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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BRAN FERREN, MURIEL Y. ISHIKAWA, EDWARD K.Y. JUNG, NATHAN P. MYHRVOLD, CLARENCE T. TEGREENE, and LOWELL L. WOOD JR.

Appeal 2011-000928
Application 11/072,698
Technology Center 3700

Before DONALD E. ADAMS, JEFFREY N. FREDMAN, and JACQUELINE WRIGHT BONILLA, *Administrative Patent Judges*.

FREDMAN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a hair removal method. The Examiner rejected the claims as incorporating new matter, as being indefinite, and as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part.

Statement of the Case

Background

"The present application relates, in general, to the field of hair treatment devices and methods, and more particularly to depilation devices and methods" (Spec. 1, ll. 25-26).

The Claims

Claims 1-3, 7, 9, 10, 12, 15, 17, 21, 24, 25, 27, 45, and 47-52 are on appeal. Claims 1 and 21 are representative and read as follows:

> 1. A hair removal method comprising:
>
> a) manually positioning a handheld device containing a light source adjacent to a skin surface;
>
> b) detecting or determining a distance of said light source from the skin surface with a proximity sensor in said handheld device; and
>
> c) if said determined distance is within a specified range, activating said light source responsive to said detecting or determining a distance of said light source from the skin surface with a proximity sensor in said handheld device to generate a highly convergent beam of a frequency band significantly absorbed by hair and having a narrow, spatially limited beam waist located at a selected distance above the skin surface.
>
> 21. The method of claim 1, including activating said light source to generate said highly convergent beam with duration and intensity sufficient to cause absorption of between about 50 and about 200 Joules per gram of hair by a hair shaft at said beam waist.

The issues

A. The Examiner rejected claims 21, 24, and 52 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement (Ans. 3-4).

B. The Examiner rejected claims 21, 24, and 52 under 35 U.S.C. § 112, second paragraph, as indefinite (Ans. 4).

C. The Examiner rejected claims 1-3, 7, 9, 10, 12, 15, 17, 45, and 47-51 under 35 U.S.C. § 103(a) as obvious over Neuberger[1] and Cense[2] (Ans. 5-8).

D. The Examiner rejected claims 25 and 27 under 35 U.S.C. § 103(a) as obvious over Neuberger, Cense, and Altshuler[3] (Ans. 8-9).

E. The Examiner rejected claims 21, 24, and 52 under 35 U.S.C. § 103(a) as obvious over Neuberger, Cense, and Lefki[4] (Ans. 9-10).

A. 35 U.S.C. § 112, first paragraph – New matter

The Examiner finds that the "claims have added the limitation of joules per gram of hair or joules per gram of skin. The specification never discloses a gram of hair or skin. In fact, the specification discloses a gram of energy (Par 0039). This is therefore considered new matter" (Ans. 3-4).

Appellants contend that a

> person having skill in the art would understand from the above portion of the Appellants' specification that energy from light is absorbed by the **hair shaft**, and that the amount of energy absorbed from the light **by** the hair shaft would be "between about 50 and about 200 joules (of energy) per gram (of hair)" in the first example, and "between about 50 and about 100 joules (of energy) per gram (of hair)" in the second example

(App. Br. 24).

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[1] Neuberger et al., US 2002/0107509 A1, published Aug. 8, 2002.
[2] Cense et al., US 2002/0173782 A1, published Nov. 21, 2002.
[3] Altshuler et al., US 7,135,033 B2, issued Nov. 14, 2006.
[4] Lefki et al., US 7,108,690 B1, issued Sep. 19, 2006.

Appellants contend that the "Examiner's allegation that the 'specification discloses a gram of energy' is **nonsensical**, and without a shred of scientific support. It is well known that Joules are units of energy and grams are units of mass" (App. Br. 24).

