

US00D998827S

(12) **United States Design Patent** (10) **Patent No.:** **US D998,827 S**  
**Wladyka et al.** (45) **Date of Patent:** **\*\* Sep. 12, 2023**

(54) **MATERIAL HAVING EDGE SHAPE**

- (71) Applicant: **Laird Technologies, Inc.**, Chesterfield, MO (US)
- (72) Inventors: **Michael S. Wladyka**, Brocksville, OH (US); **Keith David Johnson**, Westlake, OH (US); **Jason L. Strader**, Cleveland, OH (US); **Mark D. Kittel**, Berea, OH (US); **Jingting Yang**, Fremont, CA (US)
- (73) Assignee: **Laird Technologies, Inc.**, Chesterfield, MO (US)

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

(21) Appl. No.: **29/731,731**

(22) Filed: **Apr. 17, 2020**

**Related U.S. Application Data**

- (62) Division of application No. 29/621,302, filed on Oct. 6, 2017, now Pat. No. Des. 881,822.
- (51) **LOC (14) Cl.** ..... **13-03**
- (52) **U.S. Cl.**  
USPC ..... **D13/154**; D13/199
- (58) **Field of Classification Search**  
USPC ..... D13/123, 154, 182, 184, 199; D25/48.2, D25/119, 199; D7/388; D12/221, 222, D12/345; D23/269, 386

(Continued)

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

D114,239 S 4/1939 Ryan  
3,707,762 A 1/1973 Bochinski et al.  
(Continued)

**FOREIGN PATENT DOCUMENTS**

EP 2814057 A2 12/2014  
EP 2814057 A3 6/2015  
(Continued)

**OTHER PUBLICATIONS**

Basics of Processing for Fabricated Films and Pads—Dow Corning; Thermal Interface—Wet Dispensed; [http://www.dowcorning.com/content/etronics/etronicswet/newtim\\_tutorial13.asp](http://www.dowcorning.com/content/etronics/etronicswet/newtim_tutorial13.asp) accessed Jul. 11, 2016; 1 page.

(Continued)

*Primary Examiner* — Llorelys Martinez

(74) *Attorney, Agent, or Firm* — HARNESS, DICKY & PIERCE, P.L.C.; Anthony Fussner

(57) **CLAIM**

The ornamental design for a material having edge shape, as shown and described.

**DESCRIPTION**

FIG. 1 is a perspective view of a material having edge shape showing our new design;

FIG. 2 is a cross-sectional perspective view of the material having edge shape of FIG. 1, taken along lines 2-2 in FIG. 1;

FIG. 3 is a front elevation view of the material having edge shape of FIG. 1;

FIG. 4 is a rear elevation view of the material having edge shape of FIG. 1;

