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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/246,159	08/24/2016	Ties VAN BOMMEL	2015P00374US	6811
138325	7590	08/25/2020	EXAMINER	
Signify Holding B.V. 465 Columbus Avenue Suite 330 Valhalla, NY 10595			YANG, AMY X	
			ART UNIT	PAPER NUMBER
			2844	
			NOTIFICATION DATE	DELIVERY MODE
			08/25/2020	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* TIES VAN BOMMEL, ANTONIUS ADRIANUS MARIA  
MARINUS, YACOUBA LOUH, and FRANK JAN BAAS

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Appeal 2019-005611  
Application 15/246,159  
Technology Center 2800

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Before ROMULO H. DELMENDO, LINDA M. GAUDETTE, and  
LILAN REN, *Administrative Patent Judges*.

DELMENDO, *Administrative Patent Judge*.

DECISION ON APPEAL

The Appellant<sup>1</sup> appeals under 35 U.S.C. § 134(a) from the Primary Examiner’s final decision to reject claims 1–15.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42—i.e., Philips Lighting Holding B.V. (Application Data Sheet filed August 24, 2016 at 6), which is also identified as the real party in interest (Appeal Brief filed November 26, 2018 (“Appeal Br.”) at 4).

<sup>2</sup> See Appeal Br. 5–14; Final Office Action entered July 26, 2018 (“Final Act.”) at 2–8; Examiner’s Answer entered April 2, 2019 (“Ans.”) at 3–7.

### I. BACKGROUND

The subject matter on appeal relates to a lighting device, based on solid state lighting (SSL) technology, having a wireless communication antenna and to a method for its production (Specification filed August 24, 2016 (“Spec.”) at 1, ll. 2–4). Figure 1, which illustrates an embodiment of the claimed subject matter, is reproduced from the Drawings filed August 24, 2016 (with descriptive annotations added), as follows:

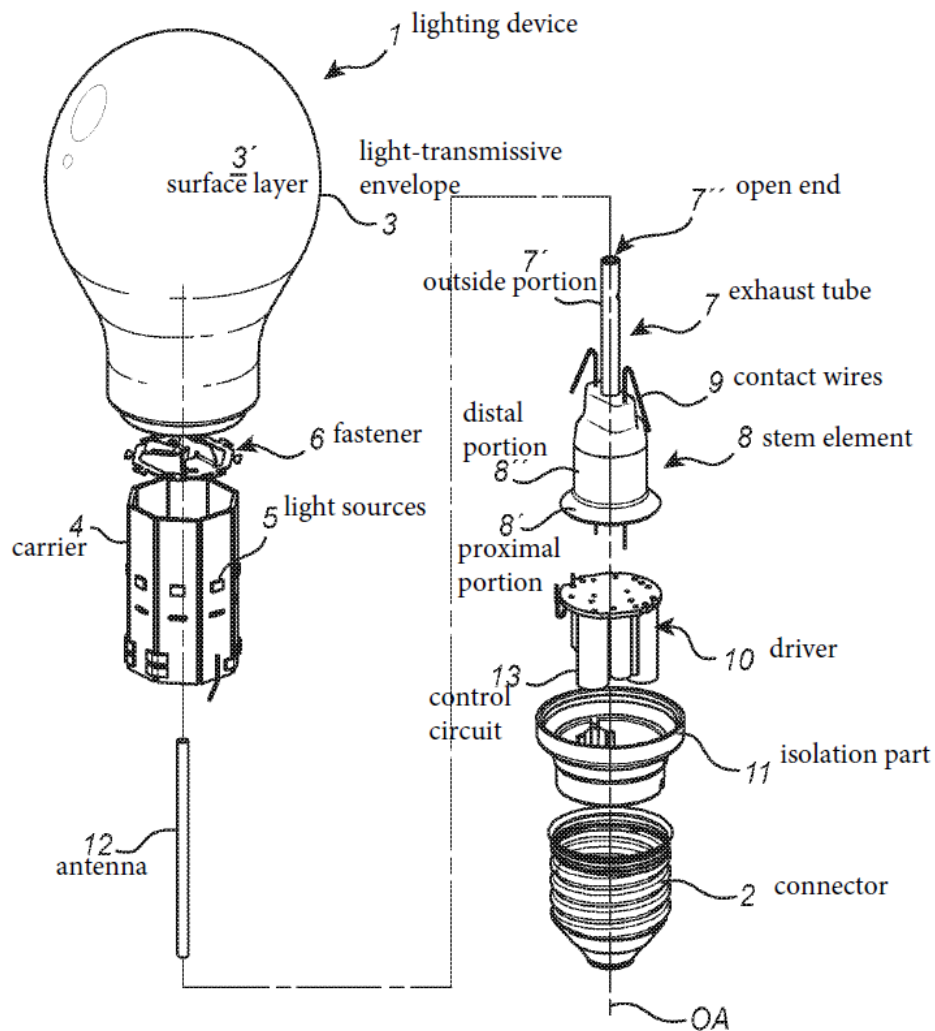


Fig. 1

Figure 1 above shows an exploded view of lighting device **1** in the form of a light bulb comprising, *inter alia*, a light-transmissive envelope **3** provided with light sources **5** and filled with a gas such as helium or a mix of helium and oxygen using an exhaust tube **7**, wherein an antenna **12** is disposed in the exhaust tube **7** (*id.* at 4, l. 32; 5, l. 13–7, l. 12; 8, ll. 25–30).

