

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ILOODA CO., LTD. and JEISYS MEDICAL INC.,
Petitioners,

v.

SERENDIA, LLC
Patent Owner,

Case No. IPR2024-00463
U.S. Patent No. 10,869,812

**PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO.
10,869,812 UNDER 35 U.S.C. §§ 311–319 AND 37 C.F.R. § 42.100 et seq.**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	COMPLIANCE WITH REQUIREMENTS OF AN INTER PARTES REVIEW PETITION.....	5
A.	Grounds for Standing (§ 42.104(a))	5
B.	Mandatory Notices (§ 42.8(b)).....	5
1.	Real Party-In-Interest (§ 42.8(b)(1)).....	5
2.	Related Matters (§ 42.8(b)(2))	5
3.	Fee for Inter Partes Review (§ 42.15(a))	6
4.	Lead and Back-Up Counsel (§ 42.8(b)(3))	6
5.	Service Information (§ 42.8(b)(4))	8
III.	IDENTIFICATION OF CHALLENGE AND RELIEF REQUESTED	8
IV.	THE '812 PATENT	9
A.	Overview	9
B.	Priority	9
V.	OVERVIEW OF THE PRIOR ART	10
A.	Mehta.....	10
B.	Na'848	10
C.	Lee	10
D.	Livneh.....	11
VI.	LEVEL OF ORDINARY SKILL IN THE ART	11
VII.	HOW THE CHALLENGED CLAIMS ARE TO BE CONSTRUED	11
A.	“a desired distance”/“predetermined depth”	11
VIII.	DETAILED EXPLANATION OF GROUNDS FOR CHALLENGE.....	13
A.	Ground I.....	13
1.	Independent Claim 12	14
2.	Claim 13	25
3.	Claim 14.....	30

4.	Claim 15	32
5.	Claim 16	32
6.	Independent Claim 1	34
7.	Claim 2	37
8.	Claim 3	37
9.	Claim 6	37
10.	Claim 8	39
B.	Ground II	39
1.	Independent Claims 1 and 12	39
2.	Claims 2 and 13	39
3.	Claims 3 and 14	42
4.	Claims 6, 8, and 15–16	42
5.	Claims 4–5 and 17	43
6.	Claim 10	47
C.	Ground III	48
1.	Motivation to Combine Mehta and Na’848	48
2.	Claims 4 and 17	52
3.	Claim 5	52
D.	Ground IV	53
1.	Motivation to Combine Mehta with Lee	53
2.	Claims 2–3, 6, 8, and 13–16	56
E.	Ground V	57
1.	Motivation to Combine Mehta, Lee, and Na’848	57
F.	Ground VI	58
1.	Motivation to Combine Livneh with Mehta	58
2.	Independent Claim 12	64
3.	Claim 18	72
4.	Claim 19	75
5.	Claim 20	76

6.	Independent Claim 1	77
7.	Claim 7	81
8.	Claim 9	81
9.	Claim 10	81
10.	Claim 11	84
IX.	DISCRETIONARY DENIAL IS NOT WARRANTED.....	84
A.	The Board Should Not Exercise Its Discretion to Deny Institution Under 35 U.S.C. § 314(a).....	84
B.	The Board Should Not Exercise Its Discretion to Deny Institution Under 35 U.S.C. § 325(d)	87
X.	CONCLUSION.....	87

LIST OF EXHIBITS

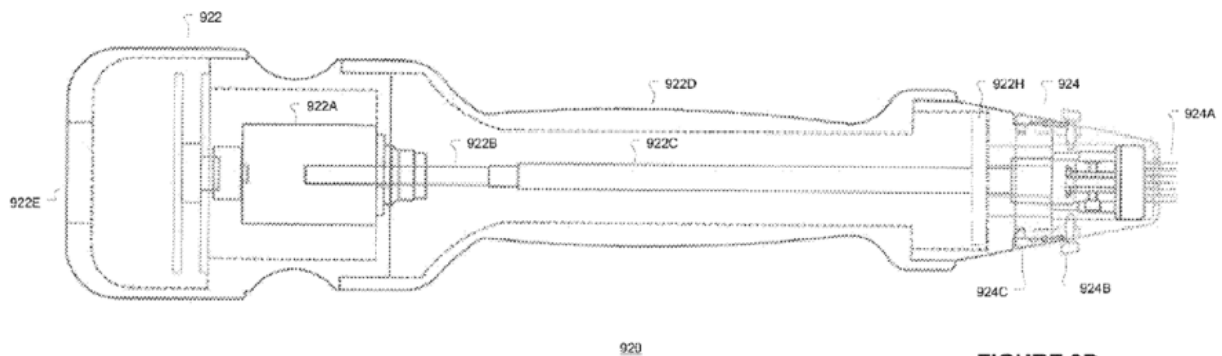
Exhibit	Description
1001	U.S. Patent No. 10,869,812 (“’812 Patent”)
1002	File History of the ’812 Patent
1003	Declaration of Dany Bérubé, Ph.D.
1004	<i>Curriculum Vitae</i> of Dany Bérubé, Ph.D.
1005	Order No. 35: Construing Certain Terms of the Asserted Claims, Inv. No. 337-TA-1356
1006	U.S. Patent No. 8,608,737 to Mehta <i>et al.</i> (“Mehta”)
1007	International Patent Application Publication No. WO 2010/016848 by Na <i>et al.</i> (“Na’848”)
1008	Korean Registered Utility Model KR20–0441552 to Lee <i>et al.</i> (“Lee”)
1009	Certified Translation of Korean Registered Utility Model KR20–0441552 to Lee <i>et al.</i> (“Lee”)
1010	International Publication Number WO 2008/005477 by Livneh (“Livneh”)
1011	U.S. Patent No. 8,540,705 to Mehta <i>et al.</i> (“Mehta’705”)
1012	U.S. Patent No. 9,775,774 to Na (“’774 patent”)
1013	U.S. Patent Application Publication No. 2009/0093749 by Shalev <i>et al.</i> (“Shalev”)
1014	U.S. Patent Application Publication No. 2009/0048557 by Yeshurun <i>et al.</i> (“Yeshurun”)

Exhibit	Description
1015	Korean Registered Patent KR10-0719395 to Kang (“Kang”)
1016	Certified Translation of Korean Registered Patent KR10-0719395 to Kang (“Kang”)
1017	U.S. Patent No. 7,824,394 to Manstein (“Manstein”)
1018	U.S. Patent No. 7,618,429 to Mulholland (“Mulholland”)
1019	U.S. Patent Application Publication No. 2007/0142885 by Hantash <i>et al.</i> (“Hantash”)
1020	U.S. Application No. 61/449,080 by Na (“Na’080”)

Ilooda Co., Ltd. (“Ilooda”) and Jeisys Medical Inc. (“Jeisys”) (collectively “Petitioners”) request *inter partes* review (“IPR”) of claims 1–20 of U.S. Patent No. 10,846,812 (“the ’812 patent”) (Ex-1001), assigned to Serendia, LLC (“Serendia” or “Patent Owner”).

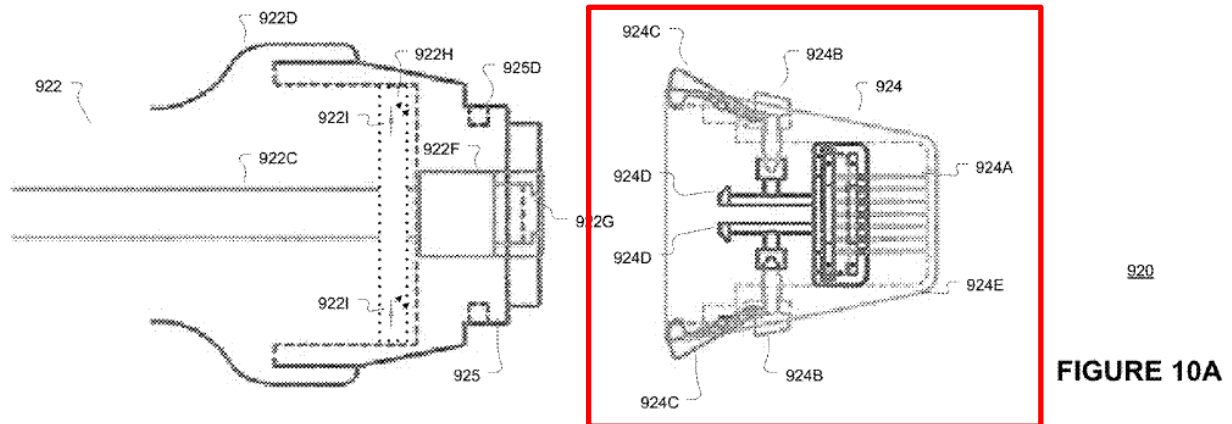
I. INTRODUCTION

The ’812 patent discloses a skin treatment system using microneedles. During treatment, microneedles are inserted into the skin and deliver electrical energy to the skin, which results in skin tightening. The patent discloses a cartridge-based apparatus or hand module 920 that consists of a motor and LED module (MLM) 922 and a deployable needle module (DNM) 924, as shown below.



’812 Patent—Fig. 9D

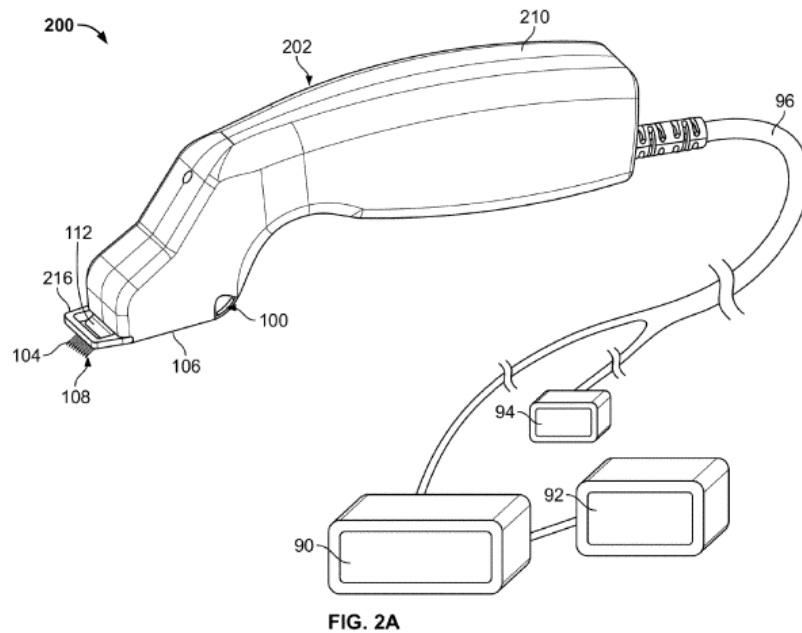
The DNM 924 contains needles 924A whereas the MLM 922 contains a motor 922A and drive shaft 922C. The needle module 924 (red box) is detachable from a MLM 922.



'812 Patent—Fig. 10A (annotated)

The claims of the '812 patent recite the components of the MLM 922, the DNM 924, and the interface that connects the two.

Microneedling has long been subject of research and development in the aesthetics field. Before the priority date of the '812 patent, U.S. 8,608,737 ("Mehta") disclosed a skin treatment apparatus employing microneedles. Like the '812 patent, Mehta discloses a skin treatment device 202 with a handpiece 210, as shown below.



Mehta—FIG. 2A

Mirroring the '812 patent, Mehta's needle module 100 can be coupled to and removed from the handpiece 210 and includes needles 104 that are inserted into the skin during treatment. Mehta's handpiece 210 includes a step-motor, a shaft, and an interface that couples the needle module 100 to the handpiece 210. Given the similarity between the two, Mehta anticipates or renders obvious every independent claim of the '812 patent.

Though Mehta discloses an apparatus that is identical to the apparatus claimed in the '812 patent, some of the low-level implementation details recited in dependent claims vary between the two designs. Such design choices were known in the art. For example, Mehta discloses using a diode but does not mention that

the diode is used to illuminate the needles. Likewise, Mehta uses translucent materials to provide a clear view of the treatment area but does not mention using such material on the cartridge. Na'848, a WIPO patent publication, discloses a skin treatment apparatus that employs an LED to illuminate the needles and also uses translucent material on the cartridge. Mehta discloses a step-motor to extend the microneedles a desired depth into the skin. If Serendia argues that Mehta does not disclose a mechanism to achieve the desired depth, then Lee, a Korean patent, discloses a skin treatment device that uses a stepping motor to precisely control the insertion depth of microneedles.

Finally, the '812 patent requires that the electrical contact pins connecting the MLM 922 and the DNM 924 extend in the same direction as the needles. Livneh discloses a similar skin treatment device where the electrical contact coils (or pins) extend in the same direction as the needles. While the needle module in Livneh is not detachable, it would have been obvious to modify Livneh to make the needle module detachable in view of Mehta.

Thus, the claims of the '812 patent were not inventive, and the Petitioners request that claims be held unpatentable and canceled.

II. COMPLIANCE WITH REQUIREMENTS OF AN INTER PARTES REVIEW PETITION

A. Grounds for Standing (§ 42.104(a))

Pursuant to 37 C.F.R. § 42.104 (a), Petitioners certify that the '812 patent is available for *inter partes* review and that Petitioners are not barred or estopped from requesting *inter partes* review based on the grounds identified in this petition.

B. Mandatory Notices (§ 42.8(b))

1. Real Party-In-Interest (§ 42.8(b)(1))

Petitioners certify that the real parties-in-interest of this Petition are Ilooda Co., Ltd. and Jeisys Medical Inc.

2. Related Matters (§ 42.8(b)(2))

The '812 patent is asserted in the following pending cases:

- U.S. International Trade Commission: *In the Matter of Certain Dermatological Treatment Devices and Components Thereof*, Inv. No. 337-TA-1356 (“ITC Lawsuit”)¹
- *Serendia, LLC v. Cynosure, LLC*, No. 1:23-cv-00223 (D. Del.)²
- *Serendia, LLC v. Cutera, Inc.*, No. 1:23-cv-00222 (D. Del.)³
- *Serendia, LLC v. EndyMed Medical, Inc.*, No. 1:23-cv-00224 (D. Del.)
- *Serendia, LLC v. Lutronic Aesthetics, Inc.*, No. 1:23-cv-00225 (D. Del.)
- *Serendia, LLC v. Rohrer Aesthetics, Inc.*, No. 1:23-cv-00226 (D. Del.)

¹ Serendia is the Complainant in the ITC Lawsuit; Jeisys and Ilooda are Respondents in the ITC Lawsuit.

² Cynosure, LLC is a distributor for Jeisys with respect to Jeisys accused products sold in the U.S.

³ Cutera, Inc. is a distributor for Ilooda with respect to Ilooda accused products sold in the U.S.

Petitioners are not aware of any disclaimers or reexamination certificates related to the '812 patent. U.S. Patent Nos. 9,320,536 (“the '536 patent”) and U.S. Patent No. 9,775,774 (“the '774 patent”), which issued from a continuation of the application leading to the '536 patent, are the subject of other requests for IPR filed by Petitioners.

The '536, '774, and '812 patents were the subject of IPR petitions filed by Cartessa Aesthetics, LLC on December 28, 2021 (“Cartessa Aesthetics IPRs”), which relied on prior art different from that forming the Grounds herein, in the following proceedings:

Patent	IPR No.	Institution Decision
'536	IPR2022-00378	Institution Denied
'774	IPR2022-00376	Institution Denied
'812	IPR2022-00377	Institution Denied

3. Fee for Inter Partes Review (§ 42.15(a))

This Petition is accompanied by the fees set forth in 37 C.F.R. § 42.15(a). Please charge or credit Deposit Account No. 60-3160 with any shortage or overpayment of fees associated with this Petition and any other fees incurred by Petitioners.

4. Lead and Back-Up Counsel (§ 42.8(b)(3))

Petitioners designate the following counsel:

Petition for *Inter Partes* Review
U.S. Patent No. 10,869,812

Lead Counsel	Back-Up Counsel
Scott Weidenfeller (No. 54,531) sweidenfeller@cov.com COVINGTON & BURLING LLP One CityCenter, 850 Tenth Street, N.W. Washington, DC 20001-4956 telephone (202) 662-5923 facsimile (202) 662-6291	Anupam Sharma (Reg. No. 55,609) asharma@cov.com Peter P. Chen (Reg. No. 39,631) pchen@cov.com COVINGTON & BURLING LLP 3000 El Camino Real 5 Palo Alto Square, 10th Floor Palo Alto, CA 94306 telephone: (650) 632-4700 facsimile: (202) 662-6291
Back-Up Counsel	Additional Back-Up Counsel
Wonseon Kiersten Choi (Reg. No. 73,012) WChoi@cov.com COVINGTON & BURLING LLP One CityCenter, 850 Tenth Street, N.W. Washington, DC 20001-4956 telephone (202) 662-5923 facsimile (202) 662-6291	Wesley O. Mueller (Reg. No. 33,976) wmueller@leydig.com Leonard Z. Hua (Reg. No. 69,247) lhua@leydig.com Paul J. Filbin (Reg. No. 51,677) pfilbin@leydig.com Brent A. Chatham (Reg. No. 73,954) bchatham@leydig.com LEYDIG, VOIT & MAYER, LTD. Two Prudential Plaza, Suite 4900 180 North Stetson Avenue Chicago, Illinois 60601-6731 Tel: (312) 616-5600 Fax: (312) 616-5700

Pursuant to 37 C.F.R. § 42.10 (b), Petitioners have filed a power of attorney with the above designation of counsel.

5. Service Information (§ 42.8(b)(4))

Service information is provided in the designation of counsel above.

Petitioners consent to service of all documents via electronic mail at the email addresses above and at Ilooda-IPR@cov.com and Jeisys-IPR@leydig.com.

III. IDENTIFICATION OF CHALLENGE AND RELIEF REQUESTED

Petitioners challenge claims 1–20 of the '812 patent and request that these claims be found unpatentable in view of the following references:

- (1) U.S. Patent No. 8,608,737 to Mehta *et al.* (“Mehta”) (Ex-1006);
- (2) International Patent Publication No. WO 2010/016848 to Na *et al.* (“Na’848”) (Ex-1007);
- (3) Korean Registered Utility Model KR20-0441552 to Lee *et al.* (“Lee”) (Ex-1008, Ex-1009); and
- (4) International Patent Publication No. WO 2008/005477 to Livneh (“Livneh”) (Ex-1010).

Petitioners assert the following grounds of unpatentability under 35 U.S.C. §§ 102 and 103 (pre-AIA):

Ground	Reference(s)	Statutory Basis	Challenged Claims
I	Mehta	§ 102	1–3, 6, 8, 12–16
II	Mehta, POSA	§ 103	1–6, 8, 10, 12–17
III	Mehta, Na’848, POSA	§ 103	4–5, 17
IV	Mehta, Lee, POSA	§ 103	2–3, 6, 8, 13–16
V	Mehta, Lee, Na’848, POSA	§ 103	4–5
VI	Livneh, Mehta, POSA	§ 103	1, 7, 9–12, 18–20

In support of the proposed grounds, this Petition is accompanied by the declaration of Dany Bérubé, Ph.D. (Ex-1003), an expert in the medical device industry and the field of high frequency surgical systems with over 25 years of experience in the industry. Ex-1003, ¶¶6–14, Ex-1004.

IV. THE ’812 PATENT

A. Overview

As discussed *supra* Section I, the ’812 patent is directed to skin treatment systems and methods.

B. Priority

The ’812 patent recites priority to a parent application which claims priority to two separate chains: (1) the “2011 provisional chain” and (2) the “2008 Korean chain,” which includes Na’848 (Ex-1007). Ex-1003, ¶¶38–39. Claims 1-20 of the ’812 patent require “the needle assembly movable within the releasably couplable deployable needle module,” which is not disclosed in the 2011 priority chain. *Id.*, ¶¶40–41; *compare* Ex-1001 with Ex-1007. Therefore, claims 1-20 are not entitled

to a priority date earlier than March 3, 2011 (filing date of U.S. Appl. No. 61/449,080). Ex-1003, ¶¶42–43.

V. OVERVIEW OF THE PRIOR ART

None of the references applied herein was of record in the original examination. *See* Ex-1002.

A. Mehta

Mehta is a U.S. patent that issued from an application filed on April 20, 2009, which is a continuation of a patent application filed on February 6, 2009. Ex-1006, Title Page. Mehta qualifies as prior art at least under pre-AIA 35 U.S.C. § 102(e). Mehta teaches a microneedling treatment device applying energy through the needles to affect a patient's skin. Ex-1006, 2:63–3:17; Ex-1003, ¶¶53–57.

B. Na'848

Na'848 is a WIPO patent publication that published on February 11, 2010. Ex-1007, Title Page. Na'848 qualifies as prior art at least under pre-AIA 35 U.S.C. § 102(b). Paragraphs [0002]–[0059] and Figs. 1–8 of Na'848 are substantially identical to 1:31–9:39, 14:35–15:45, and Figs. 1–8 of the '812 patent. Ex-1003, ¶¶58–60.

