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

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(54) **FILTER UNIT**

(75) Inventors: **Christopher A. Kruckenber**,  
Newburgh, IN (US); **Jeffrey A.**  
**Spindler**, Haubstadt, IN (US)

(73) Assignee: **Whirlpool Corporation**, Benton Harbor,  
MI (US)

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(52) **U.S. Cl.** ..... **D23/209; D9/538; D9/540**

(58) **Field of Classification Search** ..... D23/207,  
D23/209; D7/510; D9/516, 552, 523, 556,  
D9/538, 540, 682, 688, 690, 692, 693; 210/232,  
210/282, 429, 435

See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

|              |         |                 |        |
|--------------|---------|-----------------|--------|
| 2,955,712 A  | 10/1960 | Gutkowski       |        |
| 3,388,801 A  | 6/1968  | Boyd et al.     |        |
| 3,557,958 A  | 1/1971  | Baldwin         |        |
| 3,774,764 A  | 11/1973 | Baldwin         |        |
| D234,940 S * | 4/1975  | Mexquita        | D9/523 |
| 3,980,457 A  | 9/1976  | Smith           |        |
| 4,052,307 A  | 10/1977 | Humbert, Jr.    |        |
| D264,811 S * | 6/1982  | Weckman         | D9/523 |
| 4,398,562 A  | 8/1983  | Saarem et al.   |        |
| 4,601,821 A  | 7/1986  | Sherman et al.  |        |
| 4,608,166 A  | 8/1986  | Cain            |        |
| 4,615,812 A  | 10/1986 | Darling         |        |
| 4,735,716 A  | 4/1988  | Petrucci et al. |        |
| 4,764,275 A  | 8/1988  | Robichaud       |        |
| 4,915,831 A  | 4/1990  | Taylor          |        |
| D322,836 S   | 12/1991 | Petrucci et al. |        |
| 5,133,382 A  | 7/1992  | Nielsen         |        |

|               |         |                    |         |
|---------------|---------|--------------------|---------|
| 5,139,050 A   | 8/1992  | Otto               |         |
| 5,273,255 A   | 12/1993 | Klicek et al.      |         |
| 5,350,506 A   | 9/1994  | Dombek et al.      |         |
| D351,337 S *  | 10/1994 | Bonnema et al.     | D9/690  |
| 5,362,390 A   | 11/1994 | Widenhoefer et al. |         |
| D356,625 S    | 3/1995  | Petrucci et al.    |         |
| 5,456,830 A   | 10/1995 | Stanford et al.    |         |
| 5,545,315 A * | 8/1996  | Lonneman           | 210/120 |
| 5,560,824 A   | 10/1996 | Sann et al.        |         |
| 5,567,310 A   | 10/1996 | Nakashima          |         |

(Continued)

**FOREIGN PATENT DOCUMENTS**

CN 2889448 Y 4/2007

(Continued)

