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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SINCLAIR PHARMA LIMITED, SINCLAIR PHARMA US, INC., VIORA,
INC., EMA AESTHETICS LTD., AND AESTHETIC MANAGEMENT
PARTNERS, LLC AND AESTHETIC MANAGEMENT PARTNERS, INC.,
Petitioners,

v.

HYDRAFACIAL LLC
Patent Owner.

Case No. IPR2025-00145

Patent No. 11,865,287

PATENT OWNER RESPONSE

[REDACTED - PUBLIC VERSION]

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I. INTRODUCTION

The Petition challenges one of the seminal patents for hydrodermabrasion technology. HydraFacial pioneered hydrodermabrasion around 2005 and has since been awarded numerous patents, including the '287 patent, which protect HydraFacial's core innovations. These innovations fueled HydraFacial's tremendous growth, created an entirely new industry, generated [REDACTED] dollars in sales of systems protected by the '287 patent, and spurred widespread copying.

Petitioners treat HydraFacial's groundbreaking invention as a blueprint, working backwards to cobble together disparate technologies in the prior art. In Grounds 1A-1B, Petitioners attempt to splice Palmer's jet pulse dental irrigation system with Karasiuk's single-container treatment device. This combination, however, is unsupported by any motivation to do so and renders the system inoperable, as it can no longer deliver treatment fluid to the handpiece assembly.

In Grounds 2A-2B, Petitioners rely on Greenberg, which discloses a microdermabrasion system that uses only solid dry abrasive particles and therefore cannot satisfy the "treatment material" requirement recited in the claims. Microdermabrasion is precisely the outdated technology that HydraFacial's hydrodermabrasion systems displaced. Further, Petitioners provide no rationale for combining Greenberg's disparate embodiments.

The prior art cited in Grounds 1A-1B and 2A-2B also fails to disclose all claim limitations—most notably, none disclose a handpiece connected to the console, as required by every claim.

Objective evidence—including HydraFacial’s substantial revenue, exponential growth, dominant market share, and the widespread copying of its patented systems—directly ties to the claimed features. This evidence confirms that Petitioners’ arguments rely on hindsight and further demonstrates that the claims are not obvious.

II. BACKGROUND AND PATENTED TECHNOLOGY

A. HydraFacial and Hydrodermabrasion

HydraFacial pioneered the field of hydrodermabrasion and is a global leader in the design, development, and manufacture of high-quality hydrodermabrasion systems. These systems rejuvenate the skin by delivering different liquid solutions that cleanse and exfoliate the surface, remove impurities from pores, and deeply hydrate and moisturize the skin.

HydraFacial’s systems are trusted and widely used by dermatologists, plastic surgeons, cosmetic physicians, and medical spa professionals throughout the United States. The company’s latest flagship product, the Syndeo, is shown below alongside three treatment solutions and a cleaning solution.



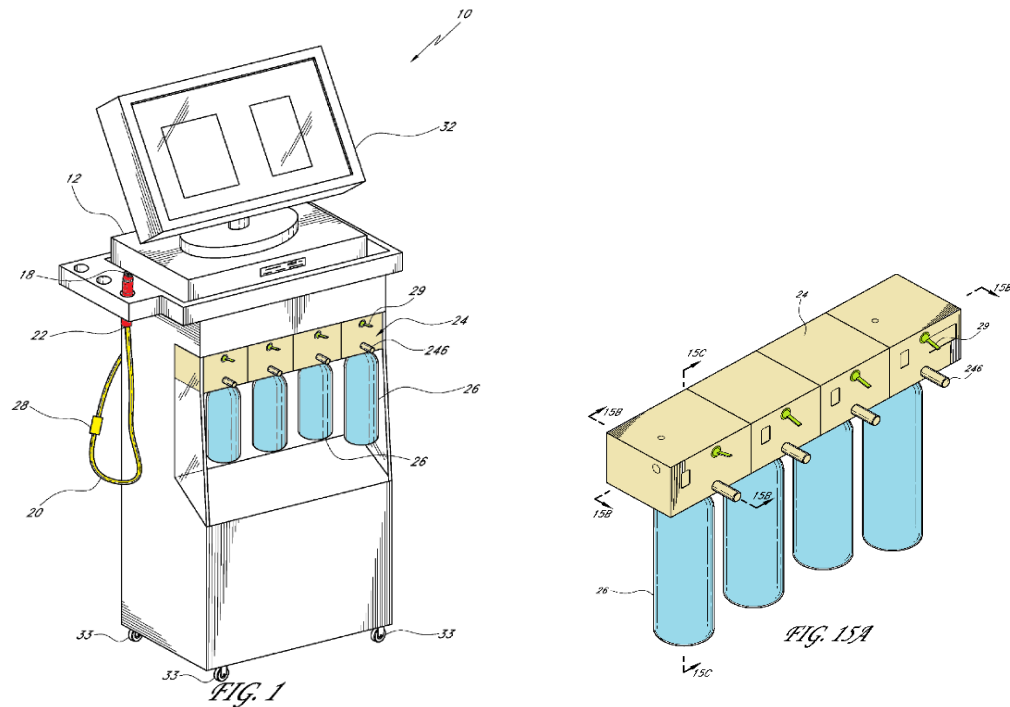
The hydrodermabrasion industry traces its roots to HydraFacial's patented technology, which remains at the forefront of non-invasive skin care. HydraFacial's revolutionary hydrodermabrasion systems, including the Syndeo, are protected by the '287 patent. The disclosure underlying this patent dates back to 2005, underscoring the longevity, innovation, and leadership that HydraFacial has brought to the industry.

B. The Patented Technology

The '287 patent discloses a skin treatment system that delivers treatment liquids from multiple containers either sequentially or simultaneously to a patient's

skin. Ex.1001, 6:27-30; *id.*, 13:21-23. Unlike prior microdermabrasion systems, which are often painful and will dry out and damage the skin (*id.*, 1:65-2:7, 2:16-22), the systems described in the '287 patent exfoliate dead skin cells and remove impurities using a vacuum “while simultaneously bathing the healthy underlying skin with active treatment material.” *Id.*, 7:59-65. These treatment materials “can facilitate cleansing, exfoliating, hydrating, and/or provide residual antioxidant protection.” *Id.*, 7:63-65.

The claims of the '287 patent are directed to skin treatment systems that include a first container and at least one additional container, each containing a treatment fluid. *See, e.g.*, claim 1. The treatment system applies fluids to the skin while simultaneously suctioning spent treatment fluid into a waste container. *Id.*, 5:63-6:2, 7:59-8:5. Users can select a desired treatment medium from multiple treatment-fluid containers (shown in blue below). *Id.*, 6:21-30, 15:61-63, 17:17-29.



Id., Figs.1, 15A (annotated). The '287 patent describes the same treatment fluids used in the Syndeo and other HydraFacial commercial products: “active-4™” as a cleansing and exfoliating serum (*id.*, 15:61-16:6); “Beta-HD™” as a salicylic acid extraction serum (*id.*, 16:6-14); and “Antiox-6™” as an antioxidant hydration serum (*id.*, 16:14-23).

HydraFacial’s patented invention can also include a block (shown in beige above). This block connects to the system’s fluid containers and, when at least one container is connected, establishes fluid communication with the handpiece (shown in red above) through a supply conduit (shown in yellow above). *Id.*, 2:30-35, 3:57-59, 5:28-31, 6:22-24, 17:17-29, 18:6-18.

When the handpiece tip is placed against the skin, a vacuum source generates negative pressure within the tip. *Id.*, 11:4-10. This negative pressure pulls the patient's skin against the tip (*id.*, 11:4-13) and simultaneously draws treatment fluid from the selected container while removing waste into a waste container. *Id.*, 7:59-8:5, 11:4-17.

The multiple treatment-fluid containers allow the physician or esthetician to selectively deliver fluids from the containers, enabling a customized, multi-step treatment for each patient. *Id.*, 6:24-37, 16:34-59.

C. Level of Ordinary Skill in the Art

As explained by Mr. Leinsing, a POSITA for the '287 patent would have a degree in science or engineering plus a minimum of three years of experience in the medical device industry. Ex.2001, ¶22. Alternatively, a product designer could have an additional two years of experience in the industry in lieu of a formal science or engineering degree. *Id.* The POSITA would also consult with a physician as needed to understand the medical implications of the disclosed device, including its effect on the skin. *Id.* This definition appropriately reflects both the engineering knowledge required to understand the device's mechanical aspects and the medical knowledge necessary to evaluate its impact on the skin.

Petitioners' definition of a POSITA (Pet., 3), which does not adequately consider the medical and skin treatment aspects of the system, undermines both

Petitioners' and Mr. Walbrink's analysis of the claims in view of the prior art. When the differences between the prior art and the claimed invention are reduced to purely mechanical terms, hindsight bias can result. As explained below, such hindsight bias invades Walbrink's analysis when attempting to combine disparate technologies, such as Palmer's dental irrigation system with the single-reservoir skin treatment system disclosed in Karasiuk.

Nevertheless, despite these important differences between the two definitions of a POSITA, HydraFacial's expert has assessed obviousness under both definitions and determined the claims would not have been obvious under either definition. Ex.2001, ¶¶1-26.

III. CLAIM CONSTRUCTION¹

HydraFacial agrees with Petitioners that "[n]o formal claim constructions are necessary." Pet., 2. Claim terms are generally given their plain and ordinary meaning in view of the patent specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005); Ex.2001, ¶49. Yet, Petitioners take the position that the claim terms "treatment fluid," "treatment material," and "fluid" should be interpreted

¹ The ALJ in Investigation No. 337-TA-1408 issued two orders construing claim terms of the '287 patent. Exs. 2156, 2157.

differently from their ordinary meanings. *See, e.g.,* Pet., 68 (characterizing dry abrasive particles as within the scope of “fluid.”).

Thus, while no express construction is needed, resolution of this dispute does require the Board to determine that, as explained below, the plain meaning of “treatment fluid,” “treatment material,” and “fluid” excludes dry abrasive particles. Ex.2001, ¶49. Petitioners agree that “claim terms need only be construed to the extent necessary to resolve the controversy.” Pet., 2 (citing *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011)).

A. “treatment fluid” (claims 1, 37)

Claims 1 and 37 of the ’287 patent recite a system for treating skin that includes at least two containers, each containing a “treatment fluid.” Petitioners do not propose any construction for “treatment fluid.” Pet., 2-3. Instead, Petitioners rely on a passage in the specification to argue that “fluid” should be broadened to cover a collection of dry “abrasive particles.”

As used herein, the term “treatment material” is a broad term and includes, but is not limited to, medicament, a substance tending to flow or conform to the outline of its container such as fluid, gas, liquid (e.g., serums, water, saline, etc.), gel, fluidized material, additives, and/or a plurality of fine solids. The general term “fluid” is used throughout synonymously with the term “treatment material” and is to be given the same broad definition.

Ex.1001, 5:47-54 (cited by Pet., 68). Relying on this passage, Petitioners argue that a collection of “abrasive particles” constitutes a fluid because it is “a plurality of fine solids.” Pet., 68; Ex.2001, ¶¶50-51. The Board should reject Petitioners’ argument.

A POSITA would have understood that a collection of dry particles, standing alone, is not a “treatment fluid” under the plain and ordinary meaning of that term, as informed by the specification and prosecution history. Petitioners’ interpretation is incorrect for at least four reasons. Ex.2001, ¶52.

First, Petitioners’ interpretation conflicts with the well-understood meanings of the words “treatment” and “fluid.” The ’287 patent does not redefine “treatment fluid,” but a POSITA would have readily understood its meaning because it combines two common, ordinary words. The term “fluid” does not refer to a solid, and “treatment,” in the context of the ’287 patent, indicates that the “fluid” is used for a skin treatment. Accordingly, the Board should reject Petitioners’ argument that a collection of dry solids qualifies as a “treatment fluid.” Ex.2001, ¶53.

Second, the claim language, specification, and prosecution history confirm that dry solid particles are not a “treatment fluid.” Both claims 1 and 37 recite a “system for treating skin,” showing that the claimed *treatment* fluids are intended for a skin treatment. In addition, both systems include components in “fluid communication” so that the fluids can flow freely between components—something solids cannot do.

The specification also directly contradicts Petitioners' position. As explained above, it distinguishes prior-art microdermabrasion systems that use dry particles (e.g., sand or grit) from the claimed invention, which "deliver[s] **fluid** from at least one of the **plurality of fluid sources** to the handpiece assembly."² Ex.1001, 2:34-35. A POSITA would have understood that the inventors claimed the use of treatment **fluids** precisely to distinguish their invention from dry-particle microdermabrasion. Ex.2001, ¶54. The specification further differentiates "wet" and "dry" modes of operation: the "wet" mode applies treatment materials to the skin, while the "dry" mode applies little or no treatment fluid:

During some skin treatment procedures, treatment materials from multiple containers 26 are sequentially or simultaneously applied to the patient's skin during a "wet" mode of operation....In some embodiments, the console 12 can be used for a "dry" mode of operation. That is, the console 12 can be used to exfoliate skin, for example, without [sic: while] delivering little or substantially no treatment fluid.

Ex.1001, 6:27-35. That the inventors described the "wet" mode as using treatment materials and the "dry" mode as using little or no treatment fluid confirms that the treatment fluids are not dry solid particles. Ex.2001, ¶54.

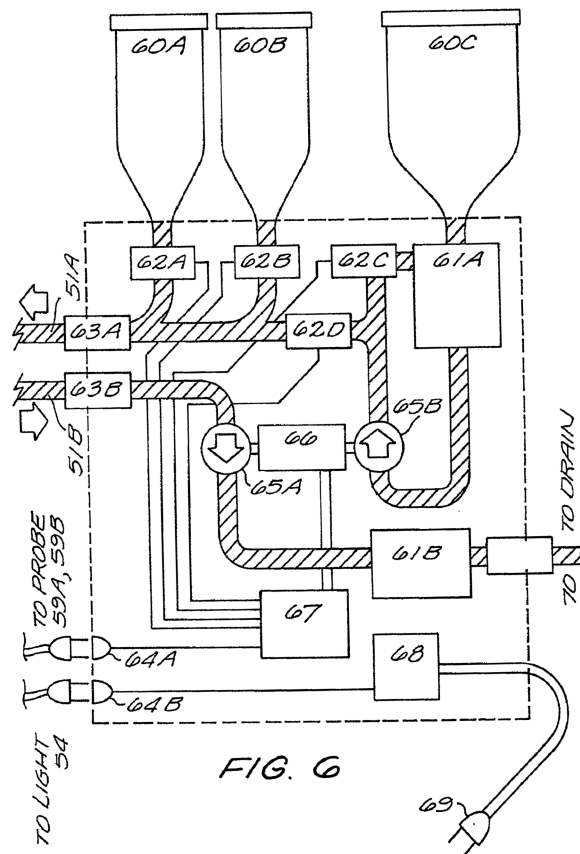
² Emphasis added by HydraFacial throughout unless noted.

The specification further reinforces this conclusion by explaining that wet mode promotes **hydration** (Ex.1001, 13:21-23), while dry mode “can be used for **non-hydration** procedures and may require less post-procedure clean up” (*id.*, 13:31-33). It also explains:

Fluid traveling down the longer pathway is in contact with the person’s skin 80 for a longer period of time. Thus, tighter spirals lead to increased contact time between the fluid and the skin 80. These longer contact times can increase the effectiveness of the **fluid** because the skin can **absorb an adequate amount of active ingredients** of the treatment material. Fluid retention time on the patient’s skin can be increased to **increase hydration, serum retention, and the like**.

Ex.1001, 10:9-17. Thus, longer contact times increases hydration, serum retention, and related benefits—functions that solids cannot perform. Finally, the specification provides numerous examples of fluids, including serums, hydration agents and additives, acids, extracts, and other substances—all of which are liquids, not solids. *Id.*, 15:61-16:33; Ex.2001, ¶55.

The prosecution history also contradicts Petitioners’ position. In an October 11, 2023 Office Action, the Examiner applied the Coleman reference (Ex.2011) to the then-pending claims. Ex.1002, 196-204. The Examiner relied on Coleman Figure 6:



Ex.2011, Fig.6 (cited by Ex.1002, 197). Coleman identifies each of elements 60A, 60B, and 60C a “reservoir” containing a different substance:

Reservoir 60A is used to contain a benign abrasive; reservoir 60B is used to contain a chosen medicinal component or combination of medicines; and reservoir 60C is used to contain the sterile water.

Ex.2011, [0058]. Coleman lists three examples of benign abrasives: “rock salt, ice, and hardened starch.” *Id.*, [0015]. A POSITA would have understood the “benign abrasive” in reservoir 60A is a collection of solid particles. Ex.2001, ¶56.

The Examiner determined that Coleman’s reservoirs 60B and 60C each contained treatment fluids. Ex.1002, 197. But with respect to a dependent claim

requiring **three** containers containing treatment fluid, the Examiner found “Coleman fails to disclose that all three containers contain fluid.” *Id.*, 203. The Examiner explained that container 60A “contains abrasive material” (*id.*), i.e., solids such as rock salt, ice, or hardened starch, which do not qualify as treatment fluid. Based in part on this finding, the Examiner found the dependent claim allowable if rewritten in independent form. *Id.*, 201-204. Thus, the prosecution history confirms that dry abrasive particles are not a fluid or a treatment material. *See* Ex.1001, 5:52-54 (equating treatment material and fluid); Ex.2001, ¶57.

Petitioners’ argument that a “treatment fluid” can be a collection of dry solid particles relies entirely on a single, isolated reference in the specification to “fine solids” while disregarding the intrinsic evidence. And Petitioners never explain what “fine solids” means. They merely point to Walbrink’s conclusory testimony that “a POSITA would have readily recognized Greenberg’s particles to be examples of the ‘fine solids’ of the ’287 patent.” *Id.* (citing Ex.1003, ¶321)³. But neither Petitioners nor Walbrink identify any evidence showing what substances qualify as

³ Petitioners’ expert, Walbrink, agreed with all “facts, analysis, and conclusions in Simon’s declaration” (Ex.1003) and adopted “the testimony in Sections III-XV.” Ex.1028, ¶20. For brevity, HydraFacial will cite only to Simon’s declaration unless otherwise noted.

“fine solids” under the ’287 patent or corroborating Walbrink’s conclusion that Greenberg’s particles are such substances. Ex.2001, ¶58.