Representative claim 1 is reproduced from the Claims Appendix to the Appeal Brief, as follows:

1. A lighting device comprising
  - a light source carrier having one or more solid state light sources, the light source carrier being a heat sink for the one or more solid state light sources;
  - a light transmissive envelope to contain the light source carrier;
  - a connector for mechanically and electrically connecting the lighting device to a lamp socket;
  - an exhaust tube being arranged inside the light transmissive envelope for introducing a gas into the light transmissive envelope during production and then being sealed to keep the light transmissive envelope airtight;
  - a wireless communication antenna arranged inside the exhaust tube*, wherein the antenna is galvanically isolated from the light source carrier; and
  - a control circuit electrically connected to the wireless communication antenna and configured to control the one or more solid state light sources.

(Appeal Br. 16 (emphasis added)).

## II. REJECTIONS ON APPEAL

The claims on appeal stand rejected under 35 U.S.C. § 103, as follows:

- A. Claims 1–10 and 12–15 as unpatentable over Setomoto et al.<sup>3</sup> (“Uemoto”) in view of Ge et al.<sup>4</sup> (“Ge”) and Serban;<sup>5</sup> and
- B. Claims 8 and 11 as unpatentable over Uemoto in view of Ge and Serban, and further in view of Yotsumoto et al.<sup>6</sup> (“Yotsumoto”).

(Ans. 3–7; Final Act. 2–8).

### III. DISCUSSION

Unless argued separately within the meaning of 37 C.F.R. § 41.37(c)(1)(iv), a claim subject to Rejection A stands or falls with claim 1, which we select as representative pursuant to the rule. Because claim 14 is the only claim that is argued separately from claim 1 within the meaning of the rule (Appeal Br. 5–14), the other claims (claims 2–10, 12, 13, and 15) stand or fall with claim 1.

With respect to Rejection B, the Appellant relies on the same arguments offered in support of claim 1, adding only that Yotsumoto does not cure the alleged deficiencies in the combination of Uemoto, Ge, and Serban (Appeal Br. 14). Therefore, claims 8 and 11 also stand or fall with claim 1.

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<sup>3</sup> WO 2013/014821 A1, published January 31, 2013 (including machine-generated translation of record). Both the Examiner and the Appellant refer to this document as “Uemoto” (Final Act. 4; Appeal Br. 2). To avoid confusion, we also refer to this document as “Uemoto.” Our citations are to the translation of record.

<sup>4</sup> US 2013/0058080 A1, published March 7, 2013.

<sup>5</sup> US 2007/0069833 A1, published March 29, 2007.

<sup>6</sup> US 2014/0355246 A1, published December 4, 2014.

CLAIM 1

The Examiner finds that Uemoto describes a lighting device that includes all the limitations recited in the claim 1 except: (1) “Uemoto does not specify [that] the [disclosed] support element includes or is an exhaust tube being arranged inside the light transmissive envelope for introducing a gas into the light transmissive envelope during production and then being sealed to keep the light transmissive envelope airtight”; and (2) “Uemoto . . . does not specify [that] the [disclosed] antenna is galvanically isolated from the light source carrier” (Final Act. 4–5).

To account for difference (1), the Examiner relies on Ge, finding that it discloses a light source carrier in which a gas is introduced through an exhaust tube that is arranged inside a light-transmissive envelope during production and then sealed to keep the light-transmissive envelope airtight (*id.*). Based on the collective teachings in Uemoto and Ge, the Examiner states that

it would [have been] obvious to one of ordinary skill in the art to include the exhaust tube of Ge into the support of Uemoto or to substitute the exhaust tube for the support element to improve heat distribution in the bulb by introducing gas into the bulb [0137] and/ or to reduce the number of components by using one exhaust tube for both gas introduction and for support of another element.

(*id.* at 5). In the Answer, the Examiner states that Ge’s core column **5** is the support element (or arrangement) and that “[t]he substitution of the core column **5** for the support element of Uemoto would result in the antenna being inside the exhaust tube **2** of Ge since the antenna of Uemoto travels through the support element as see[n] in Fig. [ ]2 of Uemoto” (Ans. 4 (bolding added)).