The issue with respect to this rejection is: Does the evidence of record support the Examiner's conclusion that the limitations in claims 21, 24, and 52 to "Joules per gram of hair" and "Joules per gram of skin" represent new matter?

Findings of Fact

The following findings of fact ("FF") are supported by a preponderance of the evidence of record.

1. The Specification teaches that the "duration and intensity of the light may be sufficient to cause absorption of light by the hair shaft, at the beam waist, of between about 50 and about 200 joules *per gram*" (Spec. 6, ll. 16-18; emphasis added).

2. The Specification teaches that in "other embodiments the duration and intensity of the light may be sufficient to cause absorption of between about 50 and about 100 joules *per gram of energy* from the light by the hair shaft at the beam waist" (Spec. 6, ll. 18-21; emphasis added).

3. The Specification teaches that "the duration and intensity of the light may be sufficient to cause absorption of between about 20 and about 40 joules *per gram of energy* from the light by the skin surface" (Spec. 6, ll. 24-26; emphasis added).

4. The Specification teaches that in "still other embodiments the duration and intensity of the light may be sufficient to cause absorption of

between about 10 and about 80 joules *per gram of energy* from the light by the skin surface" (Spec. 6, ll. 26-28; emphasis added).

5. The Specification teaches that the "beam waist diameter may be between about 1 and about 3 hair diameters" (Spec. 7, ll. 5-6).

Principles of Law

"[I]t is the specification itself that must demonstrate possession. And while the description requirement does not demand any particular form of disclosure, ... or that the specification recite the claimed *invention in haec verba*, a description that merely renders the invention obvious does not satisfy the requirement" *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010).

Analysis

There is no reasonable dispute that the Specification does not, *ipsis verbis*, use either the phrase "Joules per gram of hair" as in claims 21 or "Joules per gram of skin" as in claim 24 or both as in claim 52. Instead, the Specification uses the phrase "joules per gram of energy" multiple times (FF 2-4).

We agree with Appellants' point that it "is well known that Joules are units of energy and grams are units of mass" (App. Br. 24).

However, in the context of the Specification, there is no evidence that Appellants possessed the concept of "joules per gram of hair" or "joules per gram of skin" (FF 1-4). The Specification teaches a focus of the beam on about 1 to 3 hair diameters, focusing on single hairs or hair shafts (FF 1, 2, 5). The Specification does not ever discuss treatment of hair or skin in gram quantities, nor does the Specification ever provide any reason to measure the

energy used as "joules per gram of hair" or "joules per gram of skin". There are no blazemarks or other indications that "joules per gram of hair" or "joules per gram of skin" was the intended language. *See Fujikawa v. Wattanasin*, 93 F.3d 1559, 1571 (Fed. Cir. 1996) ("In finding that Wattanasin's disclosure failed to sufficiently describe the proposed sub-genus, the Board again recognized that … his application contained no blazemarks . . . [which] might be of special interest."). At best, it might have been obvious to use "joule per gram of hair" or "joules per gram of skin", but "a description that merely renders the invention obvious does not satisfy the requirement." *Ariad*, 598 F.3d at 1352.

Conclusion of Law

The evidence of record supports the Examiner's conclusion that the limitations in claims 21, 24, and 52 to "Joules per gram of hair" and "Joules per gram of skin" represent new matter.

B. 35 U.S.C. § 112, second paragraph

The Examiner finds that "Joules per gram of hair or skin is not a commonly used unit of measurement within the art as alleged by applicant. It is commonly known as a measurement of specific heat or latent heat; since applicant is not claiming a value of specific or latent heat the unit of measure makes no sense and is therefore indefinite" (Ans. 4).

Appellants contend that the "claims specifically recite absorption of 'Joules **per gram of hair**' and/or 'Joules **per gram of skin**' (*emphasis added*). The claim language is clear and does particularly point out and distinctly claim the subject matter the Appellants regard as their invention" (App. Br. 26).

The issue with respect to this rejection is: Does the evidence of record support the Examiner's conclusion that the claims are indefinite?

