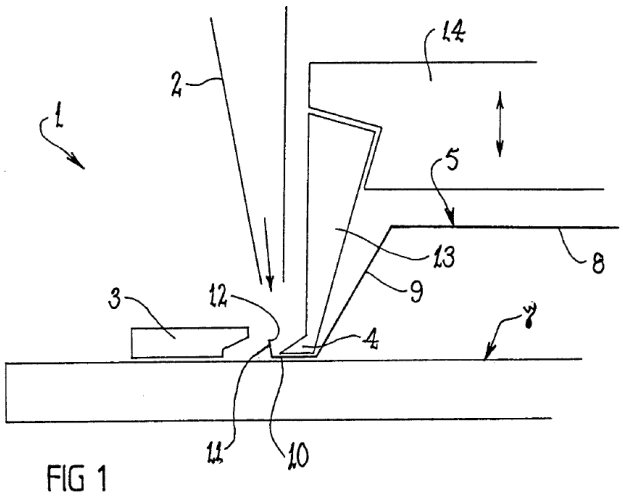

*See* Ex. 2007 at ¶¶36, 45-46. Petitioner contends that Portelli's "clacker box" is a "typical hot-air manifold." Reply at 42-43. Neither Petitioner nor May identifies a manifold with pivotally mounted clamping feet with anvils. *See* Ex. 2070, 302:3-303:12. Even, Naughton, a thermoforming manufacturer with over 40 years of experience, testified he "[did]n't know what a clacker box is." *See* Ex. 2069, 20:12-21:9. There is no evidence of the identity of a "clacker box" anywhere in the record, including May's textbooks. *Cf.* POR at 24-25. According to May, "clacker box" would be "indefinite" and "non-standardized." *See* Ex. 1044, ¶295.

### B. A POSITA Would Not Use Hot Air to Heat And Manipulate A Thermoformed Flange

Clements testified that "attempting to use hot air in the relatively small area as depicted in Portelli would be a non-standard occurrence." Ex. 1048, 195:10 – 198:14. May conceded that while "[h]ot-air heating is employed with thermoforming" it is used "[m]ore rarely as self-contained heating system." *See* Ex. 2070, 281:17-284:17; Ex. 1035 at 135. May knew of no other publication or

commercial reference that used hot air to heat a plastic flange of a rectangular thermoformed article other than Portelli. *See* Ex. 2070, 290:2-291:9, 306:18-307:10.

Contrary to the Reply's argument at page 42, Throne shows a "hot plate" in contact with the center of the sheet (not the flange), which is nothing like Portelli's First Embodiment.

| **Ex. 1049 at 127 (Fig. 3.17)** | **Portelli (Ex. 1003, Fig. 1)** |
|---|---|
|  |  |



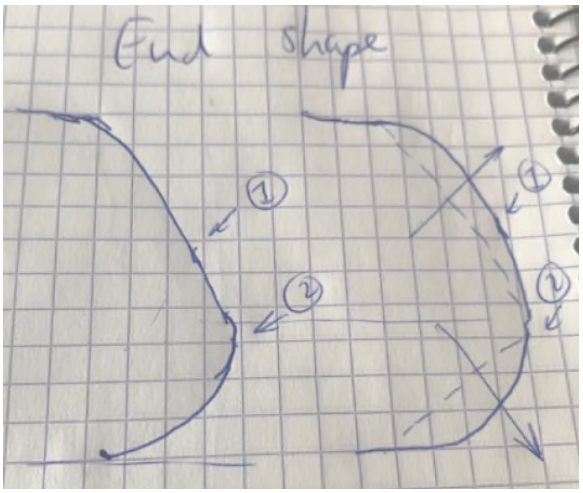


Regardless of whether Clements considered "heat-shielding and water-cooling" in his simulation of Portelli's First Embodiment, both Clements and May agree that there would be uneven thermal expansion and contraction at Portelli's rim. *See* Ex. 2007 at ¶¶39-40; Ex. 1044, ¶110 ("unsupported thermoformed shapes such as ***the rolled-in shape*** … ***in Portelli Fig. 13 typically vary*** … ***due to uneven thermal expansion and contraction***.")

