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FOR: LED LIGHT FIXTURE WITH INTERNAL POWER SUPPLY

Enclosed are:

- ☒ 18 pages of specification, claims, abstract.
- ☒ 10 sheets of formal drawing.
- ☒ Return Receipt Postcard

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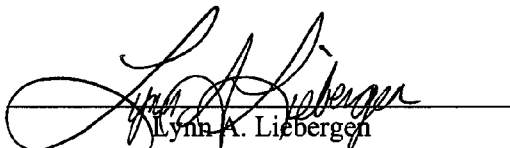
In re U. S. Utility Patent Application

Inventors: James Thomas, David Lynd, Gary Gatesman, Jim Mosier, and
Brian Witter
Application No.: Unassigned
Filing Date: June 13, 2007
For: LED LIGHT FIXTURE WITH INTERNAL POWER SUPPLY
Attorney Docket No. 77139-0014

Enclosures:

1. Utility Patent Application Cover Sheet, 1 page (in duplicate)
2. Specification, 18 pages (Specification (13pages), Claims – 28 total/3 independent (4 pages), Abstract (1 page))
3. Drawings, Ten (10) sheets (Figs. 1-9)
4. Return Receipt Postcard

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LED LIGHT FIXTURE WITH INTERNAL POWER SUPPLY

DESCRIPTION

CROSS-REFERENCE TO RELATED APPLICATION

[0001] N/A

FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] N/A

TECHNICAL FIELD

[0003] The invention relates to a durable light fixture with improved thermal management properties to ensure reliable operation. More specifically, the light fixture includes a light engine featuring an arrangement of light emitting diodes (LEDs), a rugged housing, an internal power supply removably embedded within the housing, and an openable rear cover that provides access to the embedded power supply.

BACKGROUND OF THE INVENTION

[0004] Light fixtures suitable for commercial use, such as in or around building and commercial facilities, are typically designed to be durable since they can be struck or damaged during business operations. To provide this durability, existing light fixtures typically have substantial housings that protect the light source. Most existing commercial light fixtures utilize fluorescent bulbs, halogen bulbs, mercury vapor lamps, or metal halide lamps as the light source. However, these existing commercial fixtures suffer from a variety of limitations, including but not limited to high cost, low efficiency, high power consumption and/or poor light output

quality. Thus, the overall appeal of existing commercial fixtures is limited, and will further erode as energy costs (and the related operating costs) continue to increase.

[0005] The present invention is provided to solve these limitations and to provide advantages and aspects not provided by conventional light fixtures. A full discussion of the features and advantages of the present invention is deferred to the following detailed description, which proceeds with reference to the accompanying drawings.

SUMMARY OF THE INVENTION

[0006] The present invention is directed to a light fixture that includes an LED light engine, which by design, is energy efficient and provides high quality light output. The inventive light fixture includes a rugged housing and an internal power supply that is thermally isolated while residing within the housing. Positioning the power supply within the housing minimizes the opportunity for incurring damage to the power supply. This is of particular importance when the light fixture is configured for use in high-traffic commercial or industrial applications, such as warehouses, loading docks or shipping/receiving areas, where the light fixture is prone to be stricken by forklifts and other large objects. While an internal power supply enjoys a reduced chance of being damaged, the power supply is susceptible to failure from heat generated by the light engine. The light fixture includes several novel heat management features designed to thermally isolate the power supply in order to reduce the risk of failure and thereby increase the reliability of the light fixture.

[0007] According to an aspect of the invention, light fixture includes a light engine assembly, a rugged housing, and an internal power module connected within a rear receptacle of the housing. The power module includes a power supply, a box, and a cover that enclose the power supply. The housing also includes an arrangement of fins extending from a main body portion of the housing and that dissipate heat. During operation, heat generated by the light engine is transferred along a flow path through the main body portion and the fins for dissipation to ambient.

[0008] According to another aspect of the invention, the light engine comprises a printed circuit board (PCB), a plurality of LED modules, and a lens extending outward from each

module. Each module comprises a LED and a zener diode, which results in “bypass” circuitry to prevent catastrophic failure of the light engine. The light engine further comprises a heat transfer element, such as a thermal pad, positioned between the circuit board and the housing. The modules are divided into multiple groups, where each group includes multiple modules. Within each group, the modules are serially arrayed, and the groups are parallel to each other to facilitate current sharing from the power supply.

[0009] For a more complete understanding of the present invention, its operating advantages and the specific objects attained by its uses, reference should be had to the accompanying drawings as well as the descriptive matter in which there is illustrated and described the preferred embodiment of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

Figure 1 is a perspective view of the light fixture of the invention;

Figure 2 is a perspective view of the light fixture, showing the rear cover in the open position to expose a box that receives a power supply;

Figure 3 is a top view of the light fixture, showing a power module received within a receptacle defined by an array of fins;

Figure 4A is an end view of the light fixture;

Figure 4B is an end view an alternate embodiment of the light fixture, showing a mounting bracket coupled to the fixture housing;

Figure 5 is a cross-section of the light fixture, showing the cover in the open position and the power supply exploded from the power supply box;

Figure 6 is a cross-section of the light fixture, showing the cover in the open position and the power supply exploded from the power supply box;

Figure 7 is an exploded view of the light fixture, showing the various components of the light fixture including a light engine, a housing, a power supply box and a power supply;

Figure 8 is a partial exploded view of the light fixture; and,

Figure 9 is an electrical schematic of the light engine of the light fixture, showing the various LED modules and their components.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0011] While this invention is susceptible of embodiments in many different forms, there is shown in the drawings and will herein be described in detail preferred embodiments of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspect of the invention to the embodiments illustrated

[0012] Figs. 1-9 show a first embodiment of a light fixture 10 of the present invention. The light fixture 10 includes a light engine assembly 15 featuring an arrangement of light emitting diodes (LEDs) 17, a rugged housing 20, an internal power supply 25 removably embedded within a box 30 of the housing 20, wherein the box 30 encloses the power supply 25 within the housing 20. This embodiment of the light fixture 10 is configured for use in commercial or industrial applications, such as loading docks or receiving areas. In these high-traffic areas, conventional light fixtures, which include an externally-mounted power supply, are prone to being struck by forklifts and other large objects. By positioning the power supply 25 within the housing 20, the inventive fixture 10 reduces both (a) the overall dimensions of the light fixture 10, and (b) the incidence of damage to the power supply 25. However, the embedded power supply 25 then becomes susceptible to failure from heat generated by the light engine 15. To combat this, the light fixture 10 includes several heat management components, including the housing 20 itself, to dissipate heat from the light engine 15 and to thermally isolate the power supply 25. Individually and collectively, the heat management components increase the reliability of the light fixture 10, including the light engine 15 and the power supply 25.

[0013] The light fixture 10 further includes a rectangular lens 35 secured to the housing 20 by a plurality of fasteners 36, and a gasket 37. The housing 20 includes an arrangement of external fins 40 that help the housing 20 dissipate heat generated by the light engine 15. The fins 40 extend from a main body portion 45 of the housing 20 which includes that portion of the

housing 20 that engages the lens 35 and the light engine 15. The main body 45 includes a curvilinear protrusion 47 proximate side fins 40 (see Figs. 1-4A). The light engine 15 comprises a printed circuit board (PCB) 50, a plurality of LED modules M, and a lens 55 extending outward from each module M. The light engine 15 further comprises a heat transfer element 60, for example a thermal pad 61, positioned between the rear surface of the circuit board 50 and the housing 20. The circuit board 50 and the heat transfer element 60 are secured to the housing 20 by at least one fastener 51. In contrast to existing lighting devices that employ LEDs, the present light fixture 10 does not require a reflector(s) to focus or disperse the light pattern generated by the LEDs. As a result, the dimensions of the housing 20 are reduced while still allowing for the internal power supply 25. Although not shown, the housing's main body 45 may include a vent to reduce fogging of the lens 35 in harsh or damp operating environments.

[0014] As mentioned above, the housing 20 also includes a power supply box 30 that receives the power supply 25. Preferably, the power supply 25 is of the universal input, constant current output and switching variety. The box 30 includes a cover segment 65 that is operably connected to the box 30 to allow for movement of the cover 65 and to provide for insertion and removal of the power supply 25. Thus, the power supply 25 can be repaired or replaced when the light fixture 10 malfunctions. Fig. 2 depicts the light fixture 10 in an open position P1, wherein the rear cover 65 is opened to expose the power supply 25. Since the cover 65 is operably connected to the box 30 to enclose the power supply 25, these three components define a power module 70 that is thermally isolated from the heat generated by the light engine 15 and dissipated by the housing 20. A hinge 75 is formed between the box 30 and the cover 65 to allow for pivotal movement of the cover 65. Alternatively, the cover 65 is operably connected to the box 30 by alternate securing means, such as a pin and socket arrangement or sliding channel arrangement. A tether 76, secured by fasteners 77 and washers 78, extends between the box 30 and the cover 65 to prevent over-rotation of the cover 65. Fasteners 79 extend through the upper portion of the cover 65 to further secure the cover 65 to the box 30. The rear cover 65 further includes an elongated arm 80 that is used to mount the light fixture 10 to a support surface. The arm 80 is adjustably connected to a sub-base 66 of the rear cover 65 by an adjustment screw 67 and an O-ring 68. The arm 80 is tubular to allow for the passage of electrical leads, namely the

main power leads 85 and a ground lead 90. Because the power supply 25 is internal to the housing 20, the rear cover 65 includes an opening 69 that allows for the passage of the power and grounds leads 85, 90 for connection to the power supply 25.

[0015] As shown in the cross-section views of Figs. 4A and 5, the main body 45 has an inwardly extending receiver 95 defined by a flange 100. The receiver 95 provides a primary mounting surface 96 for the light engine 15, while the flange 100 provides a secondary mounting surface 101 for the lens 35. The heat transfer element 60 is positioned between a rear surface of the circuit board 50 and the secondary mounting surface 101 to facilitate heat transfer. The array of fins 40 extending outward from the housing 20 body defines a rear receptacle or pocket 105, that is substantially rectangular, that receives the box 30 and the power supply 25. Fasteners 26 secure the power supply 25 to the box 30. Due to the positioning of the box 30 and the power supply 25, there are different sized fins 40 (see Fig. 6) - the inner fins 40a have the shortest length, the intermediate fins 40b have a longer length, and the outer fins 40c have the longest length (see Fig. 6). In one embodiment, the power supply box 30 resides substantially within the rear receptacle 105 and the cover 65 is external to the receptacle 105 (see Fig. 4). Preferably, the width of the box 30 (and the power supply 25) is less than the width of the housing 20. The box 30 is secured to at least one boss 46 (see Fig. 6) extending rearward from the housing main body 45 by the fastener 77 and the washer 78. As shown in Fig. 6, the boss has a length that exceeds the length of the inner fins 40a whereby the box 30 is offset from the inner fins 40a and within the intermediate fins 40b. Preferably, at least one thermal insulator 110, for example elastomeric or nylon O-rings 111, or an insulating thermal sheet, is placed between the main the boss 46 and the power supply box 30 to thermally isolate the power supply 25. The main body 45 also includes a first internal passageway 115 that accommodates a first supply lead 116 extending between the light engine 15 and the power supply 25, and a second internal passageway 120 that accommodates a second supply lead 121 extending between the light engine 15 and the power supply 25. Couplers 117 may be used to electrically connect distinct segments of the supply leads 115, 120. The thermal insulator 110 that resides between the boss 46 and the box 30 allows for the passage of the supply leads 116, 121.

[0016] Referring to the top view of Fig. 3 and the cross-section views of Figs. 5 and 6, the fins 40 and the power module 70 provide the housing 20 with a distinct configuration. When the box 30 is secured to the bosses 46, a cavity or void 125 is defined between (1) the fins 40a and the box 30 and (2) between the fins 40b and the side walls 31 of the box 30. This cavity 125 and the insulators 110 help to thermally isolate the box 30 and the internal power supply 25. Thus, the power supply box 30, the power supply 25 and the cover 65 are spaced from the main body 45 to define the cavity 125. As mentioned above, the main power leads 85 extend through the arm 80 and the cover opening 69 to the power supply 25. The ground lead 90 also extends through the arm 80 but then is secured to the boss 46 by the fastener 77. Similarly, the tether 76 that prevents over-rotation of the cover 65 is secured to the other boss 46. The first and second supply leads 116, 121 extend from the power supply 25 through the passageways 115, 120 to the circuit board 50 to energize the LED modules M of the light engine 15. Specifically, the first and second supply leads 116, 121 extend through the openings 32 in the power supply box 30 and the first and second passageways 115, 120, respectively. From there, the first and second supply leads 116, 121 extend through openings 62 in the thermal pad 61 and then connect with the circuit board 50. Preferably, the first supply lead 116 is electrically connected to a first point P1 of the circuit board 50 and the second supply lead 121 is electrically connected to a second point P2 of the circuit board 50.

[0017] An alternate embodiment of the fixture 10, denoted as fixture 210, is shown in Fig. 4B. There, the fixture 210 includes a mounting bracket 250 moveably coupled to the housing 220 and which eliminates the support arm 80. Instead of extending through a support arm, the power and ground leads 285, 290 extend through the rear cover 265 for connection to the internal power supply 25. The mounting bracket 250 includes an adjustable fastener 255 extending through each side segment 260 of the bracket 250, and that that allows for pivotal movement of the bracket 250 with respect to the housing 220. The fastener 255 is received by openings in the curvilinear protrusion 247 near the main body portion 245. In the 90 degree position of Fig. 4B, the bracket 250 is configured to allow the fixture 210 to be mounted to an overhead surface, such as a ceiling or horizontal support, whereby the fixture 210 is vertically suspended. In a 180

degree position, the bracket 250 is configured to allow the fixture 210 to be mounted to a wall or vertical support, whereby the fixture 210 extends outwardly from the wall.

[0018] As mentioned above, the light engine assembly 15 comprises the printed circuit board 50 (PCB), at least one LED module M, the heat transfer element 60, and at least one lens 35 extending outward from each module M. In one embodiment, the circuit board 50 is thermal clad, meaning a thin thermally conductive layer bonded to an aluminum or copper substrate, to facilitate heat transfer from the LED modules M through the circuit board 50 and to the housing main body 45 and the fins 40 for dissipation. Alternatively, the circuit board 50 is fabricated from fiberglass material (known as a FR-4 board) and includes thermal vias or pathway to permit heat transfer through the circuit board 50. The thermal pad 61 is a heat transfer element 60 with a high thermal conductivity rating to increase the heat transfer from the circuit board 50 to the housing 20. Preferably, the dimensions of the thermal pad 61 substantially correspond to the dimensions of the circuit board 50 for surface area coverage and more effective heat transfer. The thermal pad 61 and the circuit board 50 each have a rectangular configuration. Further, the openings 62 in the thermal pad 60 are aligned with the connection points P1, P2 for the first and second supply leads 116, 121. In another embodiment, the thermal pad 62 is omitted and the printed circuit board 50 directly contacts the mounting surface 96. In yet another embodiment, the thermal pad 62 is replaced by thermal grease or gel, which is a specially formulated substance that increases heat transfer. The thermal grease may be silicone-based, ceramic-based with suspended ceramic particles, or metal-based with metal particles (typically silver) suspended in other thermally conductive ingredients.

