

**IN THE
UNITED STATES
PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF: MISKIN

CASE: LYN-091109

CONFIRMATION NO.: 3728

SERIAL NO.: 13/322,796

FILING DATE: NOVEMBER 28, 2011

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

**REPLY TO
OFFICE ACTION
MAILED
MAY 16, 2013**

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

ATTENTION OF: Art Unit 2819

EXAMINER: HAMMOND, Crystal L.

Dear Examiner Hammond:

This Reply is in response to the Office action mailed May 16, 2013. Applicant includes herewith a petition for a one-month extension of time and the associated fee for the same. Applicant respectfully traverses the rejections and requests reconsideration in view of the following remarks:

Amendments to the Claims begin on page 2 of this paper;

Amendments to the Drawings being on page 9 of this paper; and

Remarks begin on page 10 of this paper.

An Appendix having four sheets of replacement drawings and four sheets of annotated drawings showing changes follows page 16 of this response.

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

What is claimed is:

1. (currently amended) ~~An single chip multi-voltage or multi-brightness~~ LED lighting device comprising:
 - a. at least two LED circuits;
 - b. each of the at least two LED circuits having at least two LEDs connected together in series;
 - c. each of the at least two LED circuits being electrically unconnected to each other in a parallel relationship;
 - d. the at least two LED circuits having a forward operating drive voltage of at least 6 volts; and,
 - e. the at least two LED circuits being ~~monolithically~~-integrated on a single substrate.
2. (currently amended) The ~~single chip multi-voltage or multi-brightness~~-LED lighting device of claim 1 wherein the at least two LED circuits have at least two LEDs connected to each other in opposing parallel relation.

3. (currently amended) An ~~single chip multi-voltage or multi-brightness~~ LED lighting device comprising:

- a. at least two LED circuits;
- b. each of the at least two LED circuits having at least two LEDs connected together in series;
- c. each of the at least two LED circuits being electrically unconnected to each other in a parallel relationship;
- d. the at least two LED circuits having a forward operating drive voltage of at least 6 volts; and,
- e. the at least two LED circuits being integrated within a substrate.

4. (previously presented) The ~~single chip multi-voltage or multi-brightness~~ LED lighting device of claim 3 wherein each of the at least two LED circuits have at least two LEDs connected to each other in opposing parallel relation.

5. (currently amended) ~~An single chip multi-voltage~~ LED lighting device comprising:
- a. at least two LED circuits;
 - b. each of the at least two LED circuits having at least two LEDs electrically connected together in series configuration;
 - c. each of the at least two LED circuits having separate and distinct voltage input electrical contacts at the opposing ends of each LED circuit;
 - d. the at least two LED circuits having a forward operating drive voltage of at least 6 volts; and,
 - e. the at least two LED circuits being ~~monolithically~~ integrated on a single substrate.
6. (cancelled)
7. (original) A single chip multi-voltage LED lighting device comprising:
- a. at least two LED circuits;
 - b. each of the at least two LED circuits being electrically unconnected to each other in a parallel relationship;
 - c. the at least two LED circuits having voltage input electrical contacts at opposing ends of each LED circuit;
 - d. the at least two LED circuits having a forward operating drive voltage of at least 6 volts; and,
 - e. the at least two LED circuits being monolithically integrated on a single substrate.

8. (currently amended) The single chip multi-voltage LED lighting device of claim 7 being driven by a frequency higher than mains AC frequency.
9. (currently amended) The single chip multi-voltage LED lighting device of claim 7 being driven by a frequency lower than mains AC frequency.
10. (cancelled).
11. (cancelled).
12. (cancelled)
13. (new) A method of constructing an LED lighting device, the method comprising the steps of:
 - forming at least two LED circuits each LED circuit having at least two LEDs connected in series;
 - connecting electrical contacts at each end of each of the at least two LED circuits;
 - integrating the at least two LED circuits on a substrate in a manner such that the at least two LED circuits and respective electrical contacts are electrically unconnected to each other.
14. (new) The LED lighting device of claim 1 wherein each of the two electrically unconnected circuits may be connected in a series or parallel configuration.
15. (new) The LED lighting device of claim 14 wherein each of the two electrically unconnected circuits may also be connected in an anti-parallel configuration.
16. (new) The LED lighting device of claim 3 wherein each of the two electrically

unconnected circuits may be connected in a series or parallel configuration.

17. (new) The LED lighting device of claim 16 wherein each of the two electrically unconnected circuits may also be connected in an anti-parallel configuration.