C. Lee

Lee is a Korean registered utility model that published on August 25, 2008. Ex-1009, Title Page. Lee qualifies as prior art under at least under pre-AIA 35

U.S.C. § 102(b). Lee teaches a microneedling treatment device for cosmetic treatment, a device in which “depth-controllable insertion of microneedles” is provided for. Ex-1009, Abstract, cl. 1; Ex-1003, ¶¶61–64.

D. Livneh

Livneh is a WIPO patent publication that published on January 10, 2008. Ex-1010, Title Page. Livneh qualifies as prior art at least under pre-AIA 35 U.S.C. § 102(b). Livneh teaches a microneedling treatment device applying electrical current to the skin using electrodes. Ex-1010, ¶¶4–8; Ex-1003, ¶¶65–67.

VI. LEVEL OF ORDINARY SKILL IN THE ART

In the ITC Investigation, the ALJ specified the level of skill of a person of ordinary skill in the art (“POSA”) of the ’812 patent. Ex-1005, 14; Ex-1003, ¶45.

VII. HOW THE CHALLENGED CLAIMS ARE TO BE CONSTRUED

In the ITC Investigation, Petitioners and Serendia have agreed to certain constructions, Ex-1005, 15–16, and the Administrative Law Judge adopted the certain constructions, Ex-1005, 16–32, as further discussed in Section VIII below.

A. “a desired distance”/“predetermined depth”

The term “a desired distance” appears in claims 2, 8, and 13, and the term “a predetermined depth,” appears in claim 6 of the ’812 patent. Both terms should be given their plain and ordinary meaning, which simply distinguishes between needles that extend or are extendable a *desired distance* as opposed to an

undesired distance, and the plain and ordinary meaning of “predetermined depth” is a depth that is determined beforehand. Ex-1003, ¶49.

To the extent that Serendia contends that the plain meaning of “desired distance” specifically requires a user-settable distance of needle extension along the axis of needle extension (in an attempt to exclude: (1) needles which are extendable to a “fixed” desired distance; and (2) needles which are extendable to a desired distance based on choosing an appropriate angle of insertion), Serendia’s interpretation should be rejected because it is contrary to the plain meaning of “desired distance.” *Id.*, ¶50.

Serendia’s interpretation is also inconsistent with the use of the term “desired distance” in the claims of the ’774 patent from the same patent family—which use “desired distance” in connection with fixed, non-extendable needles. Ex-1012, cl. 1, 11; Ex-1003, ¶¶51–52. Indeed, in the ITC Lawsuit, Serendia had agreed that, in the context of the term “needles one of extending or extendable a desired distance from the surface” recited by claims of the ’774 patent, “needles ‘extending’ a desired distance from the surface covers non-extendable needles having a fixed length.” Ex-1005, 16; *Z4 Techs., Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1348 (Fed. Cir. 2007) (“We presume, unless otherwise compelled, that the same claim term in the same patent or related patents carries the same construed

meaning.”) (quoting *Omega Eng'g, Inc., v. Raytek Corp.*, 334 F.3d 1314, 1334 (Fed.Cir.2003)).

In any event, as discussed below, the prior art anticipates and/or renders obvious the challenged claims regardless of which interpretation of “desired distance” is applied.

VIII. DETAILED EXPLANATION OF GROUNDS FOR CHALLENGE⁴

Pursuant to 37 C.F.R. § 42.104(b), the cited prior art anticipates and/or renders obvious the challenged claims of the '812 patent. Mehta discloses each and every limitation of independent claims 1 and 12 and would have been readily combinable with Na'848, Lee, and Livneh. Further, Lee—from the same field—discloses the “desired distance” limitation even under Serendia's interpretation.

A. Ground I

As discussed below, Mehta anticipates claims 1–3, 6, 8, and 12–16. Claims 1-11 are method claims whereas claims 12-20 are apparatus claims that are counterpart of the method claims. The apparatus claims are discussed first in this section.

⁴ Appendix A lists the elements and corresponding language for all challenged claims.

1. Independent Claim 12

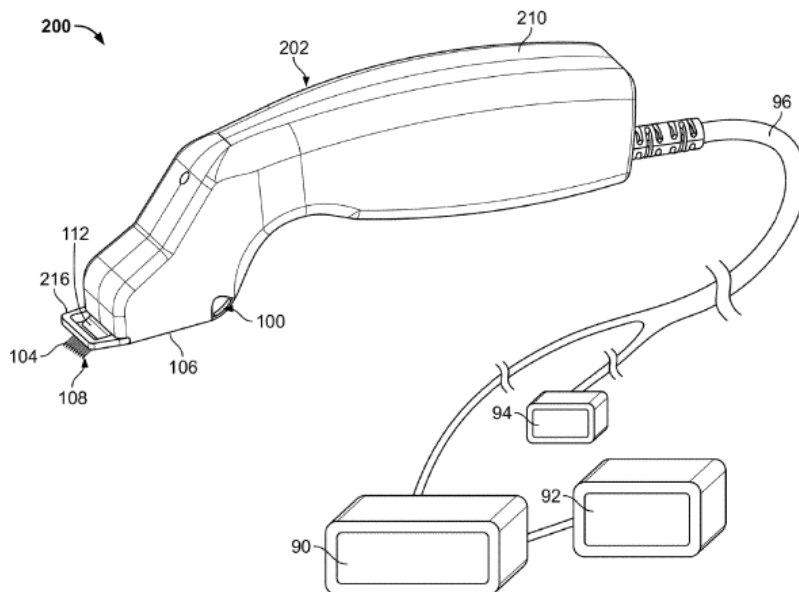
As discussed below, Mehta anticipates claim 12.

(a) Element[12pre]

Mehta teaches systems for treating dermatological tissue to, for example, enhance the appearance of a patient's skin. *See, e.g.*, Ex-1006, 2:37–43; Ex-1003, ¶70. Treatment of the skin constitutes treatment of dermatological tissue. Ex-1003, ¶71. Accordingly, Mehta discloses systems (*i.e.*, apparatuses) for treating dermatological tissue. Ex-1003, ¶72.

(b) Element[12a]

Mehta discloses a user holdable device. Ex-1003, ¶¶73–74. Mehta provides a skin treatment apparatus 200 (depicted in Fig. 2A, reproduced below).

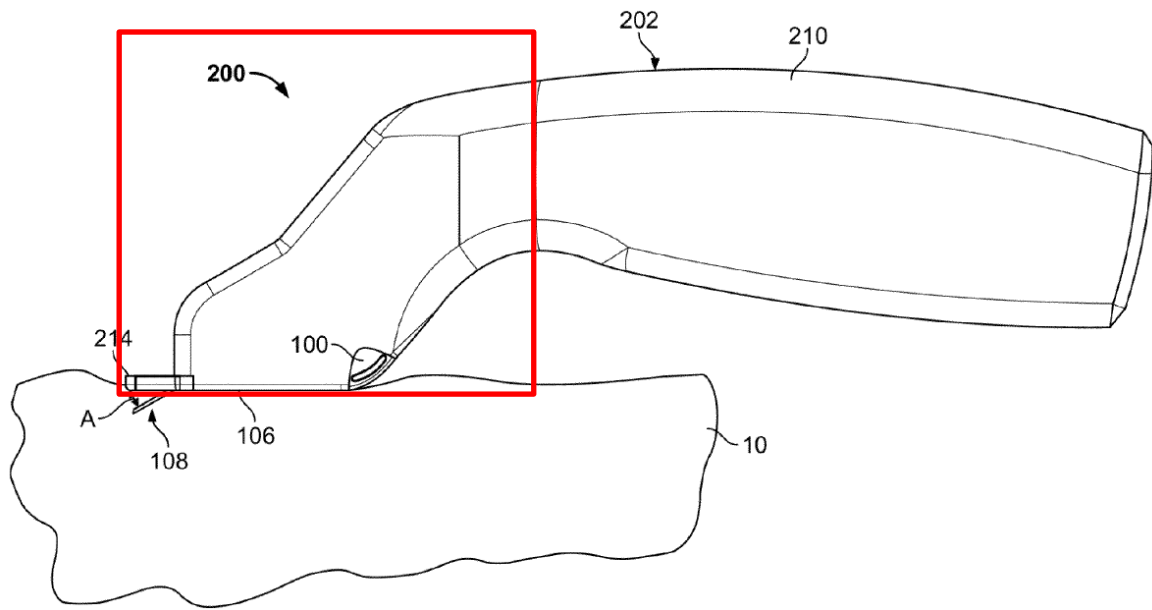


Mehta—Fig. 2A

Mehta’s skin treatment apparatus 200 includes a “device 202” having a “hand-piece or device body 210,” and “a plurality of retractable probes 104,” *i.e.*, needles,⁵ coupled thereto “via a removable cartridge 100.” Ex-1006, 9:36–43, 11:9–10. The device 202 can include “a loop or curved grip that facilitates...grasp[ing] by the hand.” *Id.*, 9:59–62. Accordingly, Mehta’s device 202 is a user holdable device.

Mehta discloses a proximal end. Ex-1003, ¶75. Device 202 includes a portion disposed proximal to patient tissue 10 during treatment (designated by the red box in Fig. 2B of Mehta, reproduced below).

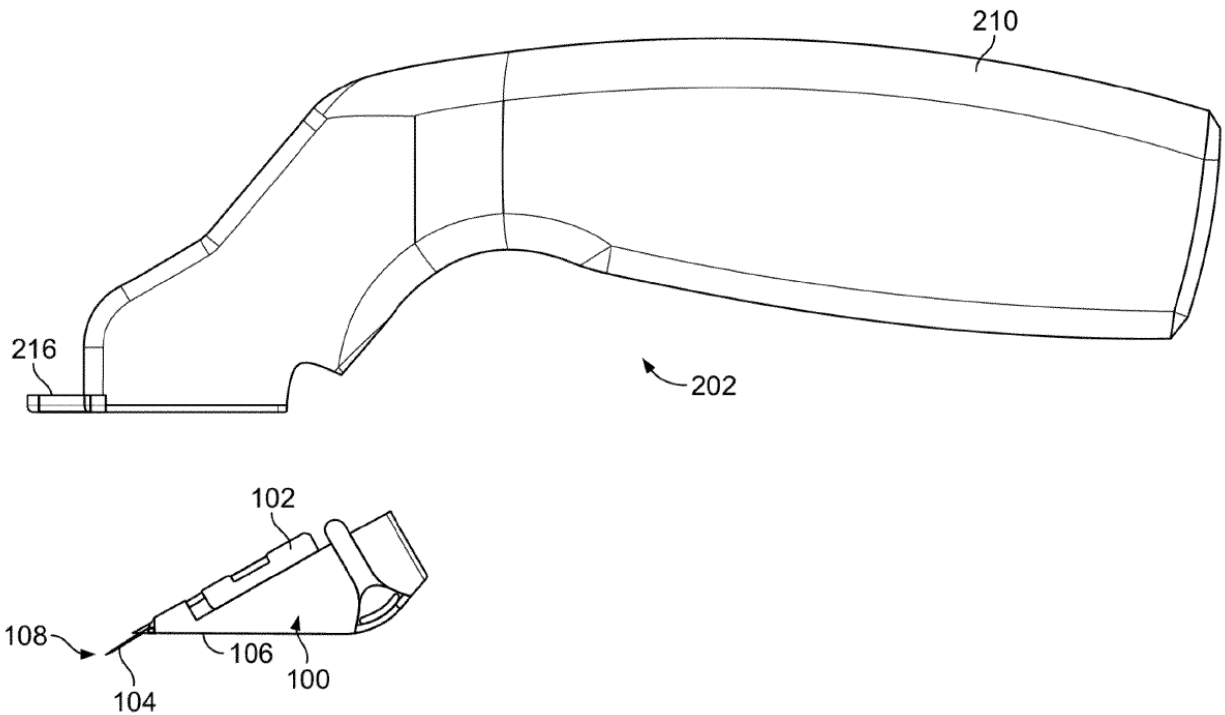
⁵ Mehta interchangeably refers to elements 104 as “probes,” “electrodes,” and “needles” (*see, e.g.*, Ex-1006, 9:41-55, 12:47-58, 21:34-38, 31:37-41, 37:7-16). Likewise, Mehta refers to the same assembly 102 as a “probe assembly” (*see, e.g., id.* at 14:15-19), an “electrode assembly” (*see, e.g., id.*, 15:34-36, 15:42-49), and a “needle assembly” (*see, e.g., id.*, 17:6-8). A POSA would have understood that the “probes”/“electrodes” and “probe assembly”/“electrode assembly” described and depicted in Mehta are “needles” and “needle assembly,” respectively. Ex-1003, ¶76.



Mehta—Fig. 2B

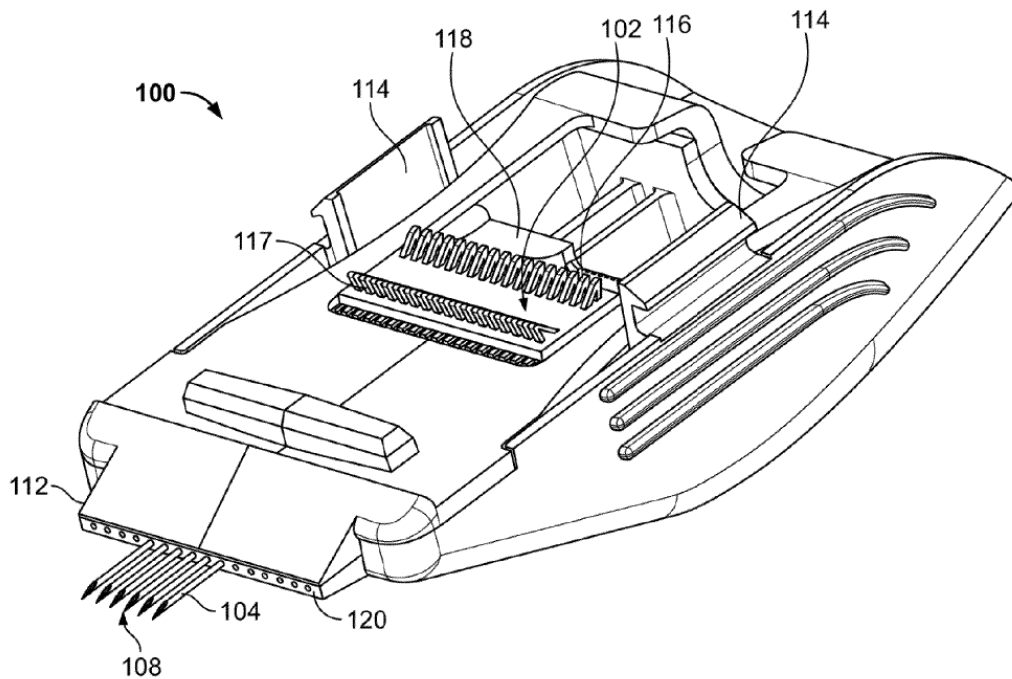
Therefore, Mehta's device 202 includes a proximal end.

Mehta discloses a releasably couplable deployable needle module mechanically separable from the proximal end. Ex-1003, ¶¶76–77. Fig. 2D of Mehta (reproduced below) illustrates the device 202 “where the cartridge assembly 100 and device body 210 are separated.” Ex-1006, 14:5–7.



Mehta—Fig. 2D

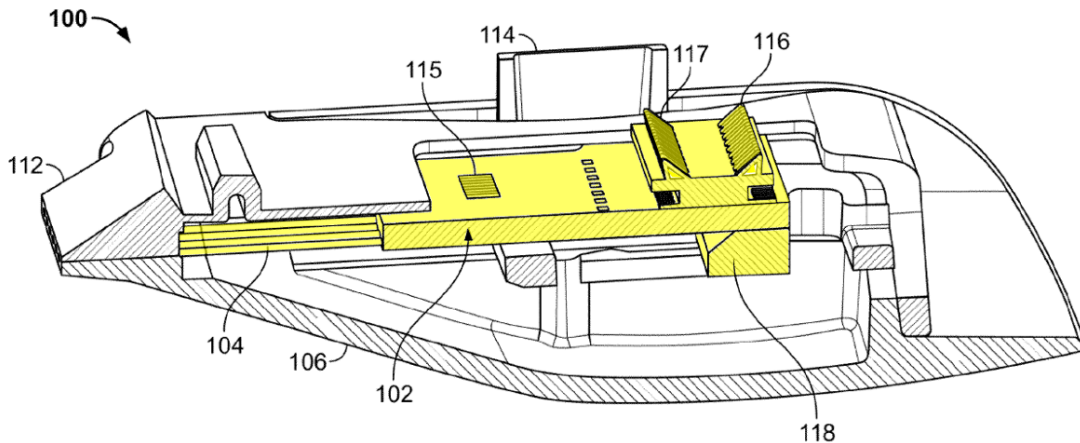
Thus, as shown in Fig. 2D, the cartridge 100 is a needle module, which is mechanically separable from the proximal end, as recited by claim 12. Mehta also teaches that “any number of structures can be incorporated into the device to permit removable coupling of the cartridge body 100,” for example, retention fasteners 114 that “allow[] for coupling with the device body as well as removal from the device body.” *Id.*, 15:27–33; Fig. 4A (reproduced below).



Mehta—Fig. 4A

Thus the cartridge 100 is “releasably couplable” to the proximal end because it can be coupled thereto and removed therefrom. *See, e.g., id.* at Figs. 2B, 2D, 4A, 6:41–42, 14:5–7, 15:27–33; *see also* Ex-1003, ¶¶76–77. Accordingly, the cartridge 100 of Mehta is a releasably couplable deployable needle module mechanically separable from the user holdable device proximal end.

Mehta discloses a needle assembly 102 (colored in yellow in Fig. 4C, produced below) included in the cartridge 100.



Mehta—Fig. 4C (annotated)

The needle assembly 102 includes at least a plurality of needles 104, connection portions 116, 117, and a coupling portion 118. *See, e.g.*, Ex-1006, 9:40–55, 15:40–42, 15:45–49, 16:65–66; Ex-1003, ¶78. Accordingly, the cartridge 100/needle assembly 102 of Mehta forms a “releasably couplable deployable needle module...including a needle assembly including a plurality of needles,” as recited by claim 12 of the ’812 patent. *Id.*

To the extent Serendia contends that Fig. 4A is directed to a separate embodiment of Mehta relative to Figs. 2A, 2B and/or 2D, Serendia’s reading of Mehta is incorrect. Ex-1003, ¶77, note 3. Mehta introduces Figs. 4A and 4B as “show[ing] variations of cartridge bodies for use with variations of the present system,” whereby “the present system” refers back to the “treatment system 200” depicted in Figs. 2A–2D. Ex-1006, 6:41–42, 6:51–52, 9:34–55, 14:5–19, 15:27–54.

Mehta also makes clear that the disclosure regarding the “connection fastener” (mechanical connection) is meant to refer to all the variations of cartridge bodies in Figs. 2A–D, 4A and 4B. Ex-1006, 16:42–46 (while “Fig. 4B shows another variation of a cartridge 100,” “any number of connection fastener configurations can be used with various cartridge assemblies of the present invention”). Thus, Figure 4A depicts in detail an implementation of the relatively undetailed cartridge shown in a portion of Figure 2D. They are not different embodiments. Ex-1003, ¶77, note 3.

Further, even if these were separate embodiments, Mehta expressly teaches that “[i]t is understood that the embodiments described above may be combined or the aspects may be combined.” Ex-1006, 41:35–39; *see also, e.g., Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1344 (Fed. Cir. 2016) (“[A] reference may still anticipate if that reference teaches that the disclosed components or functionalities may be combined and one of skill in the art would be able to implement the combination.”).

Accordingly, Mehta discloses a user holdable device (*i.e.*, the treatment unit 202) including a proximal end (*i.e.*, of the device body 210) and a releasably couplable deployable needle module (*i.e.*, removable cartridge 100), the releasably couplable deployable needle module mechanically separable from the user

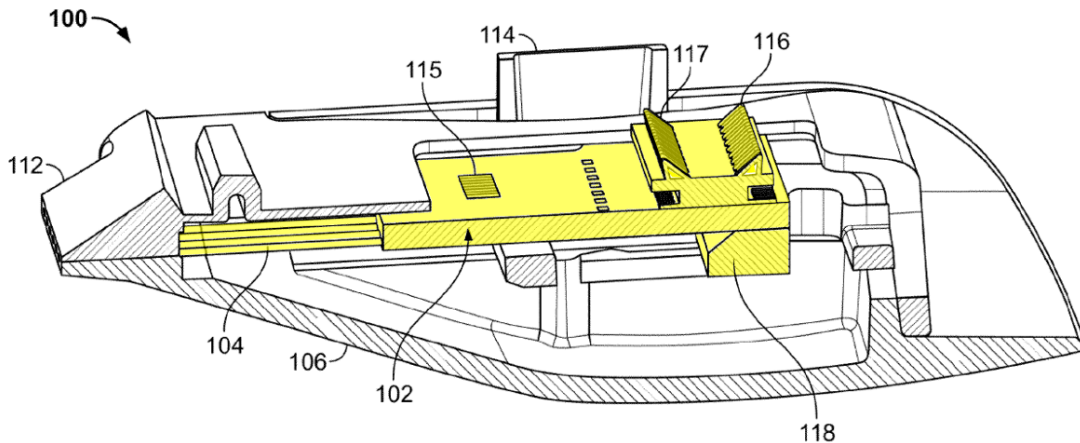
holdable device proximal end and including a needle assembly (*i.e.*, needle assembly 102) including a plurality of needles (*i.e.*, needles 104). Ex-1003, ¶79.

