



US00D973733S

(12) **United States Design Patent** (10) **Patent No.:** **US D973,733 S**  
**DuMez et al.** (45) **Date of Patent:** **\*\* Dec. 27, 2022**

(54) **HOLE SAW**  
(71) Applicant: **MILWAUKEE ELECTRIC TOOL CORPORATION**, Brookfield, WI (US)  
(72) Inventors: **Travis J. DuMez**, Random Lake, WI (US); **Max R. Sawa**, Palatine, IL (US)  
(73) Assignee: **Milwaukee Electric Tool Corporation**, Brookfield, WI (US)

5,452,971 A 9/1995 Nevills  
5,492,187 A 2/1996 Neukirchen et al.  
5,597,274 A 1/1997 Behner  
(Continued)

**FOREIGN PATENT DOCUMENTS**

CN 2865975 2/2007  
CN 201394679 2/2010  
(Continued)

(\*\*) Term: **15 Years**

**OTHER PUBLICATIONS**

(21) Appl. No.: **29/613,977**

United States Patent Office Action for U.S. Appl. No. 15/863,253, dated Jun. 6, 2019, 14 pages.

(22) Filed: **Aug. 15, 2017**

(Continued)

(51) **LOC (13) Cl.** ..... **15-09**

(52) **U.S. Cl.**  
USPC ..... **D15/139**

(58) **Field of Classification Search**  
USPC .... D8/16, 19, 20, 64, 66, 70; D15/127, 133, D15/139; D24/146, 147  
CPC ..... B23B 51/0426; B23B 2251/14  
See application file for complete search history.

*Primary Examiner* — Michael C Stout  
*Assistant Examiner* — Fritzgerald L Butac  
(74) *Attorney, Agent, or Firm* — Michael Best & Friedrich LLP

(57) **CLAIM**

We claim the ornamental design for a hole saw, as shown and described.

