



US00D645971S

(12) **United States Design Patent**
Taylor et al.

(10) **Patent No.:** **US D645,971 S**

(45) **Date of Patent:** **** Sep. 27, 2011**

(54) **SAMPLE CASSETTE**

(75) Inventors: **Jason Taylor**, Windham, NH (US); **Greg Kenny**, Wakefield, MA (US); **John DePiano, Jr.**, Burlington, MA (US)

(73) Assignee: **Claros Diagnostics, Inc.**, Woburn, MA (US)

(**) Term: **14 Years**

(21) Appl. No.: **29/361,378**

(22) Filed: **May 11, 2010**

(51) **LOC (9) Cl.** **24-01**

(52) **U.S. Cl.** **D24/216**

(58) **Field of Classification Search** D24/216–232;
D10/81; 422/500, 547, 549, 554; 435/287.1,
435/288.1, 288.2, 288.4, 278.9, 288.3, 287.9
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,735,640	A	5/1973	Chizhov et al.	
D243,542	S *	3/1977	Fadler et al.	D24/216
4,318,994	A	3/1982	Meyer et al.	
4,453,807	A *	6/1984	Faulkner et al.	359/391
4,517,302	A	5/1985	Saros	
D292,229	S *	10/1987	Knudson et al.	D24/223
D302,294	S *	7/1989	Hillman	D24/223
4,963,498	A	10/1990	Hillman et al.	
5,051,237	A	9/1991	Grenner et al.	
5,219,762	A	6/1993	Katamine et al.	
5,268,147	A	12/1993	Zabetakis et al.	
5,279,791	A	1/1994	Aldrich et al.	
5,286,454	A	2/1994	Nilsson et al.	
5,376,252	A	12/1994	Ekström et al.	
5,478,751	A	12/1995	Oosta et al.	
5,486,335	A	1/1996	Wilding et al.	
5,571,410	A	11/1996	Swedberg et al.	
5,635,358	A	6/1997	Wilding et al.	
5,637,469	A	6/1997	Wilding et al.	
5,726,026	A	3/1998	Wilding et al.	

5,731,212	A	3/1998	Gavin et al.
5,866,345	A	2/1999	Wilding et al.
5,876,675	A	3/1999	Kennedy
5,932,799	A	8/1999	Moles
5,942,443	A	8/1999	Parce et al.

(Continued)

FOREIGN PATENT DOCUMENTS

EP 0 110 771 B1 3/1988

(Continued)

OTHER PUBLICATIONS

Ahn, C. et al., "Disposable Smart Lab on a Chip for Point-of-Care Clinical Diagnostics", *Proceedings of the IEEE*, vol. 92, No. 1, pp. 154-173 (2004).

(Continued)

Primary Examiner — Anhdao Doan

(74) *Attorney, Agent, or Firm* — Wolf, Greenfield & Sacks, P.C.

