

US00D563950S

(12) **United States Design Patent**  
**Yamashita et al.**

(10) **Patent No.: US D563,950 S**  
(45) **Date of Patent: \*\* Mar. 11, 2008**

(54) **MICROWAVE INTRODUCING ANTENNA  
FOR A PLASMA PROCESSING APPARATUS**

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

(21) Appl. No.: **29/281,085**

(22) Filed: **Jun. 14, 2007**

(30) **Foreign Application Priority Data**

Dec. 15, 2006 (JP) ..... 2006-034514

(51) **LOC (8) Cl.** ..... **14-03**

(52) **U.S. Cl.** ..... **D14/233**

(58) **Field of Classification Search** ..... D14/230,  
D14/233; 343/770, 769; 118/723 MW;  
438/514, 726; 455/269; 156/345, 345.34,  
156/345.41, 914

See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

5,175,561	A *	12/1992	Goto	.....	343/769
5,661,498	A *	8/1997	Goto et al.	.....	343/771
6,124,833	A *	9/2000	Bialkowski et al.	.....	343/770
7,233,297	B1 *	6/2007	Harvey et al.	.....	343/770
2002/0020498	A1 *	2/2002	Ohmi et al.	.....	156/345
2004/0021611	A1 *	2/2004	Iida	.....	343/770

2004/0036660	A1 *	2/2004	Huor	.....	343/767
2005/0211382	A1 *	9/2005	Ishii et al.	.....	156/345.41
2005/0250338	A1 *	11/2005	Ohmi et al.	.....	438/726
2006/0118241	A1 *	6/2006	Ohmi et al.	.....	156/345.41
2007/0134895	A1 *	6/2007	Matsuyama et al.	.....	438/514
2007/0163617	A1 *	7/2007	Ozaki et al.	.....	134/1.1

**FOREIGN PATENT DOCUMENTS**

JP	2-48806	2/1990
JP	5-67918	3/1993
JP	5-90834	4/1993
JP	5-226927	9/1993

\* cited by examiner

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(57) **CLAIM**

The ornamental design for a microwave introducing antenna  
for a plasma processing apparatus, as shown.

**DESCRIPTION**

FIG. 1 is a front view of a microwave introducing antenna  
for a plasma processing apparatus showing our new design:

FIG. 2 is a right side view thereof;

FIG. 3 is a top plan view thereof;

FIG. 4 is a sectional view taken along line 4—4 of FIG. 1  
thereof; and,

FIG. 5 is a perspective view thereof.