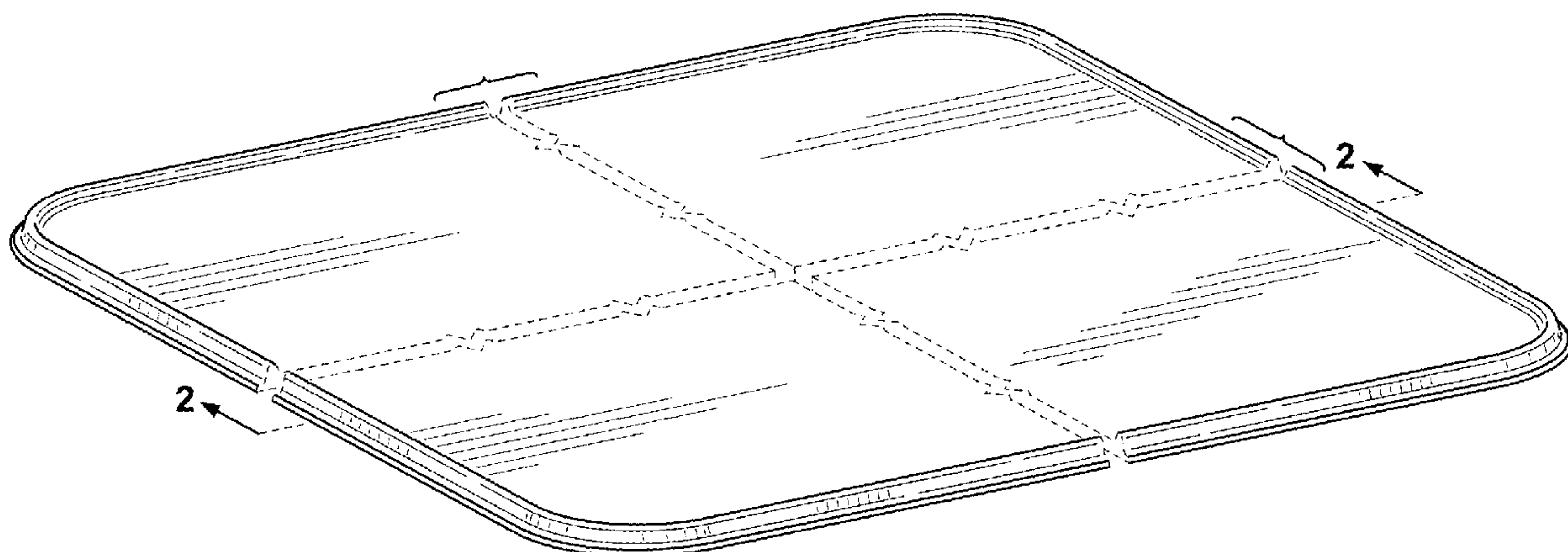
FIG. 5 is a top plan view of the material having edge shape of FIG. 1;

FIG. 6 is a right side elevation view of the material having edge shape of FIG. 1; and,

FIG. 7 is a left side elevation view of the material having edge shape of FIG. 1.

The evenly spaced broken lines in FIGS. 1 through 7 represent portions of the material having edge shape and form no part of the claimed design. The material having edge shape is shown with a symbolic break in its length and width. The appearance of any portion of the material having edge shape between the break lines forms no part of the claimed design.

**1 Claim, 4 Drawing Sheets**



(58) **Field of Classification Search**

CPC . H01B 3/00; H01B 3/008; H01B 3/28; H01B 3/30; H01B 3/44; H01B 3/46; H01H 2211/00; H01H 2211/024; F28F 3/00; F28F 3/005; H01R 13/6598; H01R 13/6599; H05K 9/00; H05K 9/0015; H05K 9/0016; H05K 9/0022; H05K 9/0024; H05K 9/003

See application file for complete search history.

(56) **References Cited**

## U.S. PATENT DOCUMENTS

|           |      |         |                |                        |
|-----------|------|---------|----------------|------------------------|
| 4,058,537 | A    | 11/1977 | Mueller        |                        |
| 4,199,490 | A    | 4/1980  | Kamiya et al.  |                        |
| 4,678,115 | A    | 7/1987  | Weisert        |                        |
| 4,732,631 | A    | 3/1988  | Shimizu        |                        |
| 4,863,551 | A    | 9/1989  | Ogura          |                        |
| 4,872,258 | A    | 10/1989 | Ragard         |                        |
| D344,489  | S    | 2/1994  | Webb           |                        |
| D348,387  | S    | 7/1994  | Sullivan       |                        |
| 5,700,340 | A    | 12/1997 | Johnson et al. |                        |
| 5,943,557 | A    | 8/1999  | Moden          |                        |
| 6,294,729 | B1 * | 9/2001  | Kaplo .....    | H05K 9/0016<br>174/394 |

