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(12) **United States Design Patent**  
**Ishibashi**

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(54) **ROLLER FOR SEMICONDUCTOR WAFER  
CLEANING**

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

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(30) **Foreign Application Priority Data**

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(52) **U.S. Cl.**  
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(58) **Field of Classification Search**  
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15/88.3, 102, 104.93, 179, 230, 230.16;  
134/6, 26, 28

See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

|           |      |         |                 |           |
|-----------|------|---------|-----------------|-----------|
| 5,401,231 | A *  | 3/1995  | Hebert          | 492/37    |
| 5,414,914 | A *  | 5/1995  | Suzuki et al.   | 28/105    |
| 5,675,856 | A *  | 10/1997 | Itzkowitz       | 15/77     |
| 5,745,945 | A *  | 5/1998  | Manfredi et al. | 15/77     |
| 5,966,765 | A *  | 10/1999 | Hamada et al.   | 15/77     |
| 6,004,402 | A *  | 12/1999 | Cercone et al.  | 134/2     |
| 6,027,573 | A *  | 2/2000  | Cercone et al.  | 134/28    |
| 6,041,465 | A *  | 3/2000  | Yashiki et al.  | 15/88.3   |
| 6,080,092 | A *  | 6/2000  | Cercone et al.  | 492/30    |
| 6,182,323 | B1 * | 2/2001  | Bahten          | 15/230.16 |
| 6,202,658 | B1 * | 3/2001  | Fishkin et al.  | 134/147   |
| 6,235,125 | B1 * | 5/2001  | Cercone et al.  | 134/28    |
| 6,247,197 | B1 * | 6/2001  | Vail et al.     | 15/77     |
| 6,308,369 | B1 * | 10/2001 | Garcia et al.   | 15/230    |

|              |      |         |                 |           |
|--------------|------|---------|-----------------|-----------|
| 6,345,630    | B2 * | 2/2002  | Fishkin et al.  | 134/1.3   |
| D456,667     | S *  | 5/2002  | Veltri et al.   | D7/387    |
| 6,405,399    | B1 * | 6/2002  | Farber et al.   | 15/77     |
| 6,464,796    | B2 * | 10/2002 | Vail et al.     | 134/6     |
| 6,502,273    | B1 * | 1/2003  | Mihara et al.   | 15/230.16 |
| 6,543,084    | B2 * | 4/2003  | Dickey et al.   | 15/179    |
| 6,557,202    | B1 * | 5/2003  | Bliven et al.   | 15/77     |
| 6,616,516    | B1 * | 9/2003  | Ravkin et al.   | 451/194   |
| D482,566     | S *  | 11/2003 | Zemel           | D7/393    |
| 6,684,447    | B2 * | 2/2004  | Mihara et al.   | 15/230.16 |
| 6,904,637    | B2 * | 6/2005  | Sugarman        | 15/77     |
| 7,735,177    | B1 * | 6/2010  | Farber et al.   | 15/102    |
| D622,920     | S *  | 8/2010  | Bejtlich, III   | D32/40    |
| 7,955,693    | B2 * | 6/2011  | Drury           | 428/304.4 |
| 8,372,210    | B2 * | 2/2013  | Sin et al.      | 134/26    |
| D682,497     | S *  | 5/2013  | Wargo et al.    | D32/25    |
| 8,496,758    | B2 * | 7/2013  | Idani           | 134/6     |
| 2002/0100132 | A1 * | 8/2002  | McMullen et al. | 15/230.16 |
| 2002/0121289 | A1 * | 9/2002  | Brown et al.    | 134/6     |
| 2005/0109371 | A1 * | 5/2005  | Sin et al.      | 134/6     |

\* cited by examiner

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(57) **CLAIM**

The ornamental design for a roller for semiconductor wafer cleaning, as shown and described.

**DESCRIPTION**

FIG. 1 is a front elevation view of a roller for semiconductor wafer cleaning showing my new design;  
FIG. 2 is a rear elevation view thereof;  
FIG. 3 is a top plan view thereof; the bottom view being an identical,  
FIG. 4 is a right side view thereof; the left side view being an identical; and,  
FIG. 5 is a cross section view taken along the line of 5-5 of FIG. 4 thereof.

