



US00D807596S

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

(10) **Patent No.:** **US D807,596 S**  
(45) **Date of Patent:** **\*\* Jan. 9, 2018**

- |   |                                      |                           |
|---|--------------------------------------|---------------------------|
| (54) <b>DART FOR CLEANING TUBES</b>   | 4,937,907 A * 7/1990 Antal .....     | F28G 1/12<br>15/104.061   |
| (71) Applicant: <b>National Heat Exchange Cleaning Corporation, Columbiana, OH (US)</b>       | 4,962,607 A * 10/1990 Baldwin .....  | F41A 29/02<br>15/104.165  |
| (72) Inventors: <b>Brian D. Antal, Fombell, PA (US); Carroll E. Joseph, Leetonia, OH (US)</b> | D315,621 S * 3/1991 Laymon .....     | D32/14                    |
| (73) Assignee: <b>National Heat Exchange Cleaning Corporation, Youngstown, OH (US)</b>        | 5,528,790 A * 6/1996 Curran .....    | F28G 1/08<br>15/104.061   |
|   | D391,705 S * 3/1998 Good .....       | D32/35                    |
|   | D393,115 S * 3/1998 Bell .....       | D22/108                   |
|   | 5,960,505 A * 10/1999 Sanghoon ..... | B08B 9/0557<br>15/104.061 |

(Continued)

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

(21) Appl. No.: **29/507,754**

(22) Filed: **Oct. 30, 2014**

(51) **LOC (11) Cl.** ..... **15-05**

(52) **U.S. Cl.**  
USPC ..... **D32/14**

(58) **Field of Classification Search**  
USPC ..... D32/14, 25, 35  
CPC ... B08B 9/0557; B08B 9/0553; B08B 9/0436;  
B08B 9/0555; G01W 1/14; F28G 1/12;  
F28G 1/08; F41A 29/02  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

- |               |         |                |                           |
|---------------|---------|----------------|---------------------------|
| 172,996 A *   | 2/1876  | Gregg .....    | F41A 29/02<br>15/104.16   |
| 614,191 A *   | 11/1898 | Weills .....   | F41A 29/02<br>15/104.165  |
| 2,966,688 A * | 1/1961  | Daubert .....  | G01W 1/14<br>15/104.095   |
| 3,939,519 A * | 2/1976  | Muirhead ..... | B08B 9/0557<br>15/104.061 |
| 4,069,535 A * | 1/1978  | Cato .....     | B08B 9/0553<br>15/104.061 |
| 4,178,649 A * | 12/1979 | Kouse .....    | B08B 9/0436<br>15/104.061 |
| 4,416,703 A * | 11/1983 | Scott .....    | B08B 9/0555<br>134/22.11  |

**OTHER PUBLICATIONS**

Industrial Tube Cleaning, Inc. Tube Cleaners, Products, Cleaners;  
<http://www.itcleaning.com/cleaners.html>.

(Continued)

*Primary Examiner* — Michael A. Pratt  
*Assistant Examiner* — Michelle E Wilson  
(74) *Attorney, Agent, or Firm* — The Webb Law Firm