Third, Petitioners ignore the broader context of the specification, which makes clear that “fine solids” are not stand-alone dry particles. The cited paragraph lists “fine solids” alongside examples such as serums, water, saline, gel, fluidized material, and additives—substances that may be included in fluids, which tend “to flow or conform to the outline of its container.” Nothing in the specification suggests that “fine solids” refers to a collection of dry particles alone. Rather, a POSITA would have understood that “fluidized material” may include fine solid particles that are not fluids by themselves but become part of a fluid when dissolved. In the context of the ’287 patent—which expressly distinguishes *wet* operations (that use fluid) and *dry* operations (that do not)—a POSITA would have understood that fluids may include “fine solids” dissolved within them, but that dry particles by themselves are not fluids. Ex.2001, ¶59.

Fourth, “treatment fluid” is not defined in the specification. The paragraph cited by Petitioners refers only to “treatment material,” and provides no guidance on the scope of “treatment fluid,” much less broadening it to include solids. Moreover, the reference to “treatment material” is not a definition. It merely lists examples of substances that *may be* included as “treatment material” in certain contexts. A POSITA would not have understood this list as defining “treatment fluid” in the

specific context of the claimed invention, where fluid flows from containers to a handpiece in fluid communication for application to the skin. Ex.2001, ¶60. The list is overinclusive, covering both this claimed context and other contexts where solid materials may be contained in the tip of the handpiece and delivered to the skin when engaging treatment fluid. Ex.1001, 11:43-50 (describing “alternative embodiments” where “the tips can carry deployable material” and “release[] it when it engages the treatment fluid”).

Thus, the specification’s reference to “treatment material” encompasses both the claimed context—where treatment fluid flows from containers to the handpiece for application to skin—and an unclaimed context—where a solid treatment material in the handpiece tip may be released upon contact with treatment fluid. Nothing in the claim language, specification, or prosecution history suggests that the ’287 patent’s reference to “fine solids” broadens “treatment fluid” to mean a stand-alone collection of dry particles. At most, “fine solids” refers to solid particles dissolved in fluid. Ex.2001, ¶61.

In view of the intrinsic record, the Board should reject Petitioners’ attempt to expand “treatment fluid” to encompass dry solid particles. Ex.2001, ¶¶61-62. If the Board determines a formal construction is necessary, it should give “treatment fluid” its plain meaning, which excludes collections of dry solid particles, thus resolving the parties’ dispute.

B. “treatment material” (claims 11, 22)

Claims 11 and 22 of the ’287 patent use the term “treatment material” instead of “treatment fluid.” While “treatment material” appears facially broader—encompassing *not only* fluids but *any* substance used in a skin treatment—the surrounding claim language limits its scope. Both claims 11 and 22 restrict “treatment material” to substances capable of flowing from containers to a handpiece in fluid communication with those containers.

Claim 11 recites a fluid control member “in fluid communication” with both first and second containers and a handpiece so that “the skin treatment apparatus is configured to selectively draw treatment material from the first container or the second container to the handpiece.” Similarly, claim 22 recites that “the working end of the handpiece is configured to be placed in fluid communication with the first container or the at least one additional container through the collection lumen.”

Although the specification does not define “in fluid communication with,” it is a common, well-understood phrase describing a connection or plumbing between objects through which fluid can flow between the objects. Accordingly, for practical purposes, the treatment material of claims 11 and 22—like the treatment fluid of claims 1 and 37—excludes a stand-alone collection of dry solid particles. Ex.2001, ¶63.

C. “fluid”/“fluids” (claims 16, 25-26)

The term “fluid” in claim 26 should be construed consistently with “treatment material” in claims 11 and 22. *See* Ex.1001, 5:52-54. As with those claims, the surrounding language of claim 26 limits “fluid” to substances capable of flowing from containers to a handpiece in fluid communication with the containers. Claim 26 recites a system in which a handpiece is “in fluid communication with” a vacuum source and a block that receives fluid from three containers, so that the system sequentially delivers fluid from the containers to the handpiece. Accordingly, for practical purposes, the “fluid” of claim 26—like the treatment fluid of claims 1 and 37—excludes a collection of dry solid particles. Ex.2001, ¶64.

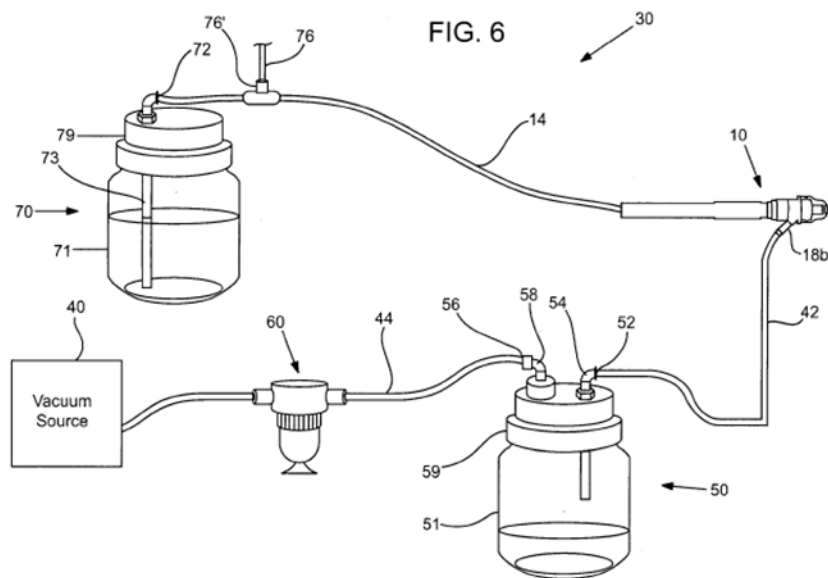
Dependent claims 16 and 22 further confirm that their claim scope does not encompass dry particles. Claim 16 depends from claim 11 and recites that “the treatment material in the first container is a skin treatment fluid.” This expressly requires that the first container’s treatment material be a skin treatment fluid. *Id.*, ¶65. Claim 25 depends from claim 22 and recites that “a flow of fluids from the first container and the at least one additional container.” This confirms that it is fluids in claim 25—not dry particles—that flow from the containers to the handpiece. *Id.*

IV. THE PETITION'S PRIOR ART

The Petition relies on Karasiuk and Palmer (Grounds 1A-1B) and Greenberg (Grounds 2A-2B). Pet., 1-2. For Grounds 1B and 2B, Petitioners further rely on Trueba. *Id.*

A. Karasiuk

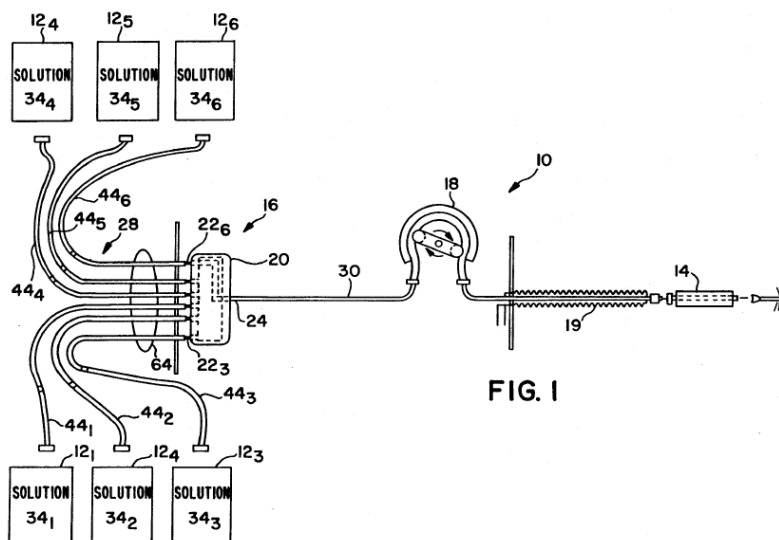
As Figure 6 shows, Karasiuk's device draws liquid from a single jar during treatment:



Ex.1004, Fig.6, [0020]. Karasiuk indisputably lacks a block or fluid control member in fluid communication with multiple fluid containers. Nothing in Karasiuk suggests separately storing and applying different treatment fluids during a single treatment. At most, Karasiuk discloses that different solutions, suspensions, or compounds may be placed “alone or in combination” within its single reservoir 70. *Id.*, [0061]; Ex.2001, ¶¶67-68.

B. Palmer

Palmer discloses an irrigation system used in periodontal procedures. Ex.1005, 1:10-15. It delivers “pulsed jets” of treatment solution at constant pressure and a substantially constant volumetric flow rate to the treatment area in the patient’s mouth. *Id.*, 2:52-56, 11:17-23 (pressure of 25 psi and flow rate of 22-25 mL/minute). Palmer employs a peristaltic pump 18 located upstream of handpiece 14 to generate these pulsed jets, as shown in Figure 1. Ex.2001, ¶69.

**FIG. 1**

Ex.1005, Fig.1. Unlike a skin treatment system, Palmer’s systems provide one-way irrigation and lack any mechanism for vacuuming or removing spent solution. *Id.*, 3:30-33; Ex.2001, ¶70.

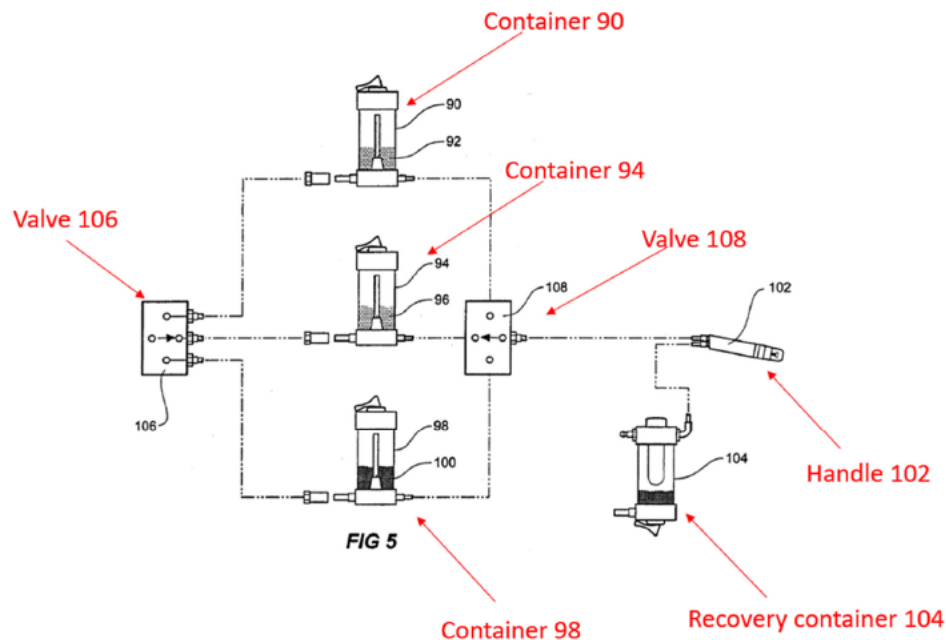
C. Trueba

Trueba, assigned to Hewlett Packard, discloses a jet dispenser that integrates the “unrelated technologies” of inkjet printing and pharmaceutical delivery.

Ex.1008, 1:7-12; Ex.2001, ¶71. It describes “an applicator for inhalational or mucosal delivery of a bioactive composition using a jet dispenser, such as a piezoelectric or thermal jet dispenser.” Ex.1008, 3:42-45.

D. Greenberg

Greenberg discloses a system for performing microdermabrasion procedures using a handpiece to apply dry treatment materials to the skin. Ex.1006, [0013]-[0040]; Ex.2001, ¶129.



Pet., 58.

As shown in Figures 1-2, Greenberg’s apparatus includes first and second assemblies on each side, each with a recovery container, supply container, and handle designed to separately propel particles of different sizes or types. Ex.1006, [0049]; Ex.2001, ¶130.

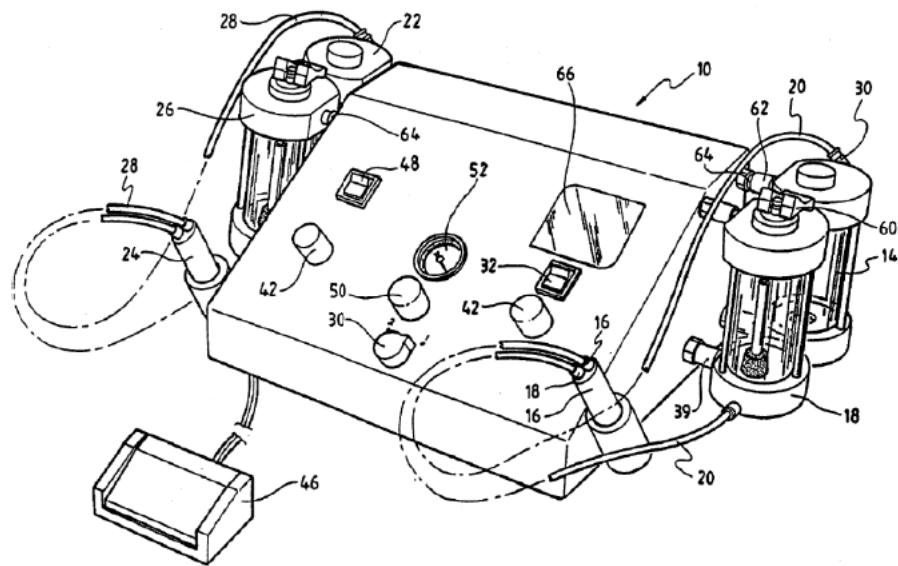


FIG 1

Ex.1006, Fig.1. Figure 2 shows the schematic diagram of this embodiment:

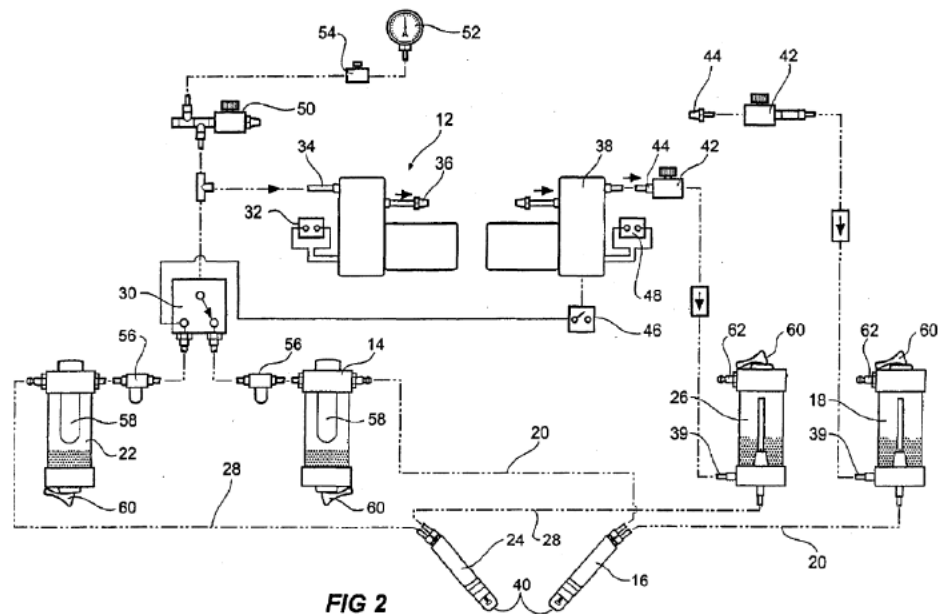


FIG 2

Id., Fig.2

Greenberg further explains that the embodiments of Figures 1-4 each incorporate a vacuum source to draw spent abrasive particles into the recovery

container, and the apparatus may also use a compressed upstream airflow to propel the particles. *Id.*, [0050]-[0051]. Additionally, Greenberg's Figure 5 uses a positive displacement pump located upstream of the supply containers. *Id.*, [0077]; Ex.2001, ¶¶131-132.

Greenberg's figures show several different embodiments and Figure 3 includes two assemblies, each with a supply container 18, 26, recovery container 14, 22, and a handle 16, 24. Ex.1006, [0065]. This embodiment employs only one pneumatic source 12, and therefore uses two valves 70, 72 operating in tandem to direct airflow from the source. *Id.*; Ex.2001, ¶133.

The embodiment in Figure 4, described as a "joint assembly," includes two supply containers 18, 26, two handpieces 16, 24, but only one recovery container 14. Ex.1006, [0067]; Ex.2001, ¶134.

The Figure 5 embodiment includes three containers 90, 94, 98, one recovery container 104, and one handpiece 102. Ex.1006, [0077]. As Greenberg explains, "[a] supply container can be chosen to be in communication with handle 102 and recovery container 104 by the use of valve 106 that controls air flow into the respective supply container and valve 108 that then connects that supply container to the handle 102 and recovery container 104." *Id.* Valve 106 regulates airflow into the supply containers to aerate and suspend the abrasive particles, while valve 108 directs the particles to the handle. Ex.2001, ¶¶135-136.

