



US00D859631S

(12) **United States Design Patent** (10) **Patent No.:** **US D859,631 S**
Chang et al. (45) **Date of Patent:** **** Sep. 10, 2019**

(54) **FAN SHROUD**

(71) Applicant: **Hoffman Enclosures, Inc.**, Anoka, MN (US)

(72) Inventors: **Seng Chang**, Minneapolis, MN (US); **Jeffrey Thibedeau**, Robbinsdale, MN (US); **Michael Springstead**, Anoka, MN (US)

(73) Assignee: **Hoffman Enclosures, Inc.**, Anoka, MN (US)

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

(21) Appl. No.: **29/578,311**

(22) Filed: **Sep. 20, 2016**

(51) **LOC (12) Cl.** **23-04**

(52) **U.S. Cl.**
USPC **D23/411**

(58) **Field of Classification Search**
USPC D23/370-379, 381-385, 400, 411-414, D23/360, 314, 335, 332; D12/196; D8/354
CPC . F04D 5/00; F04D 27/00; F04D 25/10; F04D 29/329; F04D 29/52; F24H 3/04
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,204,546	A *	9/1965	Krell	F24F 7/013 415/121.2
4,834,615	A *	5/1989	Mauch	F24F 13/32 415/213.1
5,201,879	A	4/1993	Steele		

(Continued)

FOREIGN PATENT DOCUMENTS

DE	50306824	D1	5/2003
DE	202004001075	U1	4/2004

(Continued)

OTHER PUBLICATIONS

Pfannenbergs 4th Generation Filterfan Type 3R Rainhoods <https://www.pfannenbergsusa.com/filterfan_rainhoods>; 2012 Pfannenbergs Incorporated.

(Continued)

Primary Examiner — Janice Hallmark
(74) *Attorney, Agent, or Firm* — Quarles & Brady LLP

(57) **CLAIM**

The ornamental design for a fan shroud, as shown and described.

