

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

KOHLER CO.,
Petitioner,

v.

DELTA FAUCET CO.,
Patent Owner.

Case No. IPR2024-00700
U.S. Patent No. 10,393,363

**PATENT OWNER'S PRELIMINARY RESPONSE
PURSUANT TO 37 C.F.R. § 42.107**

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Patent Owner Delta Faucet Co. (“Delta”) submits the following Patent Owner Preliminary Response (“POPR”) to the Petition filed by Kohler Co. (“Petitioner”) requesting *inter partes* review of claims 1–24 of U.S. Patent No. 10,393,363 (“the ’363 patent”).

I. INTRODUCTION

Delta respectfully requests that the Board deny institution because there is not a reasonable likelihood that the Petitioner would prevail with respect to any claim challenged in the Petition. 35 U.S.C. § 314(a).

The Petitioner brings this *inter partes* review in the absence of Delta’s assertion of or any other co-pending proceeding involving the ’363 patent, alleging that “the patent is directed to what amounts to a better-looking lighted fixture.” Petitioner’s dismissive characterization of the claimed invention is an oversimplification that Petitioner uses to overlook limitations recited by every challenged claim. The ’363 patent is not just about aesthetics; it presents and expressly recites in its claims technical improvements of lighting mechanisms in fluid delivery devices, with the patent providing detailed figures explaining how various features, including lighting, are implemented. Particular materials, having particular arrangements, to achieve particular lighting properties are described and claimed.

As further explained in this POPR, the Petition and its expert declaration (“Cook Declaration,” Ex. 1003) make numerous conclusory statements asserting how a person of skill would interpret a reference or alleging motivation to combine—even when they are contrary to express disclosure of the references—without citing supporting evidence. The Board has routinely scrutinized such statements and should do so here as well. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624 (PTAB Aug. 24, 2022) (precedential), Paper 9, 15 (holding that the expert declaration that “merely repeats, *verbatim*, the conclusory assertion for which it is offered to support” without citing “any additional supporting evidence or provide any technical reasoning to support” is entitled to little weight).

Also as further explained in this POPR, the Petition makes obviousness arguments in hindsight. Specifically, the Petition alleges that a POSITA would have added **more** components inside already **narrow** spaces without addressing that adding more components would worsen the spacing problem the primary reference attempts to solve in the first place. *See Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1332 (Fed. Cir. 2019) (affirming that the Board correctly found no motivation to add additional sensor where the combination introduces “additional plumbing and complexity,” and a POSITA would have found the tradeoffs to be “unappetizing”).

This POPR sets forth why each asserted ground fails to demonstrate a reasonable likelihood of succeeding. Grounds 1-3 are based on a primary reference Tseng. Ground 1 fails because Tseng's "light conductor" does not teach the claimed "light pipe," and the Petition fails to explain why a POSITA would have appreciated Tseng's light conductor as the claimed light pipe. Ground 2 fails because Tseng and Mizuno disclose divergent solutions to providing power—Tseng by *retaining* electric wires and Mizuno by *removing* electric wires—which the Petition fails to recognize or chooses not to acknowledge. In doing so, the Petition incorrectly argues that Mizuno's solutions, which address problems resulting from using a hydro-electric generator, would be beneficial to Tseng even though such problems *do not* exist because Tseng *does not* use a hydro-electric generator and *does not* desire one. The combinations alleged in Grounds 2 and 3 also fail because they add components and worsen the narrow spacing problem Tseng expressly strives to solve in a very different way.

Grounds 4-6 are based on a primary reference Tse. Ground 4 fails because Tse's "transparent" "cover" does not teach the claimed "light pipe," and the Petition fails to explain why a POSITA would have appreciated Tse's cover as the claimed light pipe. Notably, as further explained in this POPR, the Petition ignores expressly claimed elements that are "*translucent*," and for claim 19, "a closed loop *surrounding* the water outlet." Grounds 5 and 6 also fail because secondary

references Carter and Spangler do not cure the deficiencies of Tse. In Ground 5, the Petition attempts to supplement the weaknesses of Tse's "cover" with Carter's "light pipe." This proposed combination doubles down on fundamental flaw already present in Tse: Carter also explicitly discloses "*transparent*" light pipe material, which is distinct from the '363 patent's claimed "*translucent*" light pipe that diffuses light. Every claim term has meaning and, in this case, the Petition completely overlooks the claim language opposite from what the references disclose.

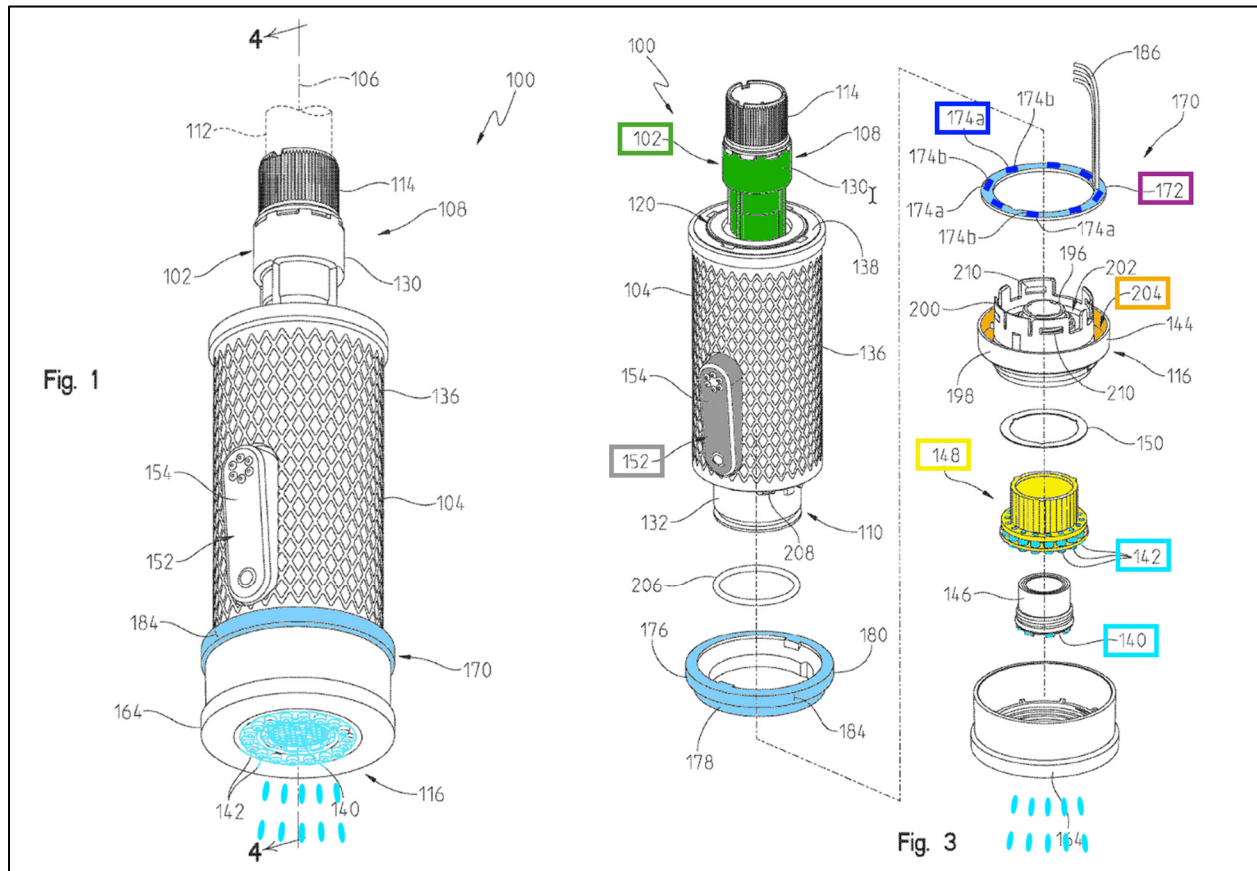
This POPR will address each of these issues in detail.

II. THE '363 PATENT (EX. 1001)

A. Overview of the Patent

The '363 patent presents technical improvements for fluid delivery devices, such as a pull-down sprayhead and pendant showerhead, with illumination. Ex. 1001, 1:15-17, 1:27-33. One of the problems the '363 patent solves is the "hot spots," *i.e.*, discrete or uneven lighting, in conventional fluid delivery devices with illumination. *Id.*, 1:24-26. For example, by placing **light emitters 174** on a closed-loop **substrate 172** and placing a similarly shaped and sized translucent closed-loop **light pipe 176** directly on top of the substrate, the translucent light pipe "defin[es] a closed loop" and diffuses the light. *See, e.g., id.*, 1:40-2:3, 3:52-58, Figs. 1-3, 7-10. The '363 patent also explains that the substrate is placed "within the outer **annular space 204**," so that the light emitters can be protected from water damage. *Id.*, 4:33-

34, Fig. 3.



Ex. 1001, Figs. 1 (left) and 3 (right).¹

The '363 patent also describes additional illumination features that improve fluid delivery devices. For example, the light emitters can be powered by a “hydro-generator [(not shown in Fig. 3)] fluidly coupled to the **waterway 102.**” *Id.*, 4:39-41. The '363 patent explains in detail how its hydro-generator functions in a compact sprayhead design:

¹ All annotations and emphasis added unless otherwise noted.

More particularly, an impeller 214 of the hydro-generator 212 is positioned within the water flow path defined by the distal portion 132 of the waterway 102. Magnets 216 are received within a housing 218 and coupled to the impeller 214 via a shaft 220 rotatably supported by bearings 222. As such, rotation of the impeller 214 by water flow through the waterway 102 causes similar rotation of the magnets 216. Coils 224 are supported within the housing 218 and proximate the magnets 216. As is known, rotation of the magnets 216 relative to the coils 224 generates electricity which is then provided to the light emitters 174.

Id., 4:42-52. The light emitters can also be configured to emit different colors based on the temperature of the water detected by the temperature sensor 226 (not shown in Fig. 3). For example:

In operation of an illustrative embodiment, light emitters 174*a* generate light of a first color (e.g., blue) when the signal from the temperature sensor 226 detects a first water temperature, and light emitters 174*b* generate light of a second color (e.g., red) when the signal from the temperature sensor 226 detects a second water temperature greater than the first water temperature. Illustratively, the first and second light emitters 174*a*, 174*b* blend the light of the first color and the light of the second color and generate light of a third color when the signal from the temperature sensor 226 detects a third water temperature between the first water temperature and the second water temperature.

Id., 5:5-16.

In addition, a **diverter valve assembly 152** fluidly coupled to the waterway

allows the user to switch between different water output options, such as **a stream outlet 140 and a spray outlet 142**. *Id.*, 3:33-37. The spray outlet is part of **a nozzle assembly 148**. *Id.*, 3:27-30. The nozzle can also be multi-dimensional to provide water streams in at least two dimensions, as explained in the patent with the pendant showerhead embodiment as an example:

Fluid devices, such as nozzles, are illustratively received within the outlet openings 332. In an illustrative embodiment, a pair of multi-dimensional fluid dispensers or fluidic devices 328 are supported by a receiving body 329 of the outlet end 318 of the waterway 310 and are in fluid communication with the support tube 308. As further detailed herein, a multi-dimensional fluidic device 328 is configured to produce a stream or jet of water moving in at least two dimensions. Additional details of illustrative fluidic devices are provided in US Patent Application Publication No. 2013/0299608 to Spangler et al., the disclosure of which is expressly incorporated herein by reference.

Id., 5:53-64. The Spangler reference, which the Petition asserts in Ground 6, is incorporated in the '363 patent and assigned to Delta.

B. Challenged Claims

All claims of the '363 patent have been challenged. The independent claim 1 ("sprayhead") is challenged based on Tseng (Ground 1), Tse (Ground 4), and Tse in view of Carter (Ground 5). The independent claim 10 ("pull-down sprayhead") is challenged only based on Tseng (Ground 1). The independent claim 19 ("pendant

shower head”) is challenged based on Tse (Ground 4) and Tse in view of Carter (Ground 5). Grounds 2 and 3 are based on Tseng in view of Mizuno and Tseng in view of Schneider, respectively, and only challenge dependent claims. Ground 6 challenges a single dependent claim based on Tse (or Tse and Carter) and Spangler.

The independent claims are reproduced below. Every independent claim recites, among other features, a “translucent light pipe defining a closed loop” “to diffuse light from the light emitters.”