(56) **References Cited**

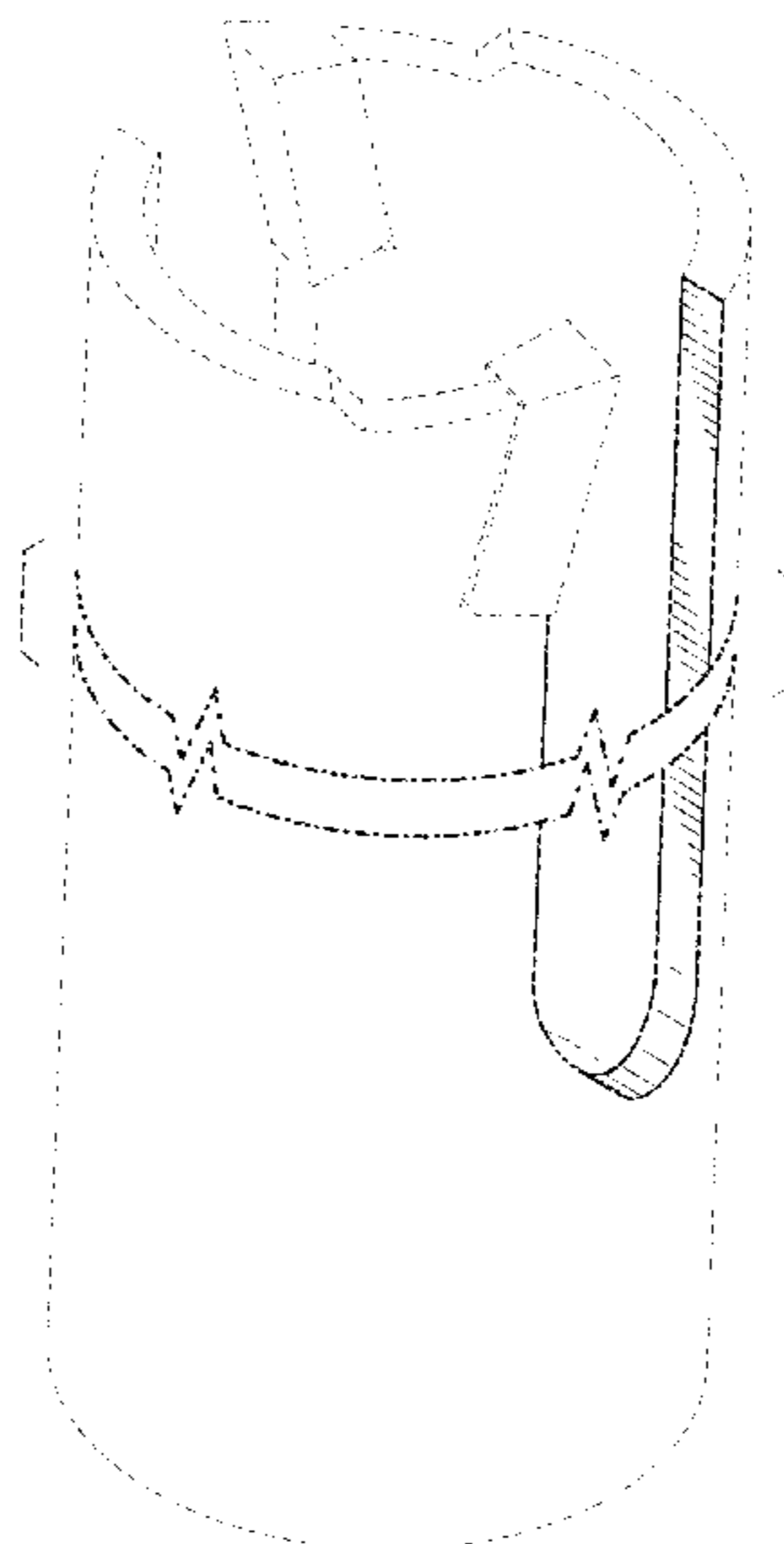
**DESCRIPTION**

**U.S. PATENT DOCUMENTS**

1,505,897 A 8/1924 Kikta  
2,879,036 A 3/1959 Wheeler  
3,049,033 A 8/1962 Benjamin et al.  
3,080,934 A 3/1963 Berscheid  
3,387,637 A 6/1968 Ferguson et al.  
3,905,718 A 9/1975 Luckenbill et al.  
4,527,638 A 7/1985 Sanchez et al.  
D282,369 S \* 1/1986 de Villiers ..... D15/139  
4,728,231 A 3/1988 Kunimori et al.  
4,744,704 A 5/1988 Galvefors  
4,802,799 A 2/1989 Rachev  
D303,118 S 8/1989 Cox  
4,984,944 A 1/1991 Pennington, Jr. et al.  
5,092,716 A 3/1992 Omi  
5,338,135 A 8/1994 Noguchi et al.  
5,451,128 A 9/1995 Hattersley

FIG. 1 is a perspective view of a hole saw according to the present design;  
FIG. 2 is a side elevation view thereof;  
FIG. 3 is another side elevation view thereof;  
FIG. 4 is another side elevation view thereof;  
FIG. 5 is another side elevation view thereof;  
FIG. 6 is a plan view thereof; and,  
FIG. 7 is another plan view thereof.  
The broken lines show portions of the hole saw which form no parts of the claimed design. In addition, the appearance of any portion of the hole saw between the dash-dot break lines forms no part of the claimed design.

**1 Claim, 4 Drawing Sheets**



(56)

References Cited

U.S. PATENT DOCUMENTS

5,599,145 A 2/1997 Reinauer et al.  
 5,651,646 A 7/1997 Banke et al.  
 D391,974 S \* 3/1998 Brutscher ..... D15/139  
 D392,297 S 3/1998 Brutscher  
 5,733,074 A 3/1998 Stock et al.  
 5,743,162 A 4/1998 Sundström  
 5,758,561 A 6/1998 Curtsinger et al.  
 5,794,503 A 8/1998 Asada  
 5,803,677 A 9/1998 Brutscher et al.  
 5,813,802 A 9/1998 Ajimi et al.  
 5,896,800 A 4/1999 Curtsinger et al.  
 5,904,455 A 5/1999 Krenzer et al.  
 5,931,614 A 8/1999 Meyen et al.  
 5,988,953 A 11/1999 Berglund et al.  
 6,007,279 A 12/1999 Malone, Jr.  
 6,021,857 A 2/2000 Birk et al.  
 6,065,370 A 5/2000 Curtsinger et al.  
 D438,219 S 2/2001 Brutscher  
 6,205,902 B1 3/2001 Vuorinen  
 6,299,389 B1 10/2001 Barazani  
 6,551,036 B2 4/2003 Heule  
 6,588,992 B2 7/2003 Rudolph  
 6,599,063 B1 7/2003 Capstran et al.  
 D478,105 S 8/2003 Morton et al.  
 D478,106 S 8/2003 Morton et al.  
 D478,339 S 8/2003 Morton et al.  
 D478,919 S 8/2003 Morton et al.  
 6,601,495 B2 8/2003 Cranna  
 6,702,047 B2 3/2004 Huber  
 6,705,807 B1 3/2004 Rudolph et al.  
 6,786,684 B1 9/2004 Ecker  
 6,820,519 B2 11/2004 Lefebvre  
 6,959,775 B2 11/2005 Pedersen  
 6,981,911 B2 1/2006 Martina  
 D516,594 S \* 3/2006 Morton ..... D15/139  
 7,018,145 B2 3/2006 Mast et al.  
 7,174,823 B2 2/2007 Cranna  
 7,189,036 B1 3/2007 Watson  
 7,241,089 B2 7/2007 Mast et al.  
 7,258,180 B2 8/2007 Kersten  
 RE40,297 E 5/2008 Berglund et al.  
 7,401,667 B2 7/2008 Duscha et al.  
 D588,175 S \* 3/2009 Morton ..... D15/139  
 7,658,136 B2 2/2010 Rompel et al.  
 D629,820 S \* 12/2010 Van Ryswyk ..... D15/139  
 7,892,235 B2 2/2011 Ellis  
 D634,343 S \* 3/2011 Burke, III ..... D15/139  
 7,997,836 B2 8/2011 Kim et al.  
 8,092,126 B2 1/2012 Tanaka  
 8,123,443 B2 2/2012 Khangar et al.  
 8,157,028 B2 4/2012 Kersten  
 8,162,945 B2 4/2012 Ellis  
 8,172,845 B2 5/2012 Ellis  
 D664,574 S \* 7/2012 Burke, III ..... D15/139  
 8,286,736 B2 10/2012 Weaver et al.  
 8,444,353 B2 5/2013 Khangar et al.  
 D683,772 S 6/2013 Wang  
 8,475,459 B2 7/2013 Ellis  
 D687,472 S 8/2013 Novak et al.  
 D692,470 S \* 10/2013 Novak ..... D15/139  
 8,550,756 B2 10/2013 Borschert et al.  
 8,573,907 B2 11/2013 Kalomeris et al.  
 8,579,554 B2 11/2013 Novak et al.  
 8,579,555 B2 11/2013 Novak et al.  
 D701,544 S \* 3/2014 Novak ..... D15/139  
 8,721,236 B2 5/2014 Kazda et al.  
 D706,845 S \* 6/2014 Richter ..... D15/139  
 D708,650 S \* 7/2014 Richter ..... D15/139  
 D711,441 S 8/2014 Novak et al.  
 9,248,518 B2 2/2016 Elliston et al.  
 D765,159 S \* 8/2016 Novak ..... D15/139  
 D789,428 S \* 6/2017 Novak ..... D15/139  
 9,884,373 B2 2/2018 Keightley  
 10,058,931 B2 8/2018 Sussman et al.  
 D845,362 S \* 4/2019 Novak ..... D15/139