(c) Element[12b]

First, Mehta teaches that the needle assembly 102 is movable within the releasably couplable deployable needle module to extend the plurality of needles because the needles 104 are “extendable and retractable” (Ex-1006, 15:45–49), and that the needle assembly 102 is “slidable relative to the cartridge body 100 and the device body 210” to enable the needles 104 to “be driven into tissue” (*id.*, 14:14–19). *See also id.*, 16:19–22. Ex-1003, ¶¶80–81.

Second, the needle assembly 102 is a “releasably couplable deployable needle assembly” because the needle assembly 102 can be removed from and coupled to the proximal end of the device body 210 as part of the cartridge 100. Ex-1003, ¶82.

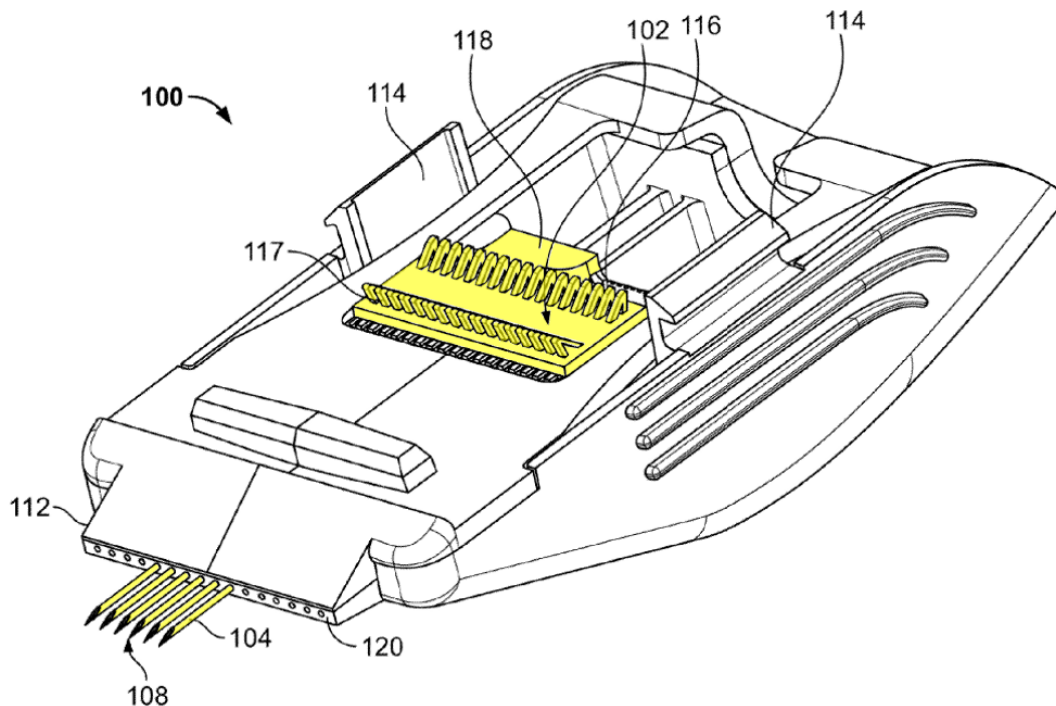
Fig. 4C of Mehta (reproduced below), which shows a cross-section of Fig. 4A, illustrates the cartridge 100 with the needle assembly 102 (colored in yellow)—and therefore the needles 104—in a retracted position. Ex-1006, 16:59–60.



Mehta—Fig. 4C (annotated)

The definition of “deployable needle assembly end surface” adopted in the ITC Lawsuit corresponds to the retracted tip plane, *i.e.*, the plane that extends along the tips of the needles when they are in the retracted position. Ex-1005, 16–32; Ex-1003, ¶84. When the needle assembly 102 is in the fully retracted position, the tips of the needles 104 are not extended and define a retracted tip plane. *Id.* In Fig. 4C above, that plane may correspond to the front portion 112 of the cartridge 100, or that plane may lie behind the front portion 112 of the cartridge. *Id.*

Third, Fig. 4A of Mehta (reproduced below) illustrates the cartridge 100 with needle assembly 102 in an extended position.



Mehta—Fig. 4A (annotated)

As illustrated in Fig. 4A, when the needle assembly 102 (colored in yellow) is in the extended position, the tips of the needles 104 extend from both (1) the retracted tip plane, *i.e.*, needle assembly end surface, and (ii) the front portion 112 of the cartridge 100. *Id.*, ¶85.

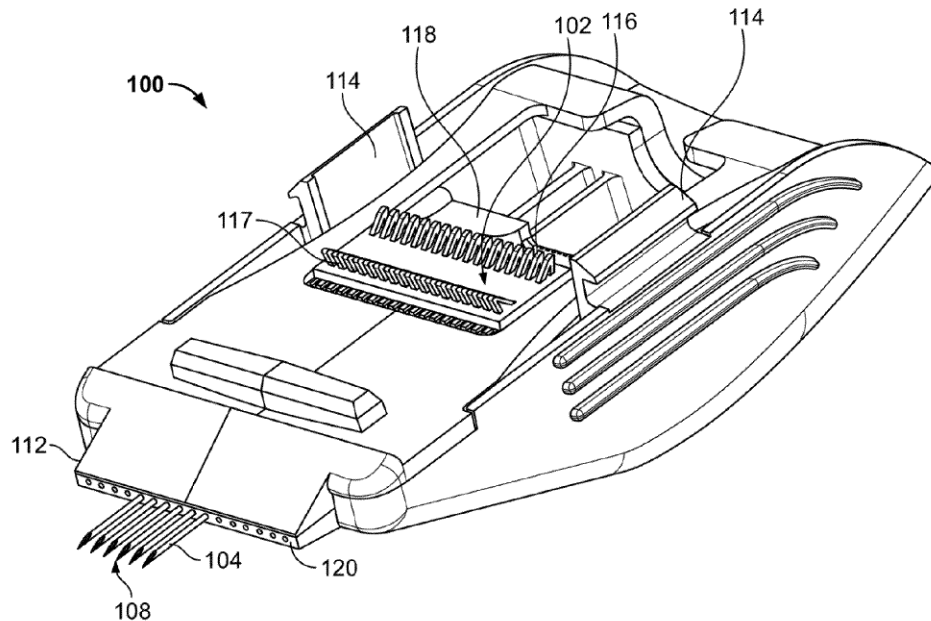
Accordingly, Mehta discloses the needle assembly 102 movable within the releasably couplable deployable needle module (*i.e.*, the removable cartridge 100) to extend the plurality of needles (*i.e.*, needles 104) from the releasably couplable deployable needle assembly end surface (*i.e.*, the retracted position tip plane). *Id.*, ¶86.

(d) Element[12c]

Mehta discloses the needle assembly including at least one electrical contact.

Ex-1003, ¶¶87–88. Needles 104 of needle assembly 102 have “contact portions 116” that “comprise spring contacts or spring pins.” Ex-1006, 15:55–59, 16:12–18.

Fig. 4A of Mehta (reproduced below) illustrates the contact portions 116.



Mehta—Fig. 4A

Mehta discloses the proximal end including at least one electrical contact.

Ex-1003, ¶¶88–89. Mehta provides “a corresponding contact point trace on a connection board” to which the contact portions 116 “maintain contact” and “couple to” in order to establish “an electrical pathway from the power supply” to the needles 104 to deliver electrical energy (*e.g.*, RF energy) or to measure temperature or impedance of the skin tissue. Ex-1006, 15:55–59, 16:15–18, Figs.

2A, 2D, 4A; Ex-1003, ¶87. Because (i) the contact portions 116 protrude from the top side of cartridge 100 and (ii) the top side of cartridge 100 interfaces with the proximal end of handpiece 210 when the cartridge 100 is coupled thereto, the contact point trace/connection board is included on the proximal end of handpiece 210. *Id.*, ¶88. To the extent Mehta does not explicitly disclose that the contact point trace/connection board is included on the proximal end, it is inherent that the contact point trace/connection board is included on the proximal end and/or connected to a further electrical contact on the proximal end. *Id.*, ¶89.

Accordingly, Mehta discloses that at least one electrical contact (*i.e.*, contact portions 116 in the form of spring contacts or spring pins) of the needle assembly (*i.e.*, needle assembly 102) remains electrically coupled (via the contact portions 116) to at least one electrical contact (*i.e.*, the contact point trace/connection board) of the user holdable device proximal end (*i.e.*, the device body 210). *Id.*, ¶90.

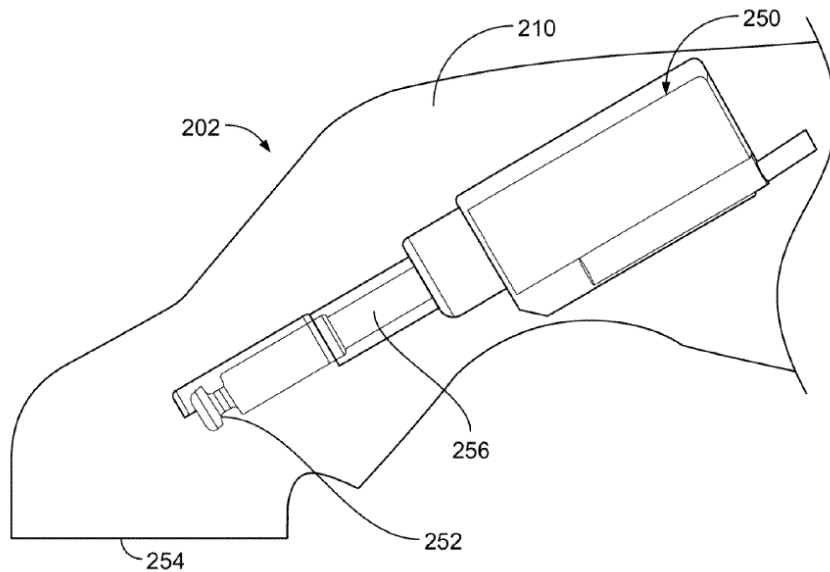
For the foregoing reasons (*supra* Sections VIII.A.1(a)–VIII.A.1(d)), Mehta anticipates claim 12. *Id.*, ¶91.

2. Claim 13

Mehta discloses the additional limitation in claim 13. Ex-1003, ¶¶92–99.

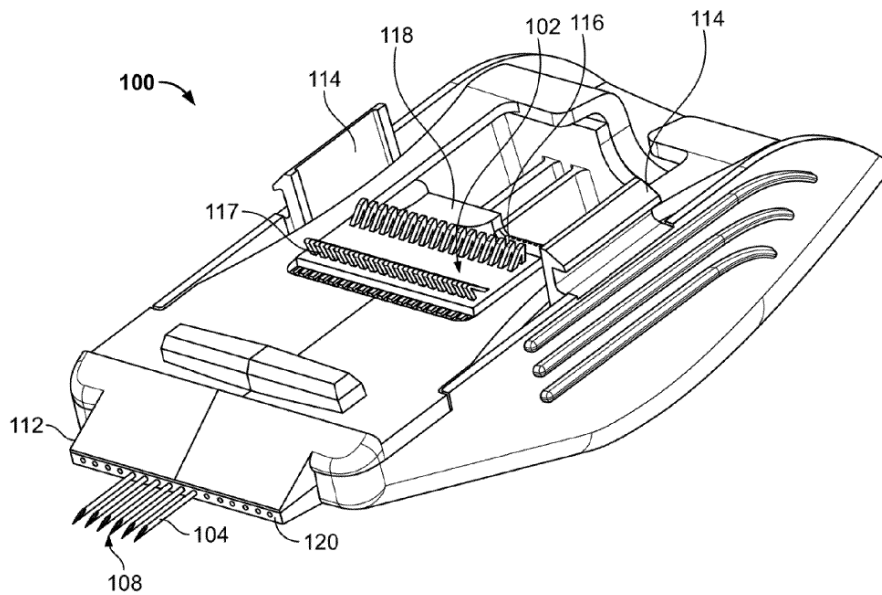
Mehta discloses a motor coupled to the needle assembly. *Id.*, ¶93. Mehta provides “actuator 250” which “comprises a motor or drive unit that provides sufficient force, speed or impact to the probes to drive them into tissue.” Ex-1006,

13:58–14:5, 15:36–40 (“stepping (via an step-motor)”). Mehta teaches that “actuator 250 moves the shaft 256 where an engagement portion 252 on the shaft couples to” the needle assembly 102 “via a coupling portion 118...to advance and retract” the needles. *Id.*, 18:26–30, Fig. 5 (reproduced below).



Mehta—Fig. 5

Fig. 4A of Mehta (reproduced below) illustrates the coupling portion 118. Ex-1006, Fig. 4A (reproduced below).



Mehta—Fig. 4A

Therefore, actuator 250 is a motor coupled to the needle assembly as recited by claim 13. Ex-1003, ¶94.

Mehta discloses a motor to extend the plurality of needles a desired distance from the releasably couplable deployable needle assembly end surface. Ex-1003, ¶95. Mehta teaches that the motor drives the shaft 256 to advance and retract the needles 104. Ex-1006, 18:26–37. When the needles 104 are advanced by the motor, they extend by a desired distance to carry out a treatment. Ex-1003, ¶95. Mehta discloses that placement of tissue engaging surface 106 on skin causes the needles to reach “the desired depth.” Ex-1006, 32:16–20. Mehta also provides a user interface for showing “the desired depth of placement” and avoiding placement of needles “in an undesired region.” Ex-1006, 32:63–33:3, 33:35–43.

A desired distance includes a distance selected by a user, *e.g.*, to correspond to a target tissue layer. Ex-1003, ¶¶51–52, 95–97. Mehta discloses indicating both an actual depth of placement of the needles and a desired depth of placement for the needles to “allow[] the physician to...identify whether the array is located within the desired tissue layer” and “be informed that further advancement of the probes is necessary.” Ex-1006, 33:14–16, 33:24–27; *see also id.* at 13:37–45, 32:52–57, 32:67–33:3, Figs. 10B, 10E. Mehta further discloses “guid[ing] probe placement” by “adjust[ing]” the system (*id.*, 33:30–40), and provides a stepper motor to support such adjustments (*id.* at 15:34–42; *see also id.* at 10:33–39, 12:5–8); Ex-1003, ¶¶96, 98. Thus, Mehta teaches the “desired distance” limitation regardless of which interpretation of “desired distance” discussed above in Section VII.A is applied. *Id.*, ¶99.

A user can also achieve a desired distance of needle extension by, *e.g.*, selecting a cartridge having needles of a particular length and coupling that cartridge to the proximal end of handpiece 210. *See, e.g.*, Ex-1006, 17:66–18:3, 2:47–49, 10:17–25, 14:8–12, 21:10–13, 34:25–27; Ex-1003, ¶95. To ensure that the needles extend by the desired distance, Mehta discloses “[o]ver-inserting and then partially retracting” the needles to the desired distance in order to provide “a more reliable insertion.” Ex-1006, 16:39–41; *see also* Ex-1003, ¶95. The user can additionally select a distance of needle extension by, *e.g.*, choosing an angle A (*see*

Mehta, Fig. 2B) “between nearly 0 and 90 degrees” such that the needles 104 are inserted at “a desired location in tissue.” Ex-1006, 12:23–46; *see also* Ex-1003, ¶95.

Mehta discloses that the motor causes the needles to extend when energized with a particular signal. Ex-1006, 10:38–39 (describing control of actuators by control system/energy supply unit 90); Ex-1003, ¶97. In Mehta, “[t]he energy supply unit 90 may also include an input/output (I/O) device that allows the physician to input control and processing variables, to enable the controller to generate appropriate command signals.” Ex-1006, 12:5–8. The appropriate command signals are electrical motor control signals. Ex-1003, ¶¶97–98. Therefore, the motor causes the needles to extend and retract when energized with a particular signal (*i.e.*, an electrical motor control signal issued by the controller). *Id.*

Accordingly, Mehta discloses a motor (*i.e.*, actuator 250) coupled (via the shaft 256 and the coupling portion 118 of the assembly 102) to the needle assembly 102 to extend the plurality of needles (*i.e.*, the needles/electrodes/probes 104) a desired distance (*e.g.*, using a step-motor) from the releasably couplable deployable needle assembly end surface when the motor is energized with a particular signal (*i.e.*, an electrical motor control signal issued by the control

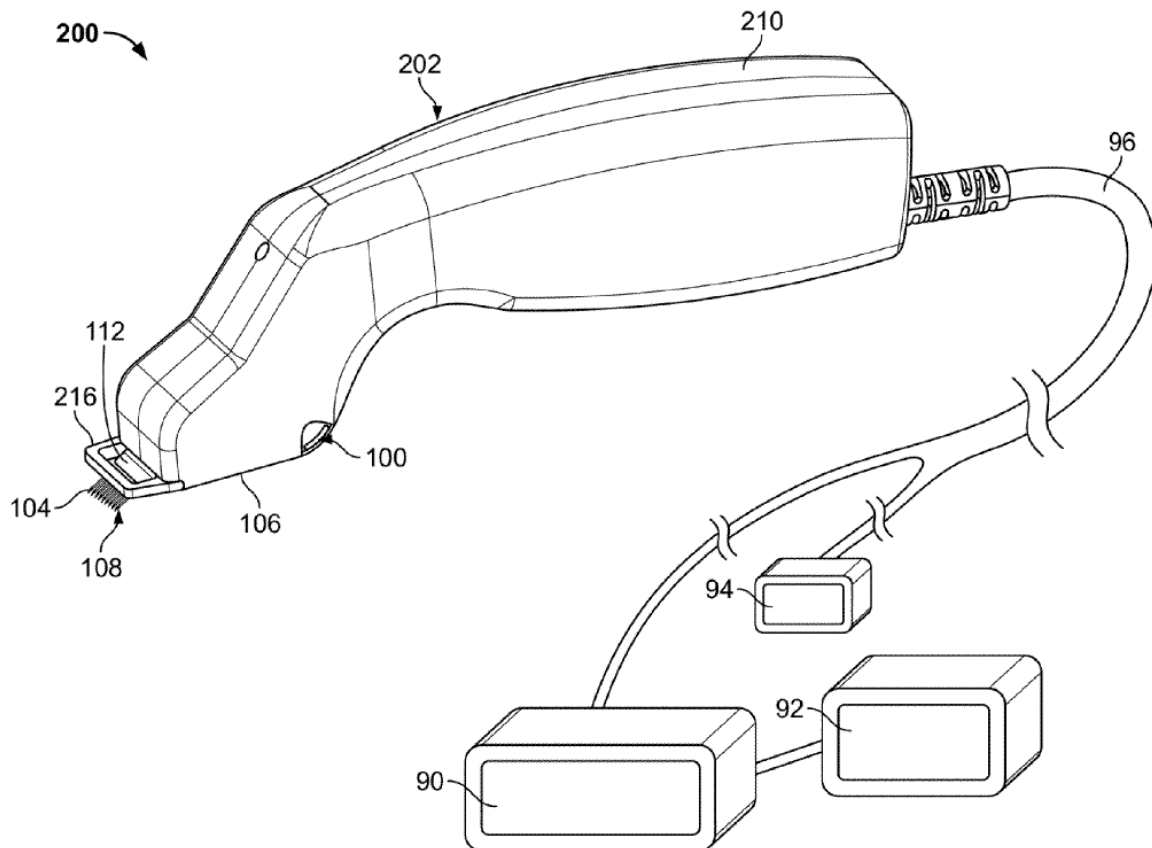
system/energy supply unit 90). Ex-1003, ¶¶99. Therefore, Mehta anticipates claim 13. *Id.*

3. Claim 14

Mehta discloses the additional limitation in claim 14. Ex-1003, ¶¶100–103.

Mehta discloses a signal generator electrically coupled to the needles to deliver energy to the patient's skin and thereby provide treatment. *Id.*, ¶101.

Mehta's system 200 "includes an energy supply unit 90 coupled to the treatment unit 202." Ex-1006, 10:53–55. Fig. 2A of Mehta, reproduced below, illustrates the energy supply unit 90.



Mehta—Fig. 2A

Mehta teaches that “the energy supply unit 90 contains the software and hardware required to control energy delivery” or, alternatively, that “the CPU, software and other hardware control systems,” as well as “the power supply necessary to deliver treatment,” may “reside in the hand piece 210.” *Id.*, 10:53–65. Because the energy is generated and delivered in the form of parameterized RF pulse signals (*id.*, 20:13–55), Mehta’s energy supply unit 90/power supply residing in handpiece 210 is a signal generator. Ex-1003, ¶102.

