IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

RETROLED COMPONENTS, LLC, Plaintiff,	§	Civil Case No. 6:18-cv-55-ADA
v.	§	JURY TRIAL DEMANDED
PRINCIPAL LIGHTING GROUP, LLC Defendant.	§	EXHIBIT TO RETROLED COMPONENTS, LLC'S INITIAL DISCLOSURES OF INVALIDITY

Exhibit AA - *Socarras References*

35 U.S.C. § 103

US9311835	**Patent US 9,311,835 Claim Chart – *Breihof* '835**	**EXHIBIT AA** ***Socarras References*** **35 U.S.C. §103**
Assignee:	SignComp, LLC	
Title:	Lighting mount for interior-lighted signage and method of retrofitting a lighted sign	***Socarras References*** **U.S. Provisional No.: 61/332,080** **Filed (Priority Date): 4/8/2010** **US Pub. No.** **2011/0249440 A1** **Filed: 4/7/2011** **US Patent No. 8,926,129** **Issued: 1/6/2015**
Filing Date:	2011-11-22	
Publication Date:	2016-04-12	
Inventor:	Breihof, Thomas C.	
Earliest Priority:	US 61417156 2010-11-24	

United States Patent No. 8,926,129 (the "*Socarras Patent*) issued to Socarras on January 6, 2015 is prior art to the Breihof '835 Patent pursuant to 35 U.S.C. § 102(e) as the *Socarras Patent* is entitled to priority to the United States Provisional Application No. 61/322,080 (the *Socarras Provisional*) filed on April 8, 2010. Collectively, the *Socarras Patent* and the *Socarras Provisional* are referenced as the "*Socarras References*."

Claims:

1	A lamp support assembly for interior lighting of a sign, said lamp support assembly comprising:	RetroLED contends that the preamble is not limiting. To the extent that the Court finds that the preamble is limiting, it is disclosed in the *Socarras Patent* at column 1, lines 10-12: "High-output fluorescent lighting systems, commonly used in sign applications, are known to have extremely high power requirements and heat output." It is further disclosed in the *Socarras Provisional* at Paragraph 4, which provides "[i]t is a further object of the present invention to provide a lighting system for industrial and commercial application with drastically improved efficiency." A person of ordinary skill in the art would understand commercial applications to include "interior lighting of a sign." Further, InfoSystems discloses an "illumination device that may replace a fluorescent lamp and illuminate the display surface of a destination display on buses or trains…" (*InfoSystems*, mid-page 8.)

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	an elongate support member for supporting a plurality of electric lamp units, said elongate support member having opposite end portions;	RetroLED contends that the term "elongate support member" in the '835 Patent is governed by pre-AIA §112, ¶ 6 as a means-plus-function term. If, however, the Court determines that the term "elongate support member" is not governed by § 112, ¶ 6, the *Socarras References* nonetheless meet this limitation. For example, the *Socarras Patent* discloses an elongate support member at the following locations is described as a "divider" with "the one or more LED strips is disposed on the divider." (the *Socarras Patent* at Abs.) Thus, the elongate support member is to support a plurality of electrical lamps. Similarly, the *Socarras Provisional* discloses an "LED Divider" on which is "mounted . . . an LED light strip **5** that contains a plurality of high output LEDs." (the *Socarras Provisional* at ¶¶ 17 & 19.) Further, the *Socarras Patent* further discloses an "I-beam" shaped cross-section that "delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof." (the *Socarras Patent* at col. 3, ll. 35-37.) Similarly, the *Socarras Provisional* discloses an "'I-beam' shaped cross-section [that] delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto." (the *Socarras Provisional* at ¶ 20.) These I-beam structures disclosed in the *Socarras References* correspond to the I-beam structure of Figures 5 & 6 of the Breihof '835 Patent. The *Socarras References* further disclose the modified I-beam structures of Figures 7 & 8 of the Breihof '835 Patent. For example, in the *Socarras Patent* there is disclosure of an I-beam structure with a divider that is "notched or lipped such that the sides of channels **13** and **13′** are capable of receiving the edges of strip **5**, thus securing the ribbon in the channel." (the *Socarras Patent* at col. 3, ll. 40-44.) Similarly, the *Socarras Provisional* discloses a divider that "is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel." (the *Socarras Provisional* at ¶ 21.)

		The *Socarras References* also disclose an elongate support member having said opposite ends. For example, in Figure 2 of the *Socarras Patent* discloses two ends opposite each other on the "divider." Figure 2 of the *Socarras Provisional* discloses the same. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1, 2, 5 and 6. **Abs.:** An LED lighting system comprising a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 37-43:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 53-60:** In some embodiments, the divider is comprised of aluminum and is substantially rectangular, defining a first side and a second side. Accordingly, one or more LED strips may be disposed on either side of the divider. In some embodiments, the divider has an I-beam shaped cross section, defining a channel along each side of the divider, wherein the LED strips may be disposed in the channels. Further, the divider may include one or more fins longitudinally disposed along a length thereof.

		Col. 1, ll. 62-67: Further still, the LED lighting system of the present invention comprises a housing, a divider having one or more light emitting diodes thereon, one or more end caps having at least one electrical terminal, wherein the divider is disposed in the housing; and wherein the electrical terminal of the end caps is in electrical contact with the light emitting diodes. **Col. 2, ll. 49-51:** In some embodiments, divider **3** may be rectangular; however other shapes and configurations may be equally suitable. **Col. 2, l. 65 – col. 3, l. 1:** In some embodiments, the housing **1** may be cylindrical (i.e. tubular) in shape and the divider may be a substantially planar rectangular; however other shapes and sizes may be equally suitable depending on the desired installation. **Col. 3, ll. 14-46:** Mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, strip **5** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, an LED light strip **5** is disposed on both planar sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. Further, in some embodiments, a plurality of LED light strips **5** may be mounted to either side of divider **3**. In yet other embodiments, LED strip **5** may be integrated into and coextensive with divider **3**, such that divider **3** defines the ribbon **9** or substrate to which LEDs **7** are mounted. As shown in FIG. 2, in some embodiments of the present invention, divider **3** may be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section

		delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof. In some embodiments, strip **5** may be secured to channel **13** or **13′** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channels **13** and **13′** are capable of receiving the edges of strip **5**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip **5** to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Col. 5, ll. 35-50:** Mounted optionally to either side of divider **53** are LED light strips **59** and **59′** that contain a plurality of high output LEDs. Further, in some embodiments, a plurality of light strips **59** and **59′** may be mounted to either or both sides of divider **53**. In some embodiments, strips **59** and **59′** comprise a ribbon which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. In some embodiments, mounted to the ribbon are a plurality of LEDs and resistors. Additionally, in some embodiments, strips **59** and **59′** may have integrated circuitry such that the LEDs and resistors can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In yet other embodiments, LED strips **59** and **59′** may be integrated into and coextensive with divider **53**, such that divider **53** defines the ribbon or substrate to which LEDs are mounted. **Col. 5, l. 51 – col. 6, l. 12:** FIG. 6 is a cross-sectional view of one embodiment of divider **53** (or divider **3**). In some embodiments, divider **53** may have an "I-beam" shaped cross-section wherein the thickness of divider **53** is slightly narrowed at the center of the cross-section. This "I-beam" shaped cross-section delimits channels **61** and **61′** along the length of both sides of divider **53**, wherein the channels are adapted to receive light strips **59** and **59′** thereon. Further, divider **53** may have a plurality of fins **62** running lengthwise along divider **53**, which provide for heat dissipation. In this sense, divider **53** functions as support for light strips **59** and **59′** as well as a heat sink for

		the invention as a whole. It should be understood that the configuration of divider **53** as shown in FIG. 6 is capable of being used in either of the embodiments of the present invention shown in FIG. 1 and FIG. 5. In some embodiments, strips **59** and **59′** may be secured to channels **61** and **61′** (and therefore divider **53**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channels **61** and **61′** is notched or lipped such that the sides of the channels are capable of receiving the edges of strips **59** and **59′**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strips **59** and **59′** to be interchanged, replaced, and/or repaired as desired without damaging divider **53**. As stated, in some embodiments an adhesive may be used to affix strips **59** and **59′** to divider **53**. Such adhesives may include, but are not limited to, epoxy, super glue, and the like. **Claims:** 8 & 9. **For the *Socarras Provisional*:** **Figures:** 1, 2, 6 & 7 **¶ 17:** With reference to Figure 1 below, one embodiment of the light bulb of the present invention comprises a hollow, elongated housing **1** having a rectangular LED divider **3** disposed within housing **1.** **¶ 18:** In one embodiment, the elongated housing may be cylindrical (i.e. tubular) in shape and the divider may be a substantially planar rectangular; however other shapes and sizes may be equally suitable depending on the desired installation. Additionally, it may be preferred that the height of divider **3** be substantially equal to the diameter of housing **1** to assure that divider **3** remains in

		place during installation and use. Depending on the desired application, the present invention may any in length from 18" up to 120". **¶ 19:** As shown, mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, ribbon **9** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, LED light strip **5** is disposed on both sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. **Figures 6 and 7** are depictions of two aspect views of one embodiment of the present invention. **¶ 20:** As shown in **figure 2,** in some embodiments of the present invention, divider **3** maybe be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto. **¶ 21:** In some embodiments, strip **5** may be secured to channel **13** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip 5 to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Claim 5.**

	one and only one end cap at each of said opposite end portions of said elongate support member, each of said end caps having an inwardly-facing side and an outwardly-facing side, said inwardly-facing sides configured to frictionally engage and be supported at a respective one of said opposite end portions of said elongate support member;	The *Socarras References* disclose one and only one end cap at the opposite end portions of the said elongate support member. The *Socarras References* disclose one and only one end cap at the opposite end portions of the said elongate support member, with each end cap having and inwardly-facing side and an outwardly-facing side, with the inwardly-facing side configured to frictionally engage and be supported at the opposite end portions of the elongate support member. For example, the *Socarras Patent* graphically describes this end cap in Figures 1 and 5. Similarly, the *Socarras Provisional* graphically describes this end cap in Figures 1, 6 and 7. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures: 1, 3a, 3b, 3c, 3d, 3e, 4 and 5.** **Abs.:** An LED lighting system comprising a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 26-29:** The present invention relates generally to lighting systems and more specifically to various embodiments of a light-emitting diode (hereinafter referred to as "LED") lighting system including a lamp, end caps, and power supply. **Col. 1, ll. 37-51:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one

		or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. In some embodiments, the end caps are adapted to engage a light socket, wherein the electrical terminal of the end caps is disposed between and in electrical contact with the LED strips and the light socket, and the light socket is in electrical contact with an electrical power source. In some embodiments, the electrical terminal defines a spring engagement between the end caps and the light socket, permitting the lighting system to rotate with respect to the light socket **Col. 1, ll. 62-67:** Further still, the LED lighting system of the present invention comprises a housing, a divider having one or more light emitting diodes thereon, one or more end caps having at least one electrical terminal, wherein the divider is disposed in the housing; and wherein the electrical terminal of the end caps is in electrical contact with the light emitting diodes. **Col. 3, l. 57 – col. 5, l. 6:** Disposed at a first end of the housing 1 is a first end cap 15 that includes a positive electrical terminal (i.e. "+" lamp base); accordingly, disposed at the other end of the housing 1 is a second end cap 15 that includes a negative electrical terminal (i.e. "–" lamp base). The positive terminal end cap is connected to the positive terminal of the LED strip 5 and the negative terminal end cap is connected to the negative terminal of the LED strip 5. In an alternative embodiment, a single end cap may include both the positive and negative terminals and the opposing end cap is simply a "dummy" which is not in electrical contact with the LED strip 5. Accordingly, the positive and negative terminals of LED strip 5 are in electrical contact with the respective positive and negative terminals of the aforedescribed dual-terminal end cap. In some embodiments, the two end caps are adapted to couple to existing standard fluorescent light sockets for adaptability and compatibility with common lighting systems. The size and shape of

		the end caps shown in the figures should not be construed as limiting as the geometry of the end caps can be modified as desired to ensure compatibility with a wide variety of light sockets known in the art, including but limited to, high-output sockets used in signs and outline lighting systems. Accordingly, the term "socket" as used in this disclosure, should also not be construed as limiting, as the lighting system of the present invention can be configured to integrate with a variety of known socket configurations. Some embodiments of the present invention incorporate a specialized high-output end cap 15 as shown in FIGS. 3 a-3 e which is designed to fit new or existing high-output light sockets. In some embodiments, end cap 15 has three primary sections, a first cylindrical section 17, a second cylindrical section 19 coaxial to first section 17, and protrusion 21. In some embodiments, the first cylindrical section 17 has a larger diameter than the second cylindrical section 19 and protrusion 21 is dimensioned slightly smaller than the diameter of the second cylindrical section. Protrusion 21 has an open end 23 that is delimited by a curved cross section (where 23 points). In some embodiments, end cap 15 is a single "uni-body" structure made by known methods in the art such as extrusion or injection molding. However, in alternate embodiments, protrusion 21 may be removable. Accordingly, in one such embodiment, protrusion 21 may be mounted to or integrated with a disc-shaped base having, in some embodiments, substantially the same diameter as the second cylindrical section 19, such that the base functions as a "cap" for the remaining portion of end cap 15. As stated, end cap 15 is designed to function as a power terminal for some embodiments the present invention. Accordingly, FIG. 3 d is a cutaway view of the arrangement of and cap 15. Disposed within protrusion 21 are two pins 25 a and 25 b which are to be connected to the light socket of the given socket (not shown). In some embodiments, the pins are hollow cylinders capable of retaining the corresponding pins on the socket; in other embodiments, the pins may be solid

		cylinders that are capable of being connected to hollow receiving pins on the socket. As shown in FIGS. 3 c and 3 d, the two pins 25 a and 25 b are spaced equidistantly across the elongated portion of protrusion 21. In some embodiments, pins 25 a and 25 b are recessed with respect the top-most boundary of protrusion 21 such that the pins are not susceptible to damage or breakage during handling or storage of the present invention. Also shown in FIG. 3 care contacts 27 a and 27 b which, in some embodiments, are located to the inside of pins 25 a and 25 b, respectively. Contacts 27 a and 27 b may comprise metal "tangs" which are curved over and retained by supporting structure of end cap 15, respectively. It is understood that, for the purposes of this disclosure, the pin/contact arrangement results in an electrical terminal that is capable of receiving electrical power from a power source, as described below. As shown in FIG. 4 some embodiments of end cap 15 may have, disposed on the inside thereof, a metal retaining cup 31 which functions as a wiring support for the present invention (also shown in FIG. 3 e). Accordingly, cup 31 may have two apertures 33 a and 33 b which permit the proximal end of wiring 35 to pass through into housing 1. As such, the proximal end of wiring 35 is connected to pins 25 a and 25 b by soldering, crimping or other known methods. The distal end of wiring 35 may have a wiring harness 37 which is connected to and allows the transmission of power to LED strip 5 from the high-output sockets. Accordingly, LED strip 5 has a complementary wiring harness (not shown) which accordingly places end cap 15 into electrical contact with the LEDs 7. **Col. 6, ll. 12-67:** With reference again to FIG. 5, disposed at either end of the housing 51 is a first end cap 550 that functions as a positive terminal (i.e. "+" lamp base); accordingly, disposed at the other end of the housing 51 is a second end cap 550′ that functions as a negative terminal (i.e. "–" lamp base) in one embodiment, the two end caps are adapted to couple to existing high-out fluorescent light sockets for adaptability and compatibility with common lighting systems. The

		end caps are adapted to encase a plurality of electrical components defining an electrical terminal, described below. In an alternative embodiment, a single end cap 550 or ′550 may include both the positive and negative terminals and the opposing end cap is simply a "dummy" which is not in electrical contact with the LEDs. Accordingly, the positive and negative terminals of the one or more LEDs are in electrical contact with the respective positive and negative terminals of the dual-terminal end cap. Insulating stopper 556 (and 556′) is disposed at the end of, and is received by, housing 51. Stopper 556 (and 556′) may have a recess that is adapted to receive the end of divider 53, thus securing divider 53 within housing 51. In some embodiments, stopper 556 (and 556′) is comprised of rubber or another like insulator. Terminal disc 555 (and 555′) comprises a disc portion with power leads attached thereto. The leads are inserted through one or more apertures of stopper 556 (and 556′) such that the disc portion of terminal disc 555 (and 555′) rests against the end of stopper 556 (and 556′). The leads are accordingly placed in electrical contact with strips 59 and/or 59′. Next, contact disc 554 (and 554′) is placed over and in electrical contact with the disc portion of terminal disc 555 (and 555′), delimiting a substantially flat surface thereon. Spring assembly 553 (and 553′) comprises a proximal spring portion and a distal pronged portion wherein the spring comprises an electrically conductive material that is in physical and electrical contact with the pronged portion at one end, and with contact disc 554 (and 554′) at the other end. Accordingly, the substantially flat surface of contact disc 554 (and 554′) provides for optimal physical and electrical coupling between the spring portion of the spring assembly 553 (and 553′) and terminal disc 555 (and 555′). Socket base 552 (and 552′) has two female prongs cavities adapted to receive the pronged portion of spring assembly 553 (and 553′) in order to support the relatively flexible prongs thereof.

		Optionally, high output adapter 551 (and 551′) may be placed over socket base 552 (and 552′) such that the electrical terminal is compatible with the geometry of known high-output light sockets. Finally, end cap 550 (and 550′) is adapted to encase the components of the electrical terminal. Accordingly, in use, a power supply PS (described in detail below) provides electrical energy to the high-output sockets 57 and 57′ of the lighting socket, which energy travels across the high output adapter, into the socket base, through the prongs of the spring assembly, across the spring, through the contact disc and to the terminal disc and, therefore, to the LED strip. **Claims**: 1, 2, 12 and 13 **For the *Socarras Provisional*:** **Figures:** 1, 3a, 3b, 3c, 3d, 3e, 4 and 6. **¶ 3:** The present invention relates generally to lighting systems and more specifically to a light-emitting diode (hereinafter referred to as "LED") lighting system including a light bulb arrangement, end caps, and power supply. **¶ 23:** Disposed at a first end of the elongated housing is a first end cap 15 that functions as a positive terminal (i.e. "'+" lamp base); accordingly, disposed at the other end of the elongated housing is a second end cap **15** that functions as a negative terminal (i.e. "-" lamp base). The positive terminal end cap is connected to the positive terminal of the LED strip and the negative terminal end cap is connected to the negative terminal of the LED strip. In one embodiment, the two end caps are adapted to couple to existing fluorescent light sockets (as shown) for adaptability and compatibility with common lighting systems. The size and shape of the end caps shown in the figures should not be construed as limited, In some embodiments, the end caps may be glued or epoxyed to the ends of housing **1**.