## VII. PORTELLI DOES NOT ANTICIPATE ANY OF THE CHALLENGED CLAIMS (GROUND 2)

### A. Portelli Does Not Necessarily Disclose A "Sealing Surface" That Is Suitable for MAP or VSP

Petitioner asserts PO only focused on MAP, Reply at 43-44, but PO explained that puckers/distortions in *all* Portelli embodiments (Figures 8 and 13) render them unsuitable for MAP *or* VSP. *See* POR at 34-36 (citing POR §V.A; Ex. 2007, ¶¶39-41, 51, 59, 66, 83-84). Willemse confirmed that DexterMT's RRIM process (Petitioner's analog to Portelli's Fourth Embodiment) would form a rim similar to the rounded portion of Figure 13 but having a sharp point "1" on its outside surface.



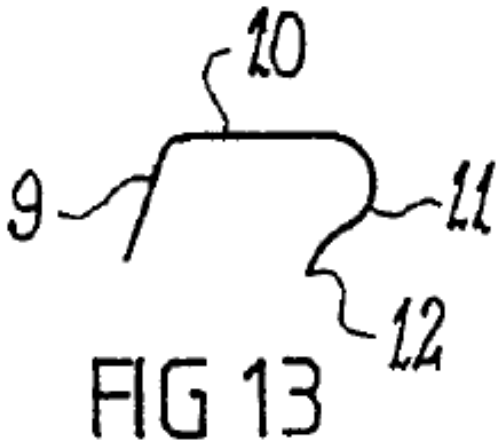




FIG 13

Ex. 2060 at 1-2, 34. That sharp feature shown by Willemse would make any Portelli article unsuitable for MAP *or* VSP. *Cf.* Reply at 43-44. Since Portelli cannot enable the formation of the peripheries illustrated by Figures 8 or 13, neither can anticipate any Challenged Claim. *In re Dowty*, 118 F.2d 363, 366

(CCPA 1941) ("[A]n inoperative prior art device may not be relied upon as an anticipation.")

### B. Petitioner's *Kennametal* Theory Of Anticipation Should Be Disregarded As An Improper New Unpatentability Argument

Violating 37 C.F.R. § 42.23(b), the Reply raises a *Kennametal* theory of anticipation not raised in the Petition. *See* Reply at 45; *see also Broad Ocean Techs. v. Nidec Corp.*, IPR2015-01617, 2019 WL 1869882, at *8 (P.T.A.B. Apr. 25, 2019). But, merely saying "at once envisage" does not make Petitioner's untimely *Kennametal* argument plausible. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 851 F.3d 1270, 1274 (Fed. Cir. 2017).

Moreover, May's conclusory "at once envisage" opinion is contradicted by his testimony that a POSITA had no reason to modify Portelli's Figures 8 and 13. *Compare* Ex. 1044, ¶120 *with* Ex. 2009, 301:24-302:22.

## VIII. PETITIONER CANNOT "FIX" ITS UNPATENTABILITY POSITIONS BASED ON PORTELLI'S FIRST AND FOURTH EMBODIMENTS ON REPLY (GROUNDS 2, 6)

### A. If Portelli's First And Fourth Embodiments Must Be "Fixed," Then Neither Can Anticipate Any Challenged Claim

The Reply suggests that a POSITA can remediate Portelli's inoperable First and Fourth Embodiments; however embodiments in need of remediation cannot anticipate. *See* Reply at 37, 42-43; *see also Apple Inc. v. Corephotonics, Ltd.*, 861 Fed. Appx. 443, 451 (Fed. Cir. 2021).

### B. Petitioner Never Argued Obviousness Based On "Fixing" Portelli

First, Petitioner never raised an obviousness theory based on remediating defects in Portelli. "[A]n IPR petitioner may not raise in reply 'an entirely new rationale' for why a claim would have been obvious." *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1330–31 (Fed. Cir. 2019).

