

(12) United States Patent
Okuda

(10) Patent No.: US 6,380,689 B1
(45) Date of Patent: Apr. 30, 2002

(54) DRIVING APPARATUS FOR ACTIVE MATRIX TYPE LUMINESCENT PANEL

(75) Inventor: Yoshiyuki Okuda, Tsurugashima (JP)

(73) Assignee: Pioneer Corporation, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/679,814

(22) Filed: Oct. 5, 2000

(30) Foreign Application Priority Data

Oct. 6, 1999 (JP) 11-285203

(51) Int. Cl.⁷ **G09G 3/10**

(52) U.S. Cl. **315/169.3; 315/169.1; 315/169.2; 345/60; 345/76; 345/77**

(58) Field of Search 315/169.1, 169.2, 315/169.3; 345/76, 60

(56) References Cited

U.S. PATENT DOCUMENTS

- 5,424,612 A * 6/1995 Kim 315/169.3
- 5,670,974 A * 9/1997 Ohba et al. 315/169.4
- 6,100,637 A * 8/2000 Kishino et al. 315/169.3

FOREIGN PATENT DOCUMENTS

JP 7-111341 4/1995 H01L/33/00

* cited by examiner

Primary Examiner—Don Wong

Assistant Examiner—Jimmy T. Vu

(74) Attorney, Agent, or Firm—Morgan, Lewis & Bockius

(57) ABSTRACT

A driving apparatus for an active matrix type luminescent panel, in which a reverse bias voltage can be applied to each EL device in the luminescent panel effectively. An address period and an emission period are repeatedly set on each of a plurality of capacitive light emitting devices in accordance with synchronizing timing in input image data. In an address period, a driving device corresponding to at least a device to be light-emitted of the plurality of capacitive light emitting devices is designated in accordance with the input image data. The designated driving device is turned on in the emission period subsequent to the address period, so that an emission voltage in forward polarity is applied to the device to be light-emitted device through the corresponding driving device in the emission period. In the address period, a bias voltage having polarity reverse to the forward polarity is applied to at least the device to be light-emitted.