1. A sprayhead comprising:
a housing defining a longitudinal axis;
a waterway received within the housing;
a sprayface fluidly coupled to the waterway and supporting a water outlet; and
an illumination device supported by the housing, the illumination device including a substrate, a plurality of light emitters supported by the substrate, and ***a translucent light pipe defining a closed loop to diffuse light from the light emitters*** outwardly away from the housing.

’363 Patent, Claim 1 (emphasis added).

10. A pull-down sprayhead for a faucet, the sprayhead comprising:
a housing defining a longitudinal axis extending between a proximal end and a distal end;
a waterway received within the housing;
a sprayface fluidly coupled to the waterway and defining a water outlet;
and

an illumination device supported by the housing, the illumination device including a substrate, a plurality of light emitters supported by the substrate, and a translucent light pipe including an outer illumination surface extending perpendicular to the longitudinal axis of the housing, ***the translucent light pipe defining a closed loop to diffuse light from the light emitters*** outwardly away to the outer illumination surface.

'363 Patent, Claim 10 (emphasis added).

19. A pendant showerhead comprising:
a housing defining a longitudinal axis;
a waterway received within the housing;
a sprayface fluidly coupled to the waterway and including a water outlet;
and
an illumination device supported by the sprayface, the illumination device including a substrate, a plurality of light emitters supported by the substrate, and ***a translucent light pipe defining a closed loop surrounding the water outlet to diffuse light from the light emitters*** outwardly in a direction parallel to the longitudinal axes.

'363 Patent, Claim 19 (emphasis added).

C. Prosecution History (Ex. 1002)

During prosecution, the examiner considered numerous references between those Delta submitted via IDS and others cited by the examiner, all of which are cited in the face of the patent. Ex. 1001, Face; Ex. 1002, 56-66, 83, 113-124, 130, 145, 149 (IDS), *id.*, 92-97 (examiner's search and Notice of Allowability).

III. CLAIM CONSTRUCTION

Petitioner “submits that the terms of the ’363 patent’s claims do not require further construction and can be afforded their plain and ordinary meaning.” Petition, 13. For the purposes of this POPR, Delta has applied the plain and ordinary meaning of the claim terms to show that there is *not* a reasonable likelihood that Petitioner will prevail on any proposed ground. In the event that Petitioner later proposes further construction for any particular claim term, Delta reserves the opportunity to respond.

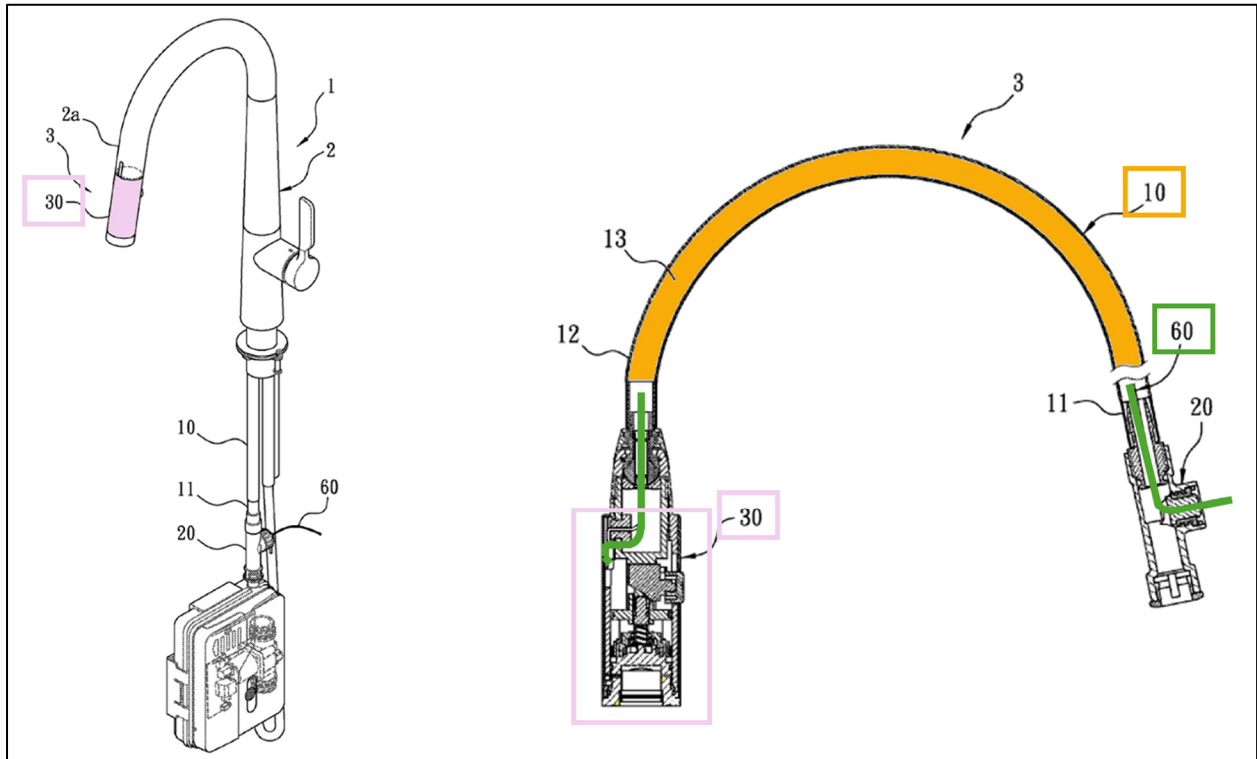
IV. LEVEL OF ORDINARY SKILL IN THE ART

According to Petitioner, “[a] POSITA in the field of the ’363 patent would have had a degree in industrial design or an equivalent field, along with 2 years of professional experience working with kitchen, bath, or other plumbing fixtures (or similar products), or an equivalent level of skill, knowledge, and experience. This POSITA would have been aware of and generally knowledgeable about the standard features and functionality of kitchen, bath, and other plumbing fixtures (or similar products).” Petition, 14. Delta neither adopts nor disputes Petitioner’s proposed level of skill, but applies it only for the purposes of this POPR.

V. SCOPE AND CONTENT OF THE ASSERTED PRIOR ART

A. Tseng (Ex. 1004)

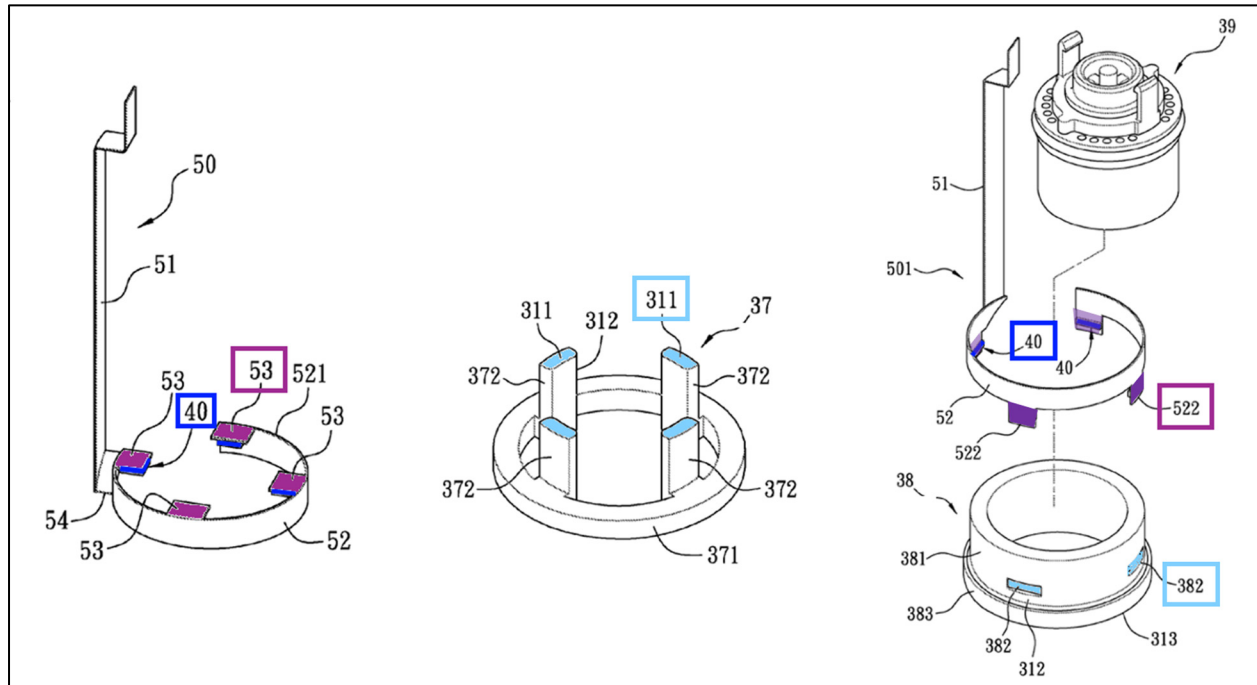
Tseng is directed towards “a pull-out faucet which contains a shower assembly to illuminate lights.” Ex. 1004, ¶1. In particular, Tseng focuses on providing better electric wiring solutions for conventional pull-out faucets with light emitting diodes (LEDs). For example, Tseng acknowledges that, in a conventional illuminated showerhead, electric wires can easily break due to rotational movement of the showerhead. *Id.*, ¶4. Tseng also acknowledges the difficulty of integrating a printed circuit board (PCB) into the narrow space of a showerhead. *Id.*, ¶7. This is because a showerhead (or sprayhead) includes other devices such as a switch device for changing the water flow between straight (through a “central channel”) and spray (through “peripheral channels”). *Id.*, ¶¶7, 15. To solve these purported problems, Tseng proposes using a flexible printed circuit, replacing the conventional PCB, to fit into the narrow space of a **spray head 30**, inserting an **electric wire 60** into a **flexible pipe 10** to protect the wire from water damage, and limiting the rotation of the spray head to prevent damaging the electric wire. *Id.*, ¶¶40, 107-110. Tseng also notes that its pull-out faucet has the same size as the conventional faucets. *Id.*, ¶106.



Ex. 1004, Figs. 1 (left) and 4 (right).

Tseng's second and third embodiments, in which the Petition focuses on, disclose light conductors 37 (Fig. 30) and 38 (Fig. 37), a circuit board 50, and LEDs 40. *Id.*, ¶¶71, 101. The circuit board 50 in Fig. 11 (501 in Fig. 37) has a c-shaped ring 52 with four distinct **extensions 53** (**tabs 522** in Fig. 37) in which the **LEDs 40** sit. *Id.* In Tseng's second embodiment (Figs. 11 and 30 together), each LED transmits light to the **input face 311** of each light column 372. *Id.*, ¶71 ("each extension 53 is located above each input face 311, and a bottom face 531 of each extension 53 electrically connects with each LED element 40 and faces to each input face 311"). In Tseng's third embodiment (Fig. 37), each LED 40 transmits light to

the input face 311 (not shown) of the **indentation 382**. *Id.*, ¶¶97, 101 (“a plurality of LED elements 40 are arranged on an inner wall of the C-shaped ring 52 and retain in the plural indentations 382 to illuminate lights to the input faces 311.”)