DESCRIPTION

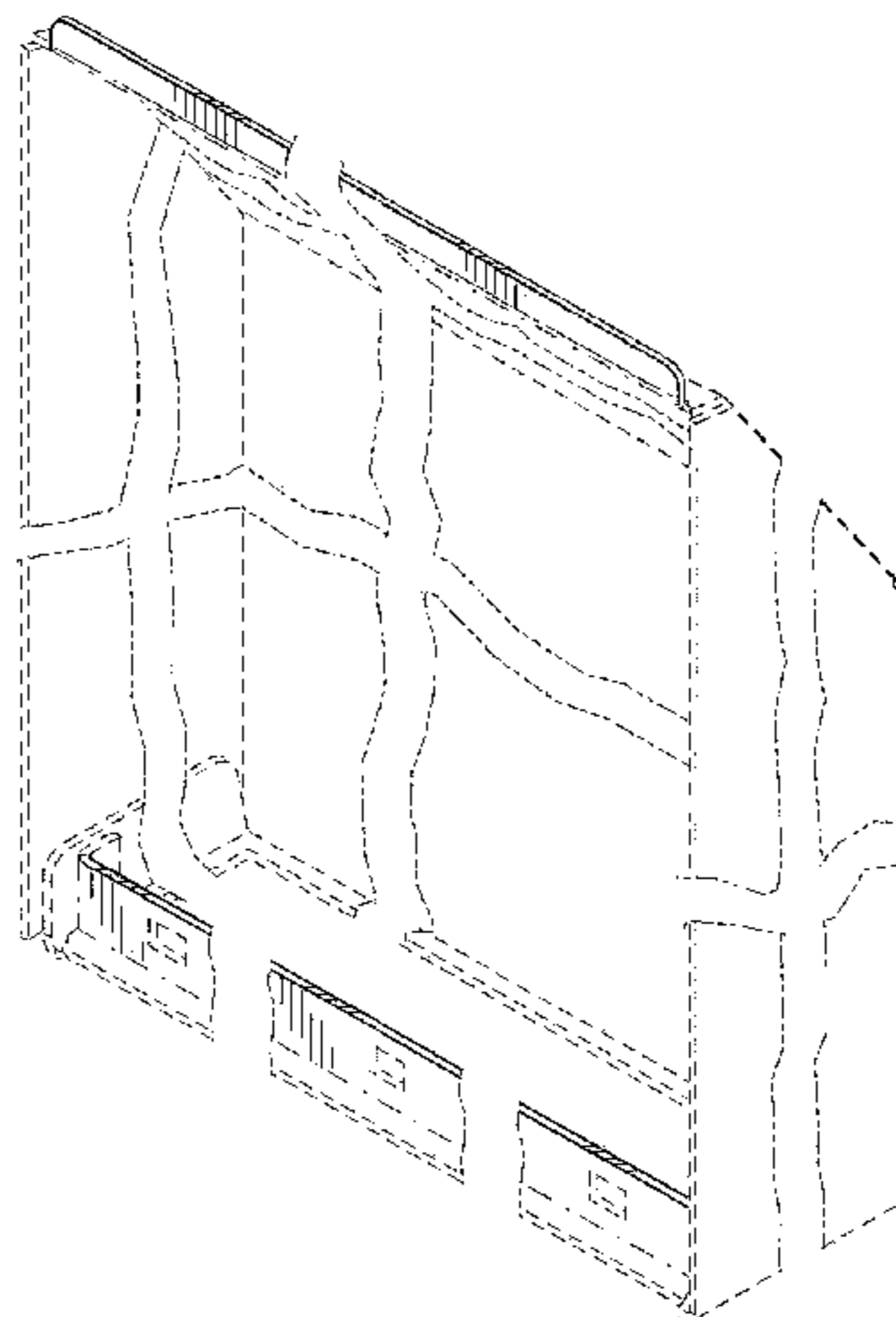
FIG. 1 is a top, rear, right isometric view of a fan shroud; FIG. 2 is a front elevational view of the fan shroud of FIG. 1; FIG. 3 is a left side elevational view of the fan shroud of FIG. 1; FIG. 4 is a bottom plan view of the fan shroud of FIG. 1; FIG. 5 is a top plan view of the fan shroud of FIG. 1; and, FIG. 6 is a rear elevational view of the fan shroud of FIG. 1.

The right side view of the fan shroud is substantially identical to FIG. 3, left side view. The top, rear, left isometric view of the fan shroud is substantially identical to FIG. 1, the top, rear, left isometric view.

The fan shroud is shown with a symbolic break in its length. The appearance of any portion of the fan shroud between the break lines forms no part of the claimed design.

The dash-dash broken lines in the drawings illustrate unclaimed surfaces of the fan shroud. The dash-dot-dash-dot broken lines in the drawings define unclaimed boundaries of the claimed design.