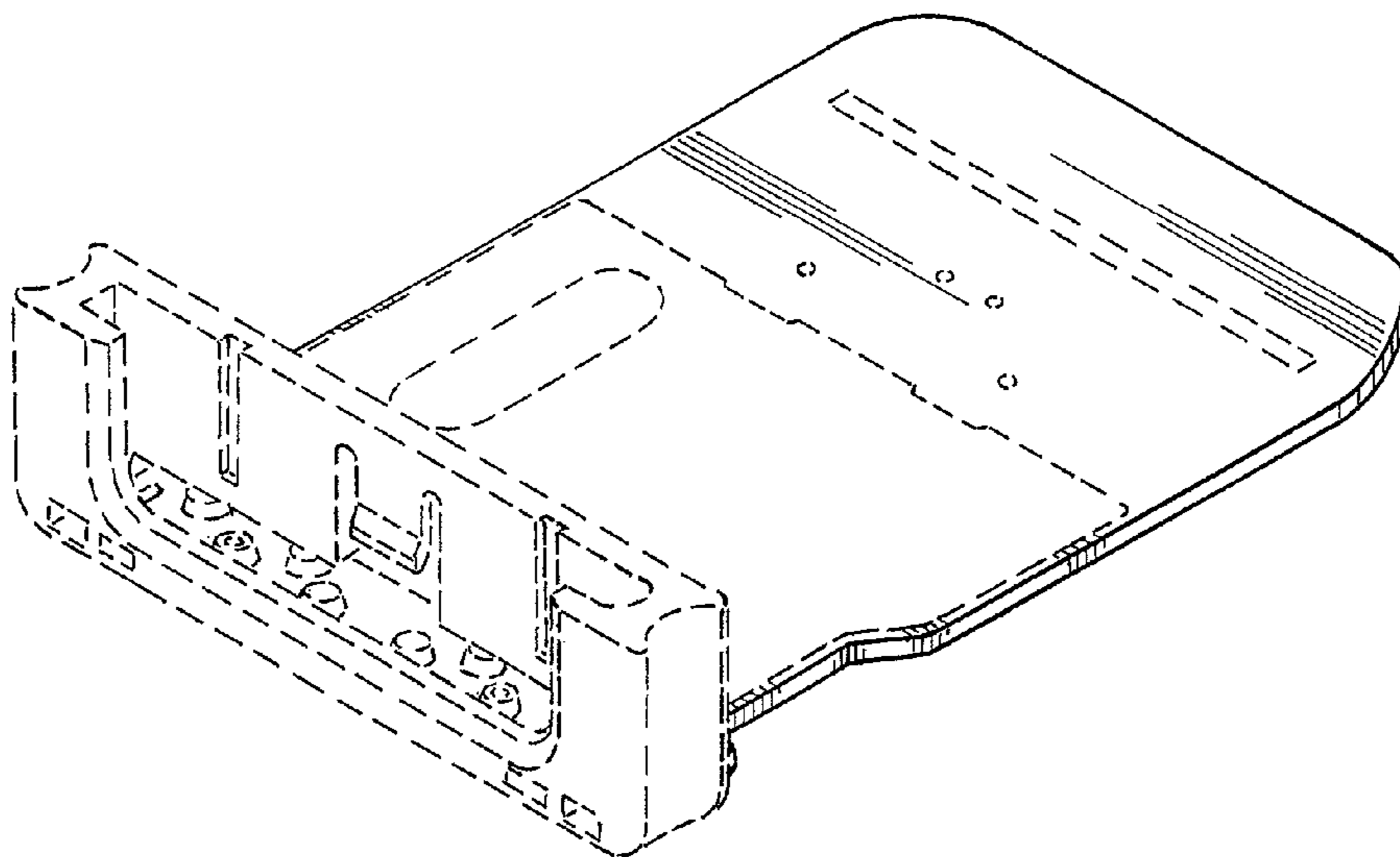
(57) **CLAIM**

The ornamental design for a sample cassette, as shown and described.

DESCRIPTION

FIG. 1 is a top, front and right side perspective view of a sample cassette;
FIG. 2 is a top plan view thereof;
FIG. 3 is a bottom plan view thereof;
FIG. 4 is a front elevational view thereof;
FIG. 5 is a rear elevational view thereof;
FIG. 6 is a left side elevational view thereof; and,
FIG. 7 is a right side elevational view thereof.
The broken lines in the figure drawings are included for the purpose of illustrating portions of the sample cassette that form no part of the claimed design.

