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United States Patent [19]

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Konno et al.

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[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**

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**

[56] 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 .

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 .	

OTHER PUBLICATIONS

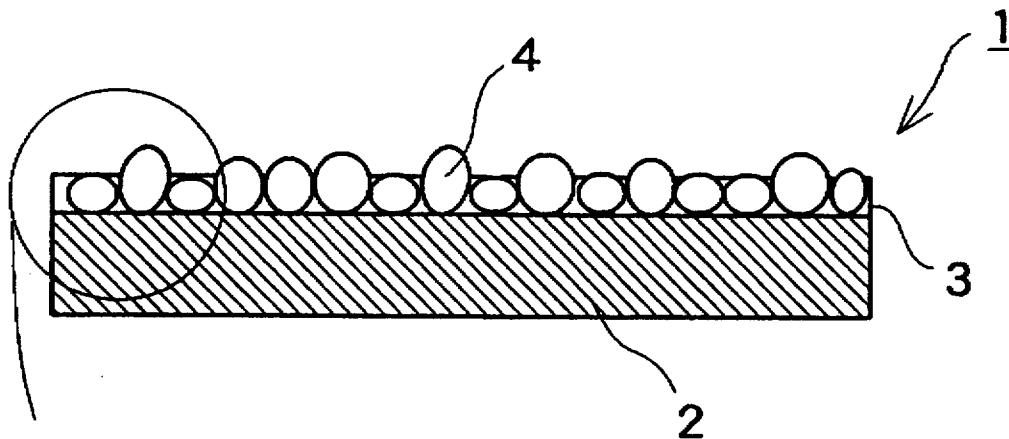
Patents Abstracts of Japan, P-735, Jul. 26, 1988, Vol. 12/No. 266.

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



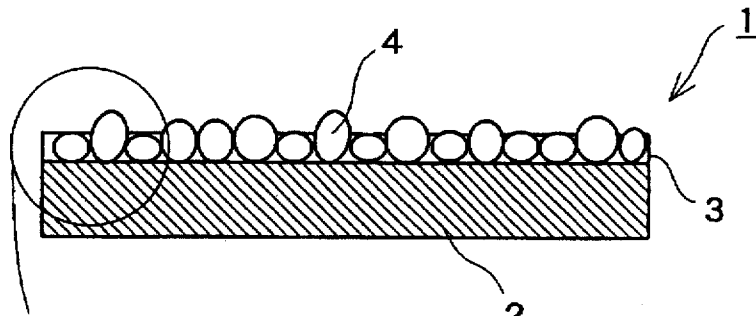


Fig. 1A

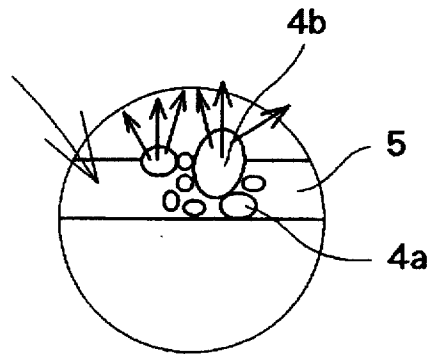


Fig. 1B

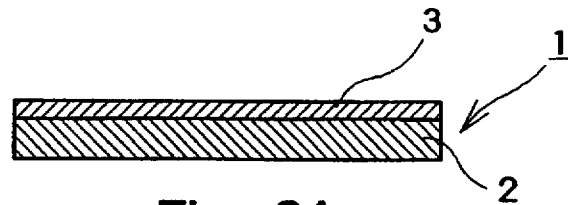


Fig. 2A

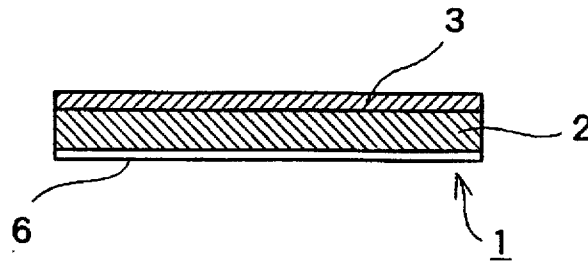


Fig. 2B

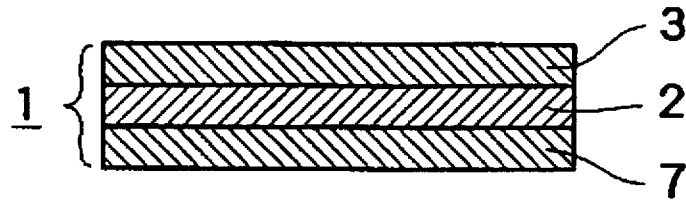


Fig. 3A

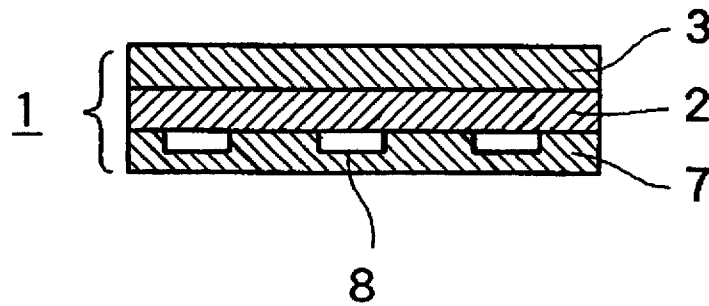


Fig. 3B

Fig. 4A

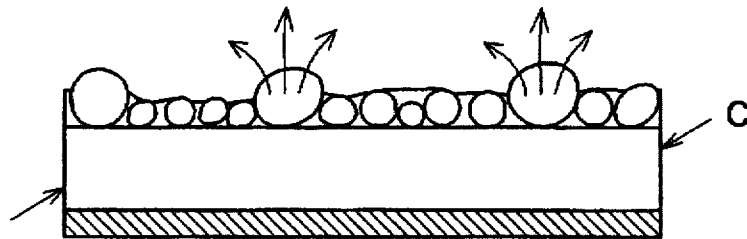
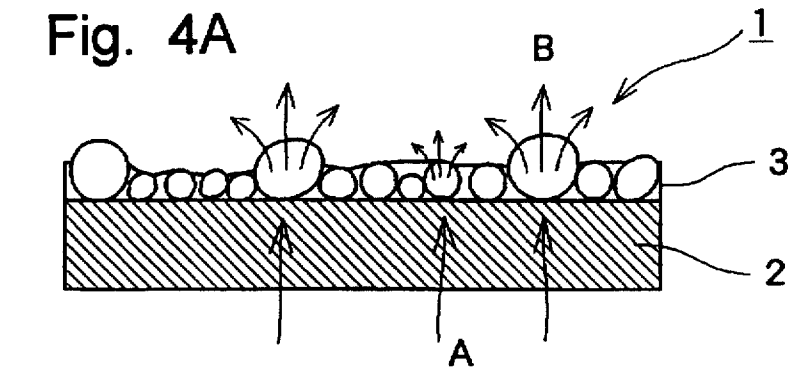


Fig. 4B

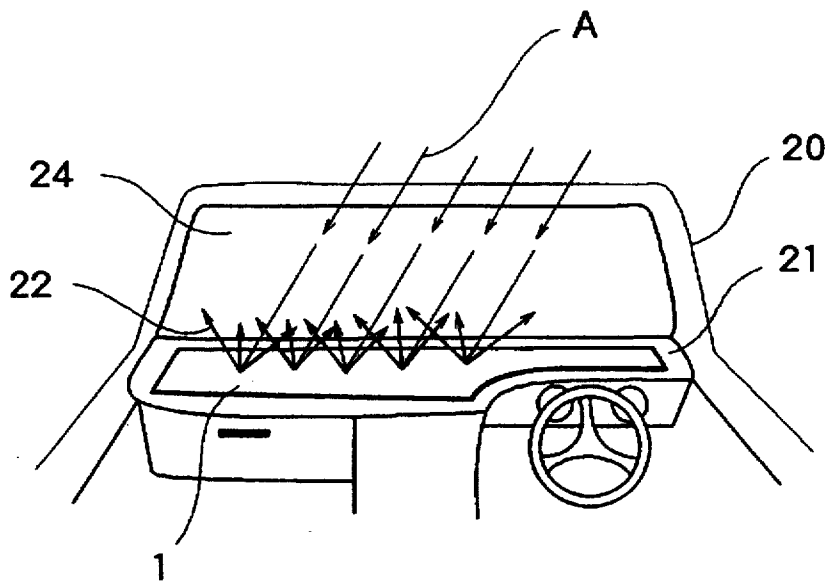


Fig. 5

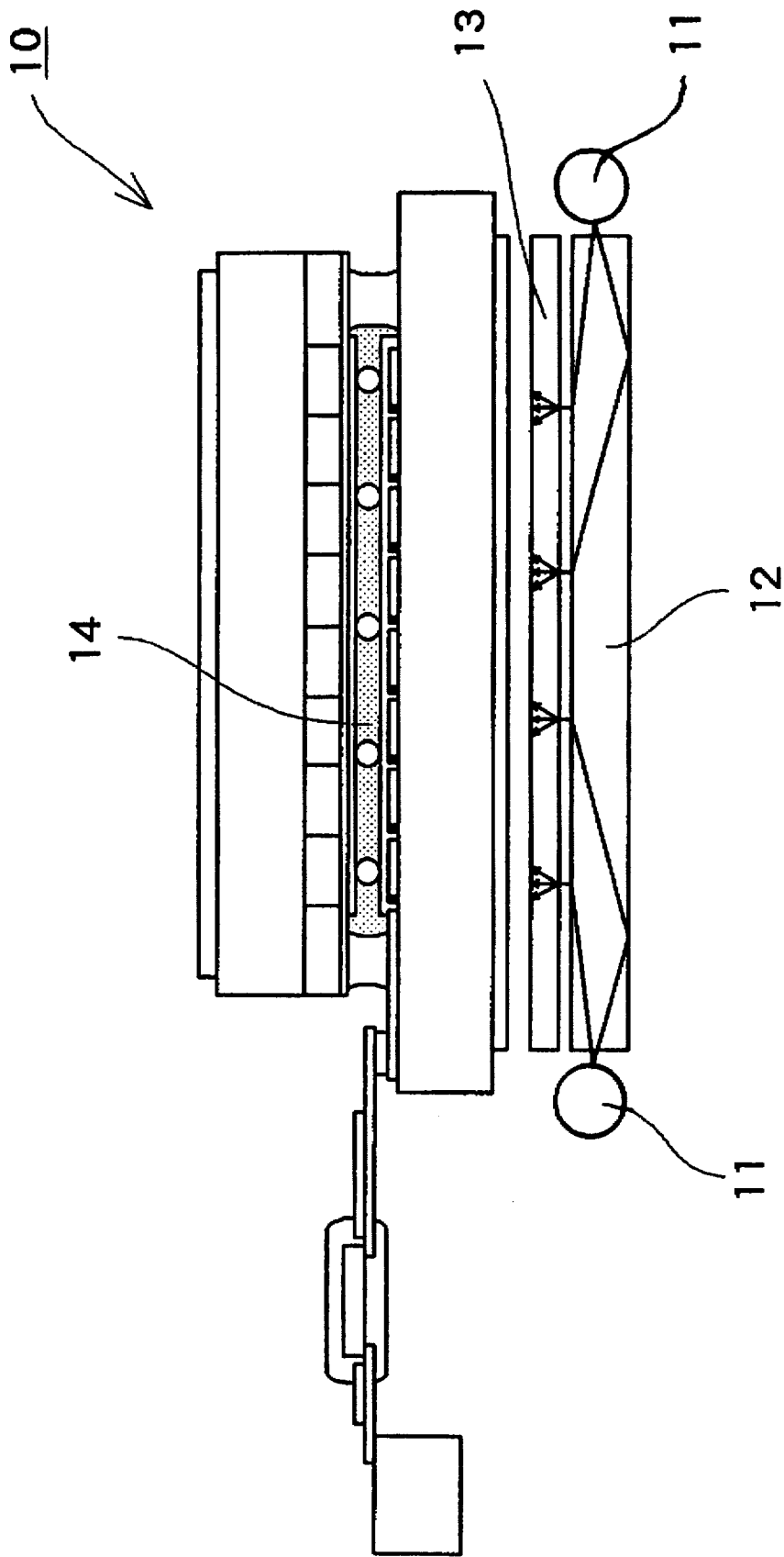


Fig.6 PRIOR ART

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