1 Claim, 3 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

5,208,730 A * 5/1993 Tracy F04D 29/668
361/679.48
5,240,487 A * 8/1993 Kung A61L 9/12
261/DIG. 88
5,344,287 A * 9/1994 Schaefer F04D 29/601
415/213.1
5,462,569 A 10/1995 Benjamin
5,514,036 A 5/1996 Lin
5,573,562 A 11/1996 Schauwecker et al.
5,769,916 A 6/1998 Immel
5,788,566 A * 8/1998 McAnally H05K 7/20172
361/695
6,072,119 A 6/2000 Nicolai et al.
6,110,245 A 8/2000 Schlag et al.
6,185,097 B1 2/2001 Behl
6,193,339 B1 2/2001 Behl et al.
6,297,950 B1 10/2001 Erwin
6,319,116 B1 11/2001 Behl
6,328,791 B1 12/2001 Pillion et al.
6,447,587 B1 9/2002 Pillion et al.
6,464,745 B2 * 10/2002 Rivera B01D 46/10
55/483
6,508,868 B2 1/2003 Pillion et al.
6,565,163 B2 5/2003 Behl et al.
6,579,333 B2 6/2003 Huang
6,676,505 B2 1/2004 Behl
6,699,301 B1 3/2004 Eisenhauer
6,712,889 B2 3/2004 Pillion et al.
6,776,706 B2 8/2004 Kipka et al.
6,817,940 B2 11/2004 Pfannenberg
6,849,107 B1 * 2/2005 Huffman B01D 46/0005
250/436
6,863,704 B2 3/2005 Pillion et al.
6,942,710 B2 * 9/2005 Milano B01D 46/008
55/480
7,077,893 B2 7/2006 Guilliard
7,088,584 B2 8/2006 Chen
D536,238 S * 2/2007 Conley D8/354
D554,477 S * 11/2007 Conley D8/354
7,322,881 B2 1/2008 Ishii
7,323,027 B1 1/2008 Fu
D564,340 S * 3/2008 Conley D8/354
7,466,545 B2 12/2008 Hung
8,152,885 B2 4/2012 Pfannenberg
8,356,976 B2 * 1/2013 Zhang G06F 1/181
361/679.48
8,601,740 B2 12/2013 Tu et al.
8,727,842 B2 5/2014 Pfannenberg
8,864,560 B2 10/2014 Yeh et al.
8,951,322 B2 2/2015 Pfannenberg et al.
8,974,585 B2 * 3/2015 Hartmann B01D 46/0086
96/417
9,039,500 B2 5/2015 Pfannenberg
9,237,674 B2 1/2016 Hartmann et al.

D777,901 S * 1/2017 Whittemore D23/370
D796,661 S * 9/2017 Oswald, Jr. D23/388
9,926,935 B2 * 3/2018 Inda F04D 25/0613
10,040,149 B2 * 8/2018 Simmons B01D 46/0005
2004/0047122 A1 * 3/2004 Chen G06F 1/184
361/679.33
2007/0137243 A1 * 6/2007 Lee F04D 29/462
62/419
2007/0283672 A1 * 12/2007 Fu B01D 46/0005
55/385.6
2007/0289273 A1 * 12/2007 Boyd B01D 46/0005
55/497
2008/0014858 A1 1/2008 Pfannenberg
2008/0043432 A1 * 2/2008 Hung G06F 1/181
361/695
2008/0045134 A1 2/2008 Pfannenberg
2008/0045135 A1 * 2/2008 Pfannenberg F04D 29/646
454/184
2008/0121107 A1 5/2008 Pfannenberg
2008/0151492 A1 6/2008 Maddox
2009/0075582 A1 * 3/2009 Wilkerson F24F 13/28
454/298
2009/0185348 A1 7/2009 Bretschneider et al.
2013/0130608 A1 5/2013 Hartmann
2013/0309074 A1 11/2013 Yang et al.
2014/0215981 A1 8/2014 Pfannenberg
2016/0016102 A1 1/2016 Maddox

FOREIGN PATENT DOCUMENTS

DE 202004006784 U1 7/2004
DE 502006006392 D1 10/2006
DE 202006015789 U1 12/2006
DE 202006019690 U1 3/2007
DE 202006012058 U1 12/2007
DE 102009009509 A1 9/2009
EP 1262095 B1 1/2001
EP 1843652 B1 10/2007
EP 1939456 B1 7/2008
EP 2042010 B1 9/2009
WO 2015044198 A1 4/2015

OTHER PUBLICATIONS

Fandis colors of engineering; Fan Filters VIRDIS; <<http://www.fandis.it/en/Home/Prodotti?Area=1&Categoria=VI03&Tipologia=28&Classe=38>>.
Kooltronic Thermal Management for Enclosures; <<http://www.kooltronic.com/fa-filter-hood-assembly-knpafl.aspx>>.
Rubsament & Herr green globe concepts; filter fan shrouds; ; <<http://www.rubsamen-und-herr.com/artikel/filter-fan-shrouds-22511.html>>.
Pentair Equipment Protection; Hoffman SH10 Models; <<http://www.pentairprotect.com/en/hoffman/SH10GS35001>>; 2016 Pentair. All rights reserved.