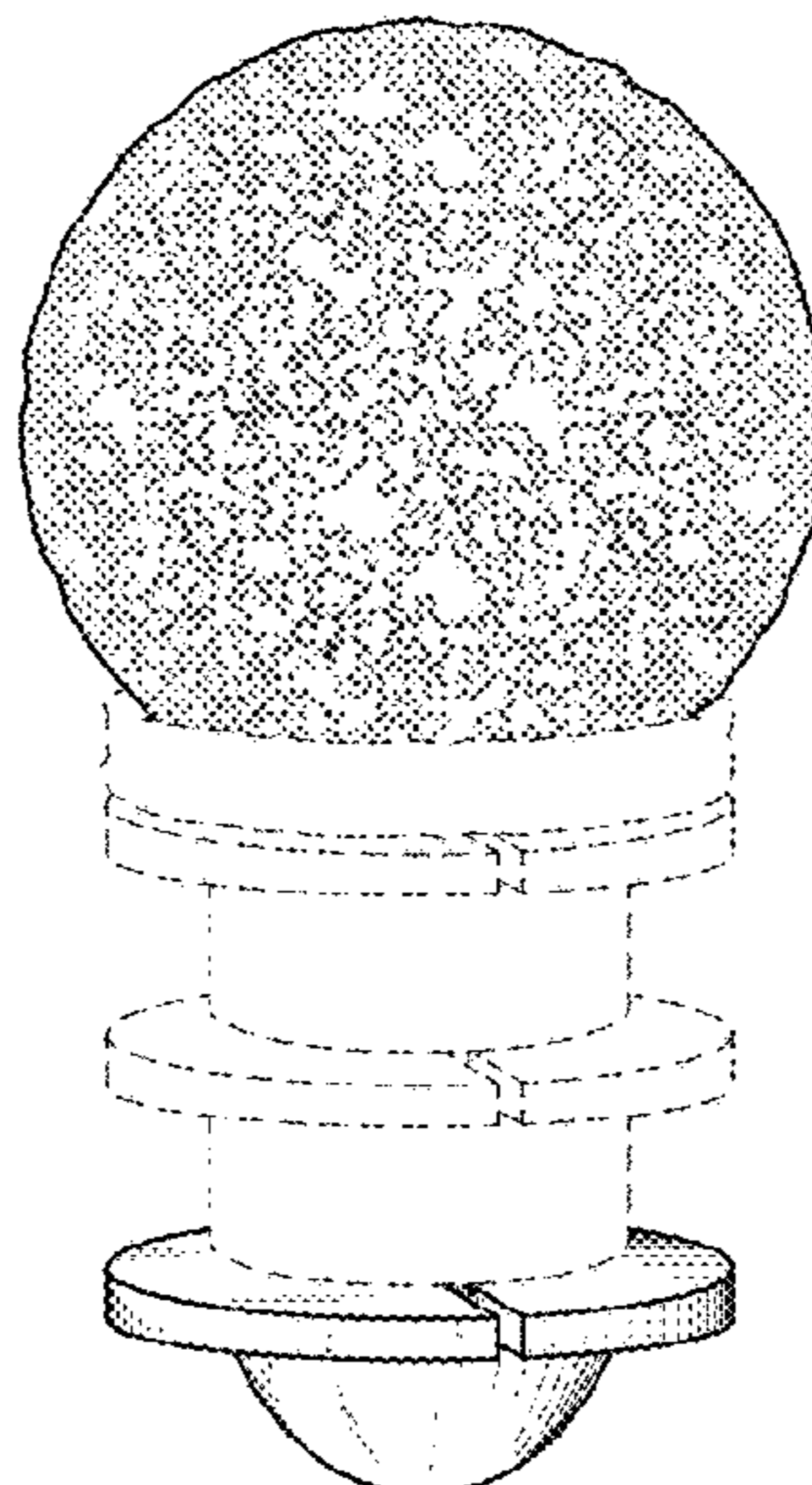
(57) **CLAIM**

The ornamental design for a dart for cleaning tubes, as shown and described.

**DESCRIPTION**

FIG. 1 is a front view of a dart for cleaning tubes showing our new design in accordance with one embodiment of the present invention;  
FIG. 2 is a rear view thereof;  
FIG. 3 is a right side view thereof;  
FIG. 4 is a left side view thereof;  
FIG. 5 is a top view thereof;  
FIG. 6 is a bottom view thereof; and,  
FIG. 7 is an upper left bottom perspective view thereof.  
The broken line shown in the drawings are included for the purpose of illustrating portions of the dart that form no part of the claimed design.

**1 Claim, 2 Drawing Sheets**



(56)

