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(12) **United States Design Patent** (10) **Patent No.:** **US D856,506 S**  
**Wu et al.** (45) **Date of Patent:** **\*\* Aug. 13, 2019**

(54) **DRUG DELIVERY PUMP**  
(71) Applicant: **UNL HOLDINGS LLC**, New York, NY (US)  
(72) Inventors: **Kun-Chi Wu**, Princeton, NJ (US); **Lawton Laurence**, Phoenixville, PA (US)  
(73) Assignee: **UNL Holdings LLC**, New York, NY (US)  
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**Related U.S. Application Data**

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(51) **LOC (12) Cl.** ..... **24-01**  
(52) **U.S. Cl.**  
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(58) **Field of Classification Search**  
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A61M 2205/502  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

4,004,586 A 1/1977 Christensen et al.  
4,673,400 A 6/1987 Martin  
4,685,903 A 8/1987 Cable et al.  
4,755,173 A 7/1988 Konopka et al.  
4,840,620 A 6/1989 Kobayashi et al.

5,167,816 A 12/1992 Kruger et al.  
5,795,339 A 8/1998 Erskine  
5,858,001 A 1/1999 Tsals et al.  
6,248,093 B1 6/2001 Moberg  
6,699,218 B2 3/2004 Flaherty et al.  
7,063,684 B2 6/2006 Moberg  
7,479,135 B2 1/2009 Richter et al.

(Continued)

**FOREIGN PATENT DOCUMENTS**

EP 1702635 A2 9/2006  
EP 1341569 B1 1/2007

(Continued)

**OTHER PUBLICATIONS**

International Search Report and Written Opinion dated Feb. 28, 2013, in PCT/US2012/053241, filed Aug. 30, 2012.

(Continued)

*Primary Examiner* — Lilyana Bekic

(74) *Attorney, Agent, or Firm* — Hamilton, Brook, Smith & Reynolds, P.C.

