



US00D816188S

(12) **United States Design Patent** (10) **Patent No.:** **US D816,188 S**
Armbrister et al. (45) **Date of Patent:** **** Apr. 24, 2018**

(54) **TRAY VALVE COVER**

FOREIGN PATENT DOCUMENTS

(71) Applicant: **KOCH-GLITSCH, LP**, Wichita, KS
(US)

BR 0204953 B1 12/2010
CA 2096787 A1 11/1994
(Continued)

(72) Inventors: **Clarence A Armbrister**, Wichita, KS
(US); **Charles A Griesel**, Wichita, KS
(US); **Izak Nieuwoudt**, Wichita, KS
(US)

OTHER PUBLICATIONS

(73) Assignee: **KOCH-GLITSCH, LP**, Wichita, KS
(US)

International Search Report and Written Opinion received for PCT Patent Application No. PCT/US2016/040783, dated Oct. 4, 2016, 13 pages.

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

Primary Examiner — Cynthia Ramirez
Assistant Examiner — Gino Colan

(21) Appl. No.: **29/567,251**

(57) **CLAIM**

(22) Filed: **Jun. 7, 2016**

(51) **LOC (11) Cl.** **23-01**

The ornamental design for a tray valve cover, as shown and described.

(52) **U.S. Cl.**

USPC **D23/249**

(58) **Field of Classification Search**

USPC D23/233, 235, 241, 248, 249; 261/114.4,
261/114.5, 113, 114.1, 114.2, 114.3;
137/512.1; 95/263, 202
CPC .. B01D 3/163; B01D 3/22; B01D 3/20; F16K
15/023

DESCRIPTION

See application file for complete search history.

FIG. 1 is a top perspective view of a tray valve cover showing our new design;
FIG. 2 is a bottom perspective view of the tray valve cover shown in FIG. 1;
FIG. 3 is a rear elevation view of the tray valve cover shown in FIGS. 1 and 2;
FIG. 4 is a left side elevation view of the tray valve cover shown in FIGS. 1-3, with the right side elevation view being a mirror image thereof;
FIG. 5 is a front elevation view of the tray valve cover shown in FIGS. 1-4;
FIG. 6 is a top plan view of the tray valve cover shown in FIGS. 1-5; and,
FIG. 7 is a bottom plan view of the tray valve cover shown in FIGS. 1-6.
The portions of the tray valve cover shown in broken lines are for illustrative purposes only and form no part of the claimed design.