**References Cited**

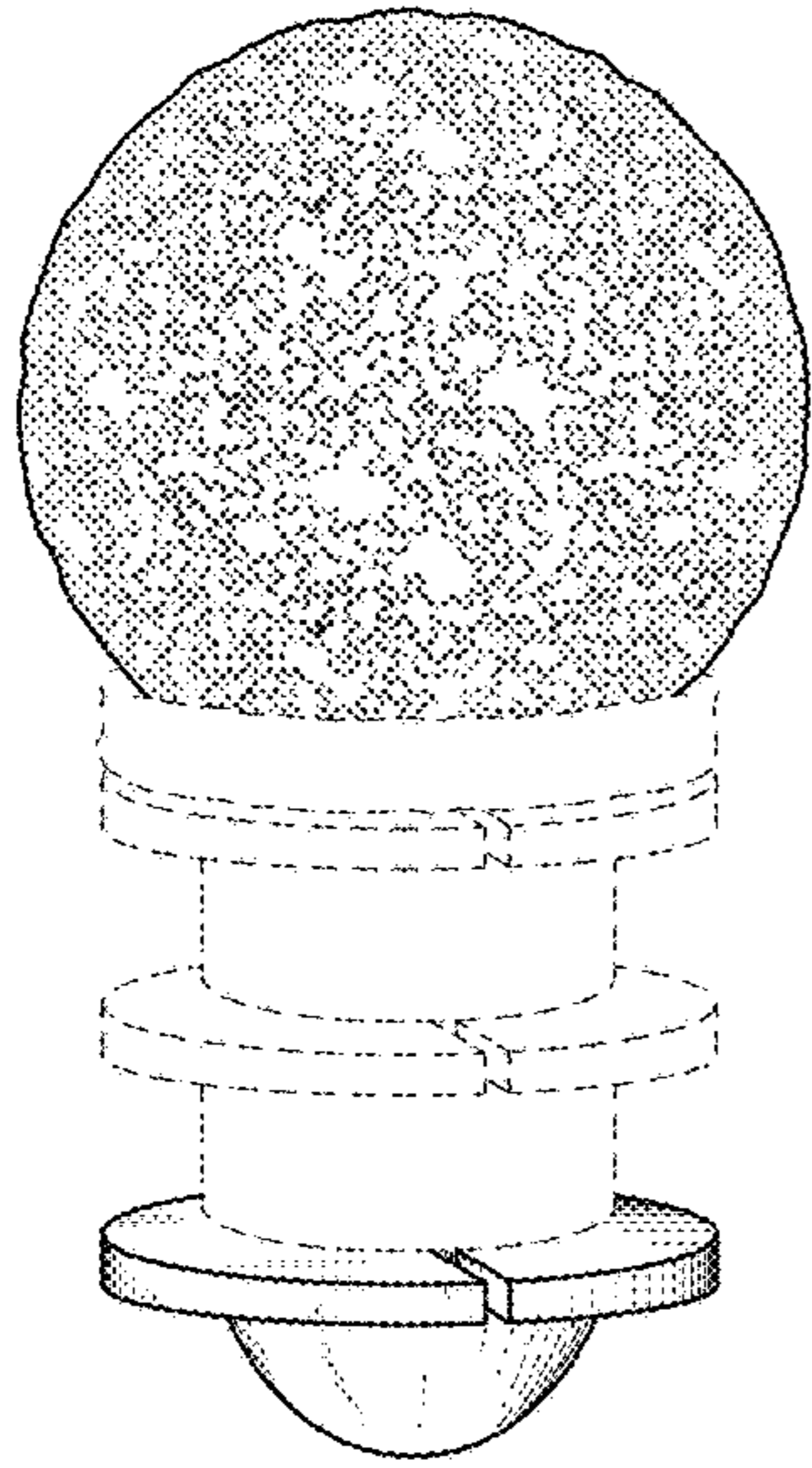
U.S. PATENT DOCUMENTS

6,085,376 A \* 7/2000 Antal ..... B08B 9/0557  
15/104.061  
D454,003 S \* 3/2002 Saxon ..... D4/102  
D491,325 S \* 6/2004 Hawkins ..... D32/14  
7,454,812 B1 \* 11/2008 Lyle ..... B08B 9/0557  
15/104.05  
D601,688 S \* 10/2009 Abe ..... D23/386  
8,051,523 B1 \* 11/2011 Franzino ..... B08B 9/0557  
15/104.05  
D651,773 S \* 1/2012 Antal ..... D32/14  
2010/0294316 A1 \* 11/2010 Antal ..... B08B 9/0436  
134/22.12