Second, May never explains how a POSITA would use the cherry-picked excerpts from textbooks (*see, e.g.*, Ex. 1044, ¶¶65-82) to remediate the issues in Portelli. Ex. 2070, 246:2-250:14, 255:4-258:23; *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Pat. Litig.*, 676 F.3d 1063, 1070-71 (Fed. Cir. 2012) (obviousness cannot be based on "merely throw[ing] metaphorical darts at a board").

Petitioner calls Ex. 1049 an "authoritative book," Reply at 21, but its expert did not follow its simulation techniques and did not show use of any of its formulas. Ex. 2070, 90:18-93:14, 94:20-95:15, 102:5-106:10, 110:9-114:20. Apparently, May could determine heat transfer in three dimensional drawings using his imagination alone. *Id.* at 110:24-115:25. Since its expert avoided doing his own simulations, any "flaw" Petitioner strains to make about Clements' analyses is unsupported attorney argument. *Cf.* Reply at 41-42. Moreover, Clements explained that Petitioner's isolated alleged simulation "flaw" would not

eliminate the defects and other deformations that result from Portelli's First Embodiment. *See* Ex. 1048, 208:3–211:18.

Unlike May, Clements used SolidWorks® simulations that mirror Throne's modeling techniques. *Compare* Ex. 2007, ¶¶61-100, 126-143 *with* Ex. 1049 at 524-527. Clements' chosen tool for thermoforming simulations, SolidWorks®, is considered by Naughton, Petitioner's witness, as "the best in the world." Ex. 2069, 165:3-10.

### C. "Fixing" Portelli Requires Contradicting The Reference

The Board should disregard May's unproven "fixes" for Portelli's First and Fourth Embodiments to the extent they are conclusory and contradict the reference. For example, May claims a POSITA can remove tapers from Portelli's First Embodiment, *see* Ex. 1044, ¶73, but he doesn't explain how to do so or its plausibility. He also disregards the fact that Portelli teaches tapers that will inevitably result in the corners. *See* Ex. 1003, 11:5-8, Fig. 10, annotation 42.

Further, May admitted that "[i]f an edge adheres to a die," just as Portelli says it does (*see id.* at 13:27-29), then "it's ***very likely*** that article would be defective and would be discarded or recycled." Ex. 2009, 277:2-18. Neither Petitioner nor May explains how a POSITA would use Teflon coating to resolve this defect in spite of Portelli's use of ejector 27 as the sole means for releasing the article from the die. *See* Ex. 1003, 13:29-14:6; Ex. 2070, 244:19-250:14. May's

conclusory and unsubstantiated contradictions of the Portelli reference should be disregarded. *See Homeland Housewares, LLC v. Whirlpool Corp.*, 865 F.3d 1372, 1378-79 (Fed. Cir. 2017).