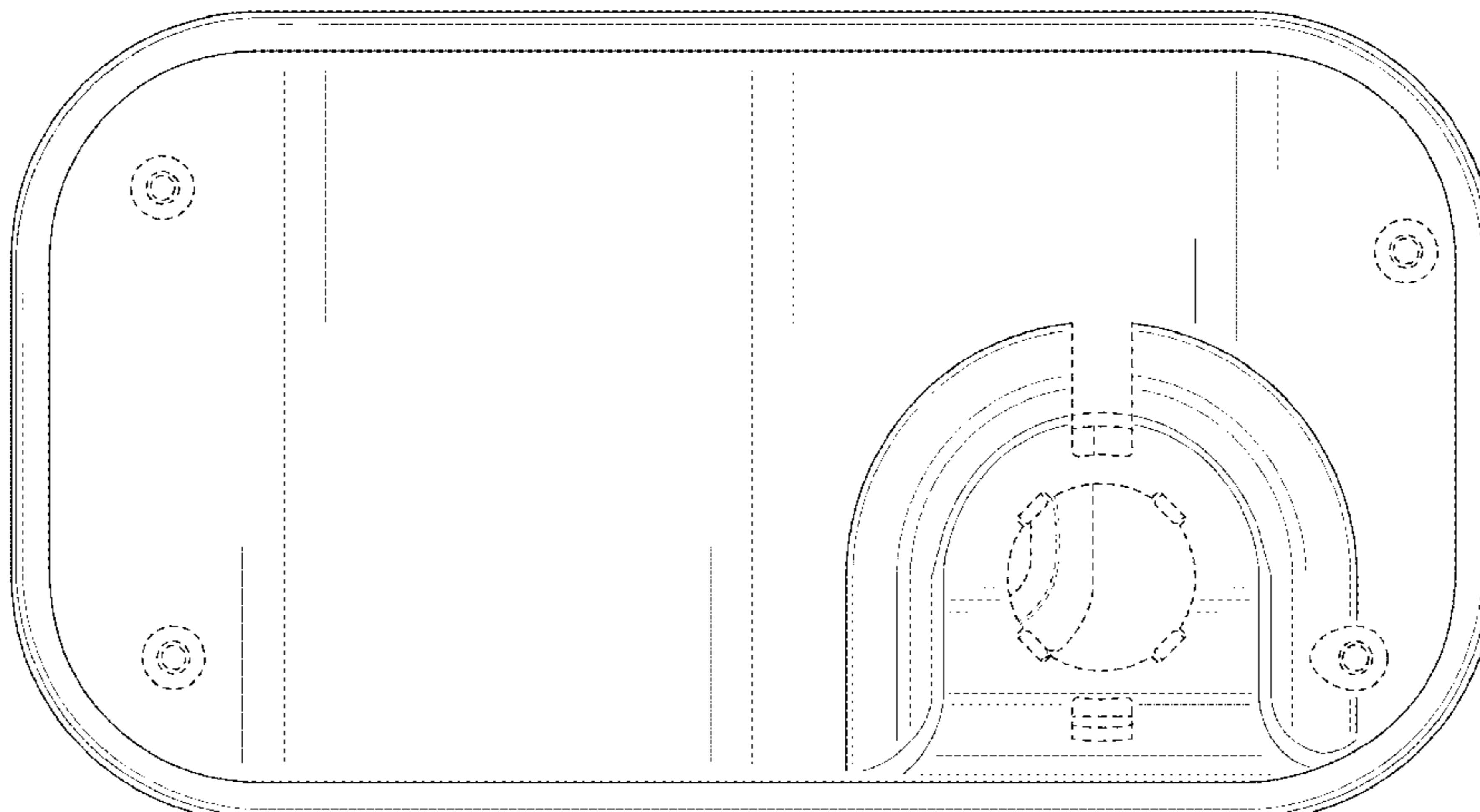
(57) **CLAIM**

The ornamental design for a drug delivery pump, as shown and described.

**DESCRIPTION**

FIG. 1 is a top plan view of a drug delivery pump showing our new design;  
FIG. 2 is a bottom plan view thereof;  
FIG. 3 is a front elevational view thereof;  
FIG. 4 is a right side elevational view thereof;  
FIG. 5 is a left side elevational view thereof;  
FIG. 6 is rear elevational view thereof; and,  
FIG. 7 is a top perspective view thereof.  
The broken lines in the drawings depict portions of the drug delivery pump that form no part of the claimed design.

**1 Claim, 6 Drawing Sheets**



(56)

References Cited

U.S. PATENT DOCUMENTS

7,611,503 B2 11/2009 Spohn et al.  
 7,803,134 B2 9/2010 Sharifi et al.  
 D629,503 S 12/2010 Caffey et al.  
 7,846,132 B2 12/2010 Gravesen et al.  
 7,905,859 B2 3/2011 Bynum et al.  
 7,927,306 B2 4/2011 Cross  
 7,967,795 B1 6/2011 Cabiri  
 7,976,493 B2 7/2011 Carter  
 8,029,472 B2 10/2011 Leinsing et al.  
 8,048,031 B2 11/2011 Shaw et al.  
 8,157,769 B2 4/2012 Cabiri  
 8,167,844 B2 5/2012 Dillard, III  
 8,187,232 B2 5/2012 Chong et al.  
 D685,083 S 6/2013 Schneider  
 D685,084 S 6/2013 Guarraia  
 D687,140 S 7/2013 Guarraia  
 D687,141 S 7/2013 Schneider  
 D687,536 S 8/2013 Guarraia  
 D688,784 S 8/2013 Schneider  
 8,915,879 B2 12/2014 Smith  
 D723,157 S 2/2015 Clemente  
 D745,142 S 12/2015 O'Connor  
 D768,288 S \* 10/2016 O'Connor ..... D24/111  
 D791,306 S \* 7/2017 Clemente ..... D24/111  
 D794,770 S \* 8/2017 Wu ..... D24/108  
 D794,771 S \* 8/2017 Wu ..... D24/108  
 D810,278 S \* 2/2018 Cabiri ..... D24/111  
 D810,279 S \* 2/2018 Cabiri ..... D24/111  
 D811,583 S \* 2/2018 Cabiri ..... A61M 5/158  
 D811,584 S \* 2/2018 Cabiri ..... D24/111  
 D817,481 S \* 5/2018 Cabiri ..... A61M 5/158  
 D836,770 S \* 12/2018 Nazzaro ..... D24/111  
 D838,359 S \* 1/2019 Boyaval ..... D24/112  
 2004/0092878 A1 5/2004 Flaherty  
 2007/0010789 A1 1/2007 Peter et al.  
 2008/0132842 A1 6/2008 Flaherty  
 2008/0269687 A1 10/2008 Chong et al.  
 2009/0093792 A1 4/2009 Gross  
 2009/0124979 A1 5/2009 Raymond et al.  
 2009/0204077 A1 8/2009 Hasted et al.  
 2009/0240240 A1 9/2009 Hines  
 2010/0168683 A1 7/2010 Cabiri  
 2011/0066131 A1 3/2011 Cabiri  
 2011/0166509 A1 7/2011 Gross et al.  
 2012/0035546 A1 2/2012 Cabiri  
 2012/0123354 A1 5/2012 Woehr  
 2013/0060196 A1 3/2013 O'Connor  
 2013/0066274 A1 3/2013 O'Connor