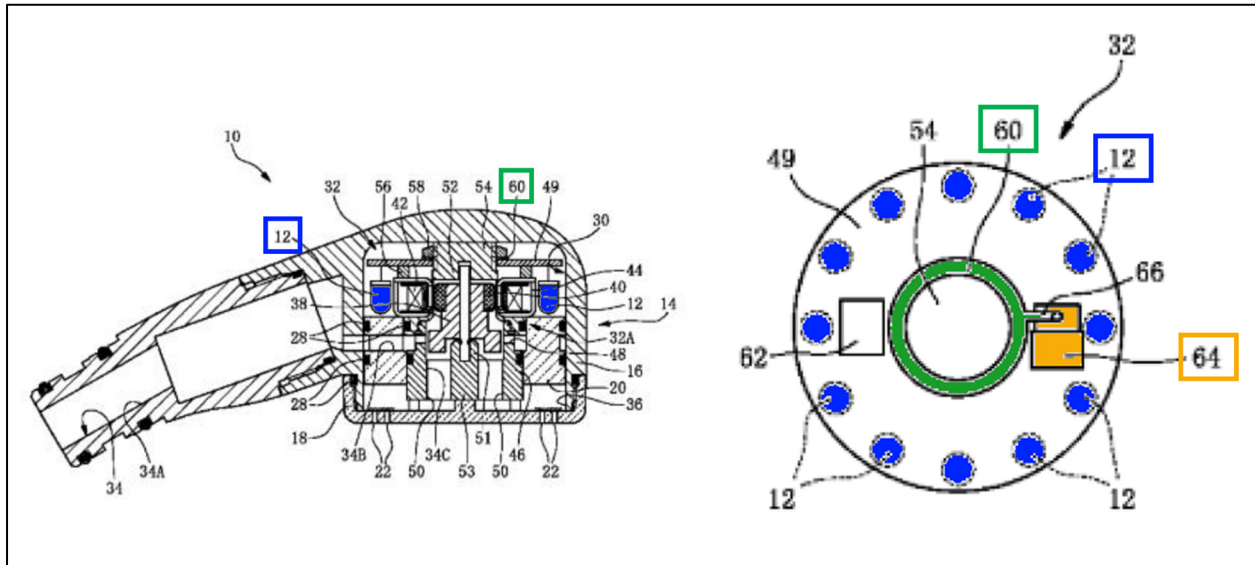
Ex. 1004, Figs. 11 (left), 30 (middle), and 37 (right).

B. Mizuno (Ex. 1007; Ex. 1008 for translation)

Mizuno is related to a faucet with an LED illumination lamp provided with a hydroelectric generator. Ex. 1008, ¶1. Diverging from Tseng, Mizuno identifies a very different solution to purported problems in the prior art regarding provision of electric wiring and limited spacing when mounting a battery in a faucet. *Id.*, ¶¶4-5. Going in a different direction than Tseng, Mizuno proposes a hydroelectric generator that generates power using the flow of the water, replacing the wiring altogether. *Id.*,

¶6 (“there is no need to perform electrical wiring”). But Mizuno does not stop there. It further contemplates that yet another problem arises from using a hydroelectric generator—when the excessive power is generated from high water pressure (flow), the excessive power may damage the LEDs. *Id.*, ¶7. According to Mizuno, a **voltage-stabilizing element 64** can be used to stabilize the excessive power, but it too can overheat and become inoperable. *Id.*, ¶8.

As such, Mizuno requires inclusion of several additional components that are necessary for its design to function in an acceptable way without additional electrical wiring, all squeezed inside the spray head. For example, a **metal heat transfer ring 60**, which can be cooled by water flow, is connected to the heat dissipation part 66 of the voltage-stabilizing element, thereby preventing from overheating when the excessive power is generated from high water pressure. *Id.*, ¶14. The number of the **LEDs 12** that light up is controlled based on the generated power, and the luminance of the LEDs can be increased to consume the excessive power. *Id.*, ¶15. A “relief valve” or a “pressure-reducing valve” sets a limit to the inflow water pressure to the generator or to set a limit to the power generation regardless of the inflow water pressure, respectively. *Id.*, ¶16-17. Additionally, a “residual light circuit” consumes surplus power by keeping the lights on even after the water flow stops. *Id.*, ¶35.



Ex. 1008, Figs. 2 (left) and 4 (right).

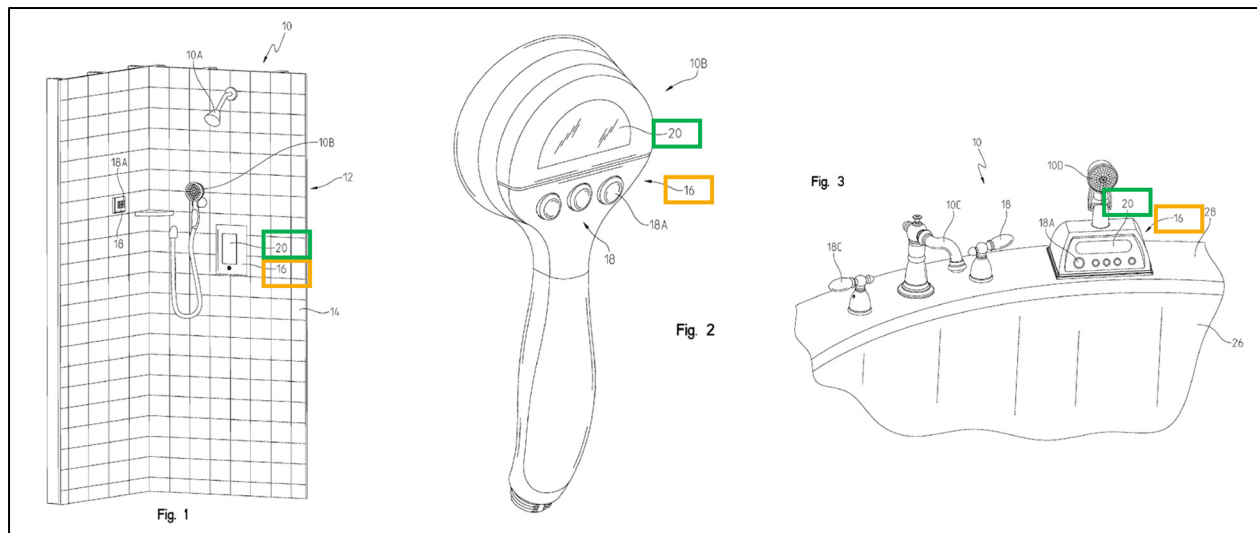
In the end, Mizuno added by subtraction—in removing the electrical wiring, Mizuno had to include several new functional components to its design just to make its lighting system work.

C. Schneider (Ex. 1009)

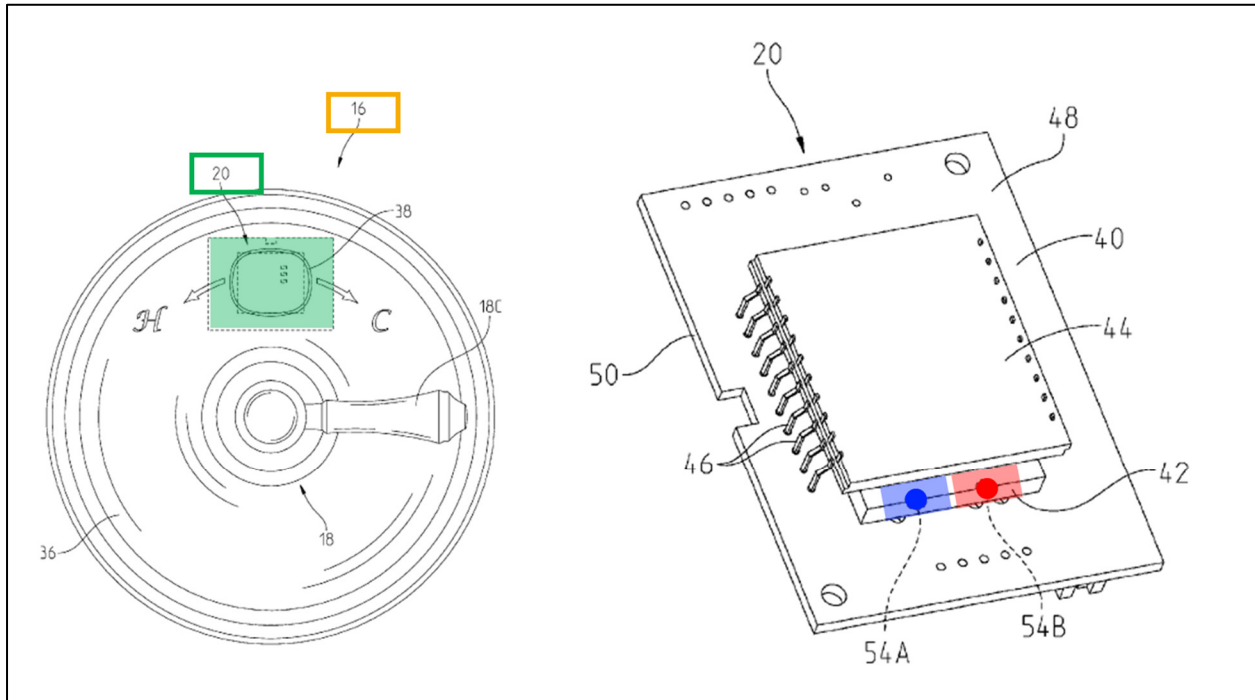
Schneider is directed to a “user interface” for fluid delivery devices, particularly, a “display unit” with a variable backlight that changes color in response to a change in water temperature. Ex. 1009, ¶¶2, 4. A fluid delivery device, according to Schneider, includes “a faucet and/or a sprayer” for a kitchen sink or “a showerhead, a hand shower or sprayer, a tub faucet, and/or a lavatory faucet” for a bath application, a user interface to “control the flow and temperature of outlet water,” and a display unit to “indicate various parameters and properties of the fluid

delivery device, for example, water temperature, operating mode, current time and date, and/or other information about the fluid delivery device.” *Id.*, ¶3.

Schneider discloses different placements of its **user interface 16** with a **display unit 20**: on the wall of a shower room (Fig. 1, below), at the rear side of a hand shower (Fig. 2, below), at a tub, (Fig. 3, below) and a kitchen sink (Fig. 4).



Ex. 1009, Figs. 1 (left), 2 (middle), 3 (right). Scheider also discloses embodiments of the user interface/display unit, including below:



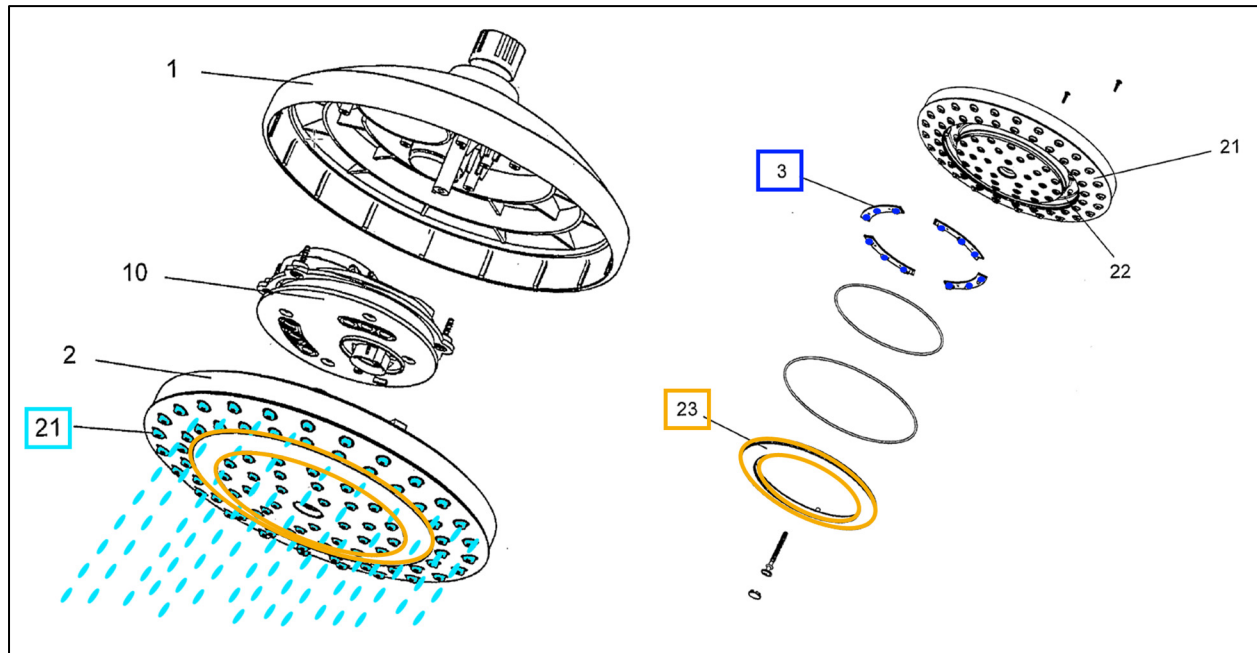
Ex. 1009, Figs. 8 (left), 11 (right). In the above, Figure 11 (right) is a user display 20 of Figure 8 (left). The **LEDs 54A** and **54B** are part of the display unit 20.

D. Tse (Ex. 1005)

Tse discloses a showerhead with lighting. Ex. 1005, 1:4-5. Tse proposes using a hydroelectric generator instead of a battery, solving the purported inconvenience of replacing the battery and purporting to avoid the leakage of electricity. *Id.*, 1:7-23.

