US00D710062S

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

(10) **Patent No.: US D710,062 S**
(45) **Date of Patent: ** Jul. 29, 2014**

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

(75) Inventors: **Tomoatsu Ishibashi**, Tokyo (JP); **Fumitoshi Oikawa**, Tokyo (JP); **Hideaki Tanaka**, Tokyo (JP); **Teruaki Hombo**, Tokyo (JP)

(73) Assignee: **Ebara Corporation**, Tokyo (JP)

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

(21) Appl. No.: **29/408,194**

(22) Filed: **Dec. 8, 2011**

(30) **Foreign Application Priority Data**

Jun. 9, 2011 (JP) 2011-013045

(51) **LOC (10) Cl.** **25-03**

(52) **U.S. Cl.**
USPC **D32/25**

(58) **Field of Classification Search**
USPC D32/1, 25, 35; 15/77, 102, 230, 230.12, 15/230.14, 230.16; 134/6; 451/194
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,745,945	A *	5/1998	Manfredi et al.	15/77
6,240,588	B1 *	6/2001	Dickey et al.	15/88.3
6,247,197	B1 *	6/2001	Vail et al.	15/77
6,330,729	B1 *	12/2001	Brunelli et al.	15/102
6,464,796	B2 *	10/2002	Vail et al.	134/6
6,467,120	B1 *	10/2002	Ziemins et al.	15/102
6,502,273	B1 *	1/2003	Mihara et al.	15/230.16
6,523,210	B1 *	2/2003	Andros	15/102
6,543,084	B2 *	4/2003	Dickey et al.	15/179
6,598,255	B1 *	7/2003	Gohda et al.	15/102
6,684,447	B2 *	2/2004	Mihara et al.	15/230.16
6,802,099	B2 *	10/2004	Murakami et al.	15/102
6,842,933	B2 *	1/2005	Oikawa et al.	15/77
7,735,177	B1 *	6/2010	Farber et al.	15/102
7,955,693	B2 *	6/2011	Drury	428/304.4
8,092,730	B2 *	1/2012	Wargo et al.	264/54
8,372,210	B2 *	2/2013	Sin et al.	134/26
8,444,890	B2 *	5/2013	Drury	264/46.6
8,460,475	B2 *	6/2013	Wargo et al.	134/6
8,496,758	B2 *	7/2013	Idani	134/6
8,533,895	B2 *	9/2013	Benson	15/230.16
2013/0255720	A1 *	10/2013	Tyrrell et al.	134/6
2013/0255721	A1 *	10/2013	Tyrrell et al.	134/6

* cited by examiner

Primary Examiner — T. Chase Nelson
Assistant Examiner — Kathleen M Sims
(74) *Attorney, Agent, or Firm* — Greenblum & Bernstein P.L.C.

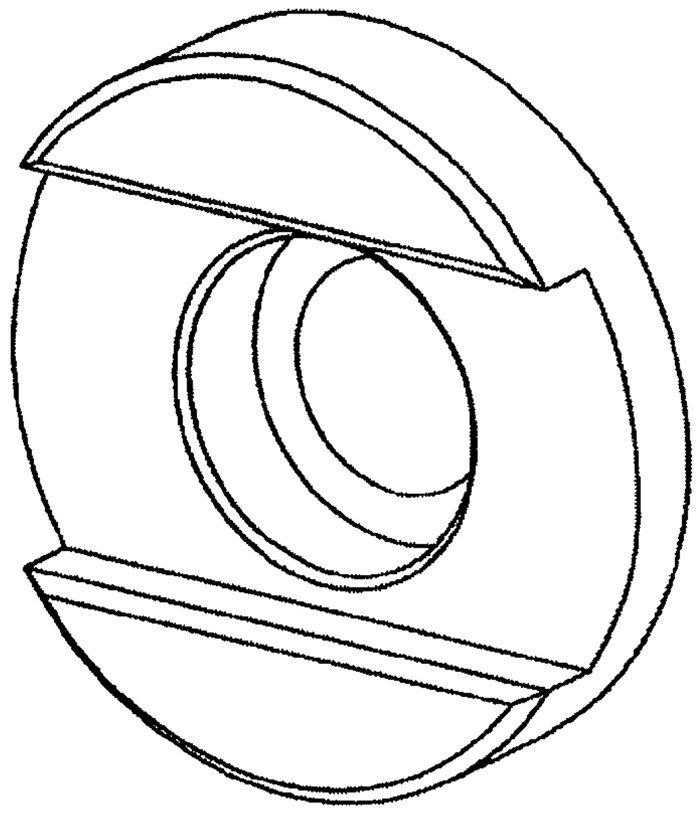
(57) **CLAIM**

We claim the ornamental design for a roller shaft for semiconductor cleaning, as shown and described.

