

[54] **DELAYED RESPONSE TOUCH SWITCH CONTROLLER**

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 [73] Assignee: **Westek Associates**, San Diego, Calif.
 [*] Notice: The portion of the term of this patent subsequent to Jul. 3, 2007 has been disclaimed.
 [21] Appl. No.: **165,591**
 [22] Filed: **Mar. 8, 1988**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 148,767, Jan. 26, 1988.
 [51] Int. Cl.⁵ **H01J 7/66; H05B 37/02; H05B 41/04**
 [52] U.S. Cl. **315/74; 315/291; 315/DIG. 4; 315/360; 315/362**
 [58] Field of Search **307/116, 114; 315/74, 315/291, 194, 199, DIG. 4, 362, 360**

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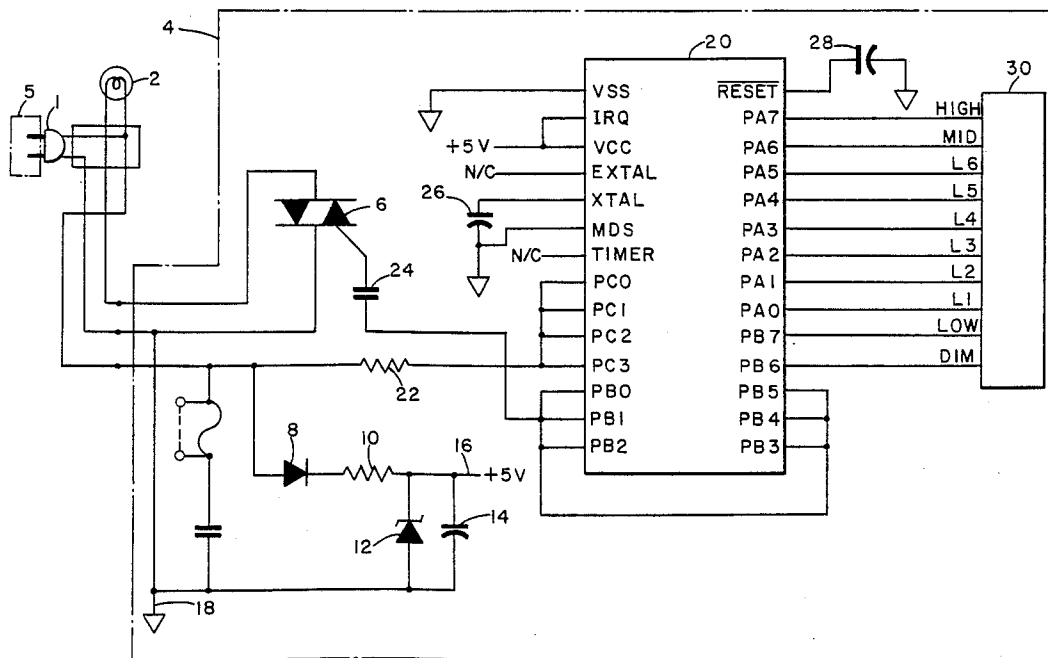
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[57] **ABSTRACT**

The present invention provides a very low actuation force touch control switch for use in brightness control of illumination devices. The control switch comprises a flexible membrane having a plurality of conductors disposed on one surface and secured to a rigid support surface. The conductors are interwoven in a present pattern with portions of the conductors being exposed. A conductive surface is formed in an area under the exposed conductors. The membrane is fastened to the rigid support surface so that a very small spacing is maintained between the exposed conductors and the fixed conductive surface, allowing a very light touch to cause one or more exposed conductors to be shorted to the conductive surface. A microprocessor periodically polls the leads of the membrane to determine which are shorted together and causes an output power level to be adjusted accordingly. The touch control system employs a Delayed-Off feature in which the microprocessor causes a discernible dimming to occur when a DELAYED-OFF selection are on the membrane is pressed but which delays the turning off of the illumination device until a preselected amount of time has passed, thereby allowing a switch operator to leave an area before becoming dark. In addition, Soft-On and Soft-Off processing is employed so that on and off transitions are more gradual and aesthetically pleasing and to provide a period in which to select an alternate brightness level.