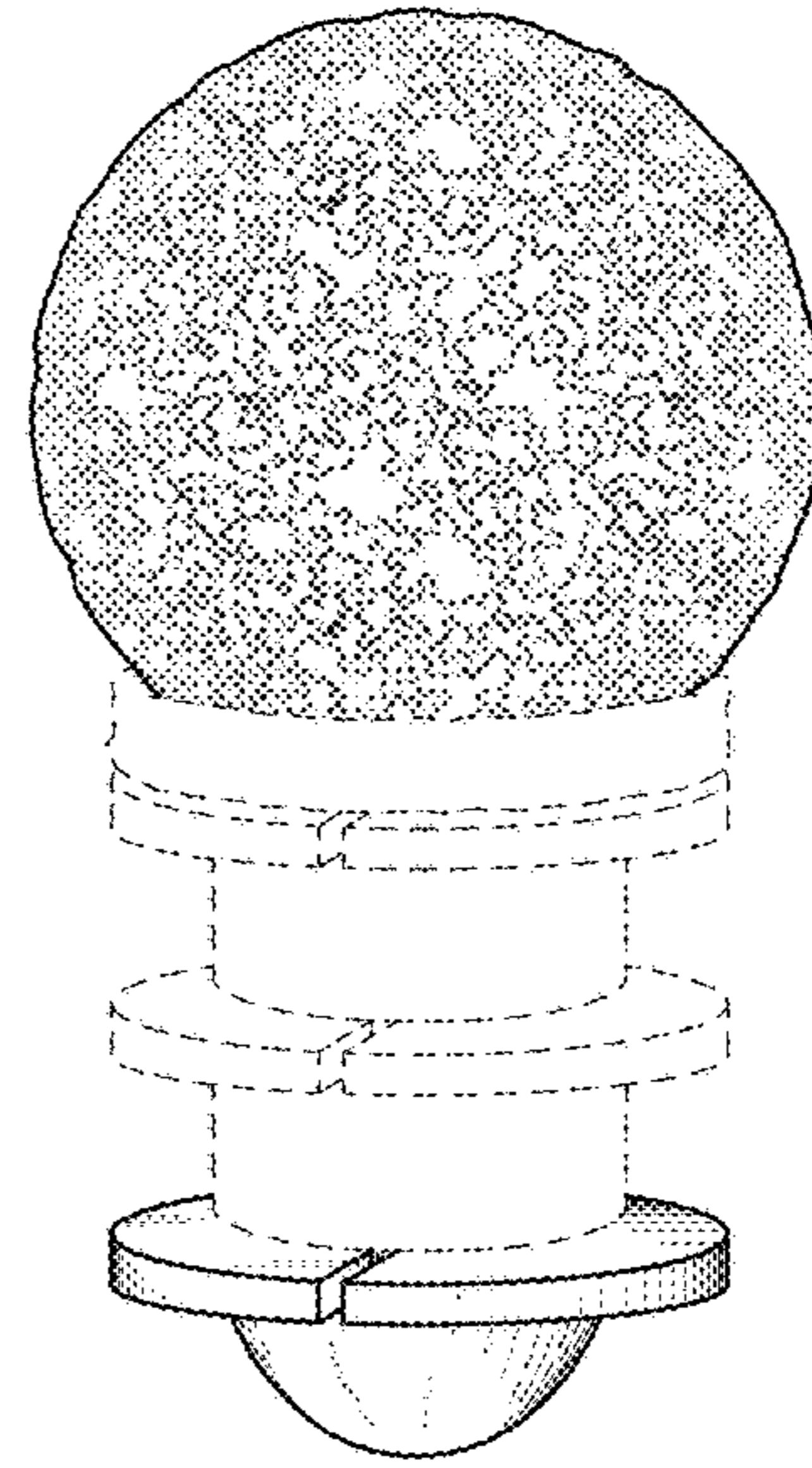
OTHER PUBLICATIONS

Luxx Ultra-Tech, Inc. Spongeballs; <http://www.spongeballs.com/>.  
Luxx Ultra-Tech, Inc. Songeball Types; <http://www.spongeballs.com/types.php>.