*Primary Examiner* — Robin V Webster

(74) *Attorney, Agent, or Firm* — Kirk W. Goodwin; Price  
Heneveld LLP

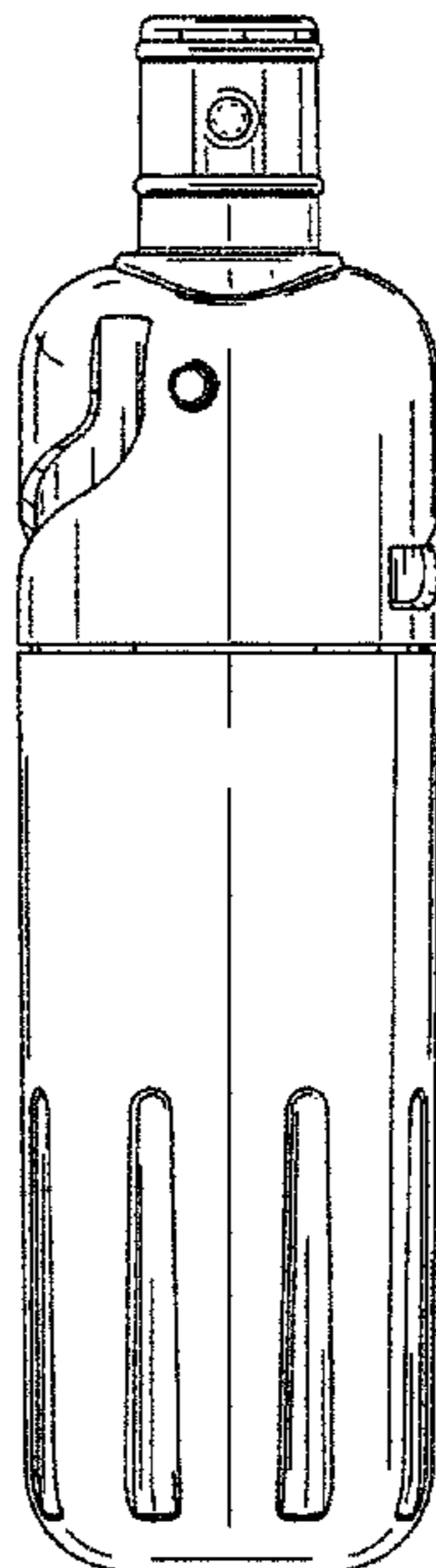
(57) **CLAIM**

We claim the ornamental design for a filter unit, as shown and  
described.

**DESCRIPTION**

FIG. 1 is a top perspective view of a filter unit of the present  
invention;  
FIG. 2 is a front elevational view of the filter unit of FIG. 1;  
FIG. 3 is a rear elevational view of the filter unit of FIG. 1;  
FIG. 4 is a first side elevational view of the filter unit of FIG.  
1;  
FIG. 5 is a second side elevational view of the filter unit of  
FIG. 1;  
FIG. 6 is a top plan view of the filter unit of FIG. 1; and,  
FIG. 7 is a bottom plan view of the filter unit of FIG. 1.  
The broken line showing is included for the purpose of illus-  
trating and forms no part of the claimed design.

**1 Claim, 3 Drawing Sheets**



# US D654,562 S

## U.S. PATENT DOCUMENTS

|           |      |         |                      |         |
|-----------|------|---------|----------------------|---------|
| 5,591,332 | A    | 1/1997  | Reid et al.          |         |
| 5,607,582 | A    | 3/1997  | Yamazaki et al.      |         |
| 5,611,923 | A    | 3/1997  | Suri et al.          |         |
| 5,698,093 | A    | 12/1997 | Pyle et al.          |         |
| 5,800,702 | A    | 9/1998  | Taylor-McCune et al. |         |
| 5,826,854 | A    | 10/1998 | Janvrin et al.       |         |
| 5,846,417 | A    | 12/1998 | Jiang et al.         |         |
| 5,858,227 | A    | 1/1999  | Stone et al.         |         |
| 5,914,037 | A    | 6/1999  | Yen                  |         |
| 6,000,674 | A    | 12/1999 | Cheng                |         |
| 6,024,869 | A    | 2/2000  | Stifelman            |         |
| 6,027,644 | A    | 2/2000  | Magnusson et al.     |         |
| 6,068,770 | A    | 5/2000  | Niermeyer et al.     |         |
| D429,312  | S *  | 8/2000  | Poirier et al.       | D7/510  |
| 6,132,176 | A    | 10/2000 | Higgins              |         |
| D433,729  | S *  | 11/2000 | Poirier et al.       | D7/511  |
| D435,631  | S    | 12/2000 | Janik et al.         |         |
| RE37,216  | E    | 6/2001  | Koslow               |         |
| 6,303,031 | B1   | 10/2001 | Senner               |         |
| 6,360,764 | B1   | 3/2002  | Fritze               |         |
| 6,458,269 | B1   | 10/2002 | Bassett et al.       |         |
| D472,299  | S    | 3/2003  | Fritze               |         |
| D472,604  | S    | 4/2003  | Fritze               |         |
| 6,579,455 | B1   | 6/2003  | Muzik et al.         |         |
| 6,632,355 | B2   | 10/2003 | Fritze               |         |
| 6,651,823 | B1 * | 11/2003 | Memmer et al.        | 210/435 |
| D484,568  | S    | 12/2003 | Janik et al.         |         |
| 6,789,691 | B2   | 9/2004  | Martin et al.        |         |
| 6,977,039 | B2   | 12/2005 | Knoll et al.         |         |
| 7,000,894 | B2   | 2/2006  | Olson et al.         |         |
| 7,067,054 | B2   | 6/2006  | Fritze               |         |
| 7,147,772 | B2   | 12/2006 | Fritze               |         |
| 7,147,773 | B2   | 12/2006 | Mitchell et al.      |         |
| D567,898  | S    | 4/2008  | Miller               |         |
| 7,407,148 | B2   | 8/2008  | Bassett et al.       |         |
| 7,419,060 | B2 * | 9/2008  | Arthur et al.        | 210/429 |
| 7,442,301 | B2   | 10/2008 | Huda                 |         |
| 7,459,078 | B2   | 12/2008 | Klein et al.         |         |
| 7,481,926 | B2   | 1/2009  | Dworatzek            |         |
| 7,481,928 | B2   | 1/2009  | Fritze               |         |
| D592,066  | S *  | 5/2009  | Bourne               | D9/538  |

