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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte FORREST STARNES McCANLESS

Appeal 2018-004814
Application 14/696,042[1]
Technology Center 2800

Before KAREN M. HASTINGS, JAMES C. HOUSEL, and JEFFREY R. SNAY, *Administrative Patent Judges*.

Opinion for the Board filed by HOUSEL, *Administrative Patent Judge*.

Opinion Dissenting filed by HASTINGS, *Administrative Patent Judge*.

HOUSEL, *Administrative Patent Judge*.

DECISION ON APPEAL

A. STATEMENT OF THE CASE

Appellant filed an appeal under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1–19.

We have jurisdiction under 35 U.S.C. § 6(b).[2]

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[1] Appellant is the Applicant, ABL IP Holding LLC., which according to the Appeal Brief is the real party in interest. Appeal Brief ("Appeal Br." 1) filed October 11, 2017.

[2] Our Decision additionally refers to the Specification ("Spec.") filed April 24, 2015, the Final Office Action ("Final Act.") dated December 15, 2016,

We AFFIRM-IN-PART.

The subject matter on appeal relates to tri-lobe optics; light rails comprising, among other things, a tri-lobe optic; retrofit kits for a fluorescent light fixture, the kits comprising, among other things, a tri-lobe optic; and a light fixture comprising, among other things, a tri-lobe optic (*see*, *e.g.*, claims 1, 13, 14, and 17). The Inventors disclose that light emitting diodes (LEDs) are increasingly used as light emitters instead of fluorescent tubes because of their efficiency, reliability, and stability over time, but LEDs emit light in a small emitting area, which makes them uncomfortable to view directly. Spec. ¶¶ 1–2, 20. In view of this, the Inventors disclose embodiments that spread light from LEDs over an area equivalent to the light emitting surface of a fluorescent tube, which minimizes or eliminates viewing discomfort. *Id.* ¶ 20.

Independent claim 1 is illustrative and is reproduced below from the Claims Appendix of the Appeal Brief.[3] Limitations at issue are italicized.

> 1. A tri-lobe optic for a linear light source, the linear light source defining a light emitting region along an axis, the tri-lobe optic comprising:
>
> an optical material forming:
>
> an inner surface and an outer surface; and
>
> a constant cross-sectional profile along a direction of the axis from a first axial end to a second axial end, the cross-sectional profile comprising:
>
> a first azimuthal side relative to the axis;
>
> concave and convex curves relative to the axis, the curves being:
>
> *a first concave curve coupled with the first*

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the Examiner's Answer ("Ans.") dated February 12, 2018, and Appellant's Reply Brief ("Reply Br.") filed April 6, 2018.

[3] Appeal Br. 34–35.

azimuthal side,
a first convex curve,
a second concave curve,
a second convex curve and
a third concave curve,
such that each of the concave curves defines a lobe of the optical material along the direction of the axis; and
a second azimuthal side relative to the axis,
coupled with the third concave curve;
wherein each of the inner surface and the outer surface follow each of the concave and convex curves between the first azimuthal side and the second azimuthal side.

REJECTIONS ON APPEAL

I. Claim 19 is rejected under 35 U.S.C. § 112(b) as being indefinite;

II. Claims 1–6 and 9–18 under 35 U.S.C. § 103 as being unpatentable over Yang[4] in view of Negishi[5] and Ter-Hovhannisian;[6] and

III. Claims 7 and 8 under 35 U.S.C. § 103 as being unpatentable over Yang, Negishi, and Ter-Hovhannisian and further in view of Suehiro.[7]

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[4] Yang et al., US 2011/0228528 A1, published September 22, 2011 ("Yang").

[5] Negishi, US 4,734,836, issued March 29, 1988 ("Negishi").

[6] Ter-Hovhannisian, US 7,121,675 B2, issued October 17, 2006 ("Ter-Hovhannisian").

[7] Suehiro et al., US 7,111,964 B2, issued September 26, 2006 ("Suehiro").

B. DISCUSSION

Rejection I

Claim 19 is rejected under 35 U.S.C. § 112(b) as being indefinite. Appellant does not appeal the § 112(b) rejection of claim 19. Appeal Br. 1, fn. 1. Therefore, we summarily affirm this rejection.