[0019] Referring to the schematic of Fig. 7, a first embodiment of the light engine 15 has eighteen (18) light modules M1-M18 that are electrically and mechanically coupled to the circuit board 50. In an alternate embodiment (not shown), the light engine 15 includes twenty-four (24) light modules. The light modules M1-M18 are top-mounted on the circuit board 50 and are electrically interconnected by a copper trace 52. Each light module M comprises a LED 17 and a zener diode 18, which results in “bypass” circuitry to prevent catastrophic failure of the light engine 15. The LED 17 is mounted to the board 50 to provide an angle of emission ranging from 75-100 degrees, and preferably 80-90 degrees. In one embodiment, the LED 17 is white and has

a color rendition index (which is a measurement of the LED's ability to show true color) of greater than 80 and a color temperature (which is a measurement of warmth or coolness of the light produced by the LED) of roughly 2700-8200 degrees Kelvin (K). In the 2750K, 3000K, 3500K and 4200K configurations, the LEDs 17 have a warm white quality, and in the 5100K, 6500K and 7000K configurations, the LEDs 17 have a cool white quality. The modules M1-M18 are divided into three groups G1-G3, where each group includes six (6) modules. Within each group G1-G3, the modules M are serially arrayed, and the groups G1-G3 are parallel to each other to facilitate current sharing from the power supply 25. The current sharing provided by the three groups G1-G3 promotes uniform light brightness between the groups G1-G3 and the modules M therein, and maintains constant color temperature of the light produced by the LEDs 17.

[0020] Current is supplied from the power supply 25 to the modules M1-M18 by the first or positive supply lead 116, which is electrically connected to the circuit board 50 at the point P1. From there, current is supplied to the primary modules M1, M7 and M13, in each of the three module groupings G1, G2, G3 by supply copper traces 53. Here, each group G1-G3 comprises six modules M, however, each group could comprise a different number of modules M. During operation, current flows through the components of the primary modules M1, M7 and M13 and illuminates the LED 17 therein. Current exits the primary modules M1, M7 and M13 along the interconnect trace 52 and proceeds into the secondary modules M2, M8 and M14 to illuminate the LED 17 therein. Current exits the second modules M2, M8 and M14 along the interconnect trace 52 and proceeds into the tertiary modules M3, M9 and M15 to illuminate the LED 17 therein. This current flow sequence continues until exiting the last modules M6, M12 and M18 wherein current flows back to the power supply 25 via return copper traces 54 linked to the second or negative supply lead connected at the point P2.

[0021] As briefly mentioned above and as shown in Fig. 9, when the LED 17 modules M1-M18 are serially arrayed, each module M includes a zener diode electrically connected to the LED 17 by a copper trace. In the event the module M includes multiple LEDs 17, then a zener diode is electrically connected to each LED 17. The zener diode and the LED 17 combine to form a "bypass" circuit to prevent catastrophic failure of the light engine 15. The zener diode 18

provides an alternate electrical path, where the diode 18 provides high resistance (essentially an open-circuit) to voltage and current transmission when the LED 17 is operating normally. A Zener diode 18 is a type of diode 18 that permits current to flow in the forward direction like a normal diode, but also in the reverse direction if the voltage is larger (not equal to, but larger) than the rated breakdown voltage known as the "Zener voltage". In the event the LED 17 malfunctions or fails, the zener diode 18 provides an alternate current path to complete the circuit for that particular module M and the remaining modules M of the light engine 15. In this situation, the voltage drop across the diode 18 is similar to the voltage drop across a properly operating LED 17. Although the diode 18 has no illumination characteristics, it provides an alternate or bypass electrical path to allow the other modules M to remain operational. For example, the fixture 10 has eighteen modules M1-M18, each having a zener diode 18 associated with a LED 17. Assuming the LED 17 in the third module M3 fails, current continues to flow in the bypass path provided by the zener diode 18 and only that particular LED 17 will not be illuminated. As a result, the remaining modules M1, M2 and M4-15 will continue to operate with their respective LED 17 being illuminated. In this manner, the failure of one LED 17 will only affect that particular module M and the remaining modules M in the group G will continue to operate as intended. Without the bypass provided by the zener diode 18, an entire group of LEDs 17 will lose illumination when just one LED 17 therein fails or malfunctions. In addition to bypass operation, the zener diode 18 helps service technicians to identify a faulty module M, since only that module M will be dark while the other modules M are illuminated. In this manner, replacement and/or upgrade of the modules M is made more efficient and less time consuming.

[0022] Referring to Fig. 9, the fixture 10 includes a wireless module 130, primarily a radio frequency control unit 135, that allows for remote control of the fixture 10. The radio frequency control unit 135 can be factory assembled into the housing 20 as original equipment, or added to the housing 20 in the field by a service technician. In general terms, the radio frequency control unit 135 allows an operator to remotely turn on, turn off, or adjust the fixture 10 or group of fixture 10s to any desired brightness level. The remote interaction resulting from the control unit

135 provides a number of benefits to the fixture 10, including longer operating life for the components, lower energy consumption, and lower operating costs.

[0023] The radio frequency control unit 135 comprises a number of components including a transceiver 140 (or separate receiver and transmitter components), an antenna 150, and control interface 145 for the power supply 25. The control interface 145 includes a connector containing input signals for providing raw power to the control unit 135, as well as output signals for controlling the power supply 25 itself. In operation, the control unit 135 interacts with the power supply 25 to allow an operator to power on, power off, or dim the brightness of the fixture 10. To ensure reception of the operating signals, the control unit 135 utilizes an embedded antenna 150, or an external antenna 150 coupled to the housing 20 for better wireless reception. The radio frequency control unit 135 can receive commands from a centralized controller, such as that provided by a local network, or from another control module positioned in a fixture 10 in close proximity. Thus, the range of the lighting network could be extended via the relaying and/or repeating of control commands between control units 135.

[0024] In a commercial facility or building having multiple fixtures 10, each fixture 10 may be assigned a radio frequency (RF) address or identifier, or a group of fixtures 10 are assigned the same RF address. An operator interfacing with a lighting control network can then utilize the RF address to selectively control the operation and/or lighting characteristics of all fixtures 10, a group of fixtures 10, or individual fixtures 10 within the store. For example, all fixtures 10 having an RF address corresponding to a specific function or location within the store, such as the loading dock or shipping point, can be dimmed or turned off when the store is closed for the evening. The operator can be located within the store and utilize a hand held remote to control the group of fixtures 10 and/or individual fixture 10. Alternatively, the operator may utilize a personal digital assistant (PDA), a computer, or a cellular telephone to control the fixtures 10. In a broader context where stores are located across a broad geographic region, for example across a number of states or a country, the fixtures 10 in all stores may be linked to a lighting network. A network operator can then utilize the RF address to control: (a) all fixtures 10 linked to the network; (b) the fixtures 10 on a facility-by-facility basis; and/or (c) groups of fixtures 10 within a facility or collection of facilities based upon the lighting function of the fixtures 10.

[0025] A centralized lighting controller that operably controls the fixtures 10 via the control units 135 can be configured to interface with an existing building control system or lighting control system. The central lighting controller may already be part of an existing building control system or lighting control system, wherein the fixture 10 and the control unit 135 are added as upgrades. The radio frequency control unit 135 could utilize a proprietary networking protocol, or use a standard networking control protocol. For example, standard communication protocols include Zigbee, Bluetooth, IEEE 802.11, Lonworks, and Backnet protocols.

[0026] As mentioned above, the light fixture 10 includes several heat management components, to efficiently dissipate heat generated by the modules M1-M18 and to thermally isolate the power supply 25 in order to reduce its risk of failure and increase the reliability of the fixture 10, including the light engine 15. Efficient heat dissipation from the light engine 15 allows for more forward current applied to the LEDs 17, which ensures consistent light output from the modules M1-M18. In addition, minimizing temperature of the LEDs 17 lessens the change in the color wavelength, since the color wavelength increases with temperature. The heat management components include the fins 40 arrayed about the aluminum housing 20, the thermal pad 61, and the void 125 between the power module 70 and the main body 45. During operation and as shown in Figs. 5 and 6, heat is generated by the modules M1-M18 and then is transferred along a flow path F_Q for dissipation from the housing 20. Specifically, heat generated by the modules M is transferred, via conduction, along the flow path F_Q through the circuit board 50 and the thermal pad 61 to the main body 45, which acts as a heat sink. A first quantity of heat is dissipated to ambient through convection from the main body 45 as first flow path F_{Q1} , and a second quantity of heat flows along a second flow path F_{Q2} into the fins 40 for convection to ambient. Due to the configuration of the fins 40 and the main body 45, the quantity of heat dissipated by the second flow path F_{Q2} exceeds the heat dissipated by the first flow path F_{Q1} . There is a temperature gradient from the main body 45 to the fins 40 and the gradient effectively draws heat from the modules M1-M18 through the main body 45 and the fins 40 to ensure effective heat management and extended operational life of the fixture 10.

[0027] The cavity 125 between the main body 45 and the power module 70 exposes the fins 40 proximate the box 30 to cooling air for convective heat transfer, which prevents a significant

quantity of heat from transferring to the power supply 25. While a small quantity of heat may be transferred to the bosses 46, the insulator 110 (such as the elastomeric ring 11) minimizes any further heat transfer to the box 30 and the power supply 25. In some situations, a small amount of heat may eventually be transferred to the power supply 25 via the fasteners 77; however, due to the heat management components of the fixture 10, that amount is relatively low and should not compromise the operation and durability of the power supply 25. As an example of the fixture's heat management capabilities during steady state operation, the LED 17 junction temperature at the circuit board 50 was measured at 55°C, the housing 20 body temperature was 45°C, the ambient temperature was 25°C, and the power supply 25 temperature was 53°C. Significantly, the LED 17 junction temperature of 55°C is far below the 85°C threshold where initial degeneration begins and the 125°C level where failure occurs, and the power supply 25 temperature of 53°C is below the 70°C threshold where failure may occur. Thus, the fixture's ability to effectively manage the heat generated by the modules M1-M18 provides a number of benefits, including but not limited to, continuous and reliable operation of the light engine 15 and the power supply 25; consistent, high quality light produced by the modules M1-M18; and, efficient operation which leads to lower power consumption and operating costs.

[0028] Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

CLAIMS

What is claimed is:

1. A light fixture comprising:
 - a housing having a main body portion and a plurality of fins that extend from the main body portion, wherein the fins define a receptacle;
 - a light engine assembly mounted to the main body portion, the light engine having a plurality of light modules comprising a LED and a zener diode mounted to a printed circuit board, the light engine further having a heat transfer element positioned between the circuit board and the body portion; and,
 - a power module residing within the receptacle and connected to the main body portion, the power module including a box, an internal power supply, and an openable cover that encloses the power supply.
2. The light fixture of Claim 1, wherein the main body portion has at least one internal passageway that receives supply leads extending between the power supply and the circuit board.
3. The light fixture of Claim 1, wherein the housing has a flange that defines an inwardly extending receiver that provides a primary mounting surface for the light engine.
4. The light fixture of Claim 3, wherein the flange provides a second mounting surface for a lens.
5. The light fixture of Claim 1, wherein the heat transfer element is a thermal pad that contacts the rear surface of the circuit board.
6. The light fixture of Claim 1, wherein the light modules are arranged into at least two parallel groups, and wherein the light modules within each group are serially arranged.
7. The light fixture of Claim 6, wherein a pair of supply leads extend between the power supply and the circuit board, and wherein a positive supply lead supplies current to the first module of each group.
8. The light fixture of Claim 1, wherein the main body portion includes at least one boss for mounting of the power module, and wherein a thermal insulator is utilized between the boss and the power module.

9. The light fixture of Claim 1, wherein the cover includes an opening that receives power leads and a ground lead that connect with the power supply.
10. The light fixture of Claim 9, further comprising a mounting arm, and wherein the power and ground leads extend through the mounting arm and into the cover.
11. A LED light fixture comprising:
 - a housing including a body portion and a plurality of fins extending rearward from the body portion, the fins defining a receptacle;
 - a light engine assembly mounted to the body portion, the light engine having a plurality of light modules comprised of a LED and a zener diode mounted to a printed circuit board; and,
 - a power module residing within the receptacle, the power module including a power supply residing within an openable box within the receptacle.
12. The LED light fixture of Claim 11, wherein first and second supply leads extend from the power supply through the body portion for connection with the circuit board.
13. The LED light fixture of Claim 12, wherein the body portion includes a first passageway extending from the receptacle to the light engine, and wherein the first supply lead extends through the first passageway and is electrically connected to the circuit board.
14. The LED light fixture of Claim 13, wherein the body portion includes a second passageway extending from the receptacle to the light engine, and wherein the second supply lead extends through the second passageway and is electrically connected to the circuit board.
15. The LED light fixture of Claim 11, wherein first and second supply leads extend from the power supply to the circuit board, and wherein the light modules are divided into at least two parallel groups of serially arranged modules.
16. The LED light fixture of Claim 15, wherein current flows along the first supply lead to a primary light module of each group and illuminates the LED therein, and wherein current exits the primary light modules along an interconnect trace.

17. The LED light fixture of Claim 16, wherein current flows from the interconnect trace into a secondary light module to illuminate the LED therein, and wherein current exits the second light module along an interconnect trace.
18. The LED light fixture of Claim 11, wherein the light engine assembly includes a thermal pad that is positioned between the circuit board and the body portion.
19. The LED light fixture of Claim 11, further comprising a mounting arm extending from a cover segment of the box of the power module, wherein electrical leads extend along the mounting arm and through an opening in the cover for connection to the power supply.
20. The LED light fixture of Claim 19, wherein the cover is pivotally connected to the box to allow an operator to access the power supply.
21. A LED light fixture comprising:
 - a housing having a main body and an array of fins extending rearward from the main body;
 - a light engine assembly mounted to a front receiver of the main body, the light engine having a plurality of light modules comprising a LED and a zener diode mounted to a printed circuit board, wherein the light modules are divided into at least two groups that are parallel to each other, and wherein the light modules in each group are serial to each other;
 - a power module secured to the main body of the housing, the power module including a power supply embedded within a box; and,
 - wherein during operation, heat generated by the LEDs passes through the circuit board and then said heat is dissipated by the main body and the fins.
22. The LED light fixture of Claim 21, wherein a first quantity of said heat flows along a first flow path into the main body for dissipation to ambient.
23. The LED light fixture of Claim 22, wherein a second quantity of said heat flows along a second flow path into the fins for dissipation to ambient.
24. The LED light fixture of Claim 23, wherein the quantity of heat dissipated by the second flow path exceeds the heat dissipated by the first flow path.

25. The LED light fixture of Claim 21, wherein a cavity is defined between the power module and the main body, and wherein the cavity is adapted to thermally isolate the power supply.
26. The LED light fixture of Claim 25, wherein the cavity is further defined between the box and an arrangement of inner fins and intermediate fins.
27. The LED light fixture of Claim 21, wherein the fins define a receptacle and the power module is positioned within the receptacle.
28. The LED light fixture of Claim 21, further comprising a mounting arm extending from a cover segment of the box of the power module, and wherein the cover is pivotally connected to the box to allow an operator to access the power supply.

ABSTRACT

The invention provides a light fixture that includes a light engine, a rugged housing, and an internal power module that is thermally isolated. The light fixture includes several novel heat management features designed to thermally isolate the power supply in order to reduce the risk of failure and thereby increase the reliability of the light fixture. The light engine includes groups of light modules, each having a light emitting diode (LED) and a zener diode. The power module resides within a rear receptacle of the housing and includes a power supply, a box, and a cover that enclose the power supply. The housing also includes an arrangement of external fins that dissipate heat generated by the light engine. During operation, heat is generated by the light modules, namely the LEDs, and then is transferred along a flow path through a main body portion of the housing and the fins for dissipation to ambient without negatively impacting the power supply.