Mehta’s energy supply unit 90/power supply residing in handpiece 210 is electrically coupled to the user holdable device proximal end because (1) the cartridge 100 (including the needles) is coupled to the user holdable device proximal end and (2) the energy supply unit 90/power supply is electrically coupled to the needles 104 via an electrical pathway, so that the energy generated by the energy supply unit 90 is transported to and energize needles 104. *See, e.g.*, Ex-1006, 15:55–59, 15:62–65, 16:8–11; Ex-1003, ¶102; *Supra* Section VIII.A.1(b).

Accordingly, Mehta discloses a signal generator (*i.e.*, energy supply unit 90) electrically coupled to the user holdable device proximal end (*i.e.*, of the device body 210) to energize the plurality of extended needles (*i.e.*, the probes/electrodes 104). Ex-1003, ¶103. Therefore, Mehta anticipates claim 14.

4. Claim 15

Mehta discloses the additional limitation claim 15. Ex-1003, ¶¶104–108.

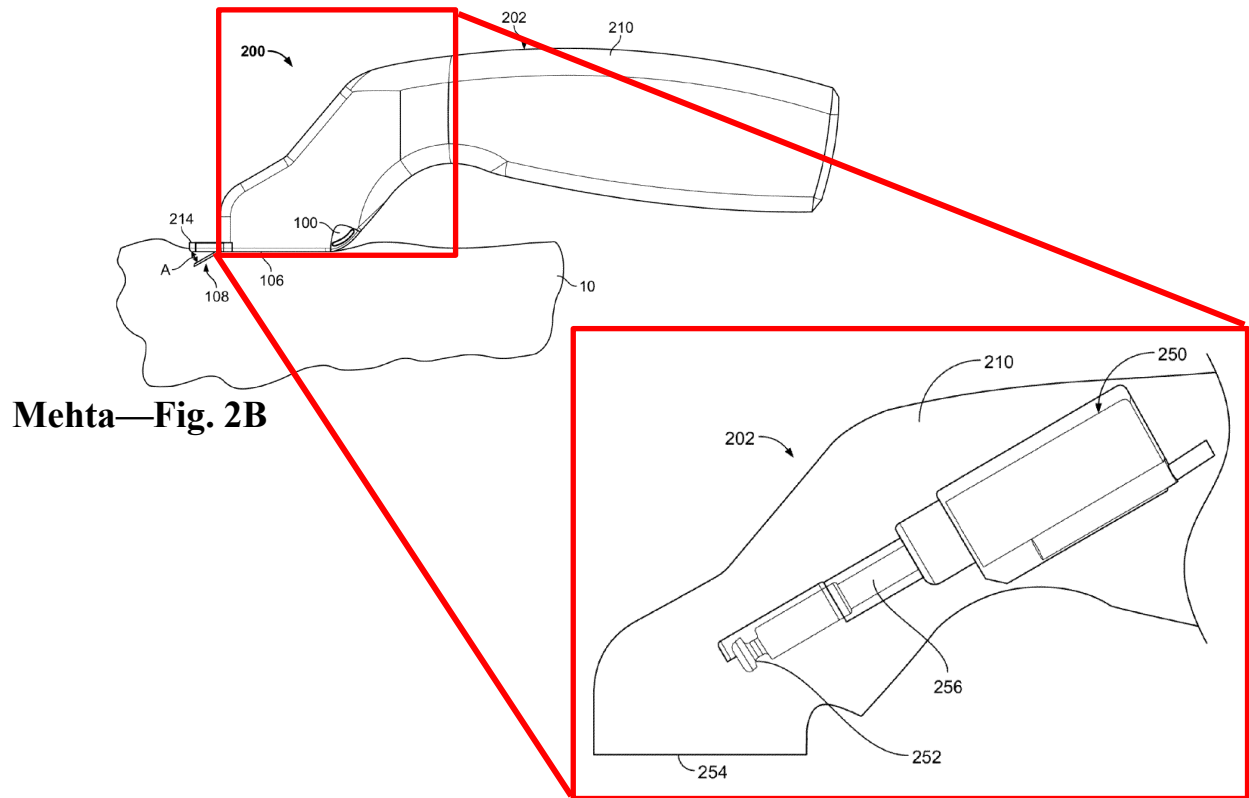
As discussed *supra* Section VIII.A.1(d), Mehta discloses at least one electrical contact of the needle assembly electrically coupled to at least one electrical contact of the user holdable device proximal end. As also discussed *supra* Section VIII.A.3, Mehta discloses an electrical pathway from the signal generator to the needles 104 that allows the needles to be energized to deliver treatment. Such electrical pathway runs through the proximal end of the handpiece 210 and includes an electrical connector in the proximal end that is couplable to the signal generator. Ex-1003, ¶105. To the extent that Mehta does not explicitly disclose such an electrical connector, said electrical connector is inherently present in Mehta. *Id.*, ¶¶105–107.

Accordingly, Mehta discloses that the user holdable device proximal end includes an electrical connector (*i.e.*, the interface between the device body 210 and the cable 96) couplable (via the cable 96) to the signal generator (*i.e.*, the energy supply unit 90). *Id.*, ¶108. Therefore, Mehta anticipates claim 15. *Id.*

5. Claim 16

Mehta discloses the additional limitation in claim 16. Ex-1003, ¶¶109–113.

Mehta discloses a proximal end of the handpiece 210 including a motor (i.e. actuator 250) including a shaft 256. Ex-1006, Figs. 2B, 5 (reproduced below). Ex-1003, ¶¶110–111.



The shaft 256 is releasably couplable to the deployable needle assembly. *Id.*; *supra* Section VIII.A.2.

Accordingly, Accordingly, Mehta teaches that the user holdable device proximal end includes the motor (*i.e.*, the actuator 250), the motor including a drive shaft (*i.e.*, the shaft 256) releasably couplable (via engagement of the engagement portion 252 of the shaft 256 with the coupling portion 118 of assembly

102) to the needle assembly (*i.e.*, the assembly 102). Ex-1003, ¶112. Therefore, Mehta anticipates claim 16. *Id.*

6. Independent Claim 1

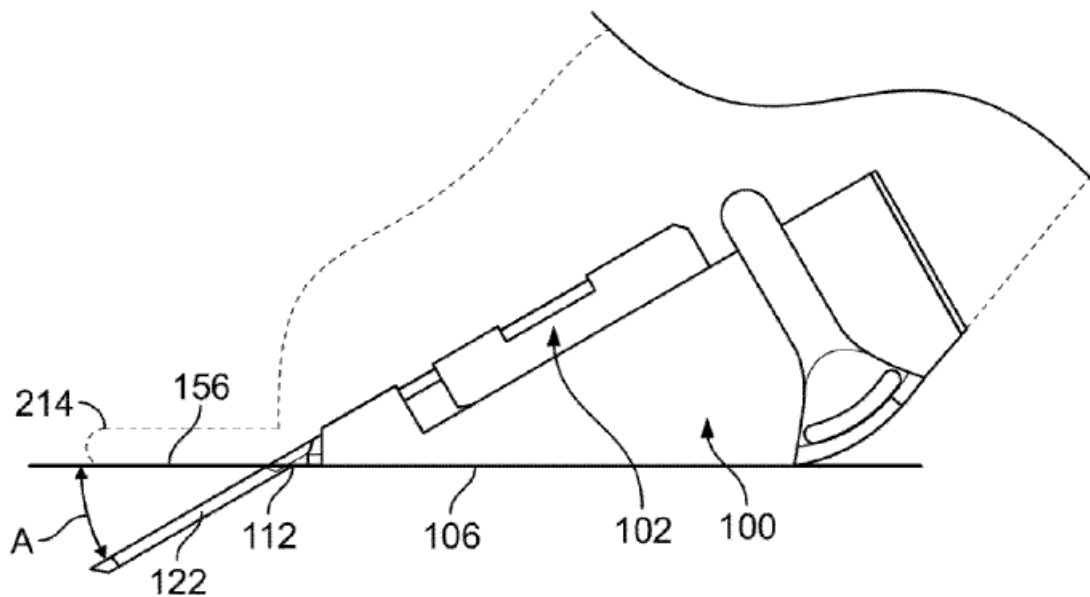
Mehta anticipates claim 1. Ex-1003, ¶¶113–126.

(a) Element[1pre]

Mehta provides “methods of percutaneously delivering energy to tissue” to “produce cosmetically beneficial effects of using energy to shrink collagen tissue in the dermis,” namely, a method for treating dermatological tissue. Ex-1006, 2:37–57. *Supra* Section VIII.A.1(a); Ex-1003, ¶¶114–116.

(b) Element[1a]

Mehta’s teaches a method of treating dermatological tissue including “placing a tissue engaging surface of an energy delivery device against a surface of the tissue.” Ex-1006, 5:3–6. Using Mehta’s skin treatment apparatus 200 involves placing the front portion 112 of the cartridge 100 on or near dermatological tissue to be treated. Ex-1003, ¶¶117–118. Fig. 7A of Mehta, reproduced below, illustrates the front portion 112 of the cartridge positioned, during treatment, near dermatological tissue.



Mehta—Fig. 7A

(c) Element[1b]

Supra Section VIII.A.1(b).

(d) Element[1c]

Supra Section VIII.A.1(c).

(e) Element[1d]

Supra Section VIII.A.1(d).

(f) Element[1e]

As discussed *supra* Section VIII.A.3, Mehta discloses an electrical pathway between a signal generator and the needles 104. The electrical pathway includes at least one electrical contact in the proximal end of the handpiece 210 to which at least one electrical contact 116 of the needle assembly 102 are couplable. The

method of treatment in Mehta includes communicating (*i.e.*, transmitting) electrical signals (*i.e.*, RF signals) from the user holdable device proximal end to the needle assembly to deliver treatment. *See, e.g.*, Ex-1006, 11:14–20, 24:46–47; Ex-1003, ¶¶122–123. In addition, Mehta discloses that “the temperature of the electrodes can be continuously monitored,” which requires communicating signals, *i.e.*, electrical signals, from the proximal end of the handpiece/device body 210 to the needle assembly 102 (via the proximal connection portion 116 of the needles 104). Ex-1006, 17:8–11; *see also id.* 5:26–48, 20:48–55, 24:5–26, 25:24–30, 31:37–32:15; Ex-1003, ¶¶122–123. Mehta also discloses measuring the impedance between a pair of microneedles inserted into the patient’s dermatological tissue, which also requires communicating electrical signals from the proximal end of the handpiece/device body 210 to the needle assembly. *See, e.g.*, Ex-1006 at 24:57–60; Ex-1003, ¶124.

Accordingly, Mehta discloses communicating electrical signals (*i.e.*, those necessary to delivery RF signal and communicate the results of temperature and impedance measurements) from the user holdable device proximal end (*i.e.*, of the handpiece/device body 210) to the needle assembly 102 via electrical contacts (*i.e.*, an electrical coupling of the proximal connection portion 116). Ex-1003, ¶125.

For the foregoing reasons (*supra* Sections VIII.A.6(a)–VIII.A.6(f)), Mehta anticipates claim 1. Ex-1003, ¶126.

7. Claim 2

Mehta discloses the additional limitation in claim 2. Ex-1003, ¶¶127–129.

Mehta discloses “a motor coupled to the needle assembly to extend the plurality of needles a desired distance from the releasably couplable deployable needle assembly end surface when the motor is energized with a particular signal,” as required by claim 13. *Supra* Section VIII.A.2. One difference between claim 13 and claim 2 is that claim 2 recites extending a desired distance from the “needle module end surface” rather than the “needle assembly end surface.” Because relative positions of the needle module end surface and the needle assembly end surface is known in the configuration, Mehta discloses a desired distance from either end surface. Ex-1006 at 14:15–19, Fig. 2D (showing needles extended from the module end surface 106). Ex-1003, ¶128. Therefore, Mehta anticipates claim 2. *Id.*

8. Claim 3

Supra Section VIII.A.3.

9. Claim 6

Mehta discloses the additional limitation in claim 6. Ex-1003, ¶¶131–137.

Mehta discloses energizing (*i.e.*, by the control system/energy supply unit 90) the motor (*i.e.*, that comprised by the actuator 250) to deploy the plurality of

needles (*i.e.*, the needles/electrodes/probes 104) a predetermined depth (*i.e.*, a desired distance, *e.g.*, using a step-motor). *Supra* Section VIII.A.2; Ex-1003, ¶133.

Mehta discloses directing a signal generator (*i.e.*, energy supply unit 90) to energize the plurality of needles (*i.e.*, the probes/electrodes 104). *Supra* Section VIII.A.3; Ex-1003, ¶134.

Mehta teaches determining pulse parameters—including duration (which corresponds to duty cycle) and amplitude (which corresponds to intensity)—prior to providing a pulse and then determining modified pulse parameters prior to providing a subsequent pulse. Ex-1003, ¶¶132, 135. When energizing needles 104, Mehta teaches that (i) “the duty cycle of variations of the present system can be pulsed so that temperature measurements can be taken between the pulsed deliveries of energy” (Ex-1006, 20:21–24), (ii) “[e]ach pulse has a parameter, including...duration, ... , amplitude, frequency, etc.” (*id.*, 20:31–35), and (iii) “[t]he controller compares the measured temperature to a desired temperature,” and “[b]ased on the difference, the energy parameters are adjusted for the subsequent energy pulse” (*id.*, 20:39–42). Ex-1003, ¶135. Accordingly, Mehta also discloses predetermination of treatment parameters, such as intensity and duty cycle, through user selection or adjustment. Ex-1006, 35:8–22, 37:35–41, 3:40–41; Ex-1003, ¶136. Therefore, Mehta anticipates claim 6. *Id.*

10. Claim 8

Supra Sections VIII.A.2 and VIII.A.5- VIII.A.7.

B. Ground II

As discussed below, Mehta in view of the knowledge of a POSA renders obvious claims 1–6, 8, 10, and 12–17.

1. Independent Claims 1 and 12

As discussed *supra* Sections VIII.A.1 and VIII.A.6, Mehta discloses each and every element of claims 1 and 12. To the extent Serendia contends that one or more of those features is not disclosed, either explicitly or inherently by Mehta, it would have been obvious to a POSA to modify Mehta to realize those one or more features. Ex-1006, 6:3–6; Ex-1003, ¶¶24-27, 140–143.

2. Claims 2 and 13

Even if Serendia’s unduly narrow interpretation were to be adopted, claims 2 and 13 would have been obvious over Mehta and the knowledge of a POSA. Ex-1003, ¶¶144–156.

As discussed in Sections VIII.A.2 and VIII.A.7, Mehta discloses claims 2 and 13. To the extent Mehta does not explicitly disclose a user-settable distance of needle extension along the axis of needle extension, it would have been obvious to a POSA to modify Mehta to allow a user to select a distance of needle extension from the needle assembly end surface. Ex-1003, ¶¶145, 156.

Mehta discloses a motor capable of providing a user-settable distance of needle extension, *i.e.*, a “step-motor.” Ex-1006, 15:36–40. A POSA would have understood that a step-motor would move the needles 104 from a fully retracted position, through a plurality of discrete, intermediate steps (of $\sim 100\mu\text{m}/0.1\text{mm}$), to a fully extended position. Ex-1003, ¶¶146–148.

In addition, Mehta discloses a user interface via which a user could provide input to select a distance of needle extension. Mehta teaches that “[t]he energy supply unit 90 may also include an input/output (I/O) device that allows the physician to input control and processing variables, to enable the controller to generate appropriate command signals” and that the motor is “driven by the control system/energy supply unit 90.” Ex-1006, 12:5–8. Ex-1003, ¶149.

To the extent that Mehta does not explicitly disclose a user-settable distance of needle extension along the axis of needle extension, it would have been obvious to a POSA to modify Mehta to provide for such control. Ex-1003, ¶¶28-29, 149–155. One motivation would be to enable a physician to precisely control needle deployment depth and thereby achieve superior treatment outcomes. Ex-1003, ¶152 Mehta, for example, teaches that “precisely determine[ing] depth of placement” of the needles “allowed tunable dosimetry permitting controlled delivery of a specific thermal coagulation profile at a particular depth in the dermis” and “ensured adequate sparing of normal tissue.” Ex-1006, 39:33–41.

Mehta also teaches that “precision over depth control was made possible” by “detect[ing] the layer of skin in which the needles were deployed,” such that “real-time information” can be provided “to the physician...to confirm proper needle deployment and needle depth.” *Id.*, 37:7–11, 39:36.

Further motivations would have been to streamline treatment, improve the patient’s experience, and decrease treatment costs by allowing a physician to treat various regions of a patient’s skin with a single cartridge. Ex-1003, ¶¶151, 154. An additional motivation would be to facilitate compound treatments that target different layers of the skin—such as those taught by Mehta (*see* Ex-1006, 35:61–36:1, 9:22–25)—by enabling a physician to move the needles from a first depth corresponding to a first layer of the skin to a second depth corresponding to a second layer of the skin. Ex-1003, ¶153.

A POSA would have understood that there was a high likelihood of success in modifying Mehta to provide a user-settable distance of needle extension, as the modifications would amount to nothing more than operating a known component (a step-motor) according to its established function. Ex-1003, ¶155. A POSA would only have needed to perform routine programming to (i) provide a distance setting on Mehta’s I/O interface (*see* Ex-1006, 10:38–39) for selecting a needle extension distance and (ii) configure Mehta’s control system/energy supply unit 90 (*see* Ex-1004 at 12:5–8), to convert the user-selected needle extension distance to a

control signal (*e.g.*, a pulse train for a step-motor). Ex-1003, ¶155. Mehta already discloses an I/O interface “that allows the physician to input control and processing variables, to enable the controller to generate appropriate command signals” (Ex-1006, 12:5–8), and adding a parameter to the I/O interface and generating a corresponding command signal were well within the capabilities of a POSA. Ex-1003, ¶155.

Accordingly, claims 2 and 13 would have been obvious over Mehta and the knowledge of a POSA.

3. Claims 3 and 14

It would have been obvious to a POSA to provide a signal generator to supply an RF signal to the needles 104 in order to effectuate treatment of a patient’s skin. Ex-1003, ¶157.

4. Claims 6, 8, and 15–16

As for claim 6, it would have been obvious to deploy the needles to a “predetermined depth” in the form of a user-settable depth, for the same reasons discussed in Section VIII.B.2. Ex-1003, ¶¶158–160.

For the reasons set forth *supra* Sections VIII.A.5 and VIII.A.10, claims 8 and 16 would have been obvious over Mehta and the knowledge of a POSA. Ex-1003, ¶¶158–159, 161.

As for claim 15, it would have been obvious to a POSA to provide, in the proximal end of the handpiece 210, an electrical connector couplable to the signal generator to form an electrical pathway extending from the power supply to the needles 104. *Supra* Section VIII.A.4. Ex-1003, ¶¶158–159, 162.

5. Claims 4–5 and 17

Claims 4-5 and 17 would have been obvious over Mehta and the knowledge of a POSA. Ex-1003, ¶¶163–173.

(a) Claims 4 and 17

Mehta discloses light sources at the proximal end of handpiece 210 and a photonic signal generator electrically coupled to the light sources at the proximal end of handpiece 210. Ex-1003, ¶165. Mehta discloses that “radiant energy may be supplied by the energy source/supply 90 that is coupled to a diode, fiber, or other emitter at the...end of the treatment unit” and further discloses that “the energy source/supply 94 and associated energy transfer element may comprise laser, light, or other similar types of radiant energy (*e.g.*, visible, ultra-violet, or infrared light).” Ex-1006, 11:27–33. Accordingly, Mehta discloses that the proximal end further includes at least one light source (*i.e.*, the emitter/energy transfer element), and the apparatus further including a photonic signal generator (*i.e.*, the energy source/supply 90 or 94). Ex-1003, ¶165.

To the extent Mehta does not explicitly disclose LEDs, it would have been obvious to use LEDs for Mehta's light sources. Ex-1003, ¶¶166–168. LEDs were, as of the effective date of the '812 patent, well-known light sources that a POSA would have understood to be highly energy efficient, low cost, and readily available. *Id.*, ¶168. The use of LEDs in medical devices for the treatment of skin was also well-known. *See, e.g.*, Ex-1013, ¶¶287–288; Ex-1014, ¶¶86, 90, 94; Ex-1003, ¶¶30–32. A POSA would have been motivated to utilize LEDs for the light sources at the proximal end of Mehta's handpiece 210, *e.g.*, to provide cost-effective illumination, and doing so would have been a matter of routine engineering. Ex-1003, ¶¶166–168.

Embedding LEDs in a handpiece 210 was well-known, and embedding LEDs in the proximal end of Mehta's handpiece 210 would have been an obvious design choice. *See, e.g.*, Ex-1014, ¶¶86, 94; Ex-1003, ¶¶167–168. A POSA would have been motivated to embed the LEDs to provide a visually appealing product (to both physicians, *i.e.*, customers, and patients) with a sleek outer profile, and doing so would have been a matter of routine engineering. Ex-1003, ¶¶167–168.