18. (new) The LED lighting device of claim 5 wherein each of the separate and distinct voltage input electrical contacts may be connected in a manner so that the at least two LED circuits may be connected in series or parallel configuration.

19. (new) The LED lighting device of claim 18 wherein each of the separate and distinct voltage input electrical contacts may be connected in a manner so that the at least two LED circuits may be connected in an anti-parallel configuration.

20. (new) The LED lighting device of claim 1 wherein each of the two electrically unconnected circuits may be connected in a series or parallel configuration using each of the voltage input electrical contacts and the ends of each of the at least two circuits.

21. (new) The LED lighting device of claim 20 wherein each of the two electrically unconnected circuits may be connected in an anti-parallel configuration using each of the voltage input electrical contacts and the ends of each of the at least two circuits.

22. (new) An LED lighting device comprising:
- a. at least two LED circuits;
 - b. each of the at least two LED circuits having at least two LEDs connected together electrically in series; and
 - c. at least three voltage input electrical contacts, wherein at least one voltage input electrical contact is connected to one end of each series circuit, and at least one voltage input electrical contact is connected to one end of both of the at least two circuits.
23. (new) An LED lighting device comprising:
- a. at least two LED circuits;
 - b. each of the at least two LED circuits having a bridge rectifier and at least two LEDs connected in series across the outputs of each respective bridge rectifier; and
 - c. at least three voltage input electrical contacts, wherein a first voltage input electrical contact is electrically connected to an input of the bridge rectifier for each of the at least two LED circuits, at a separate and distinct voltage electrical input contact is connected to the opposing input of the bridge rectifier for each of the at least two LED circuits.

24. (new) An LED lighting device comprising:
- a. at least two LED circuits, each of the at least two LED circuits having two LEDs connected in series, the at least two LED circuits being connected in parallel;
 - b. four voltage input electrical contacts, the four voltage input electrical contacts being configured so that each anode and cathode of each of the LEDs in the at least two LED circuits have one voltage input electrical contact connected thereto so that the combination of parallel connected LED circuits and four voltage inputs form a full-wave AC voltage rectifier capable of providing rectified AC voltage to any circuits connected to the LED lighting device.

Amendments to the Drawings

Applicant includes herewith replacement sheets for pages 1, 2, 5, and 8 of the drawings. These replacement sheets contain amendments to Figs. 1, 3, 6, 7, and 10. Applicant submits that the amendments contain no new matter.

Attachments: Four (4) Sheets of replacement drawings

Four (4) Sheets of annotated sheets showing changes.

REMARKS

This Reply is in response to the Office action mailed on May 16, 2013. In the Office action:

- Claims 1-9 and 12 were rejected under 35 U.S.C. §102(a) as being anticipated by U.S. Printed Publication 2007/0273299 to Miskin et al. ("*Miskin*").

By this reply claims 1-5, 8, and 9 have been amended, claims 6 and 12 has been cancelled, and new claims 13-24 have been added. As such, claims 1-5, 7-9, and 13-24 remain pending in the application.

Applicant notes that it has amended the drawings to remove the headings applied to Figs. 1, 3, 6, 7, and 10. Applicant submits that these amendments add no new matter. As defined in the specification for Figs. 1, 3, 6, and 7, for example, the elements shown are an LED lighting device 10, 30, and 50 in each of the respective Figs. (with device 50 shown in both Figs. 6 and 7). These elements can be found, for example, in paragraphs [Para 51], [Para 53], [Para 56], and [Para 57]. The term lighting device as used in the application may include a chip, a package, an LED assembly, or an LED lamp. Applicant has also amended claims 1-5 to reflect this language, allowing each claim to be for an LED lighting device rather than a single chip.

Applicant has also amended Fig. 7 to indicate a "SWITCH" as stated, for example, in paragraph [Para 57] of the specification.

Rejection of Claims 1, 3, and 7 under 35 U.S.C. 102(a) as being anticipated by *Miskin*

Applicant respectfully submits that *Miskin* fails to disclose each and every element of claims 1, 3, and 7. Specifically, *Miskin* as cited fails to disclose a lighting device having at least two LED circuits that are electrically unconnected to each other in a parallel relationship.

In the Office Action, Figs. 6 and 7 and accompanying paragraphs [0073] and [0074] of *Miskin* are cited as showing at least two LED circuits being electrically unconnected to each other. Applicant submits that the string of LEDs 66 or 84 (presumably the first circuit) and the string of LEDs 68 or 86 (presumably the second circuit) are electrically connected to each other in an anti-parallel configuration with the electrical connection occurring at the junctions where

contacts 74 and 76 are connected. The schematic diagram of Figs. 6 and 7 clearly indicate an electrical connection between these two strings so that they are fixed in an anti-parallel configuration.