* cited by examiner

FIG. 1

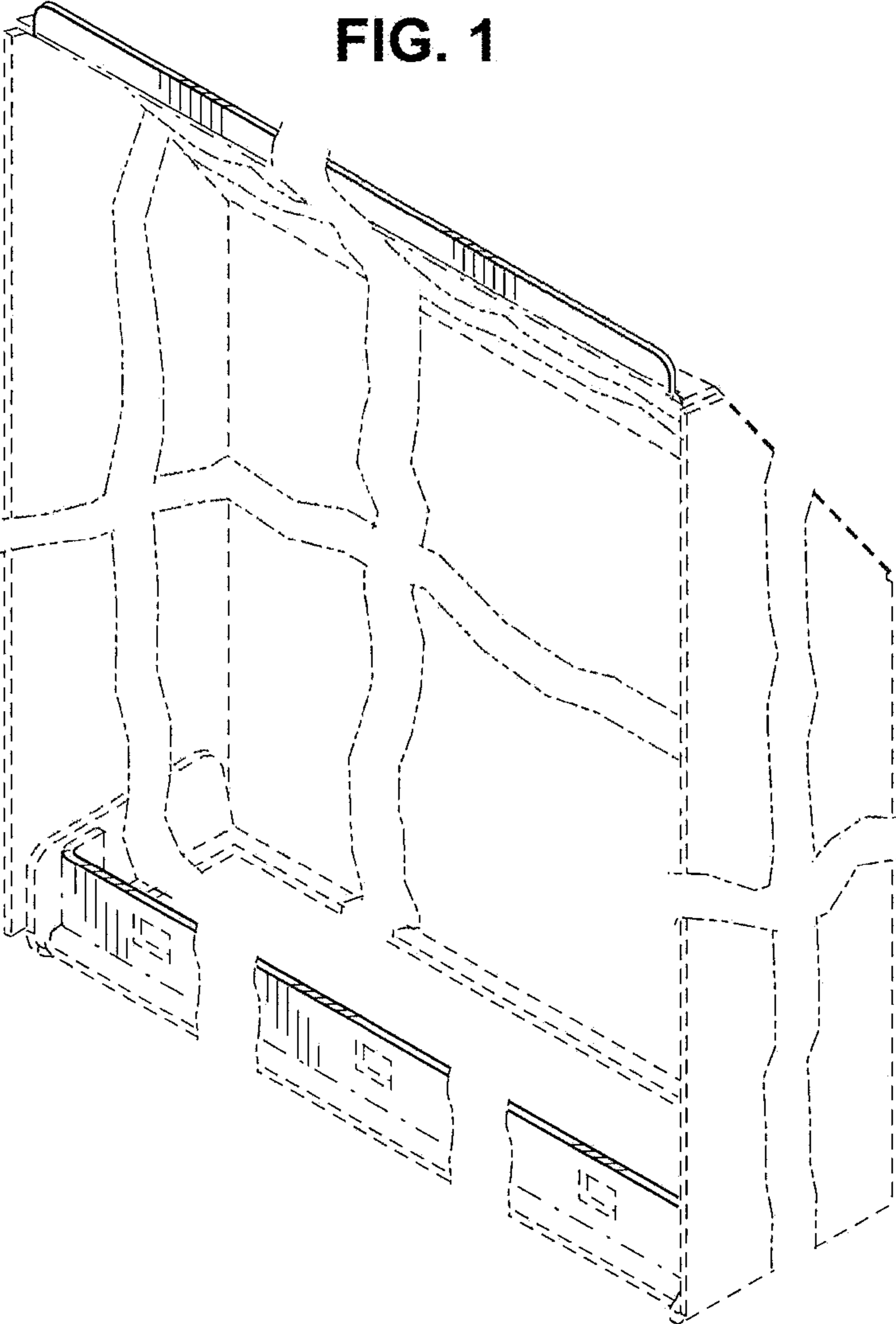