1 Claim, 5 Drawing Sheets



U.S. PATENT DOCUMENTS

5,955,028 A 9/1999 Chow
 5,957,579 A 9/1999 Kopf-Sill et al.
 6,019,944 A 2/2000 Buechler
 6,042,709 A 3/2000 Parce et al.
 6,046,056 A 4/2000 Parce et al.
 6,073,482 A 6/2000 Moles
 6,103,199 A 8/2000 Bjornson et al.
 6,114,122 A 9/2000 Besemer et al.
 6,136,272 A 10/2000 Weigl et al.
 6,146,489 A 11/2000 Wirth
 6,146,589 A 11/2000 Chandler
 6,168,948 B1 1/2001 Anderson et al.
 6,176,962 B1 1/2001 Soane et al.
 6,184,029 B1 2/2001 Wilding et al.
 6,186,660 B1 2/2001 Kopf-Sill et al.
 6,214,560 B1 4/2001 Yguerabide et al.
 6,238,538 B1 5/2001 Parce et al.
 6,241,560 B1 6/2001 Furusawa et al.
 6,251,343 B1 6/2001 Dubrow et al.
 D445,909 S * 7/2001 Pogorzelski D24/224
 6,274,337 B1 8/2001 Parce et al.
 6,293,012 B1 9/2001 Moles
 6,296,020 B1 10/2001 McNeely et al.
 6,331,439 B1 12/2001 Cherukuri et al.
 6,333,200 B1 12/2001 Kaler et al.
 6,353,475 B1 3/2002 Jensen et al.
 6,361,958 B1 3/2002 Shieh et al.
 6,413,782 B1 7/2002 Parce et al.
 6,416,642 B1 7/2002 Alajoki et al.
 6,429,025 B1 8/2002 Parce et al.
 6,432,720 B2 8/2002 Chow
 6,479,299 B1 11/2002 Parce et al.
 6,488,872 B1 12/2002 Beebe et al.
 6,488,894 B1 12/2002 Miethe et al.
 6,488,896 B2 12/2002 Weigl et al.
 6,495,104 B1 12/2002 Unno et al.
 6,551,841 B1 4/2003 Wilding et al.
 6,610,499 B1 8/2003 Fulwyler et al.
 6,613,512 B1 9/2003 Kopf-Sill et al.
 6,613,525 B2 9/2003 Nelson et al.
 6,620,625 B2 9/2003 Wolk et al.
 6,632,619 B1 10/2003 Harrison et al.
 6,638,482 B1 10/2003 Ackley et al.
 6,656,430 B2 12/2003 Sheppard, Jr. et al.
 6,656,431 B2 12/2003 Holl et al.
 6,669,831 B2 12/2003 Chow et al.
 6,705,357 B2 3/2004 Jeon et al.
 6,709,869 B2 3/2004 Mian et al.
 6,716,620 B2 4/2004 Bashir et al.
 6,742,661 B1 6/2004 Schulte et al.
 6,761,962 B2 7/2004 Bentsen et al.
 6,780,584 B1 8/2004 Edman et al.
 6,794,197 B1 9/2004 Indermuhle et al.
 6,818,184 B2 11/2004 Fulwyler et al.
 6,827,095 B2 12/2004 O'Connor et al.
 6,828,143 B1 12/2004 Bard
 6,830,936 B2 12/2004 Anderson et al.
 6,858,185 B1 2/2005 Kopf-Sill et al.
 6,878,271 B2 4/2005 Gilbert et al.
 6,878,755 B2 4/2005 Singh et al.
 6,919,045 B1 7/2005 Berndt
 6,949,377 B2 9/2005 Ho
 6,953,550 B2 10/2005 Sheppard, Jr. et al.
 6,987,263 B2 1/2006 Hobbs et al.
 6,989,128 B2 1/2006 Alajoki et al.
 7,005,292 B2 2/2006 Wilding et al.
 7,015,046 B2 3/2006 Wohlstadter et al.
 7,018,830 B2 3/2006 Wilding et al.
 7,067,263 B2 6/2006 Parce et al.
 7,087,148 B1 8/2006 Blackburn et al.
 7,091,048 B2 8/2006 Parce et al.
 D540,953 S * 4/2007 Ramel et al. D24/224
 7,235,406 B1 * 6/2007 Woudenberg et al. 435/287.2
 2002/0001818 A1 1/2002 Brock
 2002/0019059 A1 2/2002 Chow et al.
 2002/0071788 A1 6/2002 Fujii et al.
 2002/0092767 A1 7/2002 Bjornson et al.
 2002/0142618 A1 10/2002 Parce et al.