		¶ 24: In addition, one embodiment of the present invention utilizes a specialized high-output ("HO") end cap **15** as shown in figures 3a-3e which is designed to fit new or existing HO fixtures. End cap **15** has three primary sections, a first cylindrical section **17,** a second cylindrical section **19** coaxial to first section **17,** and protrusion **21.** In some embodiments, the first cylindrical section **17** has a larger diameter than the second cylindrical section **19** and protrusion **21** is dimensioned slightly smaller than the diameter of the second cylindrical section. Protrusion **21** has an open end **23** that is delimited by a curved cross section (where 23 points). In some embodiments, end cap **15** is a single "uni-body" structure made by known methods in the art such as extrusion or injection molding. However, in alternate embodiments, protrusion **21** may be removable. Accordingly, in one such embodiment, protrusion **21** may be mounted to or integrated with a disc-shaped base (not shown) having substantially the same diameter as the second cylindrical section **19** such that the base functions as a "cap" for the remaining portion of end cap **15.** **¶ 25:** As stated, end cap 1**5** is designed to function has a power terminal for some embodiments the present invention. Accordingly, with reference to figure **3d,** shown is a cutaway view of the socket arrangement of end cap **15.** Disposed within protrusion **21** are two pins **25a** and **25b** which are to be connected to the light socket of the given fixture (not shown). In some embodiments, the pins are hollow cylinders capable of retaining the corresponding pins on the fixture; in other embodiments, the pins may be solid cylinders that are capable of being connected to hollow receiving pins on the fixture. As shown, the two pins **25a** and **25b** are spaced equidistantly across the elongated portion of protrusion **21.** In some embodiments, pins **25a** and **25b** are recessed with respect the top-most boundary of protrusion **21** such that the pins are not susceptible to damage or breakage during handling or storage of the present invention. Also shown are contacts **27a** and **27b** which, in some embodiments, are located to the inside of pins **25a** and **25b,** respectively. As show in **figure 4,** contacts **27a** and **27b** may comprise metal "tangs" which are curved and retained by supports **29a** and **29b,** respectively. It is understood that, for the purposes of this disclosure, the

		pin/contact arrangement results in an electrical terminal that is capable of receiving electrical power from a power source, as described below. **¶ 26:** As shown in figure 5 some embodiments of end cap **15** may have, disposed on the inside thereof a metal retaining cup **31** which functions as a wiring support for the present invention. Accordingly, cup **31** may have two apertures **33a** and **33b** which permit the proximal end of wiring **35** to pass through into housing **l**. As such, the proximal end of wiring **35** is connected to pins **25a** and **25b** by soldering, crimping or other known methods. As shown, the distal end of wiring **35** may have a wiring harness **37** which is connected to and allows the transmission of power to LED strip **5**. Accordingly, LED strip **5** has a complementary wiring harness (not shown) which accordingly places end cap **15** into electrical contact with the LEDs **7**.

	a mechanical coupling element at each of said outwardly-facing sides of said end caps, said mechanical coupling element configured to engage a single electro-mechanical mount for a gas-discharge lamp, wherein said mechanical coupling element comprises electrically insulative material and does not retain any electrical conductors along or through said mechanical coupling element for powering the plurality of electric lamp units; and	This limitation is met in light of the *Socarras References* as described below. RetroLED contends that the term "mechanical coupling element" in the '835 Patent is governed by pre-AIA §112, ¶ 6 as a means-plus-function term.If, however, the Court determines that the term "mechanical coupling element" is not governed by § 112, ¶ 6, the *Socarras References* nonetheless meet this limitation. For example, the *Socarras Patent* describes a device in which two end caps "are adapted to couple to existing standard fluorescent light sockets for adaptability and compatibility with common lighting systems." (the *Socarras Patent* at col. 4, ll. 4-6.) The *Socarras Provisional* similarly describes two end caps that "are adapted to couple to existing fluorescent light sockets (as shown) for adaptability and compatibility with common lighting systems." (the *Socarras Provisional* at ¶ 23.) These descriptions meet the requirements of the first portion of this limitation. Specifically, these two descriptions meet the following portion of the limitation: a mechanical coupling element at each of said outwardly-facing sides of said end caps, said mechanical coupling element configured to engage a single electro-mechanical mount for a gas-discharge lamp. With respect to the remainder of the language of this limitation, "wherein said mechanical coupling element comprises electrically insulative material and does not retain any electrical conductors along or through said mechanical coupling element for powering the plurality of electric lamp units," this portion of the limitation is met by the *Socarras References* in combination with United States Patent Publication No. 2009/0027916 ("*Huang*"), United States Patent No. 8,419,223 ("*Withers*"), or Japanese Patent Publication No. 2010-123097 ("*Royal Lighting*"). As noted in the narrative to which this claim chart is an exhibit, *Huang*, *Withers* and *Royal Lighting* disclose lighting systems in which power for the disclosed lighting systems is provided in ways other than through the end caps and therefore, meet this limitation of claim 1 of the *Breihof* '835 Patent, requiring that the mechanical coupling element "does not retain any electric conductors

		along or through said mechanical coupling element for powering the plurality of electric lamp units." For example, the system in *Huang* is powered by an electrical cord separate and apart from the mounting pins and end caps as disclosed in Figures 2, 3, 6, and 7 and as described in paragraphs 8 and 19 of *Huang*. Similarly, Figures 1 and 2 of *Royal Lighting* show an electrical supply cord separate and apart from the mechanical coupling element while Figure 3 of *Royal Lighting* shows an electrical supply cord that is separate and apart from the mechanical coupling element of the lighting assembly and which is terminated with a plug for the power supply to supply power separate from the fluorescent mount by which the lighting assembly is supported. Finally, Figures 2, 3, and 4 of *Withers* show power application to the LED light tube through a path other than the "mechanical coupling elements" of the end caps and Fig. 5 of *Withers* explicitly shows a power strategy in which the power application and path is distant from the end caps themselves. For example, the Abstract of *Withers* states, > Presented is an LED light tube in the general configuration of a prior art fluorescent tube. The LED light tube includes end caps with electrodes at each end, with the electrodes providing physical mounting structure to mount the LED light tube in an existing LED light fixture. The end caps of the LED light tube are not electrically active, but merely provide physical mounting structure to mount the LED light bulb in an existing fluorescent light fixture. This allows existing LED light fixtures to be utilized without replacement, by merely replacing the tubes and ballast with LED based equipment. (*Withers* at Abs.)

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		The *Socarras References* include description of how to power the LED strips using a variety of options, including using the existing fluorescent lighting ballast, hardwired direct current or 120V alternating current with a rectifier to provide the direct current to the LED strips. (*See, e.g.*, the *Socarras Patent* at col. 7, ll. 14-44; *see also, e.g.*, the *Socarras Provisional* at ¶ 27.) Consequently, a person of ordinary skill in the art considering the problems of replacing fluorescent lighting with a more energy efficient and safer approach would be motivated to combine the teachings of the *Socarras References* with those of *Huang* and/or *Withers* and/or *Royal Lighting* thus making this limitation obvious under 35 U.S.C. § 103. Further and in the alternative, to the extent that it is not inherent that the "mechanical coupling element comprises electrically insulative material, this limitation is rendered obvious by the *Socarras References* in view of U.S. Pat. App. Pub. No. 2004/0062041 filed September 25, 2003 and published April 1, 2004 to Cross et al. ("*Cross*"). *Cross* recites that an end cap "is preferably fabricated from non-conductive materials…." (*Cross* at ¶ 24.) Consequently, this limitation is available in the prior art of which the person of ordinary skill is deemed to have knowledge and, therefore, such a person in working to devise systems to replace fluorescent bulbs with lower power lighting assemblies would be motivate to combine the teachings of the *Socarras References* and *Cross* thus rendering the purported invention of this limitation obvious in light of those references. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 3a, 3b, 3c, 3d and 5.

		Col. 3, l. 57 – col. 4, l. 59: Disposed at a first end of the housing 1 is a first end cap 15 that includes a positive electrical terminal (i.e. "+" lamp base); accordingly, disposed at the other end of the housing 1 is a second end cap 15 that includes a negative electrical terminal (i.e. "–" lamp base). The positive terminal end cap is connected to the positive terminal of the LED strip 5 and the negative terminal end cap is connected to the negative terminal of the LED strip 5. In an alternative embodiment, a single end cap may include both the positive and negative terminals and the opposing end cap is simply a "dummy" which is not in electrical contact with the LED strip 5. Accordingly, the positive and negative terminals of LED strip 5 are in electrical contact with the respective positive and negative terminals of the aforedescribed dual-terminal end cap. In some embodiments, the two end caps are adapted to couple to existing standard fluorescent light sockets for adaptability and compatibility with common lighting systems. The size and shape of the end caps shown in the figures should not be construed as limiting as the geometry of the end caps can be modified as desired to ensure compatibility with a wide variety of light sockets known in the art, including but limited to, high-output sockets used in signs and outline lighting systems. Accordingly, the term "socket" as used in this disclosure, should also not be construed as limiting, as the lighting system of the present invention can be configured to integrate with a variety of known socket configurations. Some embodiments of the present invention incorporate a specialized high-output end cap 15 as shown in FIGS. 3 *a*-3 *e* which is designed to fit new or existing high-output light sockets. In some embodiments, end cap 15 has three primary sections, a first cylindrical section 17, a second cylindrical section 19coaxial to first section 17, and protrusion 21. In some embodiments, the first cylindrical section 17 has a larger diameter than the second cylindrical section 19 and protrusion 21 is dimensioned slightly smaller than the diameter of the second cylindrical section. Protrusion 21 has an open end 23 that is delimited by a curved cross section (where 23 points). In some embodiments, end cap 15is a single "uni-body" structure made by known methods in the art such as extrusion or injection molding. However, in alternate embodiments, protrusion 21 may be

		removable. Accordingly, in one such embodiment, protrusion 21 may be mounted to or integrated with a disc-shaped base having, in some embodiments, substantially the same diameter as the second cylindrical section 19, such that the base functions as a "cap" for the remaining portion of end cap 15. As stated, end cap 15 is designed to function as a power terminal for some embodiments the present invention. Accordingly, FIG. 3 *d* is a cutaway view of the arrangement of and cap 15. Disposed within protrusion 21 are two pins 25 *a* and 25 *b* which are to be connected to the light socket of the given socket (not shown). In some embodiments, the pins are hollow cylinders capable of retaining the corresponding pins on the socket; in other embodiments, the pins may be solid cylinders that are capable of being connected to hollow receiving pins on the socket. As shown in FIGS. 3 *c* and 3 *d*, the two pins 25 *a* and 25 *b* are spaced equidistantly across the elongated portion of protrusion 21. In some embodiments, pins 25 *a* and 25 *b* are recessed with respect the top-most boundary of protrusion 21 such that the pins are not susceptible to damage or breakage during handling or storage of the present invention. Also shown in FIG. 3 *c* are contacts 27 *a* and 27 *b* which, in some embodiments, are located to the inside of pins 25 *a* and 25 *b*, respectively. Contacts 27 *a* and 27 *b* may comprise metal "tangs" which are curved over and retained by supporting structure of end cap 15, respectively. It is understood that, for the purposes of this disclosure, the pin/contact arrangement results in an electrical terminal that is capable of receiving electrical power from a power source, as described below. **Col. 7, ll. 14-44:** As is well known in the art, standard fluorescent lighting systems are typically powered by a ballast system in order to regulate the flow of electrical power to the fluorescent bulbs. However, because LEDs operate under different conditions than a fluorescent bulb (typically, LEDs run on direct current (DC)), ballast power generally will not be needed. Accordingly, some embodiments of the present invention may also comprise a power source such as a power supply which is used as a transformer/rectifier in order to properly power the LED lighting system of the present invention. In some embodiments, it is intended that the power supply

		replace the ballast systems in traditional fluorescent lighting systems. In other embodiments, the light sockets themselves may be "hardwired" to a power grid (i.e. a building's electrical infrastructure) such that it will provide optimum voltage to the LED lighting system of the present invention. Accordingly, the positive and negative terminals of the power supply are connected to the respective positive and negative terminals of the powered socket system. Power is supplied to the terminals, through to the end caps, and in turn, to the appropriate terminals on the LED strip. In some embodiments, power supply may be capable of accepting and converting 120V AC power (the "input voltage") to the appropriate DC power. In other embodiments, the acceptable input voltage may range from 50V AC up to 270V AC, depending on the particular application. In yet other embodiments, a 24 Volt power supply may be used wherein the power supply includes a transformer/rectifier in order to properly power the LED strip. In some embodiments, the 24 Volt power supply is intended to replace high-out ballast that are typically used for high-output sign lamps. **For the *Socarras Provisional*:** **Figures:** 3a, 3b, 3c, 3d, and 4. **¶ 23:** Disposed at a first end of the elongated housing is a first end cap 15 that functions as a positive terminal (i.e. "'+" lamp base); accordingly, disposed at the other end of the elongated housing is a second end cap 15 that functions as a negative terminal (i.e. "-" lamp base). The positive terminal end cap is connected to the positive terminal of the LED strip and the negative terminal end cap is connected to the negative terminal of the LED strip. In one embodiment, the two end caps are adapted to couple to existing fluorescent light sockets (as shown) for adaptability and compatibility with common lighting systems. The size and shape of the end caps shown in the figures should not be construed as limited, In some embodiments, the end caps may be glued or epoxyed to the ends of housing 1.

		¶ 24: In addition, one embodiment of the present invention utilizes a specialized high-output ("HO") end cap 15 as shown in figures 3a-3e which is designed to fit new or existing HO fixtures. End cap 15 has three primary sections, a first cylindrical section 17, a second cylindrical section 19 coaxial to first section 17, and protrusion 21. In some embodiments, the first cylindrical section 17 has a larger diameter than the second cylindrical section 19 and protrusion 21 is dimensioned slightly smaller than the diameter of the second cylindrical section. Protrusion 21 has an open end 23 that is delimited by a curved cross section (where 23 points). In some embodiments, end cap 15 is a single "uni-body" structure made by known methods in the art such as extrusion or injection molding. However, in alternate embodiments, protrusion 21 may be removable. Accordingly, in one such embodiment, protrusion 21 may be mounted to or integrated with a disc-shaped base (not shown) having substantially the same diameter as the second cylindrical section 19 such that the base functions as a "cap" for the remaining portion of end cap 15. **¶ 25:** As stated, end cap 15 is designed to function has a power terminal for some embodiments the present invention. Accordingly, with reference to figure 3d, shown is a cutaway view of the socket arrangement of end cap 15. Disposed within protrusion 21 are two pins 25a and 25b which are to be connected to the light socket of the given fixture (not shown). In some embodiments, the pins are hollow cylinders capable of retaining the corresponding pins on the fixture; in other embodiments, the pins may be solid cylinders that are capable of being connected to hollow receiving pins on the fixture. As shown, the two pins 25a and 25b are spaced equidistantly across the elongated portion of protrusion 21. In some embodiments, pins 25a and 25b are recessed with respect the top-most boundary of protrusion 21 such that the pins are not susceptible to damage or breakage during handling or storage of the present invention. Also shown are contacts 27a and 27b which, in some embodiments, are located to the inside of pins 25a and 25b, respectively. As show in figure 4, contacts 27a and 27b may comprise metal "tangs" which are curved and retained by supports 29a and 29b, respectively. It is understood that, for the purposes of this disclosure, the

		pin/contact arrangement results in an electrical terminal that is capable of receiving electrical power from a power source, as described below.

	wherein said elongate support member and said end caps are releasably supportable by and between two and only two of the mounts when the two mounts are aligned directly opposite one another and supported in spaced arrangement on respective frame portions of the sign.	The *Socarras References* disclose a LED lighting system that includes a divider, *i.e.*, "elongate support member," and end caps that "are releasably supportable by and between two and only two of the mounts when the mounts are aligned directly opposite one another and supported in spaced arrangement on respective frame portions of the sign." For example, the *Socarras Patent* describes graphically in Figures 1 & 5 a LED lighting system that would meet this limitation. Similarly, the *Socarras Provisional* describes graphically in Figures 1 & 6 a LED lighting system that would meet this limitation. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1 and 5. **Col. 1, ll. 10-22:** High-output fluorescent lighting systems, commonly used in sign applications, are known to have extremely high power requirements and heat output. Such high-output systems are also not particularly reliable, nor are they environmentally friendly due to the gases that are used in fluorescent bulbs. However, light-emitting diodes (or "LEDs") generally have lower power requirements, increased lamp life, service life, and reliability and lower overall environmental impact. Accordingly, the present invention provides an LED lighting system that is a direct replacement for high-output fluorescent lighting systems known in the art while maintaining the same high-output light emission characteristics of such systems. **Col. 1, ll. 37-51:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps

		is in electrical contact with the LED strips. In some embodiments, the end caps are adapted to engage a light socket, wherein the electrical terminal of the end caps is disposed between and in electrical contact with the LED strips and the light socket, and the light socket is in electrical contact with an electrical power source. In some embodiments, the electrical terminal defines a spring engagement between the end caps and the light socket, permitting the lighting system to rotate with respect to the light socket **Col. 2, ll. 1-14:** Accordingly, it is an object of the present invention provide an LED lighting system with high output and relatively low power requirements and drastically reduced heat emission and noise. It is a further object of the present invention to provide an LED lamp that has 360-degree light emission in order to permit optimal light dispersal for a variety of applications. It is a further object of the present invention to provide a lighting system for industrial and commercial applications with drastically improved efficiency, service life, and reliability. It is yet a further object of the present invention to provide an LED lighting system that is a direct replacement for high-output fluorescent lighting systems known in the art, wherein the LED lighting system is compatible with the same high-output sockets used in these systems. **For the *Socarras Provisional*:** **Figures:** 1 & 6. **¶ 4:** It is a further object of the present invention to provide a lighting system for industrial and commercial applications with drastically improved efficiency