**1 Claim, 5 Drawing Sheets**

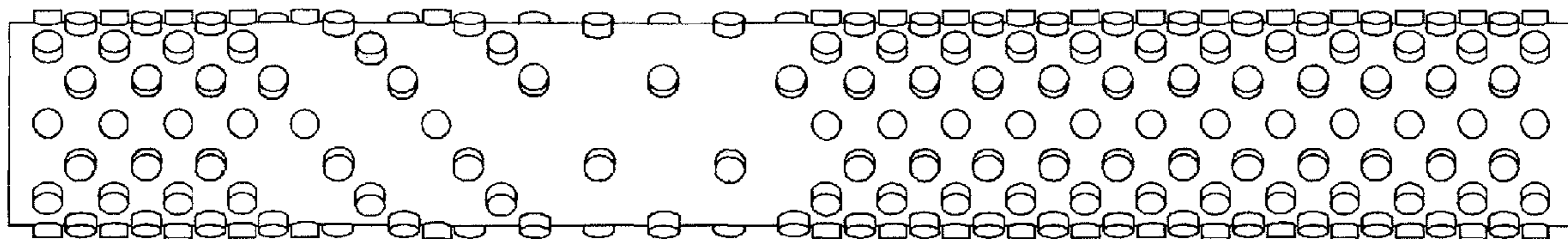


Figure 1

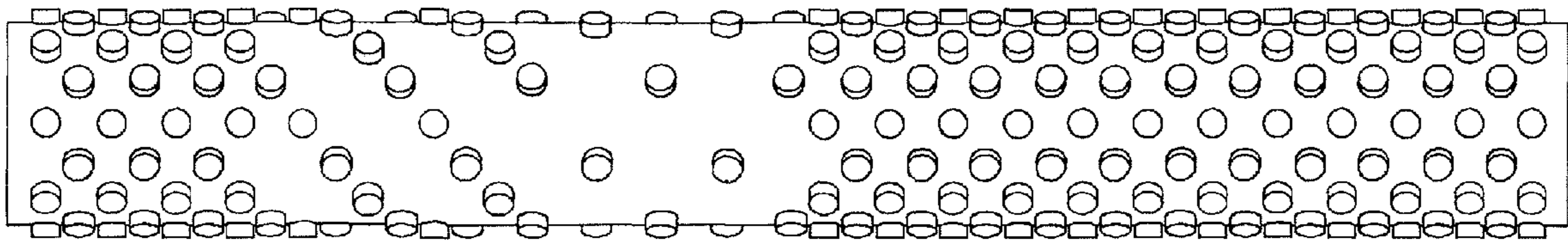


Figure 2