2014/0200510 A1 7/2014 Agard  
 2015/0057613 A1 2/2015 Clemente  
 2015/0080799 A1 3/2015 Schneider  
 2015/0190588 A1 7/2015 Hanson  
 2015/0306307 A1 10/2015 Cole  
 2015/0359965 A1 12/2015 O'Connor  
 2016/0158436 A1 6/2016 Yang  
 2017/0354781 A1 \* 12/2017 Cronenberg ..... A61M 5/31  
 2018/0021508 A1 \* 1/2018 Destefano ..... A61M 5/158  
 604/151  
 2018/0028747 A1 \* 2/2018 Hanson ..... A61M 5/1456  
 2018/0043091 A1 \* 2/2018 Agard ..... A61M 5/3157  
 2018/0055995 A1 \* 3/2018 Hanson ..... A61M 5/172  
 2018/0085517 A1 \* 3/2018 Laurence ..... A61M 5/14216  
 2018/0236173 A1 \* 8/2018 McCaffrey ..... A61M 5/2466  
 2018/0256815 A1 \* 9/2018 Nazzaro ..... A61M 5/1454  
 2018/0280607 A1 \* 10/2018 Richards ..... A61M 5/24

FOREIGN PATENT DOCUMENTS

EP 1427471 B1 2/2008  
 EP 1695727 B1 7/2008  
 EP 1513580 B1 3/2009  
 EP 2077128 A1 7/2009  
 EP 2379134 A1 10/2011  
 EP 2429612 A1 3/2012  
 EP 2433663 A1 3/2012  
 WO 99/48546 A1 9/1999  
 WO 2003/024504 A2 3/2003  
 WO 2003/103763 A1 12/2003  
 WO 2004/062714 A1 7/2004  
 WO 2005/037350 A2 4/2005  
 WO 2008/024808 A2 2/2008  
 WO 2010/077807 A1 7/2010  
 WO 2010/084113 A1 7/2010  
 WO 2010/112377 A1 11/2010  
 WO 2010/132196 A1 11/2010  
 WO 2011/006652 A1 1/2011  
 WO 2011/090956 A2 7/2011  
 WO 2011/121023 A1 10/2011  
 WO 2012/131044 A1 10/2012

OTHER PUBLICATIONS

International Search Report and Written Opinion dated Mar. 28, 2013, in PCT/US2012/053174, filed Aug. 30, 2012.  
 International Search Report and Written Opinion dated Feb. 18, 2013, in PCT/US2012/054861, filed Sep. 12, 2012.  
 Preliminary Amendment and Application Data Sheet filed, on Jul. 9, 2012, in U.S. Appl. No. 13/521,181, filed Jul. 9, 2012.