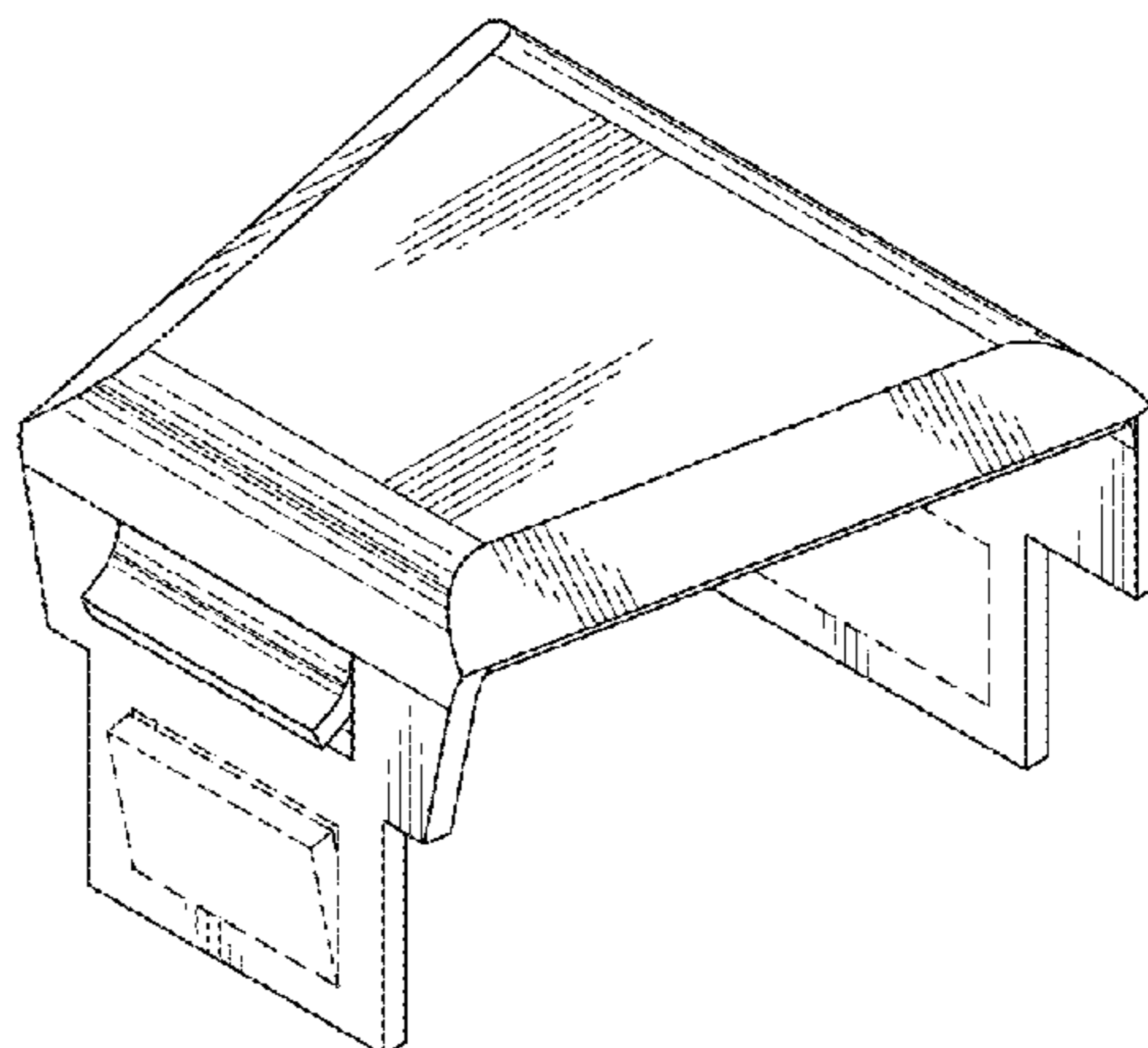
(56) **References Cited**

U.S. PATENT DOCUMENTS

2,658,737 A 11/1953 Nutter
2,804,935 A 9/1957 Hutchinson
3,087,711 A * 4/1963 Glitsch B01D 3/163
261/114.1
3,573,172 A 3/1971 Streuber
3,759,497 A 9/1973 Black
3,770,255 A * 11/1973 Nutter B01D 3/163
261/114.4
4,060,399 A 11/1977 Gleason
4,118,446 A * 10/1978 Burin B01D 3/163
261/114.4
4,620,952 A 11/1986 Hsieh

(Continued)

1 Claim, 2 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

4,956,127 A 9/1990 Binkley et al.
 5,106,556 A 4/1992 Binkley et al.
 5,120,474 A 6/1992 Binkley et al.
 5,147,584 A 9/1992 Binkley et al.
 5,164,125 A 11/1992 Binkley et al.
 5,192,466 A 3/1993 Binkley
 5,213,719 A 5/1993 Chuang
 5,223,183 A 6/1993 McBride
 5,244,604 A 9/1993 Miller
 5,262,094 A 11/1993 Chuang
 5,277,848 A 1/1994 Binkley et al.
 5,318,732 A 6/1994 Monkelbaan
 5,453,222 A 9/1995 Lee et al.
 5,480,595 A 1/1996 Yeoman
 5,547,617 A 8/1996 Lee et al.
 5,618,473 A 4/1997 Sauter et al.
 5,632,935 A 5/1997 Yeoman
 5,702,647 A 12/1997 Lee et al.
 5,762,668 A 6/1998 Lee et al.
 5,762,834 A 6/1998 Hauser et al.
 5,788,894 A 8/1998 Yeoman
 5,837,105 A 11/1998 Stober et al.
 5,885,488 A 3/1999 Konijn
 5,895,608 A 4/1999 Lee et al.
 5,911,922 A 6/1999 Hauser et al.
 5,951,827 A 9/1999 Breedon
 5,972,171 A 10/1999 Ross et al.
 6,003,847 A 12/1999 Lee et al.
 6,053,484 A 4/2000 Fan
 6,053,485 A * 4/2000 Pan B01D 3/163
 261/114.4
 6,059,934 A 5/2000 Stober et al.
 6,076,813 A 6/2000 Yeoman
 6,089,550 A 7/2000 Petschauer et al.
 6,224,043 B1 5/2001 Fan
 6,270,062 B1 8/2001 Chuang et al.
 6,565,071 B2 5/2003 Chuang et al.
 6,575,438 B2 6/2003 Nutter et al.
 6,592,106 B1 7/2003 Eaton, Jr.
 6,629,687 B1 10/2003 Gage
 6,736,378 B2 5/2004 Colic et al.
 6,817,596 B2 11/2004 Fischer

