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R. H. SEAMAN

2,295,869

NEON SIGN

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Fig. 1.

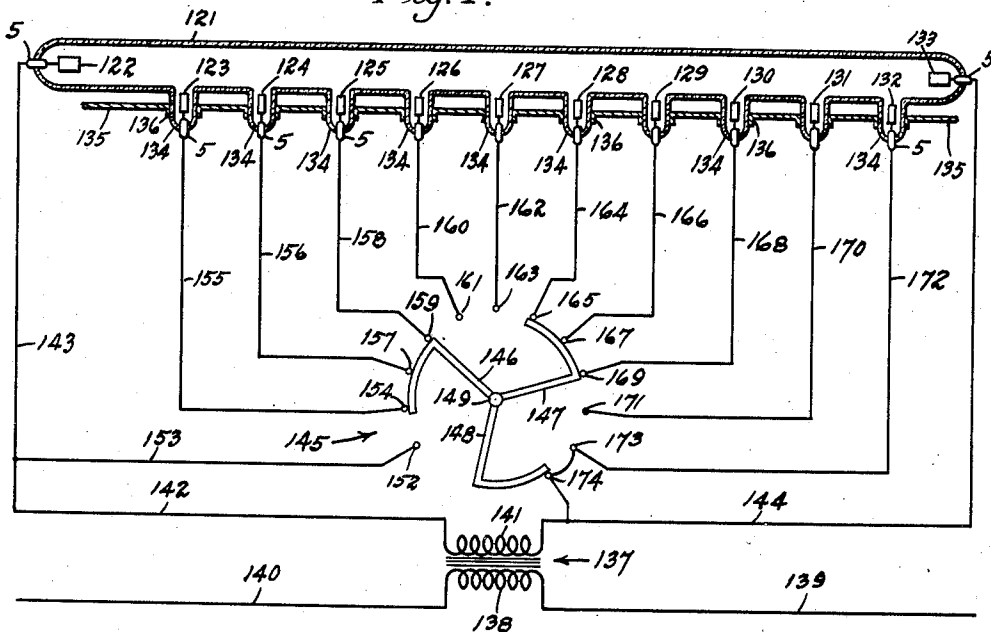


Fig. 2.

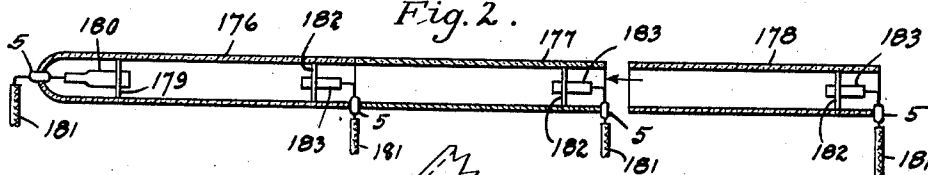
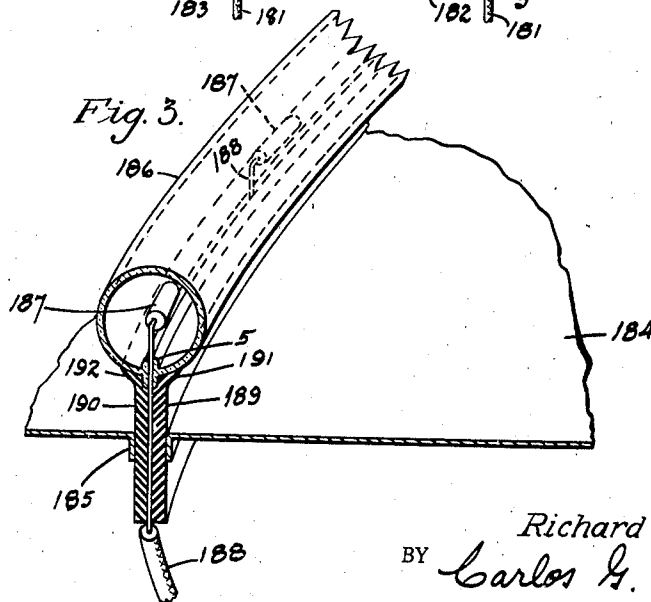


Fig. 3.



INVENTOR.
Richard H. Seaman
BY *Charles G. Stratton*
ATTORNEY.

UNITED STATES PATENT OFFICE

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NEON SIGN

Richard H. Seaman, Los Angeles, Calif.

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2 Claims. (Cl. 177—346)

My invention relates to neon signs. The principal object is to provide mechanism for causing neon or other gas in a tube to be illuminated otherwise than all at the same time.

Another object is to provide mechanism to illuminate different portions of the neon or other gas in a tube, to simulate movement of light.

Still another object is to provide means for causing a break in the light to appear to travel in a gas containing tube.

A further object is to provide a process of assembling a series of electrodes in a tube.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description.

In the drawing, like reference characters designate similar parts in the several views.

Figure 1 is a longitudinal section of a tube together with diagrammatic representation of associated electrical parts adapted to produce the effect of having a gap in the light traveling longitudinally of the tube.

Figure 2 is a longitudinal section illustrating a method of producing a tube with a plurality of electrodes in same.

Figure 3 is a perspective view partly in section showing mounting means for the tube.

In the form of the invention selected for illustration, and as shown in Figure 1 a tube 121 contains electrodes 122 to 133. The electrodes 122 and 133 are at the ends of the tube 121. The electrodes 123 to 132, inclusive, are disposed lengthwise in protuberances 134 provided laterally of the tube 121. Glass beads 5 are shown through which the wires pass through the walls of the tubes. A sign 135 is suggested in Figure 1. The sign 135 has inwardly flanged apertures 135 in which the protuberances 134 fit.