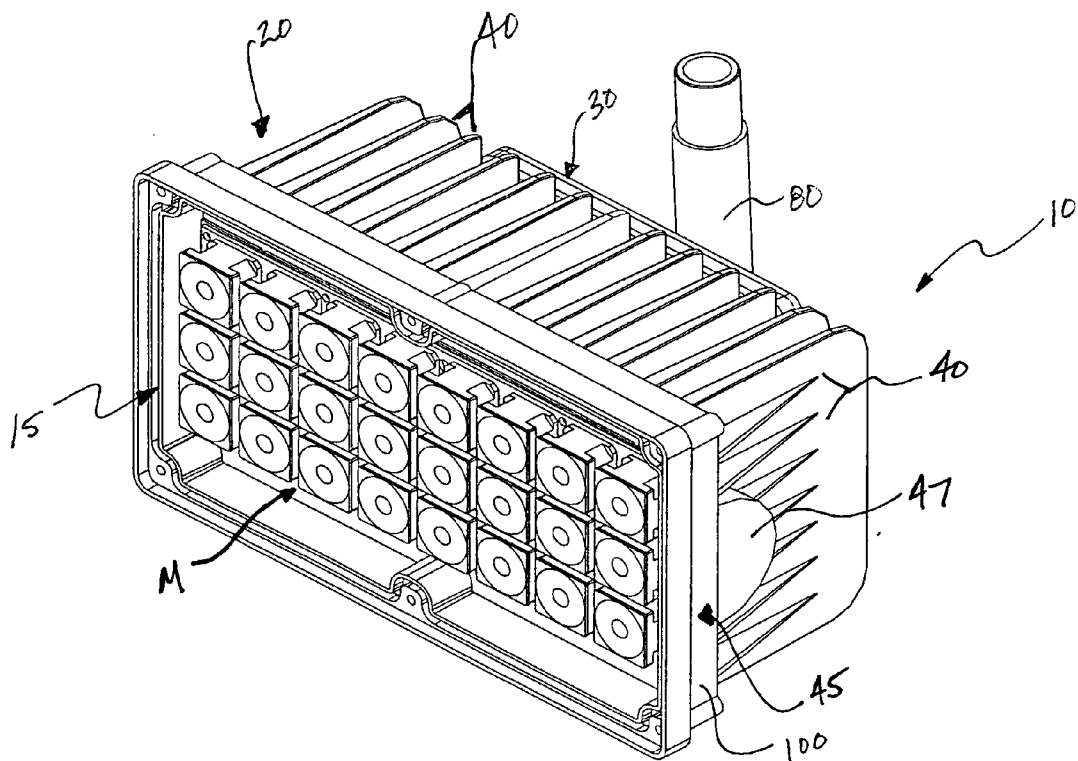


FIG. 2

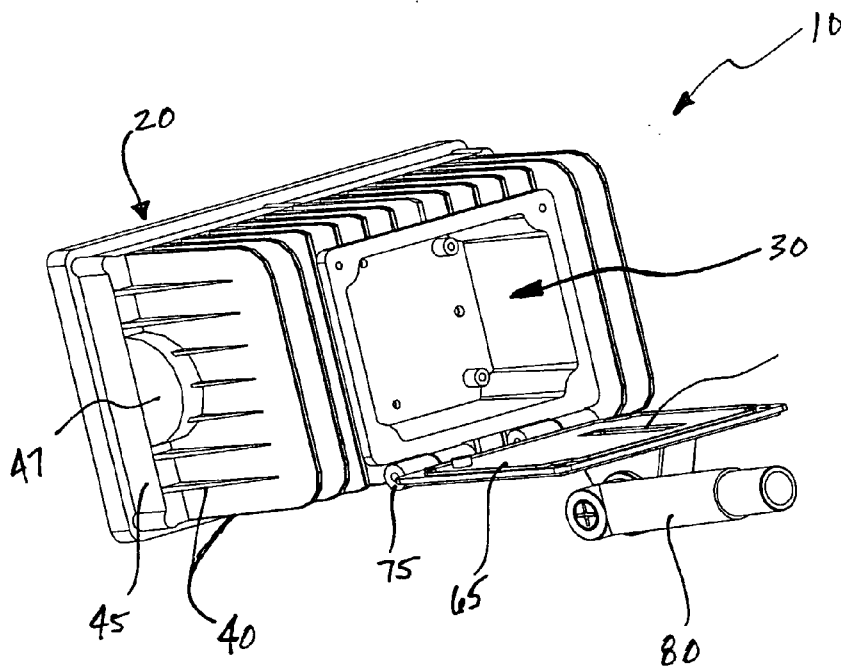


FIG. 3

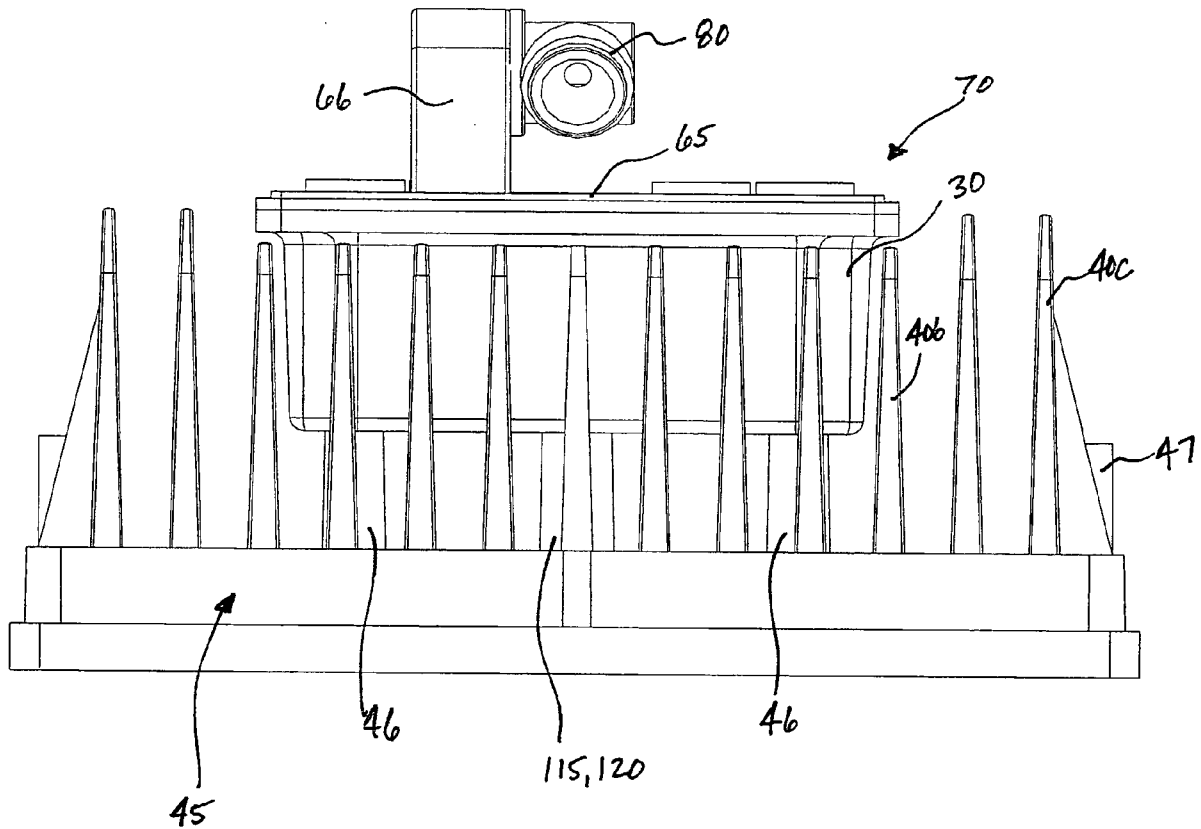


FIG. 4A

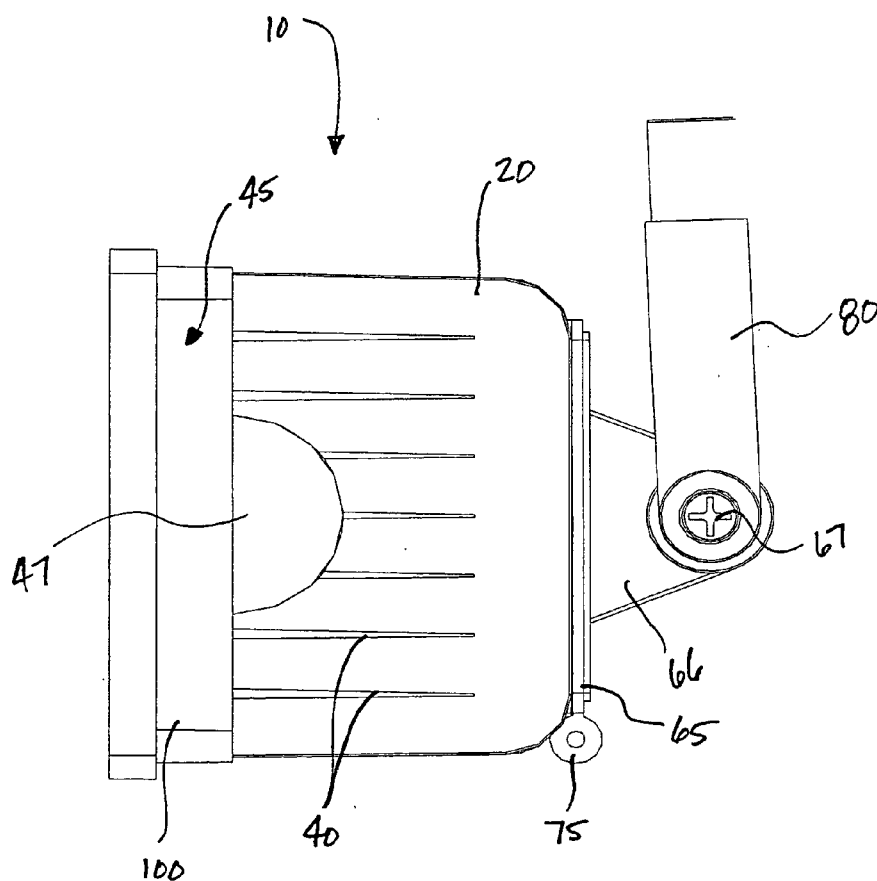


FIG. 4B

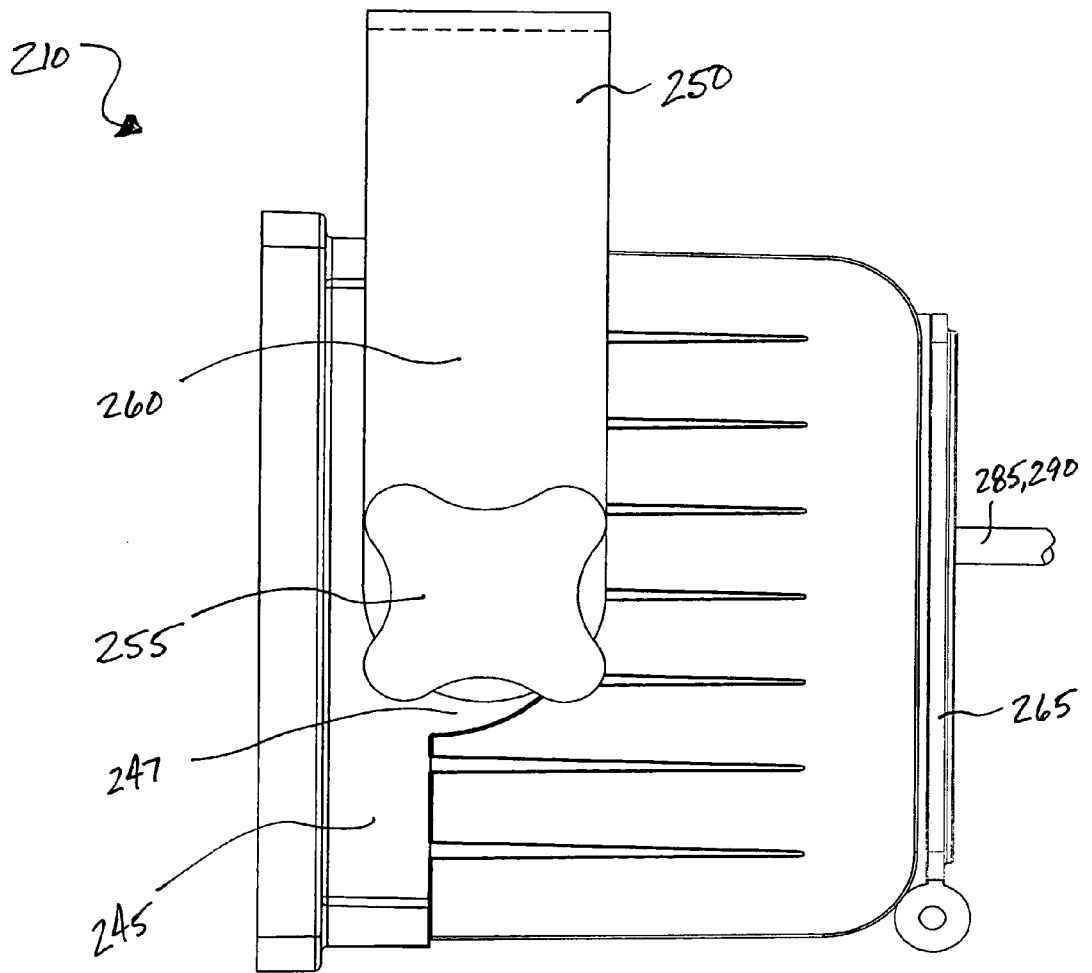


Fig. 5

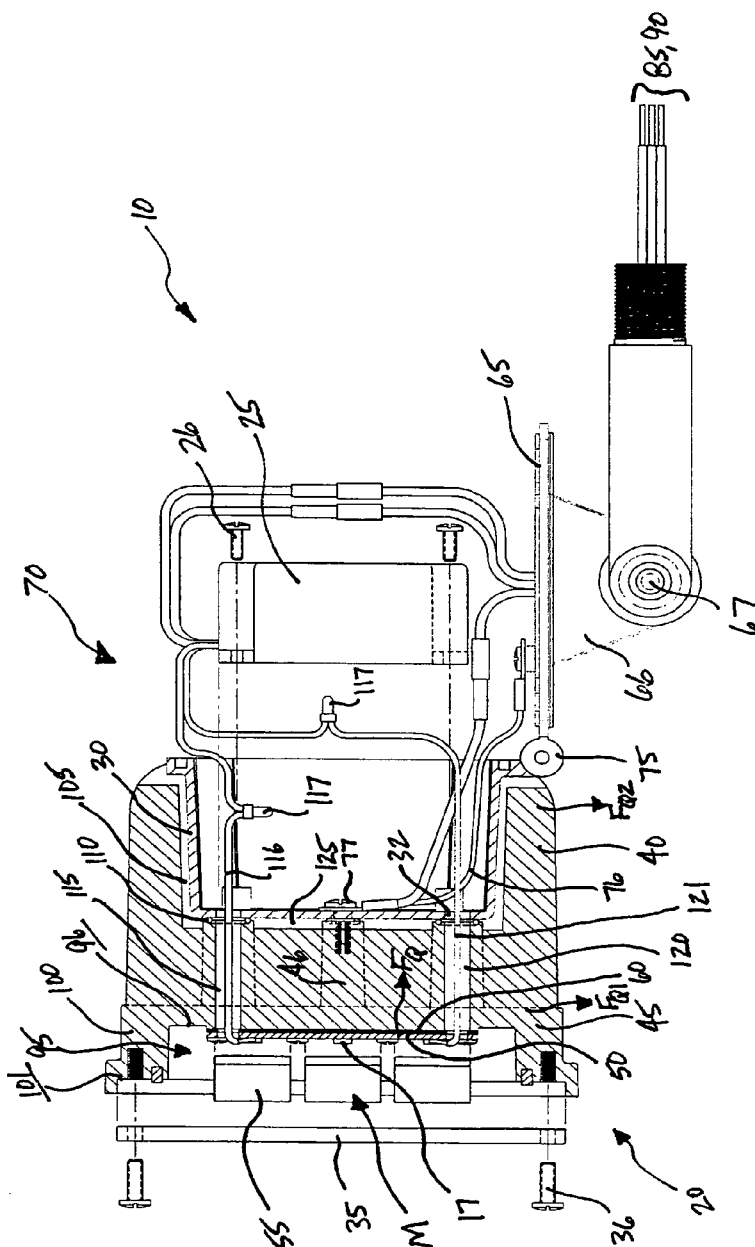


FIG. 6

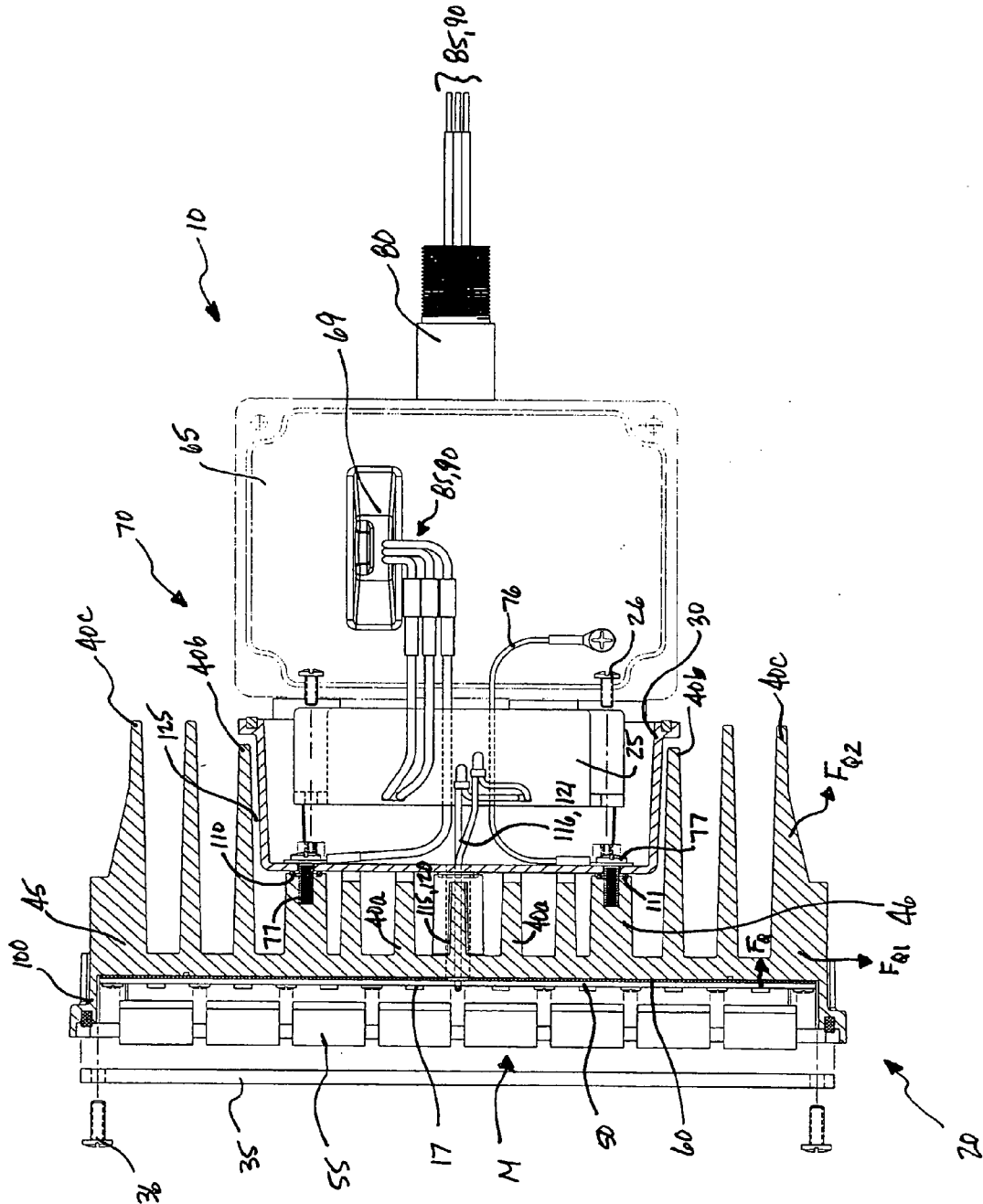


FIG. 7

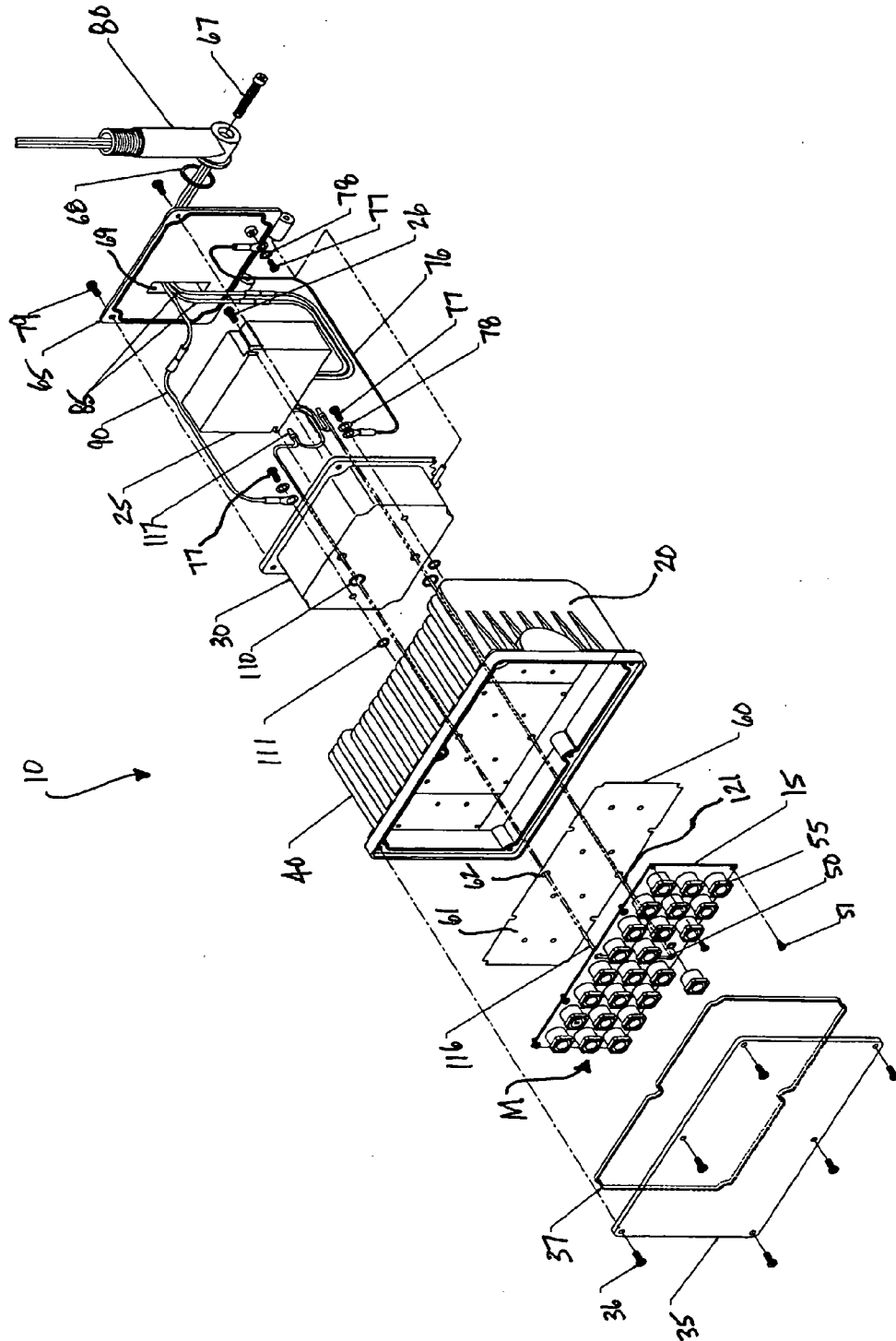
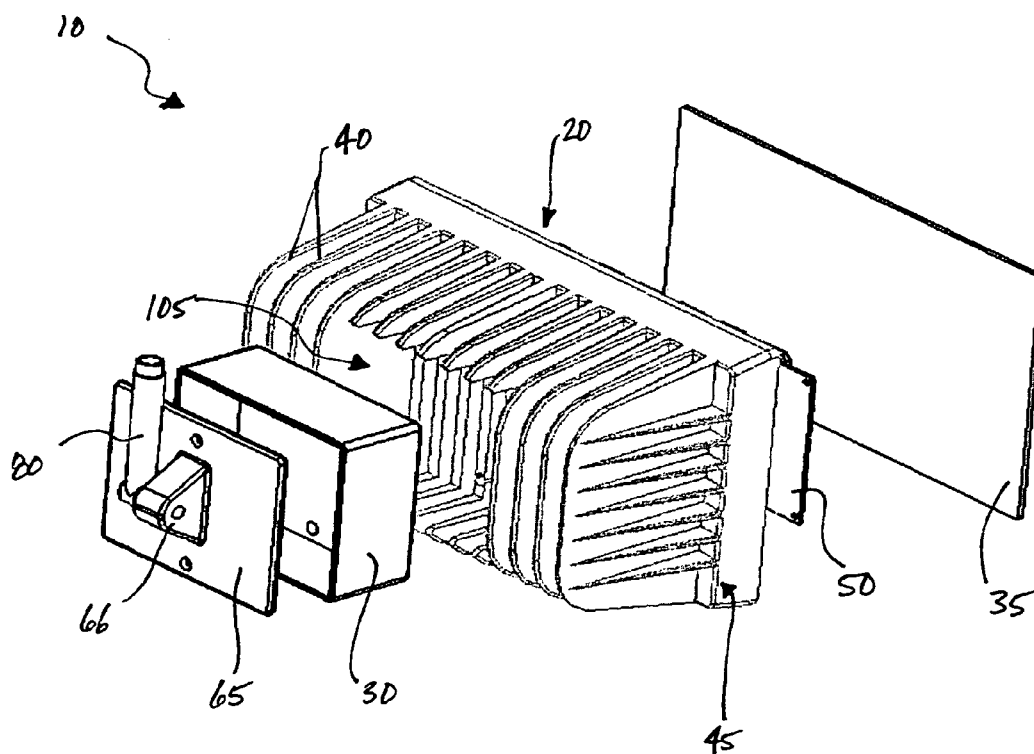
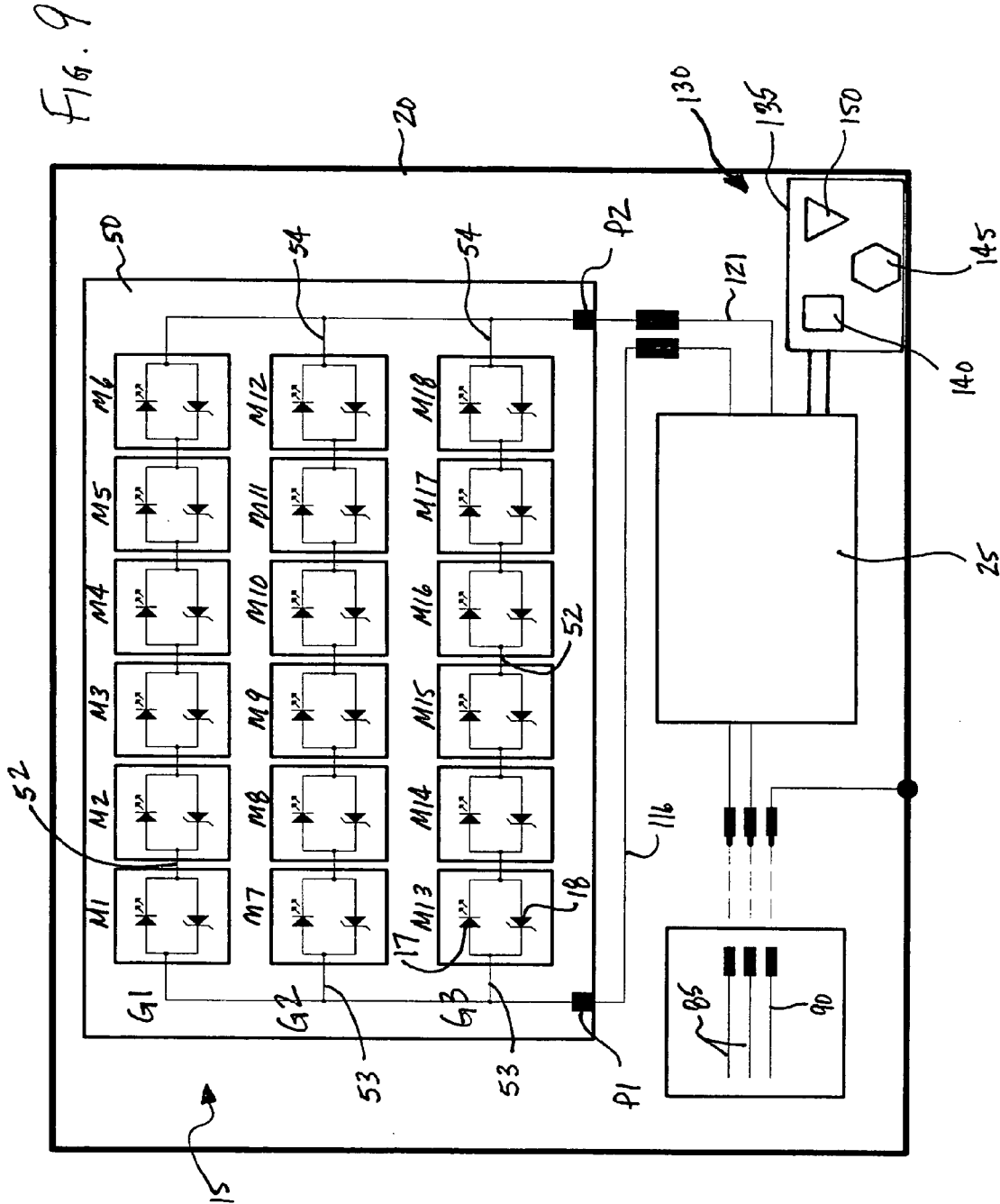


FIG. 8





6/13/07

PTO/SB/06 (12-04)

Approved for use through 7/31/2006. OMB 0651-0032

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					11/818,216	
APPLICATION AS FILED – PART I						
(Column 1)		(Column 2)				
FOR	NUMBER FILED	NUMBER EXTRA				
BASIC FEE (37 CFR 1.16(a), (b), or (c))						
SEARCH FEE (37 CFR 1.16(k), (l), or (m))						
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))						
TOTAL CLAIMS (37 CFR 1.16(i))	28	minus 20 =			8	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 =				
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).					
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))						
* If the difference in column 1 is less than zero, enter "0" in column 2.						
APPLICATION AS AMENDED – PART II						
(Column 1)		(Column 2)			(Column 3)	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		
	Total (37 CFR 1.16(f))	*	Minus	**	=	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	
	Application Size Fee (37 CFR 1.16(s))					
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
(Column 1)		(Column 2)			(Column 3)	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		
	Total (37 CFR 1.16(f))	*	Minus	**	=	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	
	Application Size Fee (37 CFR 1.16(s))					
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.						