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2	The lamp support assembly of claim 1, wherein said elongate support member comprises an I-beam cross section having a web portion and spaced-apart flange portions on opposite ends of said web portion.	As noted above, the *Socarras References* disclose an "elongate support member" having an I-beam cross section with a web portion and spaced-apart flange portions on opposite sides of the web portion. For example, the *Socarras Patent* discloses an "I-beam" shaped cross-section that "delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof." (the *Socarras Patent* at col. 3, ll. 35-37.) Similarly, the *Socarras Provisional* discloses an "'I-beam' shaped cross-section [that] delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto." (the *Socarras Provisional* at ¶ 20.) These I-beam structures disclosed in the *Socarras References* correspond to the I-beam structure of Figures 5 & 6 of the Breihof '835 Patent. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1, 2, 5 and 6. **Abs.:** An LED lighting system comprising a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 37-43:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing,

		the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 55-60:** In some embodiments, the divider has an I-beam shaped cross section, defining a channel along each side of the divider, wherein the LED strips may be disposed in the channels. Further, the divider may include one or more fins longitudinally disposed along a length thereof. **Col. 1, ll. 62-67:** Further still, the LED lighting system of the present invention comprises a housing, a divider having one or more light emitting diodes thereon, one or more end caps having at least one electrical terminal, wherein the divider is disposed in the housing; and wherein the electrical terminal of the end caps is in electrical contact with the light emitting diodes **Col. 3, ll. 14-46:** Mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, strip **5** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, an LED light strip **5** is disposed on both planar sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. Further, in some embodiments, a plurality of LED light strips **5** may be mounted to either side of divider **3**. In yet other embodiments, LED strip **5** may be integrated into and coextensive with divider **3**, such that divider **3** defines the ribbon **9** or substrate to which LEDs **7** are mounted. As shown in FIG. 2, in some embodiments of the present invention, divider **3** may be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section

		delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof. In some embodiments, strip **5** may be secured to channel **13** or **13′** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channels **13** and **13′** are capable of receiving the edges of strip **5**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip **5** to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Col. 5, ll. 35-50:** Mounted optionally to either side of divider **53** are LED light strips **59** and **59′** that contain a plurality of high output LEDs. Further, in some embodiments, a plurality of light strips **59** and **59′** may be mounted to either or both sides of divider **53**. In some embodiments, strips **59** and **59′** comprise a ribbon which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. In some embodiments, mounted to the ribbon are a plurality of LEDs and resistors. Additionally, in some embodiments, strips **59** and **59′** may have integrated circuitry such that the LEDs and resistors can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In yet other embodiments, LED strips **59** and **59′** may be integrated into and coextensive with divider **53**, such that divider **53** defines the ribbon or substrate to which LEDs are mounted. **Col. 5, l. 51 – col. 6, l. 12:** FIG. 6 is a cross-sectional view of one embodiment of divider **53** (or divider **3**). In some embodiments, divider **53** may have an "I-beam" shaped cross-section wherein the thickness of divider **53** is slightly narrowed at the center of the cross-section. This "I-beam" shaped cross-section delimits channels **61** and **61′** along the length of both sides of divider **53**, wherein the channels are adapted to receive light strips **59** and **59′** thereon. Further, divider **53** may have a plurality of fins **62** running lengthwise along divider **53**, which provide for heat dissipation. In this sense, divider **53** functions as support for light strips **59** and **59′** as well as a heat sink for

		the invention as a whole. It should be understood that the configuration of divider **53** as shown in FIG. 6 is capable of being used in either of the embodiments of the present invention shown in FIG. 1 and FIG. 5. In some embodiments, strips **59** and **59′** may be secured to channels **61** and **61′** (and therefore divider **53**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channels **61** and **61′** is notched or lipped such that the sides of the channels are capable of receiving the edges of strips **59** and **59′**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strips **59** and **59′** to be interchanged, replaced, and/or repaired as desired without damaging divider **53**. As stated, in some embodiments an adhesive may be used to affix strips **59** and **59′** to divider **53**. Such adhesives may include, but are not limited to, epoxy, super glue, and the like. **Claims:** 8 & 9. **For the *Socarras Provisional*:** **Figures:** 1, 2, 6 & 7 **¶ 17:** With reference to Figure 1 below, one embodiment of the light bulb of the present invention comprises a hollow, elongated housing **1** having a rectangular LED divider **3** disposed within housing **1.** **¶ 18:** In one embodiment, the elongated housing may be cylindrical (i.e. tubular) in shape and the divider may be a substantially planar rectangular; however other shapes and sizes may be equally suitable depending on the desired installation. Additionally, it may be preferred that the height of divider **3** be substantially equal to the diameter of housing **1** to assure that divider **3** remains in

		place during installation and use. Depending on the desired application, the present invention may any in length from 18" up to 120". **¶ 19:** As shown, mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, ribbon **9** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, LED light strip **5** is disposed on both sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. **Figures 6 and 7** are depictions of two aspect views of one embodiment of the present invention. **¶ 20:** As shown in **figure 2,** in some embodiments of the present invention, divider **3** maybe be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto. **¶ 21:** In some embodiments, strip **5** may be secured to channel **13** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip 5 to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Claim 5.**

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3	The lamp support assembly of claim 2, wherein said web portion of said elongate support member comprises a pair of spaced plates joined together by said flange portions.	This claim is met for the same reasons that claim 2 is met.
4	The lamp support assembly of claim 2, wherein said inwardly-facing sides of said end caps comprise a plurality of projections for engaging said I-beam cross section of said elongate support member at said opposite ends thereof.	
5	The lamp support assembly of claim 4, wherein said inwardly-facing sides of said end caps are configured to engage either of (i) a single-web I-beam cross section or (ii) a dual-web I-beam cross section of said elongate support member.	

6	The lamp support assembly of claim 2, wherein said elongate support member is configured to support the plurality of electric lamp units at said web portion.	The *Socarras References* describe an "elongate support member" with an I-beam cross section having a web portion configured to support the plurality of electric lamp units. For example, the *Socarras Patent* describes just such a device. (The *Socarras Patent* Fig. 2 & col. 3, ll. 31-46.) The structure is found in the *Socarras Provisional* at Figure 2 as well as Paragraphs 20 and 21. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1, 2, 5 and 6. **Abs.:** An LED lighting system comprising a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 37-43:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 55-60:** In some embodiments, the divider has an I-beam shaped cross section, defining a channel along each side of the divider, wherein the LED strips may be disposed in the channels. Further, the divider may include one or more fins longitudinally disposed along a length thereof. **Col. 1, ll. 62-67:** Further still, the LED lighting system of the present invention comprises a housing, a divider having one or more light emitting diodes thereon, one or more end caps having

		at least one electrical terminal, wherein the divider is disposed in the housing; and wherein the electrical terminal of the end caps is in electrical contact with the light emitting diodes **Col. 3, ll. 14-46:** Mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, strip **5** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, an LED light strip **5** is disposed on both planar sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. Further, in some embodiments, a plurality of LED light strips **5** may be mounted to either side of divider **3**. In yet other embodiments, LED strip **5** may be integrated into and coextensive with divider **3**, such that divider **3** defines the ribbon **9** or substrate to which LEDs **7** are mounted. As shown in FIG. 2, in some embodiments of the present invention, divider **3** may be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof. In some embodiments, strip **5** may be secured to channel **13** or **13′** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channels **13** and **13′** are capable of receiving the edges of strip **5**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip **5** to be interchanged, replaced, and/or repaired as desired without damaging divider **3**.

		Col. 5, ll. 35-50: Mounted optionally to either side of divider **53** are LED light strips **59** and **59′** that contain a plurality of high output LEDs. Further, in some embodiments, a plurality of light strips **59** and **59′** may be mounted to either or both sides of divider **53**. In some embodiments, strips **59** and **59′** comprise a ribbon which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. In some embodiments, mounted to the ribbon are a plurality of LEDs and resistors. Additionally, in some embodiments, strips **59** and **59′** may have integrated circuitry such that the LEDs and resistors can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In yet other embodiments, LED strips **59** and **59′** may be integrated into and coextensive with divider **53**, such that divider **53** defines the ribbon or substrate to which LEDs are mounted. **Col. 5, l. 51 – col. 6, l. 12:** FIG. 6 is a cross-sectional view of one embodiment of divider **53** (or divider **3**). In some embodiments, divider **53** may have an "I-beam" shaped cross-section wherein the thickness of divider **53** is slightly narrowed at the center of the cross-section. This "I-beam" shaped cross-section delimits channels **61** and **61′** along the length of both sides of divider **53**, wherein the channels are adapted to receive light strips **59** and **59′** thereon. Further, divider **53** may have a plurality of fins **62** running lengthwise along divider **53**, which provide for heat dissipation. In this sense, divider **53** functions as support for light strips **59** and **59′** as well as a heat sink for the invention as a whole. It should be understood that the configuration of divider **53** as shown in FIG. 6 is capable of being used in either of the embodiments of the present invention shown in FIG. 1 and FIG. 5. In some embodiments, strips **59** and **59′** may be secured to channels **61** and **61′** (and therefore divider **53**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channels **61** and **61′** is notched or lipped such that the sides of the channels are capable of receiving the edges of strips **59** and **59′**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strips **59** and **59′** to be interchanged, replaced, and/or repaired as desired without damaging divider **53**. As stated, in some

		embodiments an adhesive may be used to affix strips **59** and **59′** to divider **53**. Such adhesives may include, but are not limited to, epoxy, super glue, and the like. **Claims:** 8 & 9. **For the *Socarras Provisional*:** **Figures:** 1, 2, 6 & 7 **¶ 17:** With reference to Figure 1 below, one embodiment of the light bulb of the present invention comprises a hollow, elongated housing **1** having a rectangular LED divider **3** disposed within housing **1.** **¶ 18:** In one embodiment, the elongated housing may be cylindrical (i.e. tubular) in shape and the divider may be a substantially planar rectangular; however other shapes and sizes may be equally suitable depending on the desired installation. Additionally, it may be preferred that the height of divider **3** be substantially equal to the diameter of housing **1** to assure that divider **3** remains in place during installation and use. Depending on the desired application, the present invention may any in length from 18" up to 120". **¶ 19:** As shown, mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, ribbon **9** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, LED light strip **5** is disposed on both sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. **Figures 6 and 7** are depictions of two aspect views of one embodiment of the present invention.

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		¶ 20: As shown in **figure 2,** in some embodiments of the present invention, divider **3** maybe be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto. **¶ 21:** In some embodiments, strip **5** may be secured to channel **13** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip 5 to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Claim 5.**

7	The lamp support assembly of claim 6, wherein said elongate support member is configured to support the electric lamp units along opposite sides of said web portion.	The *Socarras References* describe an "elongate support member" with an I-beam cross section having a web portion and electric lamp units along opposite sides of the web portion. For example, the *Socarras Patent* describes just such a device. (The *Socarras Patent* Fig. 2 & col. 3, ll. 31-46.) The structure is found in the *Socarras Provisional* at Figure 2 as well as Paragraphs 20 and 21. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1, 2, 5 and 6. **Abs.:** An LED lighting system comprising a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 37-43:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 55-60:** In some embodiments, the divider has an I-beam shaped cross section, defining a channel along each side of the divider, wherein the LED strips may be disposed in the channels. Further, the divider may include one or more fins longitudinally disposed along a length thereof. **Col. 1, ll. 62-67:** Further still, the LED lighting system of the present invention comprises a housing, a divider having one or more light emitting diodes thereon, one or more end caps having

		at least one electrical terminal, wherein the divider is disposed in the housing; and wherein the electrical terminal of the end caps is in electrical contact with the light emitting diodes **Col. 3, ll. 14-46:** Mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, strip **5** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, an LED light strip **5** is disposed on both planar sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. Further, in some embodiments, a plurality of LED light strips **5** may be mounted to either side of divider **3**. In yet other embodiments, LED strip **5** may be integrated into and coextensive with divider **3**, such that divider **3** defines the ribbon **9** or substrate to which LEDs **7** are mounted. As shown in FIG. 2, in some embodiments of the present invention, divider **3** may be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof. In some embodiments, strip **5** may be secured to channel **13** or **13′** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channels **13** and **13′** are capable of receiving the edges of strip **5**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip **5** to be interchanged, replaced, and/or repaired as desired without damaging divider **3**.

		Col. 5, ll. 35-50: Mounted optionally to either side of divider **53** are LED light strips **59** and **59′** that contain a plurality of high output LEDs. Further, in some embodiments, a plurality of light strips **59** and **59′** may be mounted to either or both sides of divider **53**. In some embodiments, strips **59** and **59′** comprise a ribbon which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. In some embodiments, mounted to the ribbon are a plurality of LEDs and resistors. Additionally, in some embodiments, strips **59** and **59′** may have integrated circuitry such that the LEDs and resistors can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In yet other embodiments, LED strips **59** and **59′** may be integrated into and coextensive with divider **53**, such that divider **53** defines the ribbon or substrate to which LEDs are mounted. **Col. 5, l. 51 – col. 6, l. 12:** FIG. 6 is a cross-sectional view of one embodiment of divider **53** (or divider **3**). In some embodiments, divider **53** may have an "I-beam" shaped cross-section wherein the thickness of divider **53** is slightly narrowed at the center of the cross-section. This "I-beam" shaped cross-section delimits channels **61** and **61′** along the length of both sides of divider **53**, wherein the channels are adapted to receive light strips **59** and **59′** thereon. Further, divider **53** may have a plurality of fins **62** running lengthwise along divider **53**, which provide for heat dissipation. In this sense, divider **53** functions as support for light strips **59** and **59′** as well as a heat sink for the invention as a whole. It should be understood that the configuration of divider **53** as shown in FIG. 6 is capable of being used in either of the embodiments of the present invention shown in FIG. 1 and FIG. 5. In some embodiments, strips **59** and **59′** may be secured to channels **61** and **61′** (and therefore divider **53**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channels **61** and **61′** is notched or lipped such that the sides of the channels are capable of receiving the edges of strips **59** and **59′**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strips **59** and **59′** to be interchanged, replaced, and/or repaired as desired without damaging divider **53**. As stated, in some

		embodiments an adhesive may be used to affix strips **59** and **59′** to divider **53**. Such adhesives may include, but are not limited to, epoxy, super glue, and the like. **Claims:** 8 & 9. **For the *Socarras Provisional*:** **Figures:** 1, 2, 6 & 7 **¶ 17:** With reference to Figure 1 below, one embodiment of the light bulb of the present invention comprises a hollow, elongated housing **1** having a rectangular LED divider **3** disposed within housing **1.** **¶ 18:** In one embodiment, the elongated housing may be cylindrical (i.e. tubular) in shape and the divider may be a substantially planar rectangular; however other shapes and sizes may be equally suitable depending on the desired installation. Additionally, it may be preferred that the height of divider **3** be substantially equal to the diameter of housing **1** to assure that divider **3** remains in place during installation and use. Depending on the desired application, the present invention may any in length from 18" up to 120". **¶ 19:** As shown, mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, ribbon **9** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, LED light strip **5** is disposed on both sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. **Figures 6 and 7** are depictions of two aspect views of one embodiment of the present invention.

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		¶ 20: As shown in **figure 2,** in some embodiments of the present invention, divider **3** maybe be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto. **¶ 21:** In some embodiments, strip **5** may be secured to channel **13** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip 5 to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Claim 5.**

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8	The lamp support assembly of claim 1, wherein said mechanical coupling elements are configured to engage a fixed-position mount and a spring-loaded mount, each of the mounts being configured for supporting a respective opposite end portion or coupler of a gas-discharge lamp and for supplying electricity to the gas-discharge lamp.	Dependent claim 8 is obvious in view of the *Socarras References* in combination with U.S. Pat. No. 5,282,117, issued January 25, 1994 to Fritts ("*Fritts*") or U.S. Pat. No. 4,229,780, issued October 21, 1980 to Nelson ("*Nelson*"). The *Socarras References* teach an LED lighting system to be used to replace a standard fluorescent lighting system. For example, the *Socarras Patent* teaches the use of "two end caps [] adapted to couple to existing standard fluorescent light sockets for adaptability and compatibility with common lighting systems." (*Socarras Patent* at col. 4, ll. 4-6.) Similarly, the *Socarras Provisional* teaches the use of "two end caps are adapted to couple to existing fluorescent light sockets (as shown) for adaptability and compatibility with common lighting systems. (*Socarras Provisional* at ¶ 24.) The invention of *Fritts* is concerned with "internally illuminated displays of the type" that "commonly utilize a light box incorporating therein an array of equally spaced parallel rectilinear fluorescent lamps behind a diffusely light transmissive white display panel adapted to bear a light transmissive image to be illuminated." (*Fritts* at col. 1, ll. 23 – 29.) Thus, *Fritts* discloses a system to provide more even illumination from such "light boxes" (*i.e.*, signs). In disclosing the inventive system, *Fritts* describes the receptacles used in conjunction with the disclosed light box. "Mounted on a spacer plate 25 suitably fixed to and overlying the bottom wall 15 adjacent the rear wall 17 is a static receptacle 26 for each of the lamps 24 and into which the respective lower ends of said lamps are received. Running along and secured to the inner surface of the upper wall 14 adjacent the rear wall 17 is a receptacle mounting member 27 which is aperatured to receive a spring loaded upper receptacle 28 for each of the lamps 24." (*Fritts* at col. 5, ll. 10-19; *see also id.* at col. 5, ll. 9-11 & Fig. 1, references 26 & 28.) In devising systems to replace fluorescent bulbs with LED based systems, a person of ordinary skill in the art would have been aware of various sockets and mounts by which fluorescents are mounted and the use of a standard spring loaded socket or mounts situated to accept one end of an

		applied fluorescent bulb and a standard stationary socket or mount disposed to accept the other end of the fluorescent bulbs to be replaced would be within the field of art of the practitioner seeking to replace fluorescents with LEDs while using much of the fluorescent infrastructure. Thus, a person of ordinary skill in the art at the time of the purported *Breihof* '835 claim 8 invention would have been motivated to combine the teachings of the *Socarras References* and *Fritts* in devising a system in which standard spring and stationary fluorescent mount pairs were used with systems to replace fluorescent bulbs with LEDs thus rendering the purported invention of claim 8, as a whole, obvious under 35 U.S.C. § 103 over the *Socarras References* in view of *Fritts*. Similarly, *Nelson* discloses a fluorescent lighting assembly for use in explosive atmospheres such as mines by adding a guard to a fluorescent light assembly. In describing the disclosed lighting assembly, *Nelson* discloses that, "[a] standard stationary socket 36 is mounted by screws 38, 38 on the end portion 34 of the head end of the lamp, and a standard spring-loaded socket 40 is mounted by screws 42 on the end portion 34 at the tail end of the lamp." (*Nelson* at col. 3, l. 67 – Col. 4, l. 3.) In devising systems to replace fluorescent bulbs with LED based systems, a person of ordinary skill in the art would have been aware of various sockets and mounts by which fluorescents are mounted and the use of a standard spring loaded socket or mounts situated to accept one end of an applied fluorescent bulb and a standard stationary socket or mount disposed to accept the other end of the fluorescent bulbs to be replaced would be within the field of art of the practitioner seeking to replace fluorescents with LEDs while using much of the fluorescent infrastructure. *Nelson* discloses such a pair of mounts as recited in claim 8 and tellingly identifies them as "standard." Thus, a person of ordinary skill in the art at the time of the purported *Breihof* '835 claim 8 invention would have been motivated to combine the teachings of the *Socarras References* and *Nelson* in devising a system in which standard spring and stationary fluorescent mount pairs were used with systems to replace fluorescent bulbs with LEDs thus rendering the purported

		invention of claim 8, as a whole, obvious under 35 U.S.C. § 103 over the *Socarras References* in view of *Nelson*.

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9	The lamp support assembly of claim 1, further in combination with a lighted sign and a plurality of the electric lamp units.	The *Socarras References* contain a plurality of electric lamp units, *i.e.*, LEDs. For example, in the *Socarras Patent*, there is described the use of an LED light strip "that contains a plurality of high output LEDs." (The *Socarras Patent* at col. 3, ll. 14- 15.) Similarly, the *Socarras Provisional* describes the same LED light strip "that contains a plurality of high output LEDs." (The *Socarras Provisional* at ¶ 19.) In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1, 2, 5 and 6. **Abs.:** An LED lighting system comprising a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 37-43:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 55-60:** In some embodiments, the divider has an I-beam shaped cross section, defining a channel along each side of the divider, wherein the LED strips may be disposed in the channels. Further, the divider may include one or more fins longitudinally disposed along a length thereof.