FIG. 2

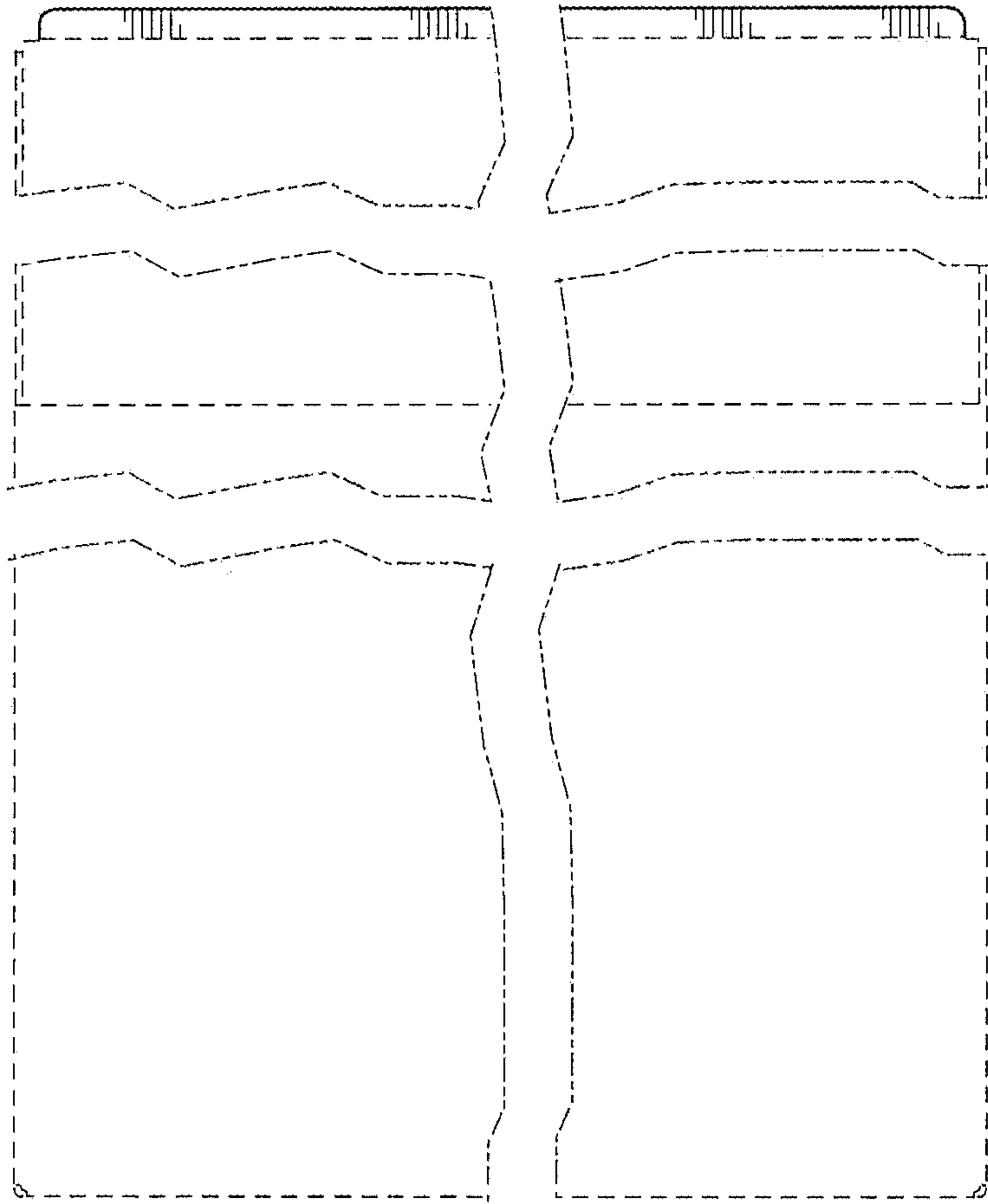


FIG. 3