12 Claims, 15 Drawing Sheets

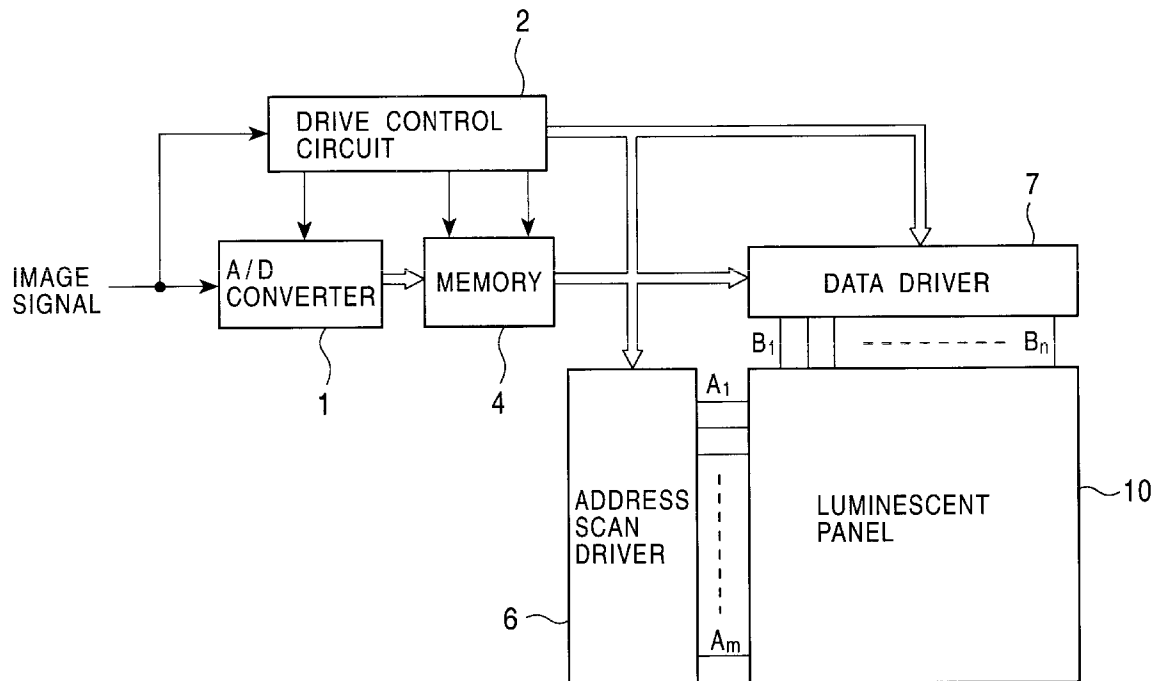


FIG. 1

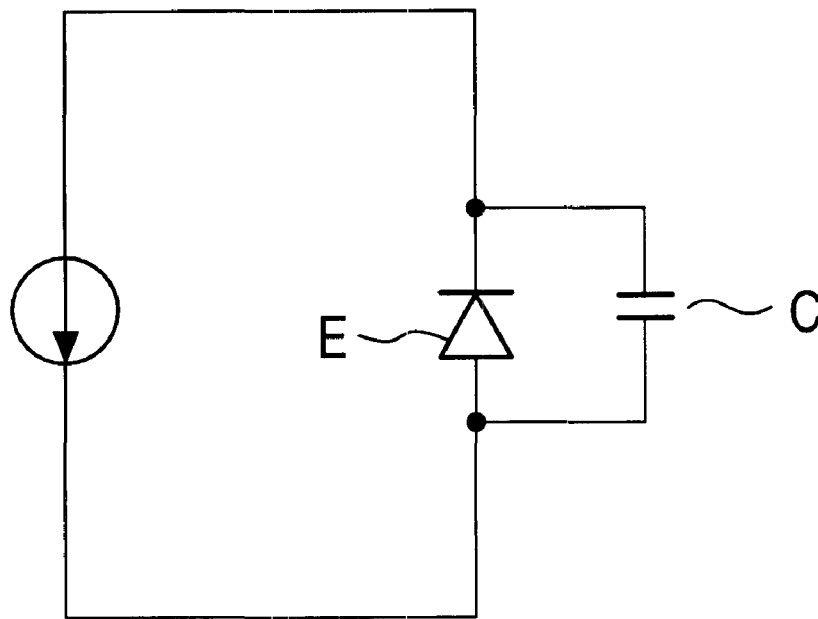