2002/0199094 A1 12/2002 Strand et al.
 2003/0012697 A1 1/2003 Hahn et al.
 2003/0082081 A1 5/2003 Fouillet et al.
 2003/0118486 A1 6/2003 Zhou et al.
 2003/0124623 A1 7/2003 Yager et al.
 2003/0138969 A1 7/2003 Jakobsen et al.
 2003/0180824 A1 * 9/2003 Mpock et al. 435/287.1
 2003/0207328 A1 11/2003 Yguerabide et al.
 2004/0077074 A1 4/2004 Ackley et al.
 2004/0115094 A1 6/2004 Gumbrecht et al.
 2004/0228771 A1 11/2004 Zhou et al.
 2005/0014248 A1 1/2005 Canton
 2005/0118073 A1 6/2005 Facer et al.
 2005/0161669 A1 7/2005 Jovanovich et al.
 2005/0221281 A1 10/2005 Ho
 2005/0238545 A1 10/2005 Parce et al.
 2005/0255003 A1 11/2005 Summersgill et al.
 2006/0002827 A1 1/2006 Curcio et al.
 2006/0076482 A1 4/2006 Hobbs et al.
 2006/0094119 A1 5/2006 Ismagilov et al.
 2006/0202133 A1 9/2006 Ok et al.
 2006/0257992 A1 11/2006 McDevitt et al.
 2006/0275852 A1 12/2006 Montagu et al.
 2007/0003434 A1 1/2007 Padmanabhan et al.
 2007/0009386 A1 1/2007 Padmanabhan et al.
 2007/0031289 A1 2/2007 Cox et al.
 2007/0048189 A1 3/2007 Cox et al.
 2007/0120903 A1 5/2007 Takagi
 2007/0172388 A1 7/2007 Padmanabhan et al.
 2007/0298433 A1 12/2007 Sia et al.
 2008/0085219 A1 4/2008 Beebe et al.
 2008/0248590 A1 10/2008 Gulliksen et al.
 2009/0022625 A1 1/2009 Lee et al.
 2009/0156966 A1 6/2009 Kontschieder et al.
 2010/0002293 A1 * 1/2010 Mclellan et al. 359/398
 2010/0027008 A1 2/2010 Bornhop et al.

FOREIGN PATENT DOCUMENTS

EP 0 643 307 A1 3/1995
 EP 1 054 259 A1 11/2000
 EP 1946830 A1 7/2008
 EP 2071026 A1 6/2009
 WO WO 91/01003 A 1/1991
 WO WO 02/22250 A2 3/2002
 WO WO 03/054513 A2 7/2003
 WO WO 2004/087951 A3 10/2004
 WO WO 2005056186 A1 6/2005
 WO WO 2005/072858 8/2005
 WO WO 2006018044 A1 2/2006
 WO WO 2006/056787 A1 6/2006
 WO WO 2006/103440 A2 10/2006
 WO WO 2006113727 A2 10/2006
 WO WO 2007/082480 A1 7/2007
 WO WO 2008/028124 A1 3/2008
 WO WO 2008/118098 A1 10/2008
 WO WO 2008/123112 A1 10/2008

OTHER PUBLICATIONS

Andersson, et al., "Micromachined flow-through filter-chamber for chemical reactions on beads", *Sensors and Actuators*, vol. B67, pp. 203-208 (2000).
 Atencia, J et al., "Capillary inserts in microcirculatory systems", *Lab Chip*, 6, 575-577 (2006).
 Atencia, J. et al. "Steady flow generation in microcirculatory systems", *Lab Chip*, 6, 567-574 (2006).
 Daridon, et al., "Chemical sensing using an integrated microfluidic system based on the Berthelot reaction", *Sensors and Actuators B*, vol. 76, pp. 235-243 (2001).
 Dodge, et al., "Electrokinetically Driven Microfluidic Chips with Surface-Modified Chambers for Heterogeneous Immunoassays", *Anal. Chem.*, vol. 73, pp. 3400-3409 (2001).
 Fredrickson, C. et al., "Macro-to-micro interfaces for microfluidic devices", *Lab Chip*, 4, 526-533 (2004).
 Grodzinski, P. et al., "A Modular Microfluidic System for Cell Pre-concentration and Genetic Sample Preparation", *Biomedical Microdevices*, 5:4,303-310 (2003).

