

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant: Lynk Labs, Inc.

Title: MULTI-VOLTAGE AND MULTI-BRIGHTNESS LED LIGHTING
DEVICES AND METHODS OF USING SAME

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Examiner: Crystal L. Hammond Group Art Unit: 2844

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Costa Mesa, California

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Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

RESPONSE TO FINAL OFFICE ACTION

Dear Examiner:

Applicant submits this response in reply to the Final Office Action dated June 27, 2019 in the above-identified patent application.

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IN THE SPECIFICATION

Applicant hereby submits a substitute specification (a clean version and a marked-up version) for the above-identified application.

IN THE CLAIMS

The following are claims 1 to 21:

1. (Previously Presented) An LED lighting device comprising:
a first operating LED circuit and at least one additional LED circuit, wherein at least one of the first operating LED circuit or the at least one additional LED circuit includes at least two LEDs connected in either series or parallel
a switch that is selectable by a user and configured to at least one of independently switch on or off at least one of the first LED circuit or the at least one additional LED circuit, or switch at least one of the first LED circuit or the at least one additional LED circuit to a different level of brightness; and
a driver connected to the first operating LED circuit and the at least one LED circuit; wherein the LED lighting device is configured to connect to an AC mains power source;
wherein the driver has an output voltage lower than the AC mains power source and a frequency higher than the AC mains power source; and
wherein the first operating LED circuit and the at least one additional LED circuit both have a forward voltage of 6V or greater.
2. (Previously Presented) The LED lighting device of claim 1 wherein the first operating LED circuit and the at least one additional LED circuit are mounted on a reflective substrate.
3. (Currently Amended) The LED lighting device of claim 1, further comprising:
a light changing or enhancing substance that includes phosphor or nano-crystals,
wherein ~~at least one of the two LEDs in either~~ the first LED circuit ~~[[or]]~~ and the at least one additional LED circuit ~~is coated with a~~ are integrated with the light changing or enhancing substance in an LED package ~~that includes phosphor or nano-crystals.~~

4. (Original) The LED lighting device of claim 1 having a standard lamp electrical base.

5. (Original) The LED lighting device of claim 1 further comprising a bridge rectifier.

6. (Previously Presented) A multi-brightness LED lighting device comprising:
a first LED circuit and at least one additional LED circuit, wherein the first LED circuit and the at least one additional LED circuit are connected in parallel; and wherein each of the first LED circuit and the at least one additional LED circuit includes at least two LEDs connected in series; and

a switch that is selectable by a user and configured to at least one of independently switch on or off at least one of the first LED circuit or the at least one additional LED circuit;
wherein the LED lighting device is configured to connect to an AC voltage power source; and

wherein the first LED circuit and the at least one additional LED circuit are mounted on an insulating substrate.

7. (Previously Presented) The multi-brightness LED lighting device of claim 6, wherein the insulating substrate comprises sapphire.

8. (Currently Amended) The multi-brightness LED lighting device of claim 6, further comprising:

a light changing or enhancing substance that includes phosphor or nano-crystals,
wherein ~~at least one of the two LEDs in either~~ the first LED circuit ~~[[or]]~~ and the at least one additional LED circuit ~~is coated with a~~ are integrated with the light changing or enhancing substance in an LED package ~~that includes phosphor or nano-crystals.~~

9. (Previously Presented) The multi-brightness LED lighting device of claim 6 further comprising a driver that has an output with a frequency higher than the AC voltage power source.

10. (Previously Presented) The multi-brightness LED lighting device of claim 9 wherein at least one capacitor is connected to the output of the driver.

11. (Previously Presented) An LED lighting device comprising:
a first LED circuit and at least one additional LED circuit, each of the first LED circuit and the at least one additional LED circuit including at least two LEDs connected in series or parallel; and

a switch, wherein switching of the switch is selectable by a user to independently switch on or off at least one of the first LED circuit or the at least one additional LED circuit, wherein the LED lighting device is configured to connect to an AC voltage power source; and

wherein the first LED circuit, the at least one additional LED circuit, and the switch are integrated within or onto an LED package.