By contrast, Figs. 1-3, 11, and 12 of the present application show at least two circuits which are electrically unconnected to each other. As seen in Figs. 1-3, 11, and 12, each circuit is provided with its own separate and distinct electrical input contacts and there is no common junction between the circuits. This allows for the circuits in the devices of the present invention to be connected in series or parallel configurations, or in the case of the devices shown in Figs 11 and 12 an anti-parallel configuration.

An example of this ability can be seen in Figs. 4 and 5 which show the device of Fig. 3 having its circuits connected in a parallel and series configuration respectively. By providing electrical contacts 36a and 36b for a first circuit and electrical contacts 36c and 36d for a second circuit, and leaving the circuits electrically unconnected, a manufacturer or end user may selectively connect the circuits in any configuration desired or necessary to match a particular voltage level or brightness level. For example, where a higher brightness level is required, the circuits may be connected in parallel to increase the current following through each LED. Where a higher voltage must be matched, the circuits may be connected in series to increase the voltage drop.

Devices like those configured in the manner shown in Figs. 6 and 7 in *Miskin*, for example, do not have this ability as the circuits are fixed therein in an anti-parallel configuration. There is no ability to selectively modify the devices shown in Figs. 6 and 7 in *Miskin* to achieve a different voltage or brightness level using only a single package.

As mentioned above, leaving the at least two circuits in the device electrical unconnected allows for the circuits to be connected in parallel or series which allows a manufacturer or end user to achieve a desired brightness level or match a particular voltage level. When circuits like those shown in Figs. 11 and 12 are left unconnected in a device, the manufacturer or end user also has the option of connecting the circuits in an anti-parallel configuration for use with AC voltage without a rectifier. Devices having electrically unconnected circuits like those shown in Figs. 11 and 12 may be configured to match a particular voltage, match a particular brightness level, or be used with AC or DC voltage with maximum efficiency without requiring any other

components, like for example a bridge rectifier. The devices shown in Figs. 6 and 7 in *Miskin* simply do not have this ability and the added utility of selective configuration.

In view of the above, Applicant respectfully submits that independent claims 1, 3, and 7 — as well as all claims ultimately dependent there from — are patentable over *Miskin* and are in condition for allowance. Accordingly, Applicant requests that all rejections be removed and all pending claims be passed to allowance.

Rejection of Claim 5 under 35 U.S.C. 102(a) as being anticipated by *Miskin*

In the Office Action, Claim 5 was rejected as being anticipated by *Miskin*. Applicant has amended claim 5 to clarify that each of the at least two circuits has separate and distinct voltage input electrical contacts at each end of each circuit. Applicant respectfully submits that *Miskin* does not show any such device.

As seen in Figs. 6 and 7 of *Miskin* and described in accompanying paragraphs [0073] and [0074], one pair of contacts is provided for both series strings of LEDs – contacts 74, 76 in Fig. 6 and contacts 92, 98 in Fig. 7, are used to provide electrical inputs for both series strings of LEDs in each package. Each series string of LEDs in *Miskin* does not include its own separate and distinct contacts.

By contrast, as seen in, for example, Figs. 1-3, 11, and 12 in the present application, each circuit or series string of LEDs contained in a device is provided with its own contacts. As explained above, providing each circuit with its own contacts allows the circuits to remain electrically unconnected, and allows the circuits to be selectively connected by a manufacturer or end user in order to achieve a desired brightness level, match a particular voltage, or configure the device to work with AC or DC voltage as needed. The single electrical contact for every packaged circuit in *Miskin* does not provide this utility.

In view of the above, Applicant respectfully submits that independent claim 5 — as well as all claims ultimately dependent there from — are patentable over *Miskin* and are in condition for allowance. Accordingly, Applicant requests that all rejections be removed and all pending claims be passed to allowance.

Rejection of Claim 6 under 35 U.S.C. 102(a) as being anticipated by *Miskin*

Applicant has cancelled claim 6 and added new claim 22 which requires that the lighting device includes at least two circuits and at least three voltage input contacts. At least one contact is connected at one end of each of the circuits, and the third contact is connected at the opposing end of each circuit, the third contact being connected to both of the at least two circuits.

Applicant submits that a configuration like this can be seen in Fig. 6, for example, of the present application. In Fig. 6, circuits 52 (shown as two antiparallel circuits connected in series at one end), have at least two LEDs connected in series. At least one voltage input electrical contact is connected to one end of each of that at last two circuits, shown as contacts 56b and 56c. A third voltage input contact is connected to the opposite end of both circuits, shown as voltage input contact 56a.