### D. May's Inept "Rim Height" Distinction Destroys His Credibility

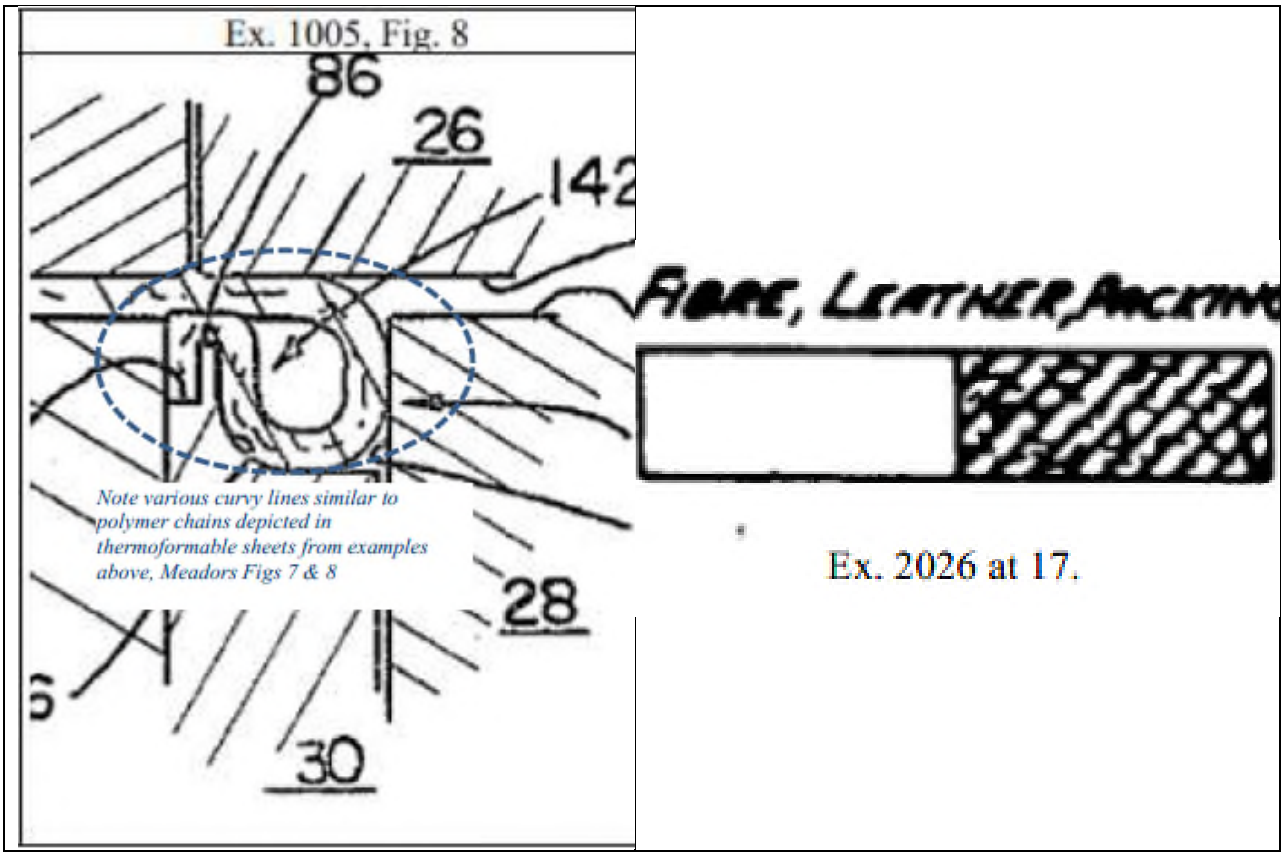
At the start of May's reply deposition, he testified that "it's quite evident that [DexterMT's] articles are made, as I've depicted here, and according to the teachings of Portelli." *See* Ex. 2070, 116:22-117:5, 152:25-153:11. But when faced with Willemse's statements in Ex. 2060 that RRIM could not make a rolled rim in a rectangular thermoformed article, May declared there was "something" about what Willemse said in Ex. 2060 that required his statements to be "outside the scope of this case." *See* Ex. 2070, 164:8-165:12, 183:5-189:14, 198:22-200:23.[9] May opined that Willemse's reference to a "very high rim" meant that the tray in question was not made for overwrapping. *Id.* at 207:4-16. The rim in question was depicted in the attached drawing of CCP's patent-practicing 3P tray (Ex. 2062 at 2), whose rim height indisputably enables overwrapping with plastic film. Ex. 2074, 35:5-36:3; Ex. 2007, A17, A22-A23. Regardless of the truth, May declared nothing would make him change his opinions about Portelli. Ex. 2070, 211:6-16.

[9] Despite Willemse's statements of "unknowns," May refused to agree that these were statements of unpredictability in molding rims of thermoformed articles. *See id.* at 208:23-209:17.

It is unsupportable and circular opinions like the ones above that should cause this Board to seriously question May's credibility. *See Sealed Air Corp. v. Ranpak Corp.*, IPR2020-01249, 2022 WL 129094, at *9 (P.T.A.B. Jan. 12, 2022) ("Mr. May provides insufficient support in the record for this testimony…" and "Mr. May's contrary testimony … lacks sufficient evidentiary basis… .")