|              |     |         |                   |         |
|--------------|-----|---------|-------------------|---------|
| 6,391,686    | B1  | 5/2002  | Shiozawa          |         |
| 6,696,639    | B1  | 2/2004  | Nurmi             |         |
| 6,987,671    | B2  | 1/2006  | Houle             |         |
| 7,004,244    | B2  | 2/2006  | Rauch             |         |
| 7,229,683    | B2  | 6/2007  | Fischer et al.    |         |
| 7,488,900    | B1  | 2/2009  | Kline             |         |
| 7,821,126    | B2  | 10/2010 | Houle et al.      |         |
| 7,906,845    | B1  | 3/2011  | Galloway et al.   |         |
| D644,757     | S   | 9/2011  | Vappula           |         |
| 8,445,102    | B2  | 5/2013  | Strader et al.    |         |
| D690,272     | S   | 9/2013  | Kline             |         |
| 8,545,987    | B2  | 10/2013 | Strader et al.    |         |
| D707,185     | S   | 6/2014  | Kline             |         |
| 8,916,419    | B2  | 12/2014 | Chen et al.       |         |
| 8,920,919    | B2  | 12/2014 | Arora et al.      |         |
| 9,016,629    | B1  | 4/2015  | Svartstrom        |         |
| D728,773     | S   | 5/2015  | van Haaster       |         |
| D731,078     | S   | 6/2015  | Frenette          |         |
| D734,732     | S * | 7/2015  | Nakabayashi ..... | D13/182 |
| 9,089,044    | B1  | 7/2015  | Robinson          |         |
| 9,257,364    | B2  | 2/2016  | Ahuja et al.      |         |
| 9,316,447    | B2  | 4/2016  | Fleskens et al.   |         |
| 9,330,998    | B2  | 5/2016  | Strader et al.    |         |
| 9,418,912    | B2  | 8/2016  | Nardi et al.      |         |
| 9,472,485    | B2  | 10/2016 | Saeidi et al.     |         |
| D779,997     | S * | 2/2017  | King .....        | D11/4   |
| D807,531     | S   | 1/2018  | Manning           |         |
| D862,404     | S * | 10/2019 | Murata .....      | D13/182 |
| D879,046     | S * | 3/2020  | Wladyka .....     | D13/199 |
| D881,822     | S * | 4/2020  | Wladyka .....     | D13/199 |
| D895,623     | S * | 9/2020  | Pille .....       | D14/432 |
| D909,322     | S * | 2/2021  | Yoshida .....     | D13/199 |
| D917,028     | S * | 4/2021  | Yoshida .....     | D23/269 |
| D919,626     | S * | 5/2021  | Pille .....       | D14/432 |
| 2003/0037866 | A1  | 2/2003  | Aoki et al.       |         |
| 2003/0234322 | A1  | 12/2003 | Bladt             |         |
| 2004/0180474 | A1  | 9/2004  | Oman              |         |
| 2004/0188814 | A1  | 9/2004  | Houle et al.      |         |
| 2004/0261980 | A1  | 12/2004 | Dani et al.       |         |
| 2004/0262372 | A1  | 12/2004 | Houle et al.      |         |
| 2004/0262743 | A1  | 12/2004 | Houle et al.      |         |
| 2005/0236107 | A1  | 10/2005 | Doi et al.        |         |
| 2005/0264677 | A1  | 12/2005 | Uchida            |         |

|              |      |        |              |                        |
|--------------|------|--------|--------------|------------------------|
| 2007/0193672 | A1   | 8/2007 | Yamamoto     |                        |
| 2009/0000818 | A1   | 1/2009 | Poulsen      |                        |
| 2009/0207579 | A1 * | 8/2009 | Boetto ..... | H05K 9/0016<br>361/818 |

|              |    |         |                 |  |
|--------------|----|---------|-----------------|--|
| 2009/0223638 | A1 | 9/2009  | Nonaka et al.   |  |
| 2009/0229732 | A1 | 9/2009  | Determan et al. |  |
| 2009/0263938 | A1 | 10/2009 | Ino             |  |
| 2010/0252191 | A1 | 10/2010 | Nakata et al.   |  |
| 2011/0117706 | A1 | 5/2011  | Nishio et al.   |  |
| 2011/0135911 | A1 | 6/2011  | Maenaka et al.  |  |
| 2014/0199790 | A1 | 7/2014  | Abe et al.      |  |
| 2014/0367847 | A1 | 12/2014 | Strader et al.  |  |
| 2016/0160104 | A1 | 6/2016  | Bruzda et al.   |  |
| 2016/0185074 | A1 | 6/2016  | Kagawa          |  |
| 2016/0315030 | A1 | 10/2016 | Strader et al.  |  |
| 2016/0326419 | A1 | 11/2016 | Balandin        |  |
| 2016/0355249 | A1 | 12/2016 | Joussellin      |  |
| 2016/0362169 | A1 | 12/2016 | Busscher        |  |