Principles of Law

"The test for definiteness is whether one skilled in the art would understand the bounds of the claims when read in light of the specification." *Miles Laboratories, Inc. v. Shandon, Inc*., 997 F.2d 870, 875 (Fed. Cir. 1993).

In *Miyazaki*, the Board stated that

> rather than requiring that the claims are insolubly ambiguous, we hold that if a claim is amenable to two or more plausible claim constructions, the USPTO is justified in requiring the applicant to more precisely define the metes and bounds of the claimed invention by holding the claim unpatentable under 35 U.S.C. § 112, second paragraph, as indefinite.

Ex parte Miyazaki, 89 USPQ2d 1207, 1211 (BPAI 2008).

Analysis

While the Specification does not recite "joules per gram of hair" or "joules per gram of skin", we agree with the Appellants that the person of ordinary skill would reasonably interpret these terms, in light of claims 21, 24, and 52, as requiring that the amount of energy absorbed by a hair shaft, or skin, is equal to the required amount of joules divided by the mass of the hair shaft, or skin, respectively.

Conclusion of Law

The evidence of record does not support the Examiner's conclusion that the claims are indefinite.

C. 35 U.S.C. § 103(a) over Neuberger and Cense

The Examiner finds that:

> Neuberger teaches a hair removal method comprising: manually positioning a handheld device containing a light source, specifically a laser (Par 0053) adjacent to a skin surface (Fig. 5); detecting or determining a distance of said light source from the skin surface with a proximity sensor (distance sensor, Par 0049); and if said determined distance is within a specified range, activating said light source responsive to said detecting or determining a distance of said light source from the skin surface with proximity sensor (distance sensor) in said handheld device to generate a highly convergent beam of a frequency band significantly absorbed by hair (Par 0049 and Fig 5).

(Ans. 5-6). The Examiner finds that "Neuberger fails to teach a hair removal device that focuses the beam of light above the skin surface" (Ans. 6). The Examiner finds that "Cense teaches a hair removal device in which the target position of the laser beam can be the hair root (epilation) in order to destroy the hair follicle or just above the surface of the skin to shorten the hair, similar to shaving" (Ans. 6).

The Examiner finds it obvious to "use the laser hair removal device taught by Neuberger to focus the beam waist above the skin surface as taught by Cense in order to cut the hair just above the skin surface as taught by Cense" (Ans. 6).

The issue with respect to this rejection is: Does the evidence of record support the Examiner's conclusion that Neuberger and Cense render the claims obvious?

Findings of Fact

6. The Specification teaches that the "proximity sensor may be capable of detecting proximity of the light source to a skin surface and

generating a proximity sense signal indicative of the proximity . . . The detected proximity may correspond to a selected distance range of the light source from the skin surface" (Spec. 5, ll. 25-30).

7. The Specification teaches that "[p]roximity or position sensing may be used to detect that the device is within the specified distance range, and permitting the device to be activated manually by the user (e.g. with a switch) when it is within the specified distance range" (Spec. 5, ll. 17-20).

8. The Specification teaches that "[i]f proximity sense signal 113 indicates that active surface 106 is within the selected distance range of skin surface 108, control signal 115 is generated to control light source 116 to generate light" (Spec, 9. ll. 21-23).

9. Neuberger teaches that the "soft tissue applications of the present invention include, but are not limited to . . . the removal of unwanted hair" (Neuberger 4 ¶ 0055).

10. Neuberger teaches that "the laser applicator is held at a distance from the skin surface" (Neuberger 4 ¶ 0049).

11. Neuberger teaches that a "computerized distance sensor alerts the operating physician when the applicator is too far from the skin surface so that the physician may move the applicator into closer proximity to the skin surface. The sensor also alerts the operator when the applicator is too close to the skin surface" (Neuberger 4 ¶ 0049).