D871,877 S \* 1/2020 Terris ..... D8/70  
 D875,798 S \* 2/2020 Su ..... D15/139  
 2002/0050196 A1 5/2002 Fluhner et al.  
 2002/0081165 A1 6/2002 Hecht  
 2002/0137433 A1 9/2002 Lee et al.  
 2003/0141115 A1 7/2003 Britten et al.  
 2004/0050234 A1 3/2004 Fluhner et al.  
 2004/0065183 A1 4/2004 Asada  
 2005/0188792 A1 9/2005 Asada  
 2006/0112799 A1 6/2006 Hambleton et al.  
 2007/0160435 A1 7/2007 Chao  
 2007/0212179 A1 9/2007 Khangar et al.  
 2008/0264231 A1 10/2008 Coe et al.  
 2008/0267725 A1 10/2008 Mills  
 2008/0298922 A1 12/2008 Oettle  
 2009/0000454 A1 1/2009 Baerenthaler et al.  
 2009/0044674 A1 2/2009 Neitzell  
 2009/0126712 A1 5/2009 Kullmann et al.  
 2009/0274923 A1 11/2009 Hall et al.  
 2010/0126326 A1 5/2010 Cloutier  
 2011/0197736 A1 8/2011 Lizzi et al.  
 2011/0217133 A1 9/2011 Ibarra et al.  
 2012/0230788 A1 9/2012 Bozic et al.  
 2013/0296866 A1 11/2013 Ellis  
 2014/0013916 A1 1/2014 Athad  
 2014/0023446 A1 \* 1/2014 Piller ..... B23B 51/0406  
 408/204  
 2014/0023447 A1 1/2014 Thom et al.  
 2015/0000497 A1 1/2015 Engvall et al.  
 2015/0239052 A1 8/2015 Trumble et al.  
 2016/0059329 A1 3/2016 Fendeleur et al.  
 2016/0166260 A1 6/2016 Ellis  
 2016/0175945 A1 6/2016 Chang  
 2016/0175947 A1 6/2016 Chang  
 2017/0120347 A1 5/2017 Lourenco et al.  
 2017/0120357 A1 5/2017 Trautner et al.  
 2018/0085833 A1 3/2018 Ward  
 2018/0193926 A1 7/2018 Sawa et al.

FOREIGN PATENT DOCUMENTS

CN 201597079 10/2010  
 CN 102689051 9/2012  
 CN 202963637 6/2013  
 CN 204171467 2/2015  
 CN 204321316 5/2015  
 CN 204565301 8/2015  
 CN 204818283 12/2015  
 CN 204997156 1/2016  
 CN 205519922 8/2016  
 DE 2422452 11/1975  
 DE 19623081 1/1998  
 DE 19810713 9/1999  
 DE 19910219 9/1999  
 DE 19913727 10/1999  
 DE 19939323 3/2000  
 DE 10042402 5/2001  
 DE 20101718 5/2001  
 DE 20113578 10/2001  
 DE 10253247 1/2004  
 DE 202004003900 U1 6/2004  
 DE 102004003900 A1 8/2005  
 DE 202005012328 10/2005  
 DE 202006010180 11/2006  
 DE 202006011952 11/2006  
 EP 0118806 9/1984  
 EP 0216064 4/1987  
 EP 0352215 1/1990  
 EP 0612575 8/1994  
 EP 0715919 6/1996  
 EP 0729801 9/1996  
 EP 1024247 8/2000  
 EP 1078706 2/2001  
 EP 1431511 6/2004  
 EP 1080859 3/2007  
 EP 1852202 11/2007  
 EP 1944107 7/2008  
 EP 1944108 7/2008  
 EP 2502693 9/2012

(56)