SMALL ENTITY		OTHER THAN SMALL ENTITY	
RATE (\$)	FEE (\$)	RATE (\$)	FEE (\$)
			300
			500
			200
X	25=	X	50=
X	100=	X	200=
N/A		N/A	
TOTAL		TOTAL	1400

SMALL ENTITY		OTHER THAN SMALL ENTITY	
RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)
X	=	X	=
X	=	X	=
N/A		N/A	
TOTAL		TOTAL	
ADD'T FEE		ADD'T FEE	

SMALL ENTITY		OTHER THAN SMALL ENTITY	
RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)
X	=	X	=
X	=	X	=
N/A		N/A	
TOTAL		TOTAL	
ADD'T FEE		ADD'T FEE	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO
11/818,216	06/13/2007	2821	0.00	077139-0014

CONFIRMATION NO. 8775

FILING RECEIPT

1923
MCDERMOTT, WILL & EMERY LLP
227 WEST MONROE STREET
SUITE 4400
CHICAGO, IL60606-5096

Date Mailed: 07/11/2007

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

James Thomas, Residence Not Provided;
David Lynd, Residence Not Provided;
Gary Gatesman, Residence Not Provided;
Jim Mosier, Residence Not Provided;
Brian Witter, Residence Not Provided;

Power of Attorney: None

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 07/11/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is
US11/818,216

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

Title

LED light fixture with internal power supply

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

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NOT GRANTED

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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
11/818,216	06/13/2007	James Thomas	077139-0014

CONFIRMATION NO. 8775

FORMALITIES
 LETTER

1923
 MCDERMOTT, WILL & EMERY LLP
 227 WEST MONROE STREET
 SUITE 4400
 CHICAGO, IL 60606-5096

Date Mailed: 07/11/2007

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
Applicant must submit \$ 300 to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).
- The oath or declaration is missing. *A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.*
Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
 - The drawings have a line quality that is too light to be reproduced (weight of all lines and letters must be heavy enough to permit adequate reproduction) or text that is illegible (reference characters, sheet numbers, and view numbers must be plain and legible) see 37 CFR 1.84(l) and (p)(1)); See Figure(s) 5 and 6.
 - The drawings are not in compliance with 37 CFR 1.84 because figures 5-7 and 9 contain figure or view numbers that have incorrect orientation. Reference characters, sheet numbers, and view numbers must be oriented in the same direction as the view.

See 37 CFR 1.84(p)(1).

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Additional claim fees of **\$400** as a non-small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee, or oath or declaration) as set forth in 37 CFR 1.16(f) of \$130 for a non-small entity, must be submitted with the missing items identified in this notice.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **\$1530** for a non-small entity

- **\$300** Statutory basic filing fee.
- **\$130** Surcharge.
- The application search fee has not been paid. Applicant must submit **\$500** to complete the search fee.
- The application examination fee has not been paid. Applicant must submit **\$200** to complete the examination fee for a non-small entity.
- Total additional claim fee(s) for this application is **\$400**
 - **\$400** for **8** total claims over 20.

Replies should be mailed to: Mail Stop Missing Parts
Commissioner for Patents
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Alexandria VA 22313-1450

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<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

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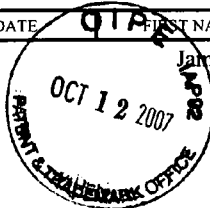
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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
11/818,216	06/13/2007	James Thomas	077139-0014



CONFIRMATION NO. 8775
FORMALITIES
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SUITE 4400
CHICAGO, IL 60606-5096

10/15/2007 SSESHE1 00000027 130206 11818216

01 FC:2011 155.00 DA
02 FC:2111 255.00 DA
03 FC:2311 105.00 DA
04 FC:2051 65.00 DA
05 FC:2202

Date Mailed: 07/11/2007

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
Applicant must submit \$ 300 to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).
- The oath or declaration is missing. A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
 - The drawings have a line quality that is too light to be reproduced (weight of all lines and letters must be heavy enough to permit adequate reproduction) or text that is illegible (reference characters, sheet numbers, and view numbers must be plain and legible) see 37 CFR 1.84(l) and (p)(1)); See Figure(s) 5 and 6.
 - The drawings are not in compliance with 37 CFR 1.84 because figures 5-7 and 9 contain figure or view numbers that have incorrect orientation. Reference characters, sheet numbers, and view numbers must be oriented in the same direction as the view.

11/818,214

Please charge Deposit Account No. 13-0206 in the amount of \$830. To the extent necessary, Applicants petition for an extension of time under 37 C.F.R. 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 13-0206 and please credit any excess fees to such deposit account.

Drawing Objections:

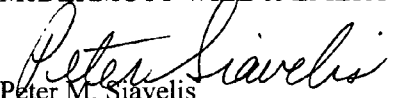
Herewith, Applicants have filed formal drawings of Figs. 1-9. Regarding the alleged non-compliance of Figs. 5-7 and 9 with 37 CFR 1.84, Applicants disagree with the contention that the Figs. contain "incorrect orientation." A close inspection of Figs. 5-9 and 9 reveal that each of these Figs. include a landscape view with properly oriented reference numbers. Thus, Figs. 5-7 and 9 comply with the orientation requirement of 37 CFR 1.84.

Fees Due and Small Entity Status:

Pursuant to 37 CFR 1.9(f) and 1.27(c), Applicants claim Small Entity Status and are entitled to the lower fee structures. The postcard submitted with the Application properly denoted small entity status. Therefore, Applicants have authorized the deduction of small entity filing fees from counsel's deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP


Peter M. Siavelis
Registration No. 51,136

227 West Monroe Street
Chicago, IL 60606-5096
Phone: 312.372.2000
Facsimile: 312.984.7700
Date: October 9, 2007
CHI99 4875959-1.077139.0014

**Please recognize our Customer No. 1923
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Docket No.: 077139-0014

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : James Thomas, David Lynd, Gary
Gatesman, Jim Mosier and Bryan T.
Warner

Customer No.: 1923

Appl. No. : 11/818,216

Confirmation No.: 8775

Filed : June 13, 2007
Title : LED LIGHT FIXTURE WITH
INTERNAL POWER SUPPLY

Certificate of Mailing

Grp./A.U. : 2821
Examiner : Not Yet Assigned
CustomerNo.

I, hereby certify that this correspondence (along with any documents referred to as attached or enclosed) is being deposited with the US Postal Service as first class mail in an envelope addressed to Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on October 9, 2007.

Stephanie Callas
Stephanie Callas

**RESPONSE TO NOTICE
OF MISSING PARTS OF APPLICATION**

Mail Stop Missing Parts
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Notice of Missing Parts of Application dated July 11, 2007, submitted herewith are the following for filing in the above-referenced application:

1. Statutory Basic Filing Fee of \$150.00
2. Declaration and Power of Attorney (which is in compliance with 37 CFR 1.63)
3. Utility Search Fee of \$250.00
4. Utility Examination Fee of \$100.00
5. Surcharge fee of \$65.00
6. Late Filing Fee Surcharge of \$65.00
7. Additional Claim Fees of \$200.00
8. Formal Drawings (Figs. 1-9)

See 37 CFR 1.84(p)(1).

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Additional claim fees of **\$400** as a non-small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee, or oath or declaration) as set forth in 37 CFR 1.16(f) of \$130 for a non-small entity, must be submitted with the missing items identified in this notice.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **\$1530** for a non-small entity

- **\$300** Statutory basic filing fee.
- **\$130** Surcharge.
- The application search fee has not been paid. Applicant must submit **\$500** to complete the search fee.
- The application examination fee has not been paid. Applicant must submit **\$200** to complete the examination fee for a non-small entity.
- Total additional claim fee(s) for this application is **\$400**
 - **\$400** for **8** total claims over 20.

Replies should be mailed to: Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

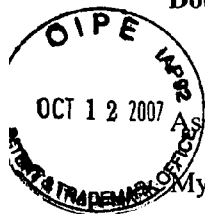
Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.
<https://portal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

M-HAWE
Office of Initial Patent Examination (571) 272-4000, or 1-800-PTO-9199
PART 2 - COPY TO BE RETURNED WITH RESPONSE

DECLARATION



As a below named inventor, I hereby declare that:

My residence, mailing address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter claimed and for which a patent is sought on the invention entitled LED LIGHT FIXTURE WITH INTERNAL POWER SUPPLY, the specification of which

☐ is attached hereto.

☒ was filed on June 13, 2007, as United States Application Number 11/818,216 or PCT International Application Number and was amended on (if applicable), or

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is known to me to be material to patentability in accordance with Title 37, Code of Federal Regulations, Section 1.56 including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35, United States Code, Section 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent or inventor's or plant breeder's right certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's, or plant breeder's rights certificate, or any PCT international application having a filing date before that of the application on which priority is claimed:

Prior Foreign Applications(s):

Number

Country

Day/Month/Year filed

Priority Claimed

☐
☐

I hereby claim the benefit under 35 United States Code, Section 119(e) of any United States provisional application(s) listed below.

Prior Provisional Application(s):

Application Number

Filing Date

I hereby claim the benefit under 35, United States Code, Section 120 of any United States application(s) or 365(c) of any PCT international application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35, United States Code, Section 112, I acknowledge the duty to disclose

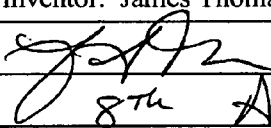
information which is material to patentability as defined in 37, Code of Federal Regulations, Section 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Prior U.S. Application(s):

<u>Application No.</u>	<u>Filing Date</u>	<u>Status: Patented, Pending, Abandoned</u>
------------------------	--------------------	---

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor: James Thomas

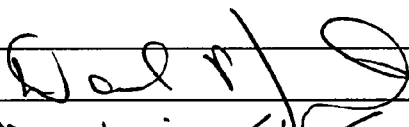
Inventor's signature: 

Date: 9/19/07

Residential: 409 8th Ave W. TIERRA VERDE, FL 33715

Citizenship: US

Post Office Address: same as residential

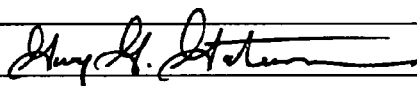
Other Inventors: David Lynd 

Date: 9-19-2007

Residential: 11928 Mandarin Ct. Seminole, FL 33772

Citizenship: US

Post Office Address: same as residential

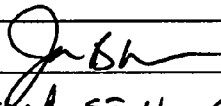
Inventor: Gary Gatesman 

Date: 9-19-2007

Residential: 402-16th AVE., INDIAN ROCKS BCH., FL 33785

Citizenship: US

Post Office Address: same as residential

Inventor: Jim Mosier 

Date: 9-19-2007

Residential: 3901 5th St. N., ST. PETERSBURG, FL 33709

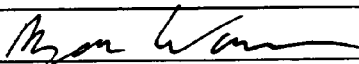
Citizenship: US

077139-0014

Page 3 of 3

Post Office Address: same as residential

Inventor: Bryan T. Warner



Date 9-19-07

Residential: 5454 36TH AVE N ST. PETE FL 33710

Citizenship: US

Post Office Address: same as residential

CHI99 4868963-1.077139.0014



Packet No.: 077139-0014

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : James Thomas, David Lynd, Confirmation No.: 8775
Gary Gatesman, Jim Mosier and
Bryan T. Warner
Appl. No. : 11/818,216
Filed : June 13, 2007
Title : LED LIGHT FIXTURE WITH
INTERNAL POWER SUPPLY
Grp./A.U. : 2821
Examiner : Not yet assigned
Customer No. : 1923

**POWER OF ATTORNEY FOR PATENT APPLICATION BY
ASSIGNEE AND CERTIFICATION UNDER 37 C.F.R. § 3.73(B)**

Assignee ElectraLED, Inc. is the owner of the entire right, title and interest of the above-identified application, and any subsequently filed divisional, continuation, or reissue application, including international and foreign applications claiming priority thereto.

The undersigned Assignee hereby appoints the attorneys associated with

CUSTOMER NO. 1923

Direct Telephone Calls to: Peter M. Siavelis at telephone 312.984.7726

with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and all future correspondence should be addressed to them.

Peter M. Siavelis
McDermott Will & Emery LLP
227 West Monroe Street
Suite 4400
Chicago, IL 60606-5096

Docket No. 077101-0014

In accordance with 37 C.F.R. § 3.73(b), I hereby certify that I am empowered to act on behalf of the Assignee. To the best of my knowledge and belief, title is in the Assignee, as evidenced by the Assignment noted above.

I further declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Title 18 USC § 1001 and that such willful false statements may jeopardize the validity of this application or any patent resulting therefrom.

Assignee: ElectraLED, Inc
Signature: [Handwritten Signature]
Typed Name: JAMES THOMAS

Title: GM
Date: 9-19-2007
Address: 12722 62nd Street North, Suite 200
Largo, Florida 33773 US

CHI99 4868948-1.077139.0014



FIG. 1

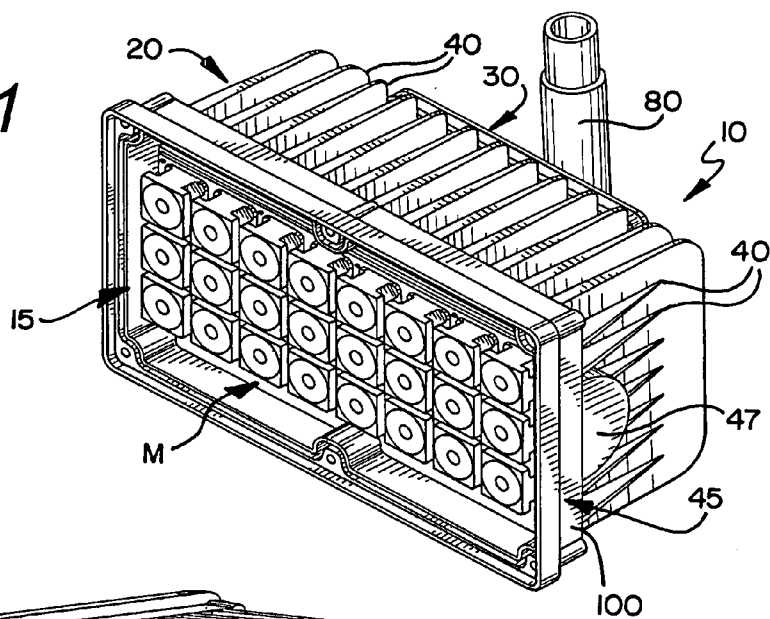
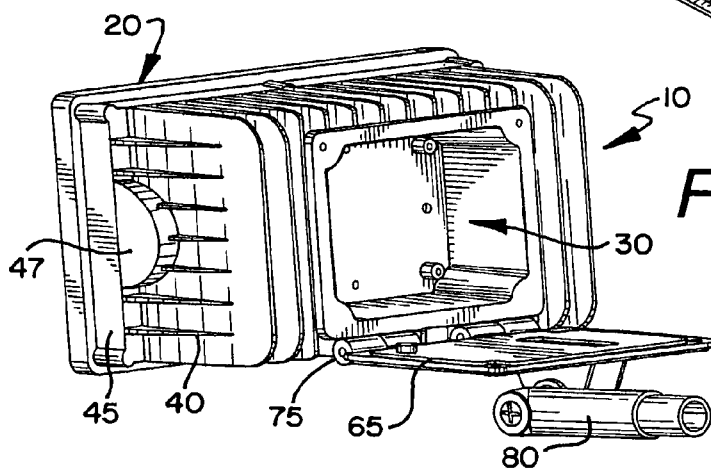
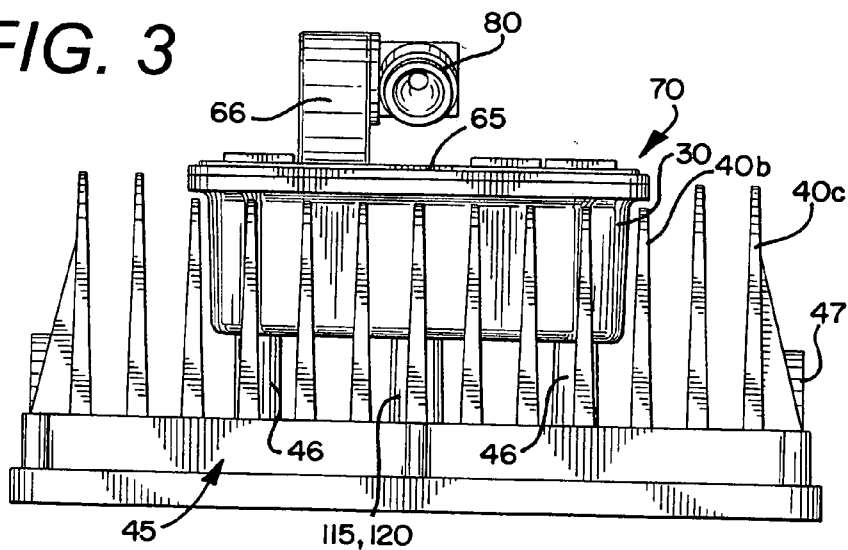