In particular, Tse discloses a **perforated member 21** that sprays water. *Id.*, 5:16-17. In the middle of the perforated member, radially, **LEDs 3** sit in a groove 22, and a **cover 23** seals the grove to prevent water from entering the groove. *Id.*, 5:19-22. The cover is “transparent” or “semi-transparent” so that “the light emitted

by the light emitting means 3 can be seen”—*i.e.*, spotty lights. *Id.*, 6:27-29 (emphasis added). Notably, as shown in Figs. 2 and 4 below, the holes (*i.e.*, water outlets) of the perforated member 21 surround the cover (what Petitioner alleges corresponds to the claimed “translucent light pipe”).

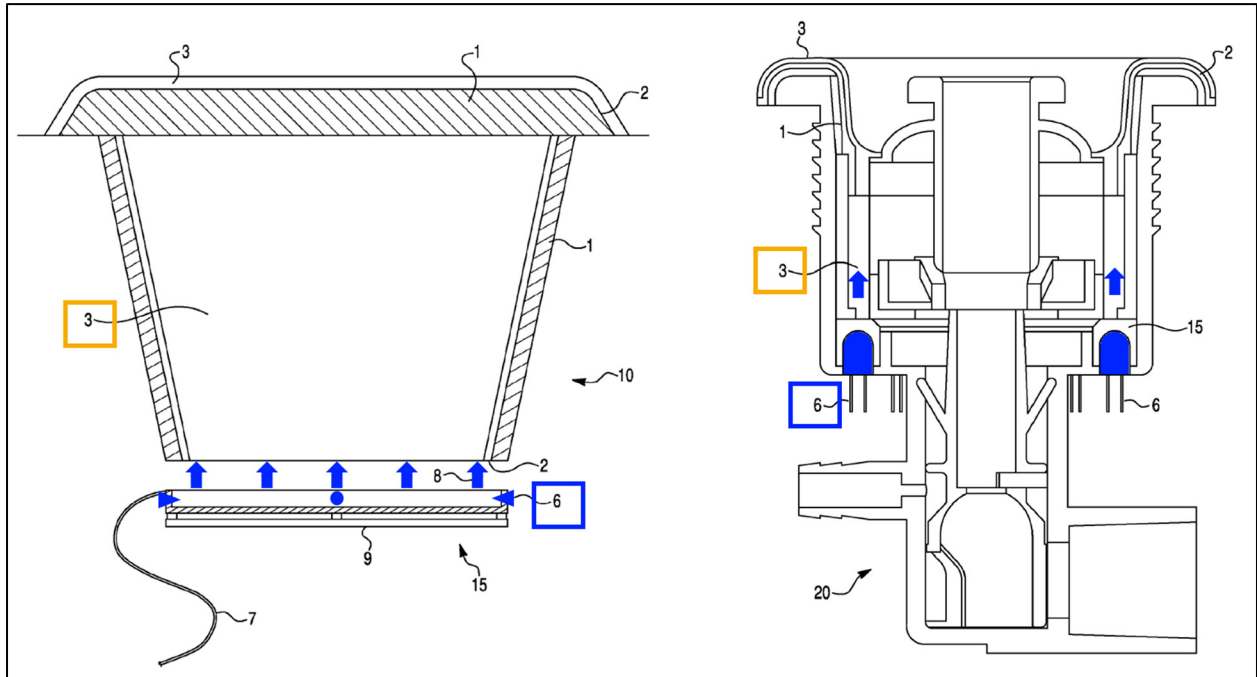


Ex. 1005, Figs. 2 (left) and 4 (excerpted) (right).

E. Carter (Ex. 1006)

Carter is directed to a plumbing fixture with an integrated light pipe made of “transparent, light channeling plastic.” Ex. 1006, Abstract. Carter describes its invention as a “unique multi-shot manufacturing [that] . . . provides lighting effects in a way that is . . . well suited to the rigorous environment [that uses] plumbing fixtures and illumination.” *Id.* In Carter, the light from **light sources 6** travels upwards through the **light pipe feature 3** of water jets (Fig. 7) that are often used

above and below the waterline in spas, pools and recreational water products. *Id.*, ¶¶3, 17-18. Carter purports to solve the durability of light sources in these water jets by better integration (“multi-shot molding or pre-mold/over-mold molding”). *Id.*, ¶8.



Ex. 1006, Figs. 6 (left) and 7 (right).

F. Spangler (Ex. 1014)

Spangler is directed to a showerhead assembly with multi-dimensional spray devices. Ex. 1014, Abstract. For example, the “multi-dimensional fluidic device [92 and 166] is configured to produce a stream or jet of water moving in at least two dimensions.” *Id.*, ¶50. Figure 12 shows one example of the **fluidic devices 166** that can produce a water stream oscillating a center axis 180 (i.e., two-dimensional). Spangler is assigned to Masco and is fully incorporated in the '363 patent.



Ex. 1014, Figs. 2 (left) and 12 (right).

VI. PETITIONER’S CHALLENGE IS NOT REASONABLY LIKELY TO PREVAIL FOR ANY OF THE ASSERTED GROUNDS

The Board should decline to institute trial because Petitioner fails to show that any of its six grounds have a reasonable likelihood of prevailing. The Petitioner's asserted references, Tseng, Mizuno, Schneider, Tse, Carter, and Spangler, either alone or in combination, at a minimum, fail to teach or suggest "*a translucent light pipe defining a closed loop to diffuse light from the light emitters*" as claimed. Moreover, Petitioner's asserted motivation to combine Tseng with Mizuno or Schneider, Tse with Carter (and Spangler) is technically and fatally flawed, as is explained in detail below:

- Tseng’s “light conductor” and Tse’s “cover” do not define a closed loop

as claimed. Moreover, Tse's "cover" fails to teach the claimed elements "translucent" and, for claim 19, "surrounding the water outlet."

- Mizuno describes an entirely different design approach that allegedly solves a problem that does not exist in Tseng, and there is no motivation to combine it with Tseng.
- Implementing Schneider to Tseng worsens the problem Tseng attempts to solve, thus there is no motivation to combine it with Tseng.
- Neither Carter nor Spangler cures the deficiencies of Tse.

Every one of Petitioner's grounds is accompanied by a declaration that parrots the language of the petition and makes assertions about how a POSITA would interpret the references without citation to supporting evidence and guided solely by hindsight.

A. Ground 1: Tseng does not teach or render obvious "a translucent light pipe defining a closed loop to diffuse light from the light emitters outwardly away from the housing."

The Petitioner alleges that Tseng teaches this limitation of claims 1 and 10. Petition, 23. Specifically, the Petitioner alleges that the "***light pipe***" would have been obvious to a POSITA in view of Tseng's "light conductor." *Id.*, 30. But the Petitioner fails to meet its burden of proving that Tseng renders obvious "a translucent ***light pipe defining a closed loop to diffuse light from the light emitters outwardly away from the housing***" *See In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d

1364, 1375 (Fed. Cir. 2016) (“In an *inter partes* review, the burden of persuasion is on the petitioner to prove ‘unpatentability by a preponderance of the evidence,’ 35 U.S.C. § 316(e), and that burden never shifts to the patentee.” (quoting *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015))).

1. Tseng’s “light conductor” does not define a closed loop to diffuse light from the light emitters.

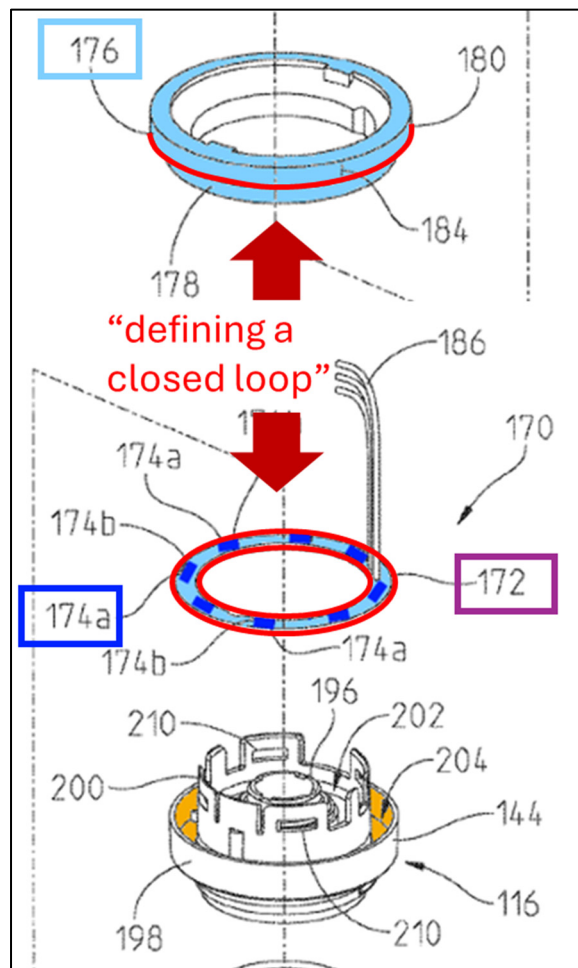
The Petition admits that Tseng does not disclose the claimed light pipe and instead alleges that a POSITA would have understood Tseng’s light conductor as the claimed light pipe. Petition, 30. In doing so, the Petition turns to the Cook Declaration (Ex. 1003) to fill in the gaps with assertions that are not based on Tseng or otherwise supported by any evidence.

For example, the Petition states that Tseng’s light conductors “uniformly diffuse light,” citing the Cook Declaration that states with no support that, “*as Tseng itself explains*, the light conductor operates to transmit and *uniformly diffuse light* from Tseng’s four internal LED elements to a different location on the exterior of spray head.” Petition, 31; Ex. 1003, ¶170 (emphasis added). This “explanation” is not in Tseng. Tseng only states that the light conductor “enhances” the illumination effect and outputs the light. *E.g.*, Ex. 1004, ¶¶79, 94, 98, and 70 (“the light conductor 31 has plural input faces 311 for inputting the lights, a light transmission portion 312 for transmitting the lights, and an output face 313 for outputting the lights”). There

is no disclosure of uniform diffusion and Mr. Cook provides no evidence or analysis to explain why Tseng could be interpreted in the way Petitioner asserts. As such, the Board should not give any weight to this statement. *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624 (PTAB Aug. 24, 2022) (precedential), Paper 9, 15 (holding that the expert declaration that “merely repeats, *verbatim*, the conclusory assertion for which it is offered to support” without citing “any additional supporting evidence or provide any technical reasoning to support” is entitled to little weight); *Securus Techs. Inc. v. Glob. Tel*Link Corp.*, 701 F. App'x 971, 974–76 (Fed. Cir. 2017) (affirming the Board's determination that conclusory testimony by an expert witness was insufficient to satisfy Petitioner's burden); *see also* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”).

Moreover, the claimed light pipe is not merely a light transmitting or outputting device as the Petition alleges in its over-simplification. Petition, 32 (“[I]t transmits light from the LEDs from one location to another.”). Claims 1 and 10 of the '363 patent both recite “a translucent ***light pipe defining a closed loop to diffuse light from the light emitters.***” That is, the claimed light pipe is structured and placed in a way that defines a closed loop where the light from light emitters enters the light pipe to effect diffusion of the light. *See, e.g.*, Ex. 1001, Fig. 3 (highlighted below). For example, Fig. 3 below shows **a light pipe 176** defining a closed loop by having

a *continuous* closed-loop surface where it meets the **light emitters 174**. See Ex. 1001, Fig. 3 (highlighted below), 4:7-9 (“The outer illumination surface 184 defines a closed loop and is positioned radially outside the outer wall 136.”). The closed-loop is defined also because the **substrate 172** has a *continuous* closed-loop surface. See *id*, Fig. 3. As such, in the ’363 patent, the light emitters are located between two closed-loop surfaces, and because of that, the light is trapped between the two closed-loop surfaces and diffuses along the claimed light pipe (*i.e.*, **defining a closed loop**).