6,877,725 B2 4/2005 Buchanan et al.
 6,966,548 B2 11/2005 Buchanan et al.
 6,994,331 B2 2/2006 Coney
 7,028,995 B2 4/2006 Weiland et al.
 7,055,810 B2 6/2006 Gage
 7,540,476 B2 * 6/2009 Pilling B01D 3/163
 261/114.4
 7,540,477 B2 * 6/2009 Fischer F16K 15/023
 261/114.4
 8,191,870 B2 6/2012 Nieuwoudt et al.
 8,480,062 B2 7/2013 Kim
 8,517,354 B1 8/2013 Binkley
 8,720,870 B2 5/2014 Pilling et al.
 8,944,419 B2 * 2/2015 Pilling B01D 3/163
 261/114.4
 D728,075 S * 4/2015 Roberts D23/249
 9,027,911 B2 * 5/2015 Lehner B01D 3/163
 261/114.3
 2004/0130041 A1 7/2004 Resetarits et al.
 2007/0023938 A1 * 2/2007 Fischer F16K 15/023
 261/114.4
 2007/0262022 A1 11/2007 Mosler et al.
 2008/0018003 A1 * 1/2008 Pilling B01D 3/163
 261/114.3
 2008/0277260 A1 11/2008 Binkley
 2011/0278745 A1 11/2011 Pilling et al.
 2013/0099402 A1 * 4/2013 Lehner B01D 3/163
 261/114.4
 2016/0038851 A1 2/2016 Binkley

FOREIGN PATENT DOCUMENTS

CN 2260933 Y 8/1997
 CN 1037747 C 3/1998
 CN 1275673 C 9/2006
 CN 203075687 U 7/2013
 EP 0626185 B1 11/1996
 EP 1317948 A1 6/2003
 JP 4623926 B2 2/2011
 MX PA03011497 A 3/2004
 MX PA02011993 A 7/2004
 RU 2233193 C1 7/2004

* cited by examiner

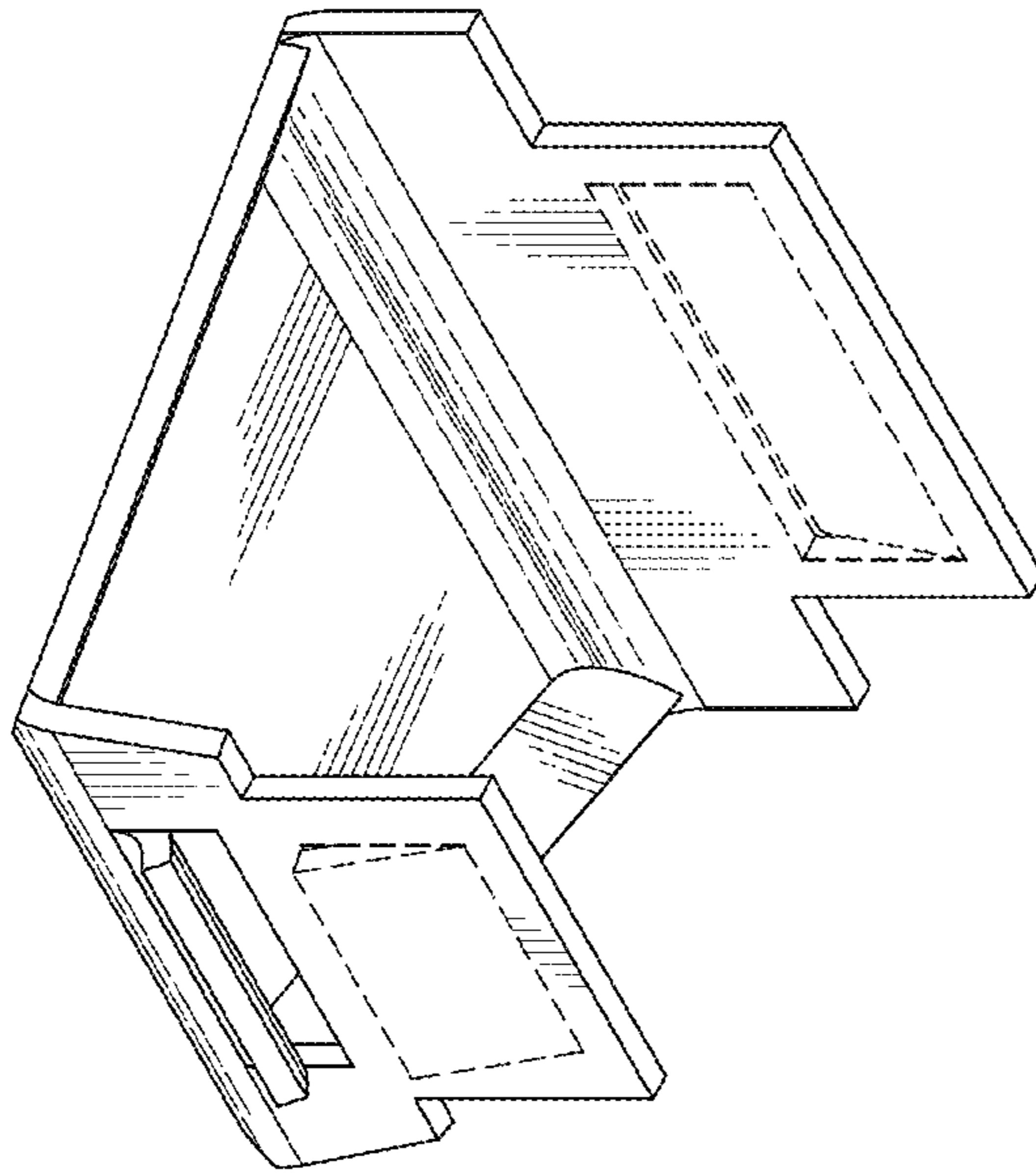


Fig. 2.