## FOREIGN PATENT DOCUMENTS

|    |               |    |         |  |
|----|---------------|----|---------|--|
| JP | 2005327923    | A  | 11/2005 |  |
| JP | 2010235953    | A  | 10/2010 |  |
| JP | 2012084688    | A  | 4/2012  |  |
| KR | 100827725     | B1 | 5/2008  |  |
| WO | WO-97/41599   | A1 | 11/1997 |  |
| WO | WO-2016182996 | A1 | 11/2016 |  |

## OTHER PUBLICATIONS

European Search Report for EP17178138.8 filed Jun. 27, 2017 which claims priority to the parent application of the instant application, dated Dec. 13, 2017, 6 pages.

Final Office Action for U.S. Appl. No. 15/207,444, filed Jul. 11, 2016 which names two of the same inventors, and the same assignee, but is not related through a priority claim, dated Apr. 19, 2019, 13 pages.

Hirschi, David; Dow Corning Case Study; Understanding Differences Between Thermal Interface Materials: Improve your ability to specify the optimum TIM; Copyright 2008, 4 pages.

Korean Office Action dated Oct. 22, 2018 issued in Application No. 10-2017-0085269 which has an inventor and assignee in common with the instant application but is not related through a priority claim, 15 pages. An English language translation of the Korean Office Action is not available at this time.

Non-Final Office Action dated Sep. 24, 2018 issued by the United States Patent and Trademark Office for U.S. Appl. No. 15/207,444 which names two of the same inventors, and the same assignee, but is not related through a priority claim 15 pages.

Packaging and Storage Considerations—Dow Corning; <[http://www.dowcorning.com/content/etronics/etronicswet/newtim\\_tutorial14.asp](http://www.dowcorning.com/content/etronics/etronicswet/newtim_tutorial14.asp)> accessed Jul. 11, 2016.

Types of Fabricated Films and Pad Thermal Interface Materials—Dow Corning; Thermal Interface—Wet Dispensed; <[http://www.dowcorning.com/content/etronics/etronicswet/newtim\\_tutorial5.asp](http://www.dowcorning.com/content/etronics/etronicswet/newtim_tutorial5.asp)>; accessed Jul. 11, 2016.

Non-final Office Action for U.S. Appl. No. 15/207,444 which names two of the same inventors and assignee but is not related through a priority claim; dated Sep. 21, 2020; 13 pages.

Final Office Action for U.S. Appl. No. 15/207,444 which names two of the same inventors and same assignee but is not related through a priority claim, dated Mar. 13, 2020; 17 pages.

Final Office Action for U.S. Appl. No. 16/114,687 which names two of the same nventors and same assignee but is not related through a priority claim, dated May 14, 2020, 13 pages.

