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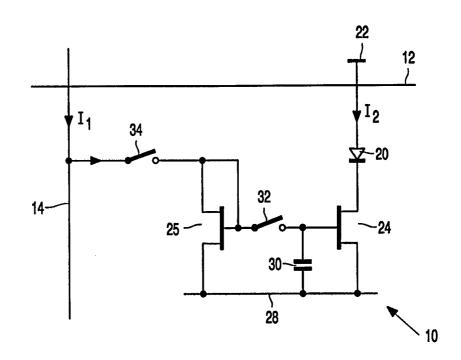
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#### (54) Title: ACTIVE MATRIX ELECTROLUMINESCENT DISPLAY DEVICES

#### (57) Abstract

active matrix An display electroluminescent device has an array current-driven electroluminescent (20),for display elements comprising example organic material. electroluminescent operations each whose are controlled by an associated switching means (10) to which a drive signal for determining a desired light output is supplied in a respective address period and which is arranged to drive the display element according to the drive signal following the address period. Each switching means comprises a current mirror circuit (24, 25, 30, 32) which samples and stores the drive signal with one transistor (24) of the circuit controlling the drive current through the display element (20) and having its gate connected to a storage capacitance (30) on which a voltage determined by the drive signal is stored.



Through the use of current mirror circuits improved uniformity of light outputs from the display elements in the array is obtained.

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A	EP 0717446 A2 (EASTMAN KODAK COM 19 June 1996 (19.06.96), cit	MPANY), ted in the application	1-10				
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 EP 0717446 A2
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