20 Claims, 4 Drawing Sheets



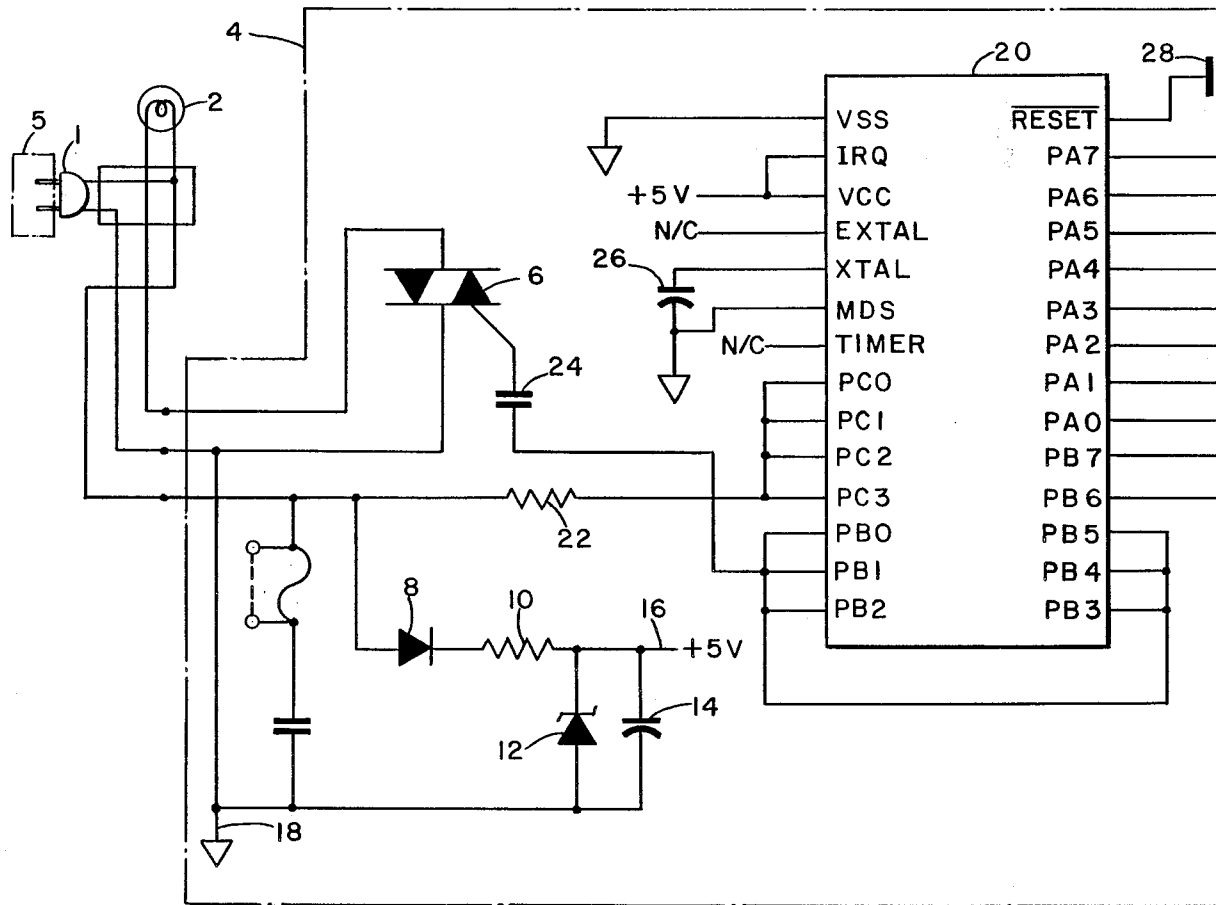


FIG. 1

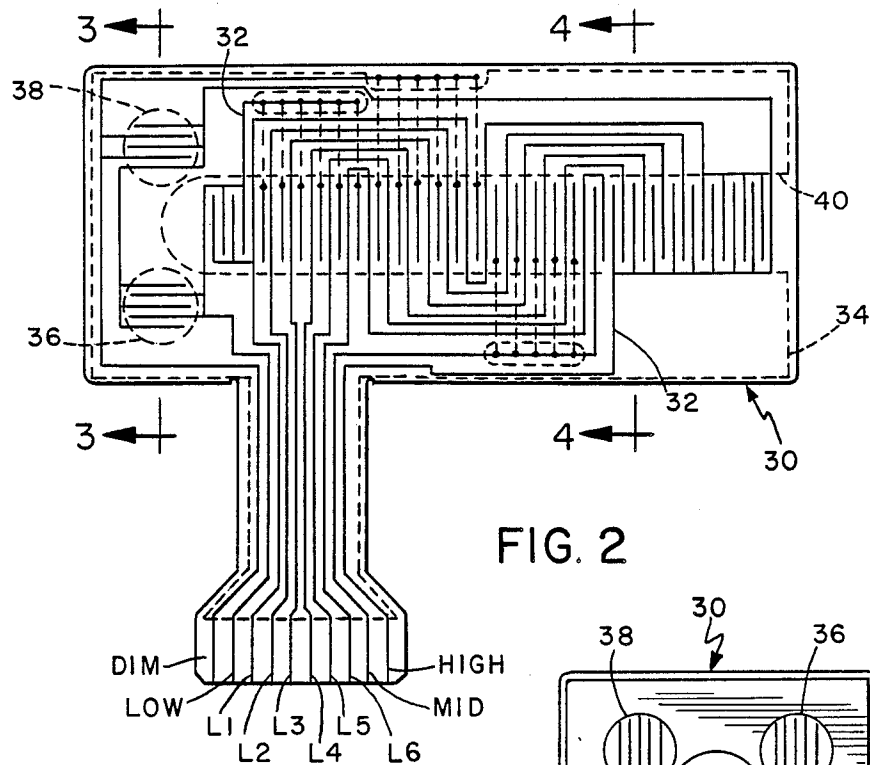


FIG. 2