It would have been obvious to a POSA to control Mehta's photonic signal generator to energize the LEDs and thereby illuminate the needles 104—which are part of needle assembly 102. The motivation to illuminate the needles 104/needle assembly 102 would have been to assist a physician in confirming the intended

treatment area (Ex-1006, 13:20–36), or to illuminate depth markings or other distinguishing features of the needles (*id.*, 13:37–45). Ex-1003, ¶¶167–168. Controlling the photonic signal generator to illuminate the needles 104/needle assembly 102, *e.g.*, by providing software and hardware capable of supplying power from the photonic signal generator to the LEDs to energize the LEDs, would have been a matter of routine engineering. *Id.*

Furthermore, it would have been obvious to a POSA to control Mehta’s photonic signal generator to energize the LEDs and thereby illuminate the needles 104/needle assembly 102 when the needles 104 are energized by the signal generator, and a POSA would have had a reasonable expectation of success. *Id.* It was well-known to use LEDs to provide a visual indication of the operational status of medical devices for treating skin. *See, e.g.*, Ex-1016, 4 (describing that an LED “emits a predetermined color at the same time as the high frequency is applied”); Ex-1003, ¶¶30–32, 166. The motivation to illuminate the needles 104/needle assembly 102 when the needles 104 are energized would have been to provide a visual indication of the RF energy emitted by the needles 104, which would decrease the risk that the clinician would unintentionally apply energy to a patient’s skin. Ex-1003, ¶166.

Accordingly, claims 4 and 17 of the ’812 patent would have been obvious over Mehta and the knowledge of a POSA. *Id.*, ¶¶163–169.

(b) Claim 5

Mehta discloses that portions of the treatment device 202 are translucent. Ex-1006, 22:65–23:10. It would have been obvious to a POSA to provide at least a section of the needle assembly 102 from translucent material (as opposed to from an opaque material) in order to allow the light emitted by the embedded LEDs to illuminate the needles 104. Ex-1003, ¶¶170–173. Providing at least a section of the needle assembly 102 from translucent material would have been an obvious matter of design choice. The motivation for using translucent material would have been to (i) prevent an opaque material from shading the tissue to be treated from illumination and (ii) further enhance the visual appearance of the device 202 by utilizing a material that would provide for diffuse reflection and transmission of the illuminating light provided by the LED and thereby create a visually-appealing glow. *Id.*, ¶172. Furthermore, using translucent material to form at least a section of the needle assembly 102 would have been a matter of routine engineering because a number of suitable translucent materials were available as of the priority date of the challenged claims. *Id.*, ¶173.

Accordingly, dependent claim 5 of the '812 patent would have been obvious over Mehta and the knowledge of a POSA. *Id.*, ¶¶170-173.

6. Claim 10

Claim 10 would have been obvious over Mehta and the knowledge of a POSA. *Id.*, ¶¶174–179.

Mehta discloses electrical contacts (*i.e.*, contact portions 116) that provide an electrical pathway from a power supply to the needles 104. *Supra* Section VIII.A.1(d). Mehta discloses that the power supply provides energy to the needles 104 in bipolar operation using pairs of an “active” and a “return” needle, wherein radiation is transmitted from a transmitter microneedle to a receiver microneedle of a microneedle pair. Ex-1006, 17:59–61; *see also id.*, 18:18–20, 37:25–34. For multiple pairs of opposite polarity needles coupled to a single channel of a power supply, a first plurality of needles is coupled to a first polarity electrical contact and a second plurality of needles is coupled to a second polarity electrical contact. Ex-1003, ¶¶176–177.

It would have been obvious to a POSA to modify Mehta to provide a cost-effective manner of connecting multiple needle pairs to a single channel of a power supply by coupling a first electrical contact 116 to a first plurality of needles 104 and by coupling a second electrical contact 116 to a second plurality of needles 104—*i.e.*, by providing multiple, parallel current paths branching from a single electrical contact to connect to multiple ones of needles 104. *Id.*, ¶¶178–179. The motivation would have been to decrease the cost and complexity of cartridge 100

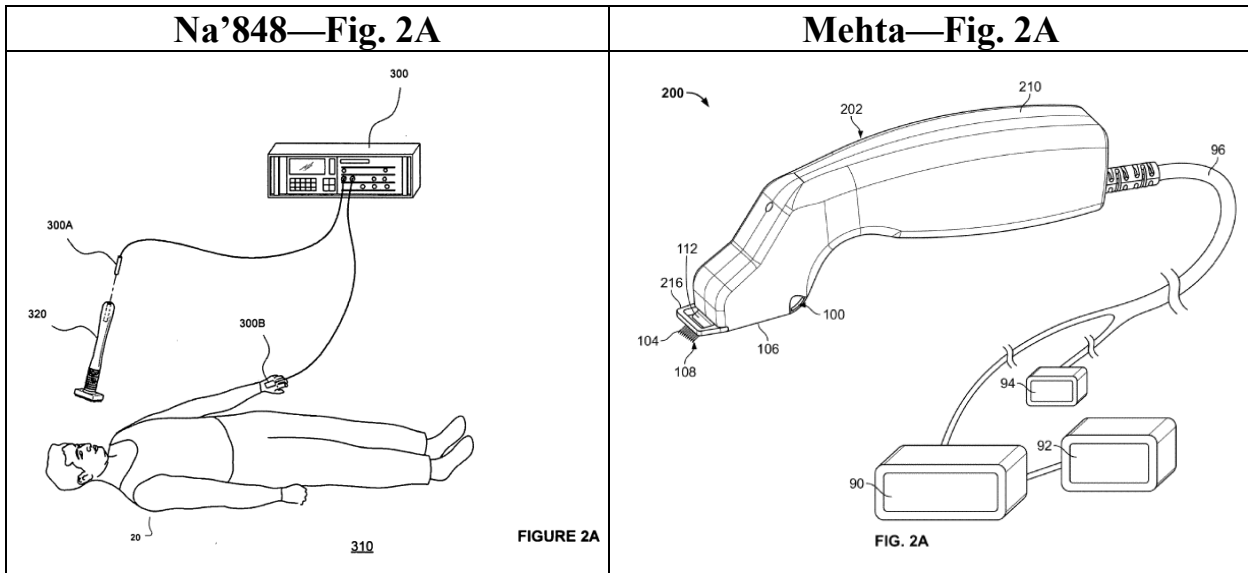
and handpiece 210, thereby providing a more affordable device that appeals to a cost-sensitive market segment. *Id.*, ¶179. Furthermore, a POSA would have had a reasonable expectation of success because providing parallel current paths would have been a matter of routine engineering. *Id.*, ¶178. Accordingly, claim 10 would have been obvious over Mehta and the knowledge of a POSA. *Id.*

C. Ground III

As discussed below, the combination of Mehta, Na'848, and the knowledge of a POSA renders obvious claims 4–5 and 17.

1. Motivation to Combine Mehta and Na'848

Mehta and Na'848 are readily combinable because both references are directed to systems and methods of treating dermatological tissue using energized microneedles. *See, e.g.*, Ex-1007, ¶¶25–27, Fig. 2A; Ex-1006, 2:37–41, Fig. 2A; Ex-1003, ¶181.



A POSA would have been motivated to combine Mehta and Na'848 because they are directed to similar technologies and a POSA would have understood the benefits of combining these two references. Ex-1003, ¶181. A POSA would have understood that there was a high likelihood of success in making the combination.

Id.

Mehta discloses light sources at the proximal end of handpiece 210 and a photonic signal generator electrically coupled to those light sources. *Supra* Section VIII.B.5(a). Na’848 teaches “generat[ing] one or more signals for LEDs” by a controller coupled to the LEDs “via one or more electric wires 106.” Ex-1007, ¶37; Ex-1003, ¶182.

It would have been obvious to utilize LEDs in Mehta's treatment system in order to provide illumination of Mehta's needles 104 and the tissue into which they

are inserted during treatment with actinic light of optimal wavelengths for skin repair—as taught by Na’848. Ex-1003, ¶¶183–184. It would also have been obvious to energize the LEDs by “generat[ing] one or more signals for the LEDs” via a controller, as taught by Na’848 (Ex-1007, ¶36), *e.g.*, the energy source/supply 94 of Mehta. Ex-1003, ¶183. Utilizing LEDs, as taught by Na’848, in Mehta’s system would require nothing more than the “predictable use of prior art elements according to their established functions” and yield a “predictable result[.]” *KSR Int’l Co. v. Teleflex Inc.*, 550 US 398, 401 (2007); Ex-1003, ¶184.

Furthermore, as discussed *supra* Section VIII.B.5(a), embedding LEDs in a handpiece, such as the handpiece 210 of Mehta, was well-known to a POSA, and it would have been an obvious design choice to embed LEDs, such as those disclosed by Na’848, in the proximal end of the handpiece 210 of Mehta. Ex-1003, ¶184.

Mehta discloses that portions of the treatment device 202 are translucent. *Supra* Section VIII.B.5(b); Ex-1006, 22:65–23:10. In addition, Na’848 teaches a needle assembly in the form of a plate that includes a plurality of needles and a translucent section that would allow light emitted by the LEDs disposed behind the plate to be transmitted to the needles. Ex-1003, ¶185. Specifically, Na’848 discloses an acupuncture plate 200 of a dermatological treatment apparatus 10 having an acupuncture section 250 that “include[s] a plurality of acupuncture pins or needles” and that can be “translucent” and formed of a “polyurethane, medical

silicon, or other pliable, translucent, hypoallergenic material.” Ex-1007, ¶¶23, 35.

Na’848 contains the same disclosure as the ’812 patent with regard to a needle assembly that includes a translucent section. *Compare* Ex-1007, ¶¶35, Figs. 1C, 2F with Ex-1001, 5:29–34, Fig. 1C, 2F. Ex-1003, ¶185.

It would have been obvious for a POSA to modify Mehta to provide the needle assembly 102 in the form of Na’848’s plate including a plurality of needles and a translucent section—particularly for variations of Mehta’s device that “can be held at a more vertical angle to the target tissue like a pencil or pointer” (Ex-1006, 9:57–59) and that include needle assembly 102 with an MxN array of needles 104 (*see* Ex-1006, 15:49–54), where both M and N have relatively large values, *e.g.*, ~5–10. Ex-1003, ¶186. Forming at least a section of the needle assembly 102 of Mehta from the “polyurethane, medical silicon, or other pliable, translucent, hypoallergenic material,” as described by Na’848, would facilitate transmission of light, from an LED embedded in the proximal end of handpiece 210, to the needles 104 and the tissue into which they are inserted during treatment. *Id.*, ¶187. Providing Mehta’s needle assembly 102 in the form of a plate including a translucent section and a plurality of needles, as disclosed by Na’848, would have been a matter of routine engineering. *Id.*, ¶188.

2. Claims 4 and 17

Mehta discloses light sources at the proximal end of handpiece 210 and a photonic signal generator electrically coupled to the light sources. *Supra* Section VIII.B.5(a). Na’848 discloses using LEDs to provide illumination. Ex-1007, ¶¶45–46. A POSA would have been motivated, based on the teachings of Na’848, to utilize LEDs for the light sources at the proximal end of Mehta’s handpiece 210, to embed the LEDs in the proximal end of Mehta’s handpiece 210, and to provide for the control of Mehta’s photonic signal generator so as to utilize the LEDs to illuminate Mehta’s needles 104/needle assembly 102. *Supra* Sections VIII.B.5 and VIII.C.1; Ex-1003, ¶¶189–190. Accordingly, the combination of Mehta, Na’848, and the knowledge of a POSA renders claims 4 and 17 obvious.

3. Claim 5

Mehta discloses the use of translucent materials (*see* Ex-1006, 22:65–23:10), and Na’848 discloses a needle assembly in the form of a plate that includes a plurality of needles and a translucent section that enables light emitted by LEDs to be transmitted to needles of a needle assembly (*see* Ex-1007, ¶¶23, 35). Indeed, the only place where the ’812 specification describes a needle assembly having a translucent section is in the portion of the ’812 patent which overlaps with Na’848, such that the only possible written description support for this limitation in the ’812 patent is substantially identical to the prior art teachings of Na’848. *Compare*

Ex-1001, 5:31–34 (“pin section 250, 353, may be translucent”), Figs. 1C (element 250), 2F (element 353) *with* Ex-1007, ¶35, Figs. 1C (element 250), 2F (element 353); Ex-1003, ¶185. It would have been obvious to modify Mehta to provide Mehta’s needle assembly 102 in the form of Na’848’s plate that includes a translucent section—particularly for variations of Mehta’s device 202 where handpiece 210 is designed to be held at a more vertical angle and where needle assembly 102 has larger arrays of needles 104. *Supra* Sections VIII.B.5(b) and VIII.C.1; Ex-1003, ¶¶191–192. Accordingly, the combination of Mehta, Na’848, and the knowledge of a POSA renders claim 5 obvious.

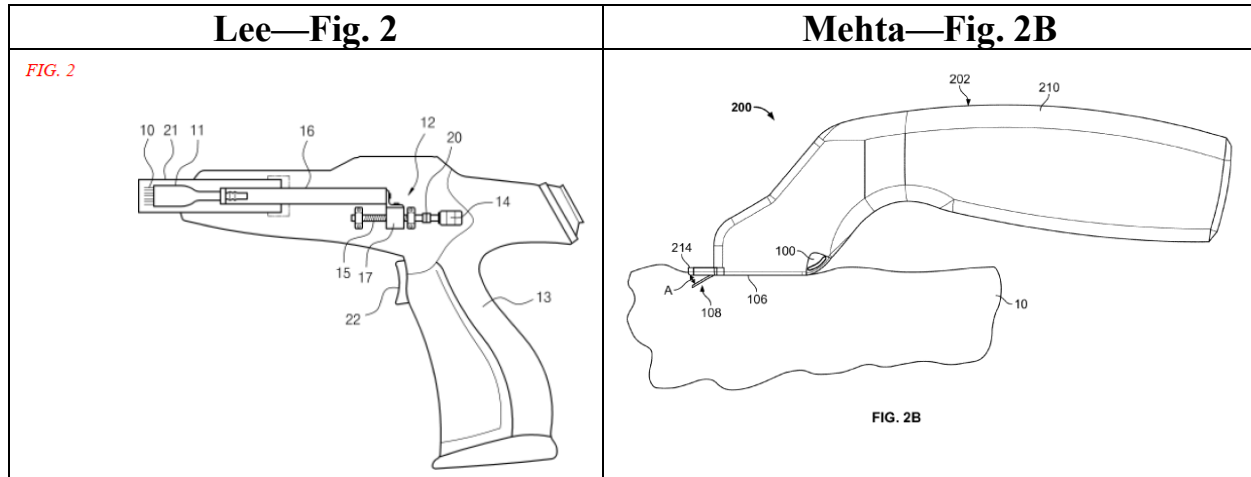
D. Ground IV

As discussed below, the combination of Mehta, Lee, and the knowledge of a POSA renders obvious claims 2–3, 6, 8, and 13–16. To the extent that Serendia’s interpretation of “desired distance” and/or “predetermined depth” is adopted *and* to the extent that Mehta is found to lack the teaching of needles being extendable “a desired distance” and/or “predetermined depth” based thereon, claims 2–3, 6, 8, and 13–16 would have been obvious to a POSA over the combination of Mehta, Lee, and the knowledge of a POSA. *Id.*

1. Motivation to Combine Mehta with Lee

Mehta and Lee are readily combinable because both references are directed to systems and methods of treating dermatological tissue using needles driven into

skin tissue by a step-, or stepper, motor. *See, e.g.*, Ex-1006, 15:34–40, Figs. 2B, 5; Ex-1011, <23>–<26>, <45>–<53>, <60>–<63>, Figs. 2–4b; Ex-1003, ¶194.



A POSA would have been motivated to combine Mehta and Lee because they are directed to similar technologies and a POSA would have understood the benefits of combining these two references. Ex-1003, ¶194. A POSA would have understood that there was a high likelihood of success in making the combination. *Id.*

Mehta discloses a motor capable of providing a user-settable distance of needle extension, *i.e.*, a “step-motor.” *Supra* Section VIII.A.2 and VIII.B.2; Ex-1006, 15:34–40. Lee similarly discloses a “stepping motor” 14 that rotates to move a slider 17 and needle mount 11, thereby allowing for precise control of an insertion depth of the needles along the axis of needle extension. Ex-1009, <46>–<50>, <69>, Figs. 4a–4b. Lee teaches that an “operational parameter (amount of rotation) of the motor is set to determine the insertion depth of the needles,” *i.e.*, by “setting the mode,” and the “motor 14 rotates...in accordance with the mode

selected” such that “the insertion depth of the microneedles can be controlled.” Ex-1009, <50>, <60>–<61>; Ex-1003, ¶195.

POSA would have been motivated to modify Mehta in view of Lee to precisely control a needle extension distance along the axis of extension and thereby gain benefits taught by both Mehta and Lee, such as safe and effective treatment. *See, e.g.*, Ex-1006, 12:41–13:4, 21:14–21, 33:30–31; Ex-1009, <69>; Ex-1003, ¶196. A POSA would further have been motivated to control Mehta’s step-motor in the manner taught by Lee for the reasons discussed *supra* Section VIII.A.2 and VIII.B.2. Therefore, to the extent that Mehta does not teach user-settable control of needle extension along the axis of extension, a POSA would have been motivated to provide user-settable control of needle extension in the device 202 of Mehta based on the teachings of Lee.

When the prior art identifies a problem (controlling needle insertion depth) and provides express guidance on how to fix the problem (a “position-controllable” motor, which may be a “stepping motor,” that allows for precise control of an insertion depth of the needles along the axis of needle extension—as taught by Lee), a POSA would have had a reasonable expectation of success in combining the prior art. *See, e.g., In re Inland Steel*, 265 F.3d 1354, 1364 (Fed. Cir. 2001). Utilizing Mehta’s step-motor in the manner taught by Lee would have yielded predictable results, as it amounts to nothing more than the operation of a known

component (a step-motor as disclosed in both Mehta and Lee) according to its established function (providing step-based actuation for needles along the axis of needle extension as taught by Lee). Ex-1003, ¶197. A POSA would only have needed to appropriately configure Mehta’s control system/energy supply unit 90 in the conventional manner taught by Lee—*i.e.*, controlling a motor, via routine programming, to extend needles a desired distance corresponding to a user selection. Ex-1003, ¶197; Ex-1009, <50>, <61>, <33>; *supra* Section VIII.B.2. This combination is not the product of innovation but of ordinary skill and common sense. *KSR*, 550 U.S. at 421.

2. Claims 2–3, 6, 8, and 13–16

To the extent Serendia’s interpretation of “desired distance” is adopted *and* Mehta is found to lack the “desired distance” limitations recited in claims 2 and 13 based thereon, claims 2–3, 6, 8, and 13–16 would have been obvious over Mehta, Lee, and the knowledge of a POSA.

Mehta discloses a motor (*i.e.*, actuator 250), *e.g.*, a step-motor, coupled (via shaft 256 and coupling portion 118 of needle assembly 102) to the needle assembly (*i.e.*, needles 102) to extend the plurality of needles. Ex-1006, 15:34–40, 18:25–31. Lee teaches a step-motor 14 that rotates to move a slider 17 and needle mount 11, and controlling the step-motor 14 by setting an operational parameter that corresponds to an amount of rotation of the motor to determine an insertion depth

of microneedles. Ex-1009, <46>, <49>–<50>, <60>. It would have been obvious to combine these teachings of Lee (regarding how to use a step-motor for needle extension) with the teachings of Mehta (regarding a motor being used for needle extension) to arrive at the “desired distance” limitations—as interpreted by Serendia—of claims 2–3, 6, 8, and 13–16. *Supra* Section VIII.D.1; Ex-1003, ¶¶198–203. Accordingly, the combination of Mehta, Lee, and the knowledge of a POSA renders claims 2–3, 6, 8, and 13–16 obvious.

E. Ground V

The combination of Mehta, Lee, Na’848, and the Knowledge of a POSA renders obvious claims 4–5. Claims 4–5 would have been obvious over Mehta, Na’848, and the knowledge of a POSA. *Supra* Section VIII.C. However, to the extent that Serendia’s interpretation of “desired distance” is adopted *and* to the extent that Mehta is found to lack the teaching of needles being extendable “a desired distance” based thereon, claims 4–5 would have been obvious over Mehta, Lee, Na’848, and the knowledge of a POSA. *Id.*

1. Motivation to Combine Mehta, Lee, and Na’848

Mehta, Lee, and Na’848 are directed to systems and methods of treating dermatological tissue using energized microneedles to improve cosmetic conditions. *Supra* Sections VIII.C.1. and VIII.D.1. A POSA would have been motivated to apply advantageous teachings of Lee regarding precise control of

needle insertion depth and of Na’848 regarding the use of LEDs to provide illumination and the use of a translucent section in a needle assembly to facilitate transmission of the LED light. Ex-1003, ¶205. Further, the combination of these references would have been a matter of routine engineering and would have yielded predictable results. *Supra* Sections VIII.C.1 and VIII.D.1; Ex-1003, ¶205.