|              |     |         |                   |         |
|--------------|-----|---------|-------------------|---------|
| D592,514     | S * | 5/2009  | Schwartz et al.   | D9/526  |
| D594,088     | S * | 6/2009  | Pritchard         | D23/207 |
| D595,139     | S * | 6/2009  | Darr et al.       | D9/538  |
| D599,880     | S   | 9/2009  | Rampen et al.     |         |
| D604,616     | S * | 11/2009 | Farrell et al.    | D9/516  |
| 7,610,932    | B2  | 11/2009 | Olson et al.      |         |
| D606,411     | S * | 12/2009 | Mongeon et al.    | D9/522  |
| D610,906     | S * | 3/2010  | Simmons et al.    | D9/504  |
| D612,244     | S * | 3/2010  | Farrell et al.    | D9/516  |
| D613,172     | S * | 4/2010  | Masters et al.    | D9/523  |
| 7,695,619    | B2  | 4/2010  | Kurth et al.      |         |
| D614,967     | S * | 5/2010  | Chertoff et al.   | D9/682  |
| D615,870     | S * | 5/2010  | Bourne            | D9/538  |
| 7,744,758    | B2  | 6/2010  | Dworatzek et al.  |         |
| 7,763,170    | B2  | 7/2010  | Bassett et al.    |         |
| D624,153     | S * | 9/2010  | Shani             | D23/207 |
| D634,160     | S * | 3/2011  | Cetera            | D7/510  |
| 7,955,500    | B2  | 6/2011  | Abdalla et al.    |         |
| 7,959,010    | B2  | 6/2011  | Hawkins et al.    |         |
| D644,489     | S * | 9/2011  | Trombly           | D7/510  |
| D646,319     | S * | 10/2011 | Popracova         | D17/11  |
| D647,805     | S * | 11/2011 | Broen et al.      | D9/685  |
| D648,177     | S * | 11/2011 | Eyal              | D7/510  |
| 2006/0070942 | A1  | 4/2006  | An                |         |
| 2006/0272995 | A1  | 12/2006 | Fritze            |         |
| 2007/0295667 | A1  | 12/2007 | Ruprecht          |         |
| 2008/0000820 | A1  | 1/2008  | Mitchell          |         |
| 2008/0185330 | A1  | 8/2008  | Sinur et al.      |         |
| 2008/0223775 | A1  | 9/2008  | An                |         |
| 2009/0014381 | A1  | 1/2009  | South et al.      |         |
| 2009/0020470 | A1  | 1/2009  | Bassett et al.    |         |
| 2009/0127172 | A1  | 5/2009  | Abdalla et al.    |         |
| 2009/0184043 | A1  | 7/2009  | Stankowski et al. |         |
| 2009/0230063 | A1  | 9/2009  | Hawkins et al.    |         |
| 2009/0236276 | A1  | 9/2009  | Kurth et al.      |         |
| 2009/0321340 | A1  | 12/2009 | Rampen et al.     |         |
| 2010/0064646 | A1  | 3/2010  | Smith et al.      |         |
| 2010/0170841 | A1  | 7/2010  | An et al.         |         |