		Col. 1, ll. 62-67: Further still, the LED lighting system of the present invention comprises a housing, a divider having one or more light emitting diodes thereon, one or more end caps having at least one electrical terminal, wherein the divider is disposed in the housing; and wherein the electrical terminal of the end caps is in electrical contact with the light emitting diodes **Col. 3, ll. 14-46:** Mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, strip **5** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, an LED light strip **5** is disposed on both planar sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. Further, in some embodiments, a plurality of LED light strips **5** may be mounted to either side of divider **3**. In yet other embodiments, LED strip **5** may be integrated into and coextensive with divider **3**, such that divider **3** defines the ribbon **9** or substrate to which LEDs **7** are mounted. As shown in FIG. 2, in some embodiments of the present invention, divider **3** may be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof. In some embodiments, strip **5** may be secured to channel **13** or **13′** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channels **13** and **13′** are capable of receiving the edges of strip **5**, thus securing the ribbon in the

		channel. The use of this type of a lipped channel allows for strip **5** to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Col. 5, ll. 35-50:** Mounted optionally to either side of divider **53** are LED light strips **59** and **59′** that contain a plurality of high output LEDs. Further, in some embodiments, a plurality of light strips **59** and **59′** may be mounted to either or both sides of divider **53**. In some embodiments, strips **59** and **59′** comprise a ribbon which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. In some embodiments, mounted to the ribbon are a plurality of LEDs and resistors. Additionally, in some embodiments, strips **59** and **59′** may have integrated circuitry such that the LEDs and resistors can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In yet other embodiments, LED strips **59** and **59′** may be integrated into and coextensive with divider **53**, such that divider **53** defines the ribbon or substrate to which LEDs are mounted. **Col. 5, l. 51 – col. 6, l. 12:** FIG. 6 is a cross-sectional view of one embodiment of divider **53** (or divider **3**). In some embodiments, divider **53** may have an "I-beam" shaped cross-section wherein the thickness of divider **53** is slightly narrowed at the center of the cross-section. This "I-beam" shaped cross-section delimits channels **61** and **61′** along the length of both sides of divider **53**, wherein the channels are adapted to receive light strips **59** and **59′** thereon. Further, divider **53** may have a plurality of fins **62** running lengthwise along divider **53**, which provide for heat dissipation. In this sense, divider **53** functions as support for light strips **59** and **59′** as well as a heat sink for the invention as a whole. It should be understood that the configuration of divider **53** as shown in FIG. 6 is capable of being used in either of the embodiments of the present invention shown in FIG. 1 and FIG. 5. In some embodiments, strips **59** and **59′** may be secured to channels **61** and **61′** (and therefore divider **53**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channels **61** and **61′** is notched or lipped such that

		the sides of the channels are capable of receiving the edges of strips **59** and **59′**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strips **59** and **59′** to be interchanged, replaced, and/or repaired as desired without damaging divider **53**. As stated, in some embodiments an adhesive may be used to affix strips **59** and **59′** to divider **53**. Such adhesives may include, but are not limited to, epoxy, super glue, and the like. **Claims:** 8 & 9. **For the *Socarras Provisional*:** **Figures:** 1, 2, 6 & 7 **¶ 17:** With reference to Figure 1 below, one embodiment of the light bulb of the present invention comprises a hollow, elongated housing **1** having a rectangular LED divider **3** disposed within housing **1.** **¶ 18:** In one embodiment, the elongated housing may be cylindrical (i.e. tubular) in shape and the divider may be a substantially planar rectangular; however other shapes and sizes may be equally suitable depending on the desired installation. Additionally, it may be preferred that the height of divider **3** be substantially equal to the diameter of housing **1** to assure that divider **3** remains in place during installation and use. Depending on the desired application, the present invention may any in length from 18" up to 120". **¶ 19:** As shown, mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, ribbon **9** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, LED light strip **5** is disposed on both sides of the divider, thus increasing the

		number and LEDs and, in turn, the resultant light emission. **Figures 6 and 7** are depictions of two aspect views of one embodiment of the present invention. **¶ 20:** As shown in **figure 2,** in some embodiments of the present invention, divider **3** maybe be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto. **¶ 21:** In some embodiments, strip **5** may be secured to channel **13** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip 5 to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Claim 5.**

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10	The lamp support assembly of claim 9, wherein said electric lamp units comprise LED lamps.	Just as in Claim 9, the *Socarras References* include electric lamp units that comprise LED lamps. For example, in the *Socarras Patent*, there is described the use of an LED light strip "that contains a plurality of high output LEDs." (The *Socarras Patent* at col. 3, ll. 14- 15.) Similarly, the *Socarras Provisional* describes the same LED light strip "that contains a plurality of high output LEDs." (The *Socarras Provisional* at ¶ 19.) In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1, 2, 5 and 6. **Abs.:** An LED lighting system comprising a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 37-43:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 55-60:** In some embodiments, the divider has an I-beam shaped cross section, defining a channel along each side of the divider, wherein the LED strips may be disposed in the channels. Further, the divider may include one or more fins longitudinally disposed along a length thereof.

		Col. 1, ll. 62-67: Further still, the LED lighting system of the present invention comprises a housing, a divider having one or more light emitting diodes thereon, one or more end caps having at least one electrical terminal, wherein the divider is disposed in the housing; and wherein the electrical terminal of the end caps is in electrical contact with the light emitting diodes **Col. 3, ll. 14-46:** Mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, strip **5** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, an LED light strip **5** is disposed on both planar sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. Further, in some embodiments, a plurality of LED light strips **5** may be mounted to either side of divider **3**. In yet other embodiments, LED strip **5** may be integrated into and coextensive with divider **3**, such that divider **3** defines the ribbon **9** or substrate to which LEDs **7** are mounted. As shown in FIG. 2, in some embodiments of the present invention, divider **3** may be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof. In some embodiments, strip **5** may be secured to channel **13** or **13′** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channels **13** and **13′** are capable of receiving the edges of strip **5**, thus securing the ribbon in the

		channel. The use of this type of a lipped channel allows for strip **5** to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Col. 5, ll. 35-50:** Mounted optionally to either side of divider **53** are LED light strips **59** and **59′** that contain a plurality of high output LEDs. Further, in some embodiments, a plurality of light strips **59** and **59′** may be mounted to either or both sides of divider **53**. In some embodiments, strips **59** and **59′** comprise a ribbon which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. In some embodiments, mounted to the ribbon are a plurality of LEDs and resistors. Additionally, in some embodiments, strips **59** and **59′** may have integrated circuitry such that the LEDs and resistors can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In yet other embodiments, LED strips **59** and **59′** may be integrated into and coextensive with divider **53**, such that divider **53** defines the ribbon or substrate to which LEDs are mounted. **Col. 5, l. 51 – col. 6, l. 12:** FIG. 6 is a cross-sectional view of one embodiment of divider **53** (or divider **3**). In some embodiments, divider **53** may have an "I-beam" shaped cross-section wherein the thickness of divider **53** is slightly narrowed at the center of the cross-section. This "I-beam" shaped cross-section delimits channels **61** and **61′** along the length of both sides of divider **53**, wherein the channels are adapted to receive light strips **59** and **59′** thereon. Further, divider **53** may have a plurality of fins **62** running lengthwise along divider **53**, which provide for heat dissipation. In this sense, divider **53** functions as support for light strips **59** and **59′** as well as a heat sink for the invention as a whole. It should be understood that the configuration of divider **53** as shown in FIG. 6 is capable of being used in either of the embodiments of the present invention shown in FIG. 1 and FIG. 5. In some embodiments, strips **59** and **59′** may be secured to channels **61** and **61′** (and therefore divider **53**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channels **61** and **61′** is notched or lipped such that

		the sides of the channels are capable of receiving the edges of strips **59** and **59′**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strips **59** and **59′** to be interchanged, replaced, and/or repaired as desired without damaging divider **53**. As stated, in some embodiments an adhesive may be used to affix strips **59** and **59′** to divider **53**. Such adhesives may include, but are not limited to, epoxy, super glue, and the like. **Claims:** 8 & 9. **For the *Socarras Provisional*:** **Figures:** 1, 2, 6 & 7 **¶ 17:** With reference to Figure 1 below, one embodiment of the light bulb of the present invention comprises a hollow, elongated housing **1** having a rectangular LED divider **3** disposed within housing **1.** **¶ 18:** In one embodiment, the elongated housing may be cylindrical (i.e. tubular) in shape and the divider may be a substantially planar rectangular; however other shapes and sizes may be equally suitable depending on the desired installation. Additionally, it may be preferred that the height of divider **3** be substantially equal to the diameter of housing **1** to assure that divider **3** remains in place during installation and use. Depending on the desired application, the present invention may any in length from 18" up to 120". **¶ 19:** As shown, mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, ribbon **9** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, LED light strip **5** is disposed on both sides of the divider, thus increasing the

		number and LEDs and, in turn, the resultant light emission. **Figures 6 and 7** are depictions of two aspect views of one embodiment of the present invention. **¶ 20:** As shown in **figure 2,** in some embodiments of the present invention, divider **3** maybe be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto. **¶ 21:** In some embodiments, strip **5** may be secured to channel **13** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip 5 to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Claim 5.**

EXHIBIT AA

RetroLED Components LLC v. Principal Lighting Group, LLC

Socarras References
35 U.S.C. §103

11	The lamp support assembly of claim 10, wherein said elongate support member comprises an I-beam cross section having a web portion and spaced-apart flange portions on opposite ends of said web portion, and wherein said electric lamp units are coupled to said web portion and are positioned between said spaced-apart flange portions.	The *Socarras References* describe an "elongate support member" with an I-beam cross section having a web portion and spaced-apart flange portions with electric lamp units coupled to the web portion and positioned between the spaced-apart flange portions. For example, the *Socarras Patent* describes just such a device. (The *Socarras Patent* Fig. 2 & col. 3, ll. 31-46.) The structure is found in the *Socarras Provisional* at Figure 2 as well as Paragraphs 20 and 21. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1, 2, 5 and 6. **Abs.:** An LED lighting system comprising a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 37-43:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 55-60:** In some embodiments, the divider has an I-beam shaped cross section, defining a channel along each side of the divider, wherein the LED strips may be disposed in the channels. Further, the divider may include one or more fins longitudinally disposed along a length thereof.

		Col. 1, ll. 62-67: Further still, the LED lighting system of the present invention comprises a housing, a divider having one or more light emitting diodes thereon, one or more end caps having at least one electrical terminal, wherein the divider is disposed in the housing; and wherein the electrical terminal of the end caps is in electrical contact with the light emitting diodes **Col. 3, ll. 14-46:** Mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, strip **5** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, an LED light strip **5** is disposed on both planar sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. Further, in some embodiments, a plurality of LED light strips **5** may be mounted to either side of divider **3**. In yet other embodiments, LED strip **5** may be integrated into and coextensive with divider **3**, such that divider **3** defines the ribbon **9** or substrate to which LEDs **7** are mounted. As shown in FIG. 2, in some embodiments of the present invention, divider **3** may be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof. In some embodiments, strip **5** may be secured to channel **13** or **13′** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channels **13** and **13′** are capable of receiving the edges of strip **5**, thus securing the ribbon in the

		channel. The use of this type of a lipped channel allows for strip **5** to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Col. 5, ll. 35-50:** Mounted optionally to either side of divider **53** are LED light strips **59** and **59′** that contain a plurality of high output LEDs. Further, in some embodiments, a plurality of light strips **59** and **59′** may be mounted to either or both sides of divider **53**. In some embodiments, strips **59** and **59′** comprise a ribbon which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. In some embodiments, mounted to the ribbon are a plurality of LEDs and resistors. Additionally, in some embodiments, strips **59** and **59′** may have integrated circuitry such that the LEDs and resistors can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In yet other embodiments, LED strips **59** and **59′** may be integrated into and coextensive with divider **53**, such that divider **53** defines the ribbon or substrate to which LEDs are mounted. **Col. 5, l. 51 – col. 6, l. 12:** FIG. 6 is a cross-sectional view of one embodiment of divider **53** (or divider **3**). In some embodiments, divider **53** may have an "I-beam" shaped cross-section wherein the thickness of divider **53** is slightly narrowed at the center of the cross-section. This "I-beam" shaped cross-section delimits channels **61** and **61′** along the length of both sides of divider **53**, wherein the channels are adapted to receive light strips **59** and **59′** thereon. Further, divider **53** may have a plurality of fins **62** running lengthwise along divider **53**, which provide for heat dissipation. In this sense, divider **53** functions as support for light strips **59** and **59′** as well as a heat sink for the invention as a whole. It should be understood that the configuration of divider **53** as shown in FIG. 6 is capable of being used in either of the embodiments of the present invention shown in FIG. 1 and FIG. 5. In some embodiments, strips **59** and **59′** may be secured to channels **61** and **61′** (and therefore divider **53**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channels **61** and **61′** is notched or lipped such that

		the sides of the channels are capable of receiving the edges of strips **59** and **59′**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strips **59** and **59′** to be interchanged, replaced, and/or repaired as desired without damaging divider **53**. As stated, in some embodiments an adhesive may be used to affix strips **59** and **59′** to divider **53**. Such adhesives may include, but are not limited to, epoxy, super glue, and the like. **Claims:** 8 & 9. **For the *Socarras Provisional*:** **Figures:** 1, 2, 6 & 7 **¶ 17:** With reference to Figure 1 below, one embodiment of the light bulb of the present invention comprises a hollow, elongated housing **1** having a rectangular LED divider **3** disposed within housing **1.** **¶ 18:** In one embodiment, the elongated housing may be cylindrical (i.e. tubular) in shape and the divider may be a substantially planar rectangular; however other shapes and sizes may be equally suitable depending on the desired installation. Additionally, it may be preferred that the height of divider **3** be substantially equal to the diameter of housing **1** to assure that divider **3** remains in place during installation and use. Depending on the desired application, the present invention may any in length from 18" up to 120". **¶ 19:** As shown, mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, ribbon **9** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, LED light strip **5** is disposed on both sides of the divider, thus increasing the

		number and LEDs and, in turn, the resultant light emission. **Figures 6 and 7** are depictions of two aspect views of one embodiment of the present invention. **¶ 20:** As shown in **figure 2,** in some embodiments of the present invention, divider **3** maybe be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto. **¶ 21:** In some embodiments, strip **5** may be secured to channel **13** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip 5 to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Claim 5.**

EXHIBIT AA

RetroLED Components LLC v. Principal Lighting Group, LLC

Socarras References
35 U.S.C. §103

12	The lamp support assembly of claim 1, wherein said elongate support member comprises a metal or a resinous plastic extrusion, and wherein said end caps comprise a non-metal material.	This claim is obvious in light of the *Socarras References* in light of U.S. Pat. App. Pub. No. 2004/0062041 filed September 25, 2003 and published April 1, 2004 to Cross et al. ("*Cross*") or *InfoSystems*. First, the divider, *i.e.*, "elongate support member" of the Breihof '835 Patent, in the *Socarras References* may be made of Lexan®, which is a polycarbonate resin that can be extruded. (*See Socarras Patent* at col. 5, ll. 13-18; *see also Socarras Provisional* at ¶ 17). Second, *Cross* recites that an end cap "is preferably fabricated from non-conductive materials…." (*Cross* at ¶ 24.) Further, in describing the "end pieces" of the disclosed lighting assembly, InfoSystems states, "They are made from an insulating material and are preferably provided with a metallic jacket." 2nd paragraph, Page 7 *InfoSytems*. The claim 12 limitation as to the end caps is open ended with the use of the word "comprises" and therefore, only a part of the end caps needs be non metal. Consequently, both limitations added by claim 12 are available in the prior art of which the person of ordinary skill is deemed to have knowledge and, therefore, such a person in working to devise systems to replace fluorescent bulbs with lower power lighting assemblies would be motivate to combine the teachings of the *Socarras References* and *Cross* thus rendering the purported invention of claim 12 obvious in light of those references. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Col. 5, ll. 10-18:** As shown, the lamp comprises a hollow, housing **51** having a LED divider **53** disposed within housing **51**. In some embodiments, divider **53** may be rectangular; however other shapes and configurations may be equally suitable. In some embodiments, the divider **53** is comprised of a transparent or translucent material such as polycarbonate (i.e.

		Lexan®), or another suit able plastic or synthetic material, in other embodiments, divider **53**may be comprised of an opaque material, which provides for more directional lighting. **Col. 7, ll. 45-55:** For purposes of this disclosure, the size and shape of the component parts of the present invention as shown in the figures should not be construed as limiting. Furthermore, the materials selected for the component parts should also not be construed as limiting. For example, it may be desired to utilize a metal material, such as aluminum, for the divider in to allow for heat dissipation. However, a plastic (transparent or opaque) or other material may be equally well-suited. Furthermore, the end caps and other components shown in FIGS. **3**, **4**, and **5** may be comprised of aluminum, brass, plastic, or other known materials. **For the *Socarras Provisional*:** **¶ 17:** With reference to Figure 1 below, one embodiment of the light bulb of the present invention comprises a hollow, elongated housing **l** having a rectangular LED divider 3 disposed within housing **1.** In an embodiment, the divider is comprised of a transparent or translucent material such as polycarbonate (i.e. Lexan®), or another suitable plastic or synthetic material, The housing materially may be made of a flexible and inexpensive material as desired. The use of a transparent or translucent divider **3** provides substantial advantages over the prior art in that, where the strip is disposed on both sides thereot: the present invention provides for substantially omni- directional light emission.

EXHIBIT AA

RetroLED Components LLC v. Principal Lighting Group, LLC

Socarras References
35 U.S.C. §103

13	A method of retrofitting an internally-lighted sign that is fitted with one or more gas-discharge lamps, said method comprising:	RetroLED contends that the preamble is not limiting. Nevertheless, the *Socarras References* recite a method of retrofitting an internally-lighted sign that is fitted with one or more gas-discharge lamps. For example, in the *Socarras Patent*, recites in the background of the invention that "the present invention provides an LED lighting system that is a direct replacement for high-output fluorescent lighting systems known in the art while maintaining the same high-output light emission characteristics of such systems." (Col. 1, ll. 18-22.) Similarly, in the *Socarras Provisional*, Paragraph 23 recites, in part, an embodiment of the LED lighting system in which the "the two end caps are adapted to couple to existing fluorescent light sockets (as shown) for adaptability and compatibility with common lighting systems." (the *Socarras Provisional* at ¶ 23.) Further, *InfoSystems* discloses a "replacement kit" for an illumination device in signs used in public transit systems. Page 2 *InfoSystems*. "[S]olving the problem of providing a replacement kit for an illumination device of the kind mentioned above, which can be installed as a replacement for an existing fluorescent lamp without any great expenditure in terms of installation work." Page 3 *InfoSystems*. "The replacement kit 1 shown in Fig. 1 for an illumination device that may replace a fluorescent lamp and illuminate the display surface of a destination display on buses or trains has a lamp 2 which may be plugged in in the same way as a fluorescent lamp and has a set of cables 3." Mid-page 8, *InfoSystems*.

	removing the one or more gas-discharge lamps from between one or more respective pairs of gas-discharge lamp couplings positioned directly opposite from one another along an interior of the sign;	Because the *Socarras References* describes the using an LED lighting system that is used with existing fluorescent lighting sockets that are compatible with common lighting systems, the removing of one or more gas-discharge lamps is met by the *Socarras References*. For example, in the *Socarras Patent*, recites in the background of the invention that "the present invention provides an LED lighting system that is a direct replacement for high-output fluorescent lighting systems known in the art while maintaining the same high-output light emission characteristics of such systems." (Col. 1, ll. 18-22.) Similarly, in the *Socarras Provisional*, Paragraph 23 recites, in part, an embodiment of the LED lighting system in which the "the two end caps are adapted to couple to existing fluorescent light sockets (as shown) for adaptability and compatibility with common lighting systems." (the *Socarras Provisional* at ¶ 23.) Further, the system of the *Socarras References* provides for the respective pairs of gas-discharge lamp couplings to be positioned directly opposite from one another along an interior of the sign. For example, the *Socarras Patent* describes graphically in Figures 1 & 5 a LED lighting system that would meet this limitation. The *Socarras Patent* also describes at column 1, lines 10-12: "High-output fluorescent lighting systems, commonly used in sign applications, are known to have extremely high power requirements and heat output." A person of ordinary skill in the art would understand commercial applications to include "interior lighting of a sign." Similarly, the *Socarras Provisional* describes graphically in Figures 1 & 6 a LED lighting system that would meet this limitation. The sign aspect is further disclosed in the *Socarras Provisional* at Paragraph 4, which provides "[i]t is a further object of the present invention to provide a lighting system for industrial and commercial application with drastically improved efficiency." In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1 and 5.