**V. THE CLAIMS OF THE '287 PATENT ARE PATENTABLE OVER
GROUNDS 1A-1B**

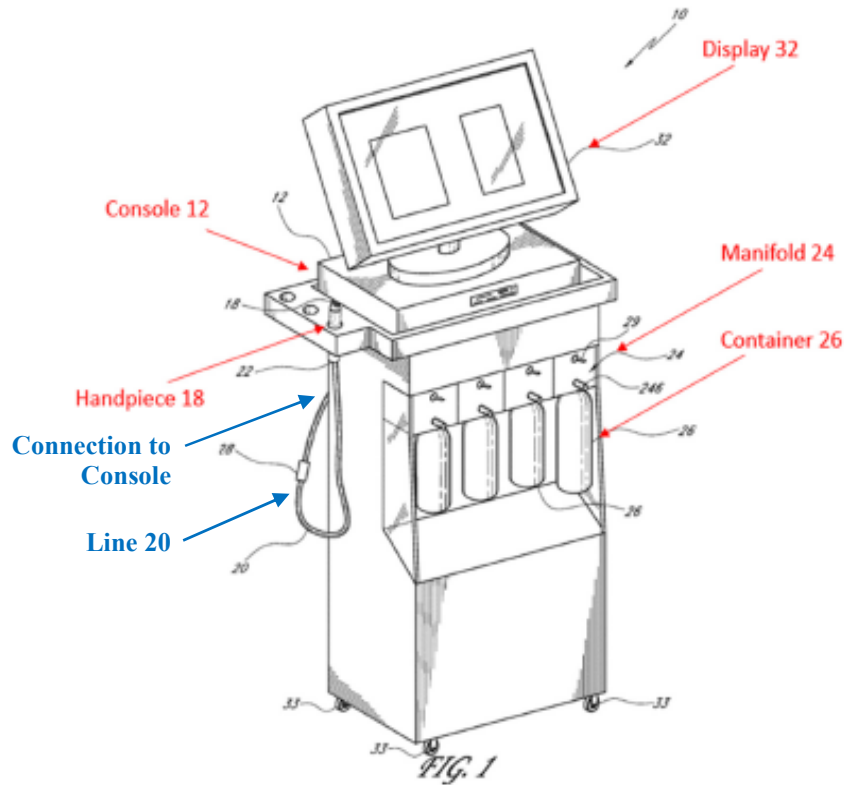
**A. The Karasiuk-Palmer Combination Does Not Disclose a Handpiece
Connected to a Console**

Every claim of the '287 patent requires a handpiece (or handpiece assembly) connected to a console during operation. *See* Limitations 1.3, 11.3, 22.4, 26.5, and 37.5. For example, Limitation 1.3 recites:

wherein the block is: ... configured to be in fluid communication with the handpiece through a first conduit *when the handpiece is connected to the console.*"

The Karasiuk-Palmer combination does not meet this requirement. Ex.2001 ¶72.

Referring to Figure 1, the '287 patent describes a "treatment system 10 includes a console 12 and *a handpiece assembly 18 connected to the console 12 via a line 20.*" Ex.1001, 5:26-28. The Petition's annotated Figure 1 shows this configuration:



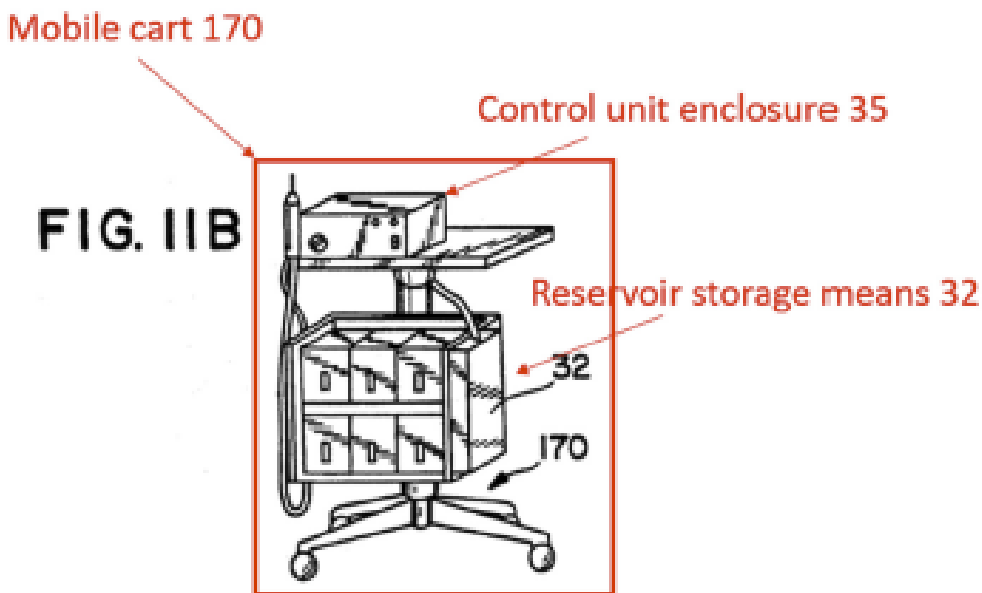
Pet., 4 ('287 patent, Fig.1)⁴. The specification further explains that “[t]he line 20 can comprise one or more conduits *extending between the console 12 and the handpiece assembly 18.*” Ex.1001, 5:65-67; Ex.2001, ¶73.

As explained below and supported by Leinsing’s detailed analysis and underlying evidence, Petitioners have not shown that either Karasiuk’s or Palmer’s handpiece is ever connected to a console. Ex.2001, ¶74.

Petitioners rely on Palmer’s mobile cart 170 as the alleged console. Pet., 6 (“The Karasiuk-Palmer system includes a *console* in the form of, for example,

⁴ HydraFacial added the blue annotations; Petitioners added the red annotations.

‘mobile cart 170.’” (emphasis by Petitioners)), 12-13; Ex.2001, ¶72. The Petition includes the following annotated version of Palmer’s Figure 11B showing the mobile cart 170:



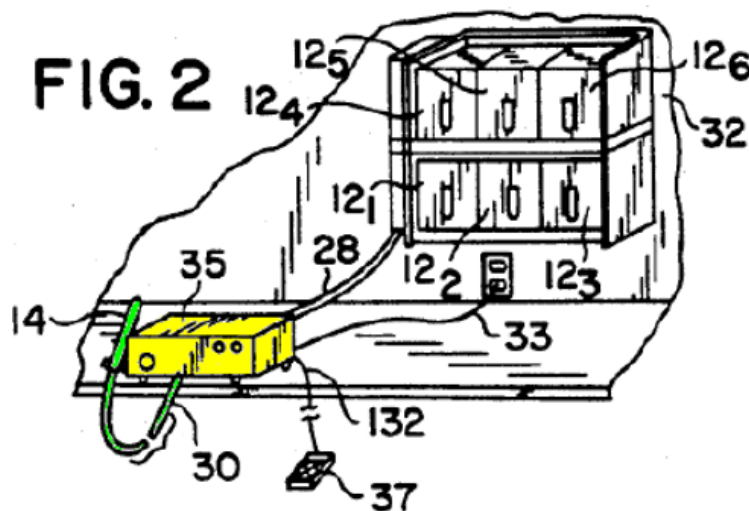
Palmer, FIG. 11B

Pet., 6.

Palmer’s handpiece, however, is not connected to the mobile cart 170. Petitioners do not—and cannot—contend otherwise. Rather, Palmer’s handpiece is connected by tubing to “control unit enclosure 35.” Ex.1005, 5:16-20. Thus, Petitioners reliance is misplaced; Karasiuk’s handpiece is ***connected to*** Palmer’s selector valve means 20 within control unit enclosure 35, not to Palmer’s mobile cart 170, which Petitioners nevertheless identify as the console. Ex.2001, ¶75.

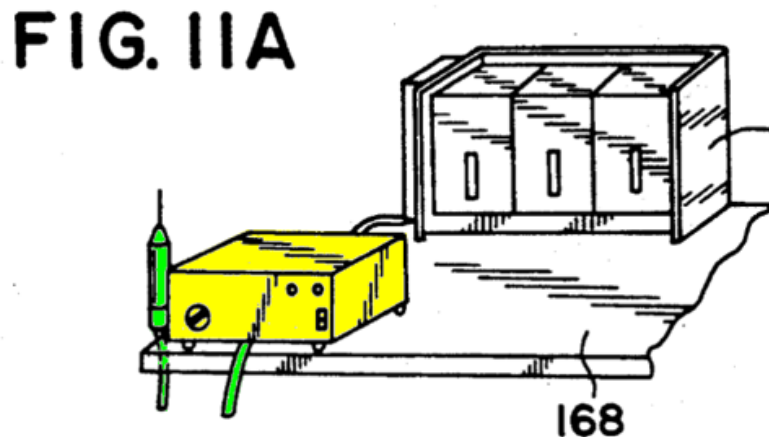
Palmer, by contrast, underscores the importance of treating the control unit enclosure 35 and reservoir storage means 32 as modular components of the system. For example, Palmer describes “the present invention” as including “modular means for storing solution reservoirs” and providing “substantial flexibility in setting up the system.” Ex.1005, 3:9-14. Palmer highlights that this modular configuration is an “advantage[] in the installation of the system.” *Id.*, 9:58-10:2. Consistent with this, Palmer explains that the control unit enclosure 35 and reservoir storage means 32 may be placed in different locations around the dental office, separate from one other. *Id.* In each instance, handpiece means 14 connects only to the control unit enclosure 35. Ex.2001, ¶¶76-77.

Figure 2 illustrates the control unit enclosure 35 on a countertop, with the handpiece 14 attached and the reservoir storage means 32 mounted on the wall.



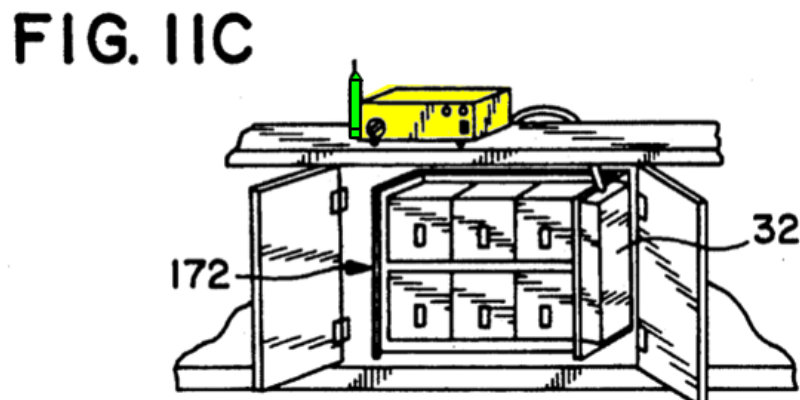
Ex.1005, Fig.2 (annotated), 5:10-13; Ex.2001, ¶78.

Figure 11A shows the control unit enclosure 35 and reservoir storage means 32 positioned separately on a countertop 168.



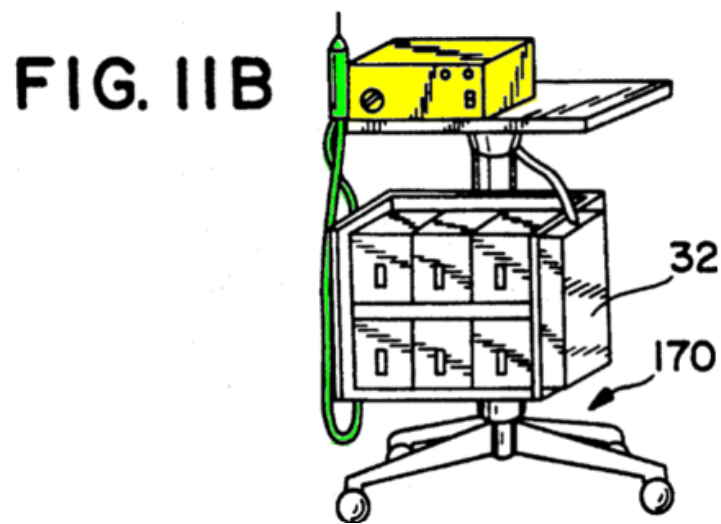
Ex.1005, Fig.11A (annotated), 9:66-10:2; Ex.2001, ¶79.

Figure 11C shows the reservoir storage means 32 placed “in a cabinet 172 underneath a counter,” while the control unit enclosure 35 rests on top of the counter.



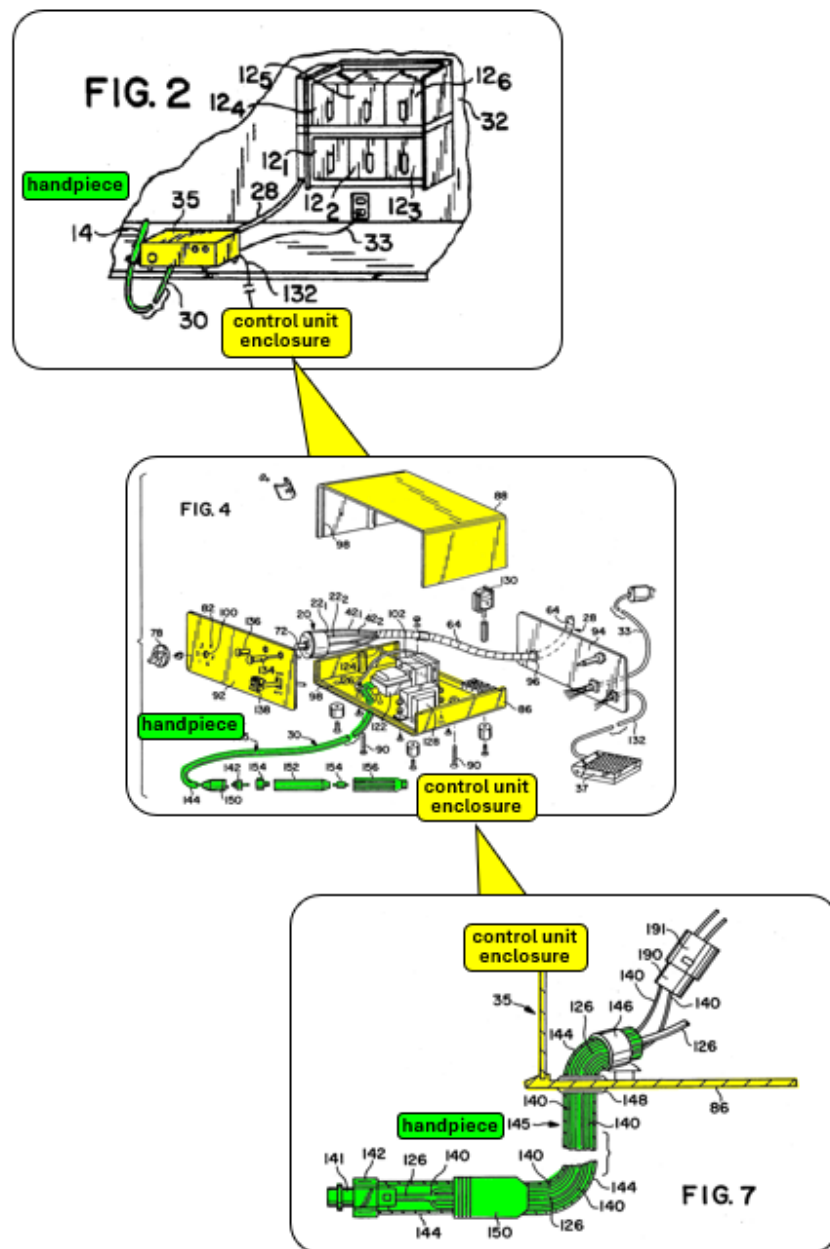
Ex.1005, Fig.11C (annotated), 9:66-10:2; Ex.2001, ¶79.

Figure 11B, which Petitioners cite in its Petition, shows Palmer’s control unit enclosure 35 placed on a shelf on the mobile cart 170 with the handpiece connected to the control unit enclosure 35 rather than the mobile cart 170.



Ex.1005, Fig.11B (annotated), 9:66-10:2; Ex.2001, ¶79.

The annotated figures below (Palmer's Figures 2, 4, and 7) likewise confirm that Palmer's handpiece connects to the modular control unit enclosure 35—not to Palmer's mobile cart 170.



Ex.1005, Figs.2, 4, 7 (annotated); *see also id.*, 4:19-27; Ex.2001, ¶80.

With respect to Figure 4, Palmer explains that “[s]econd tubing means 30 *couple the handpiece means 14 to the output of the pump within enclosure 35.*”

Ex.1005, 5:16-18. Similarly, with respect to Figure 7, Palmer explains that “[t]he

clear *handpiece tubing assembly*, designated 145, *is clamped within enclosure 35* by a cable clamp 146 and passes through the bottom member 86 through a grommet 148.” *Id.*, 9:37-40; Ex.2001, ¶81.

Petitioners contend “a POSITA would have found obvious that Karasiuk’s device 10 (handpiece) is connected to ‘mobile cart 170’ (console), as illustrated in Palmer.” Pet., 20-21. But Palmer’s handpiece is never connected to Palmer’s mobile cart, and Petitioners never explain why or how a POSITA would have made such a connection in light of Palmer’s disclosure, which instead promotes the modularity and mobility of the control unit enclosure 35 and reservoir storage means 32. The Petition points to Palmer’s Figure 11B, but, as discussed above, that figure actually confirms Palmer’s handpiece is not connected to the mobile cart. Pet., 20-21. Walbrink merely repeats this same assertion. Ex.1003, ¶113; Ex.2001, ¶¶82-83.

Petitioners do not argue in Ground 1B that Trueba discloses this limitation. Ex.2001, ¶71. Because Petitioners have failed to establish that its proposed combinations of Karasiuk, Palmer, and Trueba satisfy the handpiece-to-console connection, all claims are patentable over Grounds 1A-1B.

B. A POSITA Would Not Have Been Motivated to Modify Karasiuk

Even if the Karasiuk-Palmer combination disclosed each limitation—which it does not—the combination would still fail to render the challenged claims

unpatentable because there was no motivation to combine Karasiuk and Palmer. Ex.2001, ¶84.

Petitioners argue that a POSITA would have been motivated to modify Karasiuk to allow for multiple types of skin treatments stored in separate containers during the same microdermabrasion treatment procedure. Pet., 8-9. Petitioners assert that such motivation would stem from two sources: “ [1] general knowledge and [2] Karasiuk’s disclosure,” claiming that “a POSITA would have recognized the desirability of using multiple types of treatment solutions *during microdermabrasion.*” *Id.*

But neither “general knowledge” nor “Karasiuk’s disclosure” provides any motivation to use multiple treatment solutions *during microdermabrasion*—much less to modify Karasiuk’s single-container system to incorporate additional containers, a “block,” “fluid control member,” or “collection lumen.” Ex.2001, ¶84.

1. “General Knowledge” Was Not a Motivation

The Petition offers no explanation of the “general knowledge” that allegedly would have motivated a POSITA to modify Karasiuk. Instead, Petitioners defer to their expert, Walbrink. Pet., 8-9 (citing Ex.1003, ¶¶78-79). The Board should disregard this argument because Petitioners fail to provide a “full statement of the reasons for the relief requested, including a detailed explanation of the significance of the evidence.” 37 C.F.R. § 42.22(a)(2); *Fidelity Nat’l Info. Servs., Inc., v.*

DataTreasury Corp., IPR2014-00489, Paper 9 at 9 (P.T.A.B. Aug. 13, 2014) (“We, therefore, decline to consider information presented in a supporting declaration, but not discussed sufficiently in a petition.”); Ex.2001, ¶85. Moreover, Walbrink lacks any basis or qualifications for opining on the general knowledge in the field of dermabrasion, having no experience with dermabrasion other than seeing a HydraFacial product at a conference once. Ex.2150, 9:1-10:8.