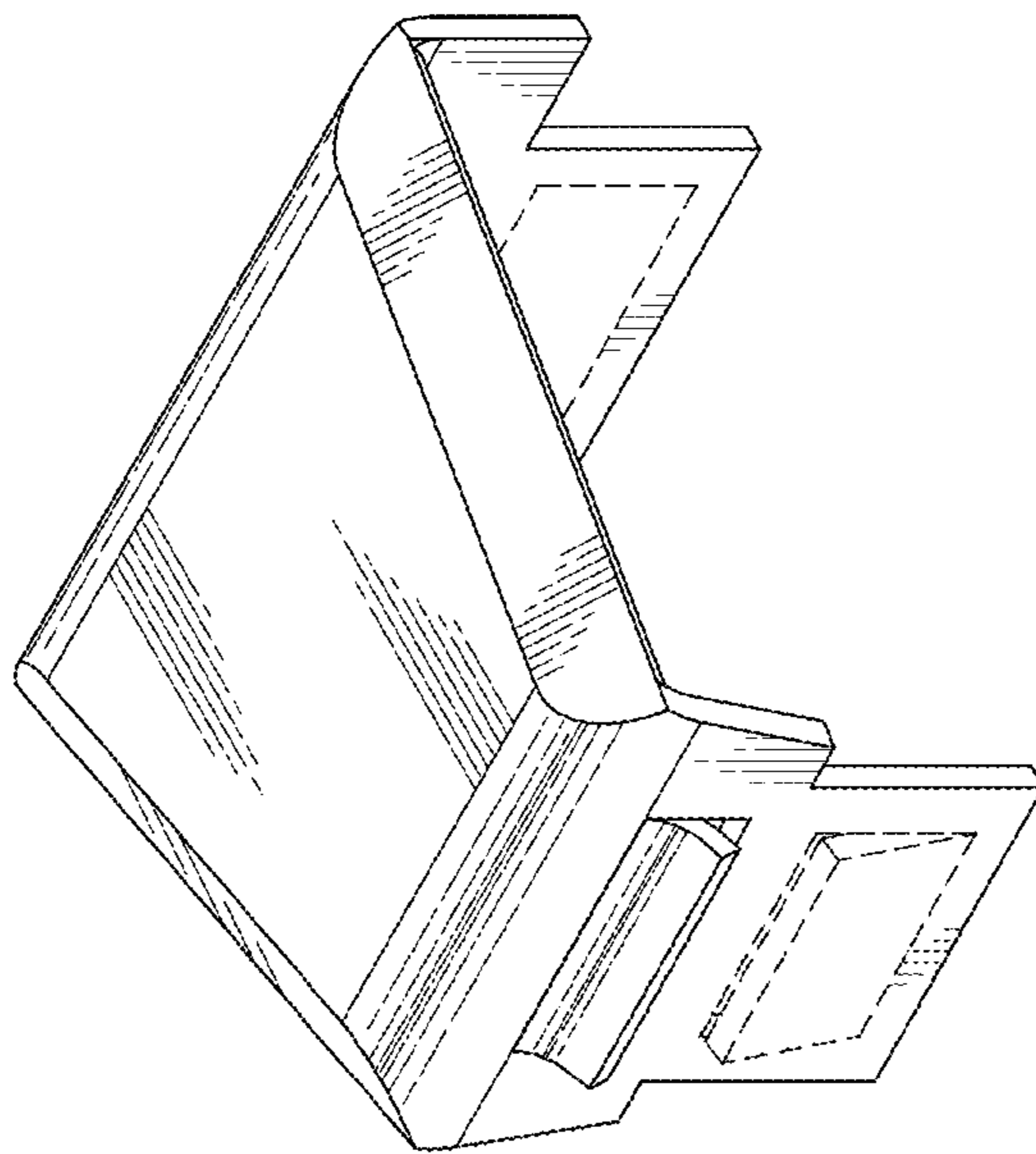


Fig. 1.