Accordingly, the combination of Mehta, Lee, Na’848, and the knowledge of a POSA renders claims 4–5 and 17 obvious.

F. Ground VI

As discussed below, the combination of Livneh, Mehta, and the knowledge of a POSA renders obvious claims 1, 7, 9–12, and 18–20.

1. Motivation to Combine Livneh with Mehta

Livneh and Mehta are readily combinable because both references are directed to systems and methods of treating dermatological tissue using energized microneedles, *e.g.*, using RF, to produce cosmetically beneficial effects. *See, e.g.*, Ex-1006, 2:37–43, 9:34–48, Fig. 2A; Ex-1010, ¶¶2, 5, 40–42, 60, Fig. 3; Ex-1003, ¶207.

Livneh—Fig. 3



Mehta—Fig. 2A

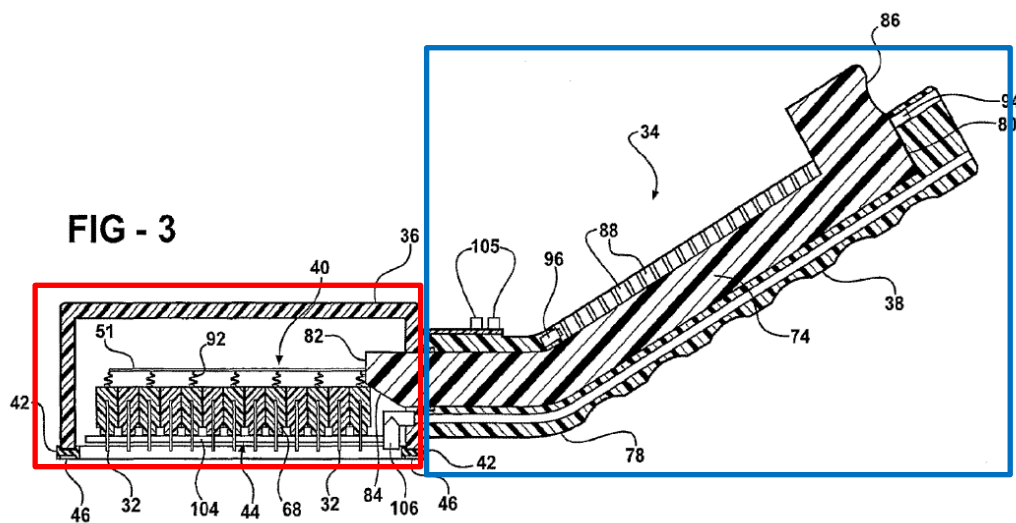


A POSA would have been motivated to combine Livneh and Mehta because they are directed to similar technologies and a POSA would have understood the benefits of combining these two references. Ex-1003, ¶207. A POSA would have

understood that there was a high likelihood of success in making the combination.

Id.

Livneh discloses a skin treatment device including a needle module encased by a housing 36 (designated by the red box in Fig. 3 of Livneh reproduced below), which is connected to a handle portion 38 (designated by the blue box in the same figure). Ex-1010, ¶33, Fig. 3; Ex-1003, ¶208.



Livneh—Fig. 3

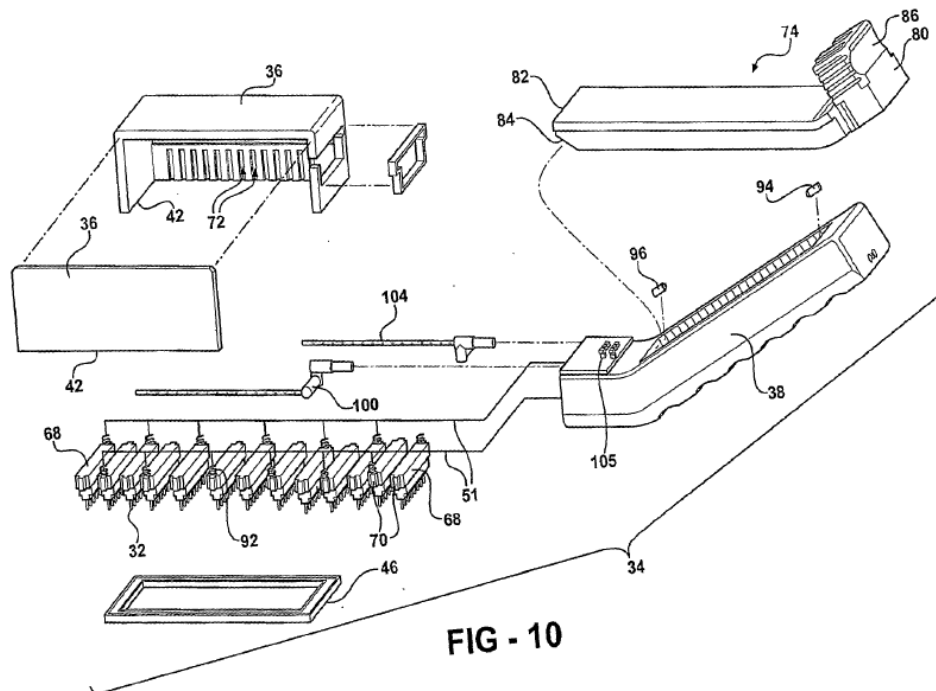
Mehta discloses a microneedling device including a removably couplable needle module that is mechanical separable from the proximal end of the handpiece. *See* Section VIII.A.1(b); EX-1003, ¶209. For the reasons discussed below, a POSA implementing Livneh's device would have been motivated to make the connection between the needle module and the handle portion releasably couplable in light of Mehta's teaching of a removable needle module. Ex-1003, ¶¶209–218.

Using disposable and detachable (*i.e.*, removable or releasably couplable) needle cartridges for a skin treatment device was well-known in the art. Section VIII.A.1(b); Ex-1019, Figs. 14A, 14B, ¶¶72; Ex-1013, Fig. 8, ¶¶179–180; Ex-1003, ¶¶209–210. In Mehta, the cartridge 100 is removable from the proximal end of the handpiece/device body 210—e.g., via the action of retention fasteners 114. *See, e.g.*, Ex-1006, Figs. 2B, 2D, 4A, 3:63–64, 6:41–42, 14:5–7, 15:28–33. A POSA would have been motivated to make the connection between the housing and the handle portion in Livneh releasably couplable, as taught by Mehta. Ex-1003, ¶209. Before 2011, the industry was using detachable needle cartridges to prevent contamination. Ex-1003, ¶210. A POSA would also have been motivated to use detachable needle cartridges to easily replace damaged or contaminated needles. *Id.*

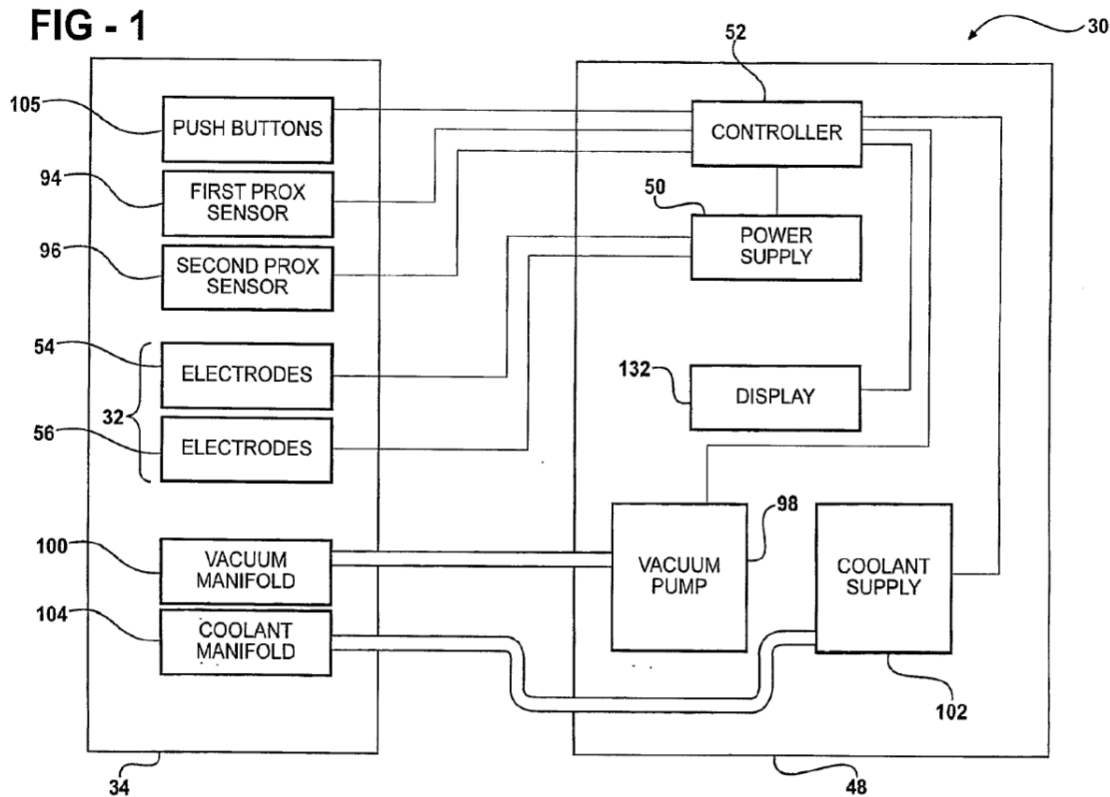
Although Livneh discloses an embodiment in which each needle is individually replaceable (*see* Ex-1010, Figs. 12–18, ¶¶61–63), a POSA would have recognized shortcomings of this embodiment. Ex-1003, ¶211. For example, it would have been technically challenging and cumbersome for an untrained user to replace individual needles in a tightly arranged needle arrangement, and having a professional replace an individual needle every time a needle is damaged or contaminated would have been impractical and costly. *Id.* Therefore, a POSA would have been motivated to improve this embodiment in Livneh. *Id.* An

individually replaceable needle would have cost significantly more than a simple needle, which would consequently increase the cost of using the device. *Id.*

The needle module and the handle portion of Livneh's handheld unit are connected via electrical and mechanical connections, as shown in Figs. 1 and 10 (reproduced below).



Livneh—Fig. 10



Livneh—Fig. 1

Making the needle module in Livneh releasably couplable to the handle portion would have been a matter of routine engineering because making both electrical and mechanical connections between two electrical components—the needle module and the handheld device—would have been a matter of routine engineering in light of teachings from Mehta and the knowledge of a POSA. Ex-1003, ¶¶212–217.

Accordingly, modifying Livneh’s device to include a removable needle module (“Modified Livneh Device”) in view of teachings of Mehta and the knowledge of a POSA and a method of treating dermatological tissue using the

Modified Livneh Device (“Modified Livneh Method”) would have been a matter of routine engineering and would have yielded predictable results, and a POSA would have understood that there was a high likelihood of success in making the combination. Ex-1003, ¶218.

2. Independent Claim 12

As discussed below, the combination of Livneh, Mehta, and the knowledge of a POSA renders obvious claim 12.

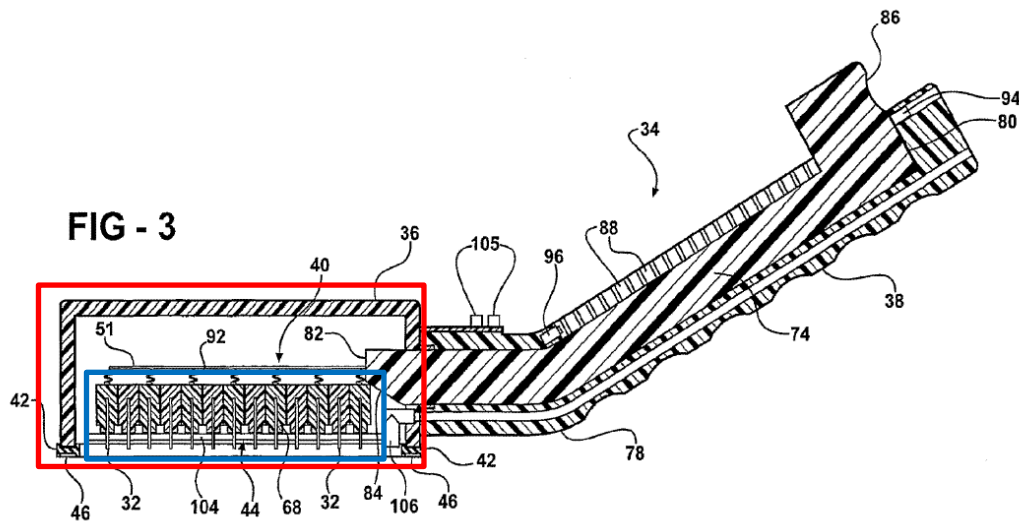
(a) Element[12pre]

Livneh discloses methods for treating dermatological tissue, specifically for appearance of younger and tighter skin by introducing thermal and mechanical injury to skin. *See, e.g.*, Ex-1010, ¶¶2, 5, 32, 60. Ex-1003, ¶220.

(b) Element[12a]

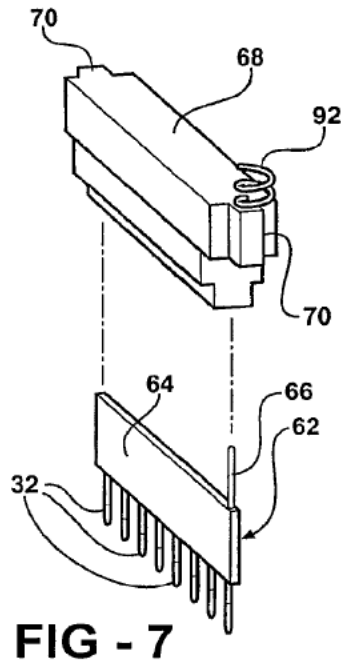
Livneh discloses a user holdable device. Livneh provides a skin treatment apparatus 30 including a handheld unit 34. Ex-1010, ¶33. Ex-1003, ¶¶221–222.

The handheld unit 34 includes a needle module including a plurality of electrodes and other components, encased by a housing 36. Ex-1010, ¶33; Ex-1003, ¶222. Fig. 3 (reproduced below) shows that the needle module (designated by the red box) includes a needle assembly (designated by the blue box).

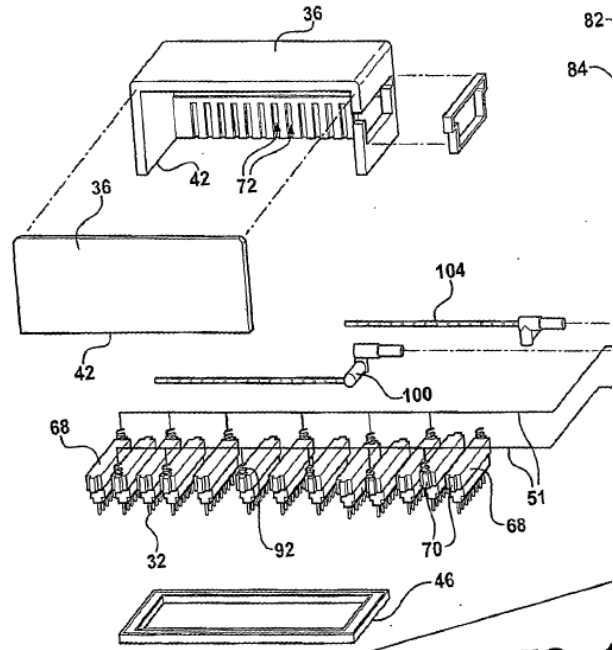


Livneh—Fig. 3 (annotated)

The needle assembly (in Fig. 3, reproduced above) includes at least a plurality electrodes 32, combs 62, holders 68, and coils 92. Ex-1010, ¶¶32, 47-49; Ex-1003, ¶222. Livneh discloses that “[e]ach electrode 32 is preferably shaped like a needle” and “convey(s) electrical current to the skin.” Ex-1010, ¶¶40–41. Livneh discloses that the needle-shaped electrodes are “arranged into a plurality of combs 62,” each of which is “supported by a holder 68,” and that “the combs 62 and holders 68 are arranged in successive rows.” Ex-1010, Figs. 7 and 10 (reproduced below), ¶¶47, 48. Livneh also discloses that coils 92 connects (*i.e.*, extends) from the top of each holder. Ex-1010, ¶49.

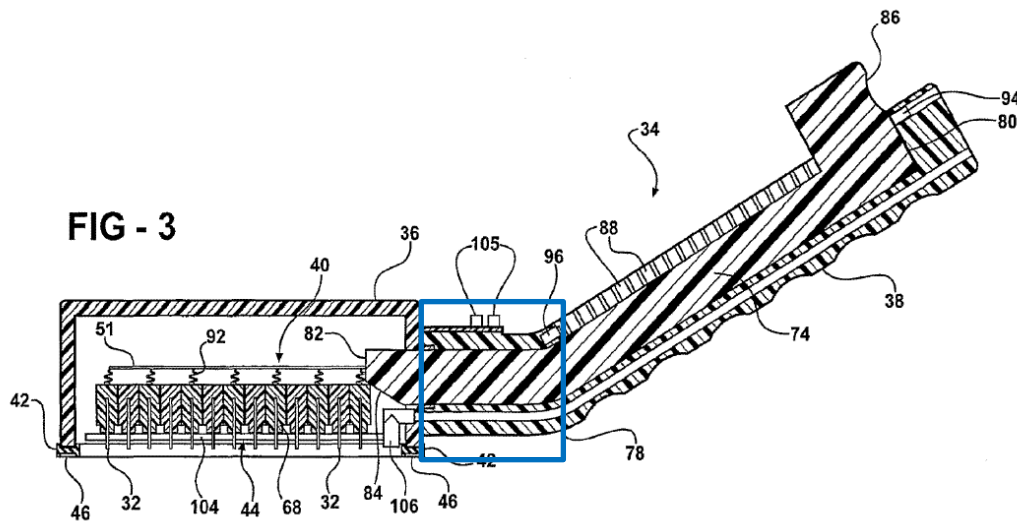


Livneh—Fig. 7



Livneh—Fig. 10

Livneh discloses that “[t]he edge 42 and/or the seal 46 [of the handheld unit 34] are disposable on the skin” and “the electrode 32 extends ‘straight into’ the skin at about 90 degree angle.” Ex-1010, Fig. 3, ¶¶34-35. Livneh’s user holdable device includes a portion (designated by the blue box in Fig. 3 of Livneh, reproduced below) that is designed to be positioned near the dermatological tissue to be treated such that the edge 42 and/or the seal 46 engage the dermatological tissue near a treatment region. Ex-1003, ¶223.



Livneh—Fig. 3

Accordingly, the handheld unit 34 includes a “proximal end” as recited by claim 12. *Id.*

In Livneh, “[t]he housing 36 is connected to a handle portion 38.” Ex-1010, ¶33. A POSA would have been motivated to make the connection between the housing 36 and the handle portion 38 in Livneh “releasably couplable” and “mechanically separable” from the proximal end of the handle portion 38 for the reasons explained in Section VIII.F.1. Ex-1003, ¶¶224-225.