Even if Walbrink’s declaration is considered, his reliance on “general knowledge” is fundamentally flawed. Walbrink asserts that “multiple treatment solutions are desirable during microdermabrasion.” Ex.1003, ¶79 (citing Burgess (Ex.1013), Lee (Ex.1016). Yet the evidence Walbrink cites contradicts that assertion. Neither Burgess nor Lee teaches that treatment solutions are desirable *during microdermabrasion*. Ex.2001, ¶¶85-86.

For example, the Burgess passage cited by Walbrink explains: “*When the treatment is completed*, residual crystals should be gently brushed off the skin,” then the skin can be “rinsed with tepid water and a moisturizer with adequate sunscreen applied.” Ex.1013, 86. This is consistent with Burgess’ description of traditional microdermabrasion, which uses “fine, sharp crystals” to sandblast the skin. *Id.*, 84. Applying moisturizer during such a procedure would be antithetical to the process itself. Walbrink himself acknowledges that, in Burgess, moisturizer is applied only “when microdermabrasion *is completed*.” Ex.1003, ¶79. Thus, no treatment

solution is applied **during** microdermabrasion—let alone multiple treatment solutions, as Walbrink contends. Ex.2001, ¶85.

Next, Walbrink cites Lee as “general knowledge,” but he mischaracterizes the reference when claiming “Lee discloses delivering vitamin C during microdermabrasion.” Ex.1003, ¶79 (citing Ex.1016, 1). In fact, Lee describes testing “the topical delivery of vitamin C” **after** laser treatment or microdermabrasion “using an *in vitro* model of nude mouse skin.” Ex.1016, 1. The *in vitro* testing involved treating excised mouse skin with a laser or microdermabrasion, then mounting the sample for 12 hours in a “Franz vertical diffusion assembly” filled with a vitamin C formulation to measure the “amount of vitamin C retained in the skin.” *Id.*, 2 (Materials and Methods). Lee therefore provides no motivation to use multiple types of treatment solutions during microdermabrasion, contrary to Walbrink’s assertion. Ex.2001, ¶86.

Petitioners also invoke “general knowledge” to argue that “fluid delivery techniques required to use multiple containers with Karasiuk’s handpiece were well-known and part of a POSITA’s general knowledge.” Pet., 9. Yet Petitioners cite only to Walbrink and a string citation—without pin cites—to disparate references, offering no substantive explanation. *Id.* The cited references include Hewlett Packard’s jet dispenser (Trueba (Ex.1008)) and dental irrigation systems (Palmer (Ex.1005), Armstrong (Ex.1011), and Pond (Ex.1007)). A string citation, without

analysis, does not satisfy Petitioners' obligation to explain why a POSITA would have modified Karasiuk based on alleged "general knowledge." Ex.2001, ¶87.

Walbrink's testimony is likewise conclusory. Ex.1003, ¶¶80-84. He offers only a generic description of the references and fails to explain how incorporating elements from disparate devices would actually "improve the flexibility and functionality offered by Karasiuk's system." *Id.*, ¶80. The alleged fact that certain references disclose "multiple containers" and were "well-known and part of a POSITA's general knowledge" does not provide a POSITA with any reason to modify Karasiuk. *Id.* The mere existence of multiple containers in other contexts would not suggest that modifying Karasiuk's single-container design was desirable or beneficial. Alleging broad advantages such as "flexibility" and "functionality," without specific evidence, is insufficient to establish why a POSITA would have made the modification to yield the claimed invention. *ActiveVideo Networks, Inc. v. Verizon Commc'ns., Inc.*, 694 F.3d 1312, 1327 (Fed. Cir. 2012)⁵; Ex.2001, ¶87.

⁵ Petitioners also advance a cursory "mere duplication" argument. Pet., 9 (citing *In re Harza*, 274 F.2d 669 (CCPA 1960)). That argument is inapposite because it ignores the additional claimed structures and functions—such as the block—that distinguish the challenged claims.

For these reasons, Petitioners have failed to establish that “general knowledge” provides any motivation to modify Karasiuk to include multiple containers with multiple types of treatment solutions. *Cisco Sys., Inc. v. Video Sols. PTE. Ltd.*, IPR2024-00922, Paper 7 at 14 (P.T.A.B. Nov. 12, 2024) (“Put simply, we are not persuaded by Petitioner’s arguments regarding the background knowledge art because those arguments are not sufficiently explained.”); Ex.2001, ¶88.

2. “Karasiuk’s Disclosure” Was Not a Motivation

Petitioners rely on “Karasiuk’s disclosure” itself as a motivation to modify Karasiuk. But, like their “general knowledge” argument, this too is fatally flawed. Karasiuk contains no disclosure of using multiple types of treatment solutions from multiple containers in a skin treatment, and Petitioners do not argue otherwise. The only disclosures that Petitioners cite are: (1) the types of compounds that may be used in Karasiuk’s single reservoir 70 (e.g., “lotions/vitamins or other fluids”); and (2) boilerplate language that “various [undescribed] changes” may be made “without departing from the true spirit and scope of the invention.” Pet., 8-9 (quoting Ex.1004, [0024], [0047], [0061], [0070]). Walbrink repeats these same citations without further explanation. Ex.1003, ¶¶78, 80; Ex.2001, ¶89.

The compounds listed in Karasiuk include abrasive particles, bleaching, acne, wrinkle, hydrating, and antioxidant formulations. Ex.1004, [0061]. Karasiuk

explains these can be “employed alone or in combination with other compounds” in a single reservoir 70. *Id.* A POSITA would have understood the simplicity of combining constituents in one mixture to achieve the desired effects, and Petitioners cite no evidence suggesting a POSITA would doubt the efficacy of such application. Ex.2001, ¶90.

Regarding Karasiuk’s boilerplate language, Petitioners do not explain how vague references to “various changes” or “the true spirit and scope of the invention” (Ex.1004, [0070]), would motivate a POSITA to make specific modifications, such as adding multiple containers, multiple treatment solutions, a block, and solution-selection connections. Such generic statements cannot support an *ex post* reconstruction of the claimed inventions using concepts from the ’287 patent. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (“A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.”); Ex.2001, ¶91.

Thus, “Karasiuk’s disclosure” provides no evidence of motivation to add multiple treatment-fluid containers or a block for fluid control. Ex.2001, ¶92.

3. Petitioners’ Reliance on Palmer Is Based Solely on Hindsight

Petitioners argue that, in view of “general knowledge” and “Karasiuk’s disclosure,” a POSITA “would have investigated other references such as Palmer to achieve benefits offered by multiple treatment solutions.” Pet., 9-10. But as

explained above, neither “general knowledge” nor “Karasiuk’s disclosure” could plausibly have motivated a POSITA to investigate Palmer. Petitioners’ entire foundation for relying on Palmer is therefore erroneous. Ex.2001, ¶93.

The so-called “benefits” Petitioners ascribe to Palmer are plainly rooted in the needs of periodontal irrigation systems—not in any known microdermabrasion system. Petitioners’ attempt to graft those periodontal benefits onto Karasiuk’s microdermabrasion system reflects nothing more than impermissible hindsight. Ex.2001, ¶94.

The *first and second alleged benefits*—“allow[ing] easy selection among multiple treatment solutions” and “enabl[ing] sequential delivery of different treatment solutions” (Pet., 9-10)—are based entirely on Palmer’s disclosure of multiple irrigating solutions delivered sequentially during periodontal treatment. For example, Palmer describes the use of hydrogen peroxide for “removal of loose organic debris,” zinc chloride for “reduc[ing] inflammation,” sodium fluoride for “desensitization of tooth structure,” and stannous fluoride and chlorhexidine digluconate for “reduction of bacterial concentration.” Ex.1005, 1:33-43; *id.*, 5:52-64. Palmer’s motivation, as Petitioners acknowledge, was to address shortcomings in “conventional irrigation arrangements” that did not permit “the opportunity of easy selection among several irrigant solutions.” Pet., 9-10 (quoting Ex.1005, 1:30-53); Ex.2001, ¶95.

Palmer's additional disclosure makes clear that sequential delivery was unique to periodontal irrigation systems, which used color coding and "flavor coordinated" solutions. Ex.1005, 3:42-48. For example, using "substantially the same predetermined flavor" allowed a patient to be "treated with two or more solutions during the procedure, *one after the other*, without being subjected to the discomfort which would normally occur when a person tastes two or more *diverse flavors, one immediately after the other.*" *Id.*, 6:42-51. Petitioners wrongly cite this passage to suggest that Palmer's teachings would apply to Karasiuk's microdermabrasion system, even though the sequential delivery described is plainly intended for periodontal irrigation. Pet., 10; Ex.2001, ¶96.

A POSITA would have expected Karasiuk's delivery of a mixture of treatment fluids in a single step to preserve the efficacy of each constituent fluid. Ex.2001, ¶97. Petitioners therefore have not shown that microdermabrasion clinicians would have perceived any problem with Karasiuk's single-container design requiring modification. *Id.*

Petitioners also cite Palmer's following assertion:

If circumstances require the use of a different treatment solution, either with the same or a subsequent patient, the solution remaining in the tank is usually discarded and the tank must be cleaned and refilled with the new solution. This procedure is time-consuming and costly, not to mention messy.

Ex.1005, 1:47-53 (cited by Pet., 10). But Palmer’s observation about dental-irrigation tanks is irrelevant to Karasiuk’s skin-treatment procedure. Ex.2001, ¶98. Neither Petitioners nor Walbrink explain why a POSITA would have found cleaning or refilling Karasiuk’s reservoir so burdensome as to justify adding multiple containers and a complex fluid-selection structure. To the contrary, a POSITA would have expected Karasiuk’s single-container device to be *less* time-consuming, costly, and messy than Petitioners’ proposed multi-container alternative. *Id.*

The *third alleged benefit* is “minimiz[ing] refilling downtime because when a particular container runs out mid-operation, the combined system can quickly switch to a second container to keep the supply flowing.” Pet., 10. But Petitioners present no evidence that a POSITA would have viewed Karasiuk’s reservoir as too small to hold sufficient treatment fluid. And even if size were a concern, Petitioners present no evidence that a POSITA would have been motivated to add complicated valves and tubing to switch to another container of the same fluid. A POSITA would have just increased the size of Karasiuk’s reservoir to meet the fluid requirements of most procedures. Ex.2001, ¶99. Because nothing in Karasiuk limits reservoir size, a POSITA would have understood Karasiuk to disclose, or at least suggest, a reservoir of adequate capacity. *Id.* Moreover, Petitioners cite no evidence that clinicians could not readily refill the reservoir in rare cases requiring more fluid, or

that such rare circumstances would justify adding unnecessary structural complexity.

Id.

The *fourth alleged benefit* is “Palmer’s modular design to provide added flexibility, organization, and portability.” Pet., 11. But this supposed benefit has nothing to do with modifying Karasiuk’s single-container device into a multi-container design. Rather, as Petitioners acknowledge, Palmer’s disclosure concerns the placement of containers in different *locations*—on a countertop, a mobile cart, in a cabinet, or under a counter. *Id.*; Ex.2001, ¶100.

In sum, Petitioners’ reliance on Palmer’s periodontal irrigation benefits reflects a hindsight-driven attempt to reconstruct the claimed invention. Petitioners provide no evidence that a POSITA in the field of microdermabrasion, before the priority date of the ’287 patent, would have appreciated such benefits. While today the field may recognize advantages such as sequential delivery—based on the teachings of the ’287 patent and HydraFacial’s commercial success—it would be legally improper to assume, without evidence, that a POSITA would have appreciated those benefits at the time. Ex.2001, ¶101.

C. The Karasiuk-Palmer Combination Renders Karasiuk’s Device Inoperable

“[C]ombinations that change the ‘basic principles under which the [prior art] was designed to operate,’ or that render the prior art ‘inoperable for its intended

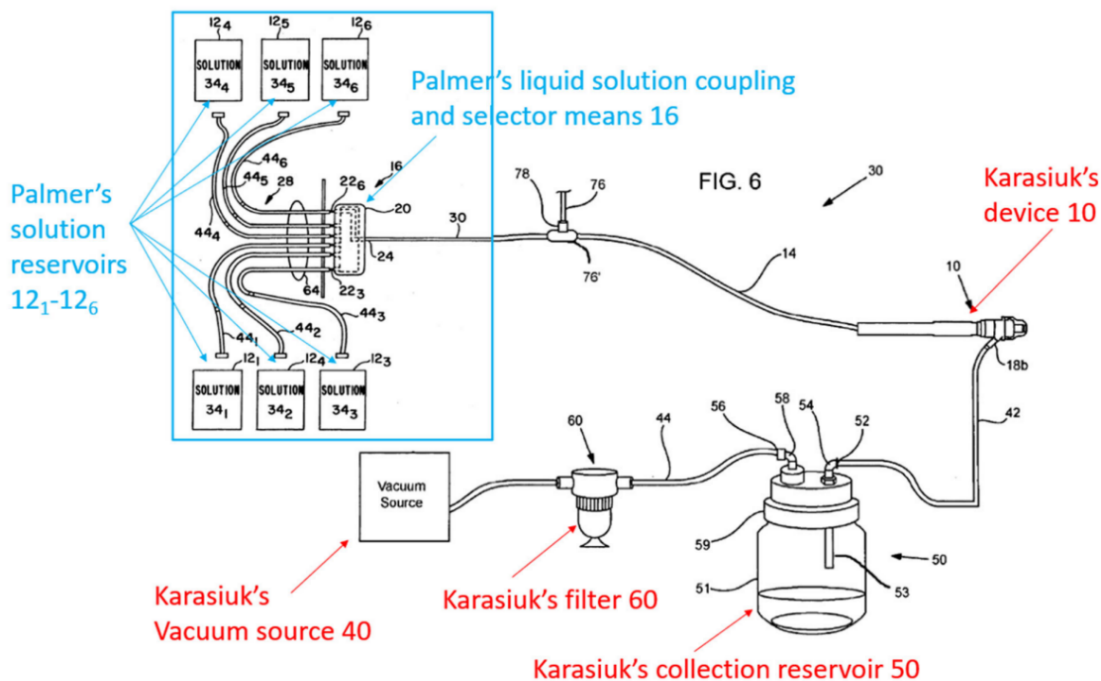
purpose,’ may fail to support a conclusion of obviousness.” *Plas-Pak Indus., Inc. v. Sulzer Mixpac AG*, 600 F. App’x 755, 757–758 (Fed. Cir. 2015) (non-precedential) (quoting *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959); *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984)).

Grounds 1A-1B of the Petition rely on combining Karasiuk and Palmer. Pet., 1-2. As explained below, Petitioners’ proposed combination fundamentally alters the operation of both systems in multiple ways, rendering Karasiuk’s device inoperable for its intended purpose. Ex.2001, ¶¶102-103. Specifically, the Karasiuk system modified with Palmer cannot deliver treatment solutions to the handpiece. *Id.* A POSITA would have had no motivation to combine unrelated references to construct a device that fails to operate. *Id.*

These flaws in the Karasiuk-Palmer system are fatal to all asserted grounds of unpatentability under Grounds 1A-1B. *See, e.g., Samsung Electronics Co. Ltd. v. Neonode Smartphone LLC*, IPR2021-00144, Paper 24 at 13-14 (citing *Plas-Pak* and denying institution where proposed combination would change reference’s principle of operation and render it inoperable); *R.J. Reynolds Vapor Co. v. Fontem Holdings I B.V.*, IPR2018-00629, Paper 10 at 19-20 (citing *In re Gordon* and denying institution where modification rendered prior art unsatisfactory for its intended purpose, such that “there is no suggestion or motivation to make the proposed modification”).

1. Karasiuk-Palmer's Vacuum Source Draws Only Air Through the Breather Line and Never Draws Material from the Reservoirs

In Petitioners' proposed Karasiuk-Palmer combination, Petitioners contend that "Karasiuk's vacuum source would be used to pump treatment solutions from Palmer's multiple fluid containers and collect waste/debris." Pet., 7. To reach this conclusion, Petitioners remove Palmer's peristaltic pump and substitute Karasiuk's vacuum source 40—located downstream of the handpiece—as the vacuum source in the combined device. Ex.2001, ¶104. Petitioners present this combination as a literal cut-and-paste of Palmer's Figure 1 and Karasiuk's Figure 6, labeling it "Karasiuk, Modified FIG. 6":



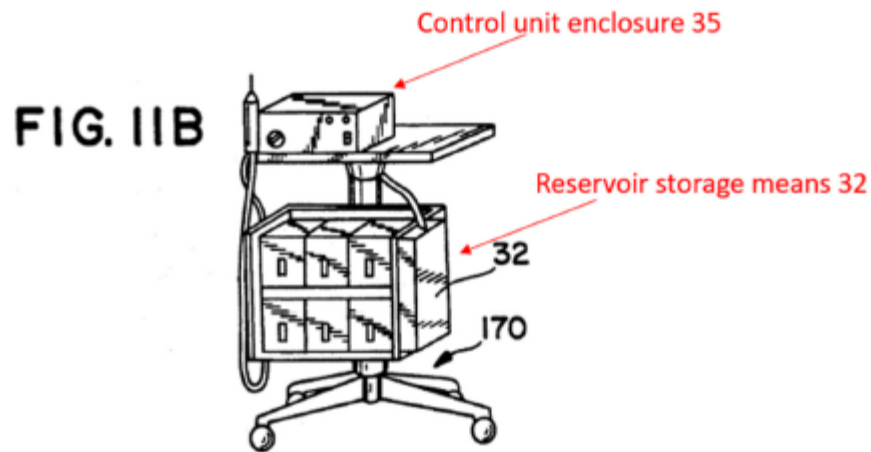
Karasiuk, Modified FIG. 6

Pet., 7, 16.

Petitioners further arrange the hybrid device so that “Karasiuk’s tube 14 (e.g., ***upstream of breather line 76***) would replace, or be connected to, Palmer’s second tubing means 30.” *Id.*, 7-8. In doing so, Petitioners reposition Karasiuk’s breather line 76 upstream of Karasiuk’s handpiece (device 10) and downstream of both Palmer’s “liquid solution coupling and selector means 16” and Palmer’s solution reservoirs 12₁-12₆. *Id.* Petitioners then argue that this arrangement “achieve[s] benefits resulting from selection of different treatment solutions.” Pet., 7-8; Ex.2001, ¶105.