\* cited by examiner

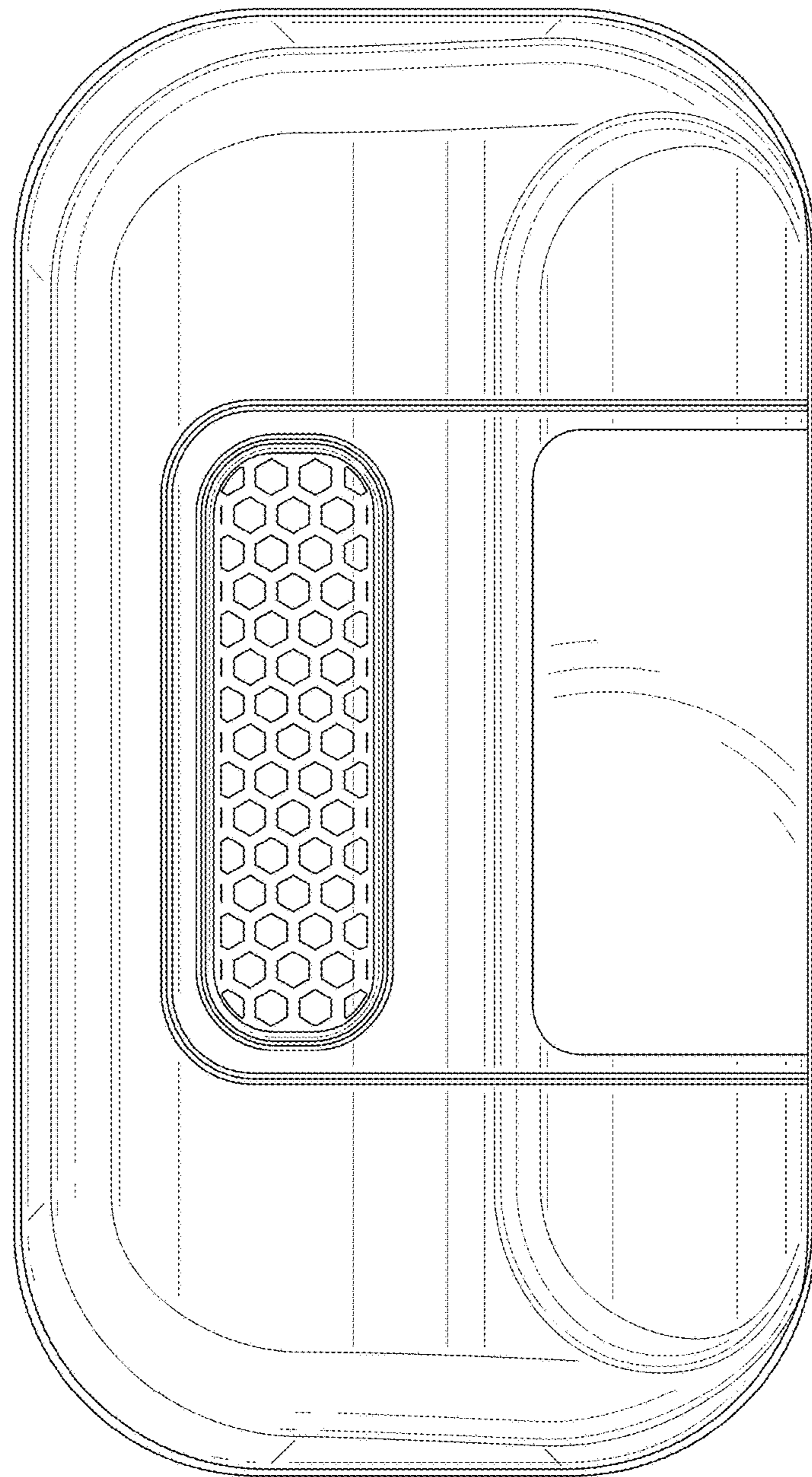


FIG. 1