## FOREIGN PATENT DOCUMENTS

|                     |            |    |        |
|---------------------|------------|----|--------|
| WO                  | 2010056711 | A2 | 5/2010 |
| * cited by examiner |            |    |        |



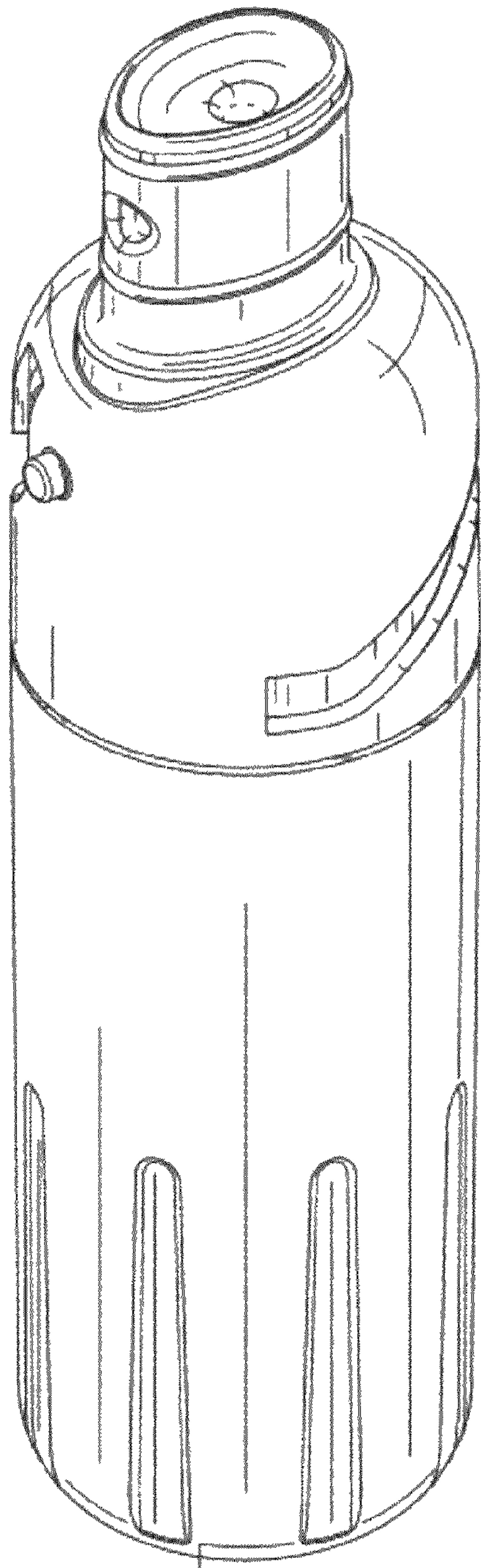


FIG. 1

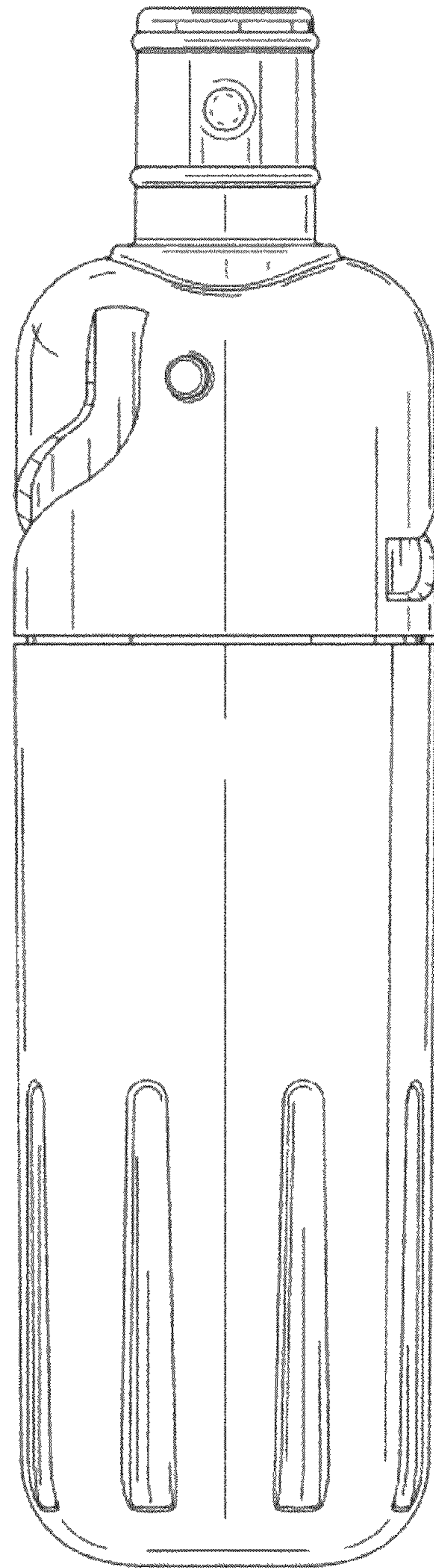


FIG. 2