FIG. 2

FIG. 3



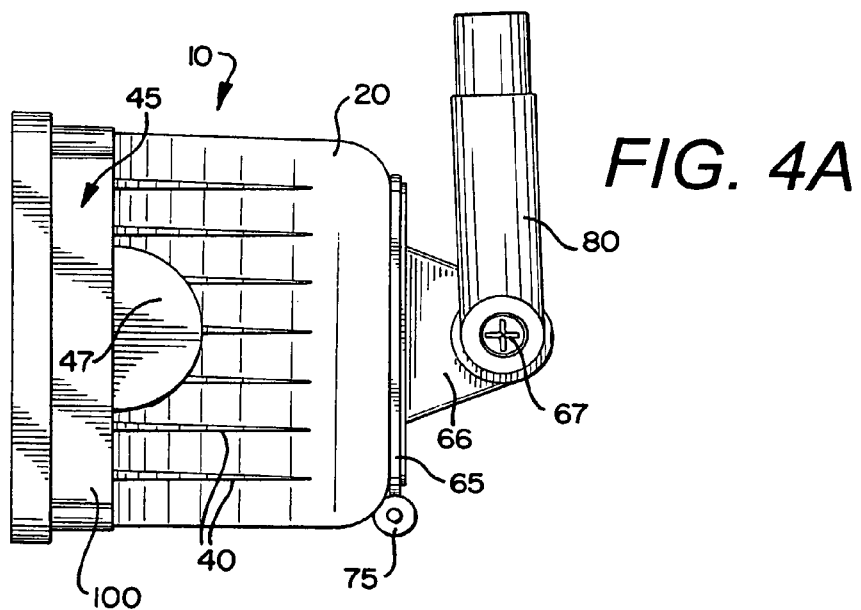
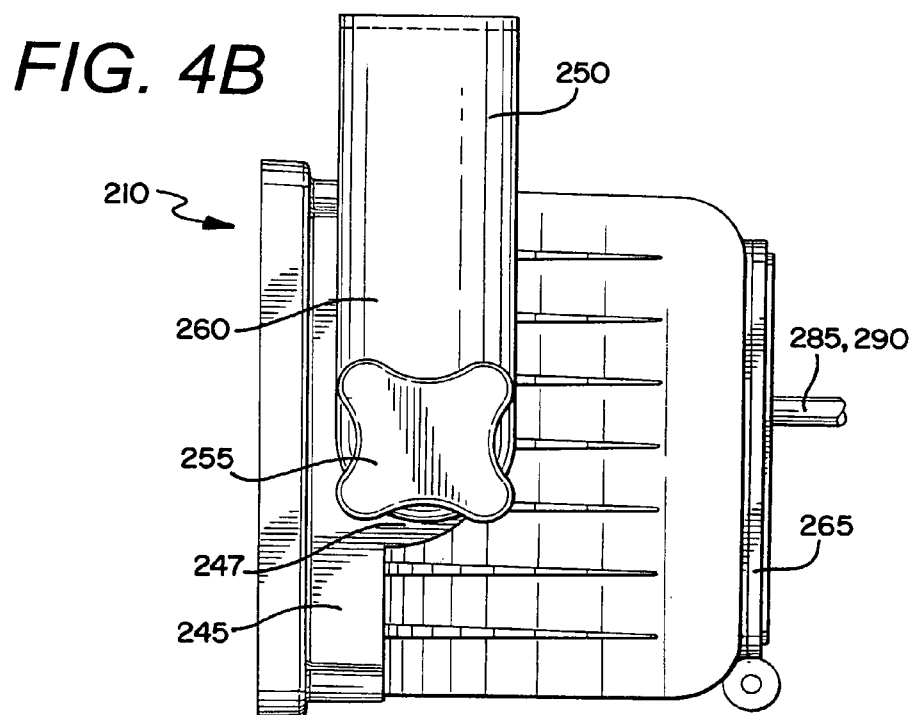


FIG. 5

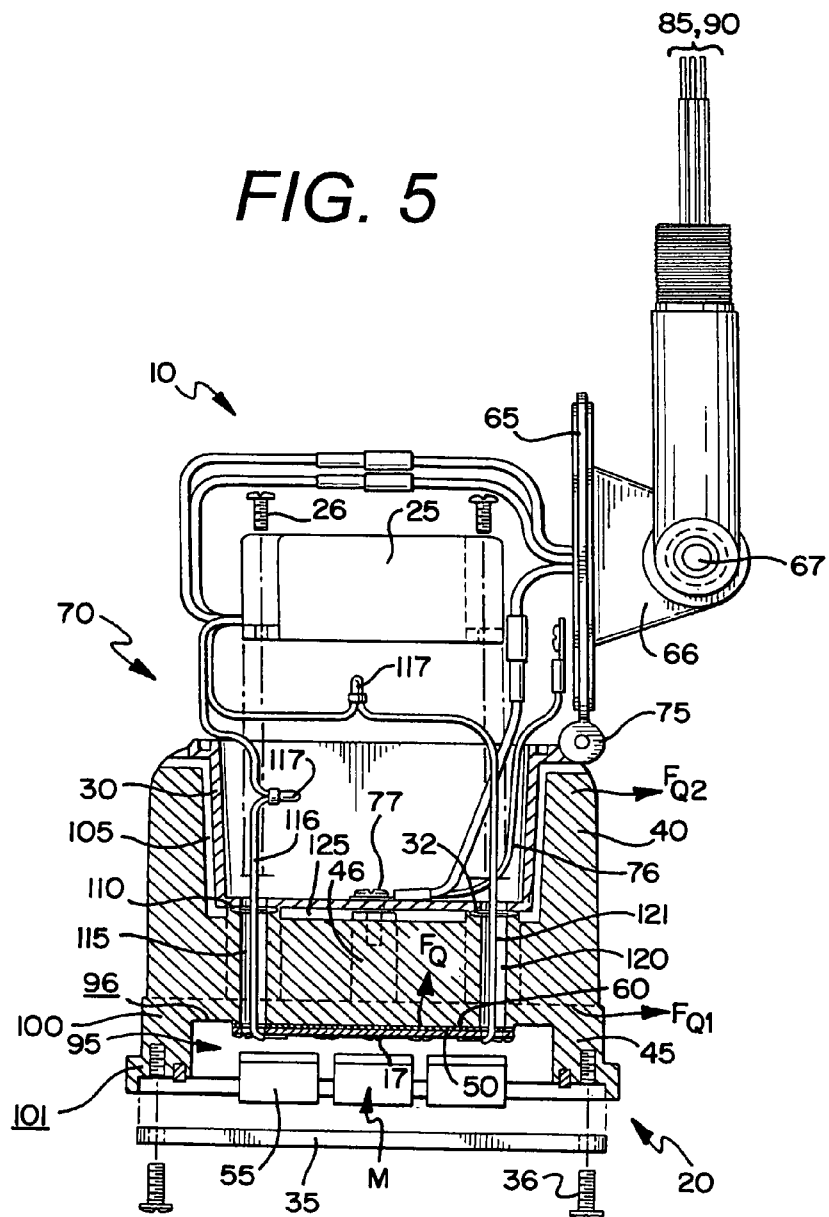
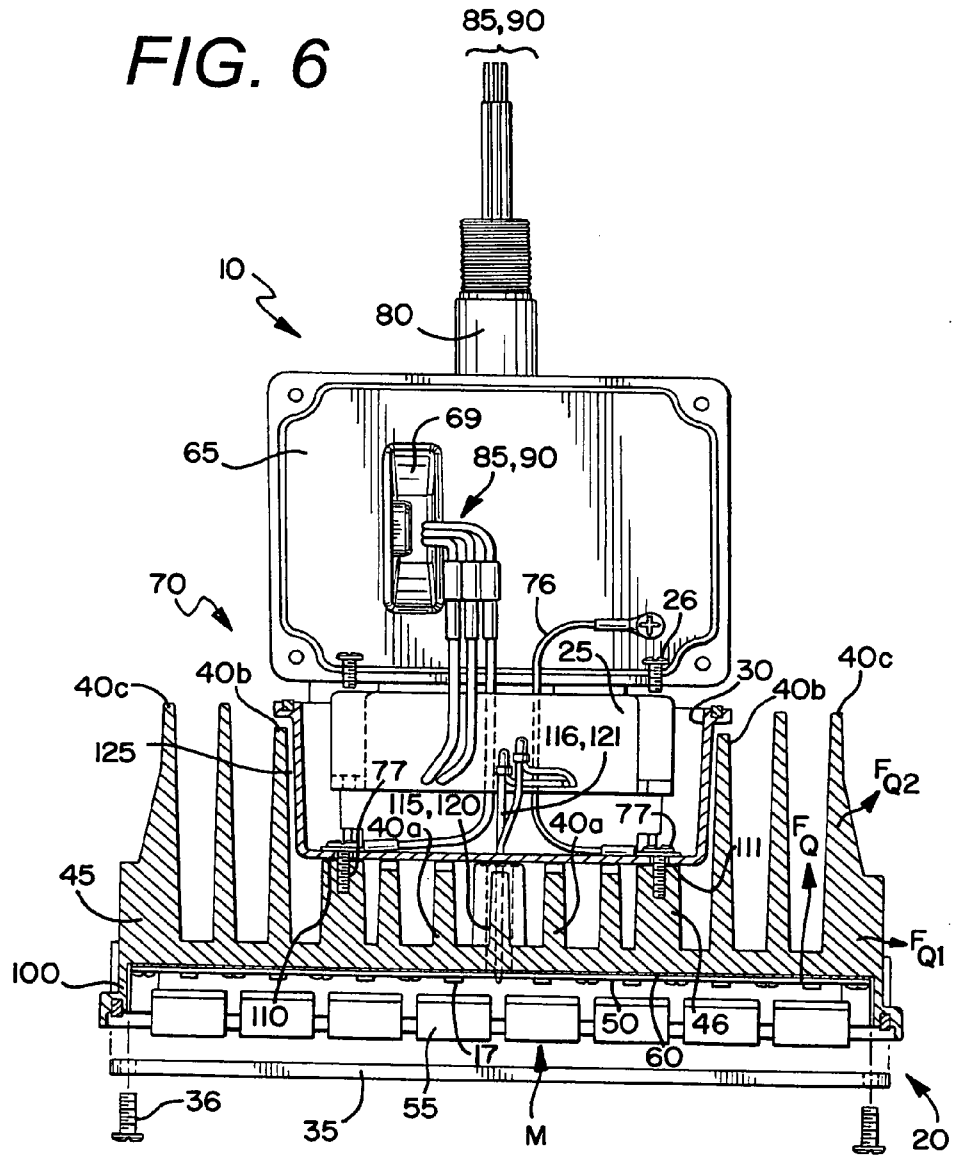
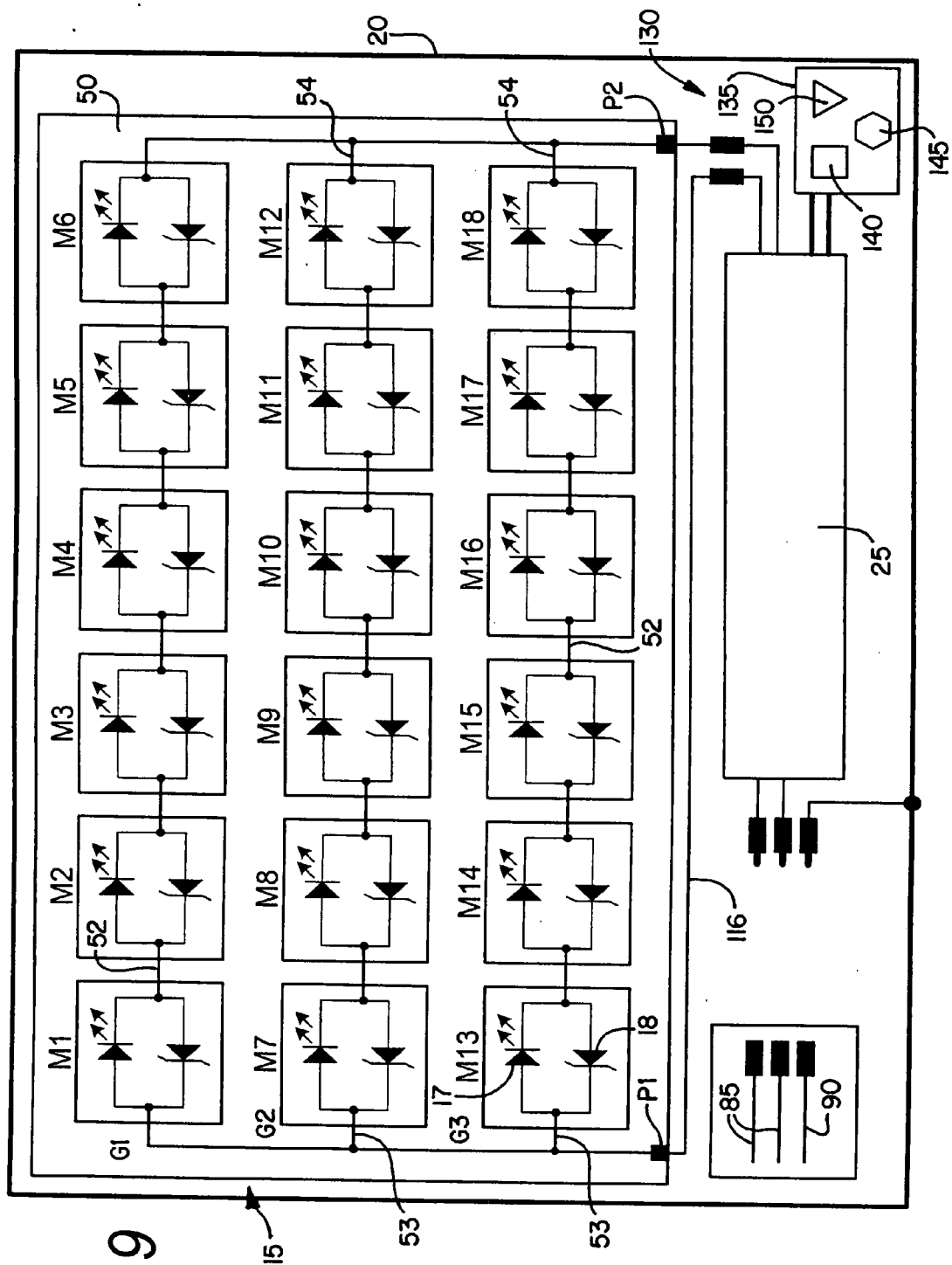


FIG. 6







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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY DOCKET NO	TOT CLAIMS	IND CLAIMS
11/818,216	06/13/2007	2821	780	077139-0014	28	3

CONFIRMATION NO. 8775

UPDATED FILING RECEIPT



OC00000026428953

1923
MCDERMOTT, WILL & EMERY LLP
227 WEST MONROE STREET
SUITE 4400
CHICAGO, IL 60606-5096

Date Mailed: 10/24/2007

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

James Thomas, Tierra Verde, FL;
David Lynd, Seminole, FL;
Gary Gatesman, Indian Rocks Bch, FL;
Jim Mosier, St. Petersburg, FL;
Bryan T. Warner, St. Pete, FL;

Power of Attorney: The patent practitioners associated with Customer Number 1923

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 07/11/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 11/818,216**

Projected Publication Date: 12/18/2008

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

LED light fixture with internal power supply

Preliminary Class

315

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/818,216	06/13/2007	James Thomas	077139-0014

CONFIRMATION NO. 8775

PUBLICATION NOTICE



1923
MCDERMOTT, WILL & EMERY LLP
Attn: IP Department
227 WEST MONROE STREET
SUITE 4400
CHICAGO, IL 60606-5096

Title:LED light fixture with internal power supply

Publication No.US-2008-0310162-A1

Publication Date:12/18/2008

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/818,216	06/13/2007	James Thomas	077139-0014	8775
<div>1923 7590 01/29/2009 MCDERMOTT, WILL & EMERY LLP Attn: IP Department 227 WEST MONROE STREET SUITE 4400 CHICAGO, IL 60606-5096</div>			<div>EXAMINER SEMBER, THOMAS M</div>	
			<div>ART UNIT 2885</div>	<div>PAPER NUMBER</div>
			<div>MAIL DATE 01/29/2009</div>	<div>DELIVERY MODE PAPER</div>

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	11/818,216		THOMAS ET AL.	
	Examiner		Art Unit	
	Thomas M. Sember		2885	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 13 June 2007.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-28 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) 1-20 is/are allowed.