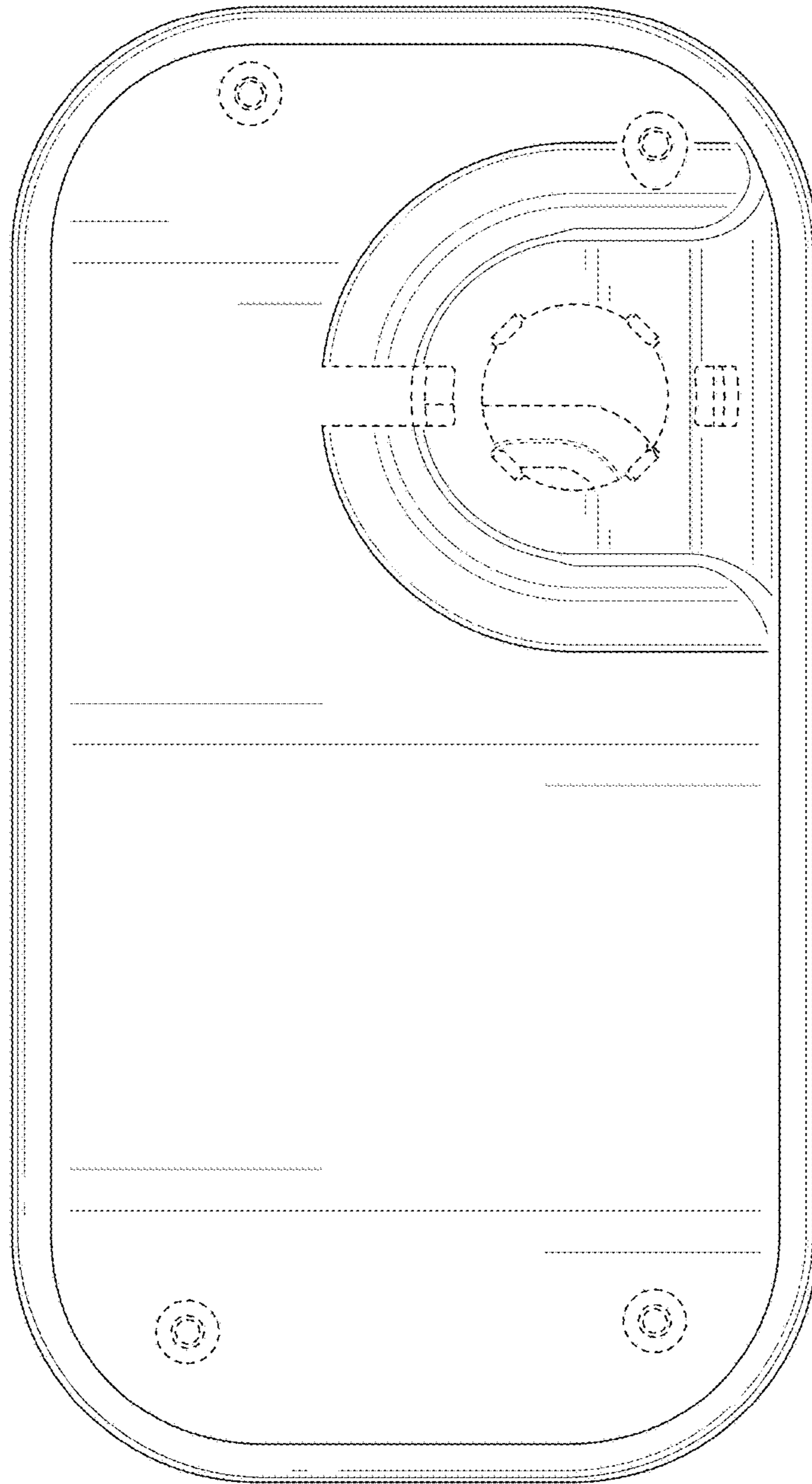


FIG. 2

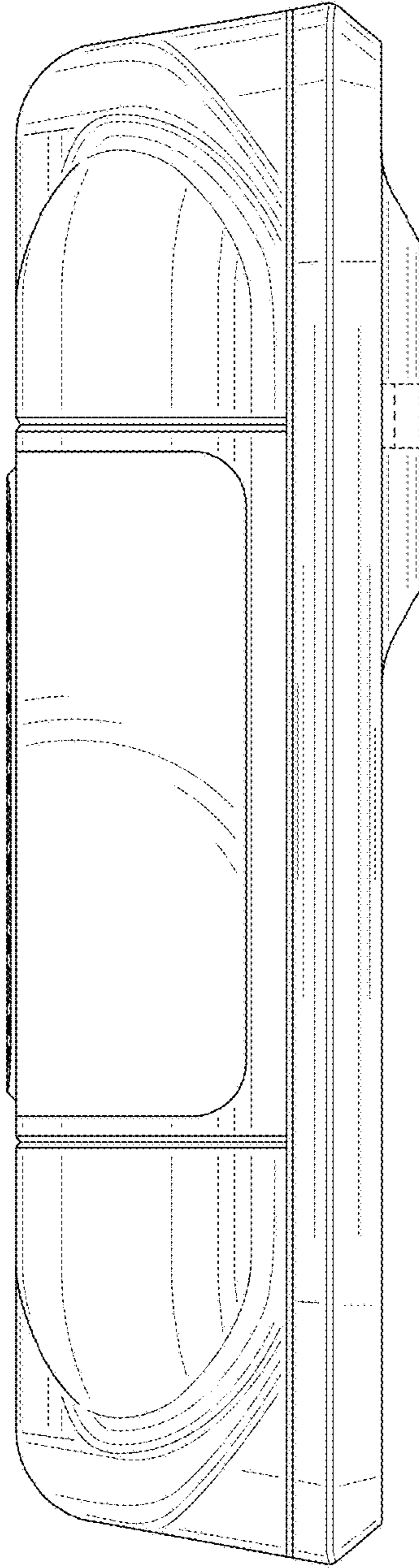


