

US005384658A

United States Patent [19]

Ohtake et al.

[11] Patent Number:

5,384,658

[45] Date of Patent:

Jan. 24, 1995

[54]	PLASTIC OPTICAL MEMBER AND
	LIGHT-QUANTITY-CONTROLLING
	MEMBER EACH HAVING A
	LIGHT-DIFFUSING LAYER ON ITS
	SURFACE

[75] Inventors: Genji Ohtake, Yokohama; Hisao

Morohashi, Kawasaki; Souichi Hasegawa, Yokohama, all of Japan

[73] Assignee: Ohno Research & Development

Laboratories Co. Ltd., Yokohama,

Japan

[21] Appl. No.: 849,398

[22] PCT Filed: Sep. 3, 1991

[86] PCT No.:

PCT/JP91/01177

§ 371 Date:

Apr. 27, 1992

§ 102(e) Date:

Apr. 27, 1992

[87] PCT Pub. No.:

WO92/04400

PCT Pub. Date: Mar. 19, 1992

[30] Foreign Application Priority Data

Sep. 4, 1990 [JP]	Japan		2-23397
Oct. 30, 1990 [JP]	Japan	•••••	2-29299

[51] Int. Cl.⁶ G02B 13/20; G02B 5/02;

362/33

359/619; 362/26, 31, 33

[56]

References Cited

U.S. PATENT DOCUMENTS

3,671,101	6/1972	Finch 359/599
3,850,667	11/1974	Tani et al 117/36.7
4,114,983	9/1978	Maffitt et al 359/599
4,310,219	1/1982	Jaccard 359/599
4,427,265	1/1984	Suzuki et al 359/599
4,529,563	7/1985	McGinniss 264/84
4,573,766	3/1986	Bournay, Jr. et al 362/26
4,989,933	2/1991	Duguay 359/599

FOREIGN PATENT DOCUMENTS

2054433 5/1972 Germany . 349167 11/1959 Japan . 498711 2/1974 Japan . 57-128383 8/1982 Japan . 58-155947 9/1983 Japan . 59-8809 2/1984 Japan . 61-276831 12/1986 Japan . 2126501 5/1990 Japan .

OTHER PUBLICATIONS

English language translation of claim of JP-A-34-9167. English language translation of claim of JP-A-49-8711. English language translation of claim of JP-B-59-8809. English language translation of claims of JP-A-5-7-128383.

English language Abstract of JP reference No. 2-126501.

English language translation of Claims of JP-A-5-8-155947.

English language Abstract of JP Reference No. 61-276831.

Derwent Publications Ltd. London, GB; AN 89-183663 & JP 1 123 201 May 16, 1989.

Derwent Publications Ltd. London, GB AN 86-058934 & JP 61 010499 Jan. 17, 1986.

Primary Examiner—Scott J. Sugarman Assistant Examiner—Thong Nguyen Attorney, Agent, or Firm—Ladas & Parry

[57] ABSTRACT

There is provided a plastics optical member having on its surface a light-diffusing layer composed of a layer of micro-joints formed by immersing a plastics material successively in a good solvent and a poor solvent, and a plastics light-quantity-controlling member having on its surface a white pattern composed of the micro-joints. The superiority in light diffuse reflection, transmission and light-quantity-controlling property permit their incorporation into various optical systems such as screens for projection, various displays, light-source-directly-under-an-illumination-surface type light boxes, edge light type light boxes, etc.

8 Claims, 6 Drawing Sheets

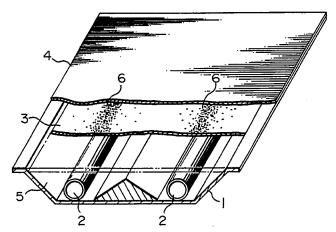




FIG. 1

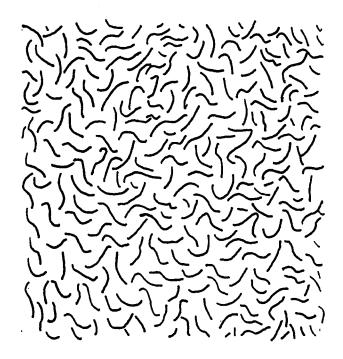


FIG. 2

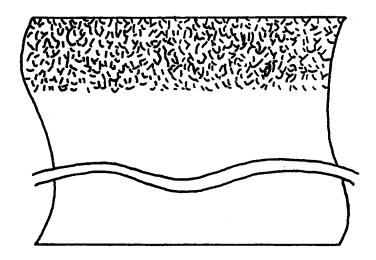


FIG. 3

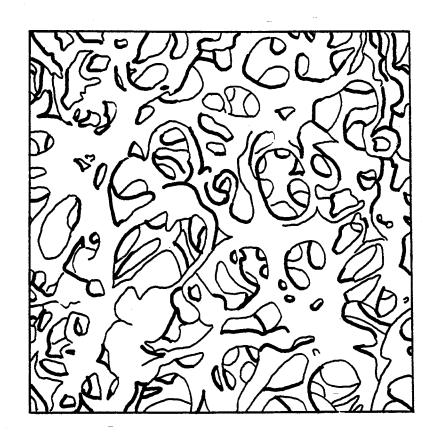


FIG. 4

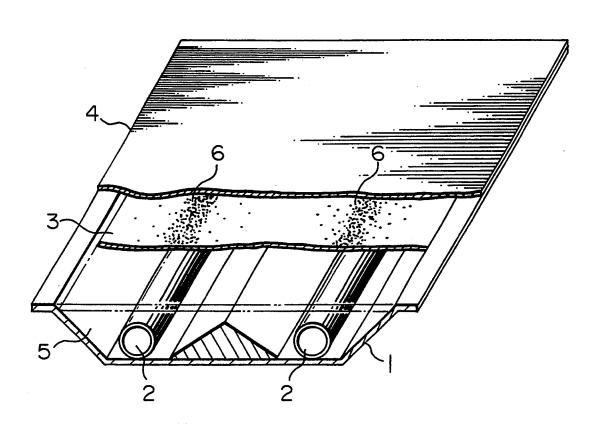


FIG. 5

Jan. 24, 1995

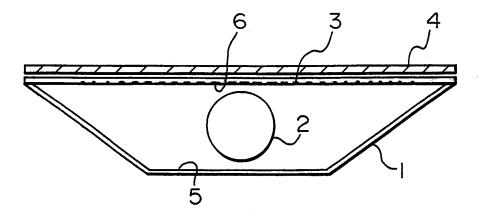
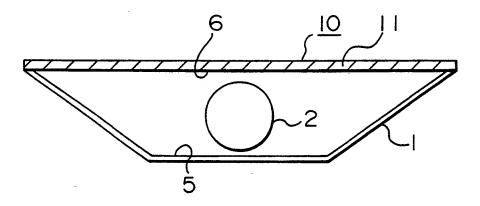
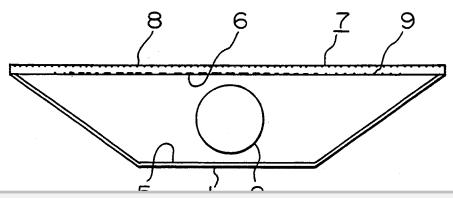


FIG. 6



F1G. 7



DOCKET

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.