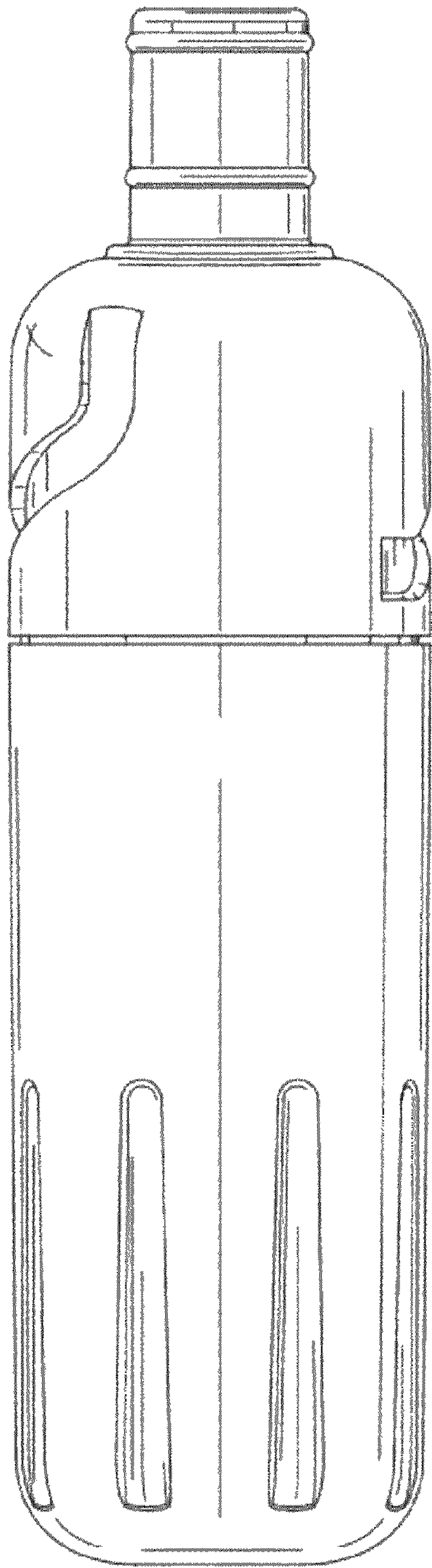


FIG. 3

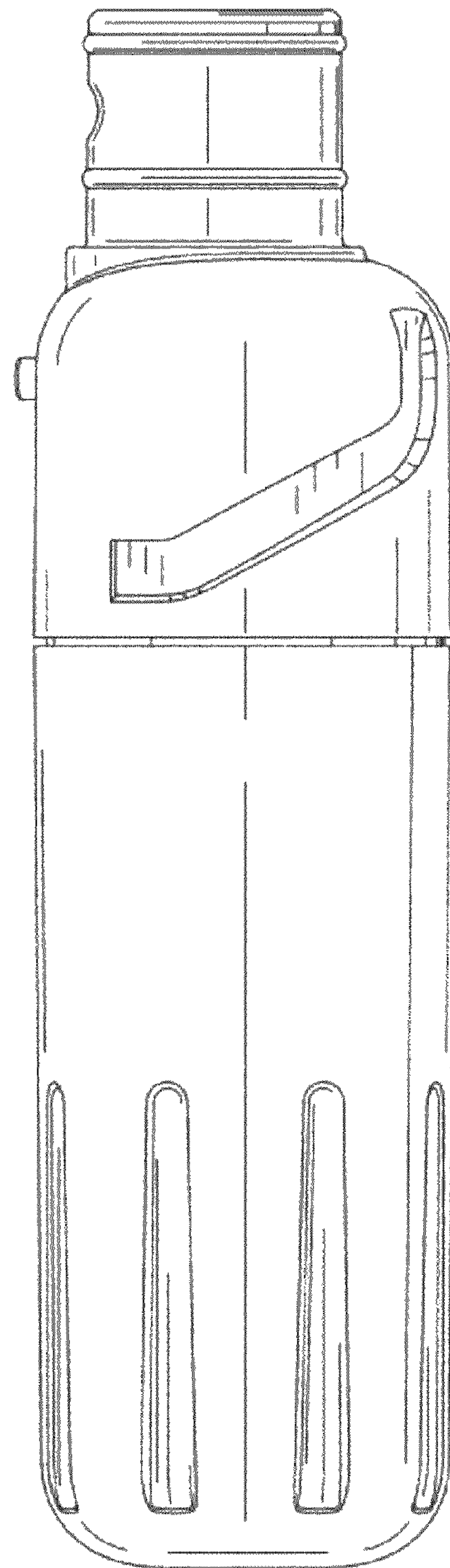


FIG. 4



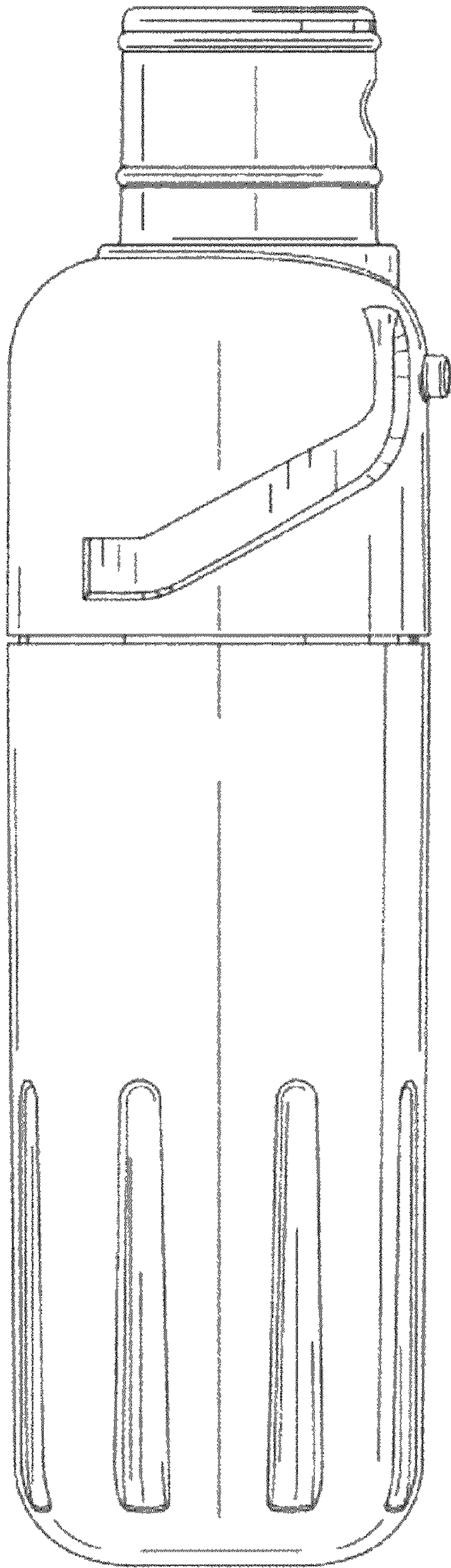


