

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

IN RE APPLICATION OF: MISKIN

CASE: LYN-091109CO01

CONFIRMATION NO.: 7455

SERIAL NO.: 14/172,644

FILING DATE: FEBRUARY 4, 2014

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

**REPLY TO
OFFICE ACTION
MAILED
OCTOBER 8, 2015**

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

**ATTENTION OF:
Art Unit 2844
EXAMINER:
HAMMOND, Crystal L.**

Dear Examiner Hammond:

This Reply is in response to the Office action mailed October 8, 2015. Applicant includes herewith a petition for a three-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;

Remarks and Arguments begin on page 8 of this paper.

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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. (Original) An LED lighting device comprising:
at least two LED circuits, each LED circuit having opposing ends and at least two LEDs;
at least four voltage input electrical contacts, the at least four voltage input electrical contacts being configured so that each opposing end of each of the at least two circuits has one voltage input electrical contact connected thereto,
wherein, each of the at least two LED circuits are electrically unconnected from each other.
2. (Original) The LED lighting device of claim 1 wherein each of the at least two LED circuits include at least two LEDs connected in series.
3. (Original) The LED lighting device of claim 1 wherein each of the at least two LED circuits are arranged in a bridge circuit having at least one LED connected across the outputs.
4. (Original) The LED lighting device of claim 1 wherein the at least two LEDs in each of the at least two LED circuits are connected in an anti-parallel manner.
5. (Original) The LED lighting device of claim 4 wherein the at least four voltage input electrical contacts are configured such that
a first voltage input electrical contact is connected to
an anode of one LED in a first of the at least two LED circuits; and
a cathode of one LED in the first of the at least two LED circuits;
a second voltage input electrical contact is connected to
an anode of one LED in the first of the at least two LED circuits; and
a cathode of one LED in the first of the at least two LED circuits;
a third voltage input electrical contact is connected to
an anode of one LED in a second of the at least two LED circuits; and
a cathode of one LED in the second of the at least two LED circuits;

a fourth voltage input electrical contact is connected to

an anode of one LED in the second of the at least two LED circuits; and

a cathode of one LED in the second of the at least two LED circuits;

wherein the first voltage input electrical contact is connected to a different anode and a different cathode than the second voltage input electrical contact, and the third voltage input electrical contact is connected to a different anode and a different cathode than the fourth voltage input electrical contact.

6. (Original) The LED lighting device of claim 5 wherein the at least two circuits may be connected in

a series relationship

by connecting the first voltage input electrical contact to a first output of a power supply,

connecting the third voltage input electrical contact to a second output of a power supply,

and connecting the second voltage input electrical contact and the fourth voltage input electrical contact to each other; or

a parallel relationship

by connecting the first voltage input electrical contact and the third voltage input electrical contact to a first output of a power supply, and

and the second voltage input electrical contact and the fourth voltage input electrical contact to a second output of a power supply.

7. (Original) The LED lighting device of claim 1 wherein the LED lighting device is an LED package.

8. (Original) The LED lighting device of claim 7 wherein the at least two LED circuits are connected in series or parallel utilizing the at least four voltage electrical input contacts within the LED package.

9. (Original) The LED lighting device of claim 1 wherein the at least two LED circuits are integrated on a single chip.

10. (Original) The LED lighting device of claim 1 wherein the at least two LED circuits are integrated on discrete chips so that each of the at least two LED circuits is on a separate chip.

11. (Original) The LED lighting device of claim 1 wherein the at least two LEDs forming each of the at least two LED circuits are discrete die integrated on a substrate.
12. (Original) The LED lighting device of claim 1 wherein the LED lighting device is an LED assembly of discretely packaged LEDs.
13. (Original) An LED lighting device comprising:
 - at least two LED circuits;
 - at least three voltage input electrical contacts, wherein
 - a first voltage input electrical contact connected to both of the at least two LED circuits,
 - a second voltage input electrical contact is connected to a first of the at least two LED circuits, and
 - a third voltage input electrical contact is connected to a second of the at least two circuits.
14. (Original) The LED lighting device of claim 13 wherein each of the at least two LED circuits include plurality of LEDs and the at least three voltage input electrical contacts are arranged such that
 - the first voltage input electrical contact is connected to a cathode of one of the plurality of LEDs in both of the at least two LED circuits;
 - the second voltage input electrical contact is connected to an anode of one of the plurality of LEDs in the first of the at least two LED circuits;
 - the third voltage input electrical contact is connected to an anode of one of the plurality of LEDs in the second of the at least two LED circuits.
15. (Original) The LED lighting device of claim 14 wherein at least a portion of the plurality of LEDs in each of the at least two LED circuits are connected in series.
16. (Original) The LED lighting device of claim 14 wherein at least a portion of the plurality of LEDs in each of the at least two LED circuits are connected in an anti-parallel configuration.