12. (Previously Presented) The LED lighting device of claim 11, wherein the LED package includes a heat sink and a lens.

13. (Previously Presented) The LED lighting device of claim 11, wherein said first LED circuit and said at least one additional circuit are mounted on a reflective substrate.

14. (Previously Presented) The LED lighting device of claim 11, wherein said LED package includes a bridge rectifier and a driver.

15. (Previously Presented) The LED lighting device of claim 11, wherein the AC voltage power source is a mains power source, and wherein the LED lighting device is configured to be coupled to a dimmer switch, wherein the dimmer switch adjusts a voltage of the mains power source to dim the first LED circuit or the at least one additional LED circuit regardless of a user's selection via the switch.

16. (Cancelled)

17. (Previously Presented) An LED lighting device comprising:
a first operating LED circuit and at least one additional LED circuit, wherein at least one of the first operating LED circuit or the at least one additional LED circuit includes at least two LEDs connected in either series or parallel; and
a switch capable of switching the at least one additional LED circuit on or off, wherein switching of the at least one additional LED circuit is selectable by a user switching the switch;
wherein the LED lighting device is configured to connect to an AC mains power source; and
wherein the first operating LED circuit and the at least one additional LED circuit are mounted on a substrate including a heat sink.

18. (Currently Amended) The LED lighting device of claim 17, further comprising:
a light changing or enhancing substance that includes phosphor or nano-crystals
~~wherein the at least two LEDs are coated with a light changing or enhancing substance that includes phosphor or nano-crystals.~~

19. (Cancelled)

20. (Previously Presented) The LED lighting device of claim 17, wherein the LED lighting device is configured to be coupled to an LED driver with a 12V output.

21. (Previously Presented) The LED lighting device of claim 17 further comprising:
a dimmer switch configured to adjust a voltage of the AC voltage power source to dim the first operating LED circuit or the at least one additional LED circuit regardless of a user's selection via the switch.

REMARKS

Applicant submits this Response in reply to the Final Office Action dated June 27, 2019.

Specification Amendments

In the specification, new paragraphs 41, 44-46, and 48 are added, support for which is provided by at least paragraphs 15, 18-20, and 22 of U.S. Provisional Patent Application No. 61/217,215 filed May 28, 2009 (“the ’215 Provisional”), which was previously incorporated by reference (see paragraph 1 of the originally-filed specification of the present patent application). No new matter is added.

Claim Amendments

Claims 1-15 and 17, 18, 20, and 21 are pending. Claims 3, 8, and 18 are amended. Claim 16 was previously cancelled. Claim 19 is hereby cancelled. No new matter is added.

Rejections Under 35 U.S.C. § 112(a) or 35 U.S.C § 112 (pre-AIA):

Claims 1-15 and 18-21 stand rejected under 35 U.S.C. § 112(a) or 35 U.S.C § 112 (pre-AIA), first paragraph for allegedly failing to comply with the written description requirement. Applicant respectfully traverses these rejections.

The Office Action states that “[t]here is no mention in the original disclosure of a driver, coating on the LEDs, the LEDs being different sizes, the LEDs being on an insulated substrate[,] the LEDs being coupled to a driver with a 12V output, or a dimmer switch.” But these claim features are supported by the specification, which was amended via the Response to Office Action filed June 13, 2019 and is currently amended herein. The amendments made via the June 13, 2019 Response to Office Action, as well as the amendments currently being made herein, add to the specification paragraphs taken directly from the ’215 Provisional, which was explicitly incorporated by reference in the present application. Collectively, paragraphs 13-22 from the ’215 Provisional have been added to the specification as paragraphs 39-48.