6) ☒ Claim(s) 21-25 is/are rejected.

7) ☒ Claim(s) 26-28 is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 12 October 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)	5) ☐ Notice of Informal Patent Application
Paper No(s)/Mail Date _____	6) ☐ Other: _____

DETAILED ACTION

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claim 21 claims "the light modules are divided into two groups that are parallel to each other, and wherein the light modules in each group are serial to each other" which is not described in applicant's specification.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ewington et al '752 in view of Stevenson et al '302 further in view of Chou et al '477. Ewington et al '752 discloses the claimed invention except for the teaching that the LED lamp or light engine includes a zener diode and that the light modules are divided into two groups that are parallel to each other, and wherein the light modules in each group are serial to each other. Ewington et al '752 discloses a housing 206 having a main body and an array of fins 210 extending rearward from the main body; a light engine assembly 202 is mounted to a front receiver of the main body, the light engine having a plurality of light modules comprising a plurality of LEDs mounted on a circuit board 204, wherein the light modules are divided into at least two groups (see paragraph 124, the

LED array can be made of 620 LEDs utilizing different colored groups independently controlled by controller 226); a power module 224 secured to the main body (202 and 210) of the housing, the power module including a power supply embedded within a box; and, wherein during operation, heat generated by the LEDs passes through the circuit board and then heat is dissipated by the main body and the fins. Stevenson et al teaches using zener diodes 66, 72 and 72 with an array of regular LEDs in order to efficiently bypass the circuit and provide power to other LEDs in the lighting array. It would have been obvious to one skilled in the art at the time the invention was made to modify the LED device of Ewington et al '752 so as to include at least one zener diode as taught by Stevenson et al '302 in order to efficiently bypass the circuit and provide power to other LEDs in the lighting array. Regarding claims 22-24, heat would flow in different paths based on the different sized fins shown in figure 3. Regarding claim 25, as broadly claimed, a fan 214 thermally isolates power supply 224.

Chou et al '477 teaches a lighting engine that has light modules divided into two groups that are parallel to each other, and wherein the light modules in each group are serial to each other. It would have been obvious to one skilled in the art at the time the invention was made to modify the light engine of Ewington et al '752 so that the lighting engine has light modules divided into two groups that are parallel to each other, and wherein the light modules in each group are serial to each other as taught by Chou et al '477 in order to provide alternative lighting to different groups of lights in the lighting array of Ewington et al '752.

Allowable Subject Matter

2. Claims 1-20 are allowed.

3. Claims 26-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chen '448 and Chen '333 disclose lighting assemblies which are similar to applicant's invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas M. Sember whose telephone number is 571-272-2381. The examiner can normally be reached on M-F 9 a.m.- 5.30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong Suk (James) Lee can be reached on 571-272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas M Sember/
Primary Examiner, Art Unit 2885

Notice of References Cited	Application/Control No. 11/818,216	Applicant(s)/Patent Under Reexamination THOMAS ET AL.	
	Examiner Thomas M. Sember	Art Unit 2885	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2008/0212333	09-2008	Chen, Bor-Jang	362/373
*	B	US-2005/0128752	06-2005	Ewington et al.	362/294
*	C	US-7,274,302	09-2007	Stevenson et al.	340/815.45
*	D	US-7,438,448	10-2008	Chen, Jeffrey	362/373
*	E	US-7,431,477	10-2008	Chou et al.	362/240
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L13	3	fins near4 (heat \$3 or thermal\$3) same (led or diodes) near5 (circuit adj board or pcb or substrate) and (thomas.in. or gatesman.in. or mosier.in. or warner.in.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/22 19:16
L14	55	fins near4 (heat \$3 or thermal\$3) same (led or diodes) near5 (circuit adj board or pcb or substrate) and "362"/\$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/22 19:18
L15	290	fin\$2 and (led or diodes) and (circuit adj board or pcb or substrate) and 362/373	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 19:54
L16	422	fin\$2 and (led or diodes) and (circuit adj board or pcb or substrate) and 362/294	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 20:40
L17	10	fin\$2 near3 (heat \$3 adj sink or thermal\$4 adj conduct\$4) and (led or diodes) near3 (circuit adj board or pcb or substrate) near7 (power adj supply or power adj source)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 20:53

L18	47	fin\$2 near3 (heat\$3 adj sink or thermal\$4 adj conduct\$4) and (led or diodes) near3 (circuit adj board or pcb or substrate) near7 (transformer or power)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 20:56
L19	881	(heat\$3 adj sink or thermal\$4 adj conduct\$4) and (led or diodes) near7 (circuit adj board or pcb or substrate) near7 (transformer or power\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 21:00
L20	0	leads and "7438448".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 21:32
L21	2	conductors and "7438448".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 21:33
L22	2	conduct\$3 and "7438448".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 21:34

1/ 22/ 2009 10:08:29 PM

Search Notes 	Application/Control No. 11818216	Applicant(s)/Patent Under Reexamination THOMAS ET AL.
	Examiner Thomas M Sember	Art Unit 2885

SEARCHED			
Class	Subclass	Date	Examiner
362	249, 252, 294, 373 and 800	01/24/09	/TS/

SEARCH NOTES			
Search Notes		Date	Examiner
Did text search, classification search, inventorship and forward/backward search on best references		01/23-01/25/09	/TS/

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S13	3	fins near4 (heat\$3 or thermal\$3) same (led or diodes) near5 (circuit adj board or pcb or substrate) and (thomas.in. or gatesman.in. or mosier.in. or warner.in.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/22 19:16
S14	55	fins near4 (heat\$3 or thermal\$3) same (led or diodes) near5 (circuit adj board or pcb or substrate) and "362"/\$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/22 19:18
S15	290	fin\$2 and (led or diodes) and (circuit adj board or pcb or substrate) and 362/373	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 19:54
S16	422	fin\$2 and (led or diodes) and (circuit adj board or pcb or substrate) and 362/294	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 20:40
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S18	47	fin\$2 near3 (heat\$3 adj sink or thermal\$4 adj conduct\$4) and (led or diodes) near3 (circuit adj board or pcb or substrate) near7 (transformer or power)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 20:56

S19	881	(heat\$3 adj sink or thermal\$4 adj conduct \$4) and (led or diodes) near7 (circuit adj board or pcb or substrate) near7 (transformer or power \$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 21:00
S20	0	leads and "7438448".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 21:32
S21	2	conductors and "7438448".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 21:33
S22	2	conduct\$3 and "7438448".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 21:34
S23	3825	257/706	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/22 22:14
S24	25	(heat\$3 adj sink or thermal\$4 adj conduct \$4) and (led or diodes) near7 (circuit adj board or pcb or substrate) near7 (transformer or power \$3) and 257/706	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 22:14
S25	2	"7438448".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 22:16

S26	11	(heat\$3 adj sink or thermal\$4 adj conduct \$4) and zener near3 (led or diodes) near7 (circuit adj board or pcb or substrate) near7 (transformer or power\$3 or generator)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/22 22:55
S27	2	"20080186704"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 14:34
S28	2	"20070086196"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 14:39
S29	2	"20080186704"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 14:41
S30	3	"20060087843"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 14:41
S31	2	"20060087843" and zener	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 14:41
S32	2	fins near4 (heat\$3 or thermal\$3) same (led or diodes) near5 (circuit adj board or pcb or substrate) and "362"/\$.cls. and zener	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/23 14:43

S33	32	(heat\$3 or thermal\$3) near2 (sink or conduct \$3) same (led or diodes) near5 (circuit adj board or pcb or substrate) and "362"/\$. ccls. and zener adj (diode or led)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 14:47
S34	1	(heat\$3 or thermal\$3) near2 (sink or conduct \$3) same (led or diodes) near5 (circuit adj board or pcb or substrate) and "362"/\$. ccls. and zener adj (diode or led) and "20080212319"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 14:49
S35	4	(heat\$3 or thermal\$3) near2 (sink or conduct \$3) same (led or diodes) near5 (circuit adj board or pcb or substrate) and "362"/\$. ccls. and zener adj (diode or led) near7 bypass	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 14:50
S36	1	"20080037239" and zener adj (diode or led) near7 bypass	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 14:52
S37	1	"7274302".pn. and zener adj (diode or led) near7 bypass	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 14:53
S38	2	"20080175003"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 15:40
S39	2	"20050152146"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 15:41

S40	2	"20070041190"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 15:42
S41	2	"20060262544"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 15:42
S42	1	"20060262544" and power	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 15:43
S43	1	"20080310162"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 15:51
S44	1	"20080310162" and flange	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 15:51
S45	1	series and "20050128752"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 15:53
S46	1	series and "7438448". pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/01/23 15:59

1/ 24/ 2009 2:55:11 PM

EAST Search History

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L2	1	"20080310162" and serial	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/25 16:29
L3	58	362/249 and (leds or diodes) and serial near7 parallel	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/25 16:34
L4	2	"7431477".pn. and (leds or diodes) and serial near7 parallel	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/25 16:35
L5	2	"7274302"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/25 16:55

1 / 25 / 2009 5:20:28 PM



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/818,216	06/13/2007	James Thomas	077139-0014	8775
<div>1923 7590 06/29/2009 MCDERMOTT, WILL & EMERY LLP Attn: IP Department 227 WEST MONROE STREET SUITE 4400 CHICAGO, IL 60606-5096</div>			<div>EXAMINER SEMBER, THOMAS M</div> <div>ART UNIT PAPER NUMBER 2885</div> <div>MAIL DATE DELIVERY MODE 06/29/2009 PAPER</div>	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Docket No.: 077139-0014



PATENT

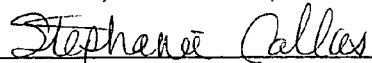
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Thomas, et al.
Appl. No. : 11/818,216
Filed : June 13, 2007
Title : LED LIGHT FIXTURE WITH
INTERNAL POWER SUPPLY

Confirmation No.: 8775

Certificate of Mailing

I, hereby certify that this correspondence (along with any documents referred to as attached or enclosed) is being deposited with the US Postal Service as first class mail in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on June 29, 2009.


Stephanie Callas

Grp./A.U. : 2885
Examiner : Thomas M. Sember
CustomerNo. : 1923

REPLY TO OFFICE ACTION DATED JANUARY 29, 2009

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Commissioner:

In response to the Office Action dated January 29, 2009, please amend the above-identified application as follows:

Amendments to the Claims begin on page 2 of the present paper; and,

Remarks begin on page 5 of the paper.

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces any previous listing:

1. (Original) A light fixture comprising:
 - a housing having a main body portion and a plurality of fins that extend from the main body portion, wherein the fins define a receptacle;
 - a light engine assembly mounted to the main body portion, the light engine having a plurality of light modules comprising a LED and a zener diode mounted to a printed circuit board, the light engine further having a heat transfer element positioned between the circuit board and the body portion; and,
 - a power module residing within the receptacle and connected to the main body portion, the power module including a box, an internal power supply, and an openable cover that encloses the power supply.
2. (Original) The light fixture of Claim 1, wherein the main body portion has at least one internal passageway that receives supply leads extending between the power supply and the circuit board.
3. (Original) The light fixture of Claim 1, wherein the housing has a flange that defines an inwardly extending receiver that provides a primary mounting surface for the light engine.
4. (Original) The light fixture of Claim 3, wherein the flange provides a second mounting surface for a lens.
5. (Original) The light fixture of Claim 1, wherein the heat transfer element is a thermal pad that contacts the rear surface of the circuit board.
6. (Original) The light fixture of Claim 1, wherein the light modules are arranged into at least two parallel groups, and wherein the light modules within each group are serially arranged.
7. (Original) The light fixture of Claim 6, wherein a pair of supply leads extend between the power supply and the circuit board, and wherein a positive supply lead supplies current to the first module of each group.
8. (Original) The light fixture of Claim 1, wherein the main body portion includes at least one boss for mounting of the power module, and wherein a thermal insulator is utilized between the boss and the power module.

9. (Original) The light fixture of Claim 1, wherein the cover includes an opening that receives power leads and a ground lead that connect with the power supply.
10. (Original) The light fixture of Claim 9, further comprising a mounting arm, and wherein the power and ground leads extend through the mounting arm and into the cover.
11. (Original) A LED light fixture comprising:
 - a housing including a body portion and a plurality of fins extending rearward from the body portion, the fins defining a receptacle;
 - a light engine assembly mounted to the body portion, the light engine having a plurality of light modules comprised of a LED and a zener diode mounted to a printed circuit board; and,
 - a power module residing within the receptacle, the power module including a power supply residing within an openable box within the receptacle.
12. (Original) The LED light fixture of Claim 11, wherein first and second supply leads extend from the power supply through the body portion for connection with the circuit board.
13. (Original) The LED light fixture of Claim 12, wherein the body portion includes a first passageway extending from the receptacle to the light engine, and wherein the first supply lead extends through the first passageway and is electrically connected to the circuit board.
14. (Original) The LED light fixture of Claim 13, wherein the body portion includes a second passageway extending from the receptacle to the light engine, and wherein the second supply lead extends through the second passageway and is electrically connected to the circuit board.
15. (Original) The LED light fixture of Claim 11, wherein first and second supply leads extend from the power supply to the circuit board, and wherein the light modules are divided into at least two parallel groups of serially arranged modules.
16. (Original) The LED light fixture of Claim 15, wherein current flows along the first supply lead to a primary light module of each group and illuminates the LED therein, and wherein current exits the primary light modules along an interconnect trace.