17. (Original) The LED lighting device of claim 16 wherein each of the at least two LED circuits includes
- a first portion of the plurality of LEDs connected in a first series string of LEDs,
 - a second portion of the plurality of LEDs connected in a second series string of LEDs,
 - the first portion of the plurality of LEDs and the second portion of LEDs connecting at a first branch junction and a second branch junction in an anti-parallel manner.
18. (Original) The LED lighting device of claim 17 wherein
- the first voltage input electrical contact connects to the first branch junction of both of the at least two LED circuits;
 - the second voltage input electrical contact connects to the second branch junction of the first of the at least two LED circuits; and
 - the third voltage input electrical contact connects to the second branch junction of the second of the at least two LED circuits.
19. (Original) The LED lighting device of claim 13 wherein each of the at least two LED circuits include
- a bridge rectifier; and
 - at least one LED connected across the output of the bridge rectifier.
20. (Original) The LED lighting device of claim 19 wherein the at least three voltage input electrical contacts are arranged such that
- the first voltage input electrical contact is connected to a first input of a bridge rectifier in both of the at least two LED circuits;
 - the second voltage input electrical contact is connected to a second input of the bridge rectifier in the first of the at least two LED circuits; and
 - the third voltage input electrical contact is connected to a second input of the bridge rectifier in the second of the at least two LED circuits.
21. (Original) The LED lighting device of claim 13 wherein the LED lighting device is an LED package.

22. (Original) The LED lighting device of claim 13 wherein the at least two LED circuits are integrated on a single chip.
23. (Original) The LED lighting device of claim 13 wherein the at least two LED circuits are integrated on discrete chips so that each of the at least two LED circuits is on a separate chip.
24. (Original) The LED lighting device of claim 13 wherein the at least two LEDs forming each of the at least two LED circuits are discrete die integrated on a substrate.
25. (Original) The LED lighting device of claim 13 wherein the LED lighting device is an LED assembly of discretely packaged LEDs.
26. (Original) An LED chip comprising:
at least two LED circuits, each LED circuit having at least two LEDs, the at least two LEDs in each circuit being connected in an anti-parallel configuration;
at least four voltage input electrical contacts, the at least four voltage input electrical contacts being configured so that one voltage input electrical contact is electrically connected to each opposing end of each of the at least two LED circuits,
wherein, each of the at least two LED circuits are electrically unconnected from each other.
27. (Original) An LED package comprising:
at least two LED circuits, each LED circuit having at least two LEDs, the at least two LED circuits each having opposing ends, and the at least two LEDs in each circuit being connected in an anti-parallel configuration;
at least four voltage input electrical contacts, the at least four voltage input electrical contacts being configured so that each opposing end of each of the at least two LED circuits has one voltage input electrical contact electrically connected thereto,
wherein, each of the at least two LED circuits are electrically unconnected from each other.

28. (Original) The LED packaged of claim 27 wherein each of the at least two LED circuits are formed on discrete chips, the discrete chips each containing at least two voltage input electrical contacts, the at least two voltage input electrical contacts being configured so that each opposing ends of each LED circuit have one voltage input electrical contact on each chip electrically connected to each opposing end, and the at least two voltage input electrical contacts for each discrete chip are electrically connected to one of the at least four voltage input electrical contacts in the LED package.

REMARKS

This Reply is in response to the Office action mailed on October 8, 2015. In the Office action Claims 1-28 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 no claims have been amended, added or cancelled. As such, claims 1-28 remain pending in the application.