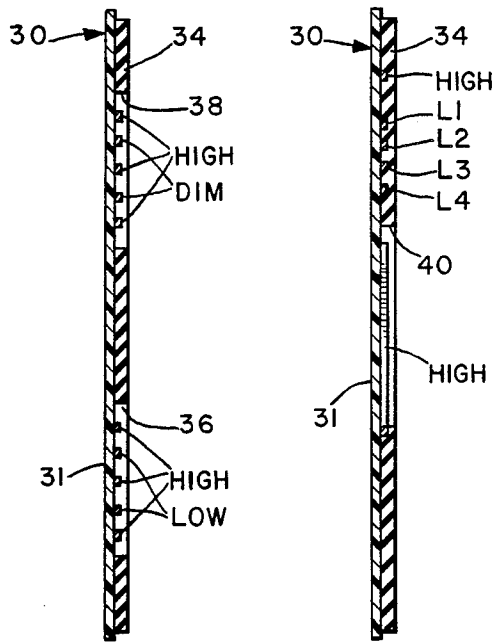


FIG. 3

FIG. 4

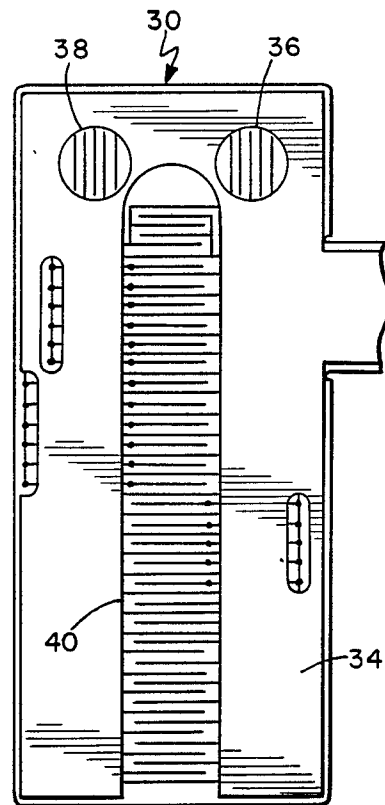


FIG. 5

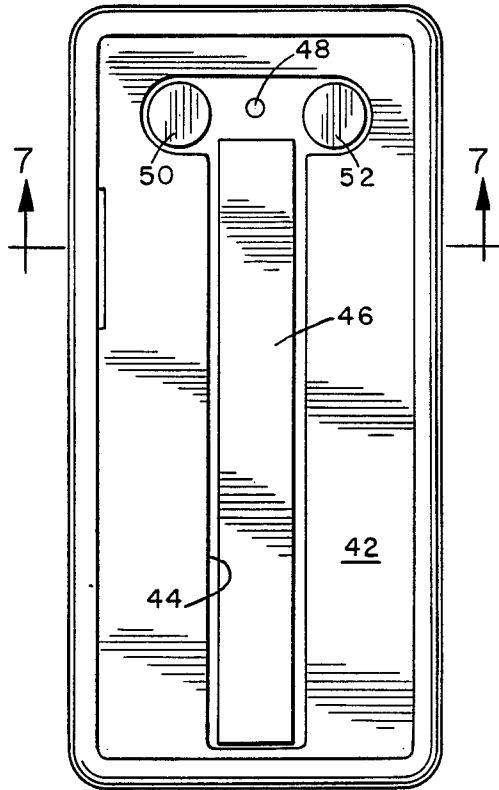