- Juncker, et al., "Autonomous Microfluidic Capillary Systems", *Anal. Chem.*, vol. 74, pp. 6139-6144 (2002).
- Linder, et al., "Reagent-Loaded Cartridges for Valveless and Automated Fluid Delivery in Microfluidic Devices", *Anal. Chem.*, vol. 77, No. 1, pp. 64-71 (2005).
- Moorthy, et al., "Microfluidic tectonics platform: A colorimetric, disposable botulinum toxin enzyme-linked immunosorbent assay system", *Electrophoresis*, vol. 25, pp. 1705-1713 (2004).
- Obeid, et al., "Microfabricated Device for DNA and RNA Amplification by Continuous-Flow Polymerase Chain Reaction and Reverse Transcription-Polymerase Chain Reaction with Cycle Number Selection", *Anal. Chem.*, vol. 75, pp. 288-295 (2003).
- Sia, S., et al., "An Integrated Approach to a Portable and Low-Cost Immunoassay for Resource-Poor Settings", *Angew. Chem. Int. Ed.*, vol. 43, pp. 498-502 (2004).
- Sia, S., et al., "Microfluidic devices fabricated in poly(dimethylsiloxane) for biological studies", *Electrophoresis*, vol. 24, pp. 3563-3576 (2003).
- Song et al., "A microfluidic system for controlling reaction networks in time", *Angew. Chem. Int. Ed.*, vol. 42, No. 7, 768-772 (2003).
- Weigl, et al., "Lab-on-a-chip for drug development", *Advanced Drug Delivery Reviews*, vol. 55, pp. 349-377 (2003).
- Proceedings of uTAS 2004, 8th International Conference on Miniaturized Systems in Chemistry and Life Sciences, Sep. 26-30, Malmo, Sweden, Edited by Thomas Laurell, Johan Nilsson, Klavs Jensen, D. Jed Harrison, Jorg P. Kutter, The Royal Society of Chemistry, pp. 1-135 (2004).
- International Search Report and Written Opinion for PCT/US2008/005577 mailed Apr. 3, 2009.
- Invitation to Pay Additional Fees and International Communication of the Partial International Search for International Application No. PCT/US2009/006596, mailed Apr. 19, 2010.
- International Search Report dated May 13, 2005 in PCT/US2005/003514.
- Written Opinion dated May 13, 2005 in PCT/US2005/003514.