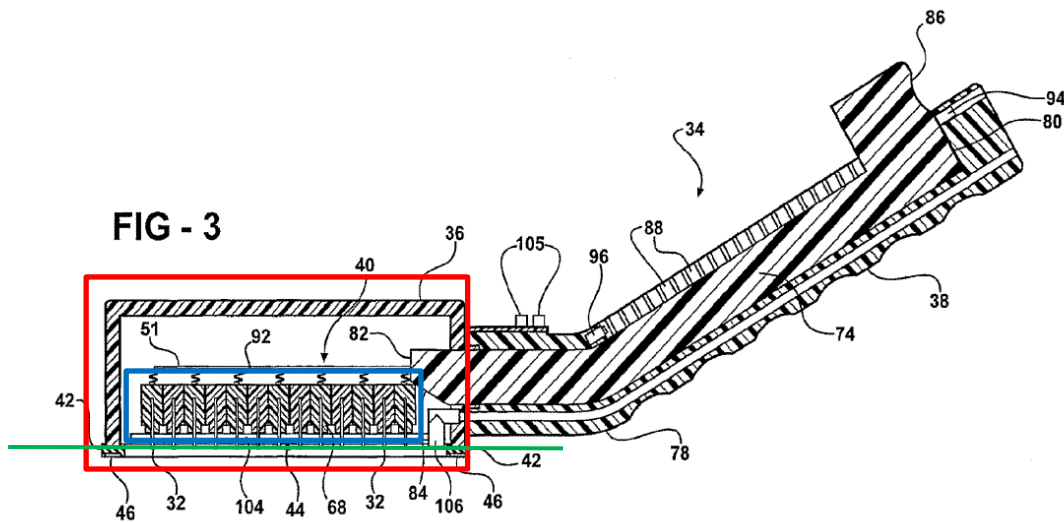
(c) Element[12b]

Livneh’s handheld device includes a plurality of needles 32 that extend into a patient’s skin and provide for percutaneous delivery of energy (*e.g.*, RF energy) to dermatological tissue. Ex-1010, ¶¶35, 37. In the handheld device, the

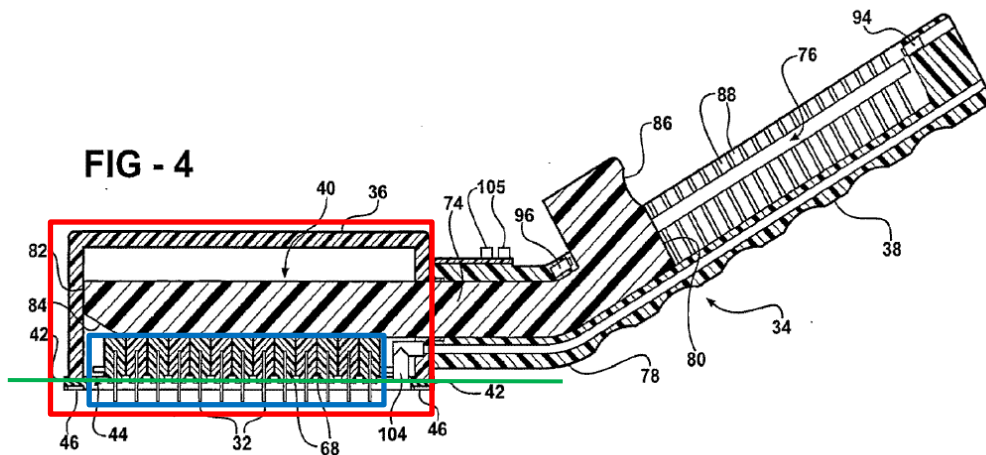
microneedles are extendable from a first position (*i.e.*, retracted position) to a second position (*i.e.*, extended position). Ex-1010, ¶¶42–43; Ex-1003, ¶226.

The needle assembly in Livneh is within the needle module. *Supra* Section VIII.F.2(b). Therefore, when the needle module is released and decoupled from the proximal end of handheld unit 34, the needle assembly is also released and decoupled. Ex-1003, ¶227. Conversely, when the needle module is coupled to the proximal end of the handheld unit 34, the needle assembly is also coupled to the proximal end of the handheld unit 34. *Id.* Accordingly, the needle assembly of the Modified Livneh Device is releasably couplable. *Id.*

In Livneh's handheld unit 34, the needle assembly (designated by the blue boxes in Figs. 3 and 4 reproduced below) moves within the needle module (designated by the red boxes in the same figures) between a retracted position and an extended position. Ex-1003, ¶228.



Livneh—Fig. 3 (annotated, needles retracted)



Livneh—Fig. 4 (annotated, needles extended)

Under the construction adopted in the ITC Lawsuit, the “deployable needle assembly end surface” corresponds to the retracted tip plane, *i.e.*, a plane that extends along the tip of each of the retracted needles when they are in the retracted position, designated by the green line in Figs. 3 and 4 (reproduced above). Ex-

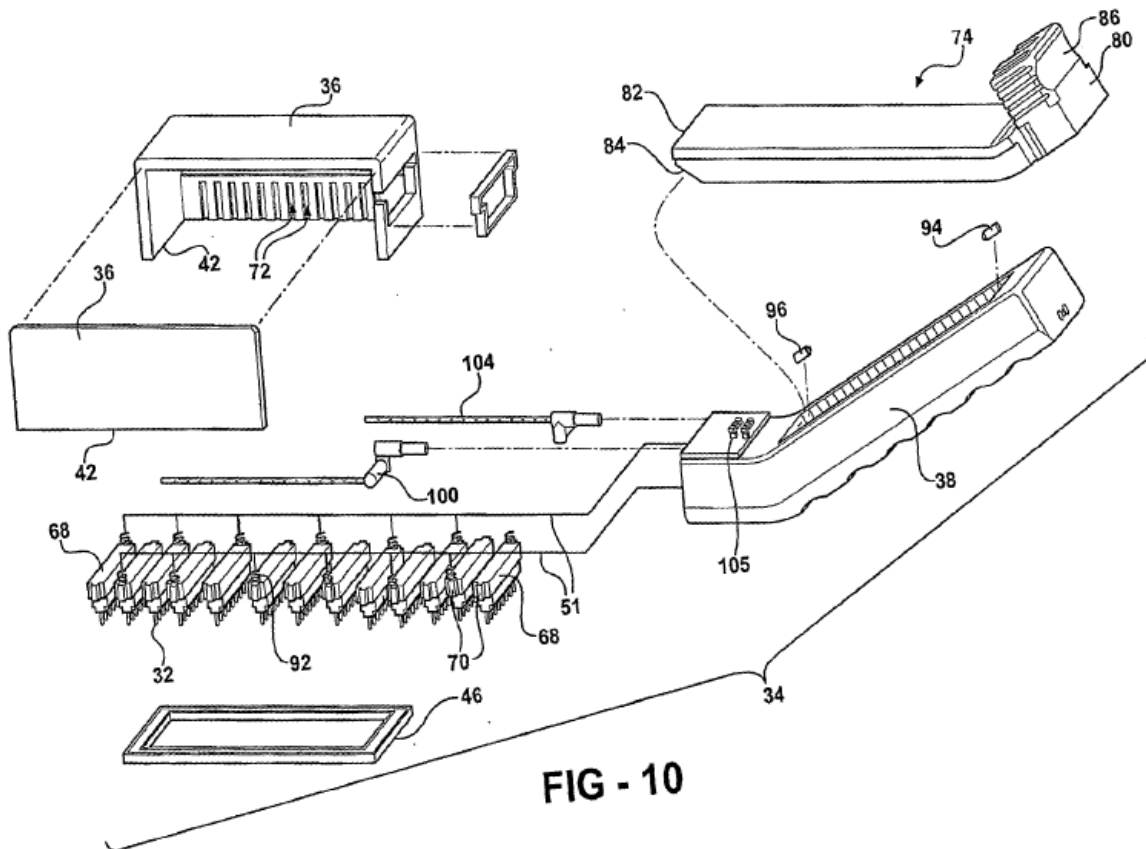
1005, 16–32; Ex-1003, ¶229. When the needle assembly is in the retracted position, the tips of the needles define this retracted tip plane. *Id.* As shown in these figures, that plane may lie slightly behind the skin contact plane of the needle module. *Id.* The plurality of electrodes 32 are extended from this plane, as the needle assembly slides relative to the housing 36. *Id.*

Because the electrodes 32 are extendable from the retracted tip plane, the electrodes 32 “extend from the releasably couplable deployable needle assembly end surface,” as recited by claim 12. Ex-1003, ¶230.

(d) Element[12c]

In the handheld device of Livneh, an electrical pathway is provided for transmitting electrical power from the power supply 50 to the electrodes 32, *i.e.*, needles. *See, e.g.*, Ex-1010, Fig. 1, ¶37; Ex-1003, ¶231. Because (i) the electrodes 32 are part of a needle assembly that is a component of the needle module (*see* Section VIII.F.2(b)) and (ii) a cable or other electrical connection allows transmission of the RF signal from the power supply 50 in the control unit 48 to the electrodes 32 in the handheld unit 34 (Ex-1010, ¶37), the electrical pathway between the power supply and the electrodes extends via electrical contacts between needle assembly and the proximal end of the handle portion in order for electrical power to be delivered from the power supply to the electrode 32. Ex-1003, ¶231.

Livneh discloses an electrical pathway between the electrodes 32 and the power supply 50 in both bipolar and monopolar configurations. Ex-1003, ¶232; *see, e.g.*, Ex-1010, ¶¶37, 47–49, Fig. 10 (reproduced below).



Livneh—Fig. 10

In the Modified Livneh Device, in order for an electrical pathway that provides for transmission of electrical power from the power supply to the electrodes, there must be at least one electrical contact disposed on the proximal end of the handle portion such that, when the Device is coupled thereto, said at least one electrical contact contacts a corresponding at least one electrical contact

disposed on the needle module or a component thereof, *e.g.*, needle assembly. Ex-1003, ¶233. Thus, at least one electrical contact disposed on the needle assembly and at least one electrical contact disposed on the proximal end the proximal end of the handheld unit 34 are coupled to one another to provide an electrical connection therebetween. *Id.*

For the foregoing reasons in Sections VIII.F.2(a)–VIII.F.2(d), the combination of Livneh, Mehta, and the knowledge of a POSA renders claim 12 obvious. Ex-1003, ¶234.

3. Claim 18

Livneh discloses that the electrodes 32 are arranged into a plurality of combs 62 (Ex-1010, ¶¶15–17, 47, Figs. 6–8), and the coil 92 electrically connects the comb to one of the wires 51, which in turn provides electrical connection to the power supply 50 (*id.*, ¶49). Ex-1003, ¶236.

Livneh further discloses that the coil 92 is an electrical contact, which is a pin that is extendable in the same direction as the plurality of needles. Ex-1003, ¶237. The coil 92 is extendable to allow the needle-shaped electrodes to remain connected to the power supply when being moved between their retracted and extended positions. *Id.* As illustrated in Fig. 7 (reproduced below), the coil 92 (designated by the blue box in Fig. 7) is normally in a compressed position. *Id.* As illustrated in Figs. 9 and 10 (reproduced below) the top end of the coil 92 is

connected to the wire 51, and the wire is affixed in the groove on either side of the wall of the housing (as designated by the red boxes in Fig. 9 below). *Id.* The bottom end of the coil is connected to the electrodes, *e.g.*, via the comb 62. Ex-1010, ¶¶15–17, 47, Fig. 9. Livneh discloses that “[w]hen the vacuum is sufficient, the electrode positioning mechanism 74 is pushed inwards towards the cavity 40. The mechanism 74 engages the electrodes 32, moving them from the first position to the second position. The electrodes 32 penetrate the skin during this movement.” Ex-1003, ¶54. When the electrodes 32 are extended and elongated downwards to be inserted into the skin, the coil 92 is also extended downwards (*i.e.*, the coil 92 is extended in the same direction as the electrodes). Ex-1010, Fig. 9 (reproduced below); Ex-1003, ¶237.

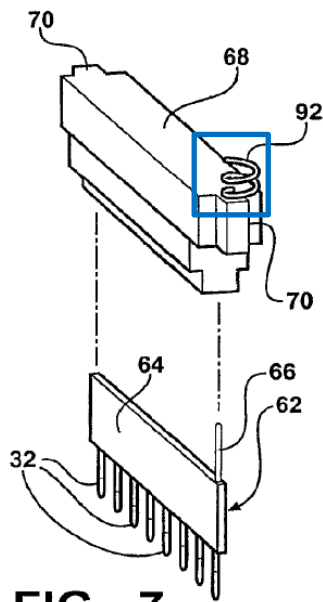


FIG - 7

Livneh—Fig. 7

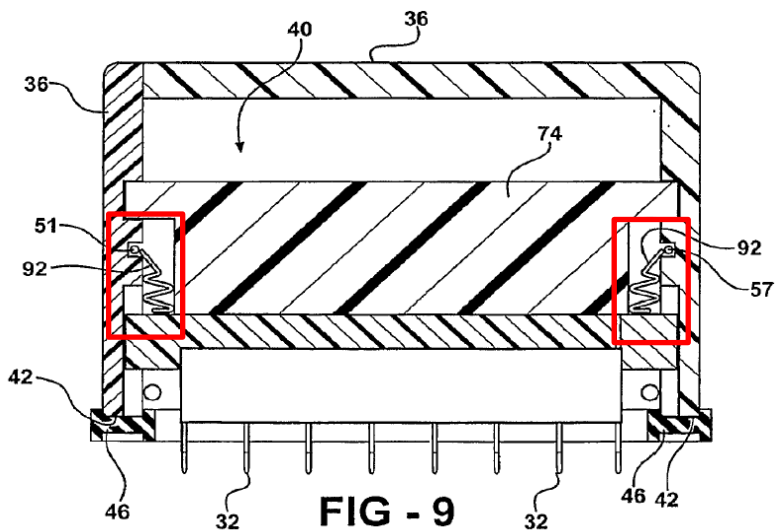
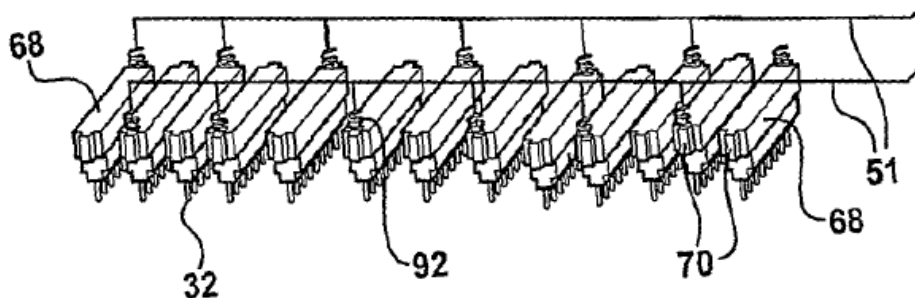


FIG - 9

Livneh—9⁶



Livneh—Fig. 10

In this configuration, the coil 92 must extend in the same direction as the electrodes to ensure the electrical contact between the electrodes and the wire 51 because the top end of the coil 92 is connected to the wire 51 which is affixed on the wall of the housing and the bottom end is connected to the electrodes that move

⁶ The number 57 on Fig. 9 should be 51 in light of the description in the specification and FIG. 10 of Livneh.

from the first to the second position. Ex-1003, ¶237. A POSA would have understood that when mechanism 74 is retracted after the treatment is over, the coil 92 will return to its original compressed position by its tension and retract and pull the electrodes 32 back from the second position to the first position. *Id.* Therefore, the coil 92 is an electrical contact that is extendable in the same direction as the plurality of needles. *Id.*

Coil 92 in Livneh operates in the same manner and performs the same function as electrical contact pin 924G depicted in Figures 11A, 11B, and 11C of the '812 patent. *Id.*, ¶238. Figure 11A shows that “the electrical contact pin 924G is sized to fit within the spring loaded based 924H. In an embodiment the internal spring 924M (Fig. 11C) may force extension of the pin 924G to maintain electrical conduction with the MLM 922 as the needle assembly 924F is moved (recessed and deployed to various depths).” Ex-1001, 13:21–26. In this configuration, the internal spring 924M is extended in the same direction as the needles when they are extended and inserted into the skin. Ex-1003, ¶238.

Accordingly, the combination of Livneh, Mehta, and the knowledge of a POSA renders obvious claim 18. *Id.*, ¶¶235–239.

4. Claim 19

Livneh’s needle assembly includes the coils 92. *Supra* Section VIII.F.2.(b) The coils 92 are extendable electrical contacts. *Supra* Section VIII.F.3. Livneh

discloses that there are a plurality of coils in the needle assembly, with each coil connected to a plurality of electrodes. *See, e.g.*, Ex-1010, Figs. 10–11. Therefore, the needle assembly includes at least two extendable electrical contacts. Ex-1003, ¶241.

The Modified Livneh Device has the proximal end which has electrical contacts for wires 51. *Supra* Section VIII.F.1. In the bipolar configuration, there are two wires 51, one wire providing a supply path and the other wire providing a return path. Ex-1010, ¶49, Fig. 10. And, these wires are connected to power supply 50. *Id.* Therefore, the proximal end of the user holdable device has at least two electrical contacts for the two wires 51 in the bipolar configuration, and these electrical contact should be connected to the coils 92 to provide an electrical pathway from the electrodes 32 to the power supply 50. *Id.*; Section VIII.F.1; Ex-1003, ¶242.

Accordingly, the combination of Livneh, Mehta, and the knowledge of a POSA renders obvious claim 19. Ex-1003, ¶¶240–243.

5. Claim 20

Livneh's needle assembly includes the coils 92. *Supra* Section VIII.F.2(b). The coils 92 are extendable electrical contacts. *Supra* Section VIII.F.3; Ex-1003, ¶245. Accordingly, the combination of Livneh, Mehta, and the knowledge of a POSA renders obvious claim 20. *Id.*, ¶¶244–246.

6. Independent Claim 1

As discussed below, Livneh and Mehta renders obvious claim 1.

(a) Element[1pre]

Livneh discloses methods for treating dermatological tissue, specifically for appearance of younger and tighter skin by introducing thermal and mechanical injury to skin. *See, e.g.*, Ex-1010, ¶¶2, 5, 32, 60; Ex-1003, ¶¶248–249.

(b) Element[1a]

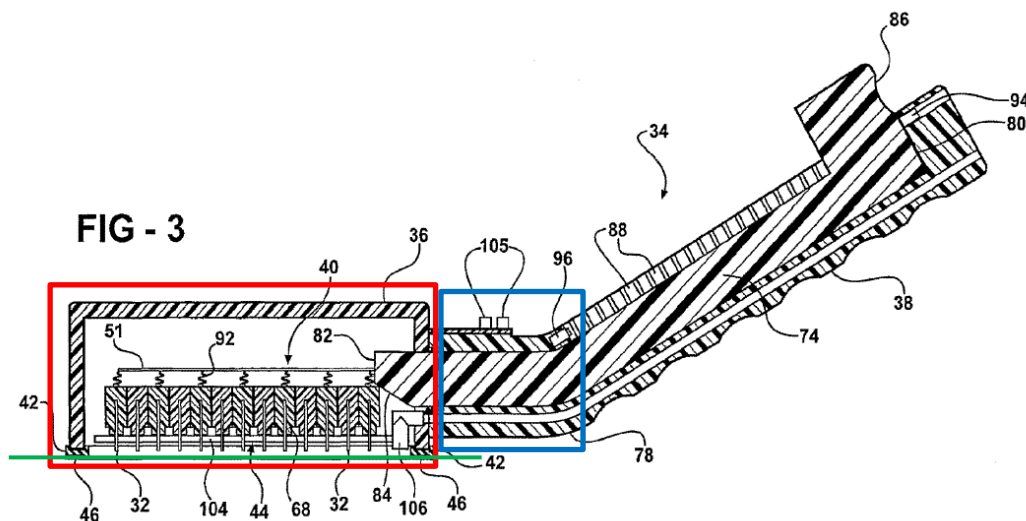
Livneh’s methods for treating dermatological tissue involve placing a microneedling device, which is holdable by a user, against a patient’s skin and inserting microneedles into the patient’s skin to apply treatment thereto. Ex-1003, ¶250.

Under the construction of the ITC Lawsuit, Livneh discloses “a user holdable device releasably couplable deployable needle module end surface.” Ex-1003, ¶¶251–253.

Livneh discloses a user holdable device because Livneh provides a skin treatment apparatus 30 including a handheld unit 34 having a handle portion 38. Ex-1010, ¶33; Ex-1003, ¶252.

The handheld unit 34 includes a needle module (designated by the red box in Fig. 3 of Livneh, reproduced below) including a plurality of electrodes and other components, and this needle module is encased by a housing. Ex-1010, ¶33; Ex-

1003, ¶253. Livneh discloses that “[t]he edge 42 and/or the seal 46 [of the handheld unit 34] are disposable on the skin” and “the electrode 32 extends ‘straight into’ the skin at about 90 degree angle.” Ex-1010, Fig. 3, ¶¶34–35. Livneh also discloses that “[t]he edge includes a plurality of edge segments that are coplanar with one another” (Ex-1010, ¶5) and “[b]y providing a substantially flat edge, a defined area of skin may be treated with the electrodes” (*id.*, ¶8). Thus, the end surface of the Livneh’s needle module is the plane defined by the edge segments contacting the skin surface (designated by the green line in Figs. 3 and 4 of Livneh, reproduced below) that is designed to be positioned on or near a patient’s dermatological tissue during treatment. Ex-1003, ¶253.



Livneh—Fig. 3 (needles retracted)



Livneh—Fig. 4 (needles extended)

When the electrodes are extended, the electrodes pass the bottom surface of the needle module, as illustrated by Fig. 4 (reproduced and annotated above). Ex-1003, ¶253.

During treatment of a patient's dermatological tissue (*e.g.*, skin on a patient's face or neck), a user would hold the handle portion 38, which is located at the right-hand side of the handheld unit 34 in Fig. 3 of Livneh, and position the proximal end (designated by the blue box in Fig. 3 reproduced above) of the handle portion near the dermatological tissue to be treated such that the edge 42 and/or the seal 46 engage the dermatological tissue near a treatment region. Ex-1003, ¶254.

Accordingly, the handle portion includes a “proximal end” as recited by claim 1 of the ’812 patent. *Id.*

As explained in Section VIII.F.1, a POSA would have been motivated to make the connection between the housing 36 and the handle portion 38 in Livneh (Ex-1010, ¶33) “releasably couplable” from the proximal end of the handle portion. Ex-1003, ¶255. Accordingly, Livneh’s needle module modified by teachings of Mehta and the knowledge of a POSA is releasably couplable. *Id.*

(c) Element[1b]

Supra Section VIII.F.2(b).