**References Cited**

FOREIGN PATENT DOCUMENTS

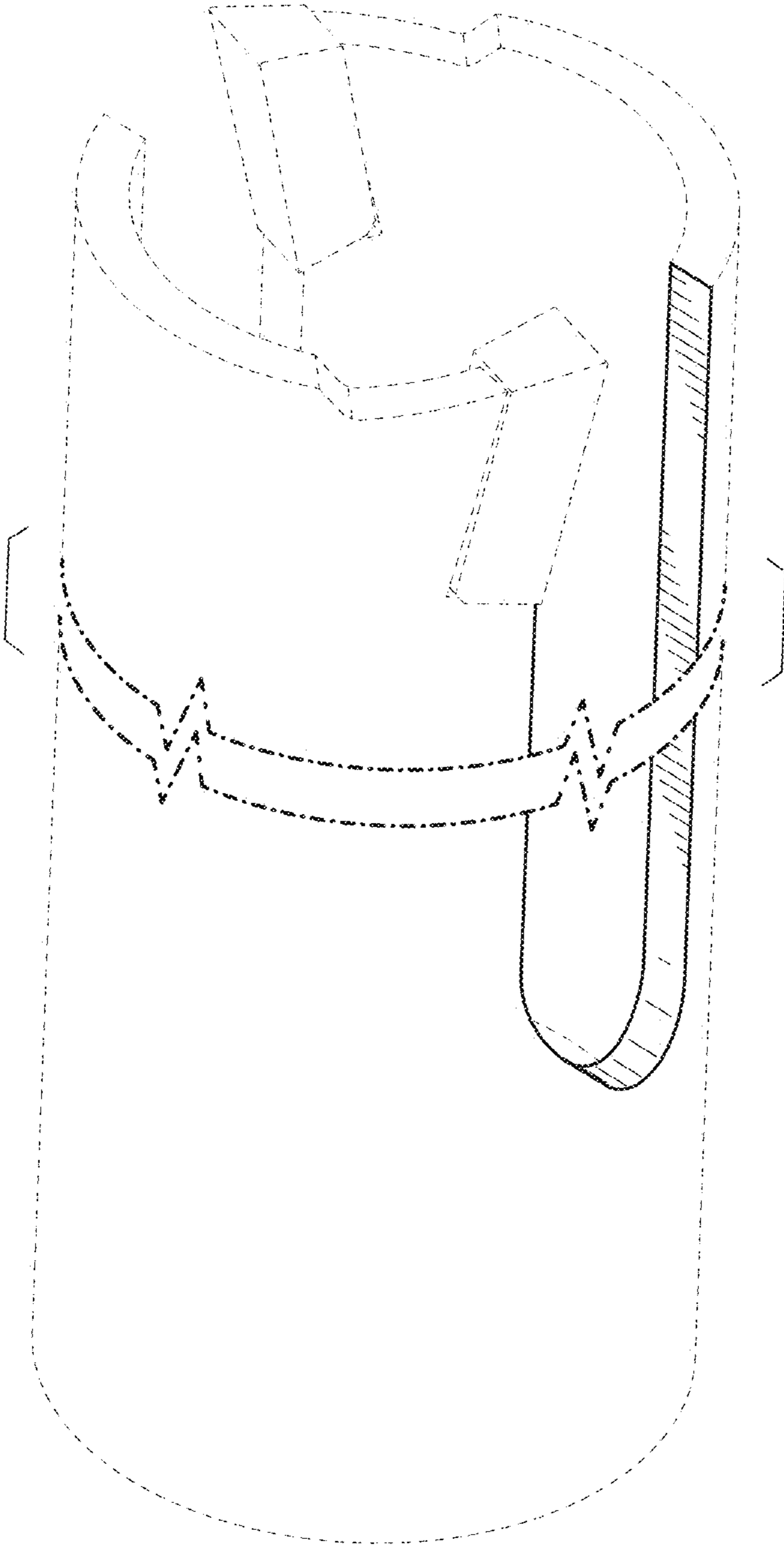
EP	2987577	2/2016
FR	2302808	10/1976
FR	2421022	10/1979
GB	191517961	12/1915
GB	550306	1/1943
GB	2201910	9/1988
JP	H0966411	3/1973
WO	9706338	2/1997
WO	2007118718	10/2007
WO	2012159881	11/2012
WO	2012159947	11/2012
WO	WO2014180925	11/2014
WO	WO2016102261	6/2016
WO	WO2016102539	6/2016