* cited by examiner

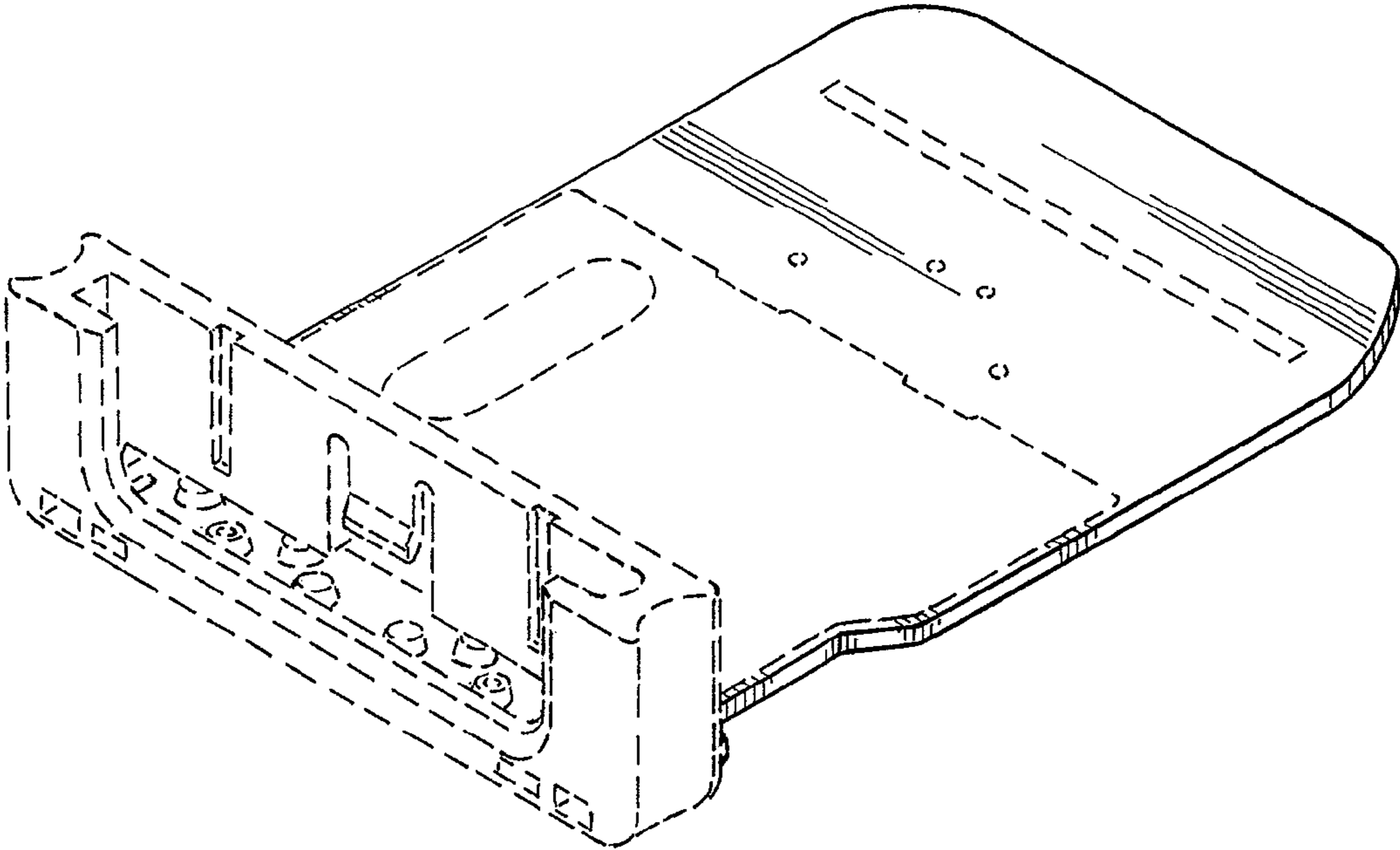


Fig. 1