## IX. PETITIONER ADMITS MEADORS CANNOT ANTICIPATE THE CHALLENGED CLAIMS (GROUND 3)

Knowing that caselaw precludes his prior erroneous Meadors opinion (*see* POR at 62-63), May tries a new theory: the wavy lines in Figures 6-10 of Meadors are actually microscopic "polymer chains" – not the USPTO standard drawing symbol representing paper that was in force as of Meadors' filing date. *See* Ex. 2025 at 40; Ex. 2026 at 17.




*Cf.* Ex. 1044, ¶¶260-264. May's ability to "find" plastic polymers in Meadors' figures is yet another attempt by Petitioner's expert to contradict the reference's teaching of "forming paper stock between dies."

Petitioner also does not dispute that Meadors fails to inherently disclose an article formed in the shape of a rounded rectangular tray or a visually clear material. *Cf.* POR at 67-69.

## X. THE CHALLENGED CLAIMS ARE NOT OBVIOUSNESS (GROUNDS 4-7)

### A. May's Obviousness Conclusions Are Fatally Flawed

May never considered PO's objective indicia of non-obviousness in rendering his reply obviousness opinions. Ex. 1002, ¶25; Ex. 1044, ¶¶295-366; Ex.

2070, 409:14-410:5. This failure is critical since PO's evidence of commercial success, industry praise, satisfaction of long-felt but unsolved need, industry skepticism, and copying as well as the required nexus between this evidence and the Challenged Claims stand unrebutted. *Compare* POR at 79-86; Ex. 2007, ¶¶227-237, Appendices A-B; Ex. 2030, ¶¶6-22; Ex. 2040, ¶¶33-35, 49-58; Ex. 2041-2054 *with* Reply at 48-55.

Therefore, May's incomplete obviousness analysis and unsupported conclusions should be accorded no weight. *See InTouch Techs., Inc. v. VGO Commc'ns, Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014).

### B. A Rolled Rim Design Was Impossible to Implement in a Non-Circular Thermoformed Article Prior to the Critical Date

The Reply (pages 48-55) focuses on the array of potential periphery shapes encompassed by PO's Challenged Claims but it fails to consider that PO's "solutions" that provided those shapes were deemed "impossible" to implement in a non-circular thermoformed articles prior to the critical date. *See* Ex. 1009 at ¶[0003]; *see also* Ex. 1055 at 5.

May's opinions (Ex. 1002, ¶¶270-277) grossly over-simplify the fact that "every tray has its own characteristics" and some trays (like Alto's New Zealand trays) are "lighter" in rigidity and "don't suit the market in North America." *See* Ex. 2069, 42:1-7, 59:13-13.

### C. Petitioner Seeks to Dissuade the Board from Analyzing Disclosures In Portelli and Long "As A Whole"

The Reply at 52 suggests that the Board can disregard the inconvenient evidence of teaching-away between Long and Portelli. The POR already established that this is contrary to the law. *See* POR at 74-75. Naughton admitted that "Long technology" customers wanted to avoid the heated cup rim-rolling techniques practiced by those like OMV. *See* Ex. 2069:130:9-21.

The record before and after the critical date demonstrates that Petitioner's "intended-purpose-destroying modification" of Long based on Portelli "counsels strongly against an obviousness determination." *Medtronic, Inc. v. Teleflex Innovations S.à.r.l.*, IPR2020-00129, 2021 WL 2524890, at *16 (P.T.A.B. June 17, 2021).

### D. There Is No Reasonable Expectation of Success in any of Petitioner's Obviousness Combinations Prior to the Critical Date

"[T]o render the claimed invention obvious, there must have been, at the time the invention was made, a reasonable expectation of success in applying [the reference's] teachings." *Life Techs., Inc. v. Clontech Labs., Inc.*, 224 F.3d 1320, 1326 (Fed. Cir. 2000). Here, it was widely known that prior to the critical date rim-rolling of non-circular thermoformed articles was non-existent and "impossible." *See* Ex. 1055 at 5; Ex. 1009, ¶[0003]. "[T]here can be little better

evidence negating an expectation of success than actual reports of failure." *Cyclobenzaprine*, 676 F.3d at 1081.