		Col. 1, ll. 10-22: High-output fluorescent lighting systems, commonly used in sign applications, are known to have extremely high power requirements and heat output. Such high-output systems are also not particularly reliable, nor are they environmentally friendly due to the gases that are used in fluorescent bulbs. However, light-emitting diodes (or "LEDs") generally have lower power requirements, increased lamp life, service life, and reliability and lower overall environmental impact. Accordingly, the present invention provides an LED lighting system that is a direct replacement for high-output fluorescent lighting systems known in the art while maintaining the same high-output light emission characteristics of such systems. **Col. 1, ll. 37-51:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. In some embodiments, the end caps are adapted to engage a light socket, wherein the electrical terminal of the end caps is disposed between and in electrical contact with the LED strips and the light socket, and the light socket is in electrical contact with an electrical power source. In some embodiments, the electrical terminal defines a spring engagement between the end caps and the light socket, permitting the lighting system to rotate with respect to the light socket **Col. 2, ll. 1-14:** Accordingly, it is an object of the present invention provide an LED lighting system with high output and relatively low power requirements and drastically reduced heat emission and noise. It is a further object of the present invention to provide an LED lamp that has 360-degree light emission in order to permit optimal light dispersal for a variety of applications. It is a further object of the present invention to provide a lighting system for industrial and commercial applications with drastically improved efficiency, service life, and reliability. It is yet a further object of the present invention to provide an LED lighting system that is a direct

		replacement for high-output fluorescent lighting systems known in the art, wherein the LED lighting system is compatible with the same high-output sockets used in these systems. **For the *Socarras Provisional*:** **Figures:** 1 & 6. **¶ 4:** It is a further object of the present invention to provide a lighting system for industrial and commercial applications with drastically improved efficiency.

	positioning and frictionally engaging respective end caps at opposite end portions of an elongate support member, wherein the end caps are made of electrically insulative material and do not retain any electrical conductors along or through said end caps for powering said plurality of electric lamp units;	This limitation is met in light of the *Socarras References* as described below. With respect to the "positioning and frictionally engaging respective end caps at opposite portions of an elongate support member," this portion of the limitation is met by the *Socarras References*. First, as noted above, RetroLED contends that the term "elongate support member" in the '835 Patent is governed by pre-AIA §112, ¶ 6 as a means-plus-function term. If, however, the Court determines that the term "elongate support member" is not governed by § 112, ¶ 6, the *Socarras References* nonetheless meet this limitation. The *Socarras Patent* discloses an elongate support member at the following locations is described as a "divider" with "the one or more LED strips is disposed on the divider." (the *Socarras Patent* at Abs.) Thus, the elongate support member is to support a plurality of electrical lamps. Similarly, the *Socarras Provisional* discloses an "LED Divider" on which is "mounted . . . an LED light strip **5** that contains a plurality of high output LEDs." (the *Socarras Provisional* at ¶¶ 17 & 19.) Further, the *Socarras Patent* discloses an "I-beam" shaped cross-section that "delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof." (the *Socarras Patent* at col. 3, ll. 35-37.) Similarly, the *Socarras Provisional* discloses an "'I-beam' shaped cross-section [that] delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto." (the *Socarras Provisional* at ¶ 20.) These I-beam structures disclosed in the *Socarras References* correspond to the I-beam structure of Figures 5 & 6 of the Breihof '835 Patent. The *Socarras References* further disclose the modified I-beam structures of Figures 7 & 8 of the Breihof '835 Patent. For example, in the *Socarras Patent* there is disclosure of an I-beam structure with a divider that is "notched or lipped such that the sides of channels **13** and **13′** are capable of receiving the edges of strip **5**, thus securing the ribbon in the channel." (the *Socarras Patent* at col. 3, ll. 40-44.) Similarly, the *Socarras Provisional* discloses a divider that "is notched or lipped such

		that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel." (the *Socarras Provisional* at ¶ 21.) The *Socarras References* also disclose a divider, ***i.e.***, "elongate support member," having said opposite ends. For example, in Figure 2 of the *Socarras Patent* discloses two ends opposite each other on the "divider." Figure 2 of the *Socarras Provisional* discloses the same. End caps are positioned and frictionally engage the opposite portions of the divider in the *Socarras References*. For example, in Figure 1 of the *Socarras Patent* the end caps, identified by numeral 15, are positioned and frictionally engage the divider. (*See also Socarras Patent* at col. 3, l. 57 – col. 4, l. 3.) The same is true in Figure 1 of the *Socarras Provisional*. (*See also Socarras Provisional* at ¶ 23.) With respect to the remainder of the language of this limitation, "wherein the end caps are made of electrically insulative material and do not retain any electrical conductors along or through said end caps for powering said plurality of electric lamp units," this portion of the limitation is met by the *Socarras References* in combination with United States Patent Publication No. 2009/0027916 ("*Huang*"), United States Patent No. 8,419,223 ("*Withers*"), or Japanese Patent Publication No. 2010-123097 ("*Royal Lighting*"). As noted in the narrative to which this claim chart is an exhibit, *Huang*, *Withers* and *Royal Lighting* disclose lighting systems in which power for the disclosed lighting systems is provided in ways other than through the end caps and therefore, meet the limitation of this limitation of claim 1 of the *Breihof* '835 Patent, requiring that the mechanical coupling element "does not retain any electric conductors along or through said mechanical coupling element for powering the plurality of electric lamp units."

		For example, the system in *Huang* is powered by an electrical cord separate and apart from the mounting pins and end caps as disclosed in Figures 2, 3, 6, and 7 and as described in paragraphs 8 and 19 of *Huang*. Similarly, Figures 1 and 2 of *Royal Lighting* show an electrical supply cord separate and apart from the mechanical coupling element while Figure 3 of *Royal Lighting* shows an electrical supply cord that is separate and apart from the mechanical coupling element of the lighting assembly and which is terminated with a plug for the power supply to supply power separate from the fluorescent mount by which the lighting assembly is supported. Finally, Figures 2, 3, and 4 of *Withers* show power application to the LED light tube through a path other than the "mechanical coupling elements" of the end caps and Fig. 5 of *Withers* explicitly shows a power strategy in which the power application and path is distant from the end caps themselves. For example, the Abstract of *Withers* states, > Presented is an LED light tube in the general configuration of a prior art fluorescent tube. The LED light tube includes end caps with electrodes at each end, with the electrodes providing physical mounting structure to mount the LED light tube in an existing LED light fixture. The end caps of the LED light tube are not electrically active, but merely provide physical mounting structure to mount the LED light bulb in an existing fluorescent light fixture. This allows existing LED light fixtures to be utilized without replacement, by merely replacing the tubes and ballast with LED based equipment. (*Withers* at Abs.) The *Socarras References* include description of how to power the LED strips using a variety of options, including using the existing fluorescent lighting ballast, hardwired direct current or 120V alternating current with a rectifier to provide the direct current to the LED strips. (*See, e.g.*, the

		Socarras Patent at col. 7, ll. 14-44; *see also, e.g.*, the *Socarras Provisional* at ¶ 27.) Consequently, a person of ordinary skill in the art considering the problems of replacing fluorescent lighting with a more energy efficient and safer approach would be motivated to combine the teachings of the *Socarras References* with those of *Huang* and/or *Withers* and/or *Royal Lighting* thus making this limitation obvious under 35 U.S.C. § 103. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1, 3a, 3b, 3c, 3d and 5. **Col. 3, l. 57 – col. 4, l. 59:** Disposed at a first end of the housing 1 is a first end cap 15 that includes a positive electrical terminal (i.e. "+" lamp base); accordingly, disposed at the other end of the housing 1 is a second end cap 15 that includes a negative electrical terminal (i.e. "–" lamp base). The positive terminal end cap is connected to the positive terminal of the LED strip 5 and the negative terminal end cap is connected to the negative terminal of the LED strip 5. In an alternative embodiment, a single end cap may include both the positive and negative terminals and the opposing end cap is simply a "dummy" which is not in electrical contact with the LED strip 5. Accordingly, the positive and negative terminals of LED strip 5 are in electrical contact with the respective positive and negative terminals of the aforedescribed dual-terminal end cap. In some embodiments, the two end caps are adapted to couple to existing standard fluorescent light sockets for adaptability and compatibility with common lighting systems. The size and shape of the end caps shown in the figures should not be construed as limiting as the geometry of the end caps can be modified as desired to ensure compatibility with a wide variety of light sockets known in the art, including but limited to, high-output sockets used in signs and outline lighting systems. Accordingly, the term "socket" as used in this disclosure, should also not be construed as limiting,

		as the lighting system of the present invention can be configured to integrate with a variety of known socket configurations. Some embodiments of the present invention incorporate a specialized high-output end cap 15 as shown in FIGS. 3 *a*-3 *e* which is designed to fit new or existing high-output light sockets. In some embodiments, end cap 15 has three primary sections, a first cylindrical section 17, a second cylindrical section 19coaxial to first section 17, and protrusion 21. In some embodiments, the first cylindrical section 17 has a larger diameter than the second cylindrical section 19 and protrusion 21 is dimensioned slightly smaller than the diameter of the second cylindrical section. Protrusion 21 has an open end 23 that is delimited by a curved cross section (where 23 points). In some embodiments, end cap 15is a single "uni-body" structure made by known methods in the art such as extrusion or injection molding. However, in alternate embodiments, protrusion 21 may be removable. Accordingly, in one such embodiment, protrusion 21 may be mounted to or integrated with a disc-shaped base having, in some embodiments, substantially the same diameter as the second cylindrical section 19, such that the base functions as a "cap" for the remaining portion of end cap 15. As stated, end cap 15 is designed to function as a power terminal for some embodiments the present invention. Accordingly, FIG. 3 *d* is a cutaway view of the arrangement of and cap 15. Disposed within protrusion 21 are two pins 25 *a* and 25 *b* which are to be connected to the light socket of the given socket (not shown). In some embodiments, the pins are hollow cylinders capable of retaining the corresponding pins on the socket; in other embodiments, the pins may be solid cylinders that are capable of being connected to hollow receiving pins on the socket. As shown in FIGS. 3 *c* and 3 *d*, the two pins 25 *a* and 25 *b* are spaced equidistantly across the elongated portion of protrusion 21. In some embodiments, pins 25 *a* and 25 *b* are recessed with respect the top-most boundary of protrusion 21 such that the pins are not susceptible to damage or breakage during handling or storage of the present invention. Also shown in FIG. 3 *c* are contacts 27 *a* and 27 *b* which, in some embodiments, are located to the inside of

		pins 25 *a* and 25 *b*, respectively. Contacts 27 *a* and 27 *b* may comprise metal "tangs" which are curved over and retained by supporting structure of end cap 15, respectively. It is understood that, for the purposes of this disclosure, the pin/contact arrangement results in an electrical terminal that is capable of receiving electrical power from a power source, as described below. **Col. 7, ll. 14-44:** As is well known in the art, standard fluorescent lighting systems are typically powered by a ballast system in order to regulate the flow of electrical power to the fluorescent bulbs. However, because LEDs operate under different conditions than a fluorescent bulb (typically, LEDs run on direct current (DC)), ballast power generally will not be needed. Accordingly, some embodiments of the present invention may also comprise a power source such as a power supply which is used as a transformer/rectifier in order to properly power the LED lighting system of the present invention. In some embodiments, it is intended that the power supply replace the ballast systems in traditional fluorescent lighting systems. In other embodiments, the light sockets themselves may be "hardwired" to a power grid (i.e. a building's electrical infrastructure) such that it will provide optimum voltage to the LED lighting system of the present invention. Accordingly, the positive and negative terminals of the power supply are connected to the respective positive and negative terminals of the powered socket system. Power is supplied to the terminals, through to the end caps, and in turn, to the appropriate terminals on the LED strip. In some embodiments, power supply may be capable of accepting and converting 120V AC power (the "input voltage") to the appropriate DC power. In other embodiments, the acceptable input voltage may range from 50V AC up to 270V AC, depending on the particular application. In yet other embodiments, a 24 Volt power supply may be used wherein the power supply includes a transformer/rectifier in order to properly power the LED strip. In some embodiments, the 24 Volt power supply is intended to replace high-out ballast that are typically used for high-output sign lamps. **For the *Socarras Provisional*:**

		Figures: 1, 2, 3a, 3b, 3c, 3d, 4, 6 & 7. **¶ 17:** With reference to Figure 1 below, one embodiment of the light bulb of the present invention comprises a hollow, elongated housing **1** having a rectangular LED divider **3** disposed within housing **1.¶ 18:** In one embodiment, the elongated housing may be cylindrical (i.e. tubular) in shape and the divider may be a substantially planar rectangular; however other shapes and sizes may be equally suitable depending on the desired installation. Additionally, it may be preferred that the height of divider **3** be substantially equal to the diameter of housing **1** to assure that divider **3** remains in place during installation and use. Depending on the desired application, the present invention may any in length from 18" up to 120". **¶ 20:** As shown in **figure 2,** in some embodiments of the present invention, divider **3** maybe be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto. **¶ 21:** In some embodiments, strip **5** may be secured to channel **13** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip 5 to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **¶ 23:** Disposed at a first end of the elongated housing is a first end cap 15 that functions as a positive terminal (i.e. "'+" lamp base); accordingly, disposed at the other end of the elongated housing is a second end cap 15 that functions as a negative terminal (i.e. "-" lamp base). The positive terminal end cap is connected to the positive terminal of the LED strip and the negative terminal end cap is connected to the negative terminal of the LED strip. In one embodiment, the

		two end caps are adapted to couple to existing fluorescent light sockets (as shown) for adaptability and compatibility with common lighting systems. The size and shape of the end caps shown in the figures should not be construed as limited, In some embodiments, the end caps may be glued or epoxyed to the ends of housing 1. **¶ 24:** In addition, one embodiment of the present invention utilizes a specialized high-output ("HO") end cap 15 as shown in figures 3a-3e which is designed to fit new or existing HO fixtures. End cap 15 has three primary sections, a first cylindrical section 17, a second cylindrical section 19 coaxial to first section 17, and protrusion 21. In some embodiments, the first cylindrical section 17 has a larger diameter than the second cylindrical section 19 and protrusion 21 is dimensioned slightly smaller than the diameter of the second cylindrical section. Protrusion 21 has an open end 23 that is delimited by a curved cross section (where 23 points). In some embodiments, end cap 15 is a single "uni-body" structure made by known methods in the art such as extrusion or injection molding. However, in alternate embodiments, protrusion 21 may be removable. Accordingly, in one such embodiment, protrusion 21 may be mounted to or integrated with a disc-shaped base (not shown) having substantially the same diameter as the second cylindrical section 19 such that the base functions as a "cap" for the remaining portion of end cap 15. **¶ 25:** As stated, end cap 15 is designed to function has a power terminal for some embodiments the present invention. Accordingly, with reference to figure 3d, shown is a cutaway view of the socket arrangement of end cap 15. Disposed within protrusion 21 are two pins 25a and 25b which are to be connected to the light socket of the given fixture (not shown). In some embodiments, the pins are hollow cylinders capable of retaining the corresponding pins on the fixture; in other embodiments, the pins may be solid cylinders that are capable of being connected to hollow receiving pins on the fixture. As shown, the two pins 25a and 25b are spaced equidistantly across the elongated portion of protrusion 21. In some embodiments, pins 25a and 25b are recessed with respect the top-most boundary of protrusion 21 such that the pins are not susceptible to damage or breakage during handling or storage of the present invention. Also shown are contacts 27a and 27b

		which, in some embodiments, are located to the inside of pins 25a and 25b, respectively. As show in figure 4, contacts 27a and 27b may comprise metal "tangs" which are curved and retained by supports 29a and 29b, respectively. It is understood that, for the purposes of this disclosure, the pin/contact arrangement results in an electrical terminal that is capable of receiving electrical power from a power source, as described below. **Claim 5.**

	positioning one or more electric lamp units along the elongate support member; and	**For the *Socarras Patent*:** **Figures:** 1, 2, 5 and 6. **Abs.:** An LED lighting system comprising a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 37-43:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 53-60:** In some embodiments, the divider is comprised of aluminum and is substantially rectangular, defining a first side and a second side. Accordingly, one or more LED strips may be disposed on either side of the divider. In some embodiments, the divider has an I-beam shaped cross section, defining a channel along each side of the divider, wherein the LED strips may be disposed in the channels. Further, the divider may include one or more fins longitudinally disposed along a length thereof. **Col. 1, ll. 62-67:** Further still, the LED lighting system of the present invention comprises a housing, a divider having one or more light emitting diodes thereon, one or more end caps having at least one electrical terminal, wherein the divider is disposed in the housing; and wherein the electrical terminal of the end caps is in electrical contact with the light emitting diodes.

		Col. 2, ll. 49-51: In some embodiments, divider **3** may be rectangular; however other shapes and configurations may be equally suitable. **Col. 2, l. 65 – col. 3, l. 1:** In some embodiments, the housing **1** may be cylindrical (i.e. tubular) in shape and the divider may be a substantially planar rectangular; however other shapes and sizes may be equally suitable depending on the desired installation. **Col. 3, ll. 14-46:** Mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, strip **5** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, an LED light strip **5** is disposed on both planar sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. Further, in some embodiments, a plurality of LED light strips **5** may be mounted to either side of divider **3**. In yet other embodiments, LED strip **5** may be integrated into and coextensive with divider **3**, such that divider **3** defines the ribbon **9** or substrate to which LEDs **7** are mounted. As shown in FIG. 2, in some embodiments of the present invention, divider **3** may be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof. In some embodiments, strip **5** may be secured to channel **13** or **13′** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channels **13** and **13′** are capable of receiving the edges of strip **5**, thus securing the ribbon in the

		channel. The use of this type of a lipped channel allows for strip **5** to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Col. 5, ll. 35-50:** Mounted optionally to either side of divider **53** are LED light strips **59** and **59′** that contain a plurality of high output LEDs. Further, in some embodiments, a plurality of light strips **59** and **59′** may be mounted to either or both sides of divider **53**. In some embodiments, strips **59** and **59′** comprise a ribbon which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. In some embodiments, mounted to the ribbon are a plurality of LEDs and resistors. Additionally, in some embodiments, strips **59** and **59′** may have integrated circuitry such that the LEDs and resistors can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In yet other embodiments, LED strips **59** and **59′** may be integrated into and coextensive with divider **53**, such that divider **53** defines the ribbon or substrate to which LEDs are mounted. **Col. 5, l. 66 – col. 6, l. 12:** In some embodiments, strips **59** and **59′** may be secured to channels **61** and **61′** (and therefore divider **53**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channels **61** and **61′** is notched or lipped such that the sides of the channels are capable of receiving the edges of strips **59** and **59′**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strips **59** and **59′** to be interchanged, replaced, and/or repaired as desired without damaging divider **53**. As stated, in some embodiments an adhesive may be used to affix strips **59** and **59′** to divider **53**. Such adhesives may include, but are not limited to, epoxy, super glue, and the like. **Claims 1 & 12.** **For the *Socarras Provisional*:**

		Figures: 1, 2, 6 & 7 **¶ 17:** With reference to Figure 1 below, one embodiment of the light bulb of the present invention comprises a hollow, elongated housing **1** having a rectangular LED divider **3** disposed within housing **1.** **¶ 18:** In one embodiment, the elongated housing may be cylindrical (i.e. tubular) in shape and the divider may be a substantially planar rectangular; however other shapes and sizes may be equally suitable depending on the desired installation. Additionally, it may be preferred that the height of divider **3** be substantially equal to the diameter of housing **1** to assure that divider **3** remains in place during installation and use. Depending on the desired application, the present invention may any in length from 18" up to 120". **¶ 19:** As shown, mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, ribbon **9** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, LED light strip **5** is disposed on both sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. **Figures 6 and 7** are depictions of two aspect views of one embodiment of the present invention. **¶ 20:** As shown in **figure 2,** in some embodiments of the present invention, divider **3** maybe be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto.