12. The Specification teaches that "[g]enerating a convergent beam may include passing light from the light source through a high numerical aperture lens" (Spec. 11, ll. 3-4).

13. The Specification teaches that "[l]ight sources include, but are not limited to, lasers, laser diodes, and light emitting diodes. The light source may be a near-infrared source, such as a Nd (neodymium):YAG laser. Alternatively, the light source may be an IR laser. The light source may be of a type that emits light having a free-space wavelength between about 0.8 /μm and about 1.7 /μm" (Spec. 10, ll. 15-19).

14. Neuberger teaches that:

> in dermatological applications the light source may be a pulsed dye, carbon dioxide, erbium, ruby, argon, alexandrite, copper vapor or Nd:YAG laser. Additional light sources include, diode light sources including, but not limited to, laser diodes, tapered laser diodes, frequency-doubled laser diodes, diode pumped solid state lasers, frequency-doubled diode pumped solid state lasers, diode pumped fiber lasers, or super luminescent diodes

(Neuberger 4 ¶ 0053).

15. Neuberger teaches that "[l]ight energy transmitted by light delivery optics **55** propagates through application end **54** and is focused by lens **52** to hair follicle **51**. The melanin within hair follicle **51** absorbs light energy causing hair follicle **51** to coagulate and be destroyed" (Neuberger 4-5 ¶ 0056).

16. Neuberger teaches that "[l]ens **52** can be an adjustable lens to manipulate the spot size required for certain applications." (Neuberger 4 ¶ 0056).

17. Neuberger teaches that

> an acoustical signal is emitted by the sub-system to alert the operator if a region has been erroneously scanned. Alternatively a display unit is incorporated into the system

> that employs a color scheme to communicate to the operator which areas have been treated, and the quantity of light energy that has been applied to a certain portion of the site. This reduces operator error and the need for additional treatment due to under or over exposure of a site

(Neuberger 3 ¶ 0043).

18. Cense teaches that the "operation of such a laser shaver substantially corresponds to the operation of the above-discussed laser epilation devices, however, the target position of the laser beam of the laser shaver is not in the hair root but in a position on the hair just above the surface of the skin" (Cense 6 ¶ 0034).

Principles of Law

"The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR Int'l Co. v. Teleflex Inc*., 550 U.S. 398, 416 (2007). "If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability." *Id*. at 417. As noted by the Court in *KSR*, "[a] person of ordinary skill is also a person of ordinary creativity, not an automaton." 550 U.S. at 421.

Claim terms are interpreted using the broadest reasonable interpretation in light of the Specification. *See, e.g., In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000) ("[D]uring examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification.").

Analysis

Claim interpretation

Claim interpretation is at the heart of patent examination because before a claim is properly interpreted, its scope cannot be compared to the prior art. In this case, the dispute is over step c) of claim 1, which requires "if said determined distance is within a specified range, activating said light source responsive to said detecting or determining a distance of said light source from the skin surface with a proximity sensor", a "highly convergent beam", and "a narrow, spatially limited beam waist".

"distance is within a specified range"

Appellants contend that "there is no teaching of 'if said determined distance is within a specified range, activating said light source responsive to said detecting or determining a distance of said light source from the skin surface with a proximity sensor in said handheld device'" (App. Br. 29). Appellants "assert that the Examiner did not demonstrate that the method described in Neuberger . . . is *equivalent* to the recitation in claim 1" (App. Br. 30).

During prosecution, claim terms are given their broadest reasonable interpretation as they would be understood by persons of ordinary skill in the art in the light of the Specification. Therefore, we first turn to the Specification to determine whether the meanings of the phrase "if said determined distance is within a specified range, activating said light source responsive to said detecting or determining a distance of said light source from the skin surface with a proximity sensor" at issue can be discerned.