Karasiuk explains that the breather line 76 “includes an adjustable valve 78 or other means for varying an amount of air that is allowed into tube 14.” Ex.1004, 7:19-23. This feature “allows the amount vacuum to be adjusted for a given fluid.” *Id.*, 7:23-24; Ex.2001, ¶106.

Petitioners’ Karasiuk-Palmer combination also incorporates Palmer’s “mobile cart 170,” allegedly to provide “increased portability and/or organization.” Pet., 6. In Petitioners’ configuration, Palmer’s mobile cart 170 houses the multiple claimed containers (Palmer’s “solution reservoirs 12₁-12₆”) within the “reservoir storage means 32” at the bottom of the mobile cart 170, with the other system components positioned in a separate “control unit enclosure 35” resting on the shelf above:



Palmer, FIG. 11B

Pet., 13; Ex.2001, ¶107.

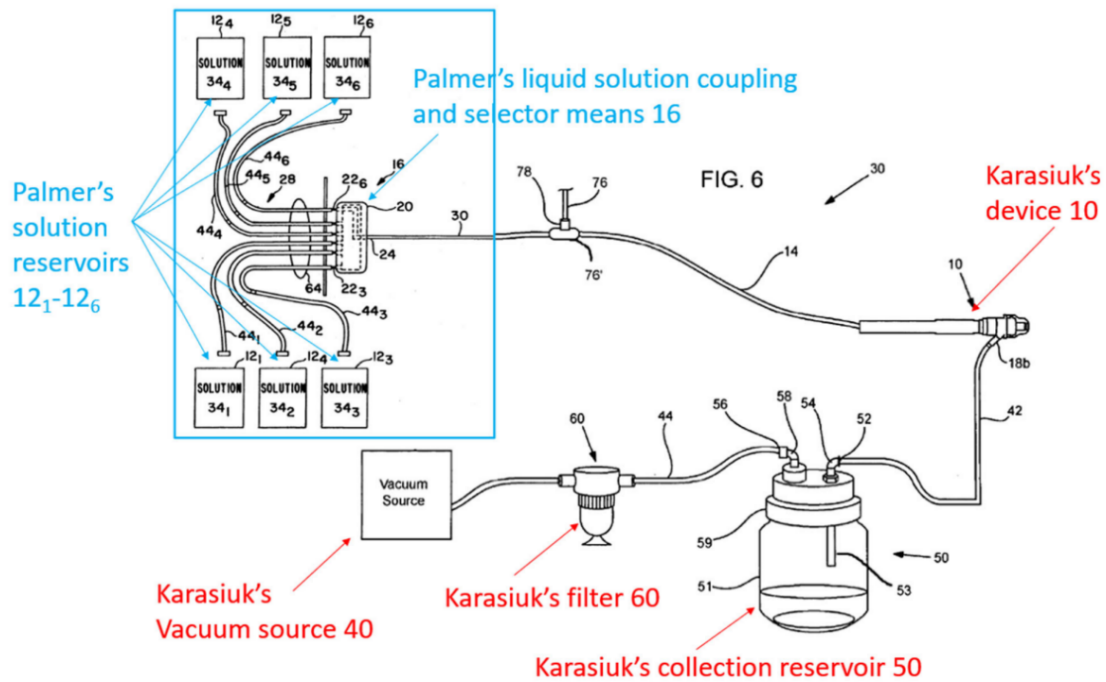
However, Petitioners' combination of Karasiuk with Palmer renders Karasiuk's system inoperable for its intended purpose. Ex.2001, ¶108. Specifically, in the Karasiuk-Palmer arrangement, Palmer's solution reservoirs 12₁-12₆ are positioned below Karasiuk's breather line 76 and handpiece. *Id.* In this setup, Karasiuk's vacuum source would draw only air through the breather line 76 along tube 14, rather than fluid from Palmer's reservoirs. *Id.* In Petitioners' configuration, the vacuum source cannot generate suction to transfer treatment solution from Palmer's reservoirs to the handpiece. *Id.* Instead, air flow follows the path of least resistance, pulling air through the breather line 76 (as described by Karasiuk) instead of fluid from Palmer's reservoirs. Walbrink confirmed that Karasiuk's breather line 76 draws ambient air into the system. Ex.2150, 72:19-23. A straightforward

analogy is a cracked drinking straw: suction is lost because air enters through the crack rather than drawing liquid. Ex.2001, ¶108.

This configuration in Petitioners' Karasiuk-Palmer combination changes the basic principles under which Karasiuk was designed to operate and renders the device unsatisfactory for its intended purpose. *See Plas-Pak*, 600 Fed. Appx. at 759-60. Moreover, Petitioners' proposed arrangement undermines the very purpose they advanced in support of the combination—namely, “achiev[ing] benefits resulting from selection of different treatment solutions.” Treatment solutions cannot be selected or delivered if they never reach the handpiece. For these reasons, Petitioners have failed to demonstrate that the claims would have been obvious.

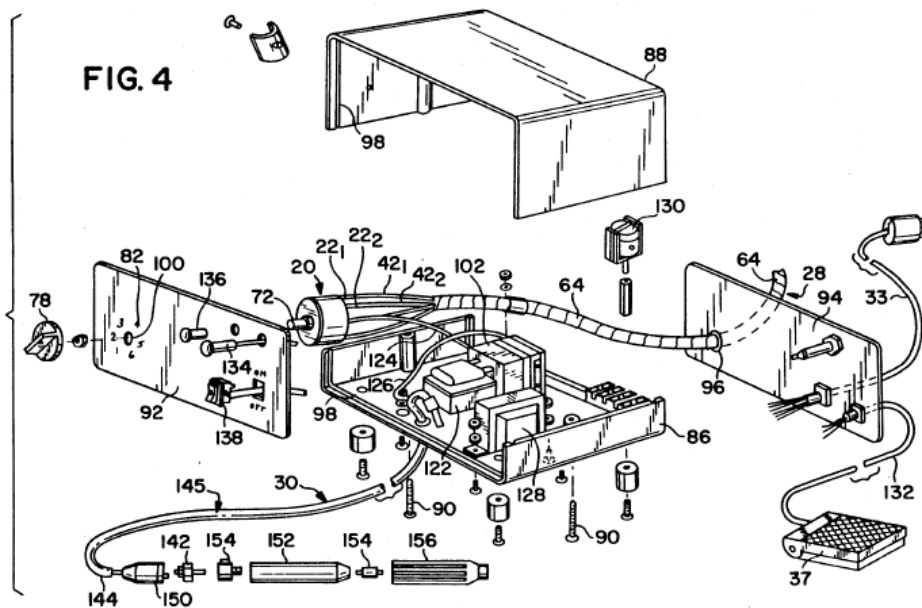
2. Karasiuk-Palmer's Tube Diameter Prevents Flow of Treatment Material to the Handpiece

As explained above, in the Karasiuk-Palmer combination, Petitioners rely on Palmer for its liquid solution coupling and selector means 16, as well as Palmer's solution reservoirs 12. Ex.2001, ¶¶109-110.



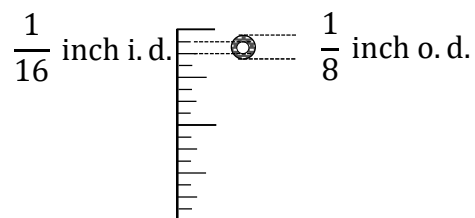
Karasiuk, Modified FIG. 6

Pet., 7, 16. Palmer's liquid solution coupling and selector means 16 are housed within Palmer's control unit enclosure 35, shown in exploded view in Palmer's Figure 4:



Ex.1005, Fig.4; Ex.2001, ¶110.

Palmer discloses that the tubing used in this system has an outside diameter of 1/8 inch and an inside diameter of 1/16 inch, with six such tubes 42 connecting the solution reservoirs 12 with the selector valve means 20 inside the control unit enclosure, and tubing 126 extending from the control unit enclosure 35 to the handpiece 14. *See* Ex. 1005, 7:21-24, 9:17-19, 9:40-43. For perspective, Leinsing prepared the image below, showing the cross-sectional diameter of Palmer's tubing on the scale of an 8½x11-inch sheet of paper:

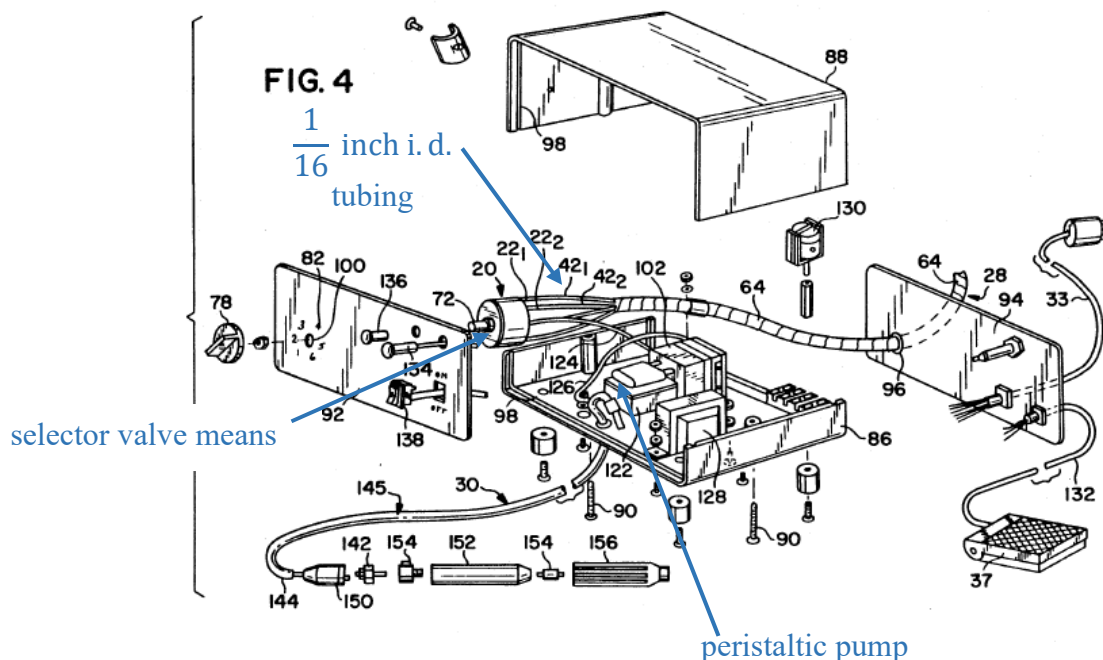


Ex.2001, ¶111.

Given that Palmer's system is designed to produce a high-velocity spray in order to irrigate a patient's mouth with a low-volume output, tubing with an extremely narrow inside diameter of 1/16 inch is appropriate. Ex.2001, ¶112. Palmer's system delivers pulsed jets of irrigating solution at a pressure of 22-25 psi, with a flow rate of only 22 to 25 mL per minute. Ex.1005, 11:17-23; Ex.2001, ¶113. At this flow rate, it would take 40-45 minutes of continuous spraying to empty the 1000 mL containers disclosed in Palmer. Ex.1005, 5:26-30; Ex.2001, ¶113.

Palmer's tubing is also intentionally small to ensure flexibility and compactness in the bundle of six tubes extending from the control unit enclosure 35 to the reservoir storage means 32, which houses the solution reservoirs 12. Ex.2001, ¶114.

This design is feasible only because Palmer's peristaltic pump is located immediately adjacent to the selector valve means 20, thereby generating the necessary pressure to draw liquid from the containers through such narrow tubing. *Id.*, ¶114. This configuration is shown in Palmer's Figure 4:



Ex.1005, Fig.4 (annotated). Additionally, Palmer employs low-viscosity rinse solutions, which further minimize resistance to liquid flow through the narrow tubing. *Id.*, 5:52-64; Ex.2001, ¶114.

In Petitioners' proposed Karasiuk-Palmer combination, Palmer's small-diameter tubing renders the device inoperable. Ex.2001, ¶115. As explained above, Petitioners' modification removes Palmer's peristaltic pump and substitutes Karasiuk's vacuum source 40, which is positioned at the very end of the fluid path—downstream of both the handpiece 10 and collection reservoir 50. *Id.*, ¶116.

As a general matter, the pressure drop across tubing increases proportionally with the length of the tubing. *Id.*, ¶117. In Petitioners' modification, the added distance between Karasiuk's vacuum source and Palmer's solution reservoirs 12

therefore creases even greater pressure losses (*i.e.*, head losses) at the solution reservoirs 12. *Id.*

$$\Delta P = \frac{8\mu LQ}{\pi r^4}$$

In fluid dynamics, the pressure drop (ΔP) across a pipe is heavily influenced by the pipe's internal diameter. For laminar flow of a Newtonian fluid in a straight circular pipe, this relationship is governed by the Hagen-Poiseuille equation, where μ is the dynamic viscosity of the fluid, L is the length of the pipe, Q is the volumetric flow rate, and r is the pipe radius. *See* Ex.2052, 1; Ex.2001, ¶117.

This equation demonstrates that pressure drop increases with longer tubing (greater L) and with higher-viscosity solutions—such as those used in hydrodermabrasion procedures. Ex.2001, ¶117. Moreover, because pressure drop is inversely proportional to the fourth power of the pipe radius, even small decreases in tubing radius cause dramatic increases in resistance to flow. *Id.* For example, halving the radius of a pipe increases pressure drop sixteen-fold. *Id.*

Additionally, maintaining a constant volumetric flow rate (Q) while reducing pipe diameter necessarily increases fluid velocity. This relationship is expressed by the equation, $Q=A \cdot v$, where A is the cross-sectional area of the pipe (which scales with the square of the pipe's diameter) and v is the flow velocity. *See* Ex.2053, 1;

Ex.2001, ¶118. Even modest reductions in pipe diameter therefore cause substantial increases in velocity. Ex.2001, ¶¶118-120. For example, halving the pipe's radius reduces the cross-sectional area by a factor of four, thereby requiring velocity to quadruple in order to maintain the same flow rate. *Id.*

Thus, beyond the issue of the breather line 76—which already prevents the vacuum source 40 from drawing suction at Palmer's solution reservoirs 12—the combination of Palmer's small-diameter tubing with the extended distance between Karasiuk's vacuum source 40 and Palmer's solution reservoirs 12 further inhibits the generation of suction at the solution reservoirs 12 in Petitioners' proposed system. *Id.*, ¶121.

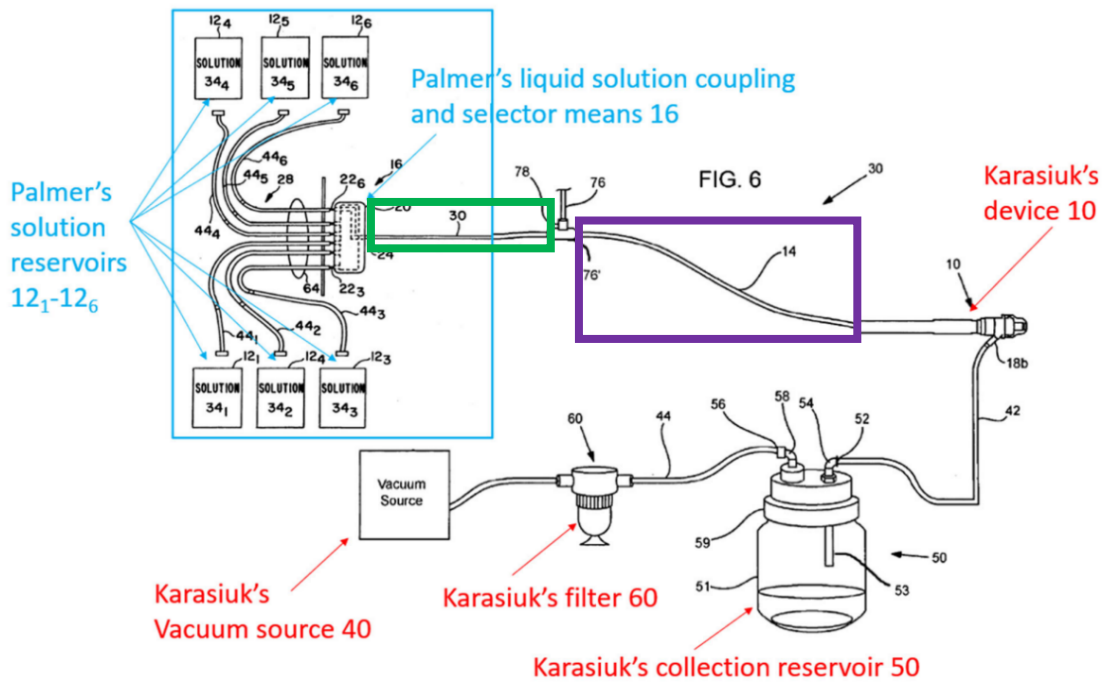
Moreover, Karasiuk discloses using lotion—often mixed with solid abrasive particles—as the treatment material in the reservoir 70. *See* Ex.1004, [0059]-[0061]. Lotions have a significantly higher viscosity than the rinse solutions used in Palmer's system. Ex.2001, ¶122; *see* Ex.2054, 6 (dental irrigants with viscosities of 35.5 cP and 182.1 cP); Ex.2055, 1 (vitamin E creams with viscosities of 12,000-26,000 cP); Ex.2056, 1 (water at 1 cP, face cream at 10,000 cP, and hand cleaner at 2,000 cP).

If lotions were used in Palmer's solution reservoirs 12, it would experience significant frictional losses within Palmer's 1/16-inch diameter tubing, particularly along the run from the solution reservoirs 12 to the selector valve means 20 in the control unit enclosure 35. Ex.2001, ¶123. This tubing is too narrow to permit lotion

to flow under vacuum pressure from Karasiuk's vacuum source 40. *Id.* Even if some fluid managed to reach the handpiece, the resulting volumetric flow rate would be far too low for use in a skin treatment procedure. *Id.*, ¶124.