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		¶ 21: In some embodiments, strip **5** may be secured to channel **13** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip 5 to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Claim 1.**

	engaging each of the end caps in a non-conductive manner with a respective one and only one of the gas-discharge couplings or with a respective one and only one replacement coupling to thereby position the end caps, the elongate support member, and the electric lamp units between the gas-discharge lamp couplings or replacement couplings that are positioned directly opposite from one another.	The *Socarras References* disclose a LED lighting system that where the end caps engage with a respective one and only one of the gas-discharge coupling or with one and only one replacement coupling to thereby position the end caps, the divider, *i.e.*, the elongate support member, and the electric lamp units between the gas-discharge lamp couplings or replacement couplings that are positioned directly opposite from one another." For example, the *Socarras Patent* describes graphically in Figures 1 & 5 a LED lighting system that would meet this limitation. Similarly, the *Socarras Provisional* describes graphically in Figures 1 & 6 a LED lighting system that would meet this portion of the limitation. The remainder of the limitation, *i.e.*, engaging in as non-conductive manner is obvious given the *Socarras References* in light of U.S. Pat. App. Pub. No. 2004/0062041 filed September 25, 2003 and published April 1, 2004 to Cross et al. ("*Cross*"). As noted above, Cross recites that an end cap "is preferably fabricated from non-conductive materials…." (*Cross* at ¶ 24.) Consequently, the remainder of this limitation is available in the prior art of which the person of ordinary skill is deemed to have knowledge and, therefore, such a person in working to devise systems to replace fluorescent bulbs with lower power lighting assemblies would be motivate to combine the teachings of the *Socarras References* and *Cross* thus rendering the purported invention of claim 13 obvious in light of those references. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1 and 5.

		Col. 1, ll. 10-22: High-output fluorescent lighting systems, commonly used in sign applications, are known to have extremely high power requirements and heat output. Such high-output systems are also not particularly reliable, nor are they environmentally friendly due to the gases that are used in fluorescent bulbs. However, light-emitting diodes (or "LEDs") generally have lower power requirements, increased lamp life, service life, and reliability and lower overall environmental impact. Accordingly, the present invention provides an LED lighting system that is a direct replacement for high-output fluorescent lighting systems known in the art while maintaining the same high-output light emission characteristics of such systems. **Col. 1, ll. 37-51:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. In some embodiments, the end caps are adapted to engage a light socket, wherein the electrical terminal of the end caps is disposed between and in electrical contact with the LED strips and the light socket, and the light socket is in electrical contact with an electrical power source. In some embodiments, the electrical terminal defines a spring engagement between the end caps and the light socket, permitting the lighting system to rotate with respect to the light socket **Col. 2, ll. 1-14:** Accordingly, it is an object of the present invention provide an LED lighting system with high output and relatively low power requirements and drastically reduced heat emission and noise. It is a further object of the present invention to provide an LED lamp that has 360-degree light emission in order to permit optimal light dispersal for a variety of applications. It is a further object of the present invention to provide a lighting system for industrial and commercial applications with drastically improved efficiency, service life, and reliability. It is yet a further object of the present invention to provide an LED lighting system that is a direct

		replacement for high-output fluorescent lighting systems known in the art, wherein the LED lighting system is compatible with the same high-output sockets used in these systems. **For the *Socarras Provisional*:** **Figures:** 1 & 6. **¶ 4:** It is a further object of the present invention to provide a lighting system for industrial and commercial applications with drastically improved efficiency
14	The method of claim 13, further comprising cutting the elongate support member to fit between the one or more respective pairs of the gas-discharge lamp couplings or the replacement couplings.	Dependent claim 14 of the *Breihof* '835 patent is invalid as being obvious under 35 USC § 103 over the *Socarras References* in view of US Pat. No. 4,691,601 entitled "Method of Sawing a Steel Structural Shape Having at least One Flange" issued September 8, 1987 to Peddinghaus ("*Peddinghaus*"). "The structural steel shapes can have H,U,I, or T cross § or an angular profile, i.e., a channel I-beam, H-beam, T-beam or angle iron." (Col. 3, ll. 31-34 of *Peddinghaus*). A person of skill in the art at the time the invention was made is deemed to be aware of the prior art. In considering the issue of fitting the elongate member in the space available between the pairs of "gas discharge couplings" the process of cutting the elongate support member to so fit in the available space between the lamp couplings would have been a gating step. If the elongate support member were an I-beam, which is one disclosed species of elongate support member in the disclosure of both the *Breihof* '835 and the *Socarras References* (as discussed with respect to claims 1 and 13), a method of cutting the I-beam would have been known to the practitioner in the art and in particular, the method prescribed by *Peddinghaus* would have been one available method for such cutting.

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15	The method of claim 13, further comprising disabling or removing an existing ballast in the internally-lighted sign so that the gas-discharge lamp couplings cannot readily be electrically energized.	The *Socarras References* meet the additional limitation of claim 15 of the *Breihof* '835 Patent. For example, the *Socarras Patent* teaches a LED lighting system where "it is intended that the power supply replace the ballast systems in traditional fluorescent lighting systems." (*Socarras Patent* at col. 7, ll. 23-25.) The *Socarras Provisional* includes an identical teaching. (*Socarras Provisional* at ¶ 27.) In the alternative, dependent claim 15 of the *Breihof* '835 Patent is invalid as being obvious under 35 U.S.C. § 103 over the *Socarras References* in view of German Patent DE 299 00 320 U 1 filed on April 1, 1999, published in the Patent Gazette on May 12, 1999 and issued to InfoSystems GmbH Visuelle und akustische ("*InfoSystems*"). *InfoSystems* provides disclosure of a method to disable the existing ballast in the internally lighted sign as follows: > According to the invention, the replacement kit comprises an LED lamp designed as a plug-in device and for replacing existing fluorescent lamps, as well as a set of cables or another device for bridging or bypassing the pre-exisiting ballast, so that the plug-in socket may be immediately connected to the on-board DC voltage. (*InfoSystems* at 3-4.) Further explication of how to disable the ballast is found on page 11 of *InfoSystems*, > The flexible cables 4 and 5 of the cable set are respectively connected to plug-in blocks 19.1 and 19.2 of the fluorescent lamp mounting 19 in sockets receiving the contact pins and are connected – whilst electrically bridging the ballasts of the replaced fluouescent lamp – with their free ends to the poles of the vehicle battery. (*InfoSystems* at 11.)

		Thus, a person of skill in the art would find claim 15 of the *Breihof* '835 patent obvious, as a whole, over the *Socarras References* in view of *InfoSystems*.
16	The method of claim 13, further comprising:	

	providing a low-voltage power source for energizing the electric lamp units; and	This limitation is met by the *Socarras References*. For example, the *Socarras Patent* describes a low-voltage power supply for energizing the LEDs of the disclose LED lighting system stating > because LEDs operate under different conditions than a fluorescent bulb (typically, LEDs run on direct current (DC)), ballast power generally will not be needed. Accordingly, some embodiments of the present invention may also comprise a power source such as a power supply which is used as a transformer/rectifier in order to properly power the LED lighting system of the present invention. In some embodiments, it is intended that the power supply replace the ballast systems in traditional fluorescent lighting systems. (*Socarras Patent* at col. 7, ll. 17-25.) The same disclosure is made in the *Socarras Provisional* at Paragraph 27. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Col. 7, ll. 14-44:** As is well known in the art, standard fluorescent lighting systems are typically powered by a ballast system in order to regulate the flow of electrical power to the fluorescent bulbs. However, because LEDs operate under different conditions than a fluorescent bulb (typically, LEDs run on direct current (DC)), ballast power generally will not be needed. Accordingly, some embodiments of the present invention may also comprise a power source such as a power supply which is used as a transformer/rectifier in order to properly power the LED lighting system of the present invention. In some embodiments, it is intended that the power supply replace the ballast systems in traditional fluorescent lighting systems. In other embodiments, the light sockets themselves may be "hardwired" to a power grid (i.e. a building's electrical

		infrastructure) such that it will provide optimum voltage to the LED lighting system of the present invention. Accordingly, the positive and negative terminals of the power supply are connected to the respective positive and negative terminals of the powered socket system. Power is supplied to the terminals, through to the end caps, and in turn, to the appropriate terminals on the LED strip. In some embodiments, power supply may be capable of accepting and converting 120V AC power (the "input voltage") to the appropriate DC power. In other embodiments, the acceptable input voltage may range from 50V AC up to 270V AC, depending on the particular application. In yet other embodiments, a 24 Volt power supply may be used wherein the power supply includes a transformer/rectifier in order to properly power the LED strip. In some embodiments, the 24 Volt power supply is intended to replace high-out ballast that are typically used for high-output sign lamps. **For the *Socarras Provisional*:** **¶ 27:** As is well known in the art, standard fluorescent lighting systems are typically powered by a ballast system in order to regulate the flow of electrical power to the fluorescent bulbs. However, because LEDs operate under different conditions than a fluorescent bulb (typically, LEDs run on direct current (DC)), ballast power generally will not be needed. Accordingly, some embodiments of the present invention may also comprise a power source such as a power supply which is used as a transformer/rectifier in order to properly power the LED light bulb of the present invention. In some embodiments, it is intended that the power supply replace the ballast systems in traditional fluorescent lighting systems. In other embodiments, the light fixtures themselves may be "hardwired" to a power grid (i.e. a building's electrical infrastructure) such that it will provide optimum voltage to the LED light bulb of the present invention. Accordingly, the positive and negative terminals of the power supply are connected to the respective positive and negative terminals of the powered fixture system. Power is supplied to the terminals, through to the end caps, and in turn, to the appropriate terminals on the LED strip 5. In some embodiments, power supply may be capable of accepting and converting 120V AC power (the "input voltage") to the

		appropriate DC power. In other embodiments, the acceptable input voltage may range from 50V AC up to 270V AC, depending on the particular application.

	electrically coupling the electric lamp units to the low-voltage power source.	This limitation is met by the *Socarras References*. For example, the *Socarras Patent* describes a low-voltage power supply for energizing the LEDs of the disclose LED lighting system stating > because LEDs operate under different conditions than a fluorescent bulb (typically, LEDs run on direct current (DC)), ballast power generally will not be needed. Accordingly, some embodiments of the present invention may also comprise a power source such as a power supply which is used as a transformer/rectifier in order to properly power the LED lighting system of the present invention. In some embodiments, it is intended that the power supply replace the ballast systems in traditional fluorescent lighting systems. (*Socarras Patent* at col. 7, ll. 17-25.) The *Socarras Patent* continues "a 24 Volt power supply may be used wherein the power supply includes a transformer/rectifier in order to properly power the LED strip." (*Socarras Patent* at col. 7, ll. 39-41.) The same disclosure of the *Socarras Patent* at column 7, lines 17-25 is made in the *Socarras Provisional* at Paragraph 27. The *Socarras Provisional* provides that "[p]ower is supplied to the terminals, through to the end caps, and in turn, to the appropriate terminals on the LED strip 5." (*Socarras Provisional* at ¶ 27.) To the extent that the power supply is to be routed other than through the end caps, this limitation is met as explained above in claim 13. In the alternative, dependent claim 16 is invalid as being obvious under 35 U.S.C. § 103 over the *Socarras References* in view of U.S. Pat. No. 4,748,545 to Schmitt which issued May 31, 1988 and was filed Feb. 20, 1986 ("*Schmitt*"). *Schmitt* discloses various low voltage illumination systems for use in display cases and in some embodiments replace fluorescent bulbs, some of which system are said to be "particularly

		advantageous in that it provides a direct replacement for existing fluorescent tubes within existing fluorescent fixtures…." (*Schmitt*, Col. 8, ll.10-13.) The systems disclosed in *Schmitt* include a plurality of low voltage lamps along a reflector system or in a housing for retro-fit. As *Schmitt* states, "[t]he housing 202 in combination with the end caps and axially extending conductors, is selected to be of the same length and diameter as a fluorescent tube of a given wattage. Thus, the modular illumination system 200 is intended as a direct replacement for a correspondingly, physically-sized, fluorescent tube, such as where its use as a retrofit system is desired." (*Schmitt*, Col. 8, ll. 54-60.) In one disclosed system in *Schmitt* details as to provision of low voltage power is provided. Electrical energy can be supplied to the illumination system 60 via a low-voltage wiring system 110. The wiring system 110 can be coupled to a transformer, corresponding to the transformer 54, which can be located in the ballast compartment of the cabinet C4. (*Schmitt*, Col. 6, ll. 29-33.) *Schmitt* goes on to disclose how the low voltage is conveyed, "Low-voltage electrical energy can be supplied to the light sources 152 via the axially extending conducting members 130,132 in combination with conductive members 158, for example, low voltage wires, within the housing 122." (*Schmitt*, Col. 7, ll. 48-51.) Thus, Schmitt discloses "providing a low-voltage power source for energizing the electric lamp units and electrically coupling the electric lamp units to the low voltage power source" as recited in claim 16. Thus, a person of ordinary skill in the art, devising methods and systems to replace fluouescents with lower powered electric lamps and knowing the disclosures of the *Socarras Refrences* and *Schmitt*, would be motivated to combine the teachings of those references in connecting the low voltage lamp units to the low voltage power source thus rendering claim 16, as a whole, obvious.

		In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Col. 7, ll. 14-44:** As is well known in the art, standard fluorescent lighting systems are typically powered by a ballast system in order to regulate the flow of electrical power to the fluorescent bulbs. However, because LEDs operate under different conditions than a fluorescent bulb (typically, LEDs run on direct current (DC)), ballast power generally will not be needed. Accordingly, some embodiments of the present invention may also comprise a power source such as a power supply which is used as a transformer/rectifier in order to properly power the LED lighting system of the present invention. In some embodiments, it is intended that the power supply replace the ballast systems in traditional fluorescent lighting systems. In other embodiments, the light sockets themselves may be "hardwired" to a power grid (i.e. a building's electrical infrastructure) such that it will provide optimum voltage to the LED lighting system of the present invention. Accordingly, the positive and negative terminals of the power supply are connected to the respective positive and negative terminals of the powered socket system. Power is supplied to the terminals, through to the end caps, and in turn, to the appropriate terminals on the LED strip. In some embodiments, power supply may be capable of accepting and converting 120V AC power (the "input voltage") to the appropriate DC power. In other embodiments, the acceptable input voltage may range from 50V AC up to 270V AC, depending on the particular application. In yet other embodiments, a 24 Volt power supply may be used wherein the power supply includes a transformer/rectifier in order to properly power the LED strip. In some embodiments, the 24 Volt power supply is intended to replace high-out ballast that are typically used for high-output sign lamps. **For the *Socarras Provisional*:**

		¶ 27: As is well known in the art, standard fluorescent lighting systems are typically powered by a ballast system in order to regulate the flow of electrical power to the fluorescent bulbs. However, because LEDs operate under different conditions than a fluorescent bulb (typically, LEDs run on direct current (DC)), ballast power generally will not be needed. Accordingly, some embodiments of the present invention may also comprise a power source such as a power supply which is used as a transformer/rectifier in order to properly power the LED light bulb of the present invention. In some embodiments, it is intended that the power supply replace the ballast systems in traditional fluorescent lighting systems. In other embodiments, the light fixtures themselves may be "hardwired" to a power grid (i.e. a building's electrical infrastructure) such that it will provide optimum voltage to the LED light bulb of the present invention. Accordingly, the positive and negative terminals of the power supply are connected to the respective positive and negative terminals of the powered fixture system. Power is supplied to the terminals, through to the end caps, and in turn, to the appropriate terminals on the LED strip 5. In some embodiments, power supply may be capable of accepting and converting 120V AC power (the "input voltage") to the appropriate DC power. In other embodiments, the acceptable input voltage may range from 50V AC up to 270V AC, depending on the particular application.

EXHIBIT AA

RetroLED Components LLC v. Principal Lighting Group, LLC

Socarras References
35 U.S.C. §103

17	The method of claim 16, wherein said positioning one or more electric lamp units along the elongate support member further comprises routing low-voltage electrical wiring associated with the electric lamp units along at least a portion of the elongate support member and electrically connecting the electrical wiring to the low voltage power source.	This limitation is met by the *Socarras References*. For example, the *Socarras Patent* describes how the LED strip is mounted to the divider, *i.e.*, elongate support member, stating > Mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, strip **5** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. (*Socarras Patent* at col. 3, ll. 14-22.) A nearly identical disclosure is found in the *Socarras Provisional* where it states > mounted to divider 3 is an LED light strip 5 that contains a plurality of high output LEDs 7. In some embodiments, strip 5 comprises a ribbon 9 which may be a semi-flexible material. Mounted to ribbon 9 is a plurality of LEDs 7 and resistors 11. Additionally, in some embodiments, ribbon **9** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. (*Socarras Provisional* at ¶ 19.) In the alternative, this limitation is rendered obvious by the *Socarras References* in light of U.S. Pat. No. 4,748,545 to Schmitt which issued May 31, 1988 and was filed Feb. 20, 1986 ("*Schmitt*") and/or U.S. Pat. No. 4,376,966 to Tieszen issued March 15, 1983 from an application filed April 7, 1980 ("*Tieszen*").

