



[54] REMOVABLE BACKLIGHTING ASSEMBLY FOR FLAT PANEL DISPLAY SUBSYSTEM

5,568,164	10/1996	Ogawa	345/145
5,593,221	1/1997	Evanicky et al.	353/122
5,654,779	8/1997	Nakayama et al.	345/905
5,661,839	8/1997	Whitehead	385/31
5,688,035	11/1997	Kashima et al.	362/31

[75] Inventors: Daniel E. Evanicky, San Jose; Leroy Bertrand Keely, Portola Valley; Steven Siefert, Belmont, all of Calif.

FOREIGN PATENT DOCUMENTS

[73] Assignee: Silicon Graphics, Inc., Mountain View, Calif.

1-316790	12/1989	Japan	G09F 9/00
4-149417	5/1992	Japan	G03B 21/132

[\*] Notice: This patent is subject to a terminal disclaimer.

Primary Examiner—Richard A. Hjerpe  
Assistant Examiner—Francis Nguyen  
Attorney, Agent, or Firm—Wagner, Murabito & Hao

[21] Appl. No.: 08/495,213

[57] ABSTRACT

[22] Filed: Jun. 27, 1995

[51] Int. Cl.<sup>6</sup> G09G 3/36

A light distributing removable door assembly (and elements thereof) for a back-lit flat panel display subsystem wherein the subsystem is for direct viewing as a monitor and having overhead projection capability. The removable door assembly provides for back-lighting via a light pipe for direct viewing when installed in the subassembly. When the door assembly is removed, the active matrix LCD is semi-transparent and can be placed over the imaging screen (viewing side down) of an overhead projector such that the LCD color image can be thus projected. The lamps that provide the back-lighting remain within the display subsystem when the door is removed and a unique optical coupling is provided between the lamps and a light pipe within the door. A specialized bi-directional light extraction pattern is used on a light pipe of the removable door to provide effective and uniform light distribution over the LCD image. A clamping mechanism is also described within the removable door for securing the layers used in the door assembly. The clamping mechanism allows a reduction in a size of a junction formed between the lighting units of the subsystem and the removable door assembly.

[52] U.S. Cl. 345/87; 345/102; 345/905; 353/122

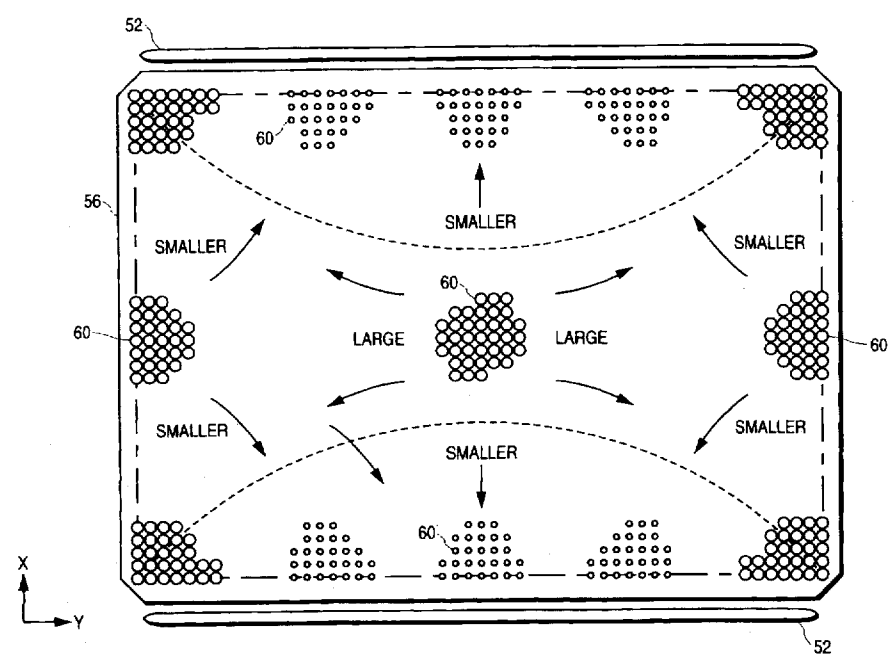
[58] Field of Search 345/102, 87, 905; 353/122; 362/31, 216; 349/59