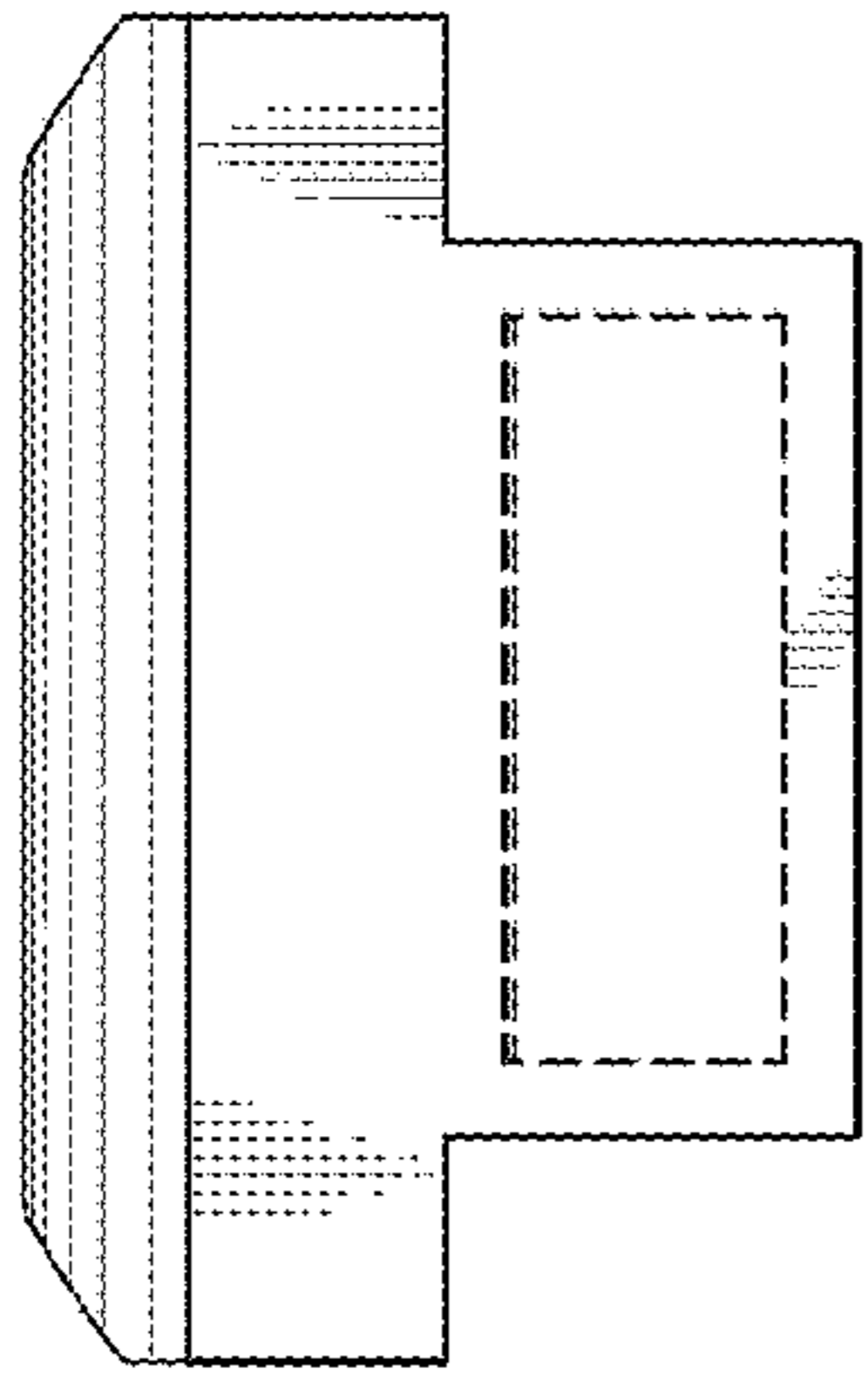


Fig. 3.