**1 Claim, 2 Drawing Sheets**

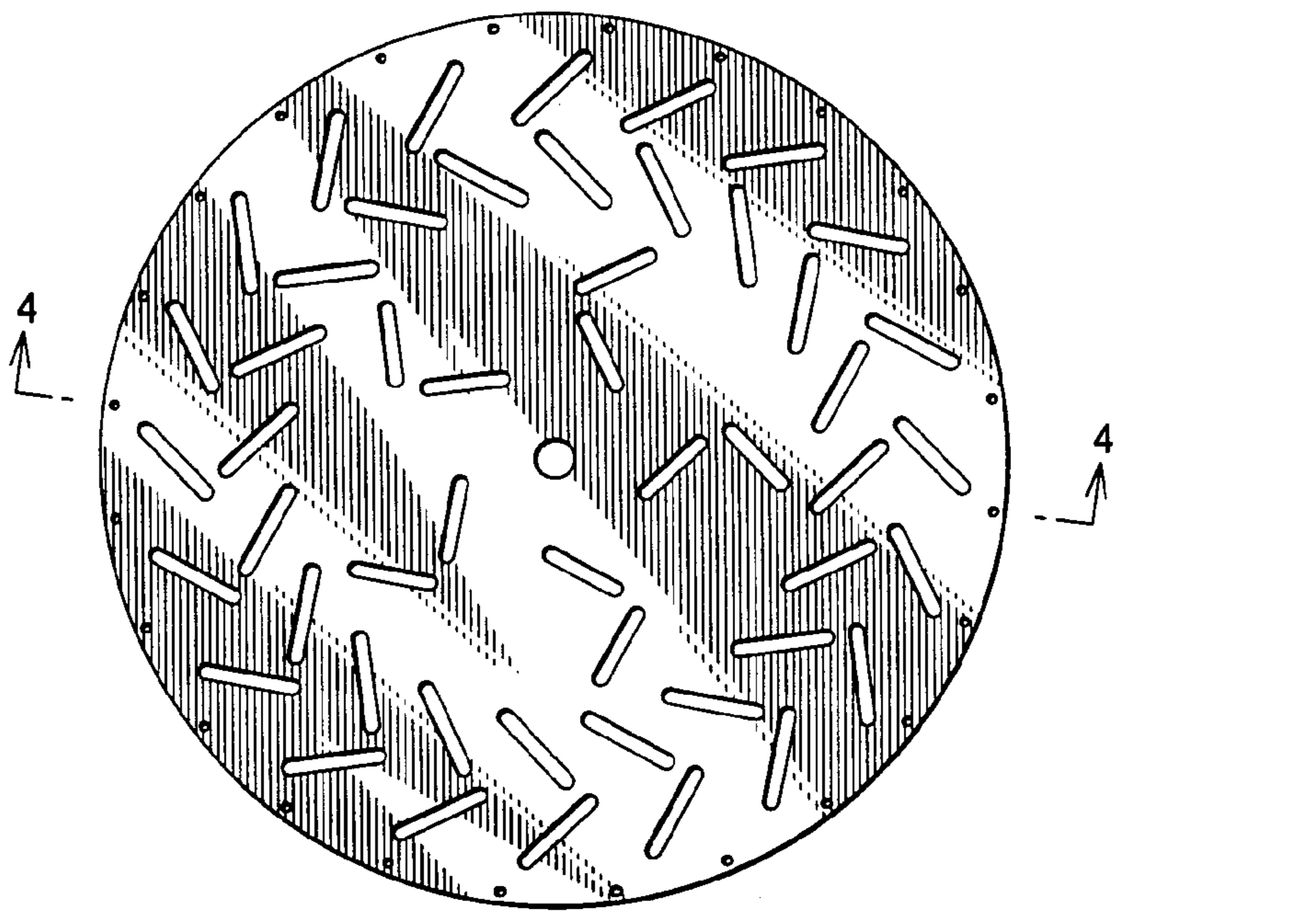


FIG.1

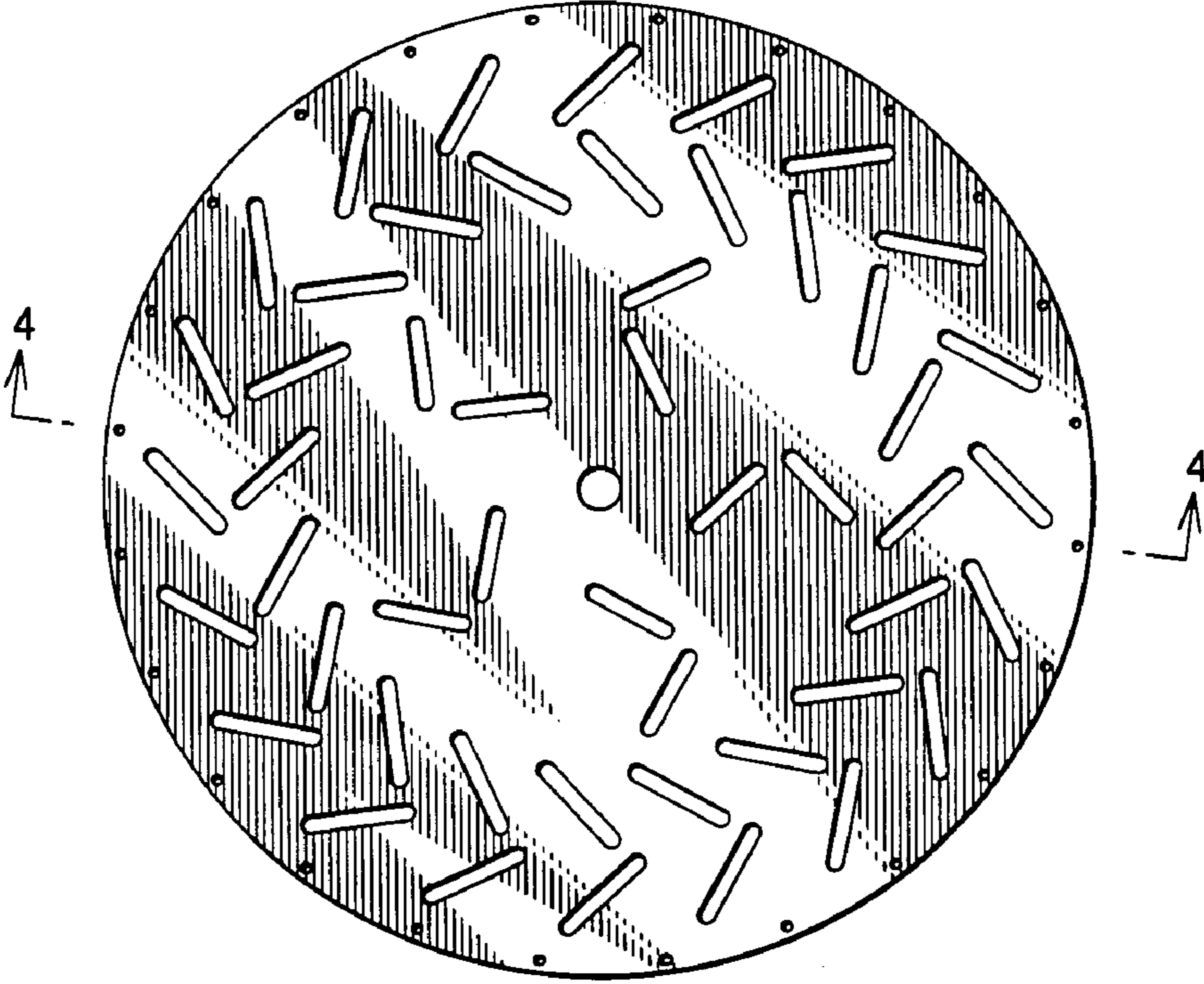


FIG.2



FIG.3



FIG.4



FIG.5