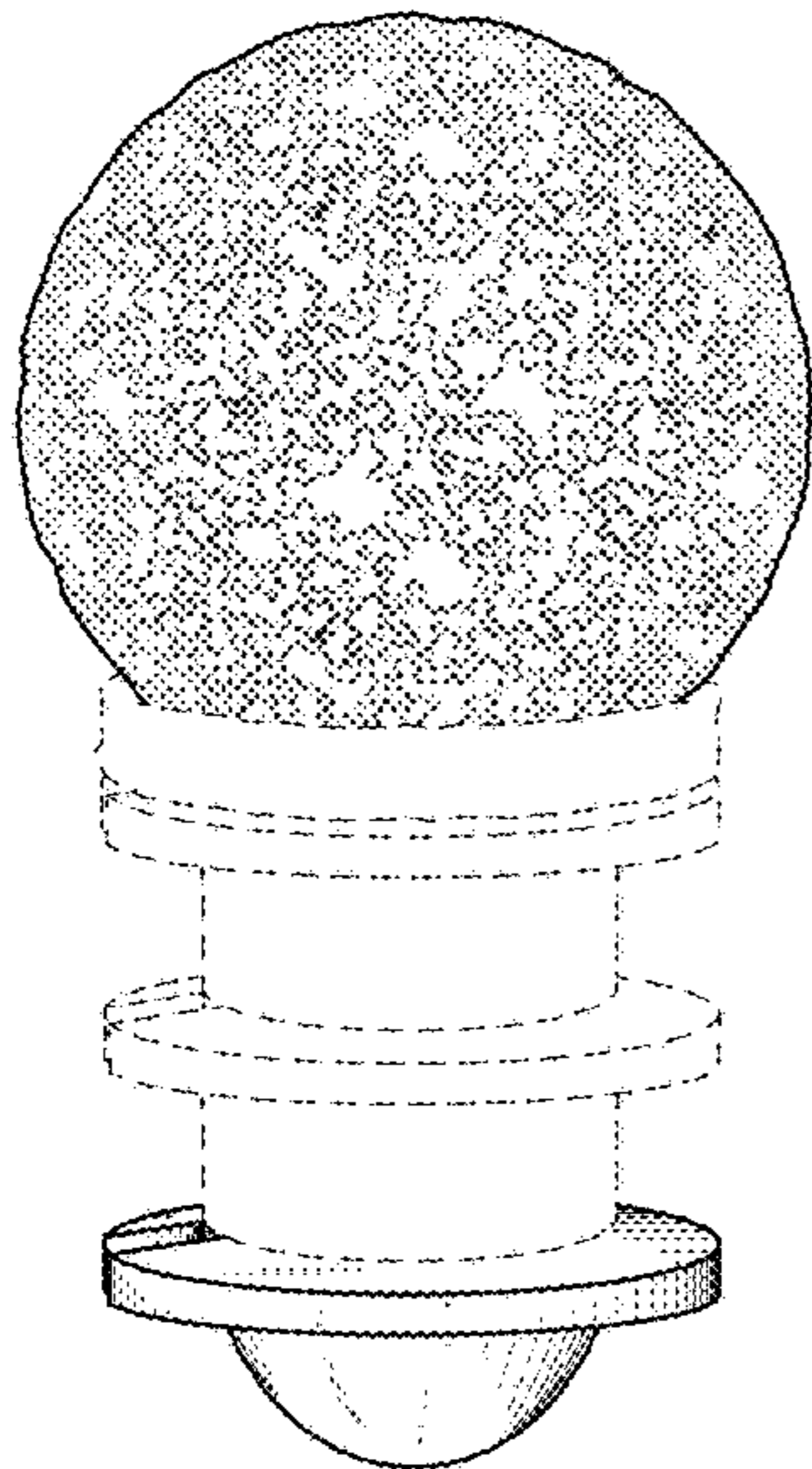
\* cited by examiner