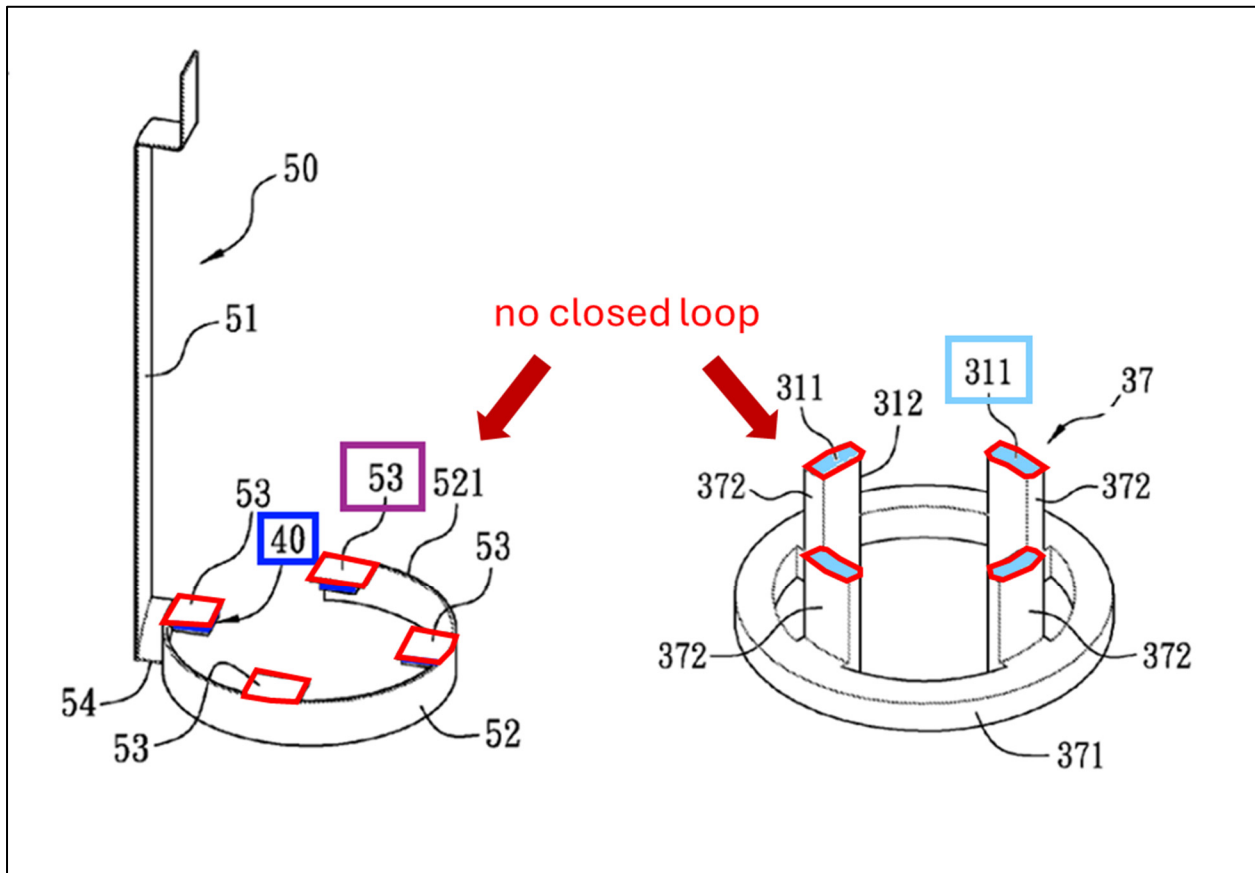


Ex. 1001, Fig. 3 (excerpted).

In contrast, Tseng's light conductors do not define a closed loop where the light from the LED elements enters the light conductor. Tseng's paragraph 71 explains:

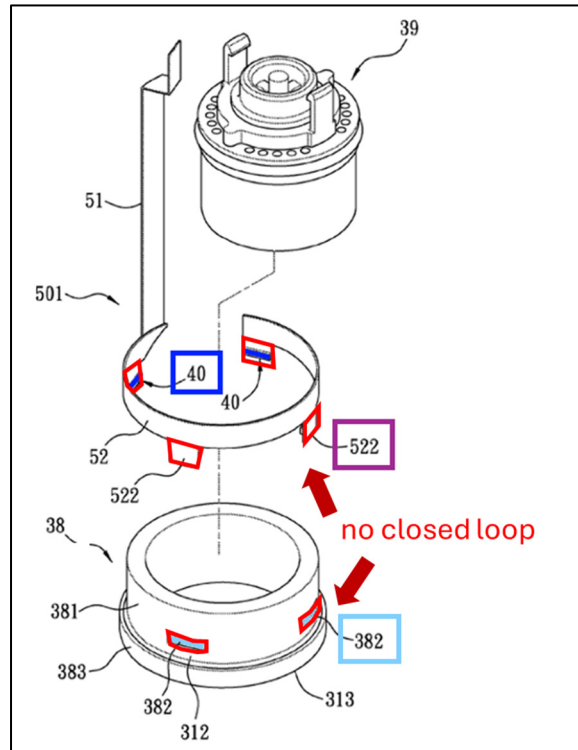
The circuit board 50, as illustrated in FIG. 11, is a flexible printed circuit (FPC) and at least includes a longitudinal sheet 51, a C-shaped ring 52 joining with the longitudinal sheet 51, plural extensions 53 extending toward a central axis X of the spray head 30 from a top rim 521 of the C-shaped ring 52, as shown in FIG. 5. In this embodiment, four extensions 53 isometrically extend around the C-shaped ring 52; wherein the longitudinal sheet 51 longitudinally extends into the spray head 30; the C-shaped ring 52 surrounds around an outer wall of the light conductor 31, as illustrated in FIG. 12; each extension 53 is located above each input face 311, and *a bottom face 531 of each extension 53 electrically connects with each LED element 40* and faces to each input face 311.

Ex. 1004, ¶71 (emphasis added). In other words, in this embodiment (Tseng, Fig. 11, below), the extensions 53 (specifically, the bottom face of the extension)—not the entire circuit board 50—are the substrates that correspond to the substrate 172 of the '363 patent ('363 Patent, Fig. 3, above).



Ex. 1004, Figs. 11 (left) and 30 (right). As such, four **distinct input faces 311** of the light conductor 37 and four **distinct extensions 53** (*i.e.*, substrates) **do not define a closed loop** where light enters the light conductor. Tseng's Figure 37 (below) embodiment also shows another light conductor 38 with four **distinct indentations 382**, which act as input faces in this embodiment, and four **distinct tabs 522** (*i.e.*, substrates). *Id.*, ¶¶ 97 ("each indentation 382 has an input face 311 formed on a bottom end thereof"), 101 ("The C-shaped ring 52 has a plurality of tabs 522 extending outwardly from a bottom end thereof to fix the plurality of LED elements

40 on the plurality of tabs 522.”). The distinct, separated indentations and tabs also **do not define a closed loop** where light enters the light conductor.

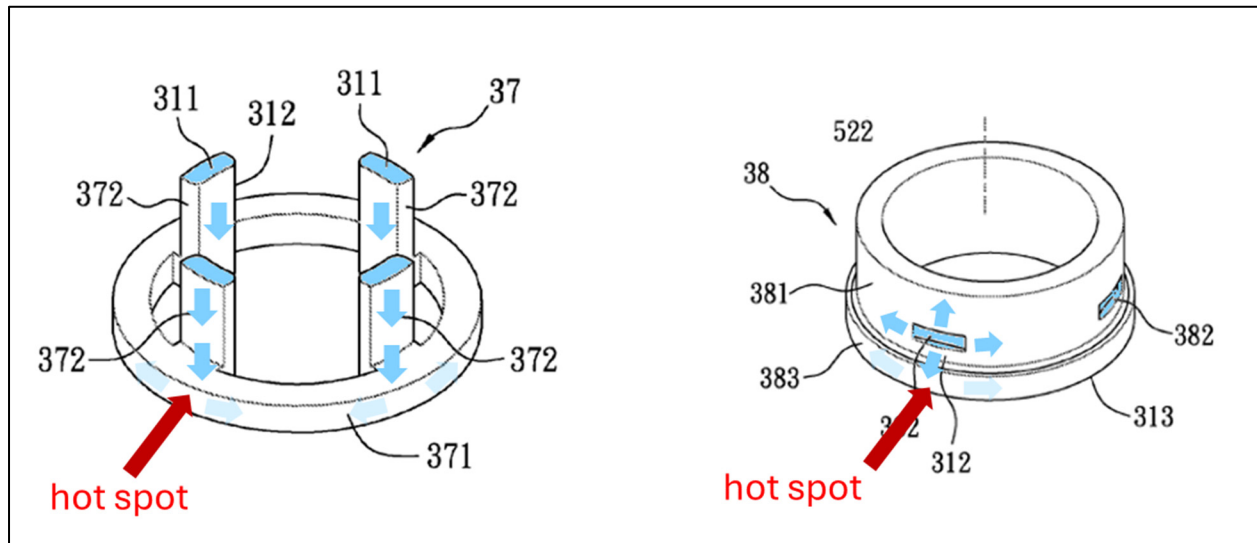


Ex. 1004, Fig. 37. Although a portion of Tseng's light conductors may eventually form a closed loop, they do not disclose the claimed *light pipe defining a closed loop to diffuse light from the light emitters* because the surfaces where the light first enters are separated into distinct pieces that each focus a separated LED element into a separate spot, thereby limiting any potential diffusion of the light.

2. Petition fails to explain why a POSITA would have understood Tseng's light conductor as the claimed light pipe.

Tseng's light conductor is structurally different from the claimed light pipe and cannot diffuse light like the claimed light pipe does. Because the '363 patent's

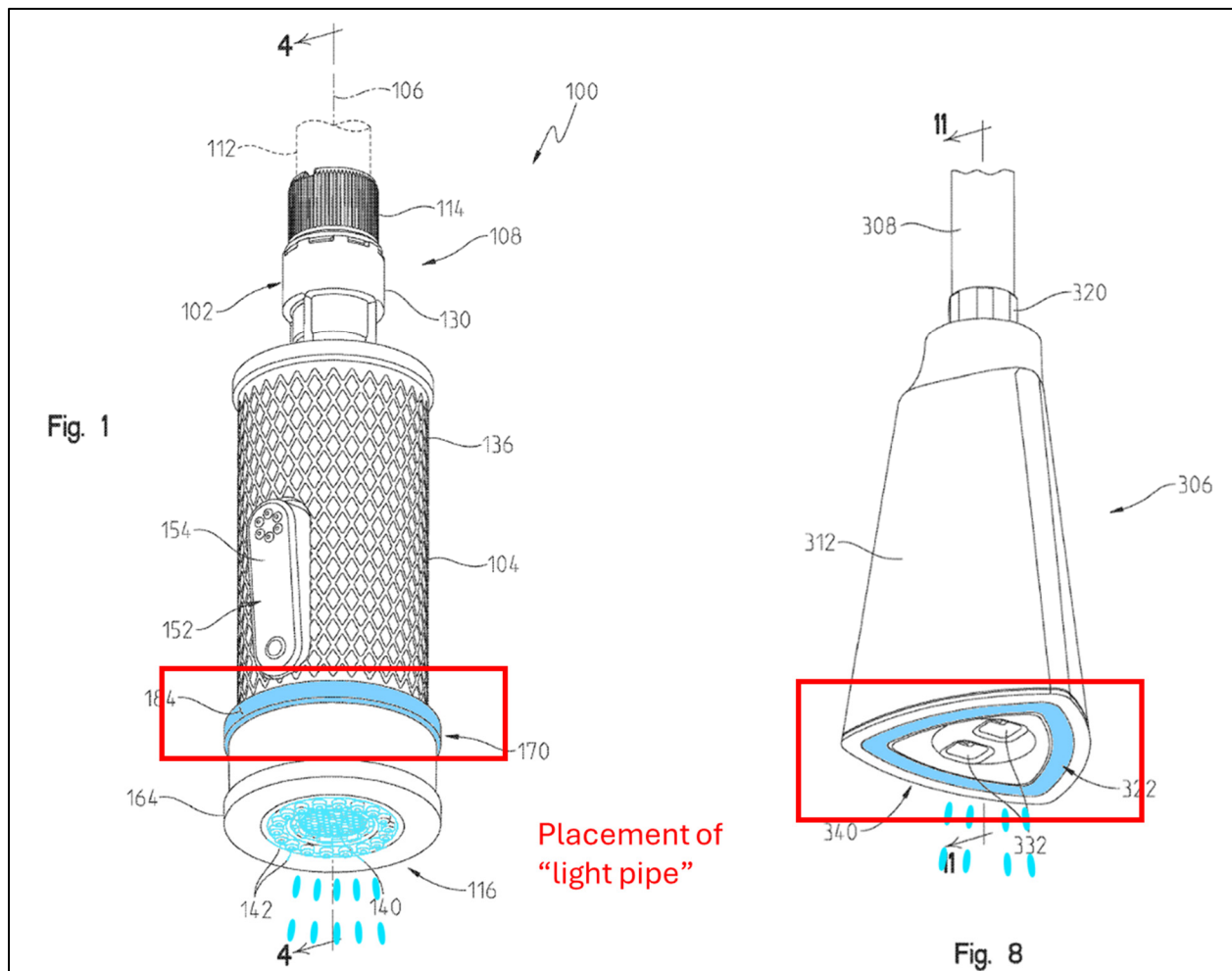
light pipe defines a closed loop using two closed-loop surfaces—light pipe 176 and substrate 172—on each side of the light emitters, it diffuses light through the light pipe without hot spots. This is not possible with Tseng. As the Petition admits, Tseng needs additional structures, like the light columns 372 (Fig. 30) and indentations 382 (excerpted Fig. 37), shown below, to diffuse the light. See Petition, 37 (“a POSITA would understand that—given the path it must travel—light entering Tseng’s light conductor will be substantially diffused *as it is transmitted towards* protrusion 383 and face 313. This *in turn* will lead to near uniform emission of light out of the light conductor upon arrival at these surfaces.”) (emphasis added). Even then, because Tseng’s light conductors *do not define a closed loop* like the ’363 patent claims, hot spots will inevitably form, as illustrated below. That is, in Tseng, because the light is focused through the columns into discrete spots, it does not diffuse through a closed-loop surface defined by the closed-loop surfaces of the substrate and light pipe like the ’363 patent does; rather, it forms hot spots first, and then (*i.e.*, “*in turn*”) diffuses.