FIG. 5

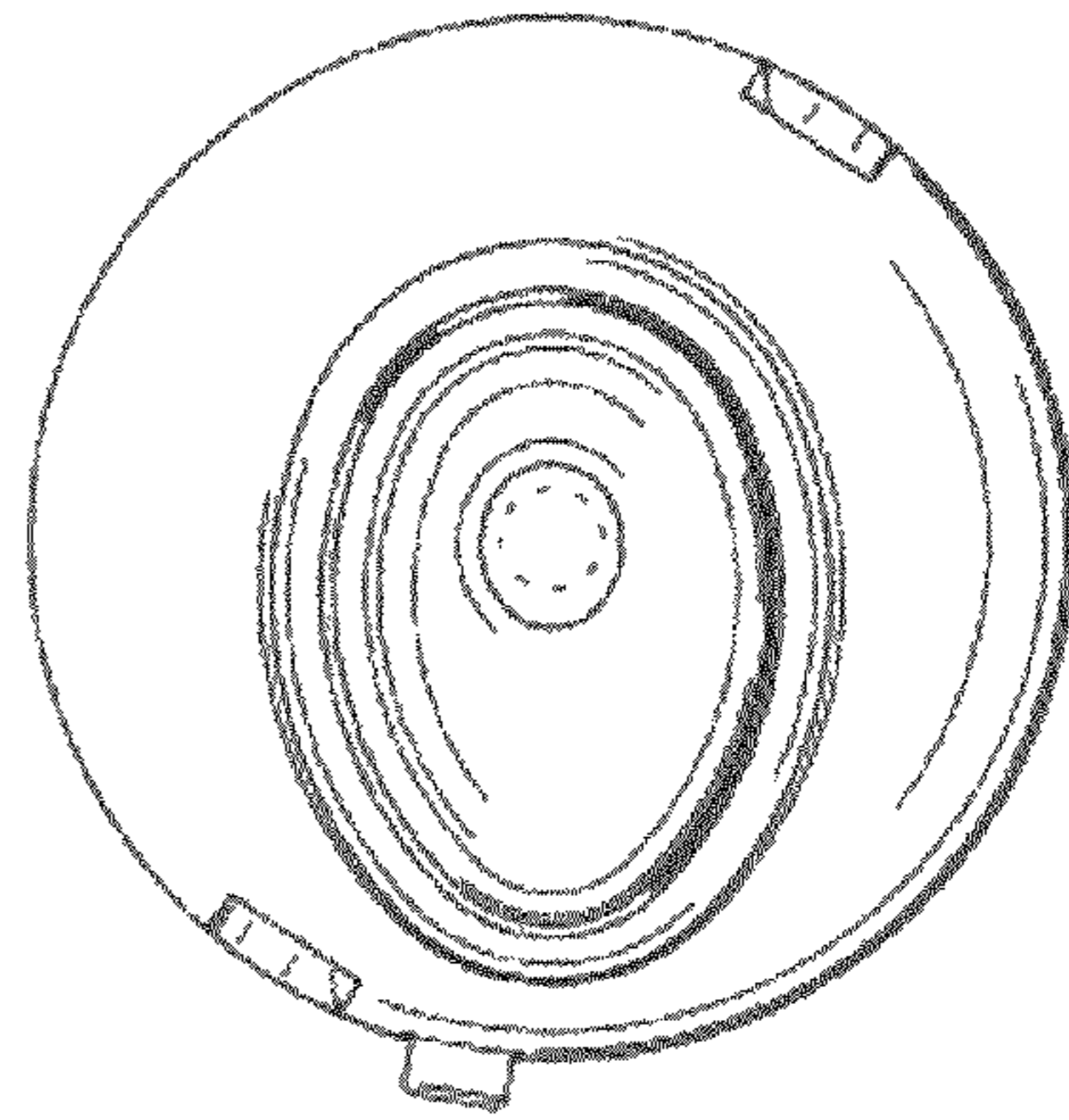


FIG. 6

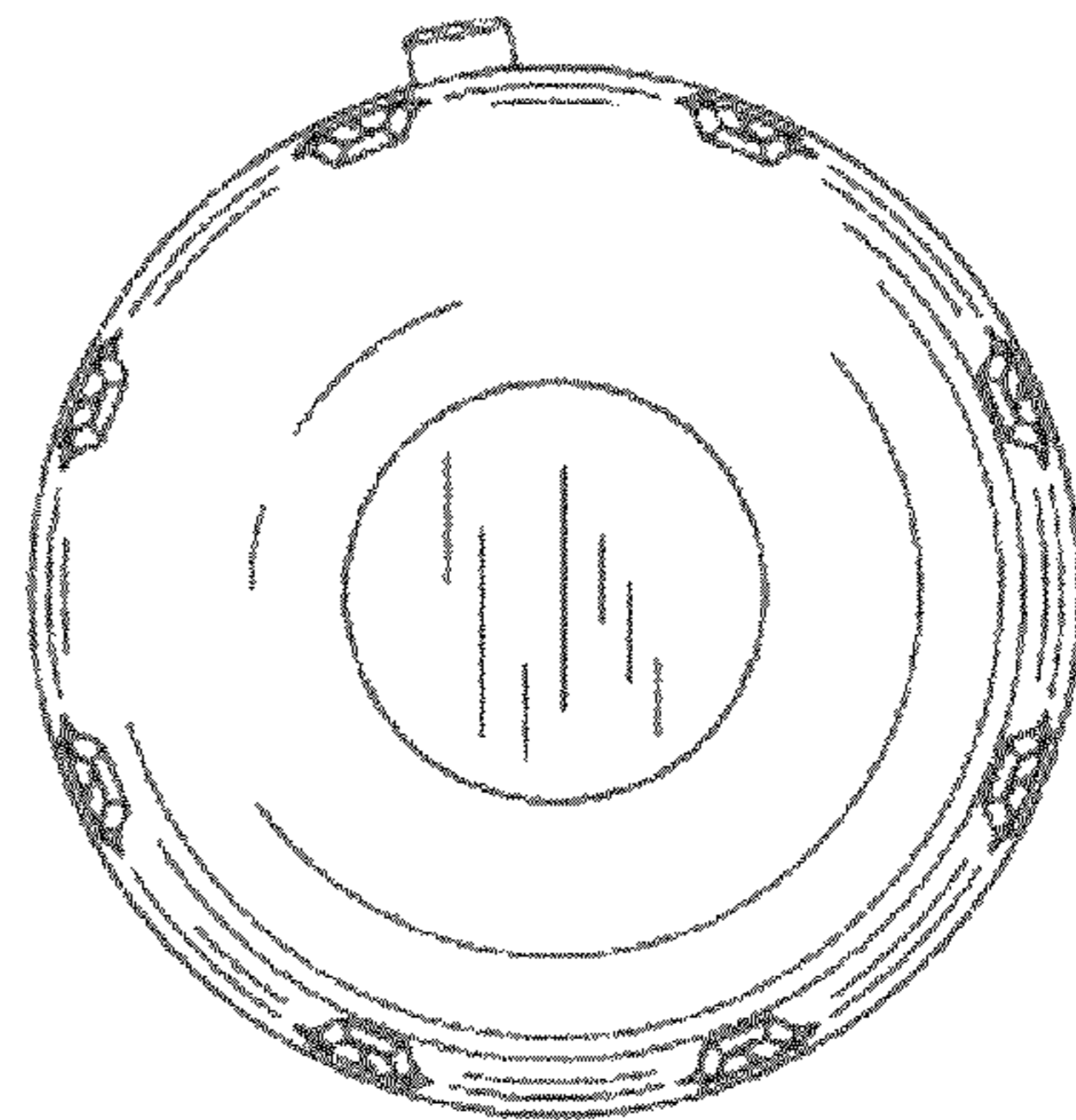


FIG. 7