US00D588973S

(12) United States Design Patent

Liu et al.

(10) Patent No.: US D588,973 S
(45) Date of Patent: ** Mar. 24, 2009

(54) **BRAKE FRICTION PAD**

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(**) Term: **14 Years**

(21) Appl. No.: **29/282,922**

(22) Filed: **Aug. 1, 2007**

(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
4,428,463	A *	1/1984	Burgdorf et al.	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	
5,561,895	A	10/1996	Clark	
5,564,533	A	10/1996	Parsons	
5,730,257	A	3/1998	Clark	
5,799,754	A *	9/1998	Kazuro et al.	188/1.11 W
5,875,873	A *	3/1999	Kay et al.	188/73.38
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.	

(Continued)

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)

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(57) **CLAIM**

The ornamental design for a brake friction pad, as shown and described.

DESCRIPTION

FIG. **1** is a perspective view of a brake friction pad;

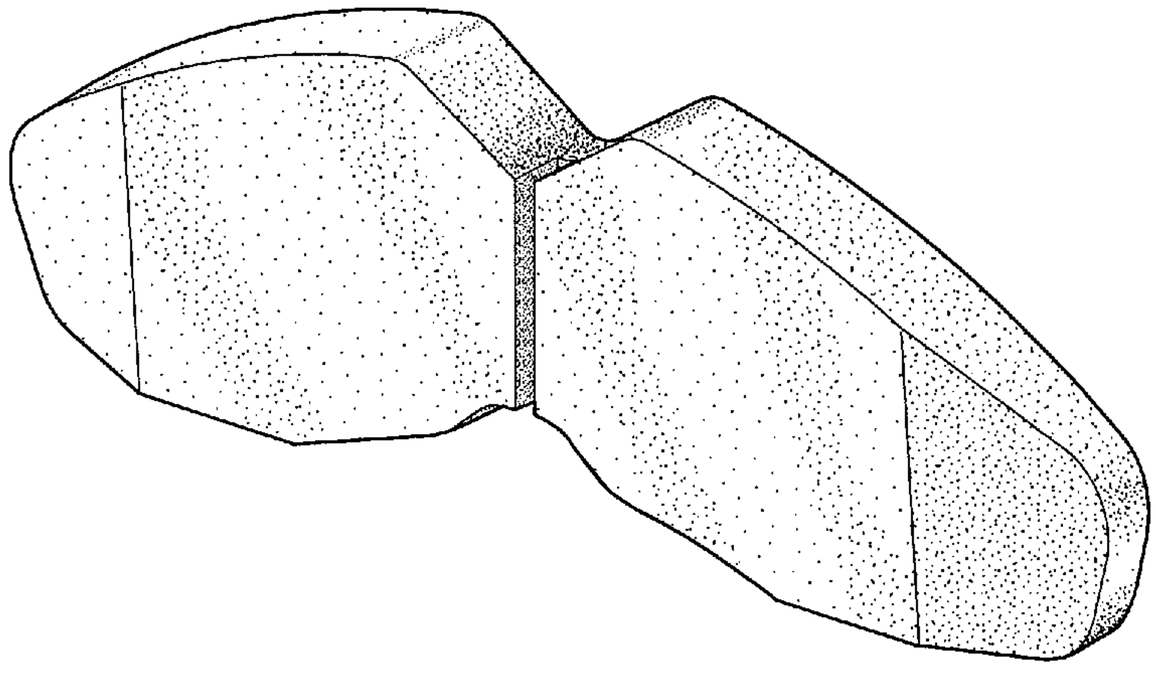
FIG. **2** is a front view thereof;