OTHER PUBLICATIONS

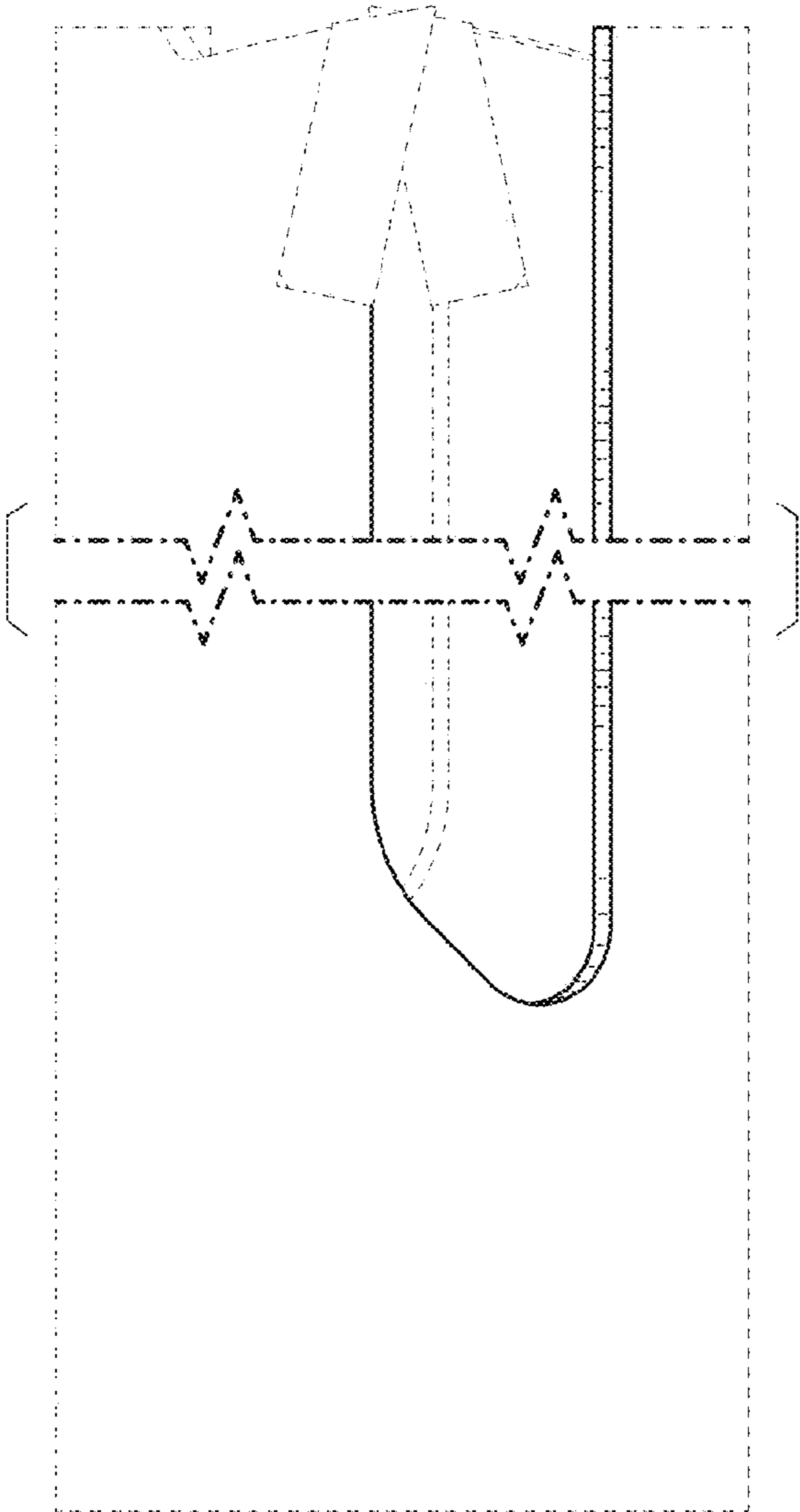
European Patent Office Search Report for Application No. 17192777.5  
dated Mar. 13, 2018, 7 pages.

European Patent Office Search Report for Application No. 18150515.7  
dated Jun. 20, 2018, 18 pages.