FIG. 2

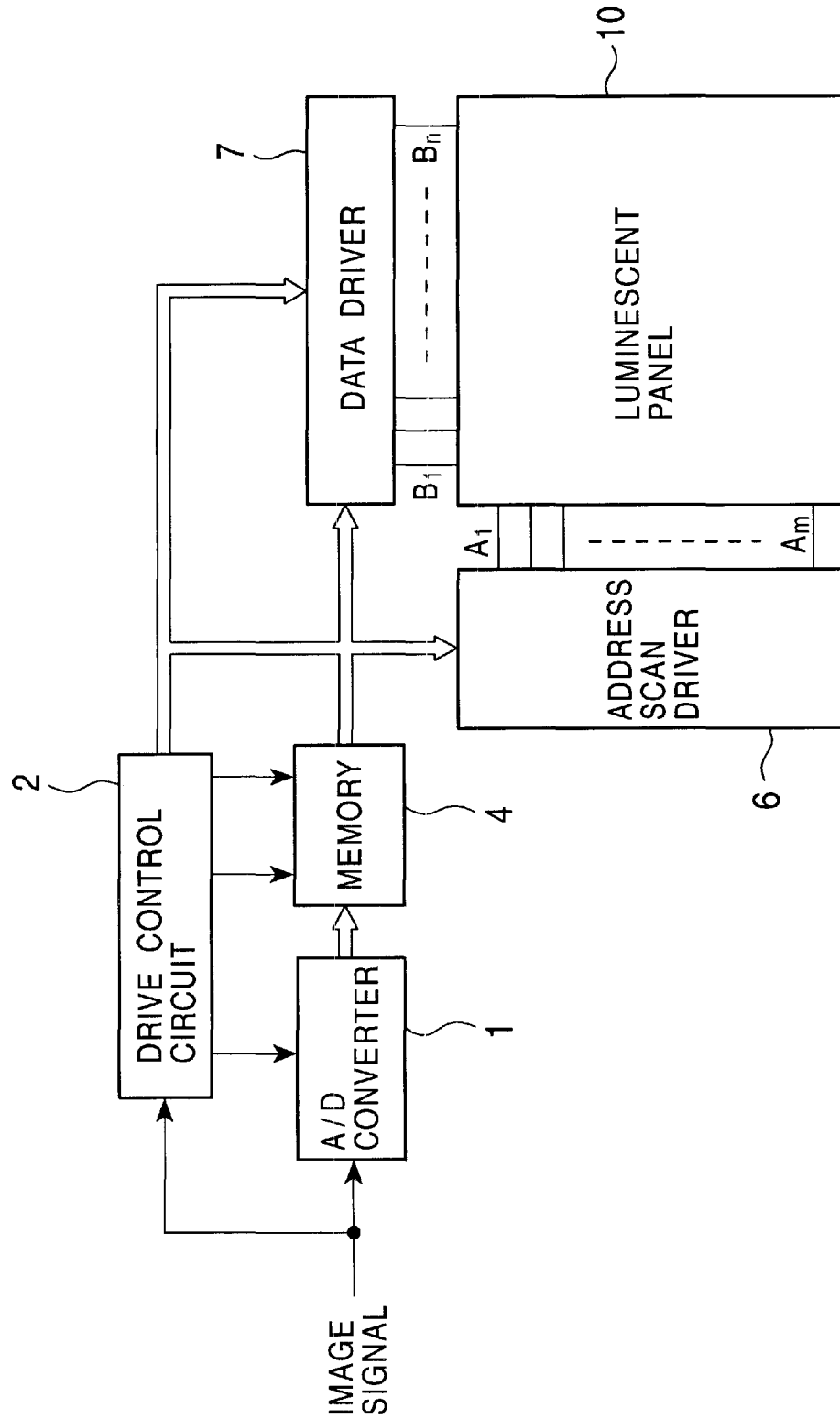


FIG. 3

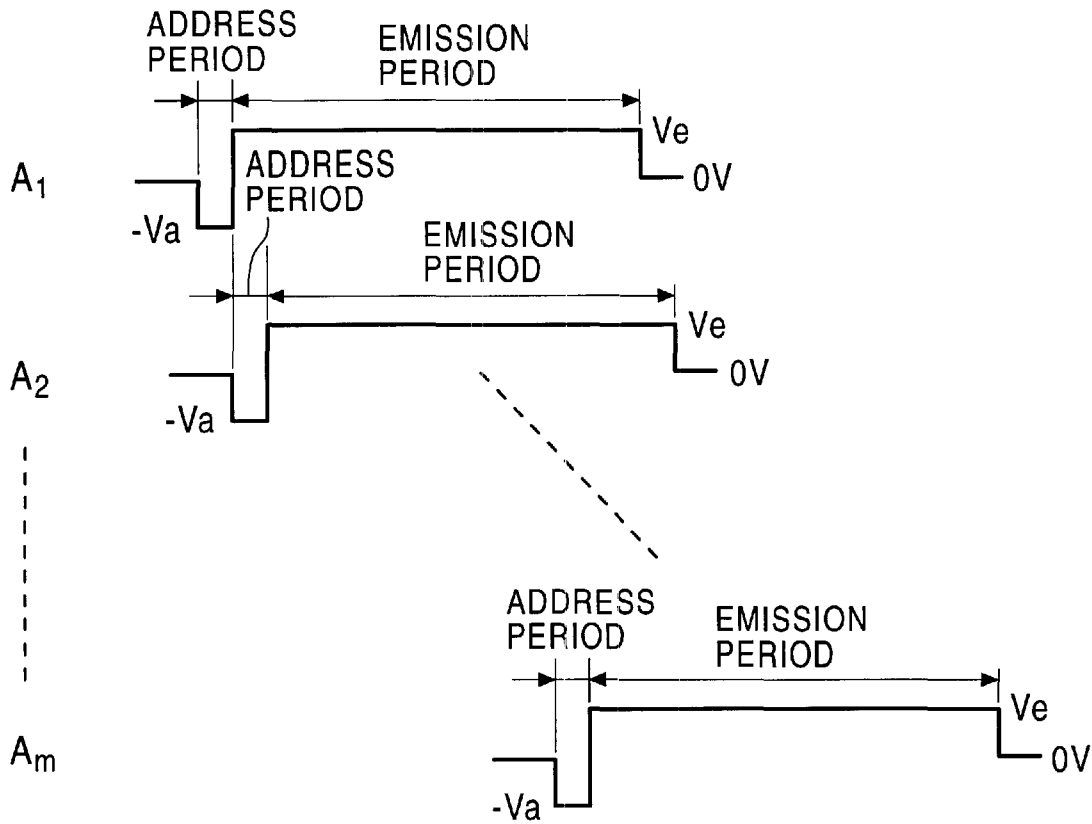