Finally, in “Karasiuk, Modified FIG. 6” (reproduced below), Petitioners illustrate which portions of the supply line correspond to: (1) Palmer's second tubing means 30 (tubing encompassed in the green box); and (2) Karasiuk's tube 14 (tubing encompassed in the purple box). While Karasiuk's tube 14 could potentially accommodate viscous fluid flow, Petitioners' configuration causes the vacuum source to preferentially draw air through Karasiuk's tube 14 and breather line 76, rather than fluid through Palmer's narrower tubing means 30 and tubes 44. Ex.2001, ¶112. This results in the system pulling air from the breather valve instead of treatment solution—rendering the entire system inoperable. *Id.*

Moreover, the Petition does not address or modify the supply line between Palmer's solution reservoirs 12₁-12₆. As explained above, this segment uses tubing with too small a diameter to permit viscous fluid flow. Ex.1005, 2:32-36; Ex.2001, ¶64. Walbrink failed to account for these problematic tube dimensions and later admitted that he was unaware of Palmer's line dimensions. Ex.2150, 77:21-78:21.



Karasiuk, Modified FIG. 6

Pet., 7, 16 (annotated); Ex.2001, ¶112.

3. Removing Palmer's Peristaltic Pump from Karasiuk-Palmer Leads to Unrestricted Flow of Liquid from the Reservoirs

Even if Petitioners could somehow resolve the fatal flaws in the Karasiuk-Palmer combination discussed above, their proposed system would still be inoperable. Ex.2001, ¶¶125. Petitioners' modification removes Palmer's peristaltic pump 18 and substitutes Karasiuk's vacuum source 40, which is positioned downstream of the handpiece. *Id.* By doing so, Petitioners introduce yet another fatal defect into the system. *Id.*

Palmer's peristaltic pump 18 is located downstream of the selector valve means 20 and functions as a valve, preventing liquid from flowing out of the solution

reservoirs when the pump is inactive. Ex.2001, ¶126; *see* Ex.1005, 11:30-34 (Palmer explaining that its peristaltic pump “serves as a natural check valve”). Palmer’s selector valve means 20, meanwhile, provides a direct one-inlet-to-one-outlet pathway from the selected solution reservoir to the peristaltic pump. Ex.2001, ¶126.

Without Palmer’s peristaltic pump in place, the selected reservoir would discharge liquid uncontrollably through the system—even without activating the vacuum source. Ex.2001, ¶127. Walbrink admitted that removing Palmer’s peristaltic pump would cause “free flow” through the line. Ex.2150, 81:2-23. This uncontrolled flow would once again render the Karasiuk-Palmer system inoperable.

Therefore, Petitioners cannot establish that any claim of the ’287 patent would have been obvious Ground 1A.

D. Trueba Does Not Cure the Deficiencies of Karasiuk and Palmer

Petitioners add Trueba in Ground 1B to the Karasiuk-Palmer combination in Ground 1A to supply teachings of “computer control and display.” Pet., 51. But those features have nothing to do with the combination’s missing limitations or its fatal flaws. Ex.2001, ¶71. Incorporating the control and display from Trueba’s mucosal inhaler—an entirely different device that relies on inkjet technology—only makes the already flawed combination more problematic. Ex.2150, 98:1-8.

Accordingly, Petitioners have not shown that the challenged claims would have been obvious over Ground 1B.

VI. THE CLAIMS OF THE '287 PATENT ARE PATENTABLE OVER GROUNDS 2A-2B

A. Greenberg Does Not Disclose the Claimed Treatment Materials or Fluids

In Ground 2A, Petitioners contend that all independent claims, along with certain dependent claims, would have been obvious in view of Greenberg alone. Pet., 1-2. In Ground 1B, Petitioners assert that independent claim 1 and several dependent claims would have been obvious in view of Greenberg and Trueba. *Id.* For both grounds, Petitioners rely exclusively on Greenberg as allegedly disclosing a device capable of applying multiple treatment materials or fluids to the skin. Petitioners do not rely on Trueba for the multiple-treatment-fluid limitations. Ex.2001, ¶¶128, 137-139, 144-145.

Greenberg discloses a microdermabrasion machine that uses abrasive particles to abrade the skin. Greenberg specifically emphasizes “using abrasive particles of different sizes and/or type.” Ex.1006, [0002]. Greenberg’s machine illustrated in Figure 1 includes first and second assemblies, each equipped with its own recovery container, supply container, and handle, thereby allowing the delivery of particles of varying sizes or types. *Id.*, [0049].

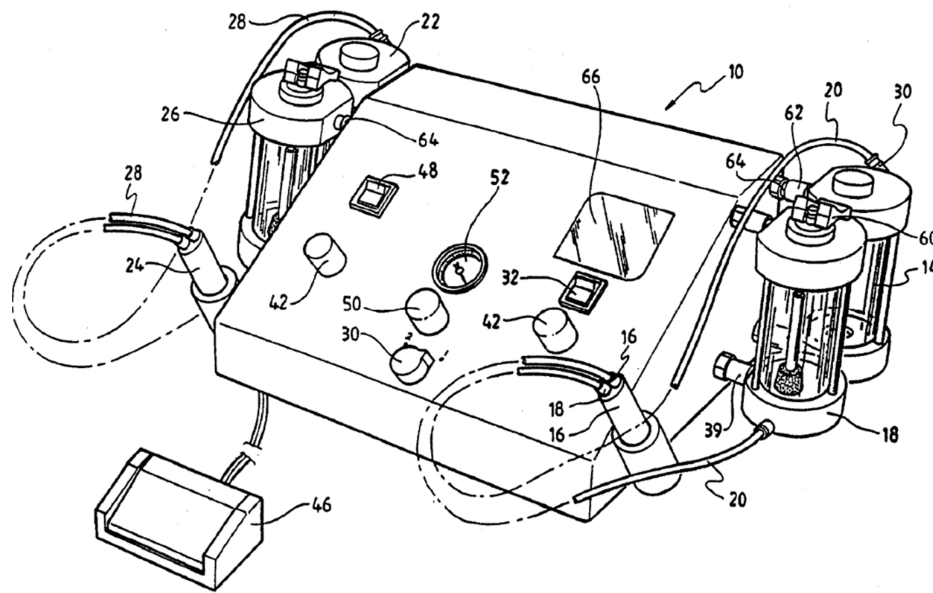


FIG 1

Id., Fig.1. The machine incorporates a vacuum source to collect spent abrasive particles in the recovery container; for heavier abrasive particles, the system additionally employs a compressor located upstream of the supply bottles to propel the particles. *Id.*, [0050]-[0051]. Other disclosed embodiments vary the number of supply containers, recovery containers, and handles. Petitioners rely on different combinations of these embodiments (shown in Figures 1-5) in attempting to address the limitations of Ground 2A. *E.g.*, Pet., 61-63 (citing Figs.1, 2-4, 3, 5). Nevertheless, in all embodiments, the Greenberg machine exclusively employs dry abrasive particles for skin abrasion, without any disclosure of multiple treatment fluids. Ex.2001, ¶140.

1. Greenberg fails to disclose the “treatment fluid[s]” of claims 1 and 37.

Claim 1 recites “the first container contains a treatment fluid” and the “additional container contains an additional treatment fluid.” Similarly, claim 37 recites “first treatment fluid contained in the first container” and “second treatment fluid contained in the at least one additional container.” Greenberg does not disclose the claimed “treatment fluid.” Although no express construction is required, the Board should recognize that the ordinary meaning of “treatment fluid,” in the context of the specification and claims, excludes dry abrasive particles.⁶ Ex.2001, ¶141.

Greenberg discloses “supply containers including particulates” or “different particles.” Ex.1006, [0015], [0020]-[0021]. The disclosed particles are described for used in “a micro-dermabrasion machine,” and include “[p]urely organic materials,” a “mixture of abrasive particles such as aluminum oxide mixed with organic materials,” or “[a]brasive particles that are coated with organic materials.” *Id.*, [0073]-[0076]. Specific examples include “aluminum oxide particles,” “organically coated aluminum oxide particles,” and “organic particles.” *Id.*, [0077].

⁶ As Petitioners observe, “claim terms need only be construed to the extent necessary to resolve the controversy.” Pet., 2 (citing *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011)).

Importantly, Greenberg emphasizes that the particles must remain dry, not dissolved in any fluid, to function in the intended microdermabrasion treatment:

Of course, great care needs to be taken to ensure that the particle[s] do not become too wet whereupon they will not be able to move freely through the apparatus but will stick to the container and the various tubes.

Id., [0085]; *id.*, [0070] (“provided that the particles are **sufficiently dry** and of a suitable size, a whole range of organic particles may be used”). Accordingly, a POSITA would have understood that Greenberg’s microdermabrasion system exclusively employs dry particles and does not disclose or suggest the use of the claimed treatment **fluids**. Ex.2001, ¶139. Walbrink acknowledged this fact. Ex.2150, 16:6-12 (“A: So Karasiuk, in particular. Greenberg is another one that I talk about. And basically, it applies suction or vacuum to the system to draw particles out of a container through a handpiece. Q: And those particles that you’re referring to, are those the dry abrasive particles? A: Yes.”). Walbrink further confirmed that “microdermabrasion, as in Greenberg and Karasiuk, use particles in an air flow, fluidized particles. Hydro, as the ’287 patent refers to it, is in a solution.” *Id.*, 18:2-5; *see also id.*, 20:1-7.

Petitioners do not dispute that Greenberg uses only dry particles. Nor do they propose any modification to incorporate treatment fluids. Instead, Petitioners assert that “a POSITA would have understood and found obvious that Greenberg’s

‘particles’ constitute ‘fluid’ within the meaning of the ’287 patent.” Pet., 68. Ex.2001, ¶140.

Petitioners’ argument rests entirely on an overbroad interpretation of the claim term “treatment fluid” to include a collection of dry particles. To be clear, Petitioners does not contend that Greenberg’s dry particles constitute “treatment fluid” under the ordinary meaning of the term. Nor do Petitioners propose *any* construction of “treatment fluid” that would encompass a stand-alone collection of dry particles. Instead, Petitioners attempt to stretch a non-limiting list of example substances that may be included in a “treatment material” to suggest that “treatment fluid” covers dry particles alone. Pet., 68 (citing Ex.1001, 5:47-54). That interpretation is incorrect. As explained above, a “treatment fluid” is not a collection of dry particles. Ex.2001, ¶141.

Petitioners further argue that Greenberg discloses a “treatment fluid” because it “us[es] an air flow to carry particles through a hand tool.” Pet., 68. According to Petitioners, “POSITA would have understood that the air flow carrying particles is considered to be ‘fluid’ as used in the ’287 patent.” *Id.* But Petitioners rely only on Walbrink’s conclusory testimony and provide no explanation as to why an “air flow carrying particles” qualifies as a “treatment fluid.” In any event, the claims expressly require that the treatment fluid be contained within the containers. In Greenberg, by

contrast, the dry particles stored in containers remain in a pile—not in an air flow carrying particles. Ex.2001, ¶142.

Accordingly, Greenberg neither discloses nor renders obvious claims 1 or 37. Ex.2001, ¶¶143-144.

2. Greenberg fails to disclose the “treatment material”/“fluid”/“fluids” (claims 11, 16, 22, 25-26).

Claims 11 and 22 recite “treatment material,” while claim 26 recites “fluid” that flows through components that are “in fluid communication with” each other. As explained above, the claimed “treatment material” and “fluid” refers to substances that readily flows through the components “in fluid communication with” each other—not a collection of dry solid particles. Although no express construction is required, the Board should find that the ordinary meaning of “treatment material” and “fluid,” in the context of the specification and claims, excludes dry abrasive particles.

Petitioners nevertheless contend that Greenberg’s solid abrasive particles satisfy the “treatment material” limitations. *See* Pet., 68 (characterizing Greenberg’s dry abrasive particles as falling within the scope of “treatment material”).

Contrary to Petitioners’ argument, the ’287 patent expressly distinguishes prior-art microdermabrasion technology, which employs dry abrasive particles. The specification explains that, in microdermabrasion, “the surface of the skin is

removed due to mechanical rubbing by a handpiece emitting a stream of sand or grit” to abrade “cell layers of the skin.” Ex.1001, 1:65-2:5. It further explains that the “momentum of the grit tends to wear away two to three cell layers of the skin with each pass of the handpiece.” *Id.*, 2:3-5. Microdermabrasion can be a painful procedure and, due to its harsh nature, often leaves patients with redness. *Id.*, 1:51-55 (describing dermabrasion as painful and leaving the skin “red and raw-looking”). The ’287 patent, by contrast, distinguishes between “wet” and “dry” modes, with the “wet” mode applying treatment materials or fluids to the skin, unlike the “dry” mode that does not. *See supra* §III.A.

In further contrast, the ’287 patent discloses a system that “deliver[s] **fluid** from at least one of the **plurality of fluid sources** to the handpiece assembly.” Ex.1001, 2:32-35. Consistent with this distinction, the claims of the ’287 patent do not cover prior-art microdermabrasion. Ex.2001, ¶¶140-141. Instead, they expressly depart from such painful methods by reciting hydrodermabrasion systems, which treat the skin without sandpaper-like blasts of abrasive particles (as explained above, distinguishing wet and dry application modes, *supra* §III.A).

Further confirming that the claimed treatment materials are not dry solid particles, the specification explains that “the handpiece assemblies can be used **without treatment material**, i.e., the handpiece can be used **in a dry procedure**.” Ex. 1001, 13:28-31. By expressly describing procedures without treatment material as

“dry,” the specification demonstrates that the treatment materials themselves are not dry solid particles.

The specification also links the “effectiveness of the fluid” on the skin to the amount of time the “active ingredients of the treatment material” remain in contact with the skin:

Fluid traveling down the longer pathway is in contact with the person’s skin 80 for a longer period of time. Thus, tighter spirals lead to increased contact time between the fluid and the skin 80. These longer contact times can increase the *effectiveness of the fluid* because the skin can absorb an adequate amount of *active ingredients of the treatment material*. Fluid retention time on the patient’s skin can be increased to *increase hydration, serum retention, and the like*.

Id., 10:9-17. These identified functions—absorption of ingredients, hydration, and serum retention—are characteristic of fluids, not solids. Ex.2001, ¶55. The specification further reinforces this by listing numerous examples of fluids, including serums, hydration agents and additives, acids, extracts, and other substances—all of which are liquids, not dry particles. Ex.1001, 15:61-16:33.

Accordingly, the intrinsic record compels rejection of Petitioners’ attempt to broaden “treatment material” to encompass the dry solid particles disclosed in Greenberg. If the Board determines that a formal claim construction is required, “treatment material” should be construed consistent with its plain and ordinary

meaning in view of the specification, which excludes dry solid particles. Ex.2001, ¶146.

This analysis alone resolves the parties' dispute: Greenberg does not disclose the claimed "treatment material." Petitioners do not dispute that Greenberg discloses only dry particles, and they never propose modifying Greenberg's microdermabrasion system to use anything else. *See* Pet., 68 (citing Greenberg for its disclosure of different abrasive particle types). Ex.2001, ¶140. Therefore, Greenberg does not disclose or render obvious claims 11, 22, or 26. *Id.*, ¶¶146-147.

Even if these claims did not already exclude dry particles from the scope of "treatment material," claims 16 and 22 further confirm that their dependent claim scope does not encompass dry particles. *Supra* §III.C. Because Greenberg only contemplates dry particles, it also fails to disclose or render obvious these dependent claims. Ex.2001, ¶147.

Accordingly, Petitioners have failed to show that the prior art—whether considered individually or in combination—discloses or renders obvious the claimed treatment material and fluid limitations. *Id.*, ¶¶139-147.

B. Greenberg Does Not Disclose a Handpiece Connected to a Console

As explained above with respect to Grounds 1A-1B, every claim of the '287 patent requires a handpiece (or handpiece assembly) that is connected to the console during operation. *See supra* §V.A. For example, Limitation 11.6 recites:

wherein when ... (iii) ***the handpiece assembly is connected to the console***, the skin treatment apparatus is configured to selectively draw treatment material from the first container or the second container...”

Like the Karasiuk-Palmer combination, Greenberg does not meet this requirement.

Ex.2001, ¶148; *supra* §V.A.

Regarding Greenberg’s containers, Petitioners argue that “[a]s shown in FIG. 1, Greenberg’s supply containers 90, 94, 98 (*first and at least one additional containers; see [1.1]*) are connected to apparatus 10 (*console*).” Pet., 63 (emphasis by Petitioners). Petitioners further contend that Greenberg’s handles are also connected to the console because “handles 16, 24 (or handle 102 in FIG. 5) are fluidly connected to various components (e.g., vacuum pump 12, switch 30, valve 54) enclosed in apparatus 10.” *Id.*, 64.

But Greenberg’s handle is not connected to apparatus 10. Ex.2001, ¶¶149-151. Petitioners themselves acknowledge that it is the containers—not the handle—that are connected to apparatus 10. The containers are positioned between the handle and apparatus 10, such that Greenberg’s handle is connected only to the containers 90, 94, 98 via tubing—not to apparatus 10. Ex.1006, Fig.1, [0053], [0062]. Walbrink admitted this fact. Ex.2150, 91:2-19. As Figure 1 makes clear, there is no line or conduit directly connecting Greenberg’s handle to apparatus 10.

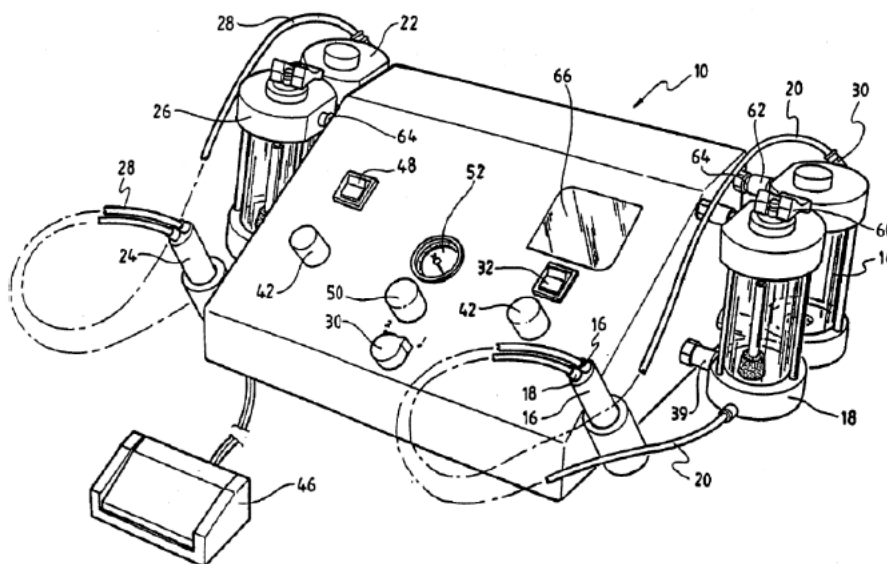


FIG 1

Ex.1006, Fig.1.