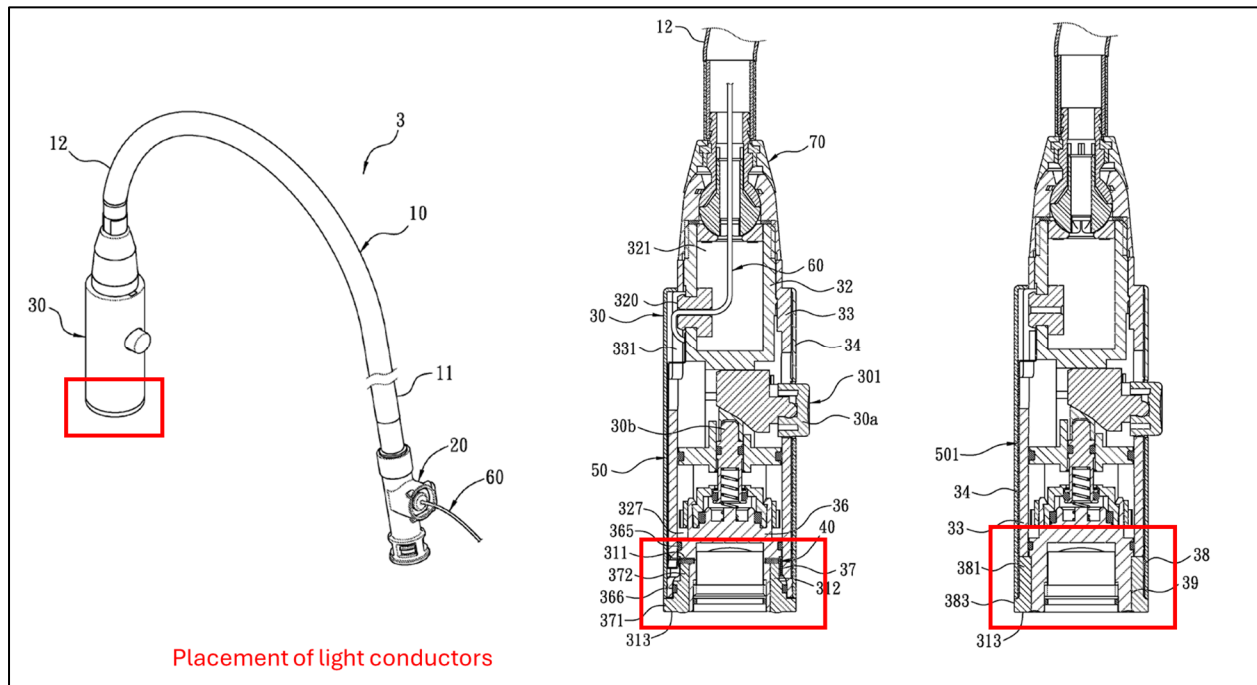
Ex. 1004, Figs. 30 and 37 (excerpted). Mr. Cook's Declaration does not address this issue, and rather, only restates the Petition's unsupported proposition. Ex. 1003, ¶ 202 ("a POSITA would have understood that light entering Tseng's light conductor will be substantially diffused as it is transmitted towards protrusion 383 and face 313. This in turn will lead to near uniform emission of light out of the light conductor upon arrival at these surfaces. Indeed, this is one of the design purposes of the light conductor: to not only transmit light from a relatively small number of light sources out of the housing, but to do so in a way that enhances illumination.").

In addition, because Tseng's light columns require additional structures like light columns and indentations for the light to travel, according to the Petition, Tseng's design is bulky and less flexible. The '363 patent's light pipe, in contrast, does not require any additional light-entering structure like Tseng (*i.e.*, extensions 53, input faces 311, light columns 372, tabs 522, indentations 382) because the light

diffuses directly around the closed loop defined by the substrate and the light pipe. As the '363 patent explains, discussed above, this structure and arrangement avoids hot spots and, at the same time, makes the light pipe simpler and more compact, resulting in a more flexible implementation. For example, the **claimed light pipe** can be placed anywhere along the outer surface of the sprayhead (Fig. 1) or towards the distal end of the pendant showerhead (Fig. 8), as shown below.



Ex. 1001, Figs. 1 (left) and 8 (right). Tseng's light conductors, because of their size and additional structures, are placed only at the distal end of the faucet, as shown below.



Ex. 1004, Figs. 3 (left), 27 (middle), and 32 (right).

The Petition also fails to explain how a POSITA would have solved the problem (*i.e.*, avoiding hot spots without additional structures) or appreciated the structural differences between Tseng's light conductors and the claimed light pipe. If anything, Tseng teaches away from the '363 patent's approach, as one of the problems and motivations identified in Tseng arose from the limited space in its showerhead. Ex. 1004, ¶¶7, 108. If Tseng's light conductors were like the '363 patent's light pipe, it would have worsened the spacing problem Tseng attempts to

solve, because it would have reduced the size of the showerhead, which according to Tseng, was already “narrow.” *Id.* The Petition is completely silent in this regard. *See OSRAM Sylvania, Inc. v. Am. Induction Techs., Inc.*, 701 F.3d 698, 706 (Fed. Cir. 2012) (“how one of ordinary skill in the art would understand the relative size of a genus or species in a particular technology is of ***critical importance***.”) (emphasis added).

At least for the reasons set forth above, Tseng cannot teach or render obvious claim 1 of the '363 patent. Accordingly, the Petition does not demonstrate a reasonable likelihood of succeeding on Ground 1, and institution should be denied.

B. Ground 2: A POSITA would not have been motivated to combine Tseng and Mizuno.

The Petition alleges that a POSITA would have been motivated to combine Mizuno's “hydro-generator” with Tseng's pull-out faucet for dependent claims 9 and 11. Petition, 43. According to the Petition, Mizuno explains that using a battery as a power source makes the faucet undesirably large, and a POSITA “would have recognized that Tseng is subject to these problems.” *Id.*, 44. This assertion mischaracterizes the references—Tseng's faucet is ***wired*** to a power supply and does not use a battery ***at all***—and is misleading because Tseng and Mizuno propose two divergent designs, and Tseng does not call for Mizuno's approach.

1. Tseng's objective is to protect—not remove—its electrical power source.

Tseng expressly states that a primary objective of its invention is to “provide a pull-out faucet which . . . avoids damage [to] an electric wire in the pull-out faucet.” Ex. 1004, ¶9. Indeed, Tseng boasts that its design includes several “advantages” improving how the electrical wiring is integrated with the faucet—all of which *retain*, rather than dispose of, the electrical wiring:

5. *The electric wire 60* is inserted along the tunnel 13 of the flexible pipe 10, so it is not broken easily. Preferably, the *electric wire 60* is mounted in the flexible pipe 10 conveniently and securely.

. . .

7. The angle limiter 80 is mounted between the coupling member 70 and the spray head 30 to limit the rotation of the spray head 30 smoothly within the first angle range, such as 110 degrees. Preferably, *the electric wire 60* is not damaged as rotating the spray head 30.

8. The inflow member 20 includes the second stopper 25 for inserting *the electric wire 60* to prevent a leakage of the water from the inflow member 20. Likewise, the conduit member 32 has the first stopper 320 installed thereon, thus avoiding the water penetrating into the internal sleeve 33 and the external sleeve 34 from the conduit member 32 to contact the circuit board 50. Furthermore, the first stopper 320 and the second stopper 25 affix the *electric wire 60* fixedly.

Id., ¶¶102-110 (emphasis added). As such, Tseng expressly set out to provide an advantageous design that *included* electrical wiring and, according to its own

express disclosure, was successful in doing so. Tseng does *not* call for a different solution, in hindsight or otherwise.

In fact, Tseng published *12 years* after Mizuno. Petition, 14 and 21. As explained in Sections V.A and V.D of this POPR, Tseng and Mizuno addressed providing electrical power in the limited spacing inside a faucet in entirely different ways. The Petition alleges that Mizuno “avoids” the electric wiring issue Tseng attempts to solve (“the wire will be subject to stress and strain which could lead its failure over time”) because Mizuno uses a “hydraulic generator.” Petition, 44-45. Mizuno was available to Tseng at the time of Tseng’s invention. Nonetheless, Tseng chose a *different* solution, instead focusing on retaining the electrical wiring—not replacing it—and improving the integration of the electrical wiring in its design. Tseng proposed using a flexible printed circuit and a flexible pipe to protect the wire, while keeping a battery power source. As such, a POSITA reading Tseng would have no reason to look for a major redesign—changing the power source entirely—without any motivation from Tseng. Nothing in Tseng provides any motivation for a POSITA to look for the hydro-electric generator like Mizuno in the first place.

Without any motivation from Tseng, where it went the other way (keeping the wires) twelve years after Mizuno (getting rid of the wires by replacing the power source), a POSITA would not have looked to Mizuno. The Petition fails to explain

this gap, relying solely on unsupported hindsight to fabricate a motivation to combine that simply is not there in the prior art.

2. The benefit of adopting Mizuno set forth in the Petition is illogical.

The Petition also alleges that a POSITA would have recognized “that application of Mizuno would also produce other benefits,” including “various features to avoid damage to both the generator itself and the LED lights.” Petition, 45. A POSITA would have *no reason* to implement Mizuno’s voltage stabilizer, cooling component (metal heat transfer ring), and relief valve—all of which come part and parcel with Mizuno’s disclosed design—because Tseng does not have the same problem that Mizuno had to solve. As explained in Section V.B, Mizuno states that the additional components—voltage stabilizer, cooling component, relief valve, and additional circuitry to connect them—solve the problem *arising* from using the hydro-electric generator (*i.e.*, excessive power generated from high water pressure). But Tseng does not need those additional components because Tseng does not suffer from excessive power caused by high water pressure. These extra components are only needed in Mizuno due to the problems Mizuno’s design created by replacing the power source with a hydro-electric generator. Particularly where the references themselves warn that physical space is limited and comes at a premium inside a faucet device, a POSITA would *not* be motivated to apply Mizuno’s teachings to a

different faucet, like Tseng's. Therefore, a POSITA would have realized Mizuno's approach is unnecessary and not applicable to Tseng, and would not have been motivated to make the combination that Petitioner proposes solely to map the references to the challenged claims.