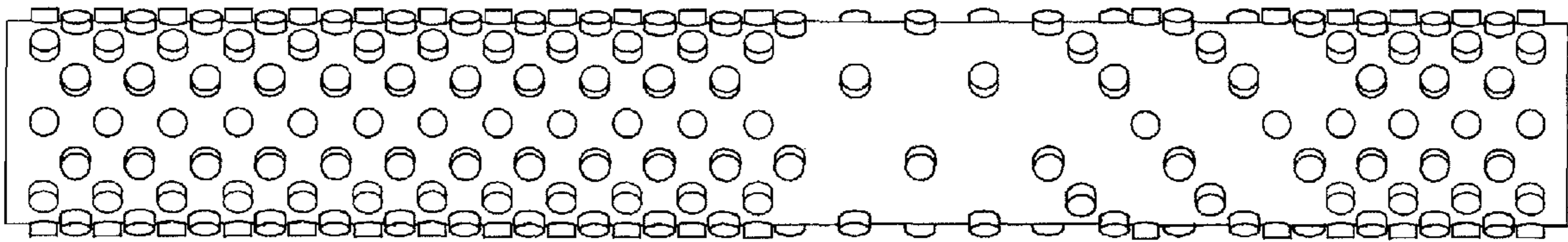


Figure 3

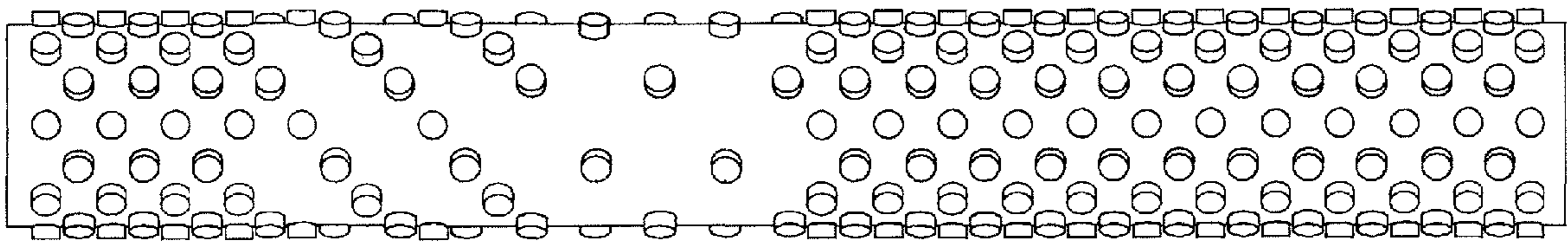


Figure 4

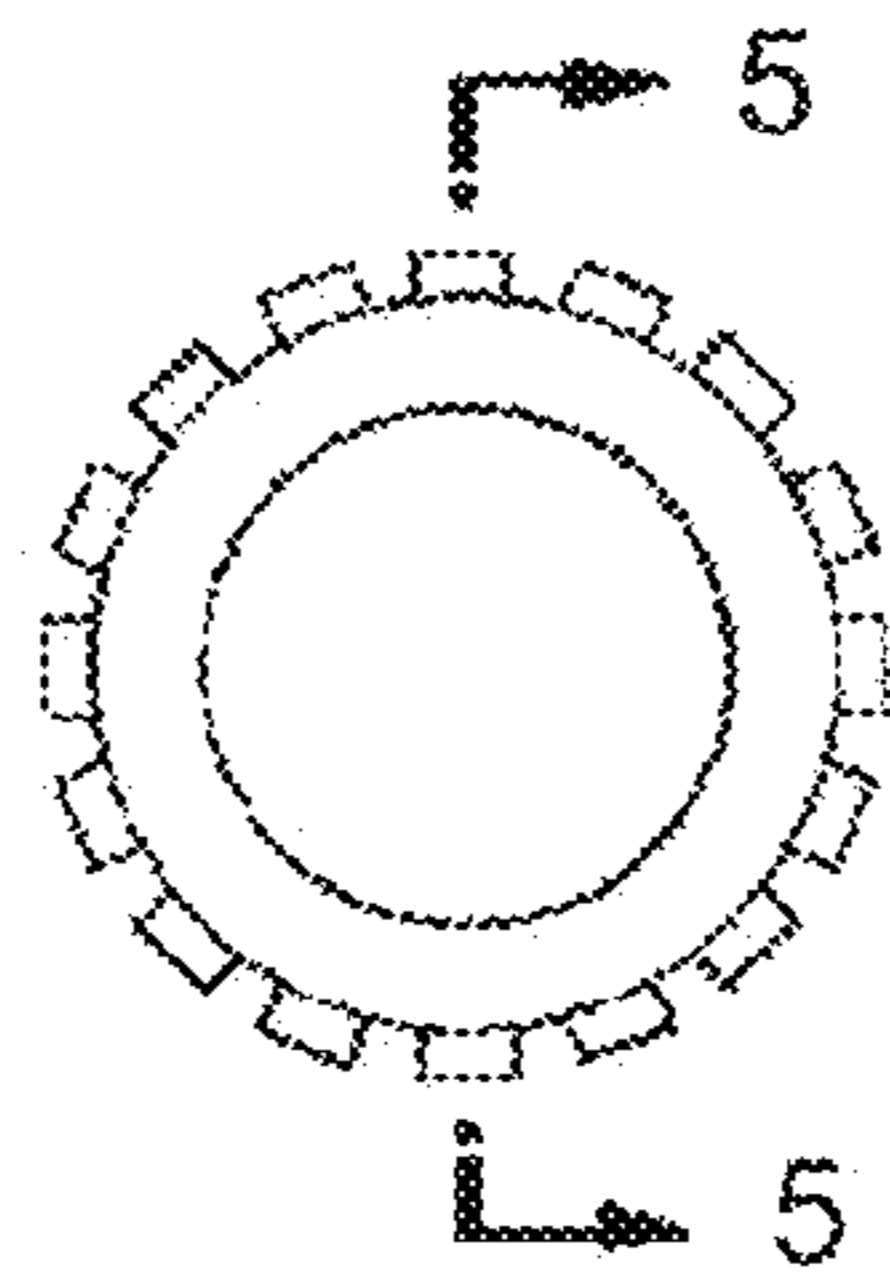


Figure 5