FIG. 3

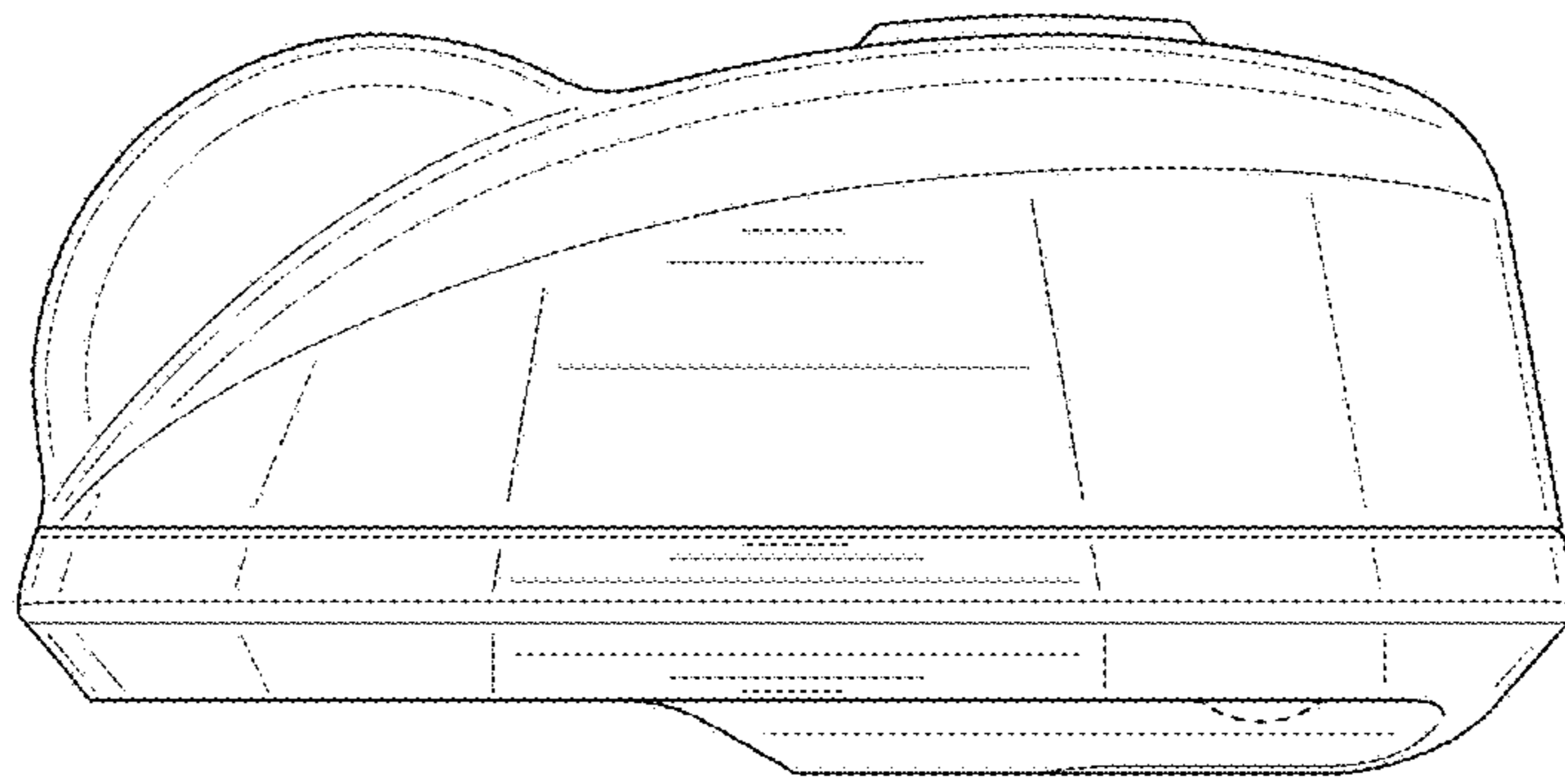


FIG. 4

