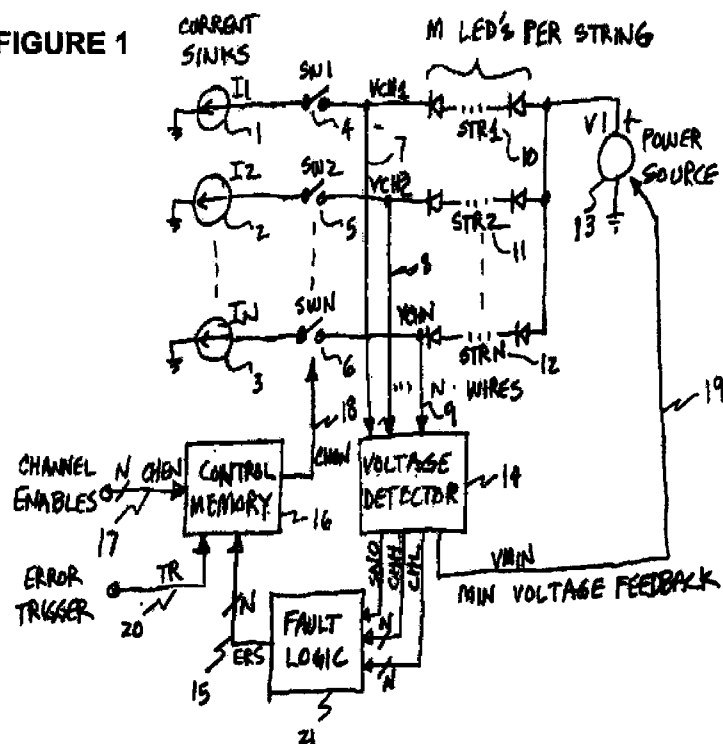




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[Continued on next page]

(54) Title: A CIRCUIT FOR DETECTION AND CONTROL OF LED STRING OPERATION

FIGURE 1

(57) Abstract: A circuit is disclosed for determining which of a multiplicity of LED strings in an illumination system has a fault. A group of circuits determines the maximum, minimum, midpoint between maximum and minimum, and average voltage of the group of LED string voltages in use, and examines the statistical properties of the LED string voltages. Comparators are used to find the strings which have the highest and lowest operating voltages, and to compare the midpoint and average voltages to determine whether the highest or lowest voltage string is responsible for causing a fault in the illumination system operation. Memory means are used to keep the said determined string turned off to prevent faulty operation.



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A. CLASSIFICATION OF SUBJECT MATTER

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USPC - 345/46; 362/800

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST; PGPB, USPT, EPAB, JPAB; Google Scholar; Google Patent; Search Terms: LED MOS-FET string series driver controller comparator amplifier current voltage over maximum minimum channel switch fault error sum weight average RMS enable signal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008/0164828 A1 (Szczeszynski et al.) 10 July 2008 (10.07.2008) para. [0025] through [0067], Fig. 1-3	1-12
X	US 2009/0128045 A1 (Szczeszynski et al.) 21 May 2009 (21.05.2009) para. [0029] through [0108], Fig. 1-9	13-25
A	US 2009/0302776 A1 (Szczeszynski) 10 December 2009 (10.12.2009) entire document	1-25
A	US 2010/0308739 A1 (Shteynberg et al.) 09 December 2010 (09.12.2010) entire document	1-25
A	US 2009/0315481 A1 (Zhao) 24 December 2009 (24.12.2009) entire document	1-25
A	US 2007/0195025 A1 (Korcharz et al.) 23 August 2007 (23.08.2007)	1-25

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