### E. May Admitted A POSITA Lacks Motivation To Modify Portelli Figures 8 and 13

Petitioner's cited May testimony merely demonstrates what a POSITA "may," "might," or "could" do to modify Figures 8 and 13 – not what a POSITA "would" do. Reply at 53-54. May had already testified that the "purpose" of Portelli is not to further modify Figures 8 or 13. *See* Ex. 2009, 301:24-302:22. *See In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

The fact that Portelli describes the Figure 13 embodiment after discussing the Figure 8 embodiment "is not by itself sufficient to show a reason or motivation to combine the features of those embodiments." *See Intel Corp. v. Tela Innovations, Inc.*, IPR2019-01522, 2021 WL 886443, at *9 (P.T.A.B. Mar. 9, 2021) (distinguishing *Boston Sci. Scimed, Inc. v. Cordis Corp.*, 554 F.3d 982, 991 (Fed. Cir. 2009)).

Further, the record shows that in addition to failures in attempting Portelli's methods, *see supra*, "there appears to be no science in determining the dimensions of a rim in a rim roll design." Ex. 1049 at 570; *see also* Ex. 2060 at 1-2, 33-34 (unpredictability in using so-called commercialized form of Portelli's Fourth Embodiment (DexterMT's RRIM process)). In this unpredictable art field, the

"only reasonable expectation at the time of the invention was failure, not success." *OSI Pharms., LLC v. Apotex Inc.*, 939 F.3d 1375, 1385 (Fed. Cir. 2019).

### F. Meadors and Brown Are Non-analogous Art

Petitioner cannot deny that Meadors never mentions "thermoforming" and all of its embodiments are "described in the context of forming paper stock between dies." *See* Ex. 1005, 1:10-11. Aside from a passing reference to ABS, a thermoplastic, Meadors is "too remote to be treated as prior art." *In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1992).

Petitioner cites Ex. 1044, ¶¶338, 364 in support of its position that Brown (Ex. 1006) is analogous. That litigation-inspired testimony is contradicted by the Illig text, which teaches "[t]he majority of injection moldings cannot be produced by thermoforming, nor thermoformed articles by injection molding." Ex. 1035 at 180.

### G. Petitioner Does Not Deny That Ground 5 Is Conclusory

The Reply's discussion of its Ground 5 is limited to Meadors' status as non-analogous art. *See* Reply at 54. Petitioner otherwise concedes that Ground 5 is conclusory and cannot stand. *Compare* POR at 77 *with* Reply at 54.

## XI. PO'S POSITA DEFINITION SHOULD CONTROL

PO's POSITA definition is the only one that comports with the realities of unpredictability and impossibilities in thermoforming before and after the critical

date. *See supra*. In contrast, Petitioner's expert asserts that Petitioner's POSITA is able to solve "any thermoforming problem." *See* Ex. 2070, 31:7-12. That would be tantamount to "imbu[ing] [the POSITA] with knowledge of the claimed invention, when there is insufficient evidence of record to convey or suggest that knowledge." *Kaiser Aluminum v. Constellium Rolled Prods. Ravenswood, LLC*, IPR2014-01002, Paper 64 at 16 (P.T.A.B. Nov. 2, 2015).

## XII. CONCLUSION

For the foregoing reasons, as well as those in the POR, this Board should find that the Petition has failed to show unpatentability of the Challenged Claims of the '624 Patent by the preponderance of the evidence.

Dated: July 14, 2022

Respectfully Submitted,

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## WORD COUNT CERTIFICATION

Pursuant to 37 C.F.R. § 42.24(d), I certify that this Corrected Patent Owner Response contains 5,587 words (excluding the title page, table of contents, table of authorities, table of exhibits, mandatory notices, this certificate, and the certificate of service), as determined by Microsoft Word.

Dated: July 14, 2022

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## CERTIFICATE OF SERVICE

The undersigned hereby certifies that on the 14th day of July, 2022, a true and accurate copy of the foregoing *Patent Owner Sur-Reply* was filed through the Patent Review Processing System and served on the following counsel for Petitioner via email:

| | |
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