(d) Element[1c]

Supra Section VIII.F.2(c).

(e) Element[1d]

Supra Section VIII.F.2(d).

(f) Element[1e]

In the Modified Livneh Device, at least one electrical contact of the needle assembly of Livneh remains electrically coupled to at least one electrical contact of the user holdable device proximal end. *Supra* Sections VIII.F.2(d) and VIII.F.4; Ex-1003, ¶259. Further, Livneh discloses the “a cable...or other electrical connection allows transmission of the RF signal from the power supply 50 in the control unit 48 to the electrodes 32 in the handheld unit 34,” via wires 51. Ex-1010, ¶37. Thus, the Modified Livneh Method communicates (*i.e.*, transmits)

electrical signals (*i.e.*, RF signals) from the user holdable device proximal end to the needle assembly via electrical contacts. Ex-1003, ¶259.

For the foregoing reasons in Sections VIII.F.6(a)–VIII.F.6(f), the combination of Livneh, Mehta, and the knowledge of a POSA renders obvious claim 1. Ex-1003, ¶260.

7. Claim 7

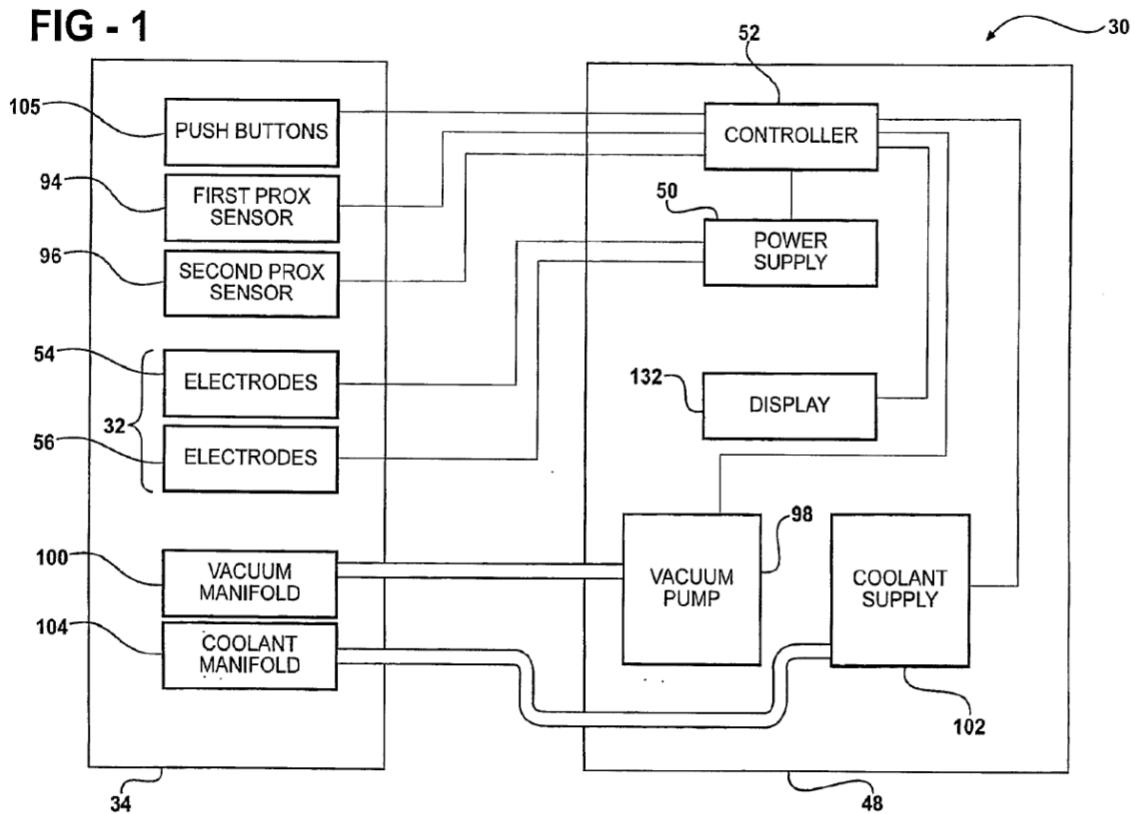
Supra Section VIII.F.5.

8. Claim 9

Supra Section VIII.F.3.

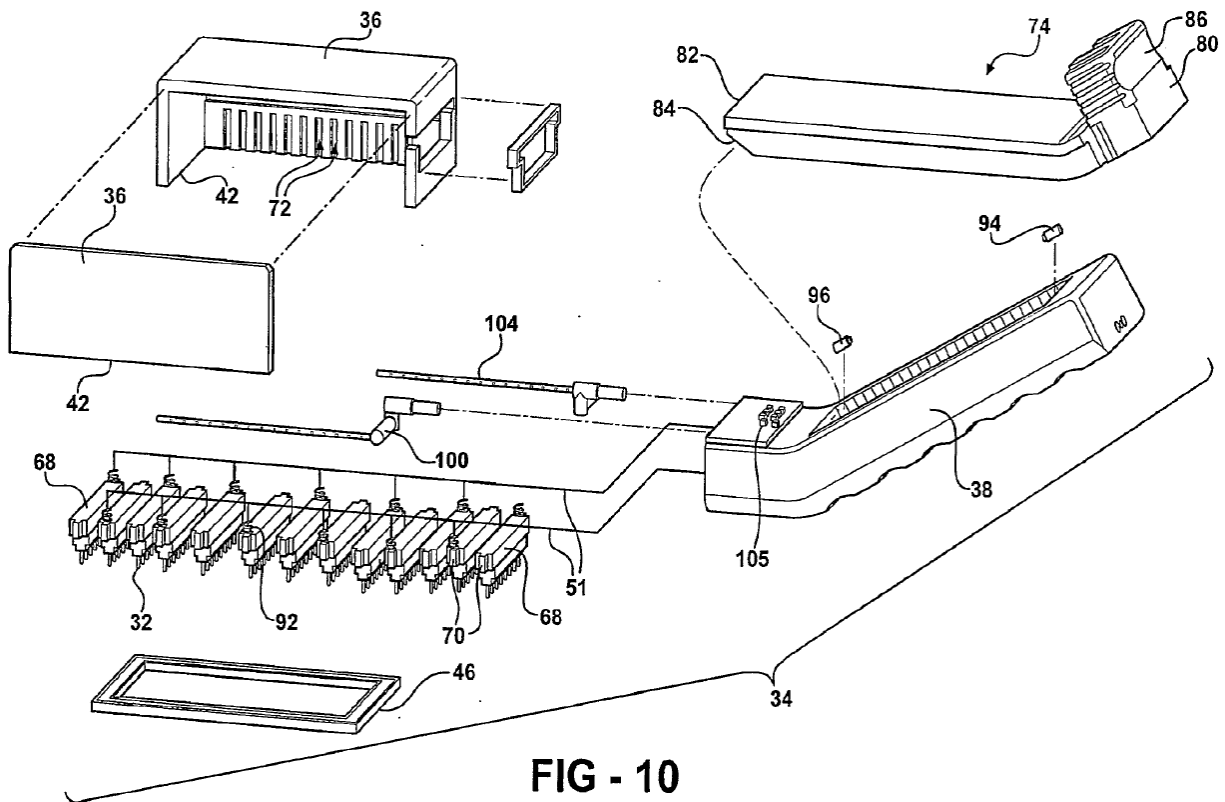
9. Claim 10

Livneh discloses energizing its respective microneedles to provide RF energy to a patient’s dermatological tissue in a bipolar mode of operation. Ex-1010, ¶¶39, 49; Ex-1003, ¶266. Specifically, Livneh discloses that “in bipolar operation, as shown in Figure 1,” which is reproduced below, “the RF signal is applied through a first set 54 of the electrodes 32 and utilizes a second set 56 of electrodes as a return path to the power supply 50.” Ex-1010, ¶39.



Livneh—Fig. 1

Livneh further teaches that “[i]n the bipolar configuration, as shown in Figure 10,” which is reproduced below, “the coil 92 of each holder 68 in successive rows alternates between the two wires 51, where one wire 51 provides a supply path from the power supply 50 and the other wire 51 provides a return path.” Ex-1010, ¶49.



Livneh—Fig. 10

Therefore, Livneh discloses that a first electrical contact of the at least one electrical contact (*i.e.*, a first coil 92 connected to the wire 51 that provides a supply path from the power supply) is electrically coupled to a first plurality of the plurality of needles (the needle-shaped electrodes 32 of a first comb 62 to which the first coil 92 is connected), and a second electrical contact of the at least one electrical contact (*i.e.*, a second coil 92 connected to the wire 51 that provides a return path from the power supply) is electrically coupled to a second, different plurality of the plurality of needles (the needle-shaped electrodes 32 of a second comb 62 to which the second coil 92 is

connected). Ex-1003, ¶267. Accordingly, Livneh discloses the additional limitations in claim 10, and for the reasons set forth *supra* Section VIII.F.6, the combination of Livneh, Mehta, and the knowledge of a POSA renders obvious claim 10. *Id.*

10. Claim 11

Supra Section VIII.F.4.

IX. DISCRETIONARY DENIAL IS NOT WARRANTED

The Board should not exercise its discretion to deny institution under 35 U.S.C. §§ 314 or 325. This Petition presents compelling evidence of non-patentability based on entirely new prior art, expert testimony, and arguments. No Ground involves “roadmapping” from the outcome in the Cartessa Aesthetics IPR. Neither Petitioner is a party in any district court litigation involving the ’812 patent, and all such litigation has been stayed. And—perhaps most importantly—institution would further “the Board’s mission to improve patent quality.” *Code200, UAB v. Bright Data Ltd.*, IPR2022-00861, -00862, 2022 WL 3646167, at *3 (P.T.A.B. August 23, 2022) (precedential) (internal quotations and citation omitted).

A. The Board Should Not Exercise Its Discretion to Deny Institution Under 35 U.S.C. § 314(a)

This Petition presents exceptionally compelling evidence of unpatentability. Under § 314(a), there is far more than a “reasonable likelihood that the petitioner would

prevail.” Refusing to grant the petition “would undercut the congressional grant to the United States Patent and Trademark Office of significant power to revisit and revise earlier patent grants as a mechanism to improve patent quality and restore confidence in the presumption of validity that comes with issued patents.”

Code200, 2022 WL 3646167, at *2 (internal quotations omitted). *See also* Vidal, K., Memorandum, “Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation,” at 4–5 (USPTO Jun. 21, 2022) (clarifying, where there is compelling evidence of unpatentability, “the PTAB should not discretionarily deny institution under *Fintiv*”) (“Interim Procedure”).

General Plastic Industrial v. Canon Kabushiki Kaisha, IPR2016-01357, Paper 19 at 15–19 (P.T.A.B. Sept. 6, 2017) (precedential) (“*General Plastic*”) and its progeny also do not apply. This is an exceptionally strong petition, and neither Petitioner was a real party in interest or in privity with the petitioner in the earlier Cartessa Aesthetics IPRs. *See Illumina v. Ravgen*, IPR2021-01271, Paper 12, at 15–20 (P.T.A.B. Jan. 26, 2022). Neither Petitioner has a “significant relationship” with Cartessa Aesthetics, had control over the Cartessa Aesthetics IPRs, participated or provided input into the Cartessa Aesthetics IPRs, or had knowledge of them prior to their being filed. *See Valve Corp. v. Elec. Scripting Prods., Inc.*, IPR2019-00062, Paper 11 at 2, 10 (P.T.A.B. Apr. 2, 2019); *Toyota Motor Corp. v. Intellectual Ventures II*, IPR2022-00708, Paper 12, at 10 (P.T.A.B. Oct. 12, 2022).

Of great significance, Petitioners are not using the earlier proceedings as a “roadmap” here. Petitioners employ entirely different art, different arguments and a different expert. They make no use of the art, argument, responses, or holdings in the Cartessa Aesthetics IPR to “refine” failed arguments there. *Toyota Motor*, IPR2022-00708, Paper 12, at 10. Thus this petition “cannot be said to be wasteful of resources of the Board.” *Western Digital Corp. v. SPEX Techs., Inc.*, IPR2018-00082, 2018 WL 1990246, at *9 (P.T.A.B. Apr. 25, 2018).

This is Petitioners’ first petition for IPR of the ’812 patent and the timing of its filing involves no improper gamesmanship. *Netflix, Inc. et al. v. Uniloc 2017 LLC*, IPR2020-00041, Paper 10, at 12 (P.T.A.B. Mar. 25, 2020).

Neither Petitioner is a named defendant in any pending litigation. All district court litigation in which Serendia asserts Petitioners’ products are infringing has been stayed. *Serendia, LLC v. Cutera, Inc.*, No. 1:23-cv-00222, Dkts. 10, 11 (Apr. 4, 2023 D. Del.); *Serendia, LLC v. Cynosure, LLC*, No. 1:23-cv-00223, Dkts. 11, 12 (Apr. 5, 2023 D. Del.). There have been no Scheduling Conferences, and no trial dates have been set. The Board will issue a final written decision in this IPR long before any such litigation would go to trial, and, accordingly, whatever estoppel effect this IPR has, if any, would go into effect then. Therefore, the Board should not discretionarily deny institution of IPR in view of any parallel proceeding. *See* Interim Procedure at 7.

The existence of a parallel ITC Lawsuit should not be a factor for consideration in determining whether the Board may exercise its discretion to deny institution. Interim Procedure at 6–7 (“The PTAB will not discretionarily deny petitions based on applying *Fintiv* to a parallel ITC proceeding”).

B. The Board Should Not Exercise Its Discretion to Deny Institution Under 35 U.S.C. § 325(d)

None of Mehta, Na’848, Lee, or Livneh was of record in the original examination or earlier IPRs. U.S. 8,540,705 (“Mehta’705”), which has some overlap with Mehta in the specification, was cited on the face of the ’812 patent but was not cited or discussed by the Examiner during prosecution of the ’812 patent. Ex-1001, 2. Under 35 U.S.C. § 325(d), these factors strongly argue in favor of the institution of IPR.

X. CONCLUSION

Based on the foregoing, Petitioners respectfully request that a trial be instituted and that claims 1–20 of the ’812 patent be canceled.

Respectfully submitted,

Date: January 19, 2024

/Scott Weidenfeller/

Scott Weidenfeller, Reg. No. 54,531
W. Kiersten Choi, Reg. No. 73,012
COVINGTON & BURLING LLP
One CityCenter, 850 Tenth Street, NW
Washington, DC 20001-4956

(202) 662-6000

Anupam Sharma, Reg. No. 55,609
Peter P. Chen, Reg. No. 39,631
COVINGTON & BURLING LLP
3000 El Camino Real 5 Palo Alto Square,
10th Floor
Palo Alto, CA 94306-2112
(650) 632-4700

APPENDIX A

Element	Claim Language
[1pre]	A method of treating dermatological tissue, comprising:
[1a]	placing a user holdable device releasably couplable deployable needle module end surface on or near dermatological tissue to be treated,
[1b]	the user holdable device including a proximal end and the releasably couplable deployable needle module, the releasably couplable deployable needle module mechanically separatably from the user holdable device proximal end and including a needle assembly including a plurality of needles,
[1c]	the needle assembly movable within the releasably couplable deployable needle module to extend the plurality of needles from the releasably couplable deployable needle assembly end surface
[1d]	while at least one electrical contact of the needle assembly remains electrically coupled to at least one electrical contact of the user holdable device proximal end; and
[1e]	communicating electrical signals from the user holdable device proximal end to the needle assembly via the electrical contacts.
2	The method of claim 1, further comprising energizing a motor coupled to the needle assembly to cause the plurality of the needles to extend a desired distance from the releasably couplable deployable needle module end surface.
3	The method of claim 2, further comprising energizing the plurality of needles via a signal generator electrically coupled to the user holdable device proximal end.
4	The method of claim 3, wherein the user holdable device proximal end further includes at least one embedded LED therein and further including energizing the at least one embedded LED so the at least one embedded LED illuminates the releasably couplable deployable needle module.
5	The method of claim 4, wherein the needle assembly includes a translucent section and further including

Element	Claim Language
	energizing the least one embedded LED to illuminate the plurality of needles via the needle assembly translucent section.
6	The method of claim 3, further comprising energizing the motor to deploy the plurality of needles to a predetermined depth and directing the signal generator to energize the plurality of needles at a predetermined intensity for a predetermined duty cycle.
7	The method of claim 1, wherein one of the at least one electrical contacts is extendable.
8	The method of claim 1, wherein the user holdable device proximal end includes a motor with a drive shaft releasably couplable to the needle assembly and the method further including energizing the motor coupled via the drive shaft to the needle assembly to cause the plurality of needles to extend a desired distance from the releasably couplable deployable needle module end surface.
9	The method of claim 1, wherein one of the at least one electrical contacts includes a pin that is extendable in the same direction as the plurality of needles.
10	The method of claim 1, wherein a first electrical contact of the at least one electrical contact is electrically coupled to a first plurality of the plurality of needles and a second electrical contact of the at least one electrical contact is electrically coupled to a second, different plurality of the plurality of needles.
11	The method of claim 1, wherein one of the user holdable device proximal end and the needle assembly includes at least two extendable electrical contacts and the other includes at least two electrical contacts couplable to at least two extendable electrical contacts.
[12pre]	An apparatus for treating dermatological tissue, comprising:
[12a]	a user holdable device including a proximal end and a releasably couplable deployable needle module, the releasably couplable deployable needle module mechanically separatably from the user holdable device

Element	Claim Language
	proximal end and including a needle assembly including a plurality of needles,
[12b]	the needle assembly movable within the releasably couplable deployable needle module to extend the plurality of needles from the releasably couplable deployable needle assembly end surface
[12c]	while at least one electrical contact of the needle assembly remains electrically coupled to at least one electrical contact of the user holdable device proximal end.
13	The apparatus of claim 12, further including a motor coupled to the needle assembly to extend the plurality of needles a desired distance from the releasably couplable deployable needle assembly end surface when the motor is energized with a particular signal.
14	The apparatus of claim 13, further including a signal generator electrically coupled to the user holdable device proximal end to energize the plurality of needles.
15	The apparatus of claim 14, wherein the user holdable device proximal end includes an electrical connector couplable to the signal generator.
16	The apparatus of claim 13, wherein the user holdable device proximal end includes the motor, the motor including a drive shaft releasably couplable to the needle assembly.
17	The apparatus of claim 12, wherein the user holdable device proximal end further includes at least one embedded LED therein and the apparatus further including a photonic signal generator electrically coupled to the least one embedded LED, the at least one embedded LED capable of illuminating the needle assembly when energized.
18	The apparatus of claim 12, wherein one of the at least one electrical contacts includes a pin that is extendable in the same direction as the plurality of needles.
19	The apparatus of claim 12, wherein one of the user holdable device proximal end and the needle assembly includes at least two extendable electrical contacts and the other includes at least two electrical contacts couplable to the at least two extendable electrical contacts.

Element	Claim Language
20	The apparatus of claim 12, wherein one of the at least one electrical contacts is extendable.

CERTIFICATE OF WORD COUNT COMPLIANCE

Pursuant to 37 C.F.R. § 42.24 (d), I certify that the forgoing complies with the type-volume limits of 37 C.F.R. § 42.24 and contains 13,942 words based on the word count indicated by the word-processing system used to prepare the paper, and excluding those portions exempted by § 42.24(a).

Date: January 19, 2024

/Scott Weidenfeller/

Scott Weidenfeller, Reg. No. 54,531
COVINGTON & BURLING LLP
One CityCenter, 850 Tenth Street, NW
Washington, DC 20001-4956
(202) 662-6000

Counsel for Petitioner

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.105, I hereby certify that on January 19, 2024, I caused a true and correct copy of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 10,869,812, supporting exhibits, and Power of Attorney to be served via Priority Mail Express on the Patent Owner at the following correspondence address of record as listed on the USPTO Patent Center:

Merle W. Richman, III
P.O. Box 3333
La Jolla, Ca 92038
Customer No. 26338

A courtesy copy was also served via electronic mail on Patent Owner's counsel of record in U.S. International Trade Commission and District Court matters:

Timothy Devlin
DEVLIN LAW FIRM LLC
1526 Gilpin Avenue
Wilmington, DE 19806
tdevlin@devlinlawfirm.com

Kevin C. Wheeler
Cecilia Sanabria
Michael A. David
Charles H. Sanders
LATHAM & WATKINS LLP
555 11th St. NW, Suite 1000
Washington, D.C. 20004-1304
Phone: (202) 637-2200
kevin.wheeler@lw.com
cecilia.sanabria@lw.com
michael.david@lw.com
charles.sanders@lw.com

Date: January 19, 2024

/Scott Weidenfeller/

Scott Weidenfeller, Reg. No. 54,531
COVINGTON & BURLING LLP
One CityCenter, 850 Tenth Street, NW
Washington, DC 20001-4956
(202) 662-6000

Counsel for Petitioner