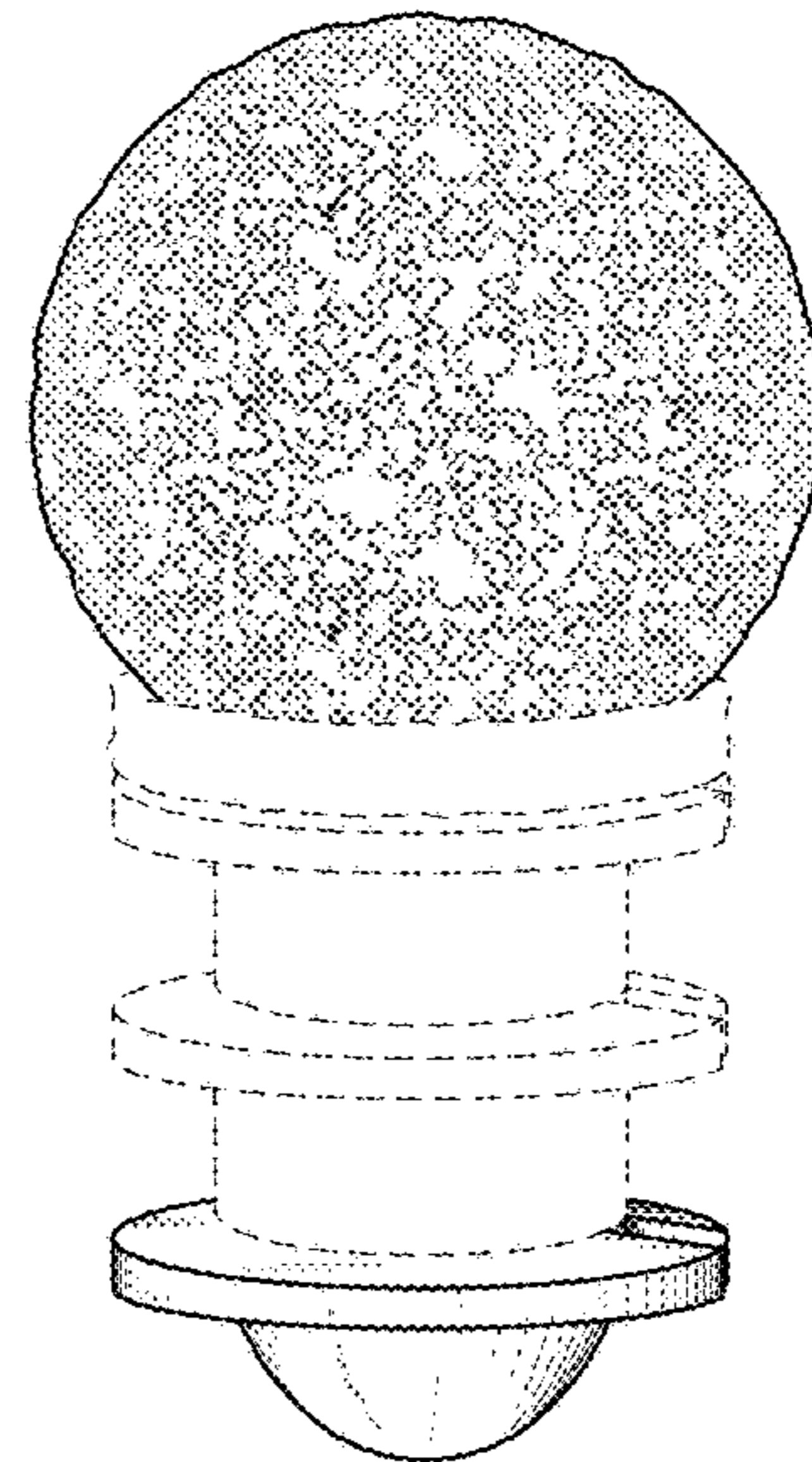
**FIG. 1**



**FIG. 2**



**FIG. 3**



**FIG. 