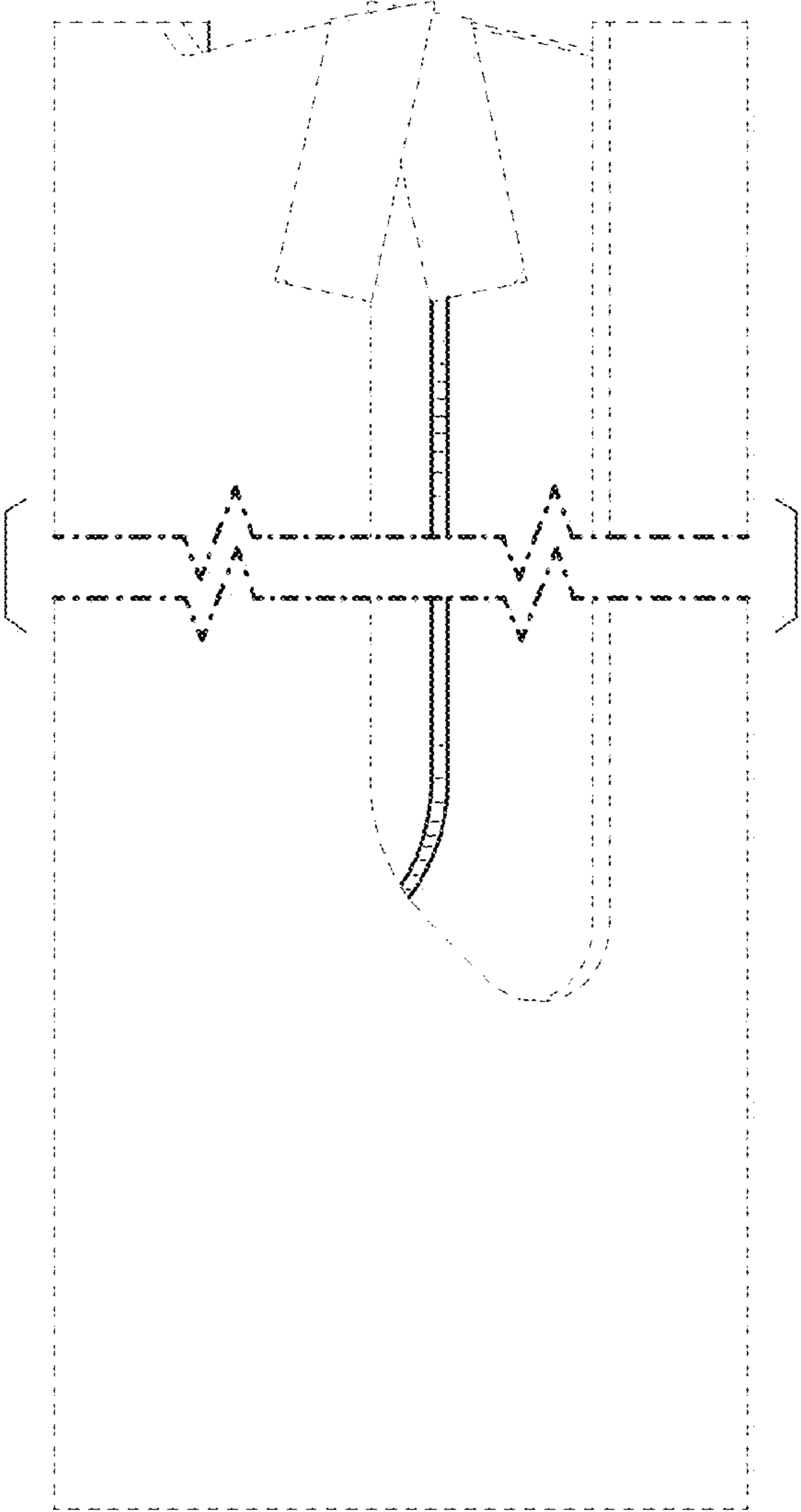
\* cited by examiner



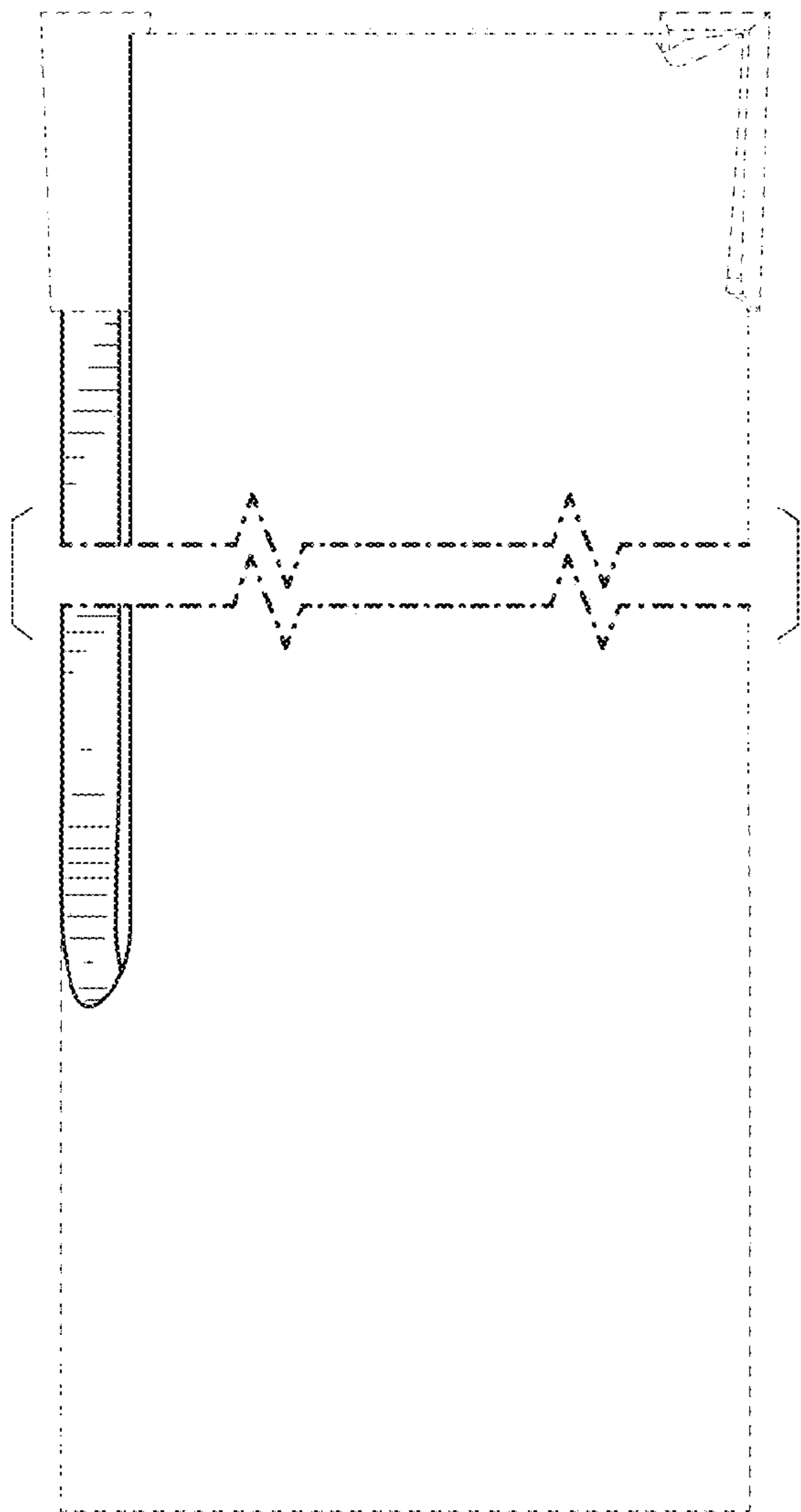