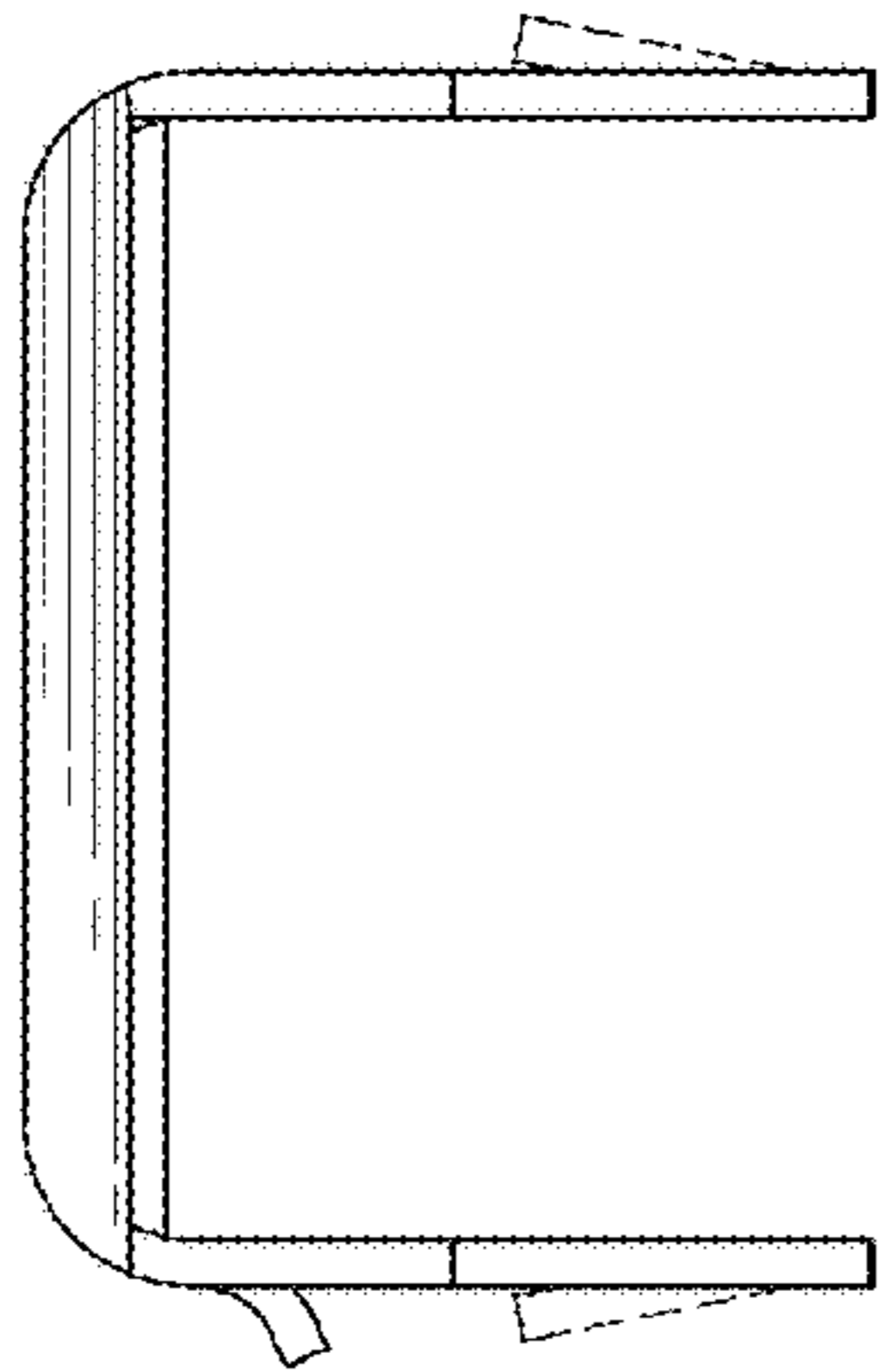


Fig. 4.

