



US005706134A

United States Patent [19]

[11] Patent Number: **5,706,134**

Konno et al.

[45] Date of Patent: **Jan. 6, 1998**

- [54] **LIGHT-DIFFUSING SHEET MEMBER**
- [75] Inventors: **Teruaki Konno, Tokyo; Koichi Sawada; Masahiro Kitamura, both of Osaka, all of Japan**
- [73] Assignee: **Keiwa Shoko Kabushiki Kaisha, Osaka, Japan**
- [21] Appl. No.: **658,314**
- [22] Filed: **Jun. 5, 1996**

2721885	11/1978	Germany .
2925647	12/1980	Germany .
3625767	2/1987	Germany .
56-139189	3/1980	Japan .
55-120001	9/1980	Japan 359/599
55-120002	9/1980	Japan 359/599
62-116201	7/1987	Japan .
62-169105	7/1987	Japan .
62-201729	12/1987	Japan .
63-41101	3/1988	Japan .
63-177884	11/1988	Japan .
63-291001	11/1988	Japan 359/599
2-120702	5/1990	Japan 359/599
2-214822	8/1990	Japan .
2-221926	9/1990	Japan 359/599
1585338	2/1981	United Kingdom .
2054119	2/1981	United Kingdom .

Related U.S. Application Data

[63] Continuation of Ser. No. 954,304, Sep. 30, 1992, abandoned.

Foreign Application Priority Data

Jun. 22, 1919	[JP]	Japan	.....	4-042936 U
Oct. 9, 1991	[JP]	Japan	.....	3-082008 U
Jan. 13, 1992	[JP]	Japan	.....	4-000679 U

- [51] Int. Cl.⁶ **G02B 5/02**
- [52] U.S. Cl. **359/599; 359/452**
- [58] Field of Search **359/599, 452, 359/453, 455, 456, 460; 354/452**

References Cited

U.S. PATENT DOCUMENTS

2,294,930	9/1942	Palmquist .	
3,269,835	8/1966	Flint	..... 359/599
3,491,237	1/1970	Tillett	..... 250/71
3,612,650	10/1971	Miyaho	..... 359/452
3,655,263	4/1972	Hoffman et al. .	
3,726,583	4/1973	Fujisaki et al. .	..... 359/452
3,984,176	10/1976	Hirai et al. .	
3,994,086	11/1976	Mizouchi .	
4,068,922	1/1978	Dotsko	..... 359/452
4,989,933	2/1991	Duguay	..... 385/901
5,170,285	12/1992	Shibasaki	..... 359/599

FOREIGN PATENT DOCUMENTS

2503663	8/1975	Germany .
---------	--------	-----------

OTHER PUBLICATIONS

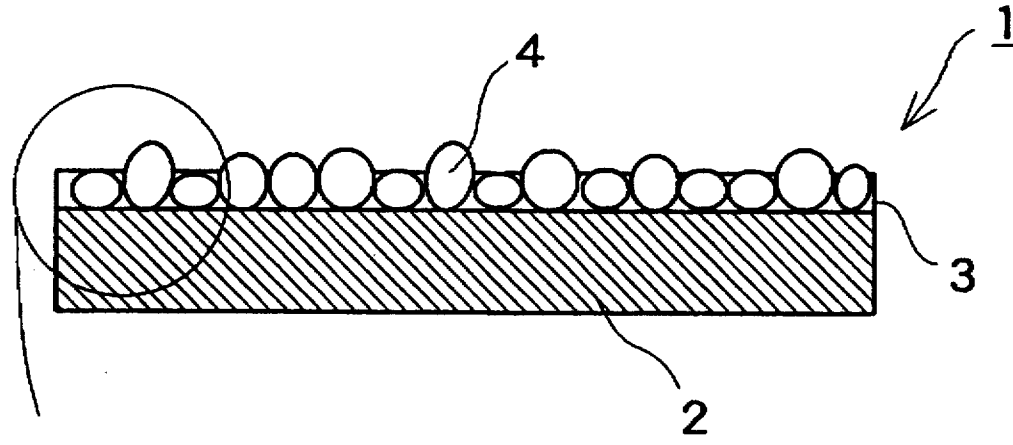
Patents Abstracts of Japan, P-735, Jul. 26, 1988, Vol. 12/No. 266.

Primary Examiner—Jon W. Henry
Attorney, Agent, or Firm—Marshall, O'Toole, Gerstein, Murray & Borun

[57] ABSTRACT

A light diffusing sheet member used as a diffusing plate of a liquid crystal display by which light transmitted from a light source is uniformly diffused so that the luminance of a screen of a light diffusing plate liquid crystal display portion is sufficient and a user can easily look at characters, graphics and the like displayed on the screen from different angles. A light diffusing sheet member comprises a base material sheet and a light diffusing layer applied on the top face of the base material sheet, and beads mixed therein. The beads have different sizes, and include particles buried in a synthetic resin and particles which at least partially project from the synthetic resin.

4 Claims, 5 Drawing Sheets



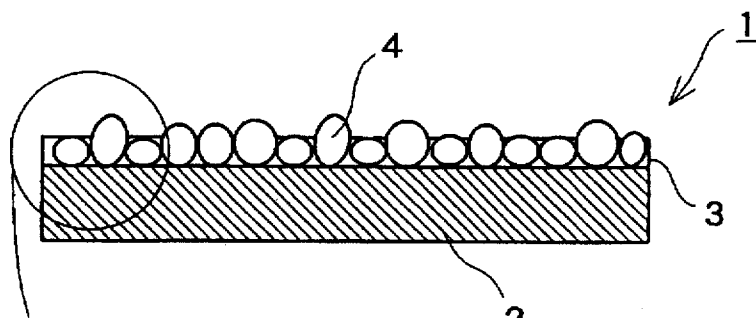


Fig. 1A

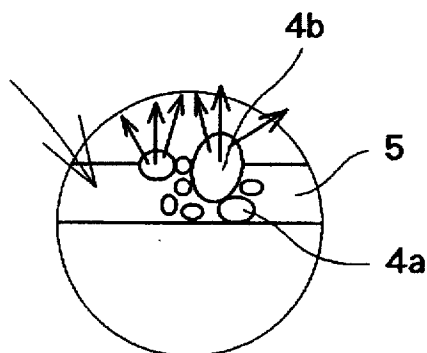


Fig. 1B

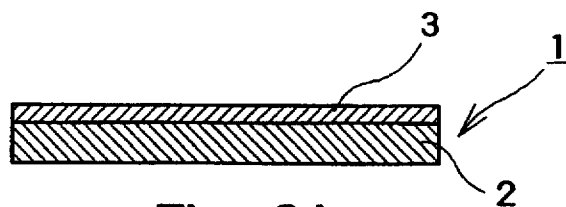


Fig. 2A

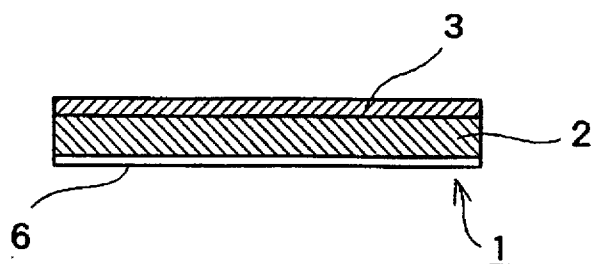


Fig. 2B

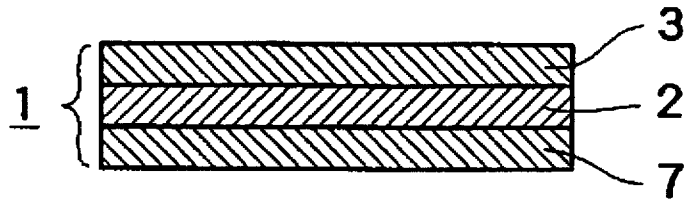


Fig. 3A

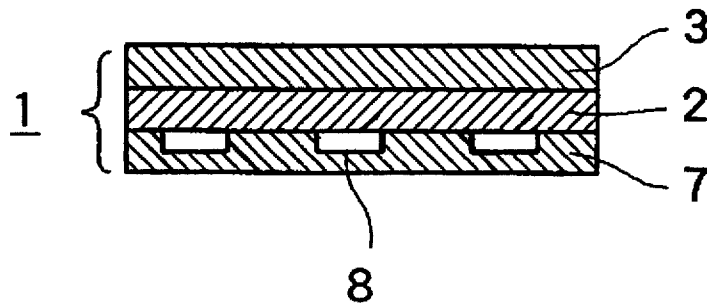


Fig. 3B

Fig. 4A

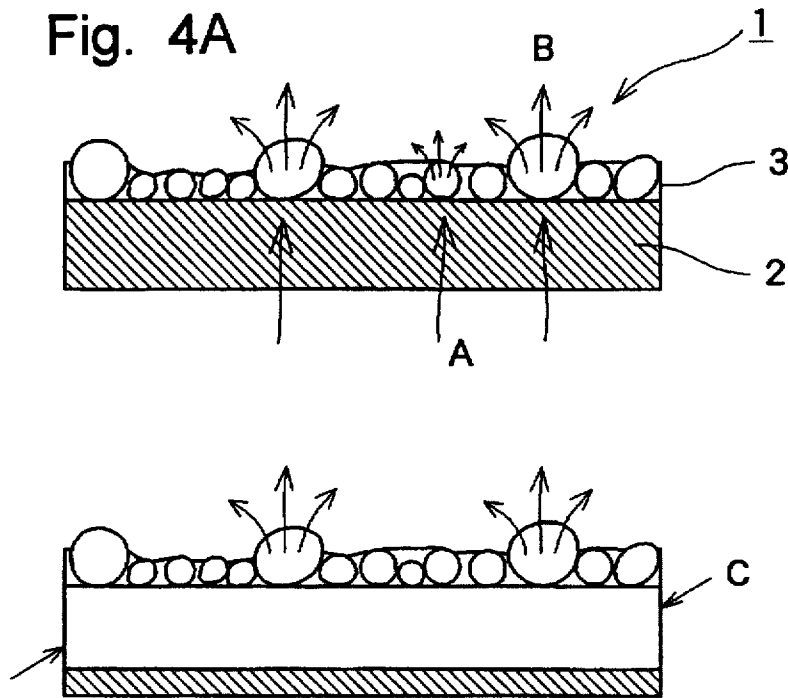


Fig. 4B

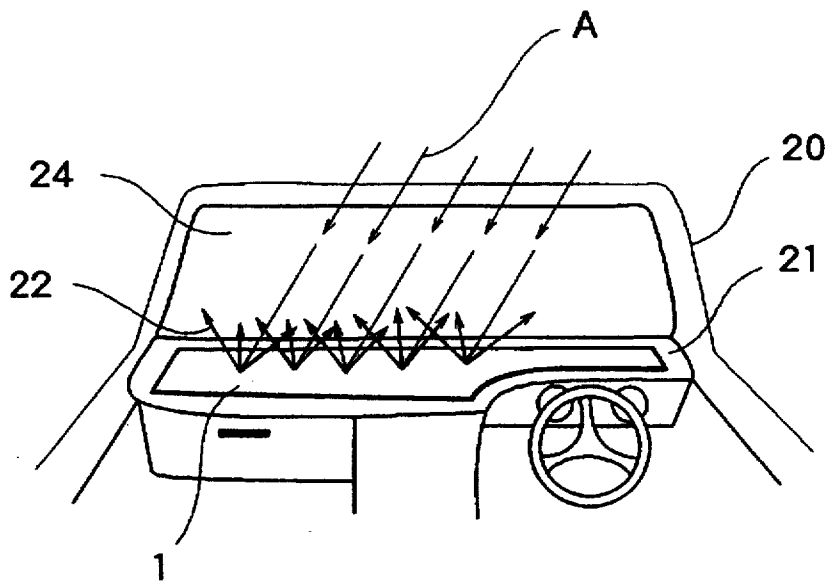


Fig. 5

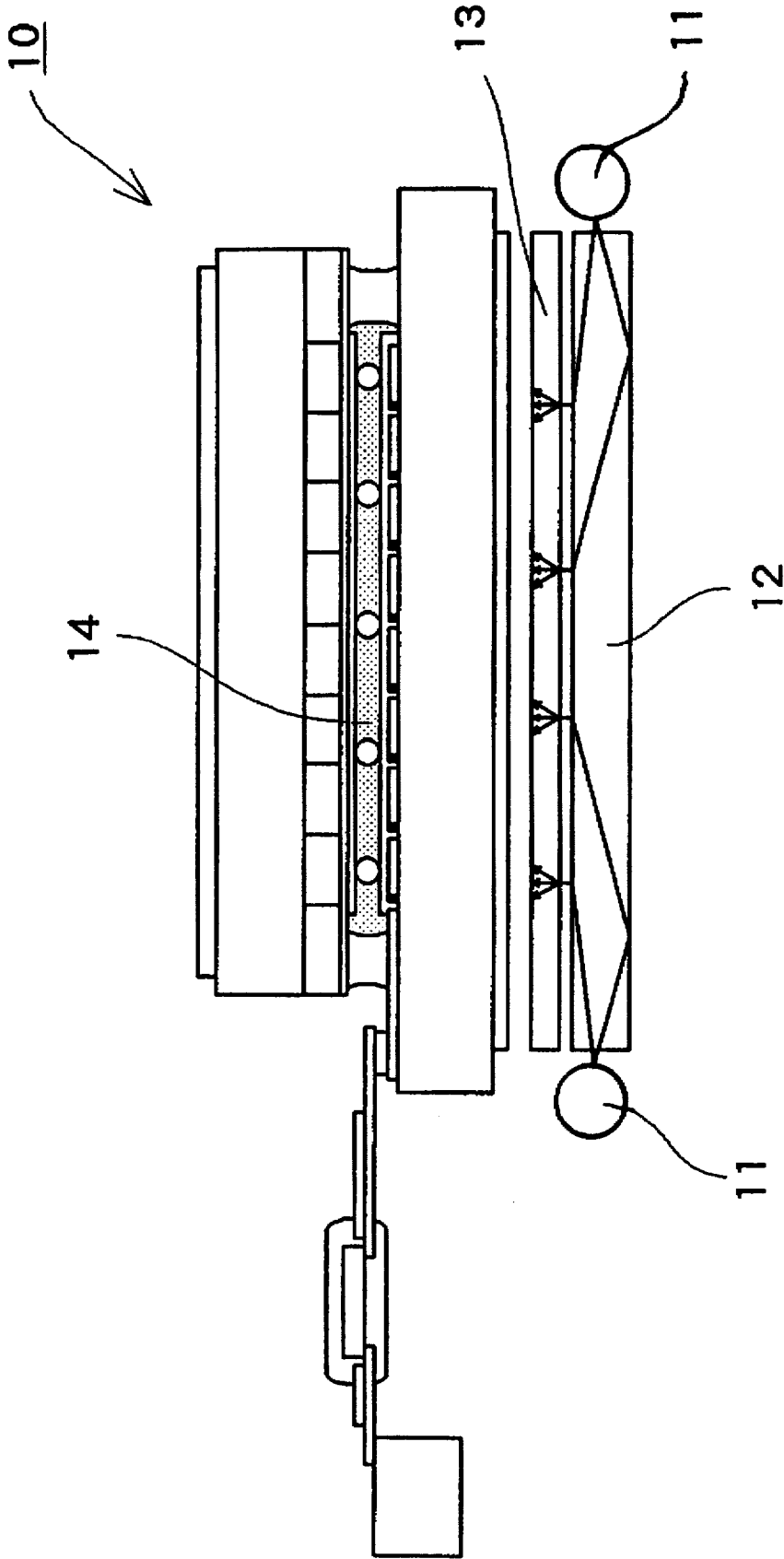


Fig.6 PRIOR ART

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.