To account for difference (2), the Examiner relies on Serban, finding that Serban discloses galvanically isolating the antenna from other circuitry (Final Act. 5). Based on this additional finding, the Examiner concludes that “it would [have been] obvious to one of ordinary skill in the art to galvanically isolate the antenna from other circuitry as disclosed in Serban [in] the antenna of Uemoto in view of Ge and the light carrier to block stray currents between the antenna and the light carrier and improve safety” (*id.*).

The Appellant does not dispute the Examiner’s articulated reasoning for combining Serban with Uemoto as modified by Ge (Appeal Br. 5–14). Rather, the Appellant attacks the combination of Uemoto and Ge, arguing that Ge’s pillar **4**, which is part of a bracket **42** that fixes an LED light-emitting strip **6**, is separate from exhaust tube **2**, and that “Ge nowhere discloses that a gas may be introduced into the lighting device through the pillar **4**” (*id.* at 9–10 (bolding added)). The Appellant argues:

Ge does not seem to disclose that any antenna or other component is or should be arranged in the exhaust tube **2**. Thus, even if it were obvious to include the exhaust tube **2** into the device of Uemoto to improve heat distribution, there is no indication by the references that the exhaust tube **2** should be substituted as the support of Uemoto, be integrated into the support of Uemoto or otherwise include an antenna. Rather, in accordance with Ge, the exhaust tube **2** would be distinguished from the support of Uemoto in much the same way as the exhaust tube **2** is distinguished from the pillar **4**.

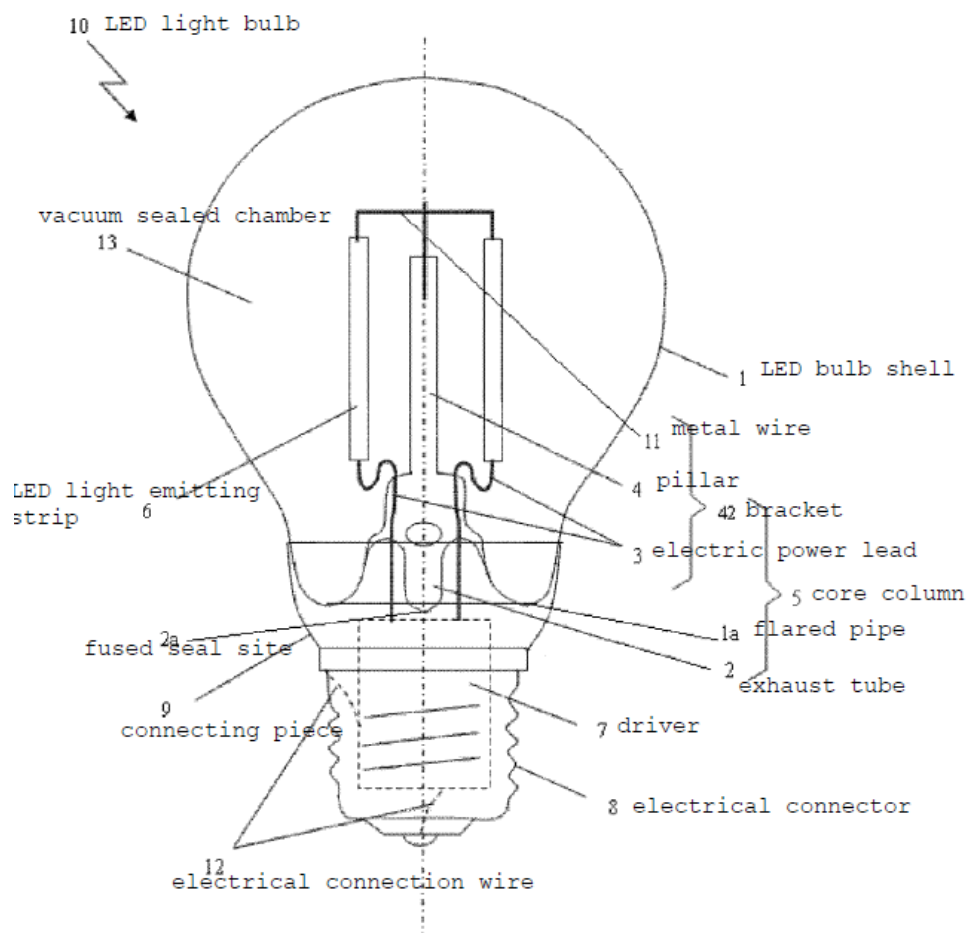
(*Id.* at 10 (bolding added)). The Appellant argues further that the Examiner’s articulated reasoning that a person having ordinary skill in the art would have combined Uemoto and Ge to reduce complexity is based on impermissible hindsight taken from the Appellant’s Specification (*id.* at 10–11).