		A. *Schmitt* discloses various low voltage illumination systems for use in display cases and in some embodiments replace fluorescent bulbs, some of which system are said to be "particularly advantageous in that it provides a direct replacement for existing fluorescent tubes within existing fluorescent fixtures…." (*Schmitt*, Col. 8, ll.10-13.) The systems disclosed in *Schmitt* include a plurality of low voltage lamps along a reflector system or in a housing for retro-fit. As *Schmitt* states, "The housing 202 in combination with the end caps and axially extending conductors, is selected to be of the same length and diameter as a fluorescent tube of a given wattage. Thus, the modular illumination system 200 is intended as a direct replacement for a correspondingly, physically-sized, fluorescent tube, such as where its use as a retrofit system is desired." (*Schmitt*, Col. 8, ll. 54-60.) In one disclosed system in *Schmitt* details as to provision of low voltage power is provided. "Electrical energy can be supplied to the illumination system 60 via a low-voltage wiring system 110. The wiring system 110 can be coupled to a transformer, corresponding to the transformer 54, which can be located in the ballast compartment of the cabinet C4." (*Schmitt*, Col. 6, ll. 29-33.) *Schmitt* goes on to disclose how the low voltage is conveyed, "Low-voltage electrical energy can be supplied to the light sources 152 via the axially extending conducting members 130,132 in combination with conductive members 158, for example, low voltage wires, within the housing 122." (*Schmitt*, Col. 7, ll. 48-51.) The limitations added to claim 16 by claim 17 as to routing low voltage electric wiring associated with the electric lamp units along at least a portion of the elongate support member and electrically connecting the electric wiring to the low voltage power source is disclosed by *Schmitt* and *Tieszen*, which is entitled, "Strip Lights and Method of Making the Same," and discloses in detail various aspects of routing low voltage wiring in a strip light in which the low voltage lamps are supported by an elongate tubular member or channel. For example, as to the detail of wiring, *Tieszen* states,

		For a purpose to be presently explained, the tubular member is preferably not circular in transverse cross section, but rather of a "D" or symmetrical trapezoid configuration as may be seen on inspection of FIG. 5. The external dimensions of the tubular member 16 can, by way of example only, be such that the spacing of its parallel sides is 0.277 inch with such sides having widths of 0.165 inch and 0.389 inch. The wall thickness is about 0.040 inch. Such size is well suited for use with size T-1 lamps hereinafter mentioned. The lamp assembly 12 includes a lamp and electric harness designated generally at 18 that is constituted of a plurality of electric lamps 20 that are connected in electrical parallel between a pair of electric conductors 22 and 24 which can be of copper and size No. 28. The lamps 20 are conventional incandescent lamps in that they include a glass envelope surrounding a filament (not shown) that is energized by a pair of flexible electric leads 26 and 28 extending from the envelope. The lamps 20 are preferably at least as small as lamps known in the art and obtainable from many hobby shops as "wheat" lamps. Still smaller lamps are especially preferred such as size T-1 that draw 30 ma from a 12 volt power source. Such lamps consume only about 0.36 watt and result in only a slight temperature rise in their surroundings. The small amount of heat generated appears to be readily conducted away by the leads and otherwise dissipated even when very little, if any, free ambient air movement can occur. Indeed, it appears that very little temperature rise can be caused by the small lamps even when affirmative steps are taken to minimize the dissipation of heat. In the assembly 18 as shown in FIG. 8, it will be seen that the flexible conductors 22 and 24 are in closely spaced and in substantial parallelism, with the leads 26 and 28 of the lamps being mechanically and electrically connected respectively to the conductors 24 and 22. Each of such connections preferably involving a lead being

		twisted about and soldered to its respective conductor, such as, for example, the connection of the lead 26 to the conductor 24 indicated at 30, and the connection of the lamp lead 28 to the conductor 22 indicated at 32. Alternatively, the connections 30 and 32 can simply be spot welded connections. It will be noted that the leads 26 and 28 of each lamp 20 extend in opposite directions from each other and in approximate parallelism with the conductors 22 and 24. All the leads 26 extend in the same direction, with the length of the connected leads 26 and 28 and the spacing of the lamps 20 being such that the connections 30 and 32 occur alternately and in spaced relation to each other. In other words, the overall longitudinal extent of the leads of each lamp is longitudinally spaced from the leads of adjacent lamps. In particular, no lead 26 contacts any other lead 28. (*Tieszen* at col. 4, ll. 1-55.) Thus, a person of ordinary skill in the art would find claim 17 of the *Breihof* '835 patent obvious, as a whole, over the *Socarras References* in view of *Schmitt* and/or *Tieszen*.
18	The method of claim 13, further comprising replacing the gas-discharge lamp couplings with purely mechanical replacement couplings prior to said positioning the end caps, elongate support member, and electric lamp units.	

EXHIBIT AA

RetroLED Components LLC v. Principal Lighting Group, LLC

Socarras References
35 U.S.C. §103

19	A retrofit kit for an internally-lit sign, the sign having a framework and at least one display sheet that is at least partially translucent, said kit comprising:	RetroLED contends that the preamble is not limiting. To the extent that the Court finds that the preamble is limiting, it is disclosed in the *Socarras Patent* at column 1, lines 10-12: "High-output fluorescent lighting systems, commonly used in sign applications, are known to have extremely high power requirements and heat output." It is further disclosed in the *Socarras Provisional* at Paragraph 4, which provides "[i]t is a further object of the present invention to provide a lighting system for industrial and commercial application with drastically improved efficiency." A person of ordinary skill in the art would understand commercial applications to include "interior lighting of a sign." It is inherent that a sign would have a framework and at least one display sheet. In the alternative and if the preamble is limiting, the preamble of claim 19 of the *Breihof* '835 Patent is obvious under 35 U.S.C. § 103 over the *Socarras References* in view of German Patent DE 299 00 320 U 1 filed on April 1, 1999, published in the Patent Gazette on May 12, 1999 and issued to InfoSystems GmbH Visuelle und akustische ("*InfoSystems*"). *InfoSystems* provides disclosure of a "replacement kit [comprising] an LED lamp designed as a plug-in device and for replacing existing fluorescent lamps." (*InfoSystems* at 3.) A person of ordinary skill in the art would find the preamble of claim 19 of the *Breihof* '835 patent obvious over the *Socarras References* in view of *InfoSystems*.

	an elongate support member for supporting a plurality of electric lamp units, said elongate support member having opposite end portions;	RetroLED contends that the term "elongate support member" in the '835 Patent is governed by pre-AIA §112, ¶ 6 as a means-plus-function term. If, however, the Court determines that the term "elongate support member" is not governed by § 112, ¶ 6, the *Socarras References* nonetheless meet this limitation. The *Socarras Patent* discloses an elongate support member at the following locations is described as a "divider" with "the one or more LED strips is disposed on the divider." (the *Socarras Patent* at Abs.) Thus, the elongate support member is to support a plurality of electrical lamps. Similarly, the *Socarras Provisional* discloses an "LED Divider" on which is "mounted . . . an LED light strip **5** that contains a plurality of high output LEDs." (the *Socarras Provisional* at ¶¶ 17 & 19.) Further, the *Socarras Patent* discloses an "I-beam" shaped cross-section that "delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof." (the *Socarras Patent* at col. 3, ll. 35-37.) Similarly, the *Socarras Provisional* discloses an "'I-beam' shaped cross-section [that] delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto." (the *Socarras Provisional* at ¶ 20.) These I-beam structures disclosed in the *Socarras References* correspond to the I-beam structure of Figures 5 & 6 of the Breihof '835 Patent. The *Socarras References* further disclose the modified I-beam structures of Figures 7 & 8 of the Breihof '835 Patent. For example, in the *Socarras Patent* there is disclosure of an I-beam structure with a divider that is "notched or lipped such that the sides of channels **13** and **13′** are capable of receiving the edges of strip **5**, thus securing the ribbon in the channel." (the *Socarras Patent* at col. 3, ll. 40-44.) Similarly, the *Socarras Provisional* discloses a divider that "is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel." (the *Socarras Provisional* at ¶ 21.)

		The *Socarras References* also disclose an elongate support member having said opposite ends. For example, in Figure 2 of the *Socarras Patent* discloses two ends opposite each other on the "divider." Figure 2 of the *Socarras Provisional* discloses the same. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1, 2, 5 and 6. **Abs.:** An LED lighting system comprising a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 37-43:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. **Col. 1, ll. 53-60:** In some embodiments, the divider is comprised of aluminum and is substantially rectangular, defining a first side and a second side. Accordingly, one or more LED strips may be disposed on either side of the divider. In some embodiments, the divider has an I-beam shaped cross section, defining a channel along each side of the divider, wherein the LED strips may be disposed in the channels. Further, the divider may include one or more fins longitudinally disposed along a length thereof.

		Col. 1, ll. 62-67: Further still, the LED lighting system of the present invention comprises a housing, a divider having one or more light emitting diodes thereon, one or more end caps having at least one electrical terminal, wherein the divider is disposed in the housing; and wherein the electrical terminal of the end caps is in electrical contact with the light emitting diodes. **Col. 2, ll. 49-51:** In some embodiments, divider **3** may be rectangular; however other shapes and configurations may be equally suitable. **Col. 3, ll. 14-46:** Mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, strip **5** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, an LED light strip **5** is disposed on both planar sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. Further, in some embodiments, a plurality of LED light strips **5** may be mounted to either side of divider **3**. In yet other embodiments, LED strip **5** may be integrated into and coextensive with divider **3**, such that divider **3** defines the ribbon **9** or substrate to which LEDs **7** are mounted. As shown in FIG. 2, in some embodiments of the present invention, divider **3** may be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof. In some embodiments, strip **5** may be secured to channel **13** or **13′** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of

		channels **13** and **13′** are capable of receiving the edges of strip **5**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip **5** to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Col. 5, ll. 35-50:** Mounted optionally to either side of divider **53** are LED light strips **59** and **59′** that contain a plurality of high output LEDs. Further, in some embodiments, a plurality of light strips **59** and **59′** may be mounted to either or both sides of divider **53**. In some embodiments, strips **59** and **59′** comprise a ribbon which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. In some embodiments, mounted to the ribbon are a plurality of LEDs and resistors. Additionally, in some embodiments, strips **59** and **59′** may have integrated circuitry such that the LEDs and resistors can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In yet other embodiments, LED strips **59** and **59′** may be integrated into and coextensive with divider **53**, such that divider **53** defines the ribbon or substrate to which LEDs are mounted. **Col. 5, l. 51 – col. 6, l. 12:** FIG. 6 is a cross-sectional view of one embodiment of divider **53** (or divider **3**). In some embodiments, divider **53** may have an "I-beam" shaped cross-section wherein the thickness of divider **53** is slightly narrowed at the center of the cross-section. This "I-beam" shaped cross-section delimits channels **61** and **61′** along the length of both sides of divider **53**, wherein the channels are adapted to receive light strips **59** and **59′** thereon. Further, divider **53** may have a plurality of fins **62** running lengthwise along divider **53**, which provide for heat dissipation. In this sense, divider **53** functions as support for light strips **59** and **59′** as well as a heat sink for the invention as a whole. It should be understood that the configuration of divider **53** as shown in FIG. 6 is capable of being used in either of the embodiments of the present invention shown in FIG. 1 and FIG. 5. In some embodiments, strips **59** and **59′** may be secured to channels **61** and **61′** (and therefore divider **53**) by compression fit or by an adhesive material. If a compression fit is used, it may be

		preferable that the cross section of the divider at channels **61** and **61′** is notched or lipped such that the sides of the channels are capable of receiving the edges of strips **59** and **59′**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strips **59** and **59′** to be interchanged, replaced, and/or repaired as desired without damaging divider **53**. As stated, in some embodiments an adhesive may be used to affix strips **59** and **59′** to divider **53**. Such adhesives may include, but are not limited to, epoxy, super glue, and the like. **Claims:** 8 & 9. **For the *Socarras Provisional*:** **Figures:** 1, 2, 6 & 7 **¶ 17:** With reference to Figure 1 below, one embodiment of the light bulb of the present invention comprises a hollow, elongated housing **1** having a rectangular LED divider **3** disposed within housing **1.** ¶ **18:** In one embodiment, the elongated housing may be cylindrical (i.e. tubular) in shape and the divider may be a substantially planar rectangular; however other shapes and sizes may be equally suitable depending on the desired installation. Additionally, it may be preferred that the height of divider **3** be substantially equal to the diameter of housing **1** to assure that divider **3** remains in place during installation and use. Depending on the desired application, the present invention may any in length from 18" up to 120". **¶ 19:** As shown, mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, ribbon **9** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In

		some embodiments, LED light strip **5** is disposed on both sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. **Figures 6 and 7** are depictions of two aspect views of one embodiment of the present invention. **¶ 20:** As shown in **figure 2,** in some embodiments of the present invention, divider **3** maybe be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto. **¶ 21:** In some embodiments, strip **5** may be secured to channel **13** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip 5 to be interchanged, replaced, and/or repaired as desired without damaging divider **3**. **Claim 5.**

	a plurality of low-voltage lamp units for positioning along the elongate support member;	The *Socarras References* describe a plurality of low-voltage lamp units, *i.e.*, LEDs, for position along the elongate support member. The following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1, 2, 5 and 6. **Col. 3, ll. 14-30:** Mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, strip **5** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, an LED light strip **5** is disposed on both planar sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. Further, in some embodiments, a plurality of LED light strips **5** may be mounted to either side of divider **3**. In yet other embodiments, LED strip **5** may be integrated into and coextensive with divider **3**, such that divider **3** defines the ribbon **9** or substrate to which LEDs **7** are mounted. **Col. 5, ll. 35-50:** Mounted optionally to either side of divider **53** are LED light strips **59** and **59′** that contain a plurality of high output LEDs. Further, in some embodiments, a plurality of light strips **59** and **59′** may be mounted to either or both sides of divider **53**. In some embodiments, strips **59** and **59′** comprise a ribbon which may be a semi-flexible material, such that the ribbon defines a substrate or backing for the LEDs. In some embodiments, mounted to the ribbon are a plurality of LEDs and resistors. Additionally, in some embodiments, strips **59** and **59′** may have integrated circuitry such that the LEDs and resistors can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In yet other

		embodiments, LED strips **59** and **59′** may be integrated into and coextensive with divider **53**, such that divider **53** defines the ribbon or substrate to which LEDs are mounted. **Col. 7, ll. 14-44:** As is well known in the art, standard fluorescent lighting systems are typically powered by a ballast system in order to regulate the flow of electrical power to the fluorescent bulbs. However, because LEDs operate under different conditions than a fluorescent bulb (typically, LEDs run on direct current (DC)), ballast power generally will not be needed. Accordingly, some embodiments of the present invention may also comprise a power source such as a power supply which is used as a transformer/rectifier in order to properly power the LED lighting system of the present invention. In some embodiments, it is intended that the power supply replace the ballast systems in traditional fluorescent lighting systems. In other embodiments, the light sockets themselves may be "hardwired" to a power grid (i.e. a building's electrical infrastructure) such that it will provide optimum voltage to the LED lighting system of the present invention. Accordingly, the positive and negative terminals of the power supply are connected to the respective positive and negative terminals of the powered socket system. Power is supplied to the terminals, through to the end caps, and in turn, to the appropriate terminals on the LED strip. In some embodiments, power supply may be capable of accepting and converting 120V AC power (the "input voltage") to the appropriate DC power. In other embodiments, the acceptable input voltage may range from 50V AC up to 270V AC, depending on the particular application. In yet other embodiments, a 24 Volt power supply may be used wherein the power supply includes a transformer/rectifier in order to properly power the LED strip. In some embodiments, the 24 Volt power supply is intended to replace high-out ballast that are typically used for high-output sign lamps. **For the *Socarras Provisional*:** **Figures:** 1, 2, 6 & 7

		¶ 19: As shown, mounted to divider **3** is an LED light strip **5** that contains a plurality of high output LEDs **7**. In some embodiments, strip **5** comprises a ribbon **9** which may be a semi-flexible material. Mounted to ribbon **9** is a plurality of LEDs **7** and resistors **11**. Additionally, in some embodiments, ribbon **9** may have integrated circuitry such that the LEDs **7** and resistors **11** can be wired together, either in series or parallel, depending on the desired configuration and power requirements. In some embodiments, LED light strip **5** is disposed on both sides of the divider, thus increasing the number and LEDs and, in turn, the resultant light emission. **Figures 6 and 7** are depictions of two aspect views of one embodiment of the present invention. **¶ 27:** As is well known in the art, standard fluorescent lighting systems are typically powered by a ballast system in order to regulate the flow of electrical power to the fluorescent bulbs. However, because LEDs operate under different conditions than a fluorescent bulb (typically, LEDs run on direct current (DC)), ballast power generally will not be needed. Accordingly, some embodiments of the present invention may also comprise a power source such as a power supply which is used as a transformer/rectifier in order to properly power the LED light bulb of the present invention. In some embodiments, it is intended that the power supply replace the ballast systems in traditional fluorescent lighting systems. In other embodiments, the light fixtures themselves may be "hardwired" to a power grid (i.e. a building's electrical infrastructure) such that it will provide optimum voltage to the LED light bulb of the present invention. Accordingly, the positive and negative terminals of the power supply are connected to the respective positive and negative terminals of the powered fixture system. Power is supplied to the terminals, through to the end caps, and in turn, to the appropriate terminals on the LED strip 5. In some embodiments, power supply may be capable of accepting and converting 120V AC power (the "input voltage") to the appropriate DC power. In other embodiments, the acceptable input voltage may range from 50V AC up to 270V AC, depending on the particular application.

	a pair of end caps configured to frictionally engage the opposite end portions of the elongate support member, each of the end caps having one and only one mechanical coupling element at an outwardly-facing side thereof, wherein the end caps are made of electrically insulative material and do not retain any electrical conductors along or through said mechanical coupling element for powering said plurality of electric lamp units; and	This limitation is met in light of the *Socarras References* as described below. This limitation consists of the following 4 portions, each of which are described or rendered obvious as described below: 1. A pair of end caps to frictionally engage the opposite end portions of the elongate support member; 2. each of the end caps having one and only one mechanical coupling element at an outwardly-facing side thereof, 3. wherein the end caps are made of electrically insulative material; 4. and do not retain any electrical conductors along or through said mechanical coupling element for powering said plurality of electric lamp units. The *Socarras References* describe a LED lighting system that meets the first portion of this limitation, "[a] pair of end caps to frictionally engage the opposite end portions of the elongate support member." For example, the *Socarras Patent* describes graphically in Figures 1 & 5 a LED lighting system that would meet this limitation. Similarly, the *Socarras Provisional* describes graphically in Figures 1 & 6 a LED lighting system that would meet this portion of the limitation. As noted above, RetroLED contends that the term "elongate support member" in the '835 Patent is governed by pre-AIA §112, ¶ 6 as a means-plus-function term. If, however, the Court determines that the term "elongate support member" is not governed by § 112, ¶ 6, the *Socarras References* nonetheless meet this limitation. The *Socarras Patent* discloses an elongate support member at the following locations is described as a "divider" with "the one or more LED strips is disposed on the divider." (the *Socarras Patent* at Abs.) Thus, the elongate support member is to support a plurality of electrical lamps. Similarly,

		the *Socarras Provisional* discloses an "LED Divider" on which is "mounted . . . an LED light strip **5** that contains a plurality of high output LEDs." (the *Socarras Provisional* at ¶¶ 17 & 19.) Further, the *Socarras Patent* discloses an "I-beam" shaped cross-section that "delimits channels **13** and **13′** along the length of divider **3** such that it is adapted to receive light strips **5** on either side thereof." (the *Socarras Patent* at col. 3, ll. 35-37.) Similarly, the *Socarras Provisional* discloses an "'I-beam' shaped cross-section [that] delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto." (the *Socarras Provisional* at ¶ 20.) These I-beam structures disclosed in the *Socarras References* correspond to the I-beam structure of Figures 5 & 6 of the Breihof '835 Patent. The *Socarras References* further disclose the modified I-beam structures of Figures 7 & 8 of the Breihof '835 Patent. For example, in the *Socarras Patent* there is disclosure of an I-beam structure with a divider that is "notched or lipped such that the sides of channels **13** and **13′** are capable of receiving the edges of strip **5**, thus securing the ribbon in the channel." (the *Socarras Patent* at col. 3, ll. 40-44.) Similarly, the *Socarras Provisional* discloses a divider that "is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel." (the *Socarras Provisional* at ¶ 21.) The *Socarras References* also disclose an elongate support member having said opposite ends. For example, in Figure 2 of the *Socarras Patent* discloses two ends opposite each other on the "divider." Figure 2 of the *Socarras Provisional* discloses the same. Thus, the first portion of this limitation is met by the *Socarras References*. With respect to the second portion of this limitation, "each of the end caps having one and only one mechanical coupling element at an outwardly-facing side thereof," the *Socarras References* meet this portion of the limitation.