Applicant respectfully submits that support for the subject matter that the Office Action alleges is not supported is indeed supported by the as-amended specification. Below is a chart identifying examples of paragraphs from the specification supporting this subject matter:

Subject Matter (Claim Features)	Corresponding Paragraph in Amended Specification	Corresponding Paragraph in the '215 Provisional (if applicable)
“driver”	41, 42, 44, 45, 48	15, 16, 18, 19 & 22
“an insulating substrate”	41	15
“the LEDs being coupled to a driver with a 12V output”	45	19
“a dimmer switch”	48	22

With respect to subject matter of “the LEDs being on an **insulated** substrate,” Applicant notes that the claimed subject matter actually recites “an **insulating** substrate.” Accordingly, the above chart identifies examples of support for “an insulating substrate.”

With respect to subject matter of “coatings on the LEDs,” claims 3, 8, and 18 previously included the language “coated with a light changing or enhancing substance that includes phosphor or nano-crystals.” Claims 3, 8, and 18 are currently amended, making the rejection of these claims based on an alleged lack of support for “coatings on the LEDs” now moot. Applicant further notes that support for “a light changing or enhancing substance that includes phosphor or nano-crystals may be found in paragraph 42 of the amended specification, which corresponds to paragraph 16 in the '215 Provisional. Accordingly, the above chart does not reference this subject matter.

With respect to subject matter of “the LEDs being different sizes,” Applicant notes that this subject matter was only present in claim 19, which is currently cancelled. Accordingly, the above chart does not reference this subject matter.

Thus, the elements in claims 1-15 and 18-21 that are alleged as being unsupported are fully described in the specification, as currently amended. Applicant therefore respectfully submits that these claims are in a condition for allowance.

Rejections Under pre-AIA 35 U.S.C. § 103(A)

Claims 11 and 17 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,748,877 (“Colby”) in view of U.S. Patent Publication No. 2005/0168156 (“Li”). Claims 11 and 17 are independent claims. Applicant respectfully traverses these rejections.

Independent Claim 11

Independent claim 11 recites “***wherein the first LED circuit, the at least one additional LED circuit, and the switch are integrated within or onto an LED package.***”

With respect to claim 11, the Office Action concedes that Colby does not disclose “an LED package” within or on which “the first LED circuit, the at least one additional LED circuit, and the switch are integrated.” *Office Action*, page 3. The Office Action relies on Li to teach the package, citing paragraph [0005] of Li. Paragraph [0005] of Li, however, says nothing at all about a switch that a user can control being integrated in the LED package, as required by claim 11. Indeed, Li is completely silent with respect to a “switch . . . selectable by a user.”

Li does identify several benefits of individual LEDs including, but not limited to, “fast switching time.” *Li*, [0004]. But “switching time” in [0004] of Li has nothing to do with a switch selectable by a user. Rather, it is a reference to the low latency of LEDs—*i.e.*, the fractions of a second it takes for an LED to become bright (switch on) after power is applied to it. Further, Figure 7 and 8 of Li, along with the accompanying description in Li (paragraphs [0046] and [0047]), plainly show and describe how Li’s LED light strings—which are essentially Christmas light strings—begin with a plug to connect to a power source. For example, Li discloses that “[t]he light string 608 further includes a plug 71 attached in series to one end of the light string 608, adapted to connect the light string 608 to a source of AC.” *Li*, [0047]. A user would control a light string of Li by plugging plug 71 into a wall outlet to turn on all of the lights in the light string or unplugging plug 71 from the wall outlet to turn off all of the lights in the light string. There is no switch in Li that a user can physically control to turn the lights on and off, as the Examiner appears to suggest in the Office Action. Thus, Li does not teach or suggest a switch, selectable by a user, integrated within or onto an LED package, as required by claim 11.