The Specification teaches that the "proximity sensor may be capable of detecting proximity of the light source to a skin surface and generating a proximity sense signal indicative of the proximity . . . The detected

proximity may correspond to a selected distance range of the light source from the skin surface" (Spec. 5, ll. 25-30; FF 6). The Specification teaches that "[p]roximity or position sensing may be used to detect that the device is within the specified distance range, and permitting the device to be activated manually by the user (e.g. with a switch) when it is within the specified distance range" (Spec. 5, ll. 17-20; FF 7). The Specification also teaches that "[i]f proximity sense signal 113 indicates that active surface 106 is within the selected distance range of skin surface 108, control signal 115 is generated to control light source 116 to generate light" (Spec, 9. ll. 21-23; FF 8).

In the context of the Specification, the phrase "if said determined distance is within a specified range, activating said light source responsive to said detecting or determining a distance of said light source from the skin surface with a proximity sensor" is reasonably interpreted as requiring a proximity sensor to determine the range from the skin (FF 6). If the range is in a selected range, the Specification is reasonably interpreted as teaching the use of either manual (FF 7) or automatic (FF 8) activation of a light source.

Neuberger teaches that "the laser applicator is held at a distance from the skin surface" (Neuberger 4 ¶ 0049; FF 10). Neuberger also teaches that a "computerized distance sensor alerts the operating physician when the applicator is too far from the skin surface so that the physician may move the applicator into closer proximity to the skin surface. The sensor also alerts the operator when the applicator is too close to the skin surface" (Neuberger 4 ¶ 0049; FF 11).

We agree with the Examiner that Neuberger teaches "activating the light source within a specified distance range" (Ans. 11). In particular, we agree that Neuberger users a proximity sensor, the "computerized distance sensor" to identify a distance of the light source from the skin (FF 10-11). We also agree that Neuberger's manual movement and operation of the applicator by the physician reasonably satisfies the requirement for "activating said light source responsive to said . . . determining a distance" since the physician is guided to only activate the light source when the sensor is neither too close nor too far from the skin surface (FF 11). This is consistent with the claim phrase, interpreted in light of the Specification, which is reasonably interpreted to encompass manual activation (FF 7).

"highly convergent beam" and *"a narrow, spatially limited beam waist"*

Appellants contend that "the Examiner did not point to any portion of Neuberger that teaches that the beam is highly convergent and having a narrow, spatially limited beam waist" (App. Br. 30).

We begin by turning to the Specification to interpret these phrases. The Specification teaches that "[l]ight sources include, but are not limited to, lasers, laser diodes, and light emitting diodes. The light source may be a near-infrared source, such as a Nd (neodymium):YAG laser" (Spec. 10, ll. 15-17; FF 13). The Specification teaches that "[g]enerating a convergent beam may include passing light from the light source through a high numerical aperture lens" (Spec. 11, ll. 3-4; FF 12).

Neuberger teaches that "in dermatological applications the light source may be . . . Nd:YAG laser. Additional light sources include, diode

light sources including, but not limited to, laser diodes" (Neuberger 4 ¶ 0053; FF 14). Neuberger teaches that "[l]ight energy transmitted by light delivery optics **55** propagates through application end **54** and is focused by lens **52** to hair follicle **51**" (Neuberger 4-5 ¶ 0056; FF 15).

We therefore interpret a "highly convergent" beam "having a narrow, spatially limited beam waist," consistent with the Specification, as encompassing a laser beam, particularly a Nd:YAG laser beam focused by a lens onto a hair. Neuberger expressly teaches a laser beam which may be focused by a lens onto a hair follicle (FF 14-15). While Neuberger does not expressly describe the focused laser beam as "highly convergent" or as having "a narrow, spatially limited beam waist," we agree with the Examiner that Figure 5 in Neuberger suggested these features to the ordinary artisan (Ans. 11). Moreover, such features are reasonably found to be inherent properties since Neuberger teaches the same light sources and a lens capable of focusing the beam onto a single hair (FF 14-15). *See In re Best*, 562 F.2d 1252, 1255 (CCPA 1977) ("Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product.... Whether the rejection is based on 'inherency' under 35 U.S.C. § 102, on 'prima facie obviousness' under 35 U.S.C. § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products.) Here, Appellants have provided no evidence to suggest that the lens focused laser beam of Neuberger does not

inherently satisfy the requirement for a "highly convergent" beam "having a narrow, spatially limited beam waist".