3. A POSITA would not have had a reasonable expectation of success implementing Mizuno into Tseng.

Even if a POSITA were to implement Mizuno's teachings to Tseng, they would not have had a reasonable expectation of success. As the Petition cites, Mizuno's hydro-electric generator would be "integrated into the faucet's shower head," along with all of the additional components that Mizuno teaches are required for its operations. Petition, 46. The Petition then asserts that "a POSITA would have recognized that the *large* internal 'chamber 321' within Tseng's shower head could be readily adapted to accommodate Mizuno's hydro-generator." *Id.* (citing Ex. 1003, ¶270) (emphasis added). But Tseng never says its chamber 321 is "large"—the word does not appear in Tseng at all. In fact, Tseng explicitly states that the space inside its device is "*narrow*." Ex. 1004, ¶¶7 ("because of a narrow space of the shower head"), 108 ("fixed in a narrow space easily"). Again, Petitioner and Mr. Cook base their argument on disclosure that simply is not present in the references and cite no other evidence to suggest a POSITA would think in a way contrary to the plain language of the references themselves.

Moreover, because Mizuno teaches a problem and solution arising from using a hydro-electric generator, implementing Mizuno's approach would have required additional room for other components that Mizuno thought were necessary for use with its hydro-generator, such as the voltage-stabilizer, cooling components, and relief valve. For example, even if Mizuno's hydro-electric generator were to fit inside Tseng's chamber, Mizuno's required voltage stabilizer would have to be placed somewhere on Tseng's flexible circuit board 50 and be connected to the cooling component. This requires a major redesign to Tseng's already "narrow" space and is not "readily adapt[able]" by Tseng, as Petitioner alleges without support. Petition, 46.

Indeed, a POSITA would have been discouraged to implement Mizuno to Tseng, because to make the Mizuno's solution work, it would have had to include multiple additional devices and not just the hydro-electric generator, taking Mizuno's teachings as a whole. *Arctic Cat Inc. v. Bombardier Recreational Prod. Inc.*, 876 F.3d 1350, 1360 (Fed. Cir. 2017) (confirming that prior art teaches away if "a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference" and "known disadvantages in old devices which would naturally discourage") (citing *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994) and *United States v. Adams*, 383 U.S. 39, 52 (1966))

Accordingly, the Petition does not demonstrate a reasonable likelihood of succeeding on Ground 2, and institution should be denied.

C. Ground 3: A POSITA would not have been motivated to combine Tseng and Schneider.

As an initial matter, because Tseng does not anticipate or render obvious the independent claims—and Schneider does not cure those deficiencies, nor does the Petition even suggest that Schneider does so—Ground 3 fails for the same reasons described with respect to Ground 1 based on Tseng alone.

Nonetheless, the Petition alleges there is a motivation to combine Schneider's teaching with Tseng for dependent claims 17 and 18. Petition, 51. However, similar to the flawed combination in Ground 2, the Petition does not explain *why* a POSITA, after reading Tseng, would further look for Schneider. Tseng deals with solving the electric wiring and limited spacing problems inside the faucet, while Schneider proposes improving user interface on a larger scale—kitchen/shower system. Tseng does not even have a water temperature sensor, nor does it discuss any need to sense water temperature. The Petition also admits this. Petition, 47 (“While Tseng does not itself include the claimed temperature sensor and controller for changing light color of its light emitters in response to the detected temperature, Schneider does”) (omitted quotations and emphasis). Whether Schneider discloses the temperature sensor does not cure this flaw. By that logic, any two references from a similar field

would suffice for motivation to combine every time. The only motivation to combine the Petition provides are conclusory statements from the Cook Declaration paragraphs 298 to 303:

298. In my opinion, a POSITA would have been motivated to apply Schneider's teachings to Tseng.

299. A POSITA would have recognized that doing so would have improved Tseng in a number of ways.

...

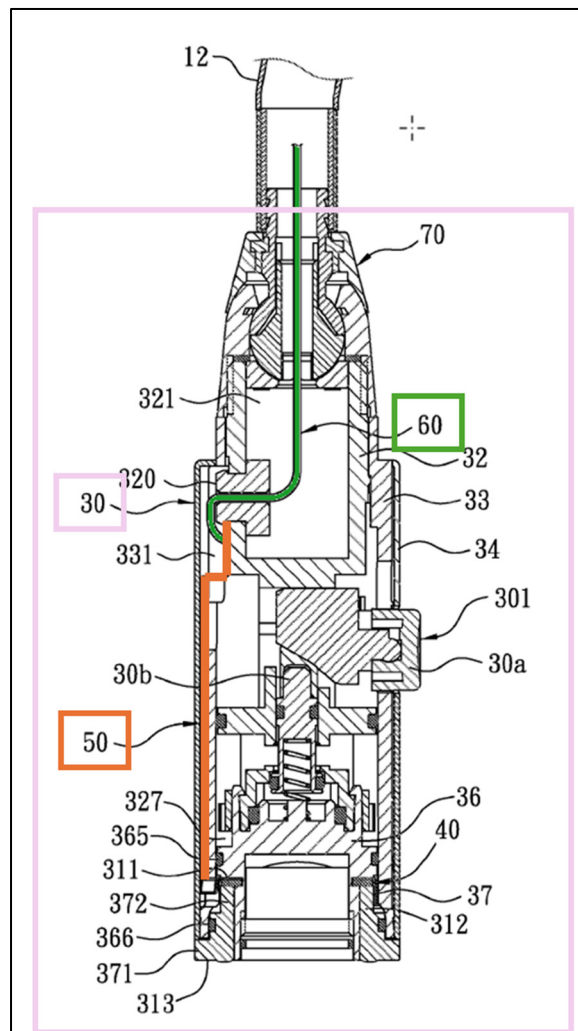
303. In my opinion, a POSITA would have recognized that this functionality would have allowed for safer and more convenient operation of Tseng's faucet: a user would be informed when the water coming out of the faucet is dangerously hot, uncomfortably cold, or just right.

Ex. 1003, ¶¶298-303. Because these statements do not cite to anywhere in Tseng or Schnider, they should be given no weight. *See e.g., Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624 (PTAB Aug. 24, 2022) (precedential), Paper 9, 15 (holding that the expert declaration that “merely repeats, *verbatim*, the conclusory assertion for which it is offered to support” without citing “any additional supporting evidence or provide any technical reasoning to support” is entitled to little weight); *Nichia Corp. v. Lighting Sci. Grp.*, IPR2019-01261 (PTAB Jan. 10, 2020), Paper 23, 20 (finding insufficient Petitioner's rationale where Petitioner's expert's “opinion on the alleged obviousness and simplicity of the combination appears to be based on nothing more

than his *ipse dixit*; he provides no explanation why an ordinarily skilled artisan would have made the combination.”) (internal citation omitted); *Securus Techs. Inc. v. Glob. Tel*Link Corp.*, 701 F. App’x 971, 974-76 (Fed. Cir. 2017) (affirming the Board’s determination that conclusory testimony by an expert witness was insufficient to satisfy Petitioner’s burden); *see also* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”).

The Petition also argues that a POSITA would have had a reasonable expectation of success while ignoring the problem and solution Tseng teaches. Petition, 51-52. Contrary to the Petitioner’s argument of “similarity of subject matter and **application**,” the application of Schneider is distant from that of Tseng. *Id.*, 52 (emphasis added). As explained in Sections V.A and VI.A, Tseng addresses its electric wiring and limited spacing problem by using a flexible pretended circuit and a flexible pipe. The Petition ignores these key aspects of Tseng. That is, the Petition does not explain **how** and **where** a POSITA would place a temperature sensor and a controller for changing the backlighting color when Tseng’s flexible circuit board is purposely designed to “be fixed in a narrow space.” Ex. 1004, ¶108. To apply Schneider to Tseng, a POSITA would have had to redesign the **flexible circuit board 50** and **wire 60**, squeeze additional components like a temperature sensor and a controller for changing the LED color based on the sensor output into

the **spray head 30** with a limited space. Ex. 1004, ¶¶7 (“narrow space”), 108 (“narrow space”); Fig. 27 (below). Then, a POSITA would have had to connect the sensor placed along the waterway to the controller placed on the flexible circuit board with a wire, exposing the wire to greater risk of damage. A POSITA would not go through this major change against Tseng’s stated problem—wiring and spacing.



Ex. 1004, Fig. 27.

Accordingly, the Petition does not demonstrate a reasonable likelihood of succeeding on Ground 3, and institution should be denied.

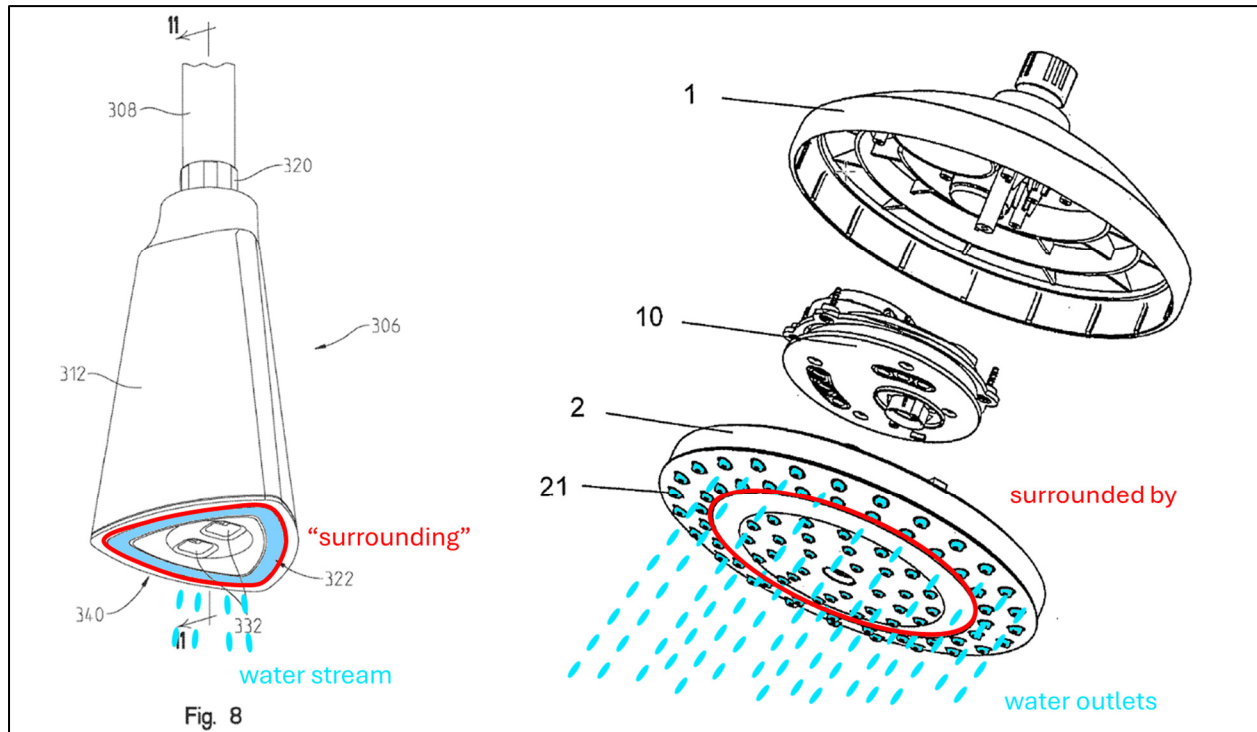
D. Ground 4: Tse does not teach or render obvious “a translucent light pipe defining a closed loop [surrounding the water outlet] to diffuse light from the light emitters.”

The Petition fails to show that Tse's “cover” teaches or renders obvious “a translucent light pipe defining a closed loop to diffuse light from the light emitters.” Particularly for claim 19, the Petition simply ignores the claim requirement, “a closed loop *surrounding the water outlet*,” because Tse's “cover” (which allegedly forms the “closed loop”) is surrounded *by* the water outlets instead of *surrounding* the water outlets.