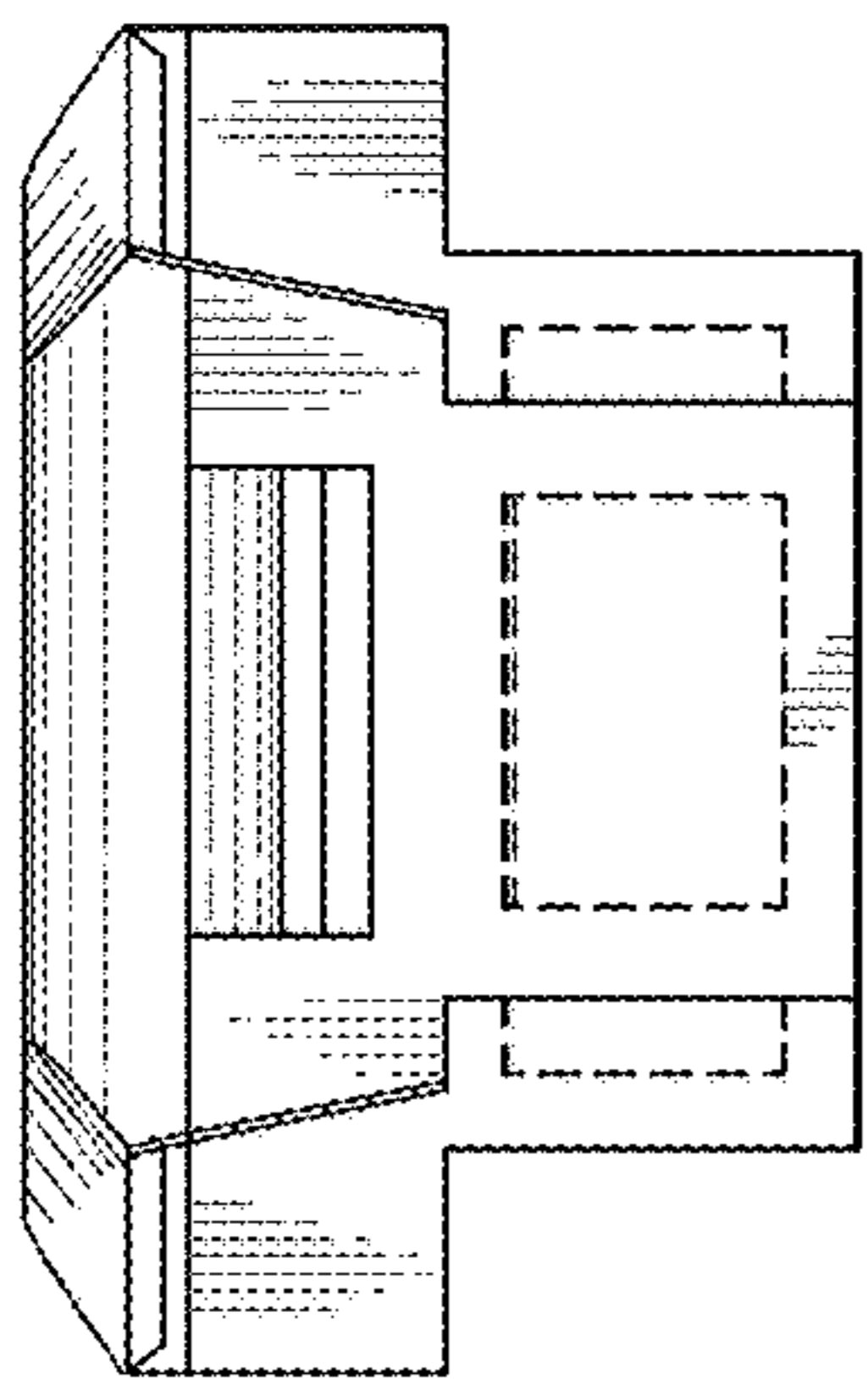


Fig. 5.