Further, contrary to the assertions in the Office Action, Applicant respectfully submits that it would not have been obvious to combine Li with Colby as there would be no motivation to turn to Li. As previously discussed in the prior Response to Office Action filed

June 13, 2019, the explicitly articulated purpose of Colby’s disclosure is to provide an LED bulb for use with legacy three-way switch receptacles. Specifically, Colby is directed to a “multi-mode bulb [that] is configured to operate in a three-way receptacle of a legacy light fixture.” *Colby*, 2:25-27. Even today, LED bulbs for use with legacy three-way switch receptacles are still made and sold. *See, e.g.*, <https://www.homedepot.com/p/Philips-50-Watt-100-Watt-150-Watt-Equivalent-A21-Energy-Saving-3-Way-LED-Light-Bulb-Soft-White-2700K-472423/302187940>. As such, Colby’s disclosure addresses a specific technical need—providing an LED replacement for incandescent bulbs used in legacy three-way switch receptacles. Legacy three-way switch receptacles have suitably controlled lighting output for many years and still do to this day. As discussed above, Li does not teach or suggest a switch selectable by a user integrated within or on the LED package. But even if it did, the Examiner does not provide any explanation for why moving a suitable switch off of the receptacle described in Colby would help “achieve better lighting control,” as the Office Action alleges. *Office Action*, page 4. Accordingly, there would have been no motivation to modify Colby’s bulb “to achieve better lighting control.” In other words, a person of ordinary skill in the art would not have been motivated by a need or desire to use the features of Li in the system of Colby.

Thus, neither Colby nor Li, alone in combination, teaches or suggests the above-emphasized features of claim 11. Independent claim 11 and all corresponding dependent claims are therefore allowable over Colby and Li.

Independent Claim 17

Independent claim 17 recites “wherein ***the first operating LED circuit and the at least one additional LED circuit are mounted on a substrate including a heat sink.***” With respect to claim 17, the Office Action concedes that Colby does not disclose a heat sink. *Office Action*, page 4. Applicant notes further that Colby does not teach or suggest the mounting of a first operating LED circuit and at least one additional LED circuit on a substrate including a heat sink.

The Office Action relies on Li as teaching a heat sink, citing paragraph [0032] of Li. *Office Action*, pages 4-5. But Li discloses that “where temperature effects might be expected to influence the behavior of the pair of LEDs 22,23, *the pair of LEDs 22, 23 could be*

*thermally connected to a common heat sink 48.” Li, [0032]; see also id. at Fig. 1. This disclosure does not teach or suggest **a substrate including a heat sink**, let alone the mounting of a first operating LED circuit and at least one additional LED circuit on such substrate. Thermally connecting a pair of LEDs to a common heat sink is different from mounting LED circuits on a substrate that includes the heat sink. In fact, in keeping with its focus on the application of light strings in decorative lighting (*e.g.*, Christmas lighting), Li is silent with respect to the mounting of LED **circuits** on any substrate, let alone a substrate that includes a heat sink. Colby is also silent with respect to the mounting of LED circuits on a substrate.*

Thus, neither Colby nor Li, alone or in combination, teaches or suggests the above-emphasized features of claim 17. Accordingly, independent claim 17 and all corresponding dependent claims are allowable over Colby and Li.

For all of the foregoing reasons, Applicant respectfully requests that the rejections of claims 11 and 17 under § 103 over Colby and Li be withdrawn.

Conclusion

Applicant respectfully submits that all pending claims are in proper form for allowance. Reconsideration and withdrawal of all objections and rejections are respectfully requested and a timely Notice of Allowance is solicited.

Authorization is given to charge any fees due or credit any overpayments in regards to this communication to deposit account 08-1394. If the Examiner has any questions or concerns, a telephone call to the undersigned at (949) 202-3013 is welcomed and encouraged.

Certificate of Transmission

I hereby certify that this correspondence is being electronically transmitted via EFS Web to the Commissioner for Patents, on the date stated below.

/Ellen Lovelace/
Ellen Lovelace

July 5, 2019
Date

Respectfully submitted,

/Brent A. Folsom/

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