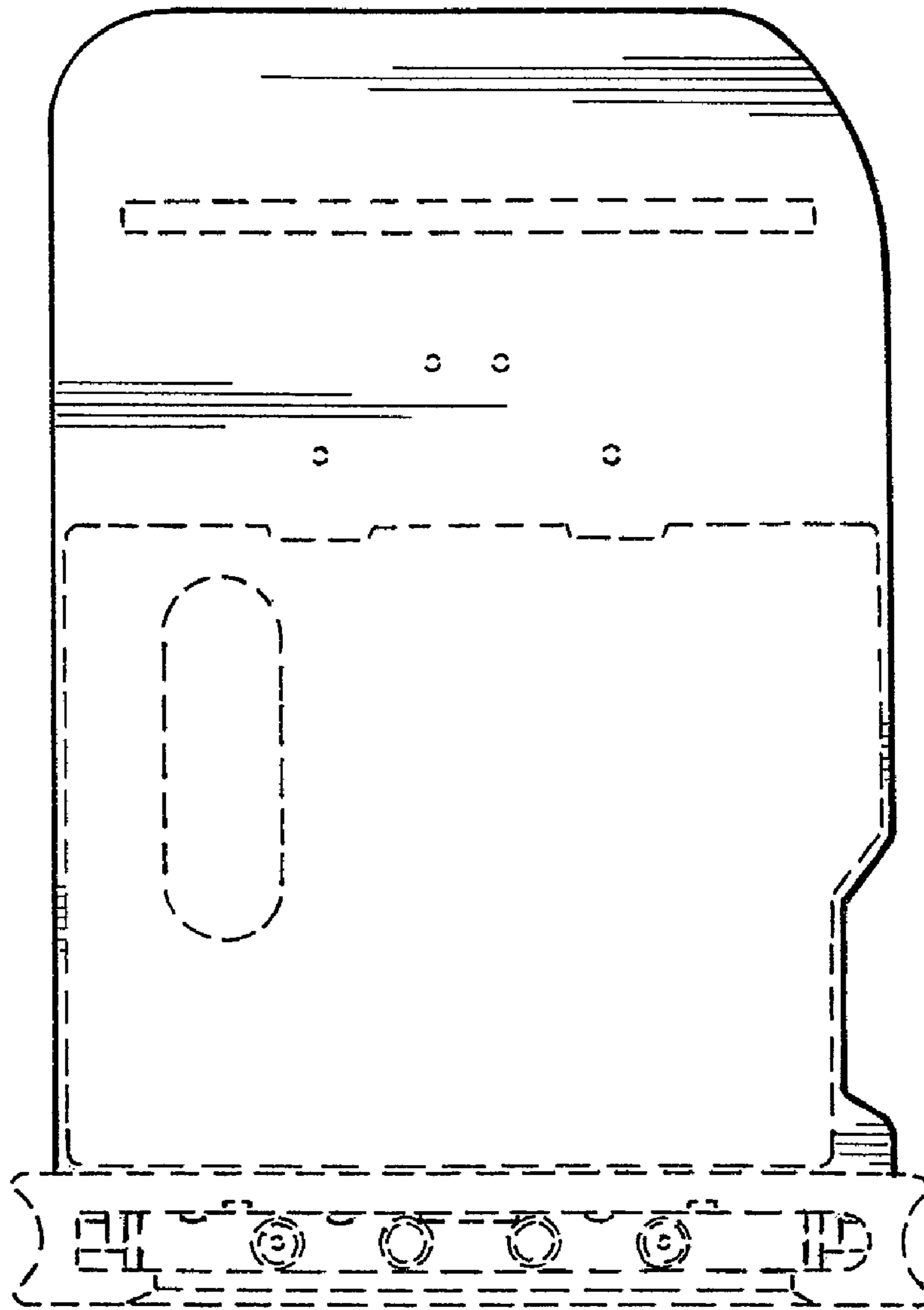


Fig. 2

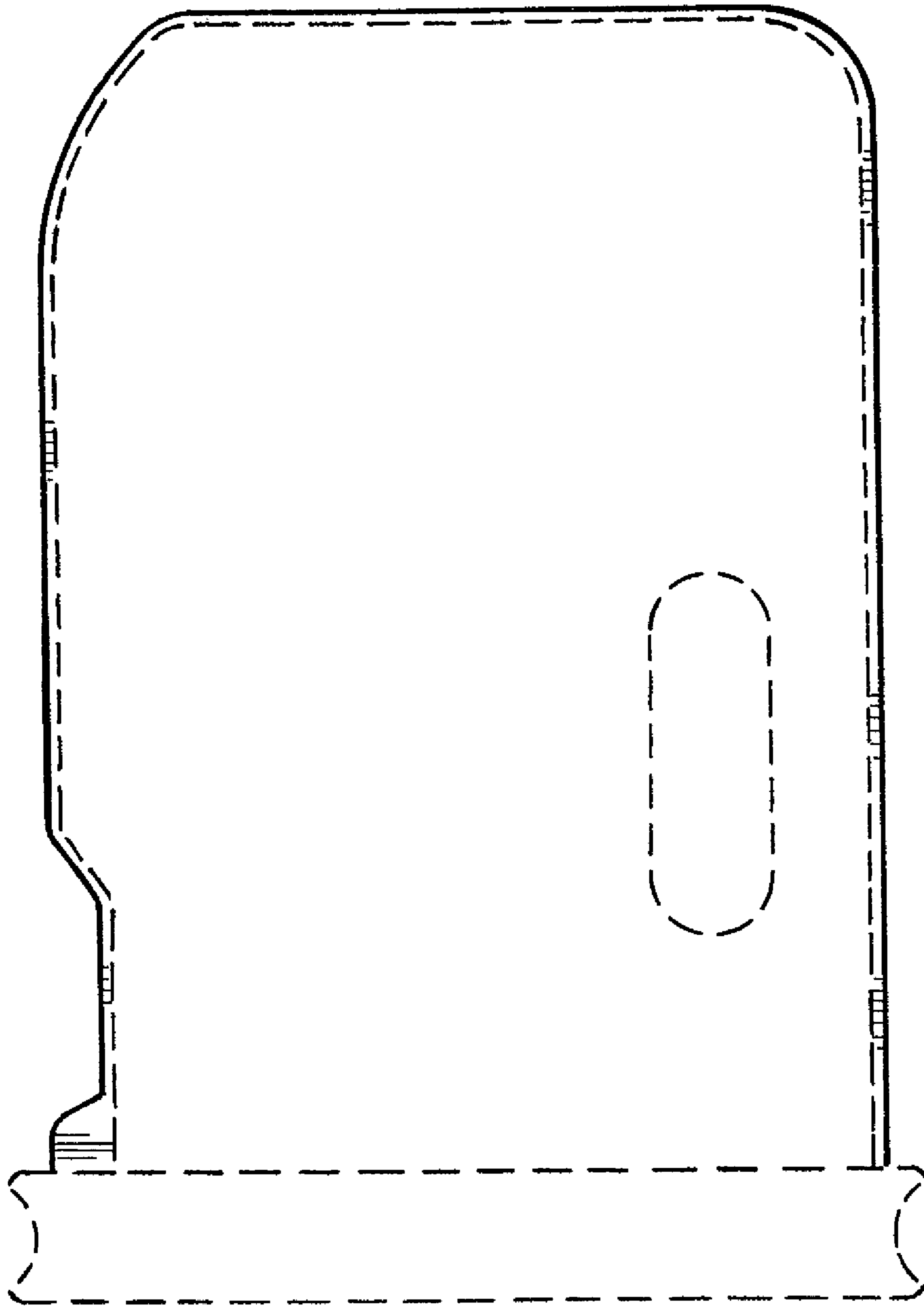