17. (Original) The LED light fixture of Claim 16, wherein current flows from the interconnect trace into a secondary light module to illuminate the LED therein, and wherein current exits the second light module along an interconnect trace.
18. (Original) The LED light fixture of Claim 11, wherein the light engine assembly includes a thermal pad that is positioned between the circuit board and the body portion.
19. (Original) The LED light fixture of Claim 11, further comprising a mounting arm extending from a cover segment of the box of the power module, wherein electrical leads extend along the mounting arm and through an opening in the cover for connection to the power supply.
20. (Original) The LED light fixture of Claim 19, wherein the cover is pivotally connected to the box to allow an operator to access the power supply.
- 21-28. (Canceled)
29. (New) A LED light fixture comprising:
 - a housing including a flange, an internal receiver, a frontal lens and an array of fins extending rearward from the flange to define a rear receptacle that extends forward towards the flange, the housing further including a rear cover that encloses the rear receptacle;
 - a light engine assembly mounted to the receiver, the light engine having a plurality of light modules wherein each module includes both a LED mounted to a printed circuit board and an optical lens extending from the printed circuit board;
 - a power supply residing within the rear receptacle and enclosed by the cover; and,
 - wherein during operation, heat generated by the LEDs passes through the circuit board and then said heat is dissipated by the array of fins without the use of a fan.
30. (New) The LED light fixture of Claim 29, wherein the array of fins includes a first set of fins with a first fin length and a second set of fins with a second fin length, wherein the first fin length exceeds the second fin length.
31. (New) The LED light fixture of Claim 29, wherein the housing has an overall length and a mid-length, and wherein the array of fins has a length that exceeds said mid-length.

32. (New) The LED light fixture of Claim 29, further comprising a thermal pad residing between the receiver and the printed circuit board, wherein both the thermal pad and the printed circuit board have at least one opening that receives a lead extending between the power supply and the printed circuit board.
33. (New) The LED light fixture of Claim 29, further comprising a mounting bracket having opposed side segments that are secured to opposed sides of the housing rearward of the flange.
34. (New) The LED light fixture of Claim 29, wherein the frontal lens is secured to the flange by a plurality of fasteners arranged at the periphery of both the frontal lens and the flange.
35. (New) The LED light fixture of Claim 29, wherein each module of the light engine includes a zener diode in a one to one parallel relationship with the LED.
36. (New) The LED light fixture of Claim 29, wherein during steady state operation of the fixture in 25 C ambient environment, the LED junction temperature at the printed circuit board is approximately 55 C and the housing body temperature is approximately 45 C.

REMARKS

This is in response to the Office Action of January 29, 2009 (hereinafter “the Office Action”). Claims 1-28 were originally presented. By this Reply, Claims 21-28 have been canceled, and Claims 29-36 have been added. As a result, Claims 1-20 and 29-36 are at issue.

ALLOWED & ALLOWABLE CLAIMS

Claims 1-20 are allowed and have not been amended. Dependent Claims 26-28 are allowable if rewritten in independent form to include all intervening limitations.

ADDED CLAIMS

New Claims 29-36 are fully supported by Applicants’ specification and do not introduce new matter. Applicants note that independent Claim 29 includes, among other things, the subject matter of allowable dependent Claim 27, which has been canceled.

EXAMINER INTERVIEW

On June 25, 2009, Applicants’ counsel, Peter Siavelis and Brett Bachtell, conducted a telephone interview with Examiner T. Sember. During the interview, now-canceled Claim 21 and new claim 29 were discussed. The Ewington and Stevenson references were discussed and it was agreed that neither reference discloses the structures required by Claim 29. The Examiner indicated that further searching of the added claims will be conducted.

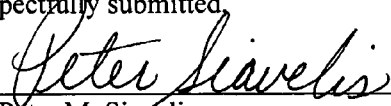
CONCLUSION

In view of the foregoing, Applicants respectfully submit that Claims 1-20 and 29-36 are allowable. Applicants further invite the Examiner to contact the undersigned attorney to discuss any matters pertaining to the present Application.

Respectfully submitted,

Date: June 29, 2009

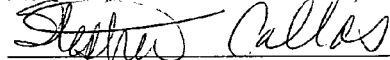
By:


Peter M. Siavelis,

Registration No. 51,136

CERTIFICATE UNDER (37 C.F.R. § 1.8a)

I hereby certify that this correspondence is, on the date shown below, being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on June 29, 2009.


Stephanie Callas

CHI99 5110256-1.077139.0014

Attorney Docket No. 077139-0014

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Thomas, et al.

Application No.: 11/818,216
Confirmation No.: 8775
Filed On: June 13, 2007



Examiner: Thomas M. Sember

Art Unit: 8775

For: LED LIGHT FIXTURE WITH INTERNAL POWER
SUPPLY

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Transmitted herewith is an Amendment in the above identified application.

- ☐ No additional fee is required.
☐ Applicant is entitled to small entity status under 37 CFR 1.27
☒ Also attached: Extension of Time

The fee has been calculated as shown below:

	NO. OF CLAIMS	HIGHEST PREVIOUSLY PAID FOR	EXTRA CLAIMS	RATE	FEE
Total Claims	28	28	0	\$52.00 =	0
Independent Claims	3	3	0	\$220.00 =	0
Multiple dependent claims newly presented					0
Total of Above Calculations					0.00

- ☒ Please see the attached check (\$245.00) for the extension of time fee.
- ☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment, to Deposit Account No. 13-0206, including any filing fees under 37 CFR 1.16 for presentation of extra claims and any patent application processing fees under 37 CFR 1.17.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

Peter M. Siavelis
Peter M. Siavelis

Registration No. 51,136

227 West Monroe Street
Chicago, IL 60606-5096
Phone: 312.372.2000
Facsimile: 312.984.7700
Date: June 29, 2009

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CERTIFICATE OF MAILING (37 CFR. § 1.8(a))

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Stephanie Callas
Stephanie Callas

CHI99 5134436-1.077139.0014

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Thomas, et al.
Appl. No. : 11/818,216
Filed : June 13, 2007
Title : LED LIGHT FIXTURE
WITH INTERNAL
POWER SUPPLY

Confirmation No.: 8775



Grp./A.U. : 2885
Examiner: : Thomas M. Sember
Customer No. : 1923

PETITION FOR EXTENSION OF TIME

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P.O. Box 1450
Alexandria, VA 22313-1450

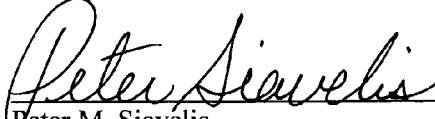
Sir:

It is respectfully requested that the time for response to the non-final Office Action dated January 29, 2009, now due to expire April 29, 2009, be extended for two month(s) and set to expire on June 29, 2009.

Please see the enclosed check in the amount of \$245.00. Please charge any additional fees or credit any overpayment to Deposit Account No. 13-0206.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP


Peter M. Siavelis
Registration No. 51,136

227 West Monroe Street
Chicago, IL 60606-5096
Phone: 312.372.2000 AAP/sac
Facsimile: 312.984.7700
Date: June 29, 2009

**Please recognize our Customer No. 1923
as our correspondence address.**

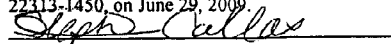
07/07/2009 MCEBREN1 00000011 11818216

01 FC:2252

245.00 0P

Certificate of Mailing

I hereby certify that this correspondence (along with any documents referred to as attached or enclosed) is being deposited with the US Postal Service as first class mail in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on June 29, 2009.


Stephanie Callas

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 11/818,216		Filing Date 06/13/2007		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)		SMALL ENTITY ☒ OR			OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)				RATE (\$)	FEE (\$)	
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A					N/A		
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A					N/A		
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A					N/A		
TOTAL CLAIMS (37 CFR 1.16(j))	minus 20 =	*	X \$	=	OR			X \$	=	
INDEPENDENT CLAIMS (37 CFR 1.16(n))	minus 3 =	*	X \$	=				X \$	=	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL					TOTAL		
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)		(Column 3)			SMALL ENTITY OR OTHER THAN SMALL ENTITY		
AMENDMENT	07/06/2009	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(i))	* 28	Minus	** 28	= 0	X \$26 =	0	OR		
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0	X \$110 =	0	OR		
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE	0	OR		
(Column 1)			(Column 2)		(Column 3)					
AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)				
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$	=	OR		
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$	=	OR		
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		OR		
<p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p>										

Legal Instrument Examiner:
/STELLA LITTLE/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

1923 7590 09/09/2009
MCDERMOTT, WILL & EMERY LLP
Attn: IP Department
227 WEST MONROE STREET
SUITE 4400
CHICAGO, IL 60606-5096

EXAMINER	
SEMBER, THOMAS M	
ART UNIT	PAPER NUMBER
2885	
DATE MAILED: 09/09/2009	

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/818,216	06/13/2007	James Thomas	077139-0014	8775
TITLE OF INVENTION: LED LIGHT FIXTURE WITH INTERNAL POWER SUPPLY				

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$300	\$0	\$1055	12/09/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

1923 7590 09/09/2009

MCDERMOTT, WILL & EMERY LLP
Attn: IP Department
227 WEST MONROE STREET
SUITE 4400
CHICAGO, IL 60606-5096

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/818,216	06/13/2007	James Thomas	077139-0014	8775

TITLE OF INVENTION: LED LIGHT FIXTURE WITH INTERNAL POWER SUPPLY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$300	\$0	\$1055	12/09/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
SEMBER, THOMAS M	2885	362-294000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON 'THE PATENT' (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/818,216	06/13/2007	James Thomas	077139-0014	8775
1923	7590	09/09/2009	EXAMINER	
MCDERMOTT, WILL & EMERY LLP Attn: IP Department 227 WEST MONROE STREET SUITE 4400 CHICAGO, IL 60606-5096			SEMBER, THOMAS M	
			ART UNIT	PAPER NUMBER
			2885	
DATE MAILED: 09/09/2009				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 101 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 101 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	11/818,216	THOMAS ET AL.	
	Examiner	Art Unit	
	Thomas M. Sember	2885	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 07/06/09.

2. ☒ The allowed claim(s) is/are 1-20 and 29-36.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☐ Notice of Informal Patent Application
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____	7. ☐ Examiner's Amendment/Comment
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material	8. ☒ Examiner's Statement of Reasons for Allowance
	9. ☐ Other _____.

/Thomas M Sember/ Primary Examiner, Art Unit 2885	
--	--

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: None of the prior art alone or in combination teaches or fairly suggest applicant's claimed invention.

Particularly, independent claim 1 claims among other things "a housing having a main body portion and a plurality of fins that extend from the main body portion, wherein the fins define a receptacle;.....a power module residing within the receptacle and connected to the main body portion, the power module including a box, an internal power supply, and an openable cover that encloses the power supply." which is not taught or fairly suggested by applicant's prior art of record. Claims 2-10 depend on claim 1.

Independent claim 11, claims among other things "a housing including a body portion and a plurality of fins extending rearward from the body portion, the fins defining a receptacle;
.....a power module residing within the receptacle, the power module including a power supply residing within an openable box within the receptacle." which is not taught or fairly suggested by applicant's prior art of record. Claims 12-20 depend on claim 11.

Independent claim 29, claims among other things "a housing including a flange, an internal receiver, a frontal lens and an array of fins extending rearward from the flange to define a rear receptacle that extends forward towards the flange, the housing further including a rear cover that encloses the rear receptacle;a power supply residing within the rear receptacle and enclosed by the cover" which is not taught or fairly suggested by applicant's prior art of record. Claims 29-36 depend on claim 29.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas M. Sember whose telephone number is 571-272-2381. The examiner can normally be reached on M-F 9 a.m.- 5.30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong Suk (James) Lee can be reached on 571-272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 11/818,216
Art Unit: 2885

Page 4

/Thomas M Sember/
Primary Examiner, Art Unit 2885

Search Notes 	Application/Control No. 11818216	Applicant(s)/Patent Under Reexamination THOMAS ET AL.
	Examiner Thomas M Sember	Art Unit 2885

SEARCHED			
Class	Subclass	Date	Examiner
362	249, 252, 294, 373 and 800	01/24/09	/TS/
362	249.1 and 249.02	09/03/09	/TS/

SEARCH NOTES			
Search Notes		Date	Examiner
Did text search, classification search, inventorship and forward/backward search on best references		01/23-01/25/09	/TS/
updated search and did additional search		09/03/09	/TS/

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
362	as previously searched	09/03/09	/TS/
	did int. search on broadest claim	"	"

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Issue Classification 	Application/Control No. 11818216	Applicant(s)/Patent Under Reexamination THOMAS ET AL.
	Examiner Thomas M Sember	Art Unit 2885

ORIGINAL						INTERNATIONAL CLASSIFICATION												
CLASS			SUBCLASS			CLAIMED					NON-CLAIMED							
362			294			F	2	1	V	29 / 00 (2006.01.01)								
CROSS REFERENCE(S)																		
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)																	
362	249.02	373																

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	17	25	33										
2	2	18	18	26	34										
3	3	19	19	27	35										
4	4	20	20	28	36										
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12	12		28												
13	13	21	29												
14	14	22	30												
15	15	23	31												
16	16	24	32												

NONE		Total Claims Allowed:	
		28	
(Assistant Examiner)	(Date)		
/Thomas M Sember/ Primary Examiner.Art Unit 2885	09/04/09	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2, 6



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BIB DATA SHEET

CONFIRMATION NO. 8775

SERIAL NUMBER 11/818,216	FILING or 371(c) DATE 06/13/2007 RULE	CLASS 315	GROUP ART UNIT 2885	ATTORNEY DOCKET NO. 077139-0014
APPLICANTS James Thomas, Tierra Verde, FL; David Lynd, Seminole, FL; Gary Gatesman, Indian Rocks Bch, FL; Jim Mosier, St. Petersburg, FL; Bryan T. Warner, St. Pete, FL;				
** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 07/11/2007				
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and /THOMAS M SEMBER/ Acknowledged Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY FL	SHEETS DRAWINGS 10	TOTAL CLAIMS 28
INDEPENDENT CLAIMS 3				
ADDRESS MCDERMOTT, WILL & EMERY LLP Attn: IP Department 227 WEST MONROE STREET SUITE 4400 CHICAGO, IL 60606-5096 UNITED STATES				
TITLE LED light fixture with internal power supply				
FILING FEE RECEIVED 780	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit	

EAST Search History**EAST Search History (Interference)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	1332	(362/294 or 362/373) and fin\$3	USPAT; UPAD	OR	ON	2009/09/03 20:07
L3	697	"362"/\$.ccls. and (thermal \$4 or heat \$4) near9 fin \$3 and (pcb or circuit adj board or substrate or cb or board)	USPAT; UPAD	OR	ON	2009/09/03 20:13

9/ 3/ 2009 8:37:46 PM

EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	277	(362/249.01 or 362/249.01.ccls. or 362/249.02 or 362/249.02.ccls.) and (thermal\$4 or heat\$4 or sink) and (pcb or circuit adj board or substrate or cb or board)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/09/03 21:53

9/ 3/ 2009 10:02:16 PM

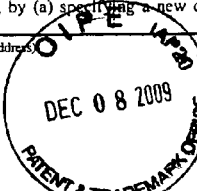
PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
 or **Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

1923 7590 09/09/2009
MCDERMOTT, WILL & EMERY LLP
 Attn: IP Department
 227 WEST MONROE STREET
 SUITE 4400
 CHICAGO, IL 60606-5096



Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Stephanie Callas (Depositor's name)
Stephanie Callas (Signature)
 December 4, 2009 (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/18/216 06/13/2007 James Thomas 077139-0014 8775
 TITLE OF INVENTION: LED LIGHT FIXTURE WITH INTERNAL POWER SUPPLY 12/08/2009 CCHAU2 00000037 11818216

01 FC:2501 755.00 OP
 02 FC:1504 300.00 OP

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$300	\$0	\$1055	12/09/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
SEMBER, THOMAS M	2885	362-294000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.563).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

McDermott Will & Emery LLP

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

ElectraLED, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Largo, FL

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☒ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number **13-0206** (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature *Peter Siavelis*
 Typed or printed name **Peter M. Siavelis**

Date **December 4, 2009**
 Registration No. **51,136**

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/818,216	01/26/2010	7651245	077139-0014	8775

1923 7590 01/06/2010
MCDERMOTT, WILL & EMERY LLP
Attn: IP Department
227 WEST MONROE STREET
SUITE 4400
CHICAGO, IL 60606-5096

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 101 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

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Jim Mosier, St. Petersburg, FL;
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