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(12) **United States Design Patent**
Liu et al.(10) **Patent No.:** US D588,970 S
(45) **Date of Patent:** ** Mar. 24, 2009(54) **EXTERIOR SURFACE CONFIGURATION OF A BRAKE FRICTION PAD**5,561,895 A 10/1996 Clark
5,564,533 A 10/1996 Parsons(75) Inventors: **Weiming Liu**, Windsor (CA); **Rodney G. Silvey**, Cookeville, TN (US); **Jason Heath Mahan**, Lafayette, TN (US)

(Continued)

(73) Assignee: **Federal Mogul World Wide, Inc.**,
Southfield, MI (US)

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(**) Term: **14 Years**(21) Appl. No.: **29/282,918**

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(22) Filed: **Aug. 1, 2007****FOREIGN PATENT DOCUMENTS**(51) **LOC (9) Cl.** **12-16**(52) **U.S. Cl.** **D12/180**(58) **Field of Classification Search** D12/180,
D12/174, 400; D15/138–140; 72/339; 188/73.31–73.39,
188/73.43, 73.45, 218 XL, 73.1, 250 B, 250 E,
188/250 R, 251 R; 192/107 M, 107 R; 428/443;
488/1.11 W, 1.11 R

See application file for complete search history.

(56) **References Cited****U.S. PATENT DOCUMENTS**

- 1,506,578 A * 8/1924 Grandahl 72/477
1,950,262 A * 3/1934 Norton 428/443
D235,630 S 7/1975 Rath
4,056,174 A * 11/1977 Wienand et al. 188/73.36
4,173,681 A 11/1979 Durrieu et al.
4,200,173 A 4/1980 Evans et al.
4,220,223 A 9/1980 Rinker et al.
4,290,508 A * 9/1981 Baum 188/73.38
D277,175 S * 1/1985 Caplygin D12/180
4,527,669 A * 7/1985 Meyer et al. 188/73.38
4,705,146 A 11/1987 Tarter
4,823,920 A * 4/1989 Evans 188/73.34
4,993,520 A 2/1991 Goddard et al.
5,145,037 A 9/1992 Kobayashi et al.
5,413,194 A 5/1995 Kulis, Jr. et al.
5,443,133 A 8/1995 Dreilich et al.
5,456,339 A 10/1995 Zeng
5,535,859 A 7/1996 Zeng

FOREIGN PATENT DOCUMENTS

EP 0443360 A1 2/1991

(Continued)

OTHER PUBLICATIONS

Weiming Liu, Greg M. Vyletel, Jerry Li, "A Rapid Design Tool and Methodology for Reducing High Frequency Brake Squeal", SAE International 2006, Paper No. 2006-01-3205.

(Continued)

Primary Examiner—Philip S Hyder*Assistant Examiner*—Cynthia Underwood(74) *Attorney, Agent, or Firm*—Robert L. Strearns; Dickinson Wright PLLC

(57)

CLAIM

The ornamental design for an exterior surface configuration of a brake friction pad, as shown and described.

DESCRIPTION

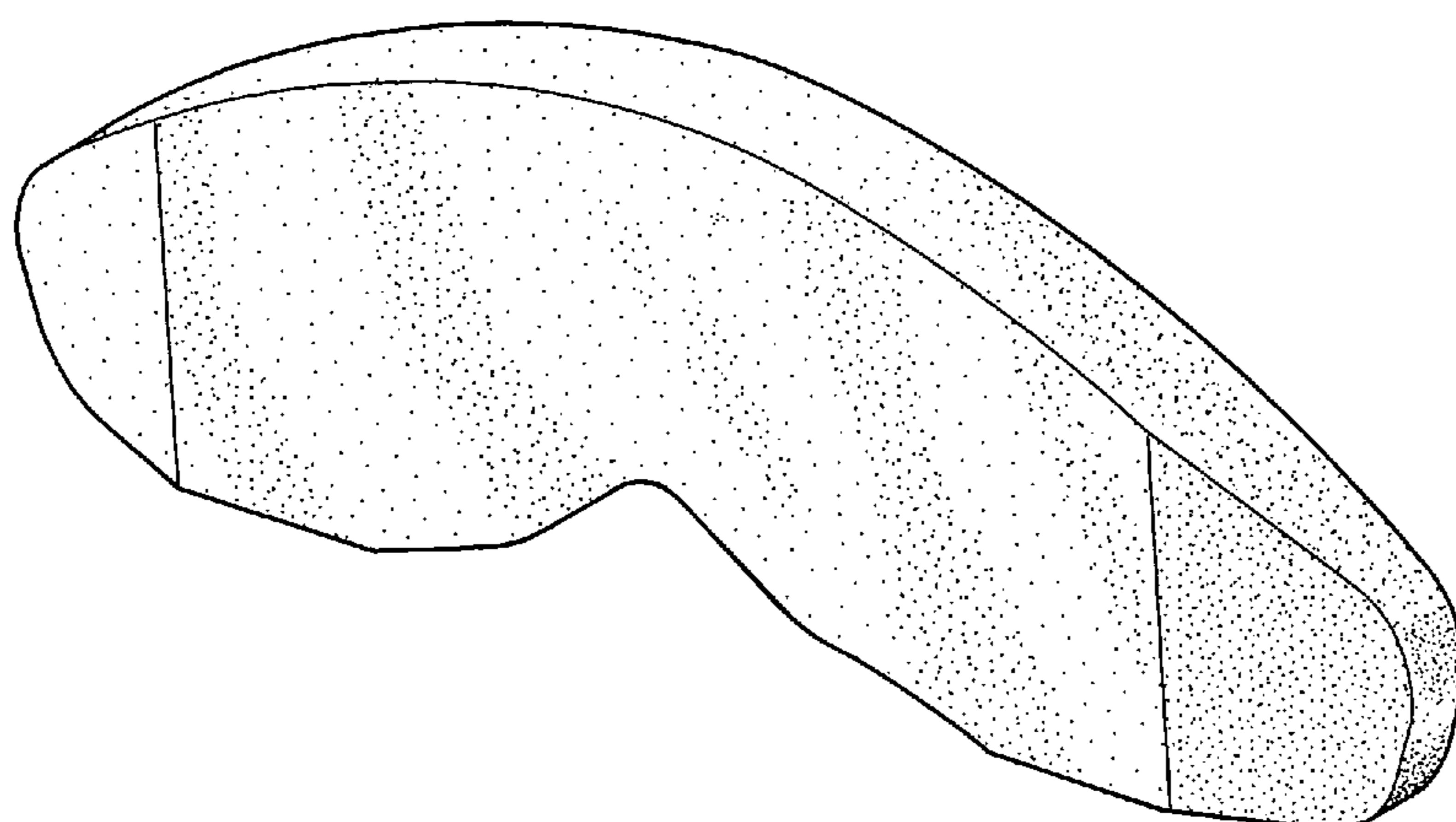
FIG. 1 is a perspective view of an exterior surface configuration of a brake friction pad;

FIG. 2 is a front view thereof;

FIG. 3 is a top view thereof;

FIG. 4 is a bottom view thereof; and,

FIG. 5 is a right side elevational view thereof, the left side elevational view being a mirror image of the right side elevational view.

1 Claim, 2 Drawing Sheets

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U.S. PATENT DOCUMENTS

5,730,257 A	3/1998	Clark
5,799,754 A *	9/1998	Kazuro et al. 188/1.11 W
6,032,767 A	3/2000	Roehling
6,142,263 A *	11/2000	Lotfipour 188/73.37
6,283,258 B1	9/2001	Chen et al.
6,382,027 B1	5/2002	Uhlig
6,481,544 B2	11/2002	Brecht et al.
6,843,128 B2	1/2005	Chen et al.
D506,423 S	6/2005	Matsumoto
D507,773 S	7/2005	Ono
7,111,709 B2 *	9/2006	Baba 188/73.37
7,222,701 B2 *	5/2007	Pham 188/250 G
7,234,573 B2	6/2007	Kurz et al.
7,275,625 B2	10/2007	Oi et al.
2003/0178266 A1	9/2003	Hulten et al.
2004/0154885 A1*	8/2004	Gotti et al. 188/250 B
2005/0023091 A1	2/2005	Ol et al.
2007/0039789 A1	2/2007	Sano
2008/0011562 A1*	1/2008	Hilbrandt 188/250 B

FOREIGN PATENT DOCUMENTS

FR	2482687	11/1981
FR	2555271 A3	11/1984
GB	2216066 A	10/1989

GB	2277968 A	11/1994
JP	01224531 A	9/1989
JP	05141455 A	6/1993
JP	05164158 A	6/1993
JP	06159406 A	6/1994
WO	WO9113268	9/1991

OTHER PUBLICATIONS

Assembly Drawing for: FMSI 7530A-D650, Automotive Data Book Bulletin #2-941 Nov. 30, 1994, Friction Material Standards Institute, Madison, CT.
Drawing#7530A Outer, Automotive Data Book Bulletin #2-941 Nov. 30, 1994, Friction Material Standards Institute, Madison, CT.
Drawing#7530A Inner, Automotive Data Book Bulletin #2-941 Nov. 30, 1994, Friction Material Standards Institute, Madison, CT.
Shoe FMS D650 Inner, Automotive Data Book Bulletin #2-941 Nov. 30, 1994, Friction Material Standards Institute, Madison, CT.
Shoe FMS D650 Outer, Automotive Data Book Bulletin #2-941 Nov. 30, 1994, Friction Material Standards Institute, Madison, CT.
FMSI 7488 Inner, Automotive Data Book Bulletin #5-921 Mar. 26, 1993, Friction Material Standards Institute, Madison, CT.
Drawing No. 42-1243-000 Sheet 1, Integrally Molded Disc Brake Assembly, from Friction Products, Winchester VA, Dated May 24, 1995.

* cited by examiner

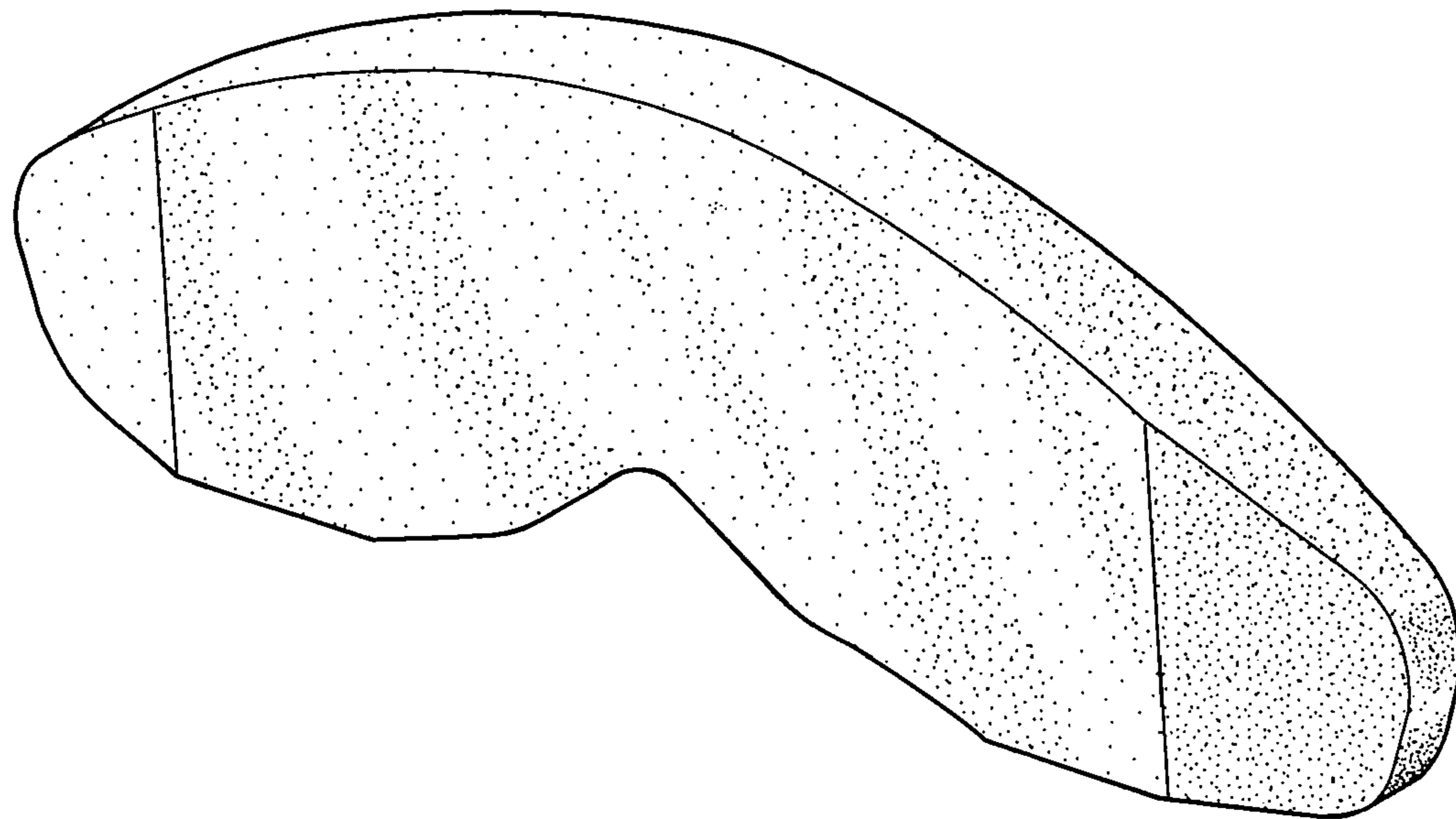


Fig. 1

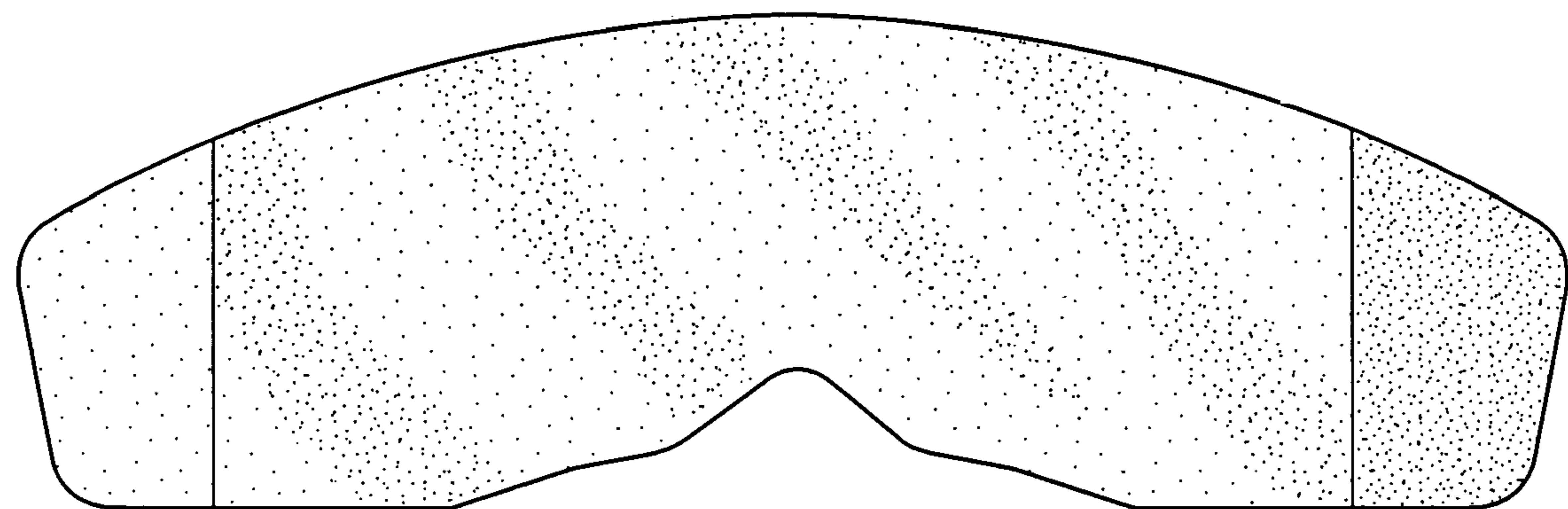


Fig. 2

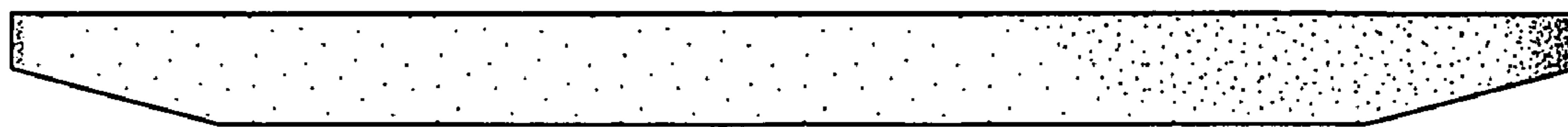


Fig. 3



Fig. 4

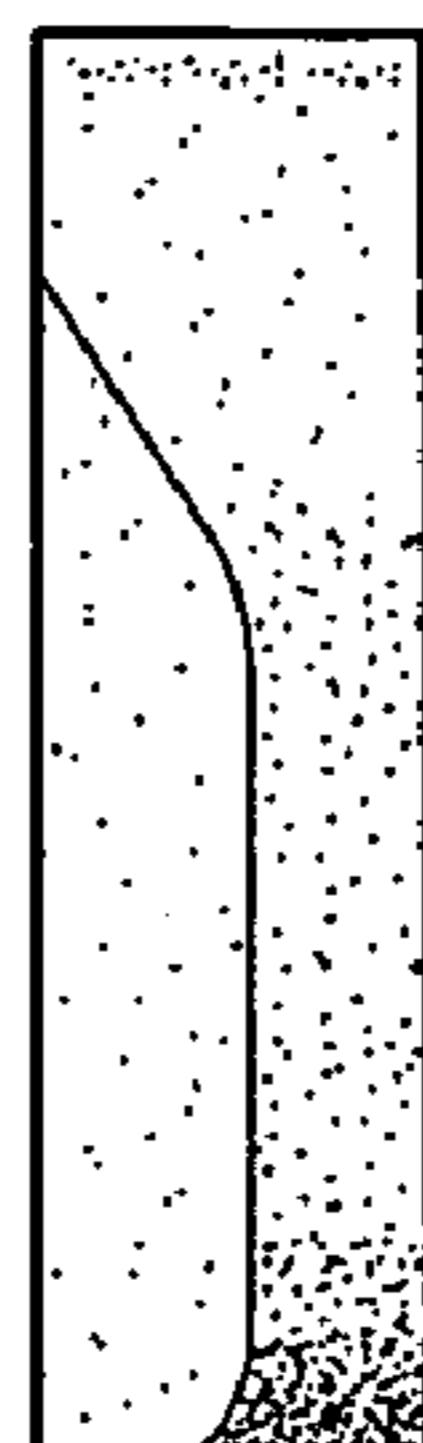


Fig. 5