\* cited by examiner

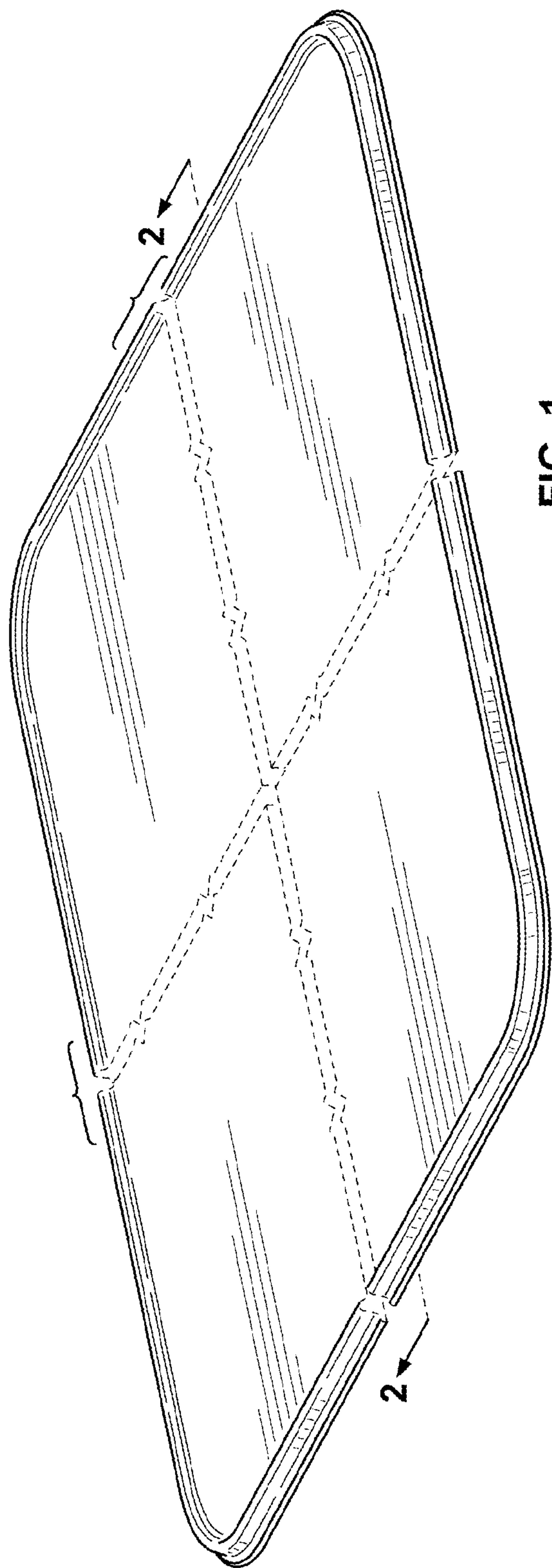


FIG. 1

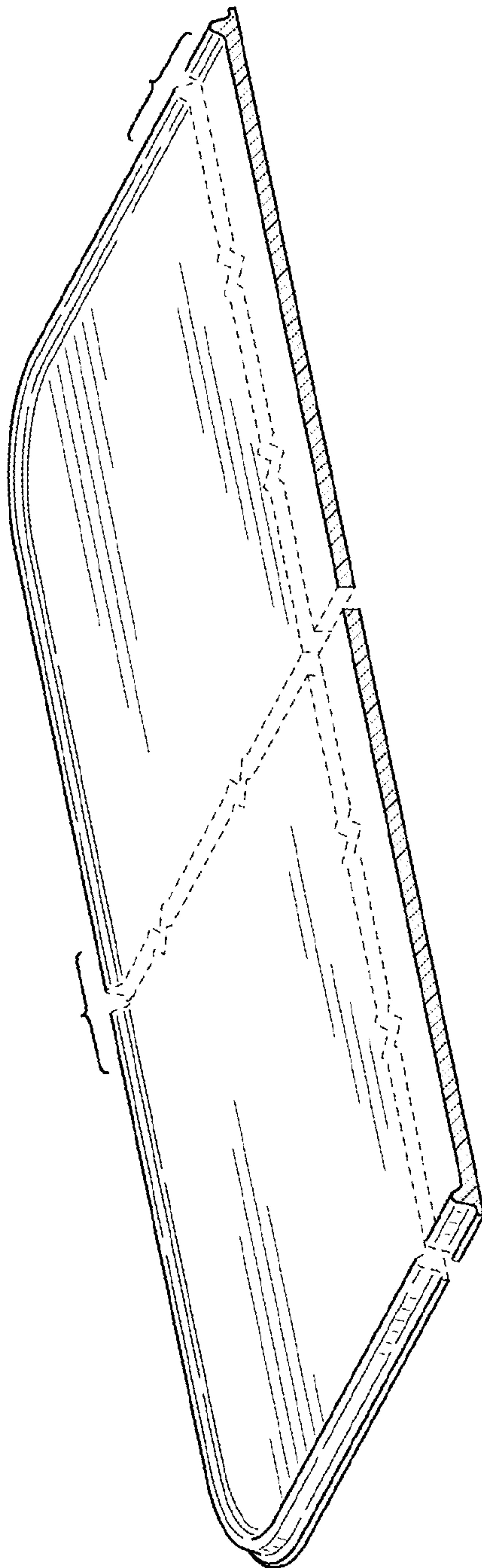