		RetroLED contends that the term "mechanical coupling element" in the Breihof '835 Patent is governed by pre-AIA §112, ¶ 6 as a means-plus-function term. If, however, the Court determines that the term "mechanical coupling element" is not governed by § 112, ¶ 6, the *Socarras References* nonetheless meet this limitation. For example, the *Socarras Patent* describes a device in which two end caps "are adapted to couple to existing standard fluorescent light sockets for adaptability and compatibility with common lighting systems." (the *Socarras Patent* at col. 4, ll. 4-6.) The *Socarras Provisional* similarly describes two end caps that "are adapted to couple to existing fluorescent light sockets (as shown) for adaptability and compatibility with common lighting systems." (the *Socarras Provisional* at ¶ 23.) These descriptions meet the requirements of the first portion of this limitation. Specifically, these two descriptions meet the following portion of the limitation: a mechanical coupling element at each of said outwardly-facing sides of said end caps, said mechanical coupling element configured to engage a single electro-mechanical mount for a gas-discharge lamp. As a further example, in the *Socarras Patent*, a base plate or flange is graphically described in Figures 3a and 3b as indicated by the numeral 19. The male prong or projection extending outwardly from the base plate are described graphically in Figures 3a and 3b as indicated by the numeral 21. The male prong or projection in the *Socarras Patent* also has "a pair of opposite side walls spaced from each other and joined at their ends by rounded end walls to define an interior cavity" as described in Figure 3c, generally, and indicated by numerals 27a and 27b and the surrounding elements, specifically. The opposite side walls further "include a pair of recessed shoulders inside the cavity that project outwardly from base plate but not as far as do side walls" as described in Figure 3d of the *Socarras Patent*. Finally, the recessed shoulders "form the outward extent of rounded end walls so that a gap is formed between end portions of the opposite side walls" as described in Figures 3c and 3d and defined between numerals 27a and 27b as well as 25a

		and 25b in the respective figures. Figures 3a, 3b, 3c and 3d of the *Socarras Provisional* are identical to the commonly numbered Figures in the *Socarras Patent* and meet this limitation for identical reasons. Additionally, the *Socarras Provisional* contains Figure 4, which provides an exemplar of the mechanical coupling element claimed by the Breihof '835 Patent. With respect to the third portion of this limitation relating to the end caps being "made of electrically insulative material," this portion of the limitation is met given the *Socarras References* in light of U.S. Pat. App. Pub. No. 2004/0062041 filed September 25, 2003 and published April 1, 2004 to Cross et al. ("*Cross*"). As noted above, Cross recites that an end cap "is preferably fabricated from non-conductive materials…." (*Cross* at ¶ 24.) Consequently, the remainder of this limitation is available in the prior art of which the person of ordinary skill is deemed to have knowledge and, therefore, such a person in working to devise systems to replace fluorescent bulbs with lower power lighting assemblies would be motivate to combine the teachings of the *Socarras References* and *Cross* thus rendering the purported invention of this portion of this limitation of claim 19 obvious in light of those references. With respect to the fourth portion of this limitation, that the end caps "do not retain any electrical conductors along or through said mechanical coupling element for powering said plurality of electric lamp units," this portion of the limitation is met by the *Socarras References* in combination with United States Patent Publication No. 2009/0027916 ("*Huang*"), United States Patent No. 8,419,223 ("*Withers*"), or Japanese Patent Publication No. 2010-123097 ("*Royal Lighting*"). As noted in the narrative to which this claim chart is an exhibit, *Huang*, *Withers* and *Royal Lighting* disclose lighting systems in which power for the disclosed lighting systems is provided in ways other than through the end caps and therefore, meet this limitation of claim 1 of the *Breihof* '835

		Patent, requiring that the mechanical coupling element "does not retain any electric conductors along or through said mechanical coupling element for powering the plurality of electric lamp units." For example, the system in *Huang* is powered by an electrical cord separate and apart from the mounting pins and end caps as disclosed in Figures 2, 3, 6, and 7 and as described in paragraphs 8 and 19 of *Huang*. Similarly, Figures 1 and 2 of *Royal Lighting* show an electrical supply cord separate and apart from the mechanical coupling element while Figure 3 of *Royal Lighting* shows an electrical supply cord that is separate and apart from the mechanical coupling element of the lighting assembly and which is terminated with a plug for the power supply to supply power separate from the fluorescent mount by which the lighting assembly is supported. Finally, Figures 2, 3, and 4 of *Withers* show power application to the LED light tube through a path other than the "mechanical coupling elements" of the end caps and Fig. 5 of *Withers* explicitly shows a power strategy in which the power application and path is distant from the end caps themselves. For example, the Abstract of *Withers* states, > Presented is an LED light tube in the general configuration of a prior art fluorescent tube. The LED light tube includes end caps with electrodes at each end, with the electrodes providing physical mounting structure to mount the LED light tube in an existing LED light fixture. The end caps of the LED light tube are not electrically active, but merely provide physical mounting structure to mount the LED light bulb in an existing fluorescent light fixture. This allows existing LED light fixtures to be utilized without replacement, by merely replacing the tubes and ballast with LED based equipment. (*Withers* at Abs.)

		The *Socarras References* include description of how to power the LED strips using a variety of options, including using the existing fluorescent lighting ballast, hardwired direct current or 120V alternating current with a rectifier to provide the direct current to the LED strips. (*See, e.g.*, the *Socarras Patent* at col. 7, ll. 14-44; *see also, e.g.*, the *Socarras Provisional* at ¶ 27.) Consequently, a person of ordinary skill in the art considering the problems of replacing fluorescent lighting with a more energy efficient and safer approach would be motivated to combine the teachings of the *Socarras References* with those of *Huang* and/or *Withers* and/or *Royal Lighting* thus making this portion of this limitation of claim 19 obvious under 35 U.S.C. § 103. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1, 3a, 3b, 3c, 3d and 5. **Col. 3, l. 57 – col. 4, l. 59:** Disposed at a first end of the housing 1 is a first end cap 15 that includes a positive electrical terminal (i.e. "+" lamp base); accordingly, disposed at the other end of the housing 1 is a second end cap 15 that includes a negative electrical terminal (i.e. "–" lamp base). The positive terminal end cap is connected to the positive terminal of the LED strip 5 and the negative terminal end cap is connected to the negative terminal of the LED strip 5. In an alternative embodiment, a single end cap may include both the positive and negative terminals and the opposing end cap is simply a "dummy" which is not in electrical contact with the LED strip 5. Accordingly, the positive and negative terminals of LED strip 5 are in electrical contact with the respective positive and negative terminals of the aforedescribed dual-terminal end cap. In some embodiments, the two end caps are adapted to couple to existing standard fluorescent light sockets for adaptability and compatibility with common lighting systems. The size and shape of

		the end caps shown in the figures should not be construed as limiting as the geometry of the end caps can be modified as desired to ensure compatibility with a wide variety of light sockets known in the art, including but limited to, high-output sockets used in signs and outline lighting systems. Accordingly, the term "socket" as used in this disclosure, should also not be construed as limiting, as the lighting system of the present invention can be configured to integrate with a variety of known socket configurations. Some embodiments of the present invention incorporate a specialized high-output end cap 15 as shown in FIGS. 3 *a*-3 *e* which is designed to fit new or existing high-output light sockets. In some embodiments, end cap 15 has three primary sections, a first cylindrical section 17, a second cylindrical section 19coaxial to first section 17, and protrusion 21. In some embodiments, the first cylindrical section 17 has a larger diameter than the second cylindrical section 19 and protrusion 21 is dimensioned slightly smaller than the diameter of the second cylindrical section. Protrusion 21 has an open end 23 that is delimited by a curved cross section (where 23 points). In some embodiments, end cap 15is a single "uni-body" structure made by known methods in the art such as extrusion or injection molding. However, in alternate embodiments, protrusion 21 may be removable. Accordingly, in one such embodiment, protrusion 21 may be mounted to or integrated with a disc-shaped base having, in some embodiments, substantially the same diameter as the second cylindrical section 19, such that the base functions as a "cap" for the remaining portion of end cap 15. As stated, end cap 15 is designed to function as a power terminal for some embodiments the present invention. Accordingly, FIG. 3 *d* is a cutaway view of the arrangement of and cap 15. Disposed within protrusion 21 are two pins 25 *a* and 25 *b* which are to be connected to the light socket of the given socket (not shown). In some embodiments, the pins are hollow cylinders capable of retaining the corresponding pins on the socket; in other embodiments, the pins may be solid cylinders that are capable of being connected to hollow receiving pins on the socket. As shown in FIGS. 3 *c* and 3 *d*, the two pins 25 *a* and 25 *b* are spaced equidistantly across the

		elongated portion of protrusion 21. In some embodiments, pins 25 *a* and 25 *b* are recessed with respect the top-most boundary of protrusion 21 such that the pins are not susceptible to damage or breakage during handling or storage of the present invention. Also shown in FIG. 3 *c* are contacts 27 *a* and 27 *b* which, in some embodiments, are located to the inside of pins 25 *a* and 25 *b*, respectively. Contacts 27 *a* and 27 *b* may comprise metal "tangs" which are curved over and retained by supporting structure of end cap 15, respectively. It is understood that, for the purposes of this disclosure, the pin/contact arrangement results in an electrical terminal that is capable of receiving electrical power from a power source, as described below. **Col. 7, ll. 14-44:** As is well known in the art, standard fluorescent lighting systems are typically powered by a ballast system in order to regulate the flow of electrical power to the fluorescent bulbs. However, because LEDs operate under different conditions than a fluorescent bulb (typically, LEDs run on direct current (DC)), ballast power generally will not be needed. Accordingly, some embodiments of the present invention may also comprise a power source such as a power supply which is used as a transformer/rectifier in order to properly power the LED lighting system of the present invention. In some embodiments, it is intended that the power supply replace the ballast systems in traditional fluorescent lighting systems. In other embodiments, the light sockets themselves may be "hardwired" to a power grid (i.e. a building's electrical infrastructure) such that it will provide optimum voltage to the LED lighting system of the present invention. Accordingly, the positive and negative terminals of the power supply are connected to the respective positive and negative terminals of the powered socket system. Power is supplied to the terminals, through to the end caps, and in turn, to the appropriate terminals on the LED strip. In some embodiments, power supply may be capable of accepting and converting 120V AC power (the "input voltage") to the appropriate DC power. In other embodiments, the acceptable input voltage may range from 50V AC up to 270V AC, depending on the particular application. In yet other embodiments, a 24 Volt power supply may be used wherein the power supply includes a transformer/rectifier in order to properly power the LED strip. In some embodiments, the 24 Volt

		power supply is intended to replace high-out ballast that are typically used for high-output sign lamps. **For the *Socarras Provisional*:** **Figures:** 1, 2, 3a, 3b, 3c, 3d, 4, 6 & 7. **¶ 17:** With reference to Figure 1 below, one embodiment of the light bulb of the present invention comprises a hollow, elongated housing **1** having a rectangular LED divider **3** disposed within housing **1.¶ 18:** In one embodiment, the elongated housing may be cylindrical (i.e. tubular) in shape and the divider may be a substantially planar rectangular; however other shapes and sizes may be equally suitable depending on the desired installation. Additionally, it may be preferred that the height of divider **3** be substantially equal to the diameter of housing **1** to assure that divider **3** remains in place during installation and use. Depending on the desired application, the present invention may any in length from 18" up to 120". **¶ 20:** As shown in **figure 2,** in some embodiments of the present invention, divider **3** maybe be made of translucent acrylic and may have an "I-beam" shaped cross-section wherein the thickness of divider **3** is slightly narrowed at the center of the cross-section. The "I-beam" shaped cross-section delimits a channel **13** along the length of divider **3** such that it is adapted to receive light strip **5** thereto. **¶ 21:** In some embodiments, strip **5** may be secured to channel **13** (and therefore divider **3**) by compression fit or by an adhesive material. If a compression fit is used, it may be preferable that the cross section of the divider at channel **13** is notched or lipped such that the sides of channel **13** are capable of receiving the edges of ribbon **9**, thus securing the ribbon in the channel. The use of this type of a lipped channel allows for strip 5 to be interchanged, replaced, and/or repaired as desired without damaging divider **3**.

		¶ 23: Disposed at a first end of the elongated housing is a first end cap 15 that functions as a positive terminal (i.e. "'+" lamp base); accordingly, disposed at the other end of the elongated housing is a second end cap 15 that functions as a negative terminal (i.e. "-" lamp base). The positive terminal end cap is connected to the positive terminal of the LED strip and the negative terminal end cap is connected to the negative terminal of the LED strip. In one embodiment, the two end caps are adapted to couple to existing fluorescent light sockets (as shown) for adaptability and compatibility with common lighting systems. The size and shape of the end caps shown in the figures should not be construed as limited, In some embodiments, the end caps may be glued or epoxyed to the ends of housing 1. **¶ 24:** In addition, one embodiment of the present invention utilizes a specialized high-output ("HO") end cap 15 as shown in figures 3a-3e which is designed to fit new or existing HO fixtures. End cap 15 has three primary sections, a first cylindrical section 17, a second cylindrical section 19 coaxial to first section 17, and protrusion 21. In some embodiments, the first cylindrical section 17 has a larger diameter than the second cylindrical section 19 and protrusion 21 is dimensioned slightly smaller than the diameter of the second cylindrical section. Protrusion 21 has an open end 23 that is delimited by a curved cross section (where 23 points). In some embodiments, end cap 15 is a single "uni-body" structure made by known methods in the art such as extrusion or injection molding. However, in alternate embodiments, protrusion 21 may be removable. Accordingly, in one such embodiment, protrusion 21 may be mounted to or integrated with a disc-shaped base (not shown) having substantially the same diameter as the second cylindrical section 19 such that the base functions as a "cap" for the remaining portion of end cap 15. **¶ 25:** As stated, end cap 15 is designed to function has a power terminal for some embodiments the present invention. Accordingly, with reference to figure 3d, shown is a cutaway view of the socket arrangement of end cap 15. Disposed within protrusion 21 are two pins 25a and 25b which are to be connected to the light socket of the given fixture (not shown). In some embodiments, the pins are hollow cylinders capable of retaining the corresponding pins on the fixture; in other

		embodiments, the pins may be solid cylinders that are capable of being connected to hollow receiving pins on the fixture. As shown, the two pins 25a and 25b are spaced equidistantly across the elongated portion of protrusion 21. In some embodiments, pins 25a and 25b are recessed with respect the top-most boundary of protrusion 21 such that the pins are not susceptible to damage or breakage during handling or storage of the present invention. Also shown are contacts 27a and 27b which, in some embodiments, are located to the inside of pins 25a and 25b, respectively. As show in figure 4, contacts 27a and 27b may comprise metal "tangs" which are curved and retained by supports 29a and 29b, respectively. It is understood that, for the purposes of this disclosure, the pin/contact arrangement results in an electrical terminal that is capable of receiving electrical power from a power source, as described below.

	wherein respective mechanical coupling elements of the pair of end caps are configured to non-electrically engage respective individual standard mounts located directly opposite one another at the framework that are for supporting a single gas-discharge lamp at the framework.	The majority of this limitation is met by the elements listed in the previous limitation. For example, the end caps are configured to non-electrically engage the standard mounts is met by the elements described in the previous limitation. To the extent that this limitation adds that this engagement with the standard mounts "located directly opposite one another at the framework that are for supporting a single gas-discharge lamp at the framework," the *Socarras References* disclose a LED lighting system that meets this limitation. For example, the *Socarras Patent* describes graphically in Figures 1 & 5 a LED lighting system that would meet this limitation. Similarly, the *Socarras Provisional* describes graphically in Figures 1 & 6 a LED lighting system that would meet this limitation. In addition to the specific references cited in the narrative above, the following citations may be used to invalidate this claim : **For the *Socarras Patent*:** **Figures:** 1 and 5. **Col. 1, ll. 10-22:** High-output fluorescent lighting systems, commonly used in sign applications, are known to have extremely high power requirements and heat output. Such high-output systems are also not particularly reliable, nor are they environmentally friendly due to the gases that are used in fluorescent bulbs. However, light-emitting diodes (or "LEDs") generally have lower power requirements, increased lamp life, service life, and reliability and lower overall environmental impact. Accordingly, the present invention provides an LED lighting system that is a direct replacement for high-output fluorescent lighting systems known in the art while maintaining the same high-output light emission characteristics of such systems. **Col. 1, ll. 37-51:** In some embodiments, the LED lighting system of present invention comprises a housing, a divider, one or more LED strips including one or more light emitting diodes, and one

		or more end caps having at least one electrical terminal. The divider is disposed in the housing, the one or more LED strips is disposed on the divider; and the electrical terminal of the end caps is in electrical contact with the LED strips. In some embodiments, the end caps are adapted to engage a light socket, wherein the electrical terminal of the end caps is disposed between and in electrical contact with the LED strips and the light socket, and the light socket is in electrical contact with an electrical power source. In some embodiments, the electrical terminal defines a spring engagement between the end caps and the light socket, permitting the lighting system to rotate with respect to the light socket **Col. 2, ll. 1-14:** Accordingly, it is an object of the present invention provide an LED lighting system with high output and relatively low power requirements and drastically reduced heat emission and noise. It is a further object of the present invention to provide an LED lamp that has 360-degree light emission in order to permit optimal light dispersal for a variety of applications. It is a further object of the present invention to provide a lighting system for industrial and commercial applications with drastically improved efficiency, service life, and reliability. It is yet a further object of the present invention to provide an LED lighting system that is a direct replacement for high-output fluorescent lighting systems known in the art, wherein the LED lighting system is compatible with the same high-output sockets used in these systems. **For the *Socarras Provisional*:** **Figures:** 1 & 6. **¶ 4:** It is a further object of the present invention to provide a lighting system for industrial and commercial applications with drastically improved efficiency

EXHIBIT AA

RetroLED Components LLC v. Principal Lighting Group, LLC

Socarras References
35 U.S.C. §103

20	The retrofit kit of claim 19, further comprising a pair of purely mechanical mounts for replacing the standard mounts in the sign.	