DESCRIPTION

FIG. **1** is a front elevational view of a roller shaft for semiconductor cleaning showing our new design;
FIG. **2** is a rear elevation view thereof;
FIG. **3** is a top plan view thereof, the bottom view being a mirror image thereof;
FIG. **4** is a right side view thereof, the left side view being a mirror image thereof;
FIG. **5** is a cross sectional view taken along the line **5-5** of FIG. **1**;
FIG. **6** is a front perspective view, at an enlarged scale;
FIG. **7** is a front elevational view thereof, at an enlarged scale;
FIG. **8** is an enlarged view of the area **8** seen in FIG. **3**; and,
FIG. **9** is an enlarged view of the area **9** seen in FIG. **4**.
The broken line showing depicts environmental subject matter only and forms no part of the claimed design.

1 Claim, 9 Drawing Sheets



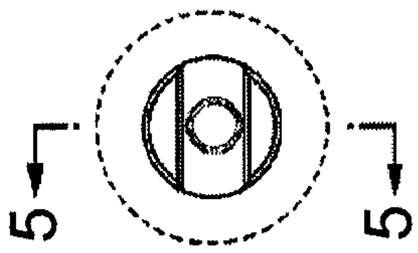


FIG.1

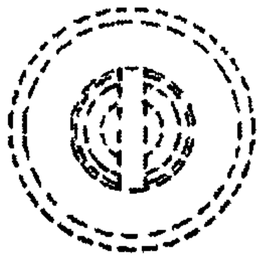


FIG. 2

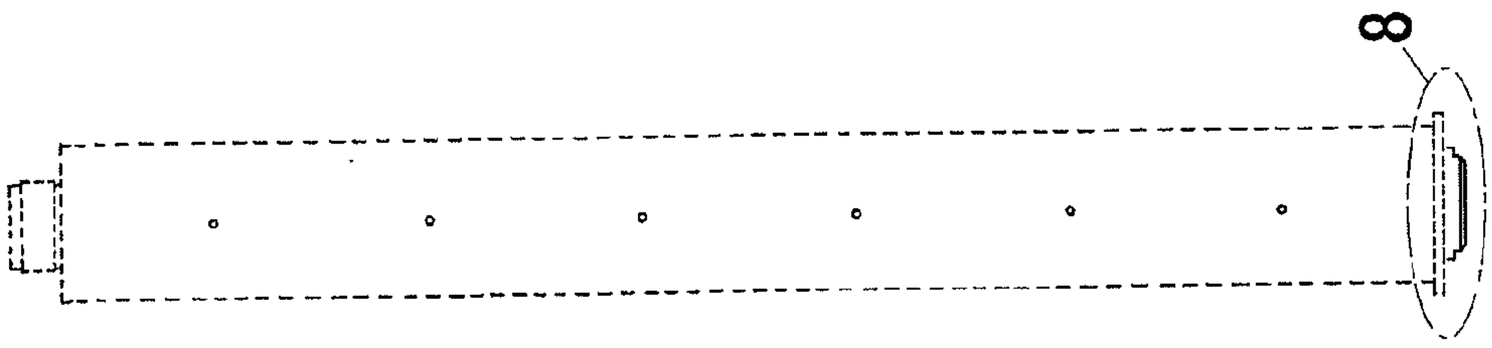


FIG. 3

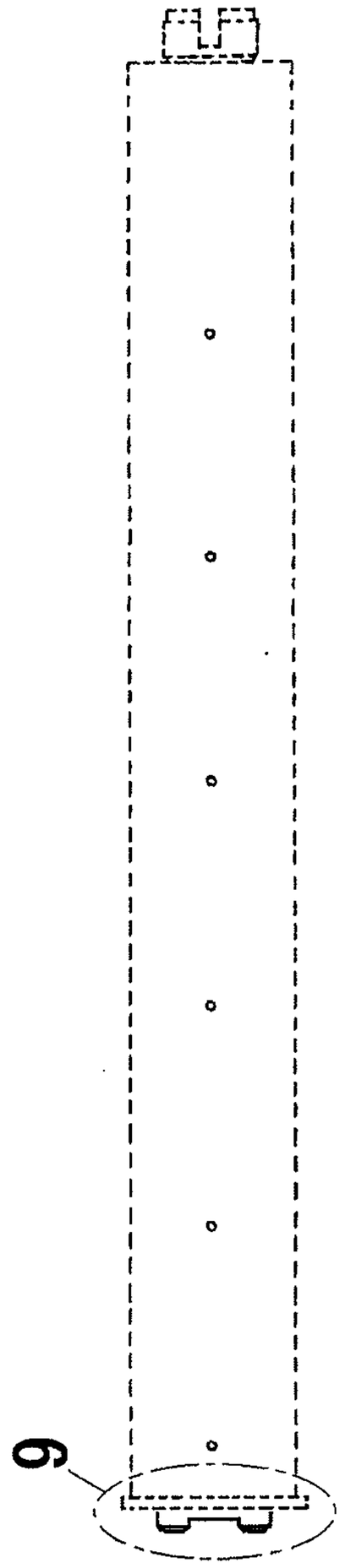


FIG. 4

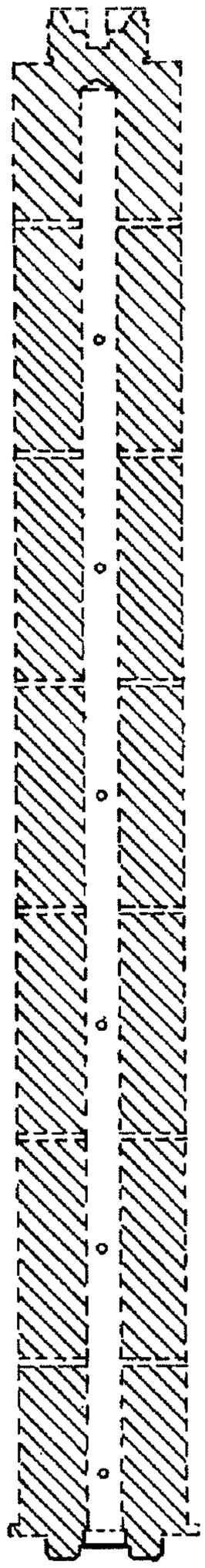


FIG.5

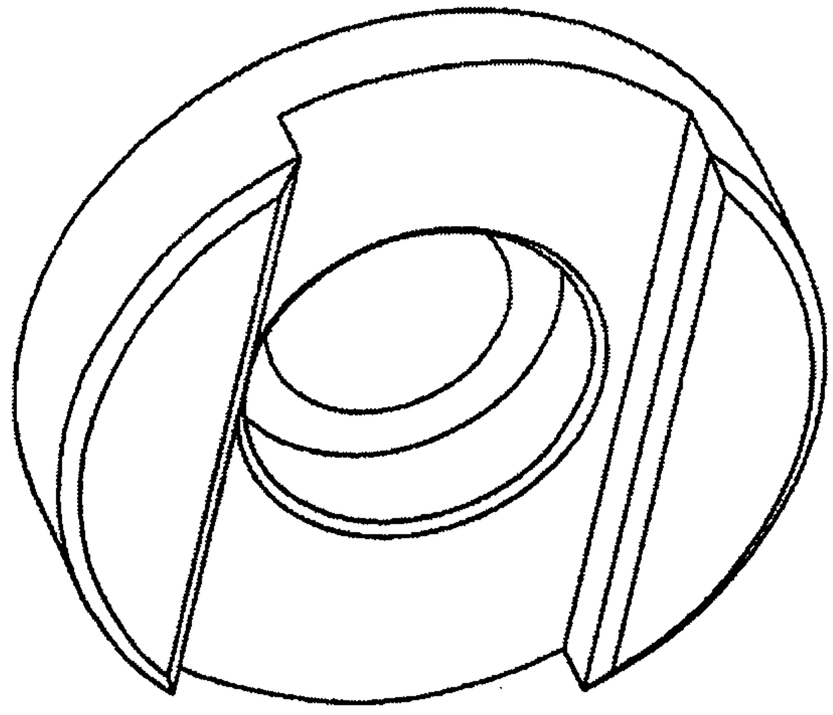


FIG.6

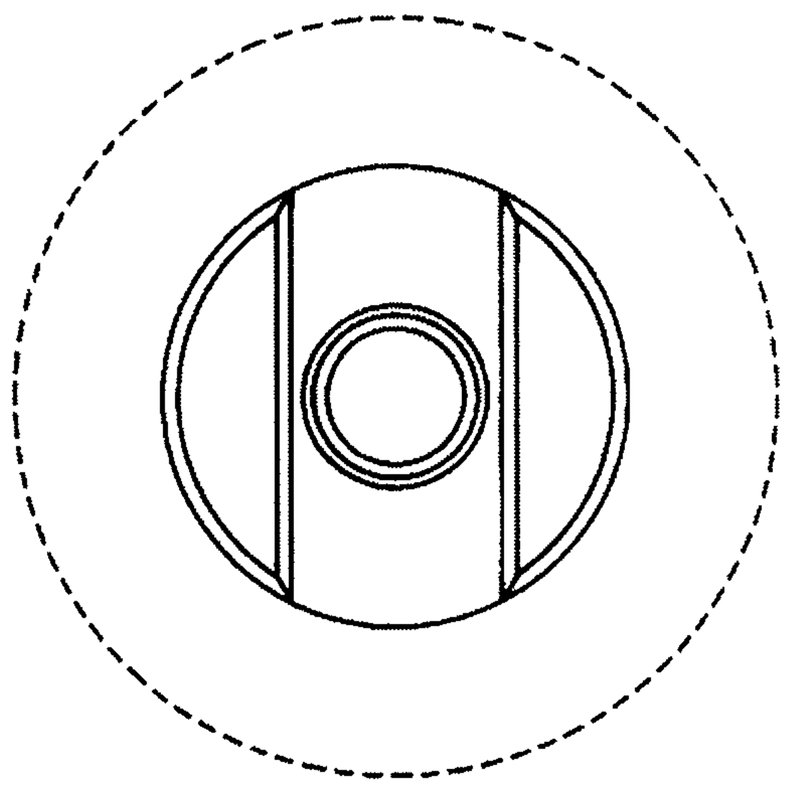


FIG.7

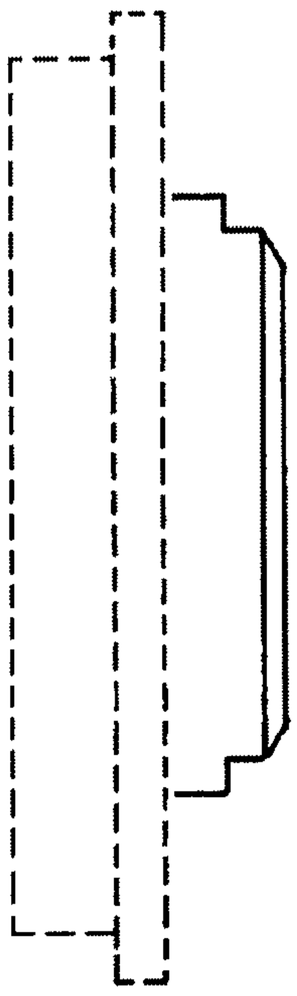


FIG.8

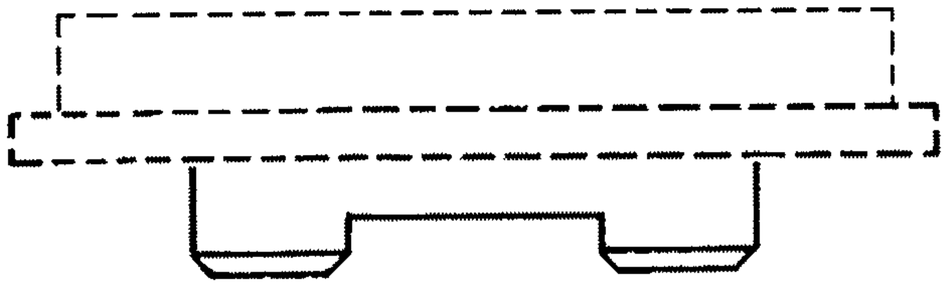


FIG. 6