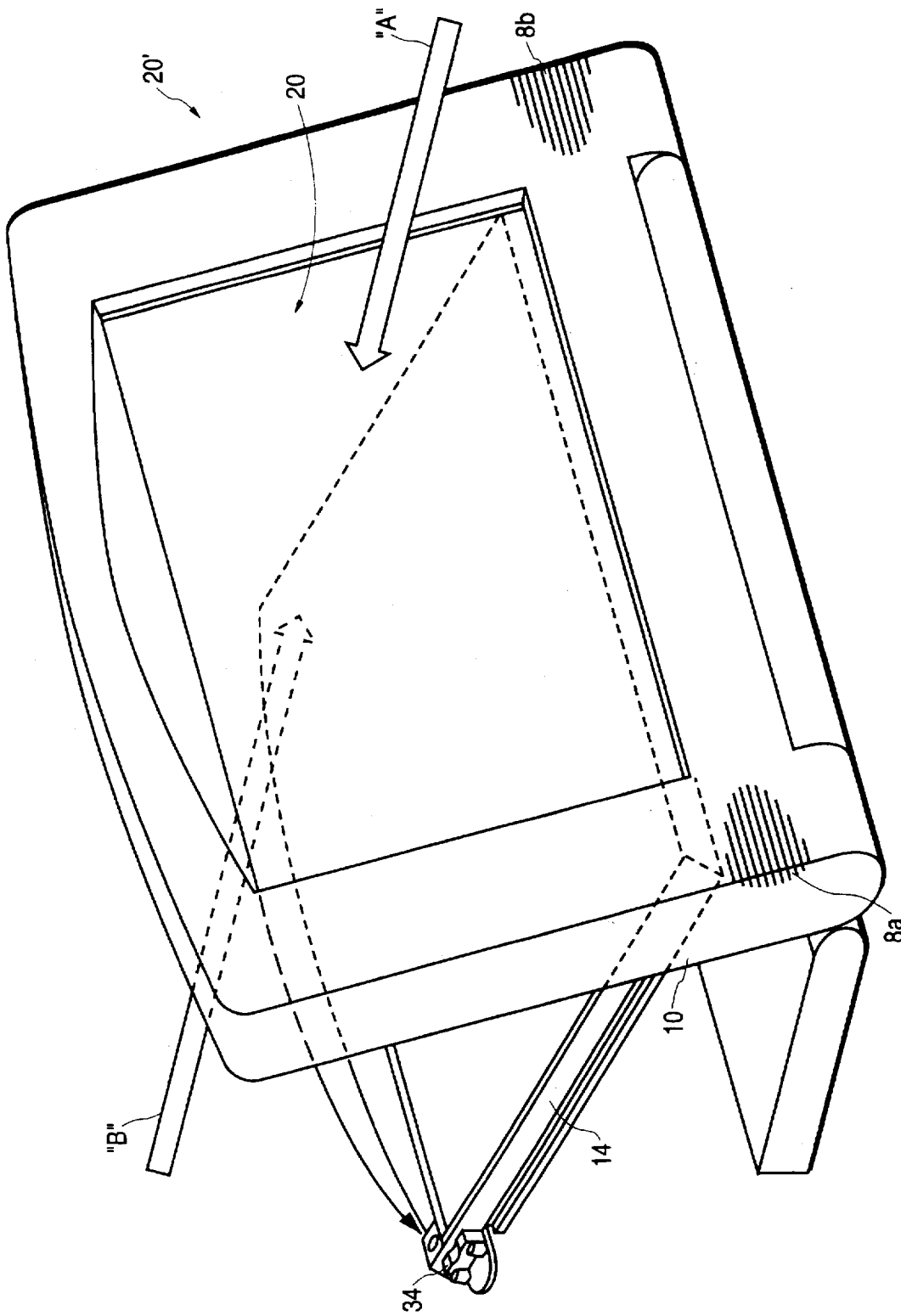
[56] References Cited

U.S. PATENT DOCUMENTS

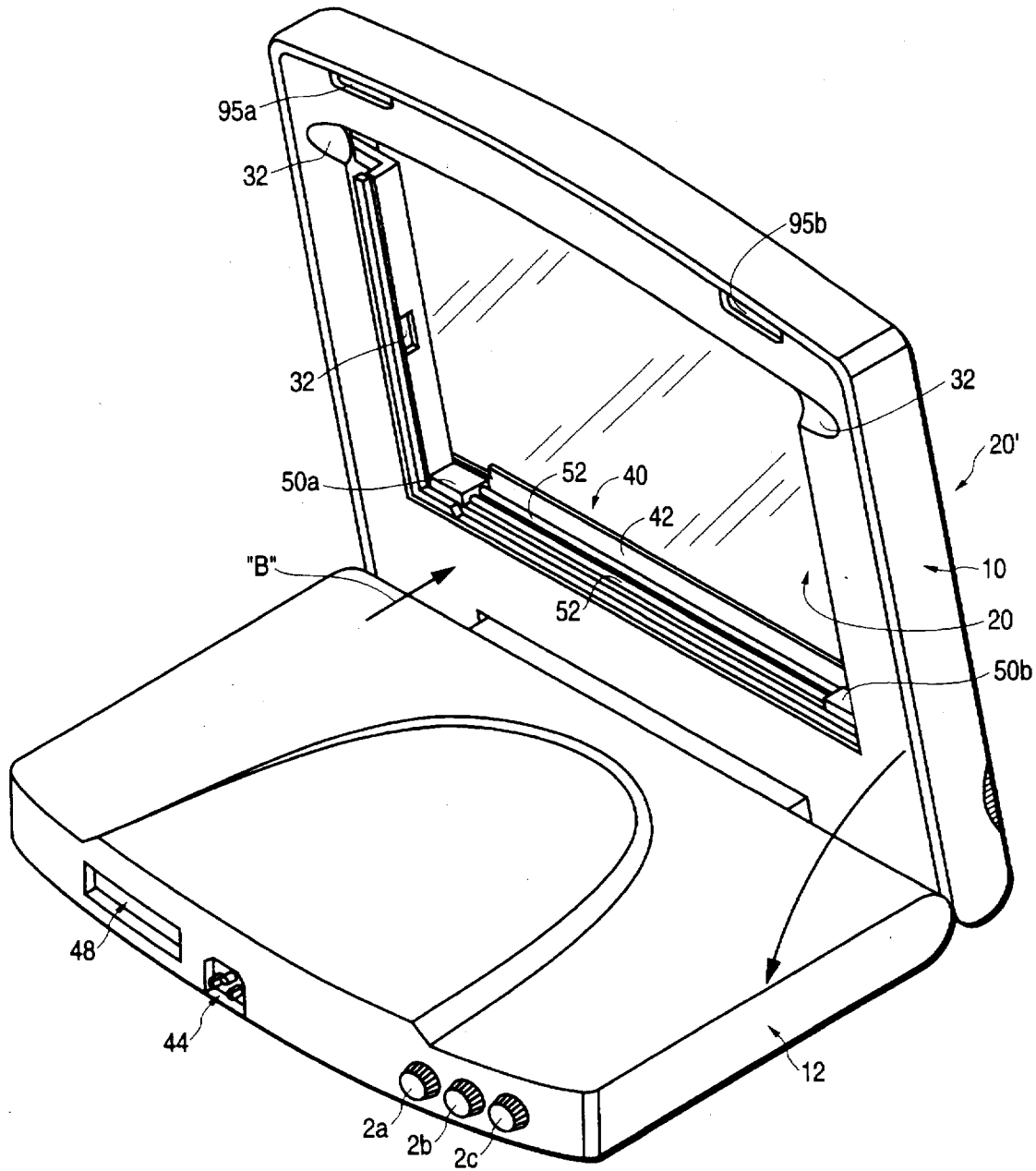
4,622,584	11/1986	Nagasaki et al.	358/98
4,842,378	6/1989	Flasck et al.	362/31
5,206,673	4/1993	Kawahara et al.	353/98
5,207,493	5/1993	Murase et al.	362/31
5,333,073	7/1994	Suzuki	349/59
5,353,075	10/1994	Conner et al.	353/122
5,381,309	1/1995	Borchardt	362/31
5,394,308	2/1995	Watanabe et al.	362/31
5,404,185	4/1995	Vogeley et al.	353/122
5,477,423	12/1995	Fredriksz et al.	362/31
5,479,328	12/1995	Lee et al.	362/216
5,485,354	1/1996	Ciupke et al.	362/31
5,548,670	8/1996	Koike	385/27
5,550,657	8/1996	Tanaka et al.	359/49

13 Claims, 19 Drawing Sheets

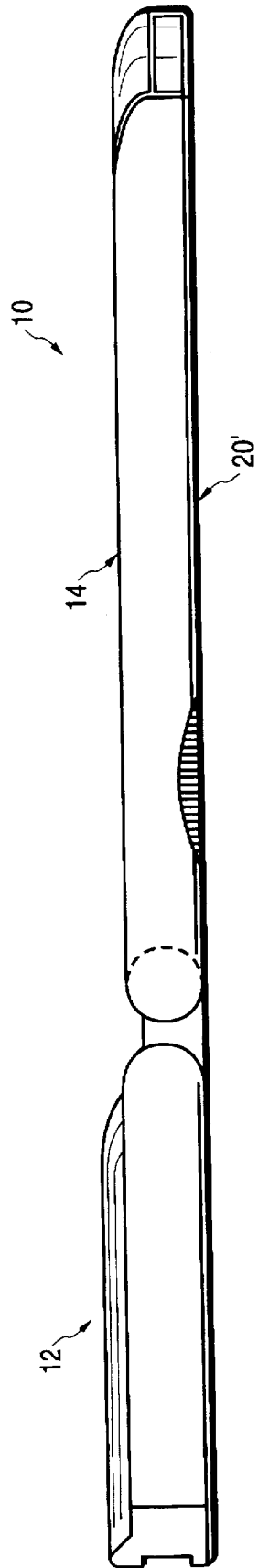




**FIG. 1A**



**FIG. 1B**



**FIG. 1C**

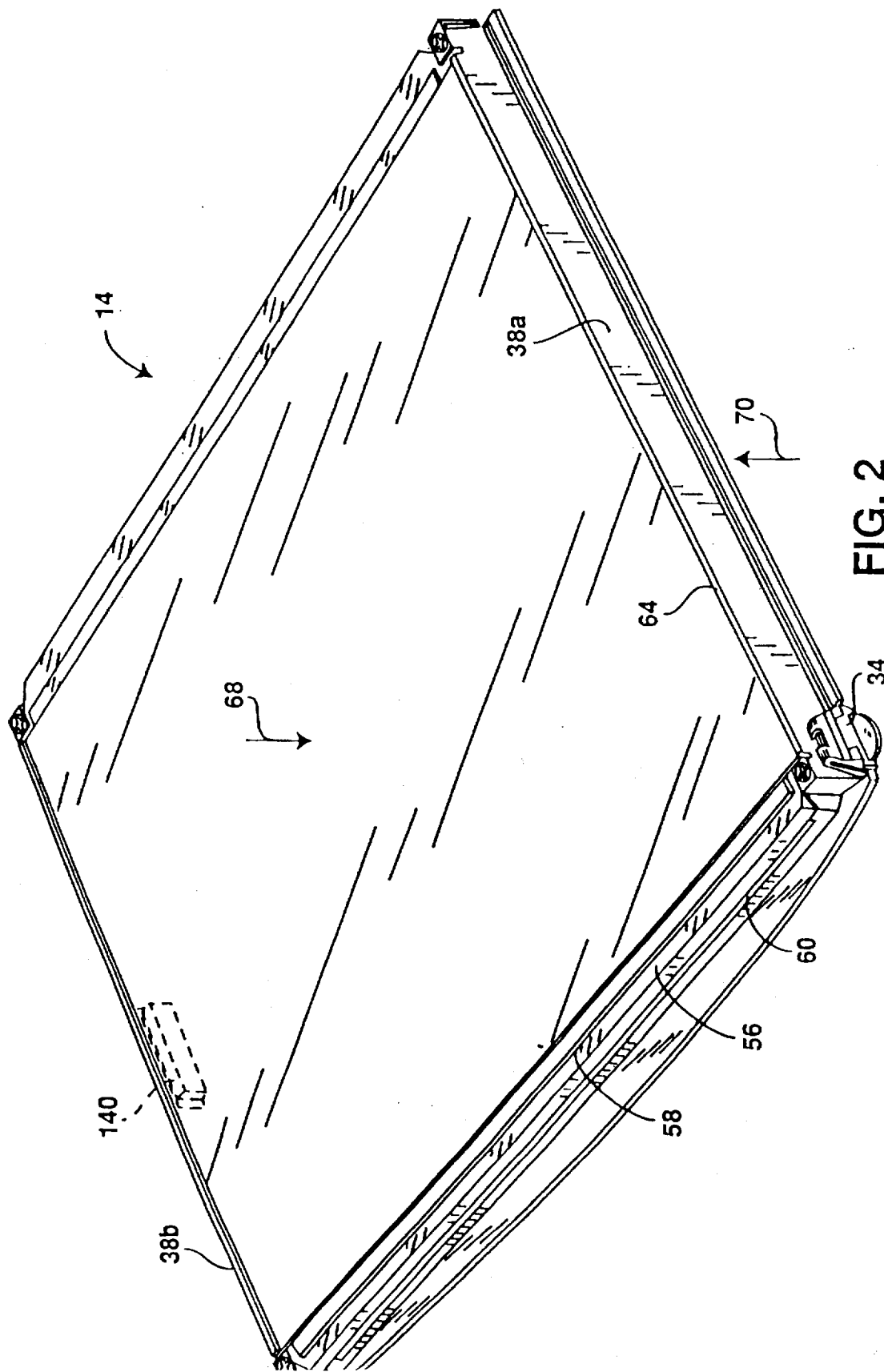


FIG. 2

# 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.