In this configuration, a voltage source may have one terminal connected to both contacts 56b and 56c and a second terminal connected to terminal 56a. When connected in this manner, the at least two LED circuits will be connected in parallel.

Rather than connect a voltage source to each of the input contacts, a voltage source may have one terminal connected to contact 56b and a second terminal connected to contact 56c. This will connect the at least two LED circuits in series.

Like the embodiments shown in Figs. 1-3, 11, and 12 and claimed in claims 1, 3, 5, and 7, the configuration shown in Fig. 6 and claimed in claim 6 allows for a manufacturer or end user to select a parallel or series configuration in order to achieve a desired light output or match a particular voltage. Utilizing the configuration in Fig. 6 allows for manipulation while only providing three input contacts rather than four.

Applicant submits that none of the circuits or packages shown in *Miskin*, and in particular the packages shown in Figs. 6 and 7, include a lighting device with 3 contact points. As such, Applicant respectfully submits that *Miskin* fails to show each and every element of claim 6 as amended.

In view of the above, Applicant respectfully submits that new independent claim 22 is in condition for allowance and requests that all rejections be removed and all pending claims be passed to allowance.

New Claim 13

Applicant has cancelled claim 12 and added new claim 13. Claim 13 provides a method for constructing the LED lighting device claimed in, for example, claims 1, 3, 5, and 7. As discussed above, *Miskin* does not teach a lighting device which provides for two circuits to be integrated on a single substrate, with each circuit having its own electrical contacts, and the circuits and their respective electrical contacts remaining electrically unconnected. Creating a device in this method provides the advantages discussed above with respect to claims 1, 3, 5, and 7. The packages shown in Figs. 6 and 7 of *Miskin* are not constructed this way and do not have the same advantages.

In view of the above, Applicant respectfully submits that new independent claim 13 is in condition for allowance and requests that all rejections be removed and all pending claims be passed to allowance.

New Claim 23

New claim 23 represents, for example, the embodiment shown in Fig. 8. As seen in Fig. 8, an LED lighting device may include at least two LED circuits, each LED circuit having a bridge rectifier with a series string of at least two LEDs connected across the outputs of the respective rectifiers. The device includes three voltage input electrical contacts 72a, 72b, and 72c. Input 72a is commonly connected to one input of both rectifiers, similar to input 56a in Fig. 6 being commonly connected to one end of each circuit. Inputs 72b and 72c are each connected to the opposing input of only one of the bridge rectifiers – 72b to the opposing input in the rectifier in the circuit on the left and 72c to the opposing input in the circuit on the right. Connecting the LED circuits and bridge rectifiers in this manner allows an end user or manufacturer to select the brightness of the lamp, either in design or using a switch as shown in Fig. 9, by allowing one or both of the LED circuits to be connected to the voltage source in parallel. Applicant respectfully submits that *Miskin* does not show any such configuration.

In view of the above, Applicant respectfully submits that new independent claim 23 is in condition for allowance and requests that all rejections be removed and all pending claims be passed to allowance.

New Claim 24

New claim 24 is directed to an LED lighting device like that shown in Fig. 10. The LED lighting device includes two LED circuits connected in parallel, each LED circuit having two LEDs connected in series, and four voltage input electrical contacts configured so that the anode and cathode of each LED is connected to at least one electrical contact. These contacts form the input/output/return for the bridge rectifier. Configuring the voltage input electrical contacts in this manner will allow a manufacturer or an end user to connect any number of series strings of LED circuits in any configuration they desire. For example, when presented with a lighting device like that shown in Fig. 12, an end user may use the lighting device shown in Fig. 10 to connect the parallel series strings of LEDs in a series or parallel configuration to provide a desired light output or match a particular voltage. Applicant respectfully submits that *Miskin* does not show any such configuration.

In view of the above, Applicant respectfully submits that new independent claim 24 is in condition for allowance and requests that all rejections be removed and all pending claims be passed to allowance.

CONCLUSION

Based on the foregoing, Applicant submits that all rejections should be removed and respectfully requests that all pending claims be allowed to issue.

Applicant submits herewith a petition for a one-month extension of time and payment for the associated fee for the same. Applicant believes that no other fees are required with this Reply; however, if any fees are required with this correspondence, the Commissioner is authorized to debit Deposit Account 50-0545.

Should anything further be required, a telephone call to the undersigned at (312) 226-1818 is respectfully solicited.

Dated: September 16, 2013

Respectfully submitted,

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/Jody L. FACTOR/

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