Claims 1 and 47

Based upon our claim interpretations above, we conclude that Neuberger teaches those elements of claims 1 and 47 as discussed above. Appellants also contend that the Examiner did not demonstrate with objectively-verifiable evidence that Neuberger teaches . . . 'a highly convergent beam of a frequency band significantly absorbed by hair'" (App. Br. 32).

We are not persuaded. Neuberger teaches that the "melanin within hair follicle **51** absorbs light energy causing hair follicle **51** to coagulate and be destroyed" (Neuberger 4-5 ¶ 0056; FF 15). This is an express teaching that the laser beam of Neuberger is at a frequency which can be absorbed by melanin, a component of hair, and remove the hair, as required by claim 1. Appellants' discussion (*see* App. Br. 32-33) appears to distinguish between permanent removal of hair and simply cutting the hair, but claim 1 includes no such distinction regarding the hair removal.

Appellants also contend that, in Cense, "there is no mention of **focusing a highly convergent beam** above the skin surface, nor is any structure identified that could be used to focus the laser beam" (App. Br. 34).

We are not persuaded. Cense teaches that the "operation of such a laser shaver substantially corresponds to the operation of the above-discussed laser epilation devices, however, the target position of the laser beam of the laser shaver is not in the hair root but in a position on the hair

just above the surface of the skin" (Cense 6 ¶ 0034; FF 18). Thus, Cense teaches the use of a laser beam focused above the surface for a laser shaver. It is Neuberger who teaches focusing the laser beam on the target (FF 14-15) and thus it is the combination of the teachings of Cense and Neuberger which suggest laser shaving by focusing a highly convergent beam above the skin surface (*see* Ans. 6). *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981) ("The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art".)

Appellants contend that "the Examiner did not provide objective evidence showing a teaching, suggestion, or motivation for combining Neuberger and Cense to render obvious claim 1.

We are not persuaded. In *KSR*, the Supreme Court rejected the rigid application of the teaching, suggestion, and motivation test by the Federal Circuit, stating that

> The principles underlying [earlier] cases are instructive when the question is whether a patent claiming the combination of elements of prior art is obvious. When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.

550 U.S. at 417. The Examiner reasonably finds it obvious "to use the laser hair removal device taught by Neuberger to focus the beam waist above the skin surface as taught by Cense in order to cut the hair just above the skin surface as taught by Cense" (Ans. 6). Such a combination is merely a "predictable use of prior art elements according to their established functions." *KSR*, 550 U.S. at 417.

Appellants also contend that "such statements teach away from removing hair by focusing light above the skin surface, and thus teach away from combination with Cense as proffered by the Examiner" (App. Br. 37).

We are not persuaded. A teaching away requires a reference to actually criticize, discredit, or otherwise discourage the claimed solution. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) ("The prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed"). Appellants do not identify, and we do not find, any teaching in the cited references which teach away from the combination.

Claims 3 and 48

Appellants contend that the "Examiner provided only generalizations, and did not demonstrate with objective evidence that the target position of the laser beam on the hair shaft, during use of the device of Cense, would necessarily have fallen in the range of between about 25 μm and about 300 μm" (App. Br. 43).

The Examiner contends that "one of ordinary skill in the art would choose the target distance above the skin surface for the light beam in order

to provide the desired shave. If the user wants a close shave, a distance right at or just above the skin surface would be chosen" (Ans. 13).