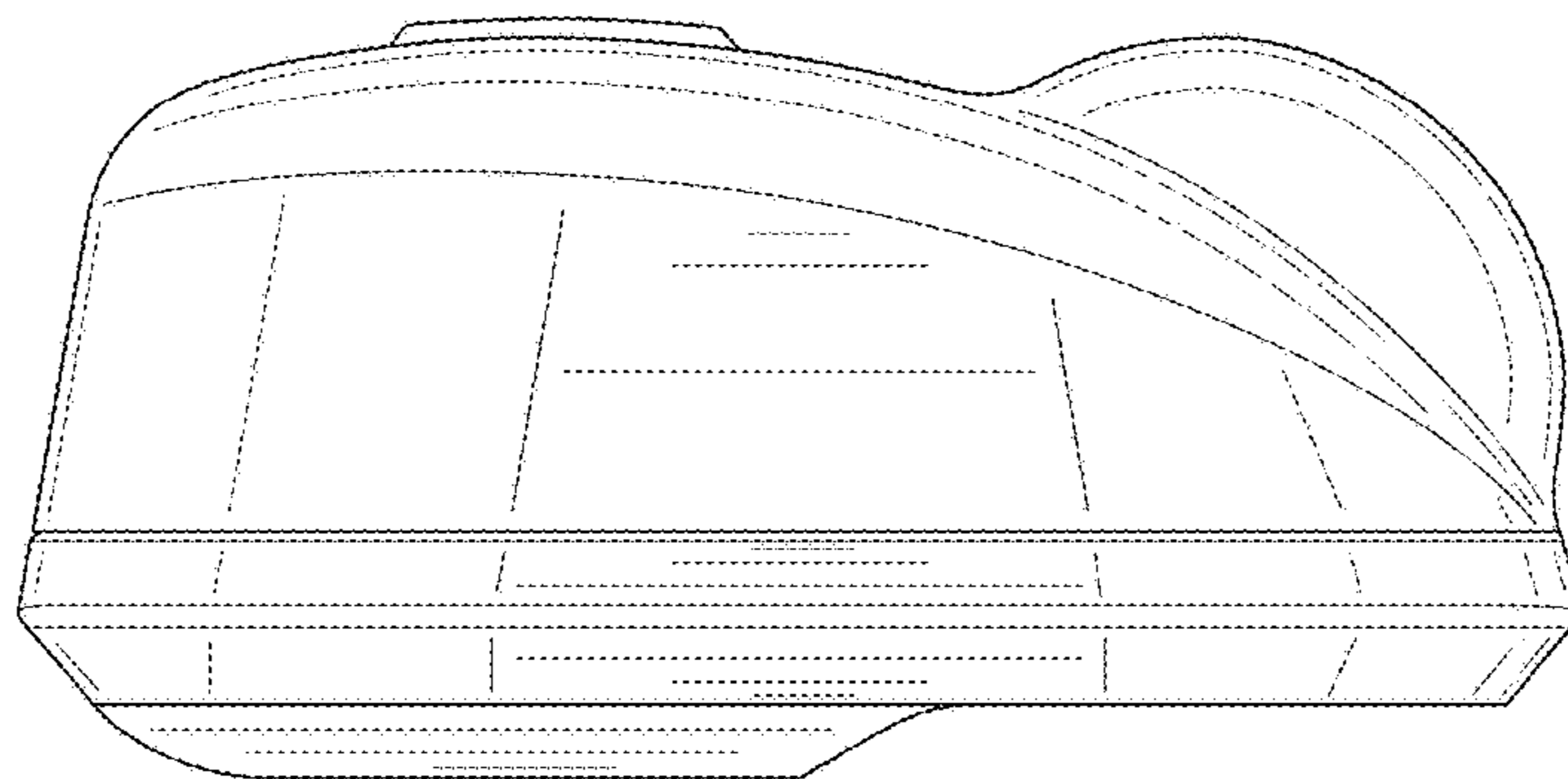


FIG. 5

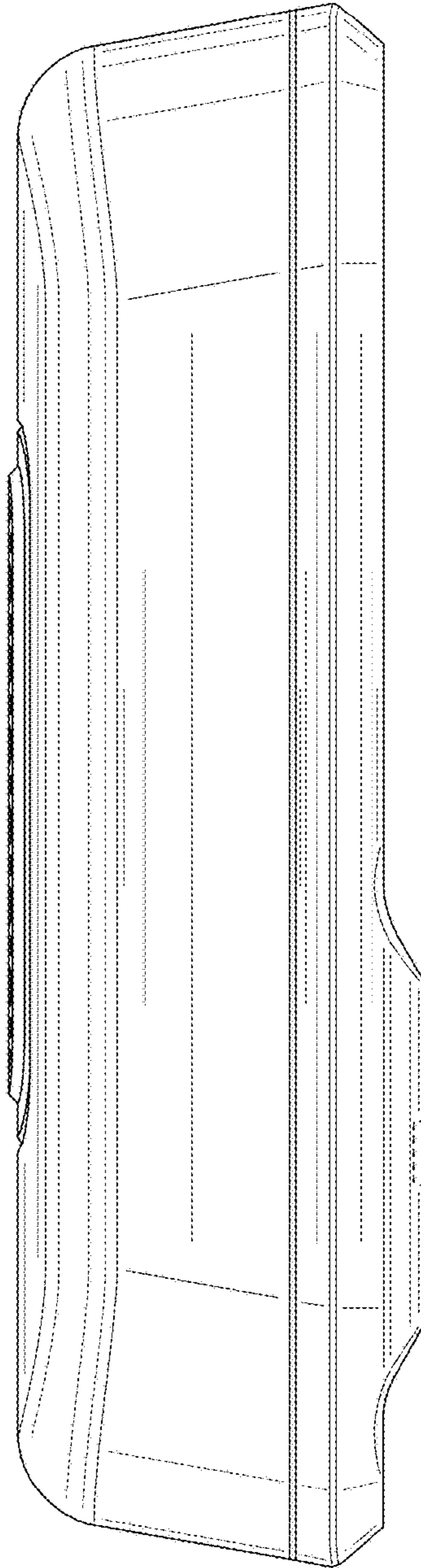