**FIG. 1**



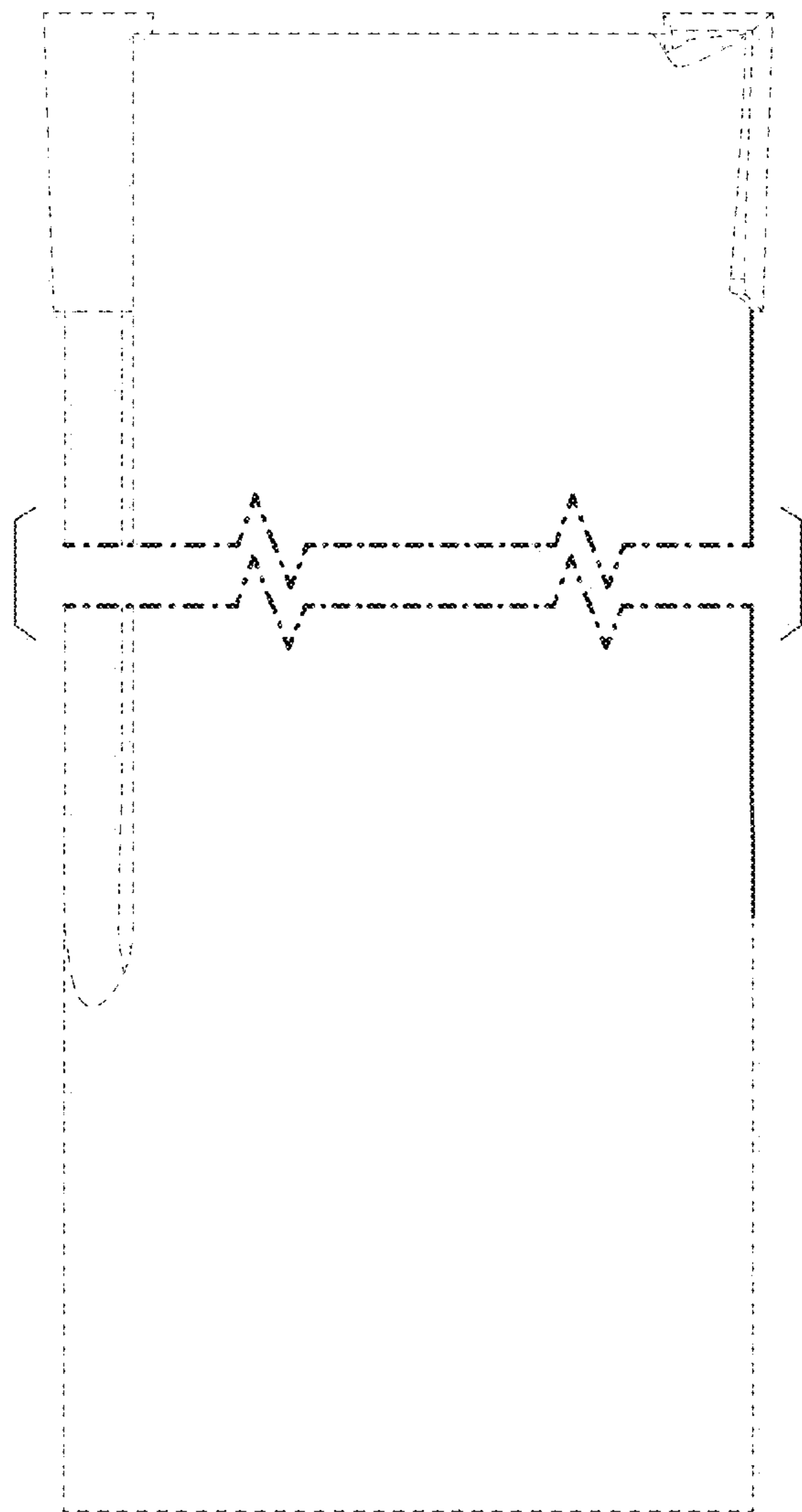
**FIG. 2**



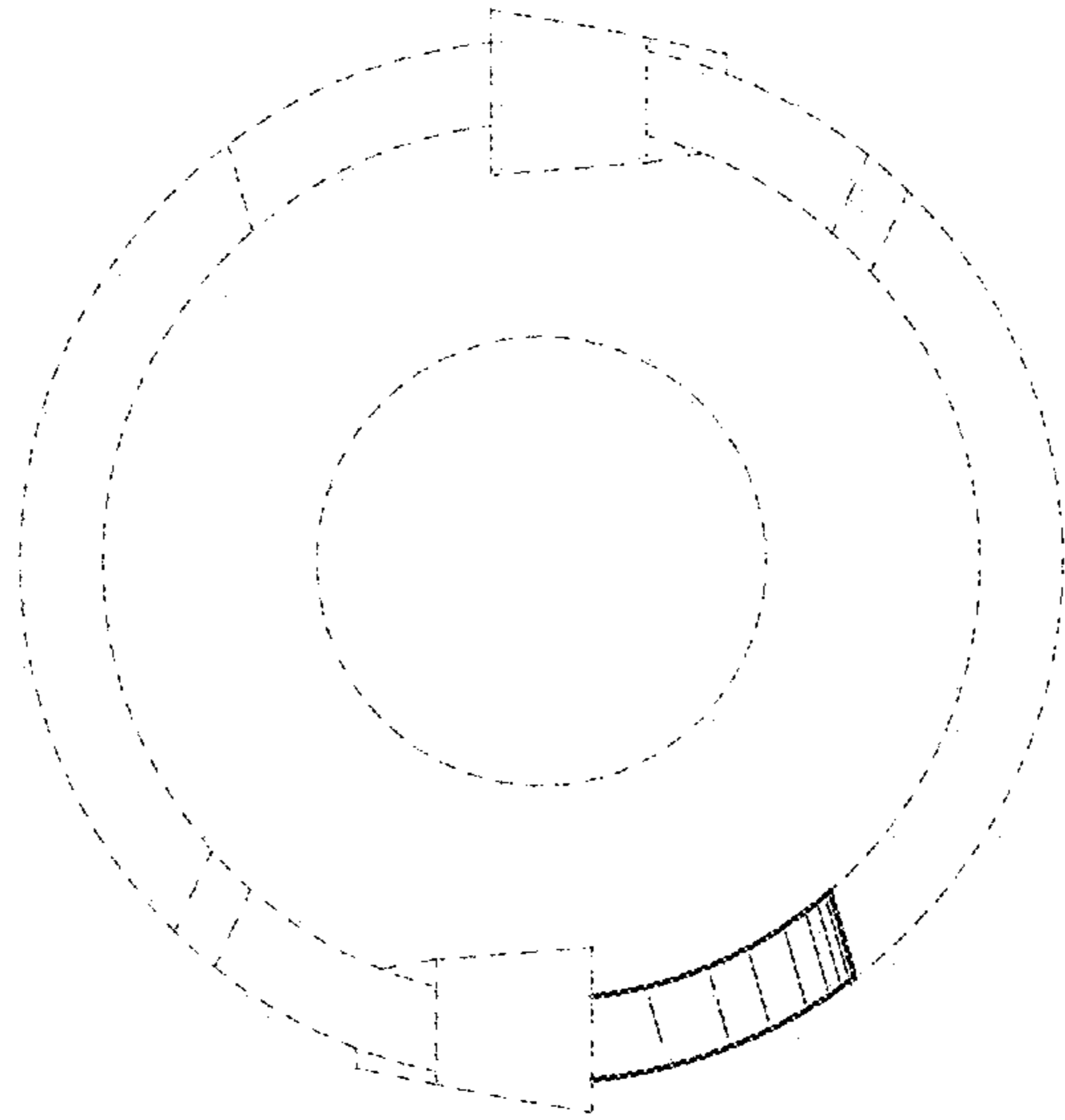