FIG. 6

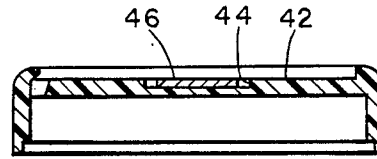


FIG. 7

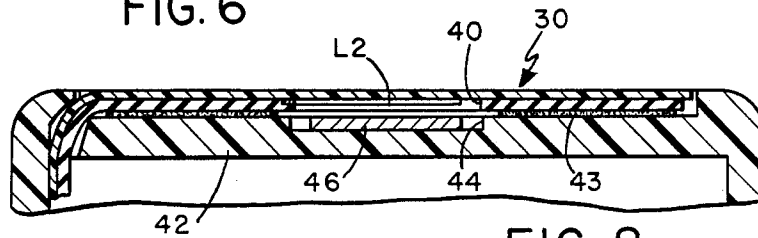


FIG. 8

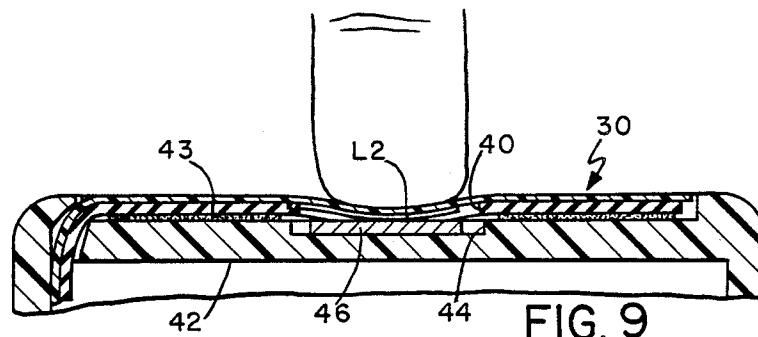


FIG. 9

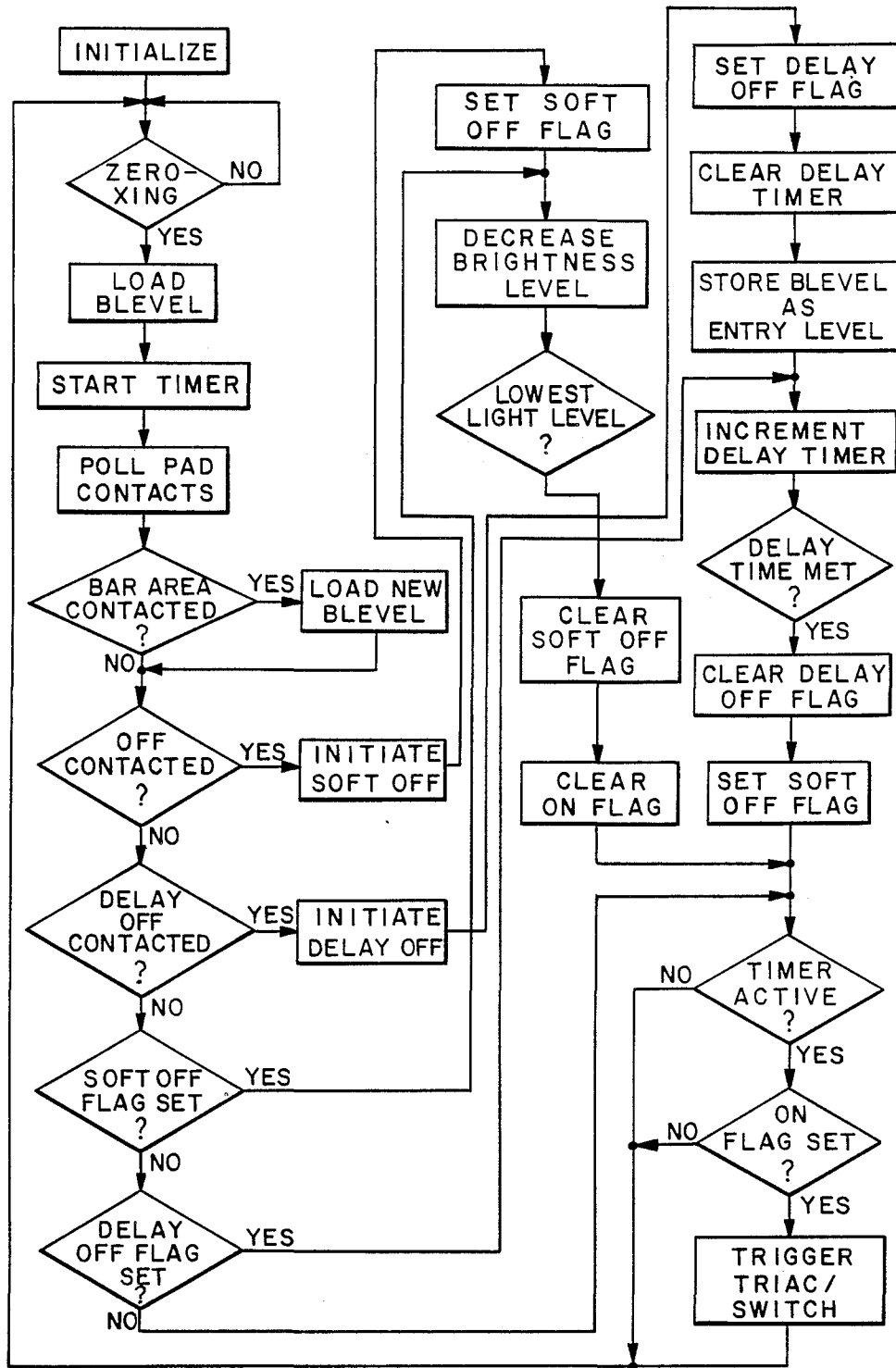


FIG. 10

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