FIG. 6

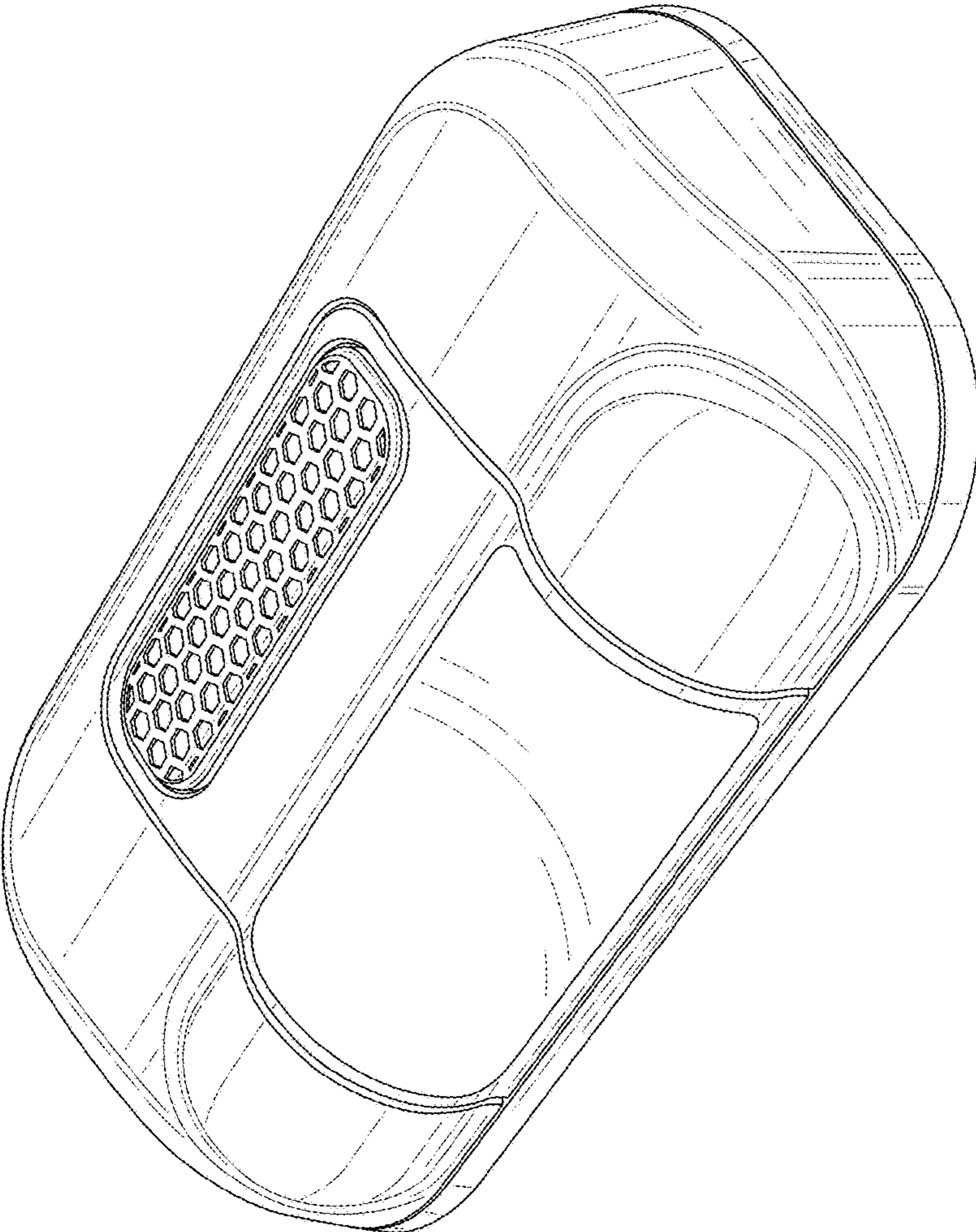


FIG. 7