We find that Appellants have the better position. While we agree that Appellants have not shown any unexpected results or "criticality" regarding the range of "about 25 µm and about 300 µm" in claim 3, the Examiner has not established that this range, or any point in or near this range, is a results optimizable variable or that there is a known desired range for shaving in the prior art. *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977). That is, before the Examiner can invoke the "criticality" type reasoning of "overlapping" or "adjacent" ranges, the Examiner must minimally establish that the prior art recognized the range as an issue.

Claims 12 and 50

Appellants contend that "the Examiner has not pointed to any teachings whatsoever in Neuberger showing or suggesting that 'the lens is adjustable to provide a broad range of angles of convergence'" (App. Br. 45).

The Examiner contends that "one of ordinary skill in the art would choose an angle of convergence to provide the desired focus spot as is necessary for targeting and mechanically damaging the desired type of hair at the desired location" (App. Br. 13).

We find that the Examiner has the better position. Neuberger demonstrates that the focus of the lens, and consequently the angle of convergence, is a results optimizable variable, noting that "[l]ens **52** can be an adjustable lens to manipulate the spot size required for certain applications." (Neuberger 4 ¶ 0056; FF 16). The discovery of an optimum

value of a results-effective variable in a known process is normally obvious. *In re Antonie*, 559 F.2d at 620. Appellants have provided no evidence to rebut this point.

Claims 15 and 51

Appellants contend that the "Examiner also failed to demonstrate with factual evidence that one of ordinary skill in the art would have somehow also 'interpreted' Cense to inherently teach the claimed numerical range, and somehow would have been motivated to modify Neuberger's device accordingly" (App. Br. 47).

The Examiner contends that it would have been "obvious for one of ordinary skill in the art to choose a beam waist that would cause the intensities to fall within the broad range of between about 4 and about 100 times to provide the most effective results based on the desired use of the device" (Ans. 13-14).

We find that Appellants have the better position. Again, while Appellants may not have identified any "criticality", the Examiner does not demonstrate that light fluence at the beam waist is a results optimizable variable, nor does the Examiner establishes that the range of light fluence at the beam waist is adjacent to, or overlapping with, any prior art range. We also agree with Appellants that the Examiner has not established that the fluence range is inherent. *See MEHL/Biophile Int'l. Corp. v. Milgraum*, 192 F.3d 1362, 1365 (Fed. Cir. 1999) ("Inherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.")

Claims 17 and 45

Appellants contend regarding claim 17 that the "Neuberger device clearly does not 'discontinue the exposure of a skin region,' as alleged by the Examiner" (App. Br. 50). Appellants acknowledge that "the Neuberger device provides an alert to an operator" (App. Br. 5). Appellants contend that the "Examiner did not demonstrate that it would have been obvious to modify Neuberger to obtain the recitations of claim 45" (App. Br. 51).

The Examiner finds that "Neuberger discloses a device that allows the physician to stop treatment and avoid applying additional radiation which would cause injury (Par 0040). This is interpreted as a device that discontinues the exposure of a skin region to a light beam prior to injury" (Ans. 14).

We find that the Examiner has the better position. The Examiner's interpretation is consistent with the claim interpretations above, and Neuberger expressly teaches that

> an acoustical signal is emitted by the sub-system to alert the operator if a region has been erroneously scanned. Alternatively a display unit is incorporated into the system that employs a color scheme to communicate to the operator which areas have been treated, and the quantity of light energy that has been applied to a certain portion of the site. This reduces operator error and the need for additional treatment due to under or over exposure of a site.

(Neuberger 3 ¶ 0043; FF 17). Consistent with our claim interpretation and consistent with the Specification, that light activation can be manual (FF 7) or automatic (FF 8), we agree with the Examiner that Neuberger teaches an automatic sensor which permits manually deactivating the light source and

discontinuing exposure of a skin region prior to injury as required by claims 17 and 45 (FF 17).