**FIG. 3**



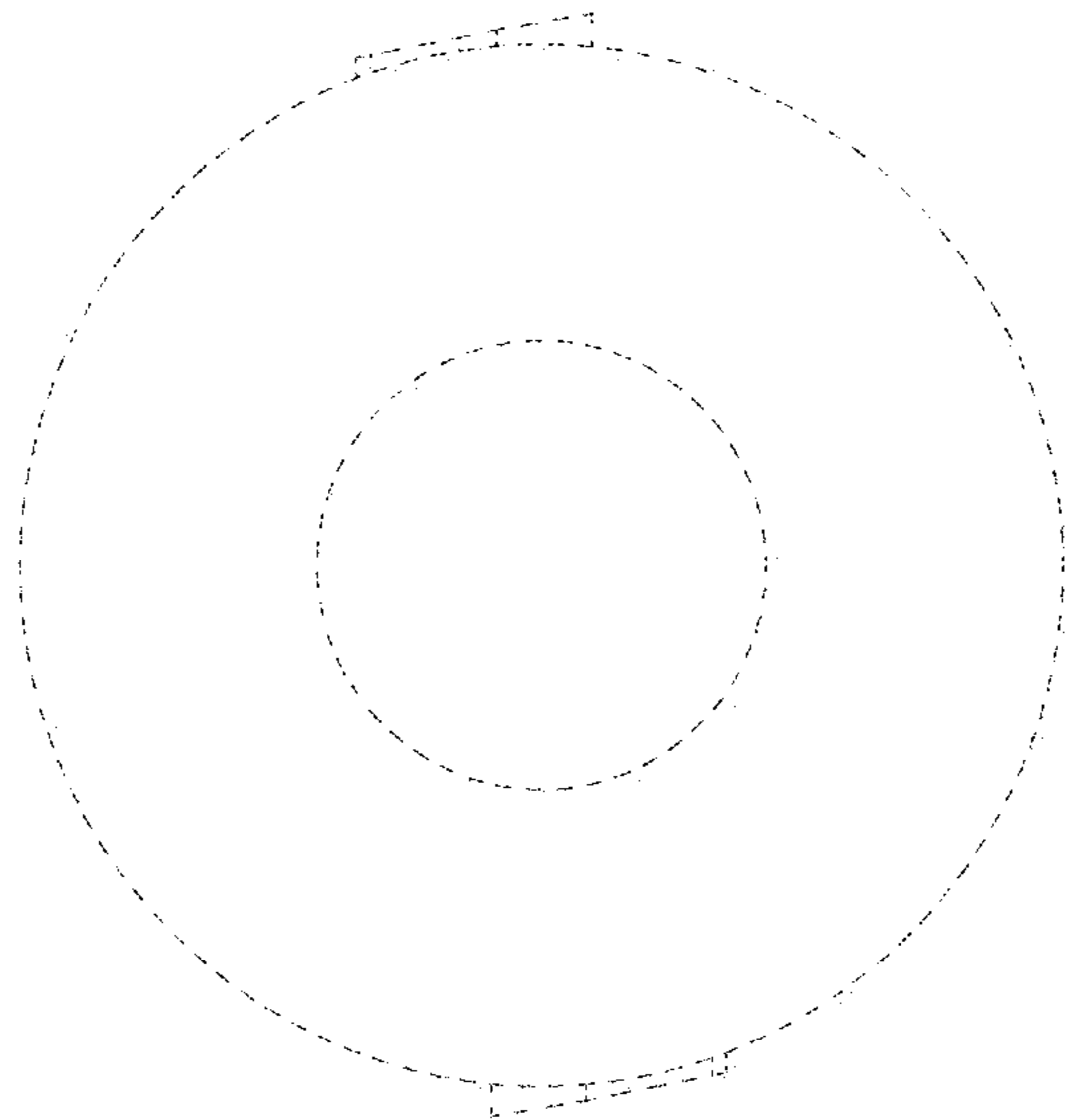
**FIG. 4**



**FIG. 5**



**FIG. 6**



**FIG. 7**