A leakage reactance transformer 137 has its primary coil 138 connected with lead wires 139 and 140, while its secondary coil 141 is connected with the electrode 122 by means of wires 142 and 143 and with the electrode 133 by means of the wire 144. A rotary switch 145 has a series of three brushes 146, 147 and 148 equally spaced around the axis 149 of the rotary switch. The brushes have circumferentially elongated feet.

Electrode 122 is connected with contact 152 by means of wires 153 and 143. Electrode 123 is connected by means of a wire 155 to a contact 154. Electrode 124 is connected by means of a wire 156 to a contact 157. Electrode 125 is connected by means of a wire 158 to a contact 159. Electrode 126 is connected by a wire 160 to a contact

161. Electrode 127 is connected by a wire 162 to a contact 163. Electrode 128 is connected by a wire 164 to a contact 165. Electrode 129 is connected by a wire 166 to a contact 167. Electrode 130 is connected by a wire 168 to a contact 169. Electrode 131 is connected by a wire 170 to a contact 171. Electrode 132 is connected by a wire 172 to contacts 173 and 174.

In use the tube 121 may be a conventionally neon tube filled with neon gas and from which the air was previously substantially evacuated. The resistance of the gas in the tube 121 to conducting electrical current is greater than the resistance of any of the wires 155 to 172 inclusive. The circumferentially elongated feet of the brushes are each of a length to contact at least one of the contacts above mentioned.

In the operation of the form shown in Figure 1, the gas, as previously explained, has greater resistance than the wires, so that the current is shorted out of the tube 121 at the first electrode that is connected with the rotary switch, to wit, the electrode 123. The current then follows the wire 155 and passes through the brush 146 to the contact 159, thence along the wire 158, and travels from electrode 125 to electrode 128. From there the current travels along wire 164, brush 147 to contact 169, along wire 168 and from electrode 130 to the end electrode 133.

In this manner, the rotary switch causes alternate darkened and illuminated portions along the tube 121. In the position shown in Figure 1, the portion of the tube from the end electrode 122 to electrode 123 is illuminated, the portion from electrode 123 to electrode 125 is darkened, the portion from electrode 125 to electrode 128 is illuminated, the portion from electrode 128 to electrode 130 is darkened and the portion from electrode 130 to the end electrode 133 is illuminated. As the rotary switch brushes are rotated in a clockwise direction, as shown in Figure 1, the darkened and illuminated portions shift to the right, giving the effect of the darkened portions traveling from the left end to the right end of the tube 121.

The tube shown in Figure 2 comprises sections 176, 177 and 178. Of course, there will be an end section connected on to the section 178 or on to a succeeding section similar to the section 178. Brace 179 supports electrode 180 in the section 176. Wire 181 is to connect the electrode in a suitable circuit.

Braces 182 support electrodes 183 in the tube sections. In assembling these elements the brace 182 is inserted in the tube in supporting

relation to the electrode 163. The bead 5 is disposed between abutting ends of adjacent sections. With the elements in said positions, the tube sections are moved together; e. g., the section 173 is moved in the direction of the arrow toward section 177 and the abutting ends are fused together around the circumference and around the bead 5.

A sign is represented at 184 in Figure 3. The sign 184 has an elongated, inwardly flanged opening 185. A tube is represented at 186 with electrodes 187. Wires 188 connect the electrodes in suitable circuits. Strips of resilient rubber 189 and 190 enclose bare portions of the wires 188, externally of the tube 186. The strips 189, 190 follow the configuration of the slotted opening 185 which also conforms with the shape of the tube 186. The rubber strips may have lips 191 and 192 which together provide a snug fit against the tube 186 and around the bead 5. If desired, the lips 191 and 192 may be cemented to the tube 186 although if the fit is snug the vacuum created thereby may be utilized to hold same in place.

The use of the form shown in Figure 3 is believed apparent and the method of practicing the method illustrated in Figure 2 has been described, as well as the operation of the invention shown in Figure 1.

While I have illustrated and described what I now regard as the preferred embodiment of my invention, the construction is, of course, subject to modifications without departing from the spirit and scope of my invention. I, therefore, do not wish to restrict myself to the particular form of construction illustrated and described, but desire to avail myself of all modifications which may fall within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a sign, a tube, gas in the tube adapted to be illuminated when activated by electrical current, a series of electrodes disposed along the tube, a series of contacts connected with the electrodes respectively, the gas between the electrodes having greater resistance than said connections respectively, and a single rotary switch member having a plurality of circumferentially spaced brushes, each brush being arranged to engage contacts of said series at either side of at least one uncontacted contact, to provide a darkened spot between lighted spots in the tube.

2. In a sign, a tube, a series of electrodes disposed along the tube arranged to activate gas in the tube, wires connected with the electrodes separately, gas in the tube adapted to be illuminated when activated by electrical energy, the gas between the electrodes having greater resistance than said wires respectively, a circuit for supplying electrical energy to the sign, a leakage reactance transformer controlling electrical energy supplied by the circuit to the sign, a series of relatively stationary contacts separately connecting with the electrode wires, and a single rotary switch member having a plurality of radially extending contact feet to engage the contacts of said series and connect same in the circuit, the contact feet being dimensioned to be in engagement with at least one contact throughout the movement of each foot from the beginning to the end of the series, the end of the series and the beginning thereof being a greater distance apart than the size of the contact feet, permitting the contact feet to be out of engagement with all contacts when said feet are between the end and beginning of the contact series.

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RICHARD H. SEAMAN.