Conclusion of Law

The evidence of record supports the Examiner's conclusion that Neuberger and Cense renders claims 1, 12, 17, 45, 47, and 50 obvious.

The evidence of record does not support the Examiner's conclusion that Neuberger and Cense render the claims 3, 15, 48, and 51 obvious.

D. 35 U.S.C. § 103(a) over Neuberger, Cense, and Altshuler

The Examiner finds that "Neuberger and Cense discloses the method of claim 1, but do not disclose delivering a beam of light through a light-conducting or light-activated medium" (Ans. 8). The Examiner finds that "Altshuler teaches a phototreatment device and method including delivering a beam to skin surface through a light-conducting medium . . . interposed between the device (180, Fig 1A) and the skin surface" (Ans. 8). The Examiner finds it obvious to include "the step of delivering the highly convergent beam through a light-conducting medium interposed between the handheld device and skin surface, as taught by Altshuler '033 in order to enhance efficacy of the treatment or to further treat the skin of the patient" (Ans. 8).

The Examiner provides sound fact-based reasoning for combining Altshuler with Neuberger and Cense. We adopt the fact finding and analysis of the Examiner as our own. Appellants argue the underlying obviousness rejection over Neuberger and Cense, but Appellants do not identify any material defect in the Examiner's reasoning for combining Altshuler with Neuberger and Cense. Since Appellants only argue the underlying rejection

of Neuberger and Cense which we affirmed above, we affirm this rejection for the reasons stated by the Examiner.

E. 35 U.S.C. § 103(a) over Neuberger, Cense, and Lefki

The Examiner finds that "Neuberger and Cense teach all the limitations of claims 1 and 47, but are silent with regards to a specific absorption of the hair and skin" (Ans. 8). The Examiner finds that "Lefki teaches a variable pulse duration, an energy density of between approximately 15J/cm^2 and 50J/cm^2, and a variable spot size. Furthermore, Lefki discloses a device that causes mechanical failure of a hair just above the skin surface" (Ans. 8). The Examiner finds it obvious to "use the intensity and duration as taught by Lefki in the device taught by Neuberger and Cense in order to produce mechanical failure of the hair shaft above the skin surface" (Ans. 9).

Appellants contend that "Lefki teaches regarding energy density of the beam (expressed in Joules per cm^2), but does not relate this to the amount of light **absorbed** by the hair shaft, but an energy level per unit area" (App. Br. 62).

We agree with Appellants. In the absence of any disclosure of a desired amount of energy absorption by hair in the prior art, the Examiner has simply failed to provide a *prima facie* case of obviousness. While Lefki is reasonably combinable with Neuberger and Cense, none of these references provide a reason to cause "absorption of between about 50 and about 200 Joules per gram of hair" or "per gram of skin". We also agree with Appellants that the Examiner has not established, by mathematical calculation, evidence, or otherwise, that the amount of energy provided by

Neuberger or Cense or Lefki would inherently have fallen within these ranges.

SUMMARY

In summary, we affirm the rejection of claims 21, 24, and 52 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

We reverse the rejection of claims 21, 24, and 52 under 35 U.S.C. § 112, second paragraph as indefinite.

We affirm the rejection of claims 1, 12, 17, 45, 47, and 50 under 35 U.S.C. § 103(a) as obvious over Neuberger and Cense. Pursuant to 37 C.F.R. § 41.37(c)(1)(vii)(2006), we also affirm the rejection of claims 2, 7, 9, 49, as these claims were not argued separately.

We reverse the rejection of claims 3, 15, 48, and 51 under 35 U.S.C. § 103(a) as obvious over Neuberger and Cense.

We affirm the rejection of claims 25 and 27 under 35 U.S.C. § 103(a) as obvious over Neuberger, Cense, and Altshuler.

We reverse the rejection of claims 21, 24, and 52 under 35 U.S.C. § 103(a) as obvious over Neuberger, Cense, and Lefki.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1).

AFFIRMED-IN-PART

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