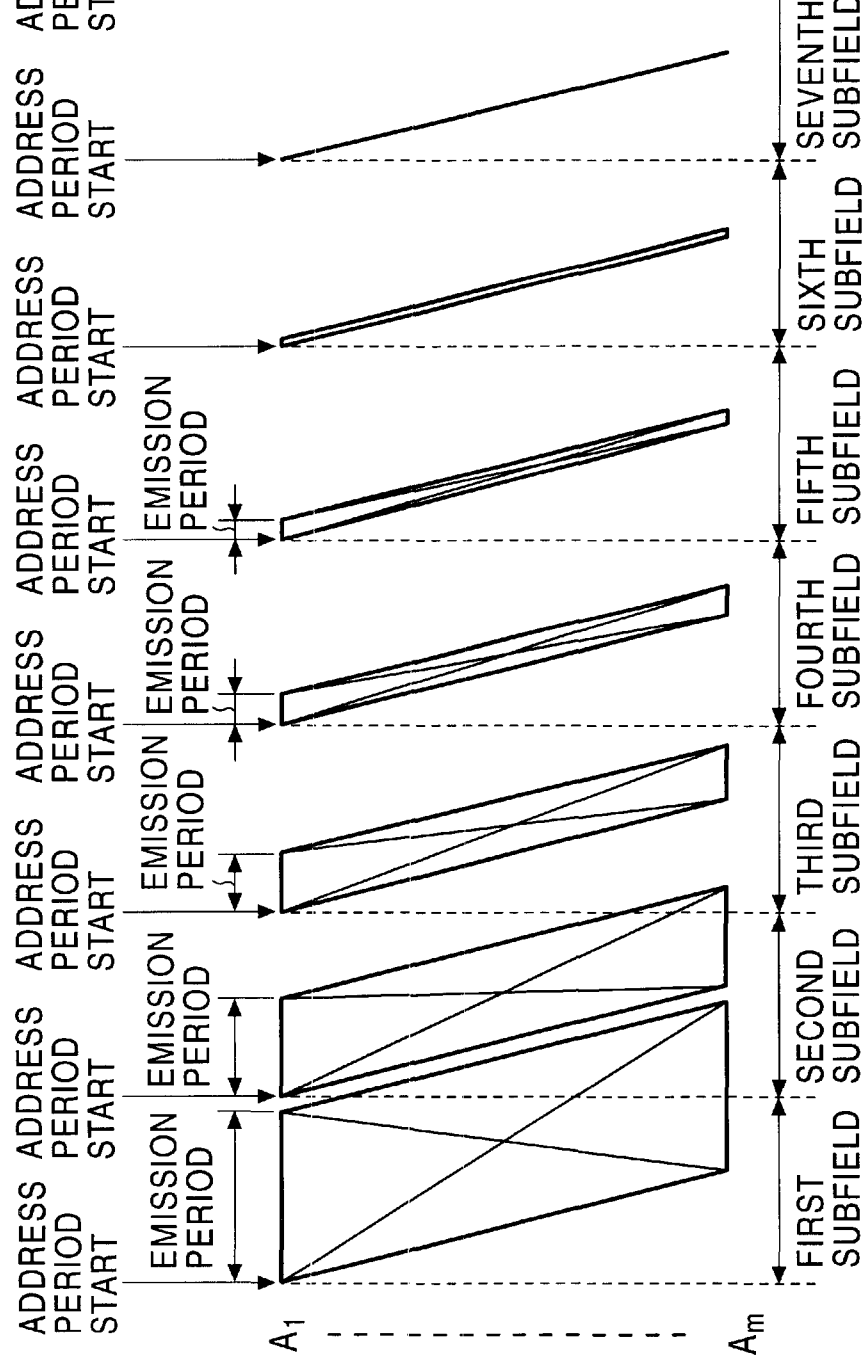


FIG. 4



Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.