1. Tse's “cover” does not define a closed loop surrounding the water outlet.

Claim 19 of the '363 patent recites “a translucent light pipe defining a closed loop *surrounding the water outlet*.” The '363 patent describes that “[a] translucent light pipe or diffuser 346 is coupled to the substrate 342 and defines a closed loop laterally surrounding the water outlet openings 332.” Ex. 1001, 6:2-5. That is, as shown in Fig. 8 (below at left), the **water stream** is located within the **closed loop** defined by the light pipe. In contrast, in Tse's Fig. 2 (below at right), the **water outlets** surround the LED cover (which allegedly forms a **closed loop**). *See e.g.*, Ex. 1005, Fig. 2; *see also id.*, 1:24-2:1 (“the present invention generally comprises a shower head body having . . . a front portion with a perforated member [21] adapted

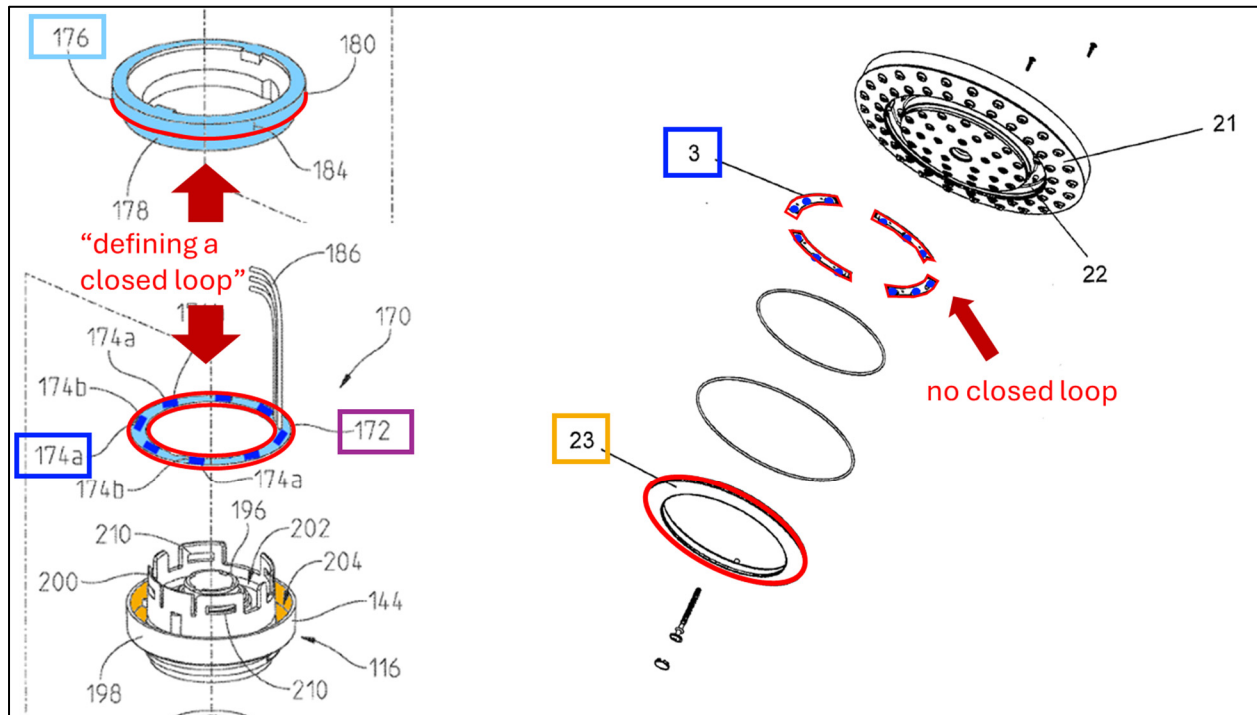
to discharge water in the form of a spray, a power source and a light emitting means, wherein the perforated member is disposed with a groove, the groove is disposed with a cover, the cover is adapted to be in sealed engagement with the groove to prevent water from entering the groove”).



Ex. 1001, Fig. 8 (left); Ex. 1005, Fig. 2 (right). The Petition simply ignores this gap and does not even attempt to argue obviousness for this claim element. Petition, 59 (“Tse’s ‘light pipe’ . . . encircles and thus ‘surround[s]’ its ‘water outlet’ (the holes through the central portion of its perforated member)”); *see also* Ex. 1003, ¶358 (“Tse’s ‘light pipe’ . . . encircles and thus ‘surround[s]’ [its] ‘water outlet’ (the holes through the central portion of its perforated member)”)). Accordingly, the Petition fails to show that Tse anticipates nor renders obvious this limitation.

2. Tse's "cover" does not define a closed loop to diffuse light from the light emitters.

Claims 1 and 19 both recite "a translucent *light pipe defining a closed loop to diffuse light from the light emitters.*" As explained regarding Ground 1, the claimed light pipe is structured and placed in a way that defines a continuous closed-loop where the light from light emitters enters the light pipe. The continuous closed-loop is defined because both sides of the LEDs—the substrate and the light pipe—each form a closed-loop. *See* Ex. 1001, Fig. 3 (below left). That allows the light to be captured between the two closed-loop surfaces and diffuse along the light pipe. The Petition states that Tse's cover has a circular shape and therefore defines a closed loop. Petition, 59. However, as shown in Tse's Fig. 4 (below right), the substrate where LEDs sit is broken into four pieces of circuit boards and does not form a continuous closed-loop.



Ex. 1001, Fig. 3 (left) (excerpted); Ex. 1005, Fig. 4 (below right)

3. Tse's "cover" is not "a translucent light pipe . . . to diffuse light."

The Petition also alleges that Tse's "cover" is the claimed "translucent light pipe," citing only Tse's specification. Petition, 59 ("This *is* the claimed 'translucent light pipe'" (emphasis added) (citing Ex. 1005, 3:3-5 ("The cover of the groove of the perforated member is made of *transparent or semi-transparent* material so that the light emitted by the light emitting means can be seen"), 6:27-29 ("The cover 23 of the groove 22 of the perforated member 21 is made of *transparent or semi-transparent* material so that the light emitted by the light emitting means 3 can be seen"))). The Cook Declaration also parrots these two citations without explaining how Tse's "transparent or semi-transparent" cover discloses the claimed

“translucent” light pipe and attempts to supply a missing limitation. Ex. 1003, ¶¶355-356; *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624 (PTAB Aug. 24, 2022) (precedential), Paper 9, 16 (“[It] is particularly problematic in cases where, like here, expert testimony is offered not simply to provide a motivation to combine prior-art teachings, but rather to supply a limitation missing from the prior art); *See also KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (stating that a “factfinder . . . must be cautious of arguments reliant upon *ex post* reasoning”); *Arendi S.A.R.L. v. Apply, Inc.*, 832 F.3d 1355, 1361–62 (Fed. Cir. 2016) (holding that reliance on common sense in an obviousness analysis is “typically invoked to provide a known motivation to combine, not to supply a missing claim limitation”) (emphasis omitted).

In fact, Tse’s transparent cover ***cannot*** disclose the claimed “***translucent*** light pipe” because transparent materials and translucent materials are fundamentally different. ***Transparent*** material has physical properties that allow light to pass through the material without a large scattering (*i.e.*, diffusion) of light, which means one can actually see through the transparent material. Ex. 2001, 1 (plastics supplier explaining “the specific difference between transparent and translucent material,” which “can make a huge impact” on whether “transparent” or “translucent” material is chosen). This is consistent with the very portion of Tse that Petitioner cites, which goes on to explain that Tse’s “cover” is transparent “so that the light emitted by the

light emitting means *can be seen*”—that is, so that the LED diodes (“light emitting means”) can be seen through the cover. Petition, 59 (citing Ex. 1005, 3:3-5, 6:27-29).

In contrast, *translucent* material lets light pass through, but one *cannot* clearly see objects on the other side of the material. Ex. 2001, 1. Translucent material scatters—that is, *diffuses*—light, just as the '363 patent's claims recite: “a *translucent* light pipe defining a closed loop surrounding the water outlet *to diffuse light*.” Ex. 2002 (plastics distributor and manufacturer describing “translucent” material as “permitting light to pass through *but diffusing it* so that things on the opposite side are not clearly visible.”) (emphasis added). Any alleged light pipe formed of Tse's cover is transparent, not “translucent,” and cannot “diffuse light.” If Tse's cover were translucent like the '363 patent claims, then the LEDs would *not* be seen (as Tse expressly discloses) because the light would be diffused. *Terlep v. Brinkmann Corp.*, 418 F.3d 1379, 1384 (Fed. Cir. 2005) (affirming the claim term “clear” did not include “translucent” because the “distinction between ‘transparent’ [‘complete absence of obstruction to vision’] and ‘translucent’ [‘passage of light but bars clear and complete vision’] cannot be ignored) citing *Int'l Rectifier Corp. v. IXYS Corp.*, 361 F.3d 1363, 1374 (2004) (holding that it was improper for the district court to adopt a definition that was attributed to a synonym of the disputed term while disregarding the distinction set forth in the usage note).

The Petition and Cook's Declaration both simply ignore this express claim language, providing no explanation of how Tse's disclosure of a "*transparent*" cover, through which Tse's light emitters can be seen, can disclose a "*translucent* light pipe" that, by virtue of being a translucent closed-loop, will "diffuse light." And, indeed, Tse does not disclose or teach this limitation.

Accordingly, the Petition does not demonstrate a reasonable likelihood of succeeding on Ground 4, and institution should be denied.

E. Ground 5: Tse in view of Carter does not teach or render obvious "a translucent light pipe defining a closed loop [surrounding the water outlet] to diffuse light from the light emitters."

The Petition alleges that Tse in view of Carter renders obvious claims 1, 6-9, and 19-23. Petition, 70. The Petition asserts Carter as a supplemental reference for the claimed "light pipe," acknowledging that Tse's cover (Ground 4) is insufficient to teach the "light pipe" as claimed. *Id.* ("Patent Owner may argue (incorrectly) that Tse's cover 23 is not a "light pipe" as all these claims require. Even if this were the case, however, a POSITA would still have considered the claimed subject matter obvious when Carter's (Ex. 1006) teachings are applied to Tse."). However, the Petition explicitly states that Carter's light pipe is also "*transparent*," citing Carter's own explicit disclosure of using "transparent" material for its "light pipe." *Id.*, 70 (Petitioner confirming Carter's "light pipe is '*transparent*'"); Ex. 1006, Abstract ("Light is provided to the transparent over-molded portion"), ¶26 ("said graphics are

applied to the substrate prior to the light pipe (*transparent* plastic) being molded into place”) (emphasis added).

As such, just like Tse, Carter teaches a *transparent* “light pipe,” not a “*translucent* light pipe” that can “diffuse light,” as the claims require. As explained above for Tse, transparent material is fundamentally different than the claimed translucent material. Ex. 2001. For at least for this reason, Carter cannot cure the deficiencies described above with respect to Tse’s cover. The Petitioner bears the burden of setting out its case in the petition with specificity, and this Petition fails to do so. Accordingly, the Petition does not demonstrate a reasonable likelihood of succeeding on Ground 5, and institution should be denied.

F. Ground 6: Tse (or Tse in view of Carter) in view of Spangler does not render dependent claim 24 obvious.

The Petition alleges that Tse (or Tse and Carter) in further view of Spangler renders obvious claim 24. Petition, 74. For at least the same reasons described for Tse (Ground 4) and Tse in view of Carter (Ground 5), Ground 6 also fails because Spangler does not cure the deficiencies in Tse and Carter. Accordingly, the Petition does not demonstrate a reasonable likelihood of succeeding on Ground 6, and institution should be denied.

VII. CONCLUSION

For at least the reasons provided above, the Board should decline to institute *inter partes* review of claims 1–24 of the ’363 patent.

Dated: July 11, 2024

Respectfully submitted,

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PATENT OWNER'S TABLE OF EXHIBITS

Exhibit	Description
2001	<i>Delvie's Plastics</i> , "What's The Difference Between Transparent & Translucent?" available at https://www.delviesplastics.com/blog/transparent-vs-translucent.html . (last accessed July 11, 2024)
2002	<i>United States Plastic Corp.</i> , "Definitions of opaque, translucent, and transparent." available at https://www.usplastic.com/knowledgebase/article.aspx?contentkey=824 . (last accessed July 11, 2024)

CERTIFICATE OF SERVICE

I hereby certify that, on July 11, 2024, I caused a true and correct copy of:

- Patent Owner's Preliminary Response Pursuant to 37 C.F.R. § 42.107
- Certificate of Word Count
- Patent Owner's Table of Exhibits
- Exhibits 2001-2002

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CERTIFICATE OF WORD COUNT UNDER 37 C.F.R. § 42.24(d)

I hereby certify that the foregoing Patent Owner's Preliminary Response contains 9,363 words, including text-based images, as measured by the word-processing software used to prepare the document, in compliance with 37 C.F.R. § 42.24(d).

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