Moreover, merely storing Greenberg's handle adjacent to apparatus 10 does not satisfy this requirement. When Greenberg's handle is resting in its stored position, the system cannot deliver treatment material and therefore cannot meet the claim requirements. For example, claim 1 requires that "when the handpiece...[is] connected to the console...the **system is configured to deliver the first treatment fluid** contained in the first container and the additional treatment fluid..." Ex.1001, 21:46-57. Similarly, claim 11 requires that "when...the handpiece assembly is connected to the console, the skin treatment apparatus is **configured to selectively draw treatment material from the first container or the second container** to the handpiece assembly..." *Id.*, 22:50-58. Each independent claim requires that the system be configured to deliver treatment material when the handpiece is connected

to the console. *Id.*, 23:39-47, 24:34-39, 25:35-26:6; Ex.2001, ¶152. In contrast, Greenberg's system is not configured to deliver any material when the handle is stored adjacent to apparatus 10. Ex.2001, ¶152. In that position, the system cannot draw or deliver material from the container. *Id.*

The Petition does not argue that modifying Greenberg to connect the handpiece to the console would have been obvious. Accordingly, Greenberg neither discloses nor renders obvious the challenged claims. *Id.*, ¶153.

C. A POSITA Would Not Have Been Motivated to Combine Greenberg's Different Embodiments

Petitioners rely on different structures drawn from multiple Greenberg embodiments in an effort to cover the limitations of the challenged claims. Petitioners, however, fail to identify any motivation for combining these different structures, and a POSITA would have lacked such motivation. Their proposed combination is based solely on hindsight. Ex.2001, ¶154.

For example, Petitioners contend that Greenberg Figure 5's three supply containers and two valves could replace Figure 1's two supply containers (shown in separate assemblies) and one valve; that Figure 5's single recovery container could replace Figure 1's two recovery containers; and that Figure 5's single handle could replace Figure 1's two handles. *See Pet.*, 57-58. Petitioners further cite Walbrink's testimony that "other structures described with respect to FIGS. 1-4 would be

similarly applicable for the FIG. 5 implementation.” *Id.*, 59 (citing Ex.1003, ¶68).⁷

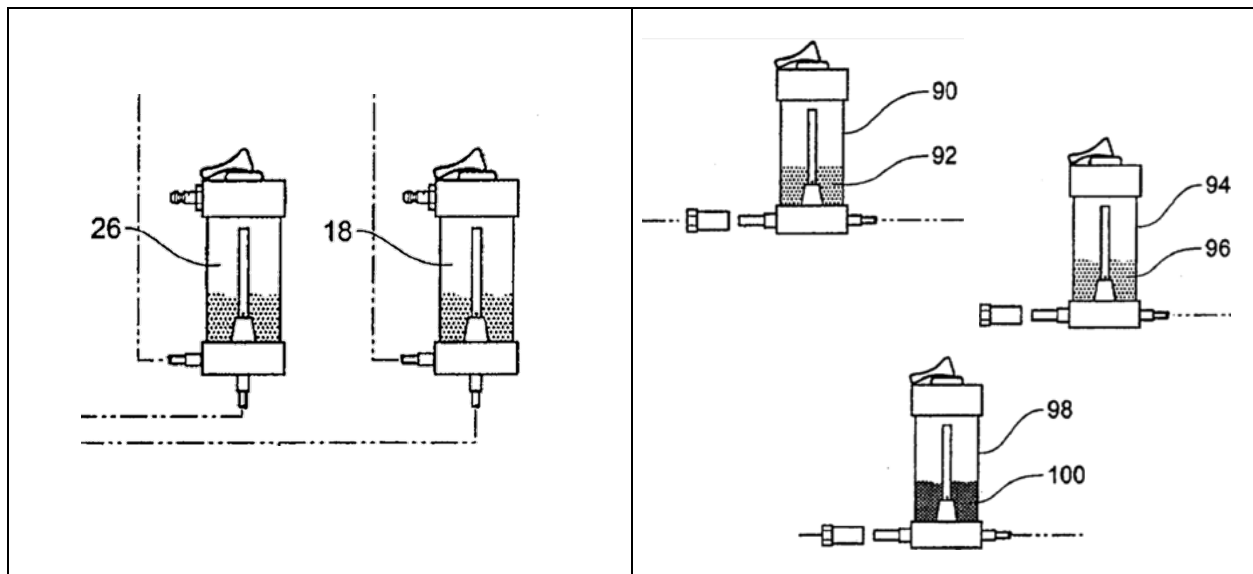
Petitioners also argue that Figure 3’s “vacuum pump 12” could be added to Figure 5’s schematic to address limitations directed to a vacuum source. *See, e.g.*, Pet., 68-69.

Neither Petitioners nor Walbrink, however, provides any explanation of how or why a POSITA would have combined the structures from Figure 1-4 with Figure 5’s embodiment. *See* Pet., 59-60 (asserting Figure 5’s implementation would have been “similarly applicable” but offering no rationale for modifying). Walbrink largely repeats the Petition’s description without offering any independent reasoning or evidence of motivation to combine. *See* Ex.1003, ¶68; Ex.2001, ¶155-156.

In fact, Greenberg itself demonstrates that the structures in the Figures 1-4 are not compatible with the Figure 5 embodiment. For example, Greenberg explains that “[w]herever possible, the same reference numbers will be used through the drawings and the following description to refer to the same and like parts.” Ex.1006, [0048]. Consistent with this, the Figures 1-4 embodiments use the same reference numbers for supply containers, recovery containers, and handles. By contrast, the Figure 5 embodiment assigns entirely different reference numbers for its supply

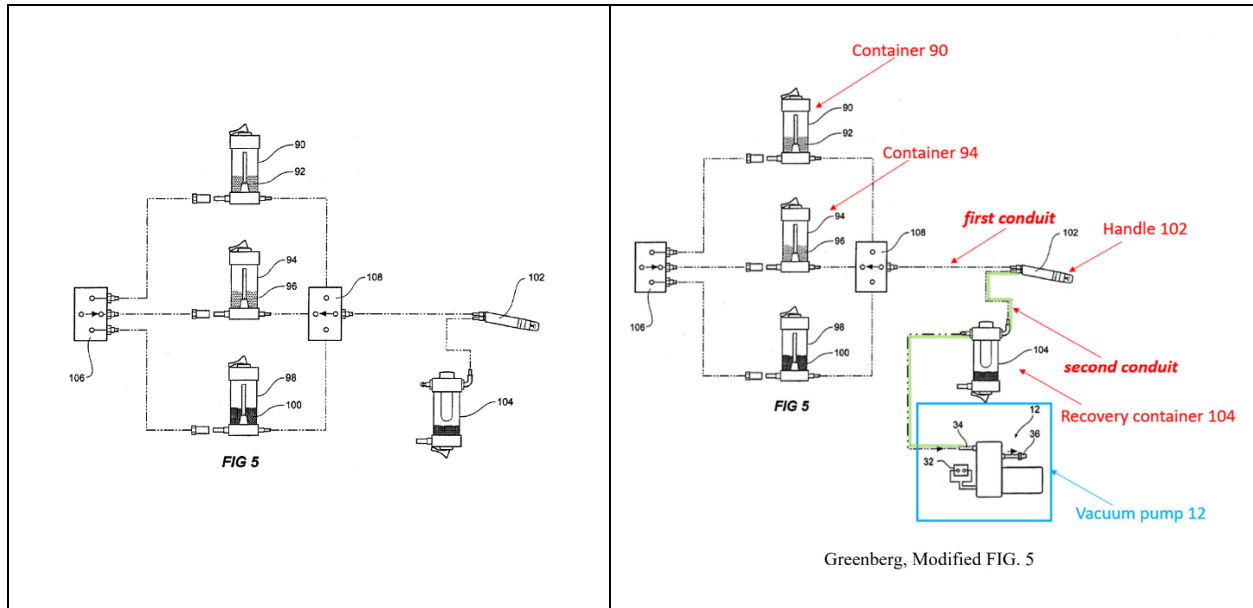
⁷ For the “other structures,” Walbrink describes only Figure 1’s “tube 20” to be used in Figure 5. Ex.1003, ¶68.

containers, recovery container, and handle. *Compare, e.g., id.*, Figs.1-4 (reference numbers 18, 26 for supply containers) *with* Fig.5 (reference numbers 90, 94, 98 for supply containers). Greenberg further indicates that Figure 5’s supply containers are structurally distinct from those in earlier figures, such as Figure 2, by depicting different outlet configurations:



Ex.1006, Figs.2 (excerpted), 5 (excerpted); Ex.2001, ¶157.

Petitioners’ attempt to combine these embodiments is particularly problematic in their addition of a vacuum pump to Greenberg’s vacuum-free Figure 5 embodiment. To try to satisfy the “vacuum source” recited in the independent claims, Petitioners rely on Figure 3’s “vacuum pump 12.” Pet., 68-69. Petitioners even include in the Petition a modified image that literally pastes Figure 3’s vacuum pump 12 onto the Figure 5 schematic—despite the fact that Figure 5, in its original disclosure, does not include a vacuum.



Ex.1006, Fig.5; Pet., 70; Ex.2001, ¶158.

Petitioners never explain whether a POSITA would have been motivated to modify Figure 5 in the manner they propose, or how, after such modification, Figure 5's supply containers would function with a vacuum source. *See* Pet., 68-69. Even if a POSITA could theoretically combine these different embodiments, Petitioners have not presented any evidence that a POSITA would have been motivated to do so. Ex.2001, ¶159. Accordingly, Petitioners have not met their burden. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only could have made but would have been motivated to make the combinations or modifications of prior art to arrive at the claimed invention.”).

In fact, a POSITA would not have been motivated to add a vacuum source to Greenberg's Figure 5 embodiment. Ex.2001, ¶160. On its face, Figure 5 lacks any pneumatic source, whether vacuum or compressor. Moreover, a POSITA reading Greenberg would understand that Figure 5 employs a compressor upstream of the supply containers and valve 106 to provide air pressure to the system, rather than a vacuum pump downstream of the recovery container. *Id.* Greenberg explains: "A supply container can be chosen to be in communication with handle 102 and recovery container 104 by ***use of valve 106 that controls air flow into the respective supply container*** and valve 108 that [then] connects that supply container to the handle 102 and recovery container 104." Ex.1006, [0077]. Thus, Greenberg indicates that air pressure from a compressor upstream of valve 106 is used to aerate the abrasive particles in the supply container and drive those particles through valve 108 to handle 102. Ex.2001, ¶160.

Petitioners and Walbrink have not shown that a POSITA would have been motivated to combine Greenberg's different embodiments to arrive at the claimed invention. Ex.2001, ¶161.

Accordingly, Petitioners have not shown that the challenged claims would have been obvious over Ground 2A.

D. Trueba Does Not Cure Greenberg’s Deficiencies

As in Ground 1B, Petitioners again rely on Trueba in Ground 2B—this time adding it to Greenberg—to supply teachings of “computer control and display.” Pet., 90. But those features have nothing to do with Greenberg’s missing limitations or the fatal flaws identified in Ground 2A.

Accordingly, Petitioners have not shown that the challenged claims would have been obvious over Ground 2B. Ex.2001, ¶161.

**VII. OBJECTIVE INDICIA INDEPENDENTLY CONFIRM
NONOBVIOUSNESS**

Petitioners attempt to reconstruct the invention with hindsight. But objective, real-world evidence tells a different story—one of genuine innovation, not obviousness. HydraFacial’s patented systems reshaped the industry by displacing outdated technologies, securing and maintaining market leadership, and prompting widespread copying by competitors.

These objective indicia are not ancillary; they constitute “independent evidence of nonobviousness” that the Board must consider under *Graham v. John Deere*, 383 U.S. 1, 17-18 (1966). *Leo Pharm. Prods., Ltd. v. Rea*, 726 F.3d 1346, 1358 (Fed. Cir. 2013) (secondary considerations “are not just a cumulative or confirmatory part of the obviousness calculus but constitute[] independent evidence of nonobviousness.”). Walbrink confirmed that these objective indicia can be

important in the obviousness analysis, but he admitted he did not consider any objective indicia in forming his opinions. Ex.2150, 33:1-34:25.

This real-world evidence—emerging only after the invention entered the marketplace—avoids the distorting lens of hindsight and confirms that the claimed inventions were not obvious at the time they were made.

A. Nexus Is Established Between the Claimed Inventions and the Evidence

HydraFacial readily demonstrates a nexus between the claimed inventions and the evidence, both through (1) the presumption of nexus and (2) affirmative proof that the evidence is directly attributable to the claimed invention. *Volvo Penta of the Americas, LLC v. Brunswick Corp.*, 81 F.4th 1202, 1210 (Fed. Cir. 2023).

The nexus presumption applies here because HydraFacial’s commercial delivery systems—the Tower, Allegro, Elite, and Syndeo (“HydraFacial Systems”)—all embody and are coextensive with the challenged claims of the ’287 patent. HydraFacial’s expert, Leinsing, evaluated the HydraFacial Systems and confirmed that each system satisfies the limitations of the challenged claims, thereby embodying them. Ex.2004, ¶¶1-397.

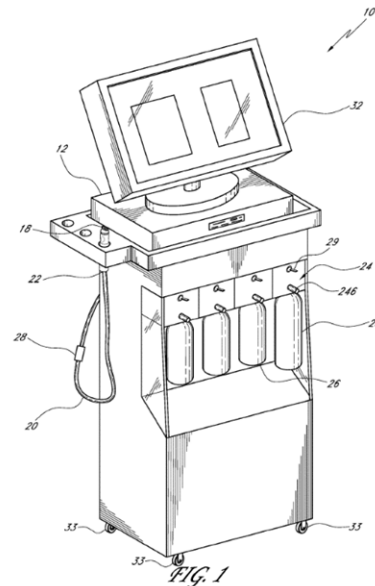
Leinsing further demonstrated that the HydraFacial Systems are essentially the claimed invention itself and therefore coextensive with the claims. *Id.*, ¶¶398-403. Each HydraFacial System aligns with the scope of protection in the claims, as each is a “system for treating skin” and “skin treatment apparatus” that incorporates

the claimed features. *Id.*, ¶1-397. Indeed, the Tower—HydraFacial’s original multi-container system protected by the ’287 patent and first sold in 2005—directly reflects the claimed invention, as illustrated by the ’287 patent’s Figure 1:

Tower Product



'287 Patent, Fig. 1



Ex.2033, 1; Ex.1001, Fig.1; Ex.2004 ¶400. The HydraFacial Systems incorporate the key claimed features, including: (1) multiple fluid containers; (2) a block, fluid control member, or collection lumen; (3) fluid communication between the fluid containers and the block, fluid control member, or collection lumen; (4) fluid communication between a handpiece and the block, fluid control member, and collection lumen; (5) a vacuum source; (6) a waste container; and (7) fluid communication between the vacuum source, waste container, and handpiece (including tip). Ex.2004, ¶399.

Furthermore, the HydraFacial Systems do not include any critical unclaimed features. *Id.*, ¶401. While the HydraFacial Systems may include ancillary components such as a light therapy handpiece, those accessories are not central to the operation of the HydraFacial Systems. *Id.* The HydraFacial Systems have consistently been marketed as hydrodermabrasion systems. *See id.* (citing Ex.2038 (Tower), Ex.2039 (Tower), Ex.2040 (Tower), Ex.2041 (Tower), Ex.2042 (Tower), Ex.2043 (Tower), Ex.2044 (Elite), Ex.2045 (Elite), Ex.2046 (Elite), Ex.2047 (Allegro)). Furthermore, red and blue light therapy—sometimes offered as an accessory—can be performed by for less expensive devices. Ex.2015; Ex.2001, ¶44; Ex.2004, ¶401. The significant features of the HydraFacial Systems are those claimed in the '287 patent, and these features are coextensive with the challenged claims. Ex.2004, ¶¶399-403.

To the extent Petitioners argue that the handpiece tips are critical features covered by different patents or materially affect the functionality of the HydraFacial Systems, that argument is misplaced. The claims recite “a handpiece configured to contact skin tissue of a subject,” where a tip is part of the claimed handpiece/handpiece assembly, as the specification confirms. *See, e.g.*, Ex.1001, Figs.1-4, 5:42-46, 5:57-60, 6:44-45, 6:49-53, 7:50-54, 10:39-11:3, 19:25-28, 19:39-42; Ex.2004, ¶402.

Because the HydraFacial Systems embody and are coextensive with the challenged claims, the presumption of nexus applies and the burden shifts to Petitioners for rebuttal. *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1130 (Fed. Cir. 2000). “The presumed nexus cannot be rebutted with mere argument; evidence must be put forth.” *Id.*

Even apart from this presumption, nexus is independently established, as demonstrated below, where the evidence confirms that the HydraFacial Systems’ commercial success and competitor copying flow directly from the patented features. *Id.*

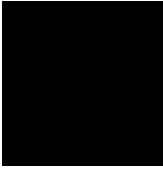
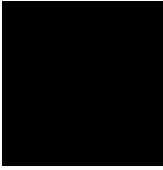
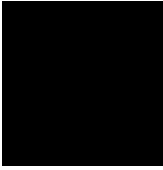
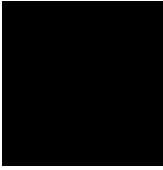
B. Commercial Success of the Patented Systems

The commercial success of HydraFacial’s patented systems is indisputable. Ex.2003, ¶¶1-39.