Rejection of Claims 1, 26, and 27 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, 26 and 27. Specifically, *Miskin* as cited fails to disclose a lighting device, chip or package having at least two LED circuits that are electrically unconnected to each other in a parallel relationship as required by claims 1, 26 and 27.

In the Office Action, Figs. 15 and 16 and accompanying paragraph [0082] of *Miskin* are cited as showing at least two LED circuits being electrically unconnected to each other. At the outset, Applicant notes that paragraph [0082] does not teach that each LED set – described as LED devices 26 in paragraph [0082] – are electrically unconnected from the other sets. Instead, paragraph [0082] clearly describes what is shown in Fig. 15 – each device 26 is connected to a high frequency inverter 170 which provides a relatively constant 12V AC at a relatively constant frequency 50 Khz to each device. In order for the same voltage to be provided to each fixed device, each device 15 would have to be electrically connected in parallel to each other across the output of the inverter, as is clearly shown in Fig. 15. All of the devices in Fig. 15 (and Fig. 16) are electrically connected to each other in parallel.

Furthermore, elements 26 in *Miskin* are identified as devices, not circuits. The devices each include a single circuit of LEDs connected in an anti-parallel configuration – Fig. 16 shows the same thing with the exception of one device which shows multiple anti-parallel circuits electrically connected in parallel. None of the devices (or chips or packages) shown in *Miskin* have circuits which are electrically unconnected from each other.

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, *i.e.* are not electrically connected, and there is no common junction between the circuits. The circuits are not connected in series and are not connected in parallel. 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 at least 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. 15 and 16 in *Miskin*, for example, do not have this ability as the circuits are fixed therein in an anti-parallel configuration, and the devices are electrically connected to each other in parallel. There is no ability to selectively modify the devices shown in Figs. 15 and 16 in *Miskin* to achieve a different voltage or brightness level using only a single package as each device has only electrically connected circuits and only have electrically connected devices. *Miskin* teaches that in the system disclosed therein allow for additional circuits to be added in parallel to each other without effecting any other devices, but there is no provision that any circuits (or devices) be left unconnected to be selectively connected in series or parallel configuration to match an voltage output or brightness level.

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. 15 and 16 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, 26 and 27 — 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 13 under 35 U.S.C. 102(a) as being anticipated by *Miskin*

In the Office Action, Claim 13 was rejected as being anticipated by *Miskin*. Applicant respectfully submits that *Miskin* does not show a device which has three input contacts, one connected to both circuits, a second contact connected to only a first circuit, and a third contact only connected to a second circuit, as required by claim 13.

Fig. 16 of *Miskin*, and specifically element 178, shows two LED devices which are electrically connected to each other in parallel, each device having one LED circuit comprising two LEDs connected in an anti-parallel configuration. There is no device, or combination of devices, which have a first electrical contact connected to both circuits or devices, and second contact only connected to one of the circuits or devices, and a third contact only connected to the other circuit or device.

By contrast, as seen in, for example, Figs. 6 in the present application, contact 56a is connected to the far side of both circuits, contact 56b is connected to the input side of a first circuit and contact 56c is connected to the input side of a second circuit, as required by claim 13. Providing a device having this configuration allows for the circuits to be connected in series (by for example connecting contacts 56b and 56c across the output of a driver or voltage supply) or in parallel (by connecting 56b and 56c to a common terminal on a driver or voltage supply and contact 56a to the opposing terminal). Like the embodiments claimed and discussed above with respect to claims 1, 26 and 27, the device claimed in 13 allows for greater manipulation and

choice by an end user as the circuits may be connected to each other in series or parallel, or as shown in Fig. 7 connected to a switch which may connect the circuits in series or parallel.

Element 178 in Fig. 16 of *Miskin* simply does not teach any such device as each device 178 has one circuit, and each of the devices 178 are electrically connected to each other in parallel across the inverter 186 and transformer 184.

In view of the above, Applicant respectfully submits that independent claim 13— 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.

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 three-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: April 8, 2016

Respectfully submitted,

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/Jody L. FACTOR/
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One of Attorneys for Applicant