Fig. 3

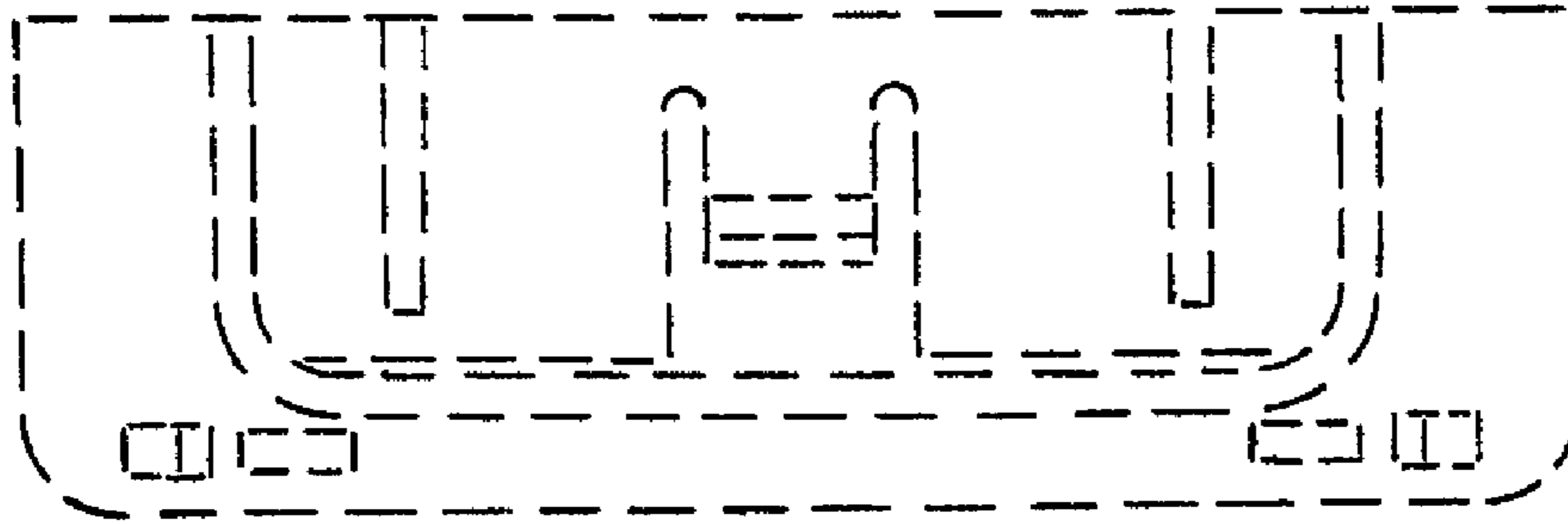


Fig. 4