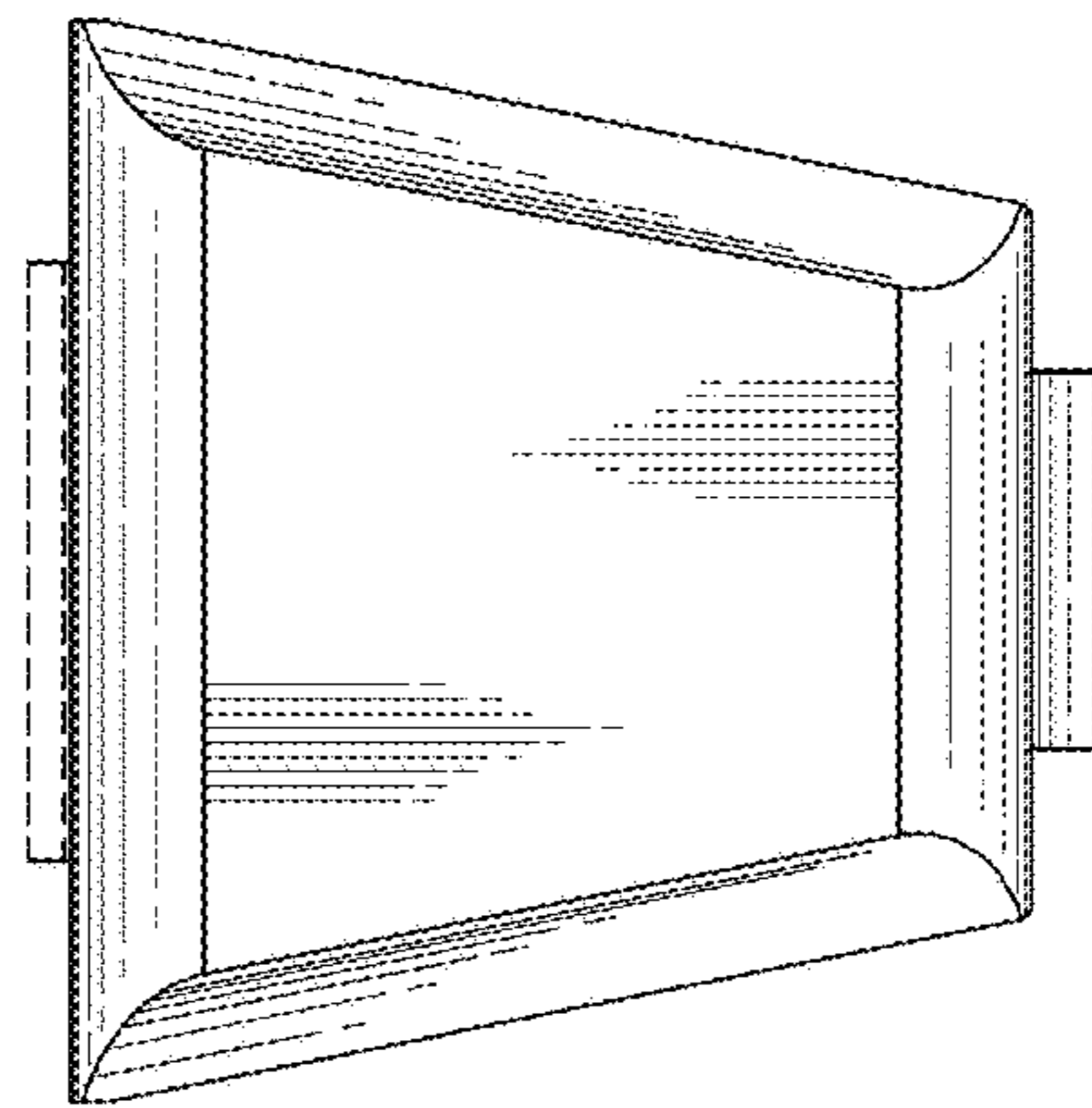


Fig. 6.

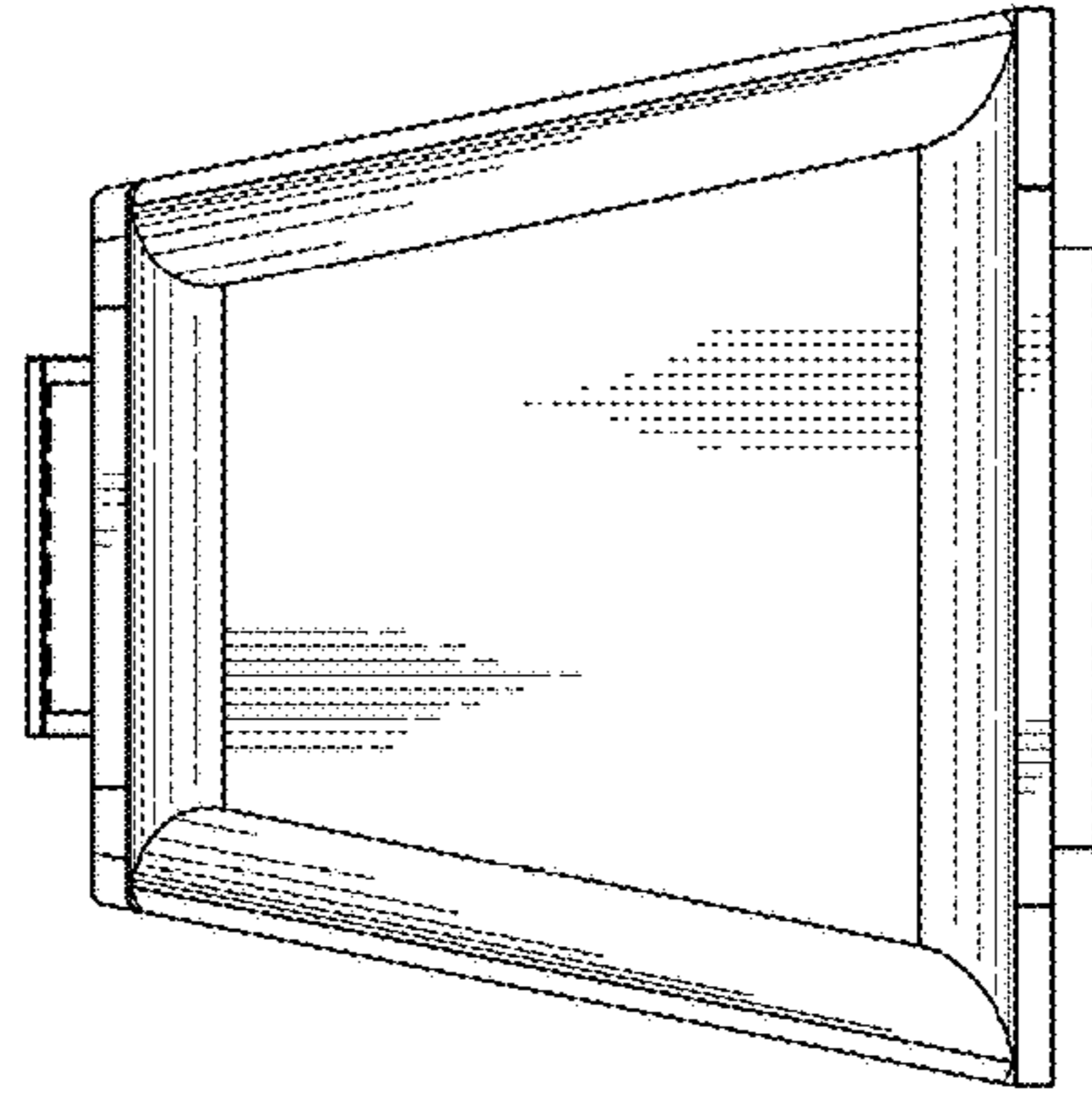


Fig. 7.