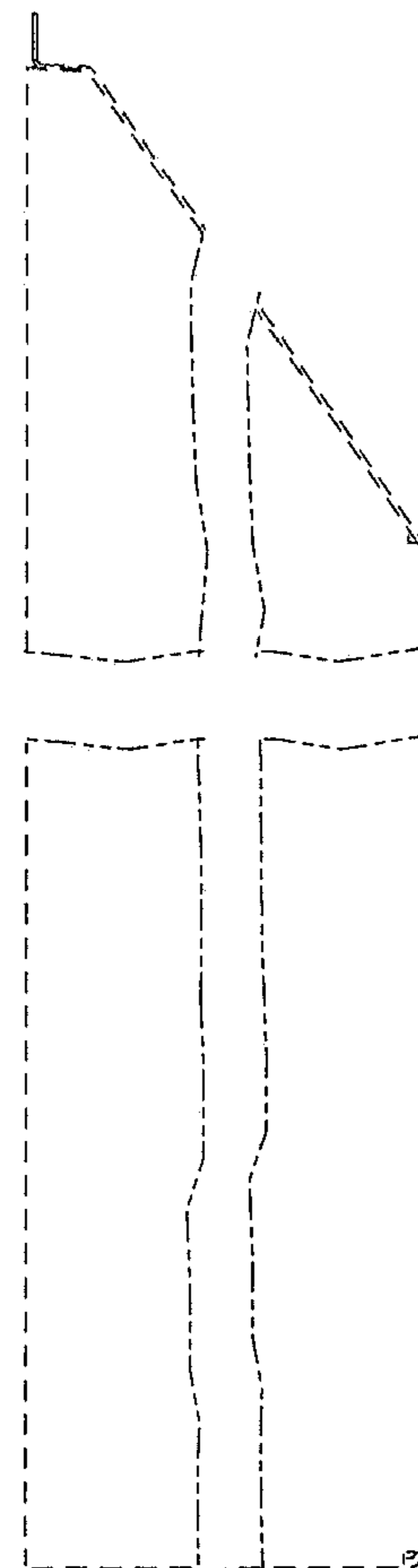


FIG. 4

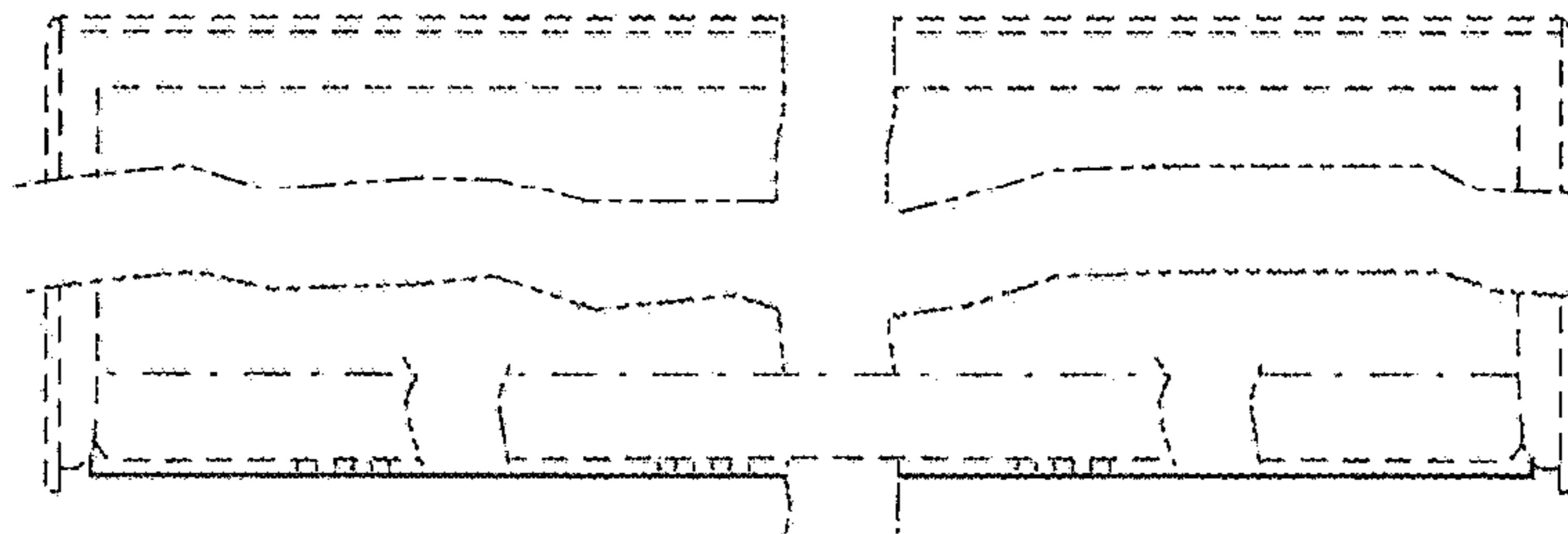