1. Significant Revenue and Growth

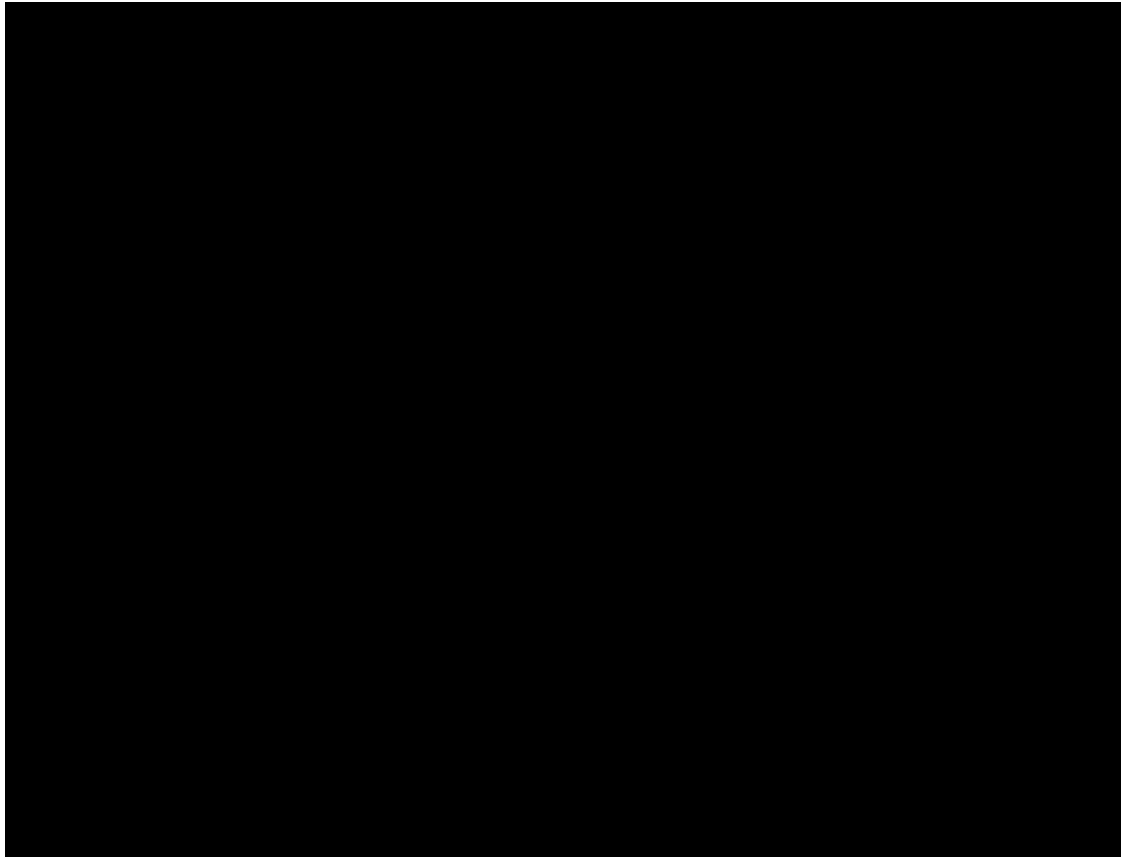
From 2005, when HydraFacial introduced the Tower, through the second quarter of 2024, the HydraFacial Systems generated extraordinary global sales, achieving nearly [REDACTED] dollars in revenue, as reflected in the table below.

**NET WORLDWIDE SALES REVENUES BY
HYDRAFACIAL PRACTICING SYSTEM
(2005 TO JUNE 2024)**

Model Name	Period	Worldwide Revenues
[A]	[B]	[C]
[1] Tower	2005 - 2023	\$ 
[2] Allegro	2012 - Q2 2024	\$ 
[3] Elite	2016 - Q2 2024	\$ 
[4] Syndeo	2022 -Q2 2024	\$ 
[5] Total	2005 - Q2 2024	\$ 

Ex.2010; Ex.2003, ¶31.

As HydraFacial's economic expert, Dr. Seth, explains, the HydraFacial Systems have demonstrated sustained and significant growth, driven by increasing unit sales and revenues worldwide. Ex. 2003, ¶30. The graph below shows this trend, showing worldwide net unit sales and net revenues for the HydraFacial Systems from 2005 to 2023.



Ex.2010; Ex.2003, ¶30. As Dr. Seth explains, sales of the HydraFacial Systems have consistently increased across all years, with revenues growing on average by [REDACTED] annually between 2005 and 2023. Ex. 2003, ¶30. The launch of HydraFacial’s Elite system in 2016 and Syndeo system in 2022 further accelerated this trajectory, producing [REDACTED] and [REDACTED] increases in worldwide net sales revenues, respectively. *Id.*

Moreover, HydraFacial Systems’ growth, measured by global net revenues, has far outpaced the global beauty industry’s growth. Ex. 2003, ¶34. For example, while the global cosmetics market achieved a compound annual growth rate (“CAGR”) of approximately 4% between 2012 and 2023, the HydraFacial Systems (Allegro, Elite, and Syndeo) achieved a CAGR of [REDACTED] during the same period. *Id.*

HydraFacial's growth was not only faster but exponential compared to the broader market, demonstrating that its success is driven by the patented innovations rather than general industry trends.

2. Market Share Dominance

HydraFacial created—and continues to dominate—the hydrodermabrasion market. Ex.2003, ¶¶32-34. As HydraFacial explained in SEC filings, “HydraFacial created the category of hydradermabrasion with its patented delivery system (‘Delivery System’) that cleanses, extracts, and hydrates the skin with proprietary solutions and serums.” Ex.2140, 7; Ex.2003, ¶33.

Before HydraFacial's entry, microdermabrasion was widely used as a skin treatment technique, but it carried significant drawbacks, including being messy and often painful. Ex.2013, 219; Ex.2012, 238; Ex.2001, ¶¶35-39. Today, demand for traditional microdermabrasion has sharply declined, even though it is less expensive than HydraFacial treatments. According to a dermatologist interviewed by *Allure* magazine in 2018, “newer takes on microdermabrasion, such as the HydraFacial, are rendering the traditional treatment outdated.” Ex.2139; *Id.* (“...there's been such a great evolution in peels and treatments like the HydraFacial, that I wouldn't go back to it and recommend it over other options.”); Ex.2003, ¶32.

HydraFacial's dominance is confirmed by market share data. Ex.2003, ¶33; Ex.2145. In 2024, HydraFacial held a [REDACTED] share of sales and a [REDACTED] share of visits

in the broadly defined market that includes microdermabrasion. *Id.* Thus, HydraFacial not only created the hydrodermabrasion market but has also effectively displaced microdermabrasion, commanding over [REDACTED] of the market in that category. *Id.*

3. Comparative Success Against Non-Practicing Products

The commercial trajectory of HydraFacial's patented systems, compared to the non-practicing Nectre system, provides compelling evidence that it was the patented features that drove success.

The Nectre, launched in 2008, was a single-container system that did not practice the '287 patent's claims. Ex.2004, ¶¶406-442.



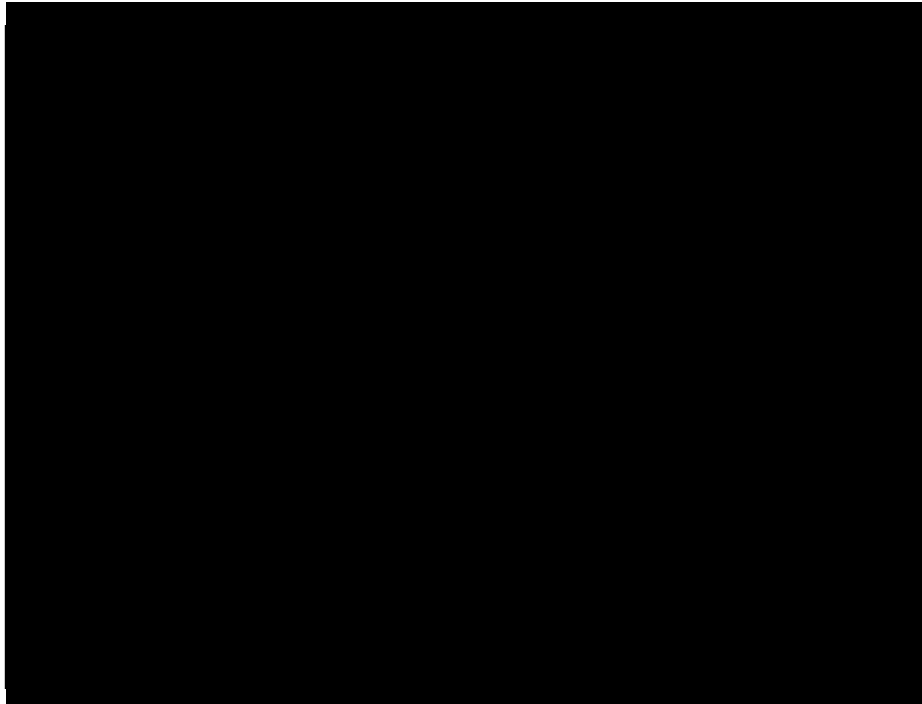
Ex.2036. Like Karasiuk, the Nectre used only a single container, requiring clinicians to manually swap the container during treatment to change treatment solutions. Ex.2036, 11; Ex.2004, ¶406. In contrast, the HydraFacial Systems employed a

multi-container configuration—including a block, fluid control member, and collection lumen—that enabled seamless and efficient treatments without interruption, making the HydraFacial Systems far more desirable. Except for this critical difference, the Nectre is comparable in every other material respect to the HydraFacial Systems, even using the same tips. Ex.2004, ¶¶404-448.

The marketplace response confirms the importance of the patented features. The Nectre was a commercial failure, generating only [REDACTED] in lifetime revenue and experiencing a negative CAGR of [REDACTED]. Ex.2003, ¶¶37-38. By contrast, during the same period, the Tower and Allegro systems—practicing the '287 patent—generated nearly [REDACTED] in revenue and sustained growth at a [REDACTED] CAGR. *Id.*, ¶37.

The figure below illustrates this clear contrast, showing Nectre's worldwide net sales revenues over its product life cycle (2006-2013) compared with Tower and Allegro over the same period.

**WORLDWIDE NET REVENUES FROM THE NECTRE AND
HYDRAFACIAL SYSTEMS (TOWER AND ALLEGRO)
(2006-2013)**



Ex.2003, ¶37.

The stark disparity between the Nectre and the patented systems provides direct proof of nexus: it was the patented features—not unclaimed design choices—that drove HydraFacial’s commercial success. *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1350 (Fed. Cir. 2012) (finding commercial success and nexus established by comparing patented dual-activity oil rig with unpatented single-activity rig).

C. Copying by Competitors

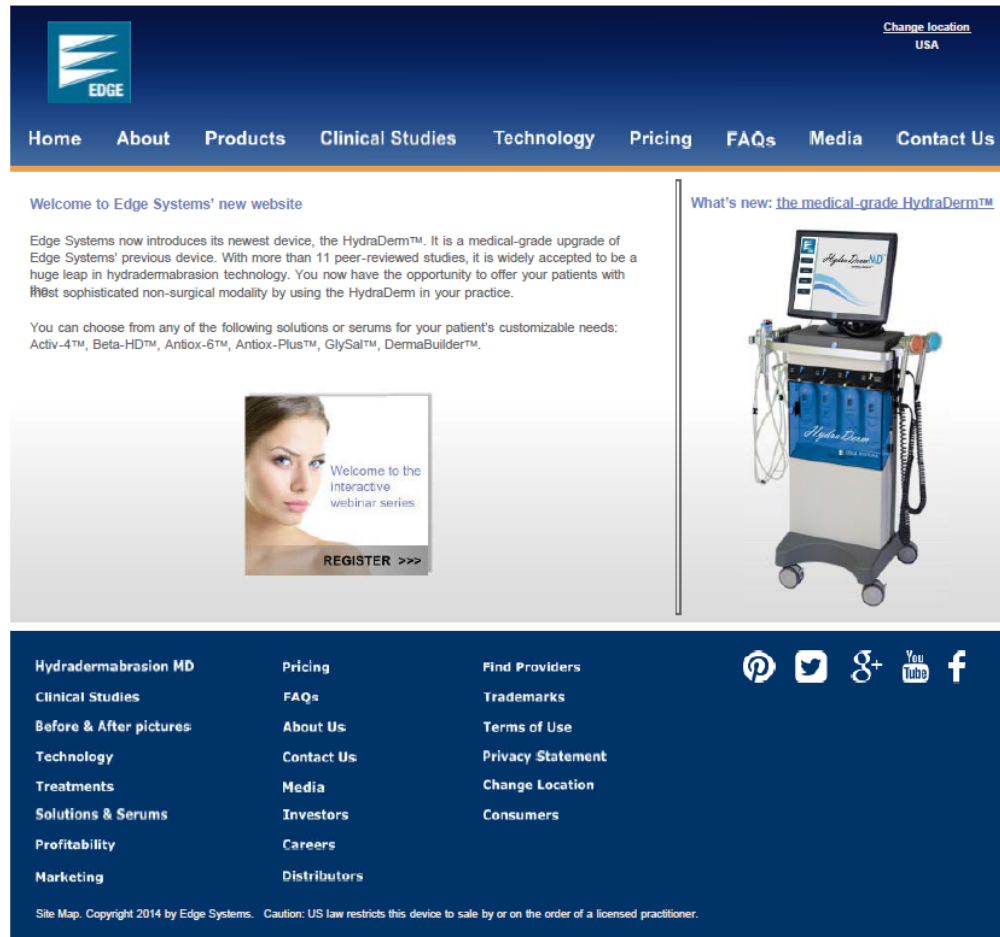
Copying by competitors is recognized as “strong evidence of nonobviousness.” *Volvo*, 81 F.4th at 1213. “[W]here there is evidence of actual

copying efforts, that evidence is always relevant.” *Liqwd, Inc. v. L’Oreal USA, Inc.*, 941 F.3d 1133, 1138 (Fed. Cir. 2019). Direct evidence—including “photos of patented features” and “access and similarity to a patented product”—is probative of copying (*id.* at 1137), even if it predates the patent at issue. *Id.* at 1138 (vacating Board decision that disregarded “actual copying” where Board had held evidence of copying irrelevant because patent owner had not shown competitor “copied a patented product”).

That is precisely what occurred here. In 2014, Rafael Aguila (“Aguila”) marketed and sold his “HydraDerm” product, which was a near-exact copy of HydraFacial’s Tower system. Ex.2004, ¶¶449-451. As explained above, the Tower embodies the challenged claims of the ’287 patent, and Aguila’s knockoff product duplicated those claimed features wholesale. *Id.*, ¶¶452-458.

Aguila’s own website confirmed his intent: the “HydraDerm” product was designed to look and function like the Tower.

Edge Systems -- Originator of Hydradermabrasion Technology, World Leader in Microdermabrasion.



Ex.2154, 3 (attorney declaration attaching website printout); Ex.2155, 2. Aguila promoted his knockoff device as “the next generation in microdermabrasion technology due to the simultaneous dermal infusion of medicinal products and crystal-free exfoliation” and “the first medical device that uses the ‘4-in-1’ technology of Cleansing, Exfoliation, Extraction, and Infusion.” Ex.2155, 4, 12. His website depicted the device with multiple treatment containers and emphasized the use of multiple treatment solutions. *Id.* Aguila further described the “pneumatic

action of the vacuum” and the use of a handpiece to deliver treatments with the multiple solutions. *Id.*, 7. These are precisely the integrated treatment capabilities claimed in the ’287 patent and embodied in the Tower. Ex.2004, ¶¶452-453.

HydraFacial sought and obtained a TRO and a preliminary injunction against Aguila. Ex.2005, 8-9; Ex.2007; Ex.2008. The court also granted HydraFacial’s summary judgment motion, characterizing Aguila’s device as a “bootleg,” “clone,” “copycat”—“the quintessential example” of copying another’s intellectual property. Ex.2005, 1. The summary judgment order included side-by-side comparisons of Aguila’s HydraDerm and HydraFacial’s Tower:



EDGE HYDRAFACIAL® PRODUCT



DEFENDANT'S ACCUSED PRODUCT

Ex.2005, 6; Ex.2004, ¶¶454-456. Aguila’s device contained the same structural features—including a block, fluid control member, collection lumen, and multiple treatment solution containers integrated into the system. Ex.2004, ¶457. The resemblance was so close that customers believed they had purchased a genuine HydraFacial system. Ex.2005, 7-8; Ex.2004, ¶¶457-458.

The district court entered final judgment against Aguila, and the Federal Circuit affirmed on appeal, quoting the district court's "apt summation" of Aguila's copying: "Bootleg. Clone. Copycat. Imitation. Knock-off. Palm-Off." *Edge Sys. LLC v. Aguila*, 708 F. App'x 998, 999 (Fed. Cir. 2017).

Aguila's slavish copying is itself direct proof of nexus. His device was a near-identical replica of the Tower, and the Tower is coextensive with the claims of the '287 patent. *Liqwd*, 941 F.3d at 1138 ("[W]here there is evidence of actual copying efforts, that evidence is always relevant."); Ex.2004, ¶458.

Other competitors also copied HydraFacial's claimed invention. HydraFacial obtained a consent judgment in *Edge Systems LLC, et al., v. Image MicroDerm Inc.*, 2:17-cv-08699 (C.D. Cal.), where the defendant admitted to infringing HydraFacial's U.S. Patent No. 9,550,052 ("'052 patent"). Dkt. 81, ¶¶7, 9. The '052 patent, like the '287 patent, is directed to multi-container hydrodermabrasion systems, and the defendant admitted its multi-container BioXFusion device infringes:



Dkt. 80-1 (Ex. A).

VIII. CONCLUSION

HydraFacial respectfully requests that the Board reject Petitioners' challenge and uphold the validity of the '287 patent claims.

IPR2025-00145
Sinclair v. HydraFacial

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Dated: August 25, 2025

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CERTIFICATE OF TYPE-VOLUME LIMITATIONS
UNDER 37 C.F.R. § 42.24

The undersigned certifies that the foregoing **PATENT OWNER RESPONSE** contains 13,986 words, exclusive of the parts exempted as provided in 37 C.F.R. §42.24(a), and therefore complies with the type-volume limitations of 37 C.F.R. §42.24(a).

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e)(4), I certify that on August 25, 2025, a copy of this **PATENT OWNER RESPONSE** and **EXHIBITS 2001-2015, 2024-2025, 2030-2056, 2074-2081, 2084-2102, 2104-2121, 2125-2128, 2130, 2132-2142, 2144-2147, and 2149-2157** were served via the email correspondence address of record for Petitioner's counsel of record:

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