4**



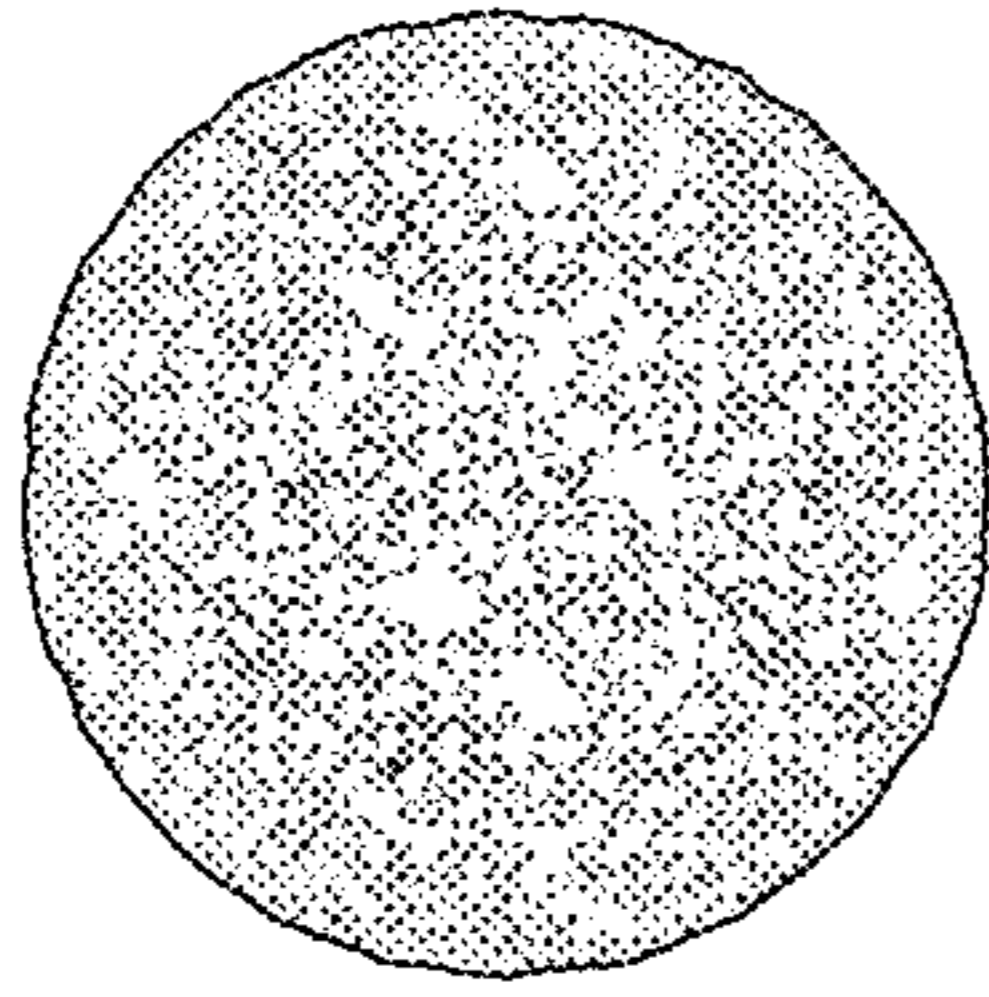


FIG. 5

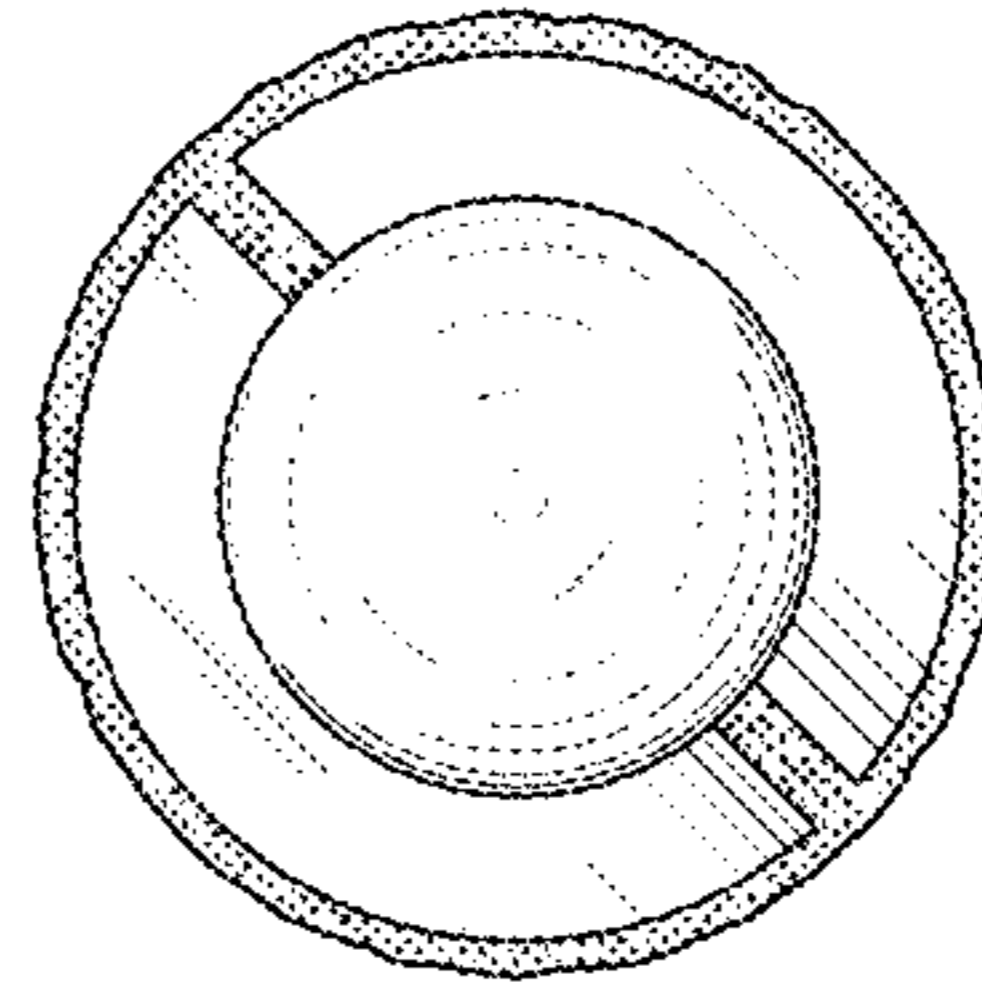