FIG. 5

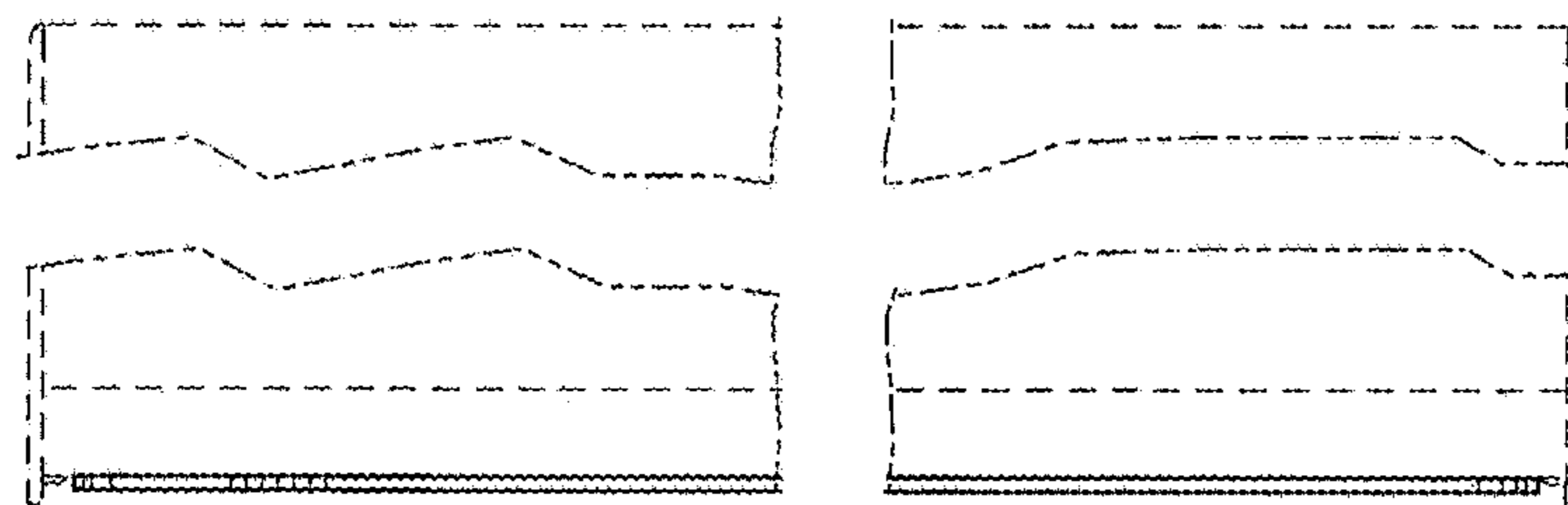


FIG. 6

