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PRO-LITE, INC. AWARDED U.S. PATENT FOR METHOD AND APPARATUS FOR SIMULATING THE APPEARANCE OF NEON SIGN

Pro-Lite Inc. of Costa Mesa, California, the first company to introduce the 32" indoor red LED sign in 1981, 3 color sign in 1984, and outdoor LED sign in 1987, was awarded patent # US 7,467.486 B2 on December 23, 2008 for a method and apparatus for simulating the appearance of a neon sign. The patent was implemented to prevent product piracy, which is a severe problem for the signage and other industries. Trademarks, patents, copyrights and other commercial and design rights are breached on a daily basis. Worldwide, this trend has a dangerous impact on the sign industry. It discourages future innovations and has reached such an extreme; complete industries exist almost completely on cheap copies of quality brands.

This patented Pro-Lite invention relates to a lighted sign that simulates the appearance of a neon gas light sign with solid-state light emitters. Advertisers and business establishments make extensive use of neon lights to convey a message. The bright, uniform, and colorful light distribution emitted from a neon light attracts attention making a neon sign a good advertising medium. Light emitting diodes (LEDs) convert electrical energy into distinct colors of light and offer numerous advantages over neon lighting. LEDs do not require transformers that step up voltage to dangerous levels; they operate at low potentials of 3 to 24 volts. LEDs can easily be packaged in a variety of safe materials and do not require large breakable tubular lead crystal structures. LED brightness can easily be controlled with quick response allowing for visual effects not possible with neon lights. LEDs may also be mass-produced at low cost. Those concerned with the use of neon signs have long recognized the need for more controllable, safer, less fragile and less expensive neon lights. The present invention significantly advances the prior art of simulating the bright uniform colorful appearance of a neon sign while using more efficient LED technology in unique housing configurations.

The invention comprises multiple housing portions composed of opaque and translucent materials and a plurality of LEDs arranged to produce light that propagates through the translucent portion of the housing. The housing portions mate to form a single rigid structure that surrounds the plurality of LEDs. The translucent portion has a shape that conveys a message via image, icon, lettering, or other indicia.

The opaque portion of the housing has a shiny interior surface that reflects light emitted from the LEDs. The outer portion of the housing has a dark textured appearance making the surface appear flat and dull in stark contrast with the illuminating translucent portion. This contrast minimizes the visibility of the opaque portion of the housing creating realistic neon like illumination particularly at night or in a dark setting. The housing has a form that profiles the contours of the message to be conveyed. The contoured shape creates a more authentic neon sign like appearance. The housing is compartmentalized to focus the LED energy and prevent unwanted mixing of light from different colored LEDs.

One embodiment of the invention has an open structure wherein the desired message is cantilevered to permit a viewer to see through openings in the supporting housing adjacent the openings to further emphasize a neon sign effect. A control circuit inside the housing controls the voltage applied to the LEDs. A control panel mounted on the outside of the housing provides user input to the control circuit. The control panel allows a user to select and control visual effects such as flashing and flash rate. A direct current (DC) port on the control panel receives electrical power for the control circuit and the LEDs. An alternating current (AC) adapter cable converts 120-volt AC power into DC power for powering the control circuit and the LEDs through the DC port.

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