Uemoto's Figure 8 above shows an illumination light source **100** comprising, *inter alia*, a light emitting portion **20**, a support member **140**, and an antenna **190** for 2.4 GHz wireless communication disposed within the support member **140** (Uemoto ¶¶ 110–116). Thus, Uemoto does not disclose an “exhaust tube” as required by claim 1.

Ge's Figure 1 (descriptive annotations added) is reproduced, as follows:



Ge's Figure 1 shows an LED light bulb **10** having a vacuum sealed chamber **13**, in which a core column **5** includes, *inter alia*, an exhaust tube **2** and a bracket **42** having electrical power leads **3**, pillar **4**, and metal wire **11** for fixing an LED light-emitting strip **6** (Ge ¶¶ 135–137). Ge teaches that “the

vacuum sealed chamber **13** is filled with a gas having a low viscosity coefficient and a high thermal conductivity coefficient [such as helium] after being vacuumized via the exhaust tube **2**” (*id.* ¶ 137). According to Ge, “[h]elium is easy to perform efficient convection dissipation, so as to take away heat generated by the LED light emitting strip when it is operating, to ensure the normal operation of the LED light emitting strip” (*id.*).

Given the collective teachings in Uemoto and Ge, the Appellant’s arguments do not persuade us of any reversible error in the Examiner’s obviousness conclusion. Specifically, a person having ordinary skill in the art would have found it obvious to substitute Uemoto’s support arrangement with Ge’s support arrangement in the form of a core column **5** that includes an exhaust tube **2** for filling the vacuum sealed chamber **13** with a gas such as helium and, in doing so, would have had a reasonable expectation of improving the dissipation of heat generated by the light-emitting portion. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (“[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”).

In this way, the antenna in Uemoto’s illumination light source **100**, as modified by Ge, would extend through the base **50** or **150** as shown in either Uemoto’s Figure 2 or Figure 8, as well as through exhaust tube **2** that would be added to Uemoto as part of the core column **5** support arrangement as shown in Ge, which is all that is required by the disputed limitations of claim 1 (“a wireless communication antenna arranged inside the exhaust tube”). Thus, we agree with the Examiner’s position as stated in the Answer (Ans.

4), which has not been adequately rebutted (e.g., with rebuttal argument in a Reply Brief).

The Appellant's argument that Ge does not disclose an antenna fails to consider the collective teachings of Uemoto and Ge as a whole and is therefore ineffective. *In re Keller*, 642 F.2d 413, 426 (CCPA 1981) (“[O]ne cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references.”).

Moreover, given the knowledge in the art that an antenna for wireless communication may be included in light bulbs to allow remote controlling of the bulbs using radio signals (Uemoto ¶¶ 2, 65), a person having ordinary skill in the art would have been prompted to incorporate Uemoto's antenna into Ge's light bulb in order to allow wireless remote control, thus resulting in a light bulb encompassed by claim 1. *In re Bush* 296 F.2d 491, 496 (CCPA 1961) (“[W]here 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.”); *accord In re Kronig*, 539 F.2d 1300, 1302–1303 (CCPA 1976) (no new ground of rejection where the Board limited its discussion to three of four cited references and relied on one of the secondary references as the closest prior art reference).

For these reasons, and those well-stated by the Examiner, we uphold the Examiner's rejection as maintained against claim 1.

#### CLAIM 14

Claim 14, which is directed to a method for producing a lighting device, recites, in relevant part: “arranging an antenna inside an exhaust tube

of the lighting device; forming an airtight connection between the exhaust tube and a stem element” (Appeal Br. 18).

In addition to the same arguments offered in support of claim 1, the Appellant argues that “the cited references also do not disclose forming an airtight connection between an exhaust tube and a stem element” (Appeal Br. 12). In particular, the Appellant argues that “Ge does not disclose that the sealing of the tube forms any connection to the purported stem element **2a, 9** of Ge” (*id.* at 12–13 (bolding and italics added)).

We disagree with the Appellant for the reasons given by the Examiner (Ans. 5–6). Ge teaches that the “connecting piece **9** connect[s] the bulb shell **1** to the electrical connector **8**” (Ge ¶ 135). Because Ge teaches that “the core column **5**[, which includes the exhaust tube **2**,] is vacuum sealed with the LED light bulb shell **1**” (*id.* ¶ 136) and further that “the exhaust tube **2** is fused at the sealed site **2a** to seal the gas within the chamber **13**) (*id.* ¶ 137), the Appellant’s position lacks merit.

For these reasons, we also uphold the rejection as maintained against claim 14. As a consequence, we sustain Rejections A and B.

#### IV. CONCLUSION

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1–10, 12–15	103	Uemoto, Ge, Serban	1–10, 12–15	
8, 11	103	Uemoto, Ge, Serban, Yotsumoto	8, 11	
<b>Overall Outcome</b>			1–15	

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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