FIG. 2



FIG. 3



FIG. 4

FIG. 5

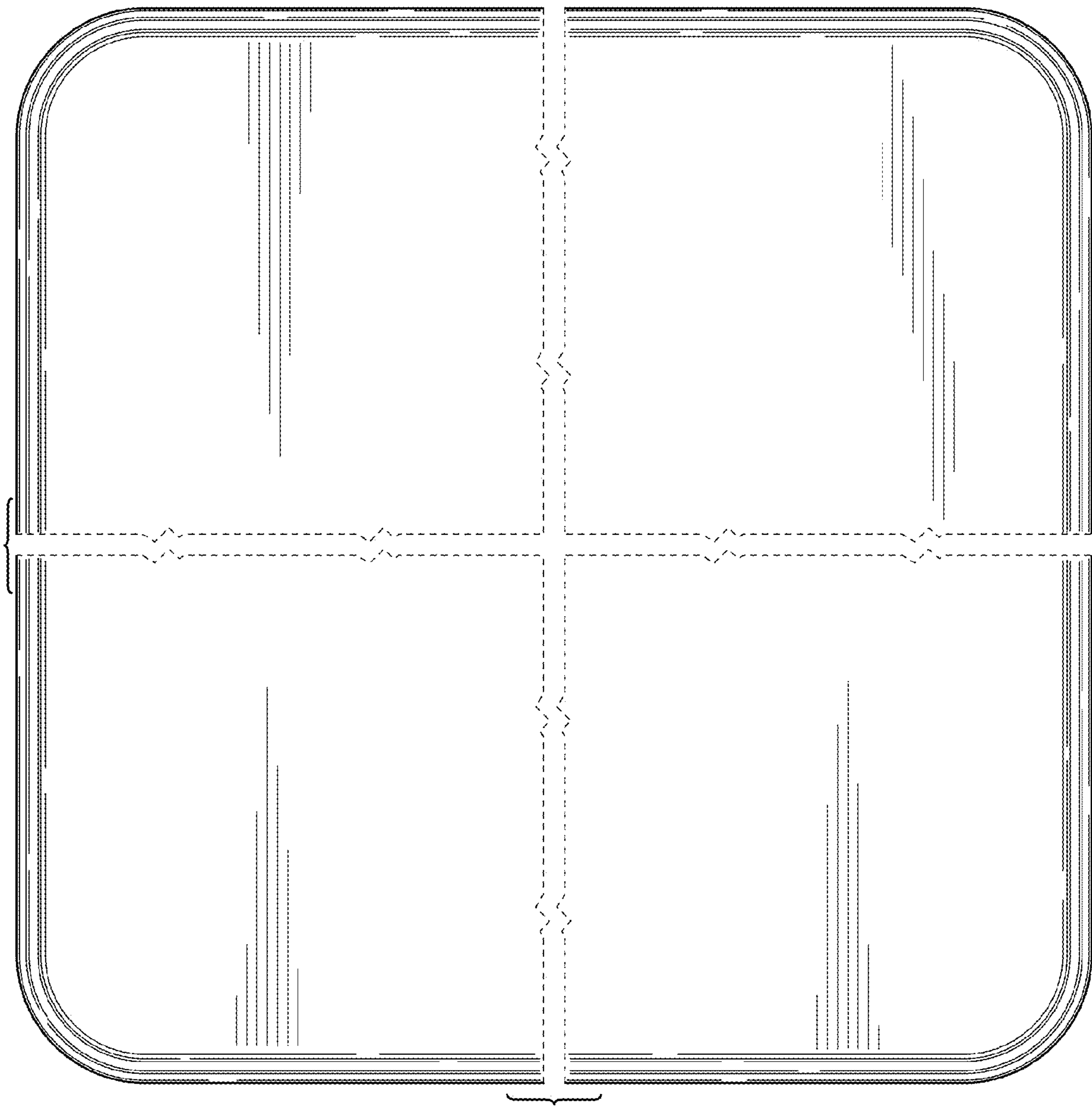




FIG. 6



FIG. 7