FIG. 6

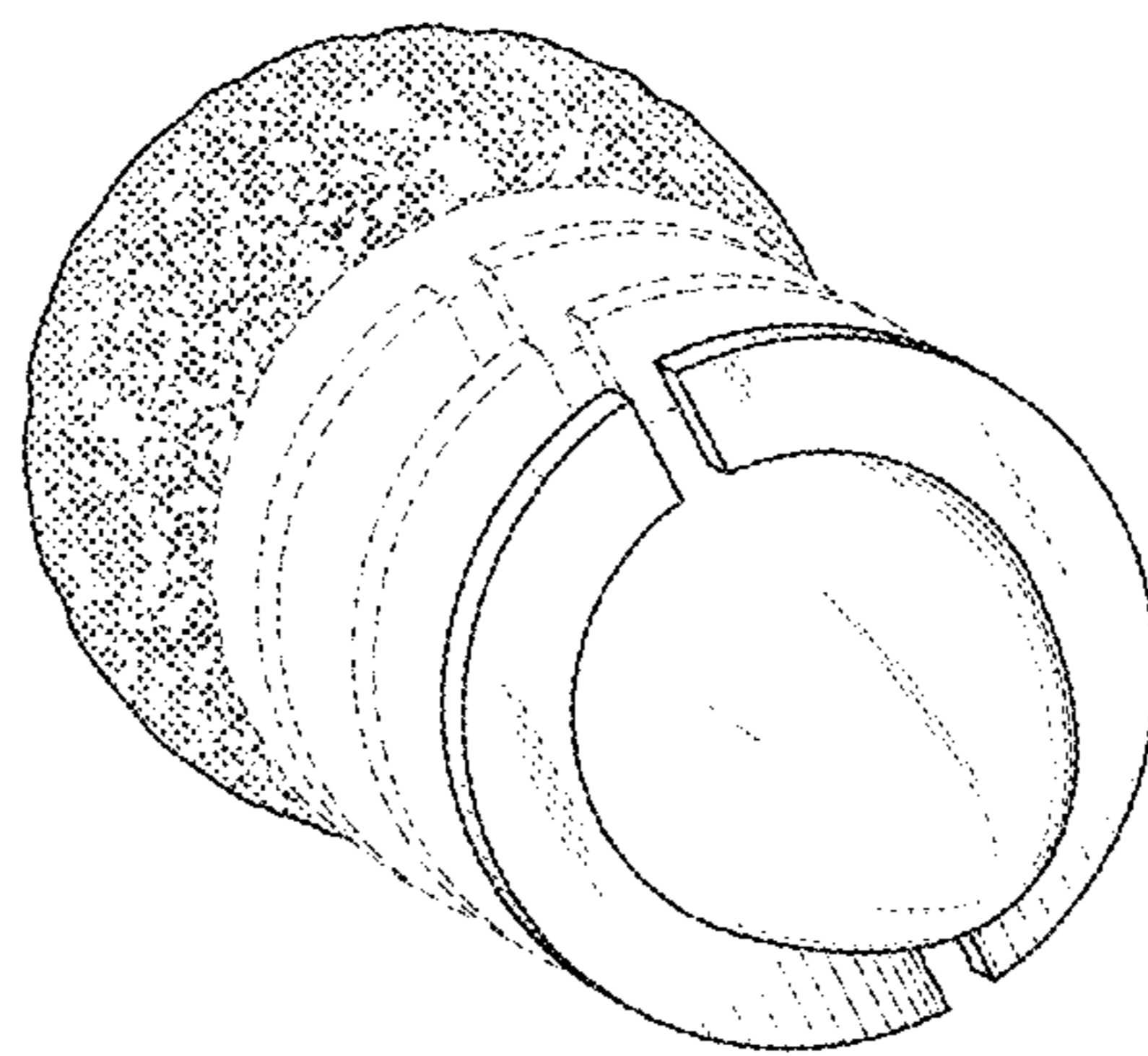


FIG. 7