

Patent Disclosure - Illuminated Acrylic Panel  
Inventor - John F. Gregory  
Assignee - LEJÉ llc  
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#### Invention

A method for illuminating an acrylic panel for the purpose of creating a sign or a lighted surface for a transparency.

#### Method

A panel of acrylic material which can be either poured or extruded is cut to the finish size of the intended sign or display. The material may range from ¼ inch to over one inch in thickness

#### Method 01:

- a. An edge router is employed to cut a rabbet in the edge of the panel completely around the perimeter.
- b. An end mill is employed to cut a recess in the edge of the panel where an electronic lighting device will be terminated and affixed.
- c. An electronic assembly composed of a flexible printed circuit and discreet light emitting diodes is fabricated to a length which completely surrounds the perimeter of the panel. The diodes are available commercially and may be employed in a variety of colors. The flexible circuit is designed with two parallel copper traces consisting of an anode and cathode conductor. A separate flexible circuit is required for each color.
- d. The light emitting diodes may be placed at various intervals on the flexible circuit to increase or decrease the illuminating intensity.
- e. The flexible circuit is placed within the rabbeted edge of the panel with each end of the circuit terminating at the recess cut by the end mill.
- f. The flexible circuit is affixed to the panel edge with an adhesive.
- g. The end tabs of the circuit are pushed into the cavity.
- h. A two wire power cord is attached to the anode and cathode conductors on the electronic assembly.
- i. A rubber grommet is threaded on to the power cord, pushed into the terminating cavity and affixed with an adhesive.
- j. A strip of polypropylene or similar material is cut the same width as the rabbet and the material is pushed in to the cavity to form a protective seal for the electronic strip.
- k. The polypropylene strip is affixed with an adhesive.

#### Method 02:

- l. A circular saw is employed to cut a kerf partially through the acrylic panel near to the edge.

Method 02: ( con't )

m. An end mill is employed to cut a recess to a predetermined depth in the acrylic panel at the junction of the kerf.

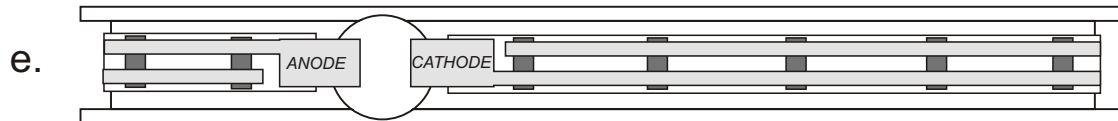
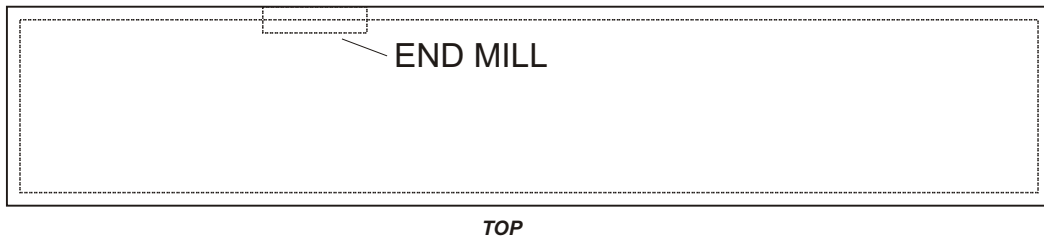
n. An electronic assembly composed of a flexible printed circuit and discreet light emitting diodes is fabricated to a length which is slightly shorter the kerf. The flexible circuit is designed with two parallel copper traces consisting of an anode and cathode conductor.

o. The electronic assembly is inserted into the kerf with the anode and cathode conductors terminating at the recess cut by the end mill.

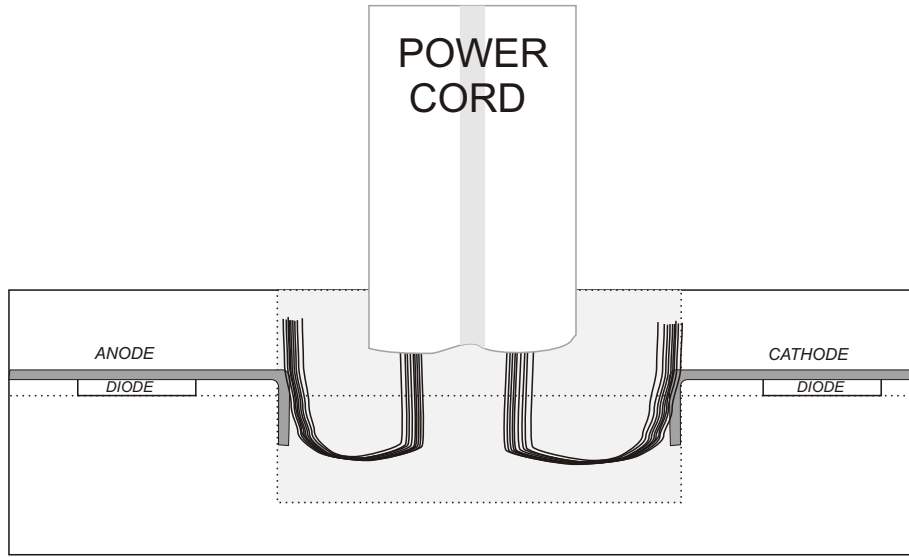
p. A power cord is connected to the anode and cathode conductors.

q. A grommet is threaded onto the cord and inserted into the termination cavity.

r. Liquid acrylic resin is poured into the kerf to seal the electronic assembly.



h.



i.