Rejection II

Claims 1–6 and 9–18 are rejected under 35 U.S.C. § 103 as being unpatentable over Yang in view of Negishi and Ter-Hovhannisian.

Appellant argues claims 1–6, 9–13, and 18 as a first group and claims 14–17 as a second group. Appeal Br. 14–32. For reasons addressed below, we analyze claims 1–6 and 9–13 as a first group, claims 14–17 as a second group, and claim 18 as a third group.

Claims 1–6 and 9–13

The Examiner finds Yang discloses a bi-lobe optic for a linear light source having an optical material with a constant cross-sectional profile along an axis from a first axial end to a second axial end, wherein the cross-sectional profile includes a first azimuthal side, concave and convex curves, and a second azimuthal side. Final Act. 3.

The Examiner finds Yang does not disclose a tri-lobe optic having the curves recited in claim 1. *Id.* at 3–4. The Examiner finds Negishi discloses a linear light source having a tri-lobe optic having the curves of claim 1 and concludes it would have been obvious to modify Yang to use Negishi's tri-lobe optic because Negishi demonstrates bi-lobe and tri-lobe optics are alternatives that create a desired light output. *Id.* at 4.

The Examiner finds Ter-Hovhannisian discloses a light source having inner and outer surfaces that follow concave and convex curves, as recited in claim 1, and has a constant thickness, as recited in claim 18. *Id.* at 4–5. The Examiner concludes it would have been obvious to use the shape of Ter-Hovhannisian's surface in Yang's optic, as modified in view of Negishi, to provide a thinner optic that uses less material. *Id.* at 5.

Appellant asserts the Examiner's mischaracterizes Negishi because Negishi does not disclose bi-lobe and tri-lobe optics as obvious alternatives. Appeal Br. 15–17; Reply Br. 2–5. Appellant contends the Examiner's proposed modification of Yang in view of Negishi would not have been obvious because Yang is devoted to achieving a batwing light distribution while embodiments 2c and 2d in Negishi's Figure 4 produce parallel and converging light distributions and thus different results. Appeal Br. 17–20; Reply Br. 5, 8–10.

As an initial matter, we analyze the limitation "wherein each of the inner surface and the outer surface follow each of the concave and convex curves between the first azimuthal side and the second azimuthal side" to determine its meaning and scope.

When applying the mode of claim construction applicable during examination, we "give claims their broadest reasonable construction consistent with the specification." *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007). "Therefore, we look to the specification to see if it provides a definition for claim terms, but otherwise apply a broad interpretation." *Id.*

In the "Summary of Claimed Subject Matter" section of the Appeal Brief, Appellant cites Figures 3 and 5–8 of their disclosure when explaining

how inner and outer surfaces of a tri-lobe optic follow concave and convex curves but also cites those drawings when explaining how such an optic has a constant thickness across its width. Appeal Br. 3. Figures 3 and 5–8 depict optics 110, 210, 310 having a constant thickness between first and second azimuthal sides 112(1), 112(2) (see Figure 5) but do not clearly define how the optics "follow" the concave and convex curves in those drawings. Also, Appellant does not cite a passage of their Specification that defines the "follow" limitation of claim 1. Nor does the limitation explicitly appear in the Specification. Therefore, Appellant's disclosure does not provide a definition for the "follow" limitation of claim 1.

"[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc) (*citing Liebel–Flarsheim Co. v. Medrad, Inc.,* 358 F.3d 898, 910 (Fed. Cir. 2004)). Here, claim 18 depends from claim 1 and further recites "wherein the optical material forms a constant thickness between the inner surface and the outer surface, along the concave and convex curves." Thus, under the doctrine of claim differentiation (i.e., that each claim has a different scope), claim 1 does not require that the optical material has a constant thickness, as recited in claim 18.

As noted above, we construe a claim by applying the broadest reasonable interpretation in light of the Specification. In view of the little guidance provided by Appellant's disclosure and the fact that claim 1 does not require the constant thickness limitation of claim 18, we construe the limitation "wherein each of the inner surface and the outer surface follow each of the concave and convex curves between the first azimuthal side and

the second azimuthal side" to mean the inner and outer surfaces of the optical material include and extend along the concave and convex curves between the first azimuthal side and the second azimuthal side.

We now analyze the Examiner's rejection of claim 1. Yang discloses retrofit-style LED lamps for use with fixtures located within enclosed storage structures, such as refrigeration cases. Yang ¶¶ 2, 5, 7. The lamp includes a linear batwing lens that produces a batwing type of beam pattern. *Id.* ¶ 21. Yang describes the batwing distribution as "substantially uniform within a defined space" and that "[t]he substantial uniformity of the distribution is such that the light, as beam shaped by the one-dimensional linear batwing lens, fills up a defined space." *Id.* ¶ 28.

Negishi discloses a fluorescent light emitting tube having a lens. As described by Appellant (Appeal Br. 10–11), Negishi discloses changing the shape of the lens to provide different light flux characteristics. Figure 4 of Negishi is reproduced below.

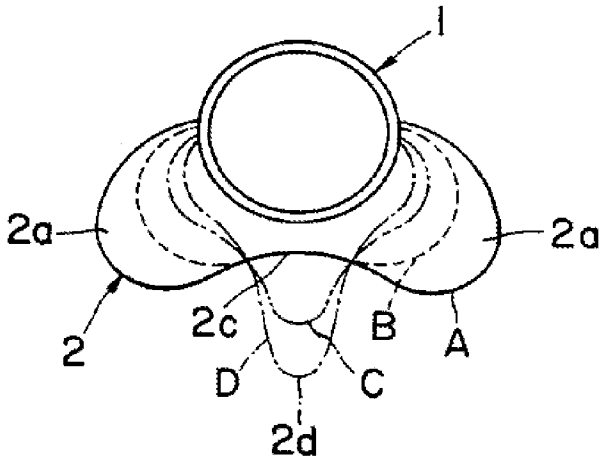

FIG. 4

Figure 4 depicts various shapes for Negishi's lens

Negishi discloses that changing the cross-sectional shape of the lens **2**[8] affects its luminous flux. Negishi 2:56–58. For instance, shape A includes swelled portions **2a** and a recess portion **2c** to provide a wide, divergent flux. *Id.* 2:58–62. Shape B has lower swelled portions **2a** and a shallower recessed portion **2c** than shape A and this provides a less divergent flux. *Id.* 2:62–66. Shape C has even lower swelled portions **2a** and a projected portion **2d** instead of a recessed portion **2c**, resulting in a parallel flux (see flux **5** in Figure 8). *Id.* 2:66–68, 3:1–2, 3:66–68, 4:1. Shape D has the lowest swelled portions **2a** and the highest projected portion **2d**, resulting in a converging luminous flux (see Figure 10). *Id.* 3:2–6, 4:25–31.

The Examiner explains in the Examiner's Answer that Shape C, which is also depicted in Figures 8 and 9 of Negishi, is a tri-lobe optic and both Yang's and Negishi's light distributions are described as uniform distributions. Ans. 2–4.[9] Appellant responds by contending the flux distributions depicted in Figures 8 and 9 of Negishi are narrow, not widened,

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[8] Throughout this Decision, for clarity, we present labels to elements in figures in bold font, regardless of their presentation in the original document.

[9] Appellant argues the Examiner's citations in the Examiner's Answer to column 3, line 66, through column 4, line 13, and Figures 8 and 9 of Negishi were not relied upon in previous Office Actions, other than the citation "see: Figs. 1–12 of Negishi," and the Examiner's response should have been made a new ground of rejection. Reply Br. 5–6. The procedure for an Examiner's failure to designate a rejection as a new ground in the Examiner's Answer is for an appellant to file a petition under 37 C.F.R. § 1.181. 37 C.F.R. § 41.40(a). Appellant has not filed such a petition and therefore has waived arguments that the Examiner's Answer should have been designated a new ground of rejection. *Id.*

and a reflection mirror **9** provides the uniform light distribution cited by the Examiner. Reply Br. 6–8.

Appellant's arguments are unpersuasive. Yang discloses its batwing distribution "is substantially uniform within a defined space." Yang ¶ 28. Although Negishi describes the flux reflected by the mirror **9** in Figure 8 as uniformly distributed (Negishi 4:1–13), Negishi also describes the flux in Figure 9 as "a parallel luminous flux of uniform distribution which has passed through the light control lens **2**" (*id.* 4:14–17). Negishi also describes the flux produced by the lens **2** of Figure 2 as "uniform in distribution." *Id.* 2:38. Therefore, we agree that Negishi demonstrates a bi-lobe lens (e.g., the lens of Negishi's Figure 2) and a tri-lobe lens (e.g., the lens of Negishi's Figures 8 and 9) are equivalent for producing a uniform flux distribution, which is how Yang describes the batwing distribution.

Further, the lenses of Negishi's Figures 8 and 9 have inner and outer surfaces that include and extend along concave and convex curves between a first azimuthal side and a second azimuthal side. For instance, Figure 3, which also depicts Negishi's shape C for producing a parallel flux, forms a first concave curve with a swelled portion **2a** (e.g., the swelled portion **2a** at the left hand side of Figure 3), a first convex curve between the swelled portion **2a** and the projected portion **2d**, a second concave curve via the projected portion **2d**, a second convex curve between the projected portion **2d** and the next swelled portion **2a** (e.g., at the right hand side of Figure 3), and a third concave curve with the next swelled portion **2a**. Therefore, Yang, as modified by Negishi, suggests an optical material "wherein each of the inner surface and the outer surface follow each of the concave and convex curves between the first azimuthal side and the second azimuthal

side," as recited in claim 1, and there is no further need for Ter-Hovhannisian in the rejection of claim 1.

Moreover, the rejection of claim 1 can also be viewed as the modification of Negishi in view of Yang. *See In re Bush*, 296 F.2d 491, 496 (CCPA 1961) ("In a case of this type where a rejection is predicated on two references each containing pertinent disclosure which has been pointed out to the applicant, we deem it to be of no significance, but merely a matter of exposition, that the rejection is stated to be on A in view of B instead of on B in view of A, or to term one reference primary and the other secondary."). In such a situation, Negishi discloses a tri-lobe optic having an optical material as recited in claim 1. *See* Negishi Figs. 3, 8, and 9. Although Negishi discloses fluorescent tubes instead of LEDs (*id.* 2:6–11), Yang discloses LEDs are more efficient and lamps including LEDs and a lens can be used to retrofit such tubes (Yang ¶¶ 2, 4, 7). As a result, it would have been obvious to modify Negishi in view of Yang to use LEDs instead of fluorescent tubes to achieve greater efficiency.

Appellant does not argue independent claim 13 or dependent claims 2–6 and 9–12 separately from claim 1. Appeal Br. 24.

For these reasons and those set forth in the Examiner's Answer, we sustain the Examiner's § 103 rejection of claims 1–6 and 9–13 over Yang, Negishi, and Ter-Hovhannisian.

Claims 14–17

Independent claim 14 recites a retrofit kit for fluorescent light fixture comprising, among other things, a back plate configured to couple with a

frame of the fluorescent light fixture and two light rails that each includes, among other things, a light engine, a bracket, and a tri-lobe optic.

Independent claim 17 recites a light fixture comprising, among other things, a frame, a front panel that forms one or more windows for light to emit therethrough, a back plate configured to couple with the frame, and one or more light rails that each includes a plurality of LEDs, a bracket, and a tri-lobe optic.

For claims 14 and 17, Appellant initially cites the arguments discussed above for claim 1. Appeal Br. 25–26. For the reasons discussed above with regard to claim 1, these arguments do not identify a reversible error. Appellant further asserts the Examiner has not addressed the front panel limitation of claim 17 and the applied references do not disclose or suggest the frame limitation of claim 17 or the back plate limitation of claim 14. *Id.* at 27–32.

The Examiner finds paragraph 21 of Yang discloses endcaps that permit its lamp to be placed in any type of fixture for fluorescent lamp tubes and such fluorescent light fixtures "are very well-known to have 'a front panel that forms one or more windows for light to emit therethrough,'" as recited in claim 17, and "are very well-known to have a 'frame,'" as recited in claim 17. Ans. 5–7. The Examiner also finds Negishi's Figure 12 depicts a lamp fixture with a front panel that would also include a frame because conventional fluorescent tube lamp fixtures are known to have frames. *Id.* at 6–7.

Appellant responds to the Examiner's Answer by reviewing the prosecution history for the asserted limitations, arguing a frame would not be inherent, as argued in the Appeal Brief, because not all fixtures use a

frame, contending the Examiner now relies upon statements made for the first time in prosecution that deprive Appellant a chance to respond, and reiterating there is a "lack of facts and/or factually supported arguments in the Office Actions, regarding the 'front panel' and 'frame' elements." Reply Br. 11–13.

Appellant's arguments, however, do not challenge the Official Notice taken by the Examiner that conventional fluorescent tube lamp fixtures are well known to have frames. Also, Appellant's argument that the findings in the Examiner's Answer has deprived Appellant a chance to respond are unpersuasive because Appellant waived such arguments by not following procedure (i.e., by filing a petition seeking review of an Examiner's failure to designate a rejection as a new ground in the Examiner's Answer). 37 C.F.R. § 41.40(a).

Furthermore, we discern no limitations in claims 14 and 17 to structurally differentiate the claimed front panel and back plate from the light diffusion plate **15** and mirror **16** depicted in Negishi's Figure 12. The light diffusion plate **15** functions as a front panel forming a window (i.e., a single window) for light to emit therethrough, as recited in claim 17. As noted above, the Examiner finds that fluorescent tube fixtures are well known to include a frame. The Examiner also explains that front panels require support (Ans. 6–7). Thus, Negishi's disclosure suggests a back plate as a part of a frame to support a front panel (e.g., mirror **16** in Figure 12).

Moreover, as noted above with the rejection of claim 1, the rejection of claims 14–17 can also be viewed as the modification of Negishi in view of Yang. *See In re Bush*, 296 F.2d at 496. Thus, it would have been obvious to modify the embodiment of Negishi's Figure 12 to use the lens of

Negishi's Figures 3, 8, and 9 to provide a parallel flux distribution and further modified in view of Yang to use LEDs as a retrofit for fluorescent light fixtures because LEDs are more efficient, as taught by Yang.

Appellant does not argue claims 15 and 16 separately from claims 14 and 17.

For these reasons and those set forth in the Examiner's Answer, we sustain the Examiner's § 103 rejection of claims 14–17 over Yang, Negishi, and Ter-Hovhannisian.

Claim 18

As noted above, claim 18 depends from claim 1 and recites "wherein the optical material forms a constant thickness between the inner surface and the outer surface, along the concave and convex curves."

For the rejection of claim 18, the Examiner finds Ter-Hovhannisian discloses an optical material having a constant thickness between its inner and outer surfaces. Final Act. 5. The Examiner concludes it would have been obvious to modify Yang and Negishi in view of Ter-Hovhannisian to provide an optical material having a constant thickness so a thinner optic is used to produce a desired output with less material. *Id.*

Appellant contends the Examiner has not provided substantive reasoning and analysis to support a conclusion of obviousness because the Examiner has not properly considered the effect of the proposed modification upon the optics of Yang and Negishi. Appeal Br. 20. Specifically, Appellant asserts Ter-Hovhannisian's constant thickness optic would defeat the goals of Yang and Negishi, whose optics have inner and outer surfaces that do not define an optic with a constant thickness in order

to shape, disperse, or spread light in particular ways, and cites Snell's law to support this argument. *Id.* at 20–22; Reply Br. 10–11.

Appellant's arguments are persuasive. The Examiner responds to Appellant's arguments by finding Ter-Hovhannisian discloses the need for a low temperature lighting system that occupies less space and more evenly distributes light, which means Ter-Hovhannisian is drawn to the same goal as Yang and Negishi of producing uniform light distributions, while Ter-Hovhannisian achieves the goal with less material. Ans. 4–5. This explanation, however, does not explain why the modification of Yang and Negishi in view of Ter-Hovhannisian would not change the light distributions produced by the lenses of Yang or Negishi. Nor is the Examiner's explanation, which addresses Ter-Hovhannisian's teachings in a manner that is general in nature, sufficient to explain why such a modification would have been obvious even if the light distributions were unchanged. "'[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.'" *KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

As a result, the record does not support the Examiner's conclusion of obviousness for claim 18, which appears to be based upon impermissible hindsight. "While the Supreme Court made clear that a mechanical application of the teaching-suggestion-motivation test, requiring an explicit teaching in the prior art, is inappropriate, '[w]e must still be careful not to allow hindsight reconstruction of references to reach the claimed invention without any explanation as to how or why the references would be combined

to produce the claimed invention.'" *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1368 (Fed. Cir. 2012) (quoting *Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1374 n. 3 (Fed. Cir. 2008)).

As a result, we do not sustain the Examiner's § 103 rejection of claim 18 over Yang, Negishi, and Ter-Hovhannisian.

Rejection III

Claims 7 and 8 are rejected under 35 U.S.C. § 103 as being unpatentable over Yang, Negishi, and Ter-Hovhannisian and further in view of Suehiro.

Appellant does not present arguments for the rejections of claims 7 and 8 separate from claim 1. Appeal Br. 32. Therefore, for the reasons discussed above and those set forth in the Examiner's Answer, we sustain the § 103 rejection of claims 7 and 8.

C. CONCLUSION

On the record before us, we:

A. sustain the § 112(b) rejection of claim 19;

B. sustain the rejection of claims 1–6 and 9–17 under § 103 over Yang, Negishi, and Ter-Hovhannisian;

C. do not sustain the rejection of claim 18 under § 103 over Yang, Negishi, and Ter-Hovhannisian; and

D. sustain the rejection of claims 7 and 8 under § 103 as being unpatentable over Yang, Negishi, and Ter-Hovhannisian and further in view of Suehiro.

DECISION

The decision of the Examiner to reject claims 1–19 is *affirmed-in-part.*

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

AFFIRMED-IN-PART

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte FORREST STARNES McCANLESS

Appeal 2018-004814
Application 14/696,042
Technology Center 2800

Before KAREN M. HASTINGS, JAMES C. HOUSEL, and JEFFREY R. SNAY, *Administrative Patent Judges*.

HASTINGS, *Administrative Patent Judge*, dissenting.

I respectfully dissent only from my colleagues' reversal of the rejection of dependent claim 18. As the Examiner points out, Ter-Hovhannisian exemplifies the known design option of having a constant thickness for the optical material covering a LED lighting system. Final Action 5. The Examiner also determined that Ter-Hovhannisian is drawn to the same goal as Yang and Negishi of producing uniform light distributions, while Ter-Hovhannisian achieves the goal with less material. Ans. 4–5. It is not dispositive of error, in my opinion, that the modification of Yang and Negishi in view of Ter-Hovhannisian may change the light distributions produced by the lenses of Yang or Negishi.

I believe that one of ordinary skill in the art, using no more than ordinary creativity, would have used an optical material having a uniform thickness for the cover/optical material of Yang/Negishi as exemplified by Ter-Hovhannisian as a known alternative design to optical material having a non-uniform thickness covering a LED light fixture. I believe that a person of ordinary skill in the art would have readily appreciated and implemented the concept of using a light cover/optical material of uniform thickness material for any design shape of light cover, including those exemplified by Yang/Negishi. It has been established that "the [obviousness] analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007); *see also In re Keller*, 642 F.2d 413, 425 (CCPA 1981) ("the test [for obviousness] is what the combined teachings of the references would have suggested to those of ordinary skill in the art."). *Cf. Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000) ("The fact that the motivating benefit comes at the expense of another benefit, however, should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another").

In light of these principles, I would have affirmed the Examiner's rejection of claim 18 based on the applied prior art.