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



U.S. PATENT DOCUMENTS

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

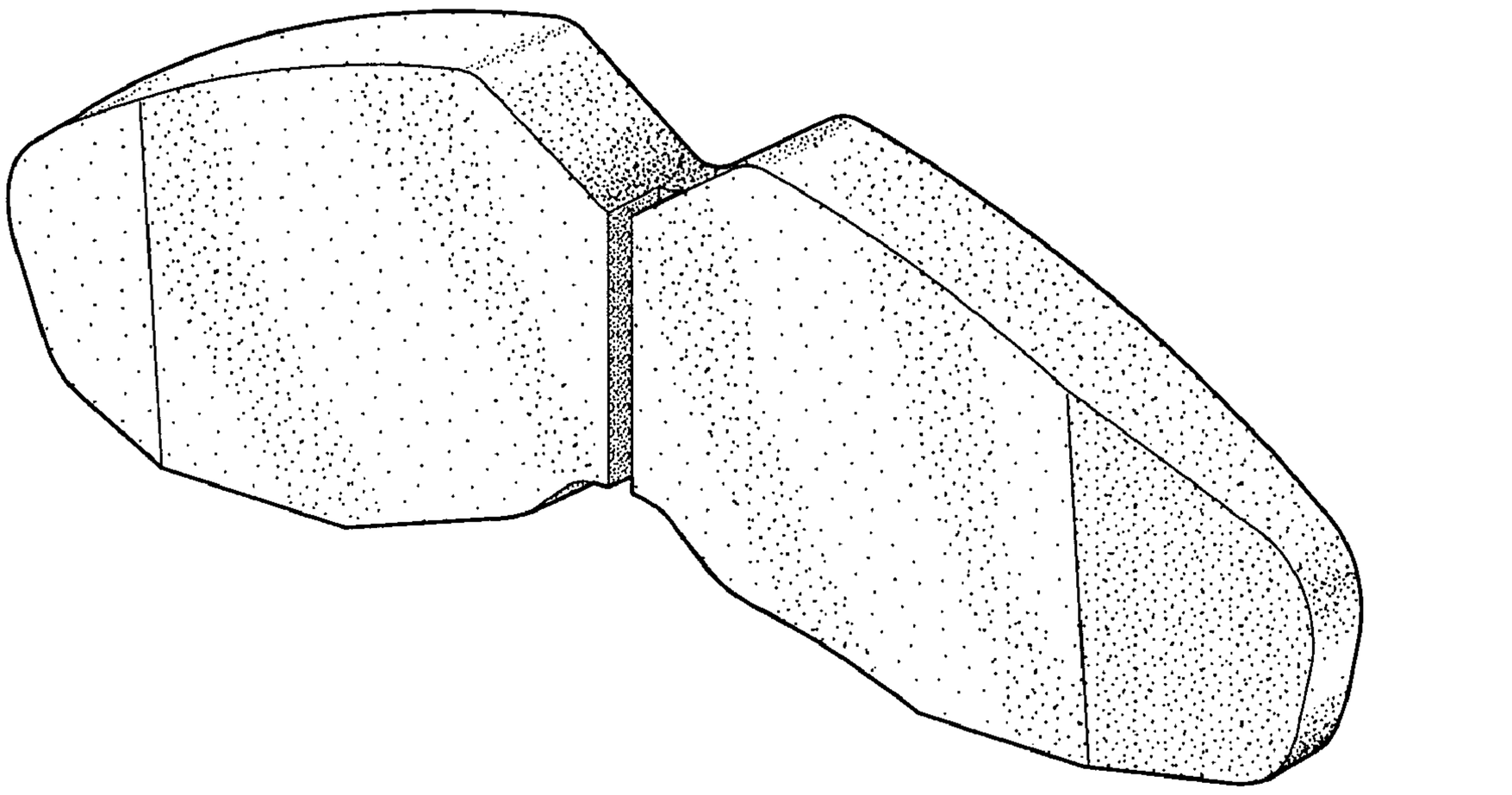


Fig. 1

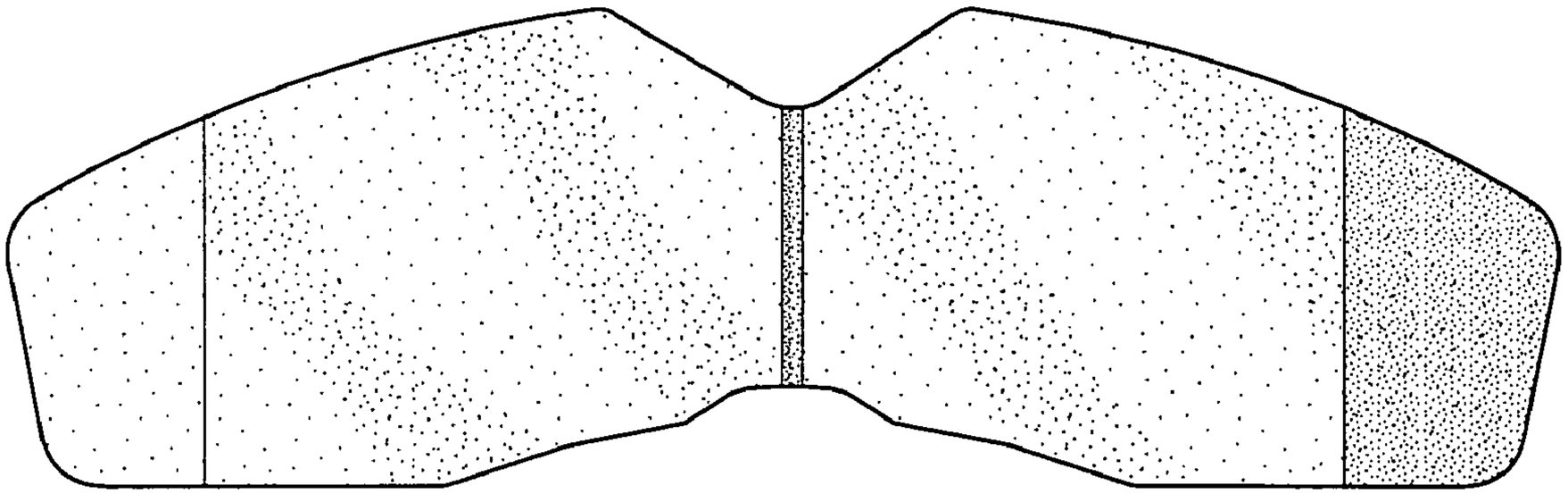


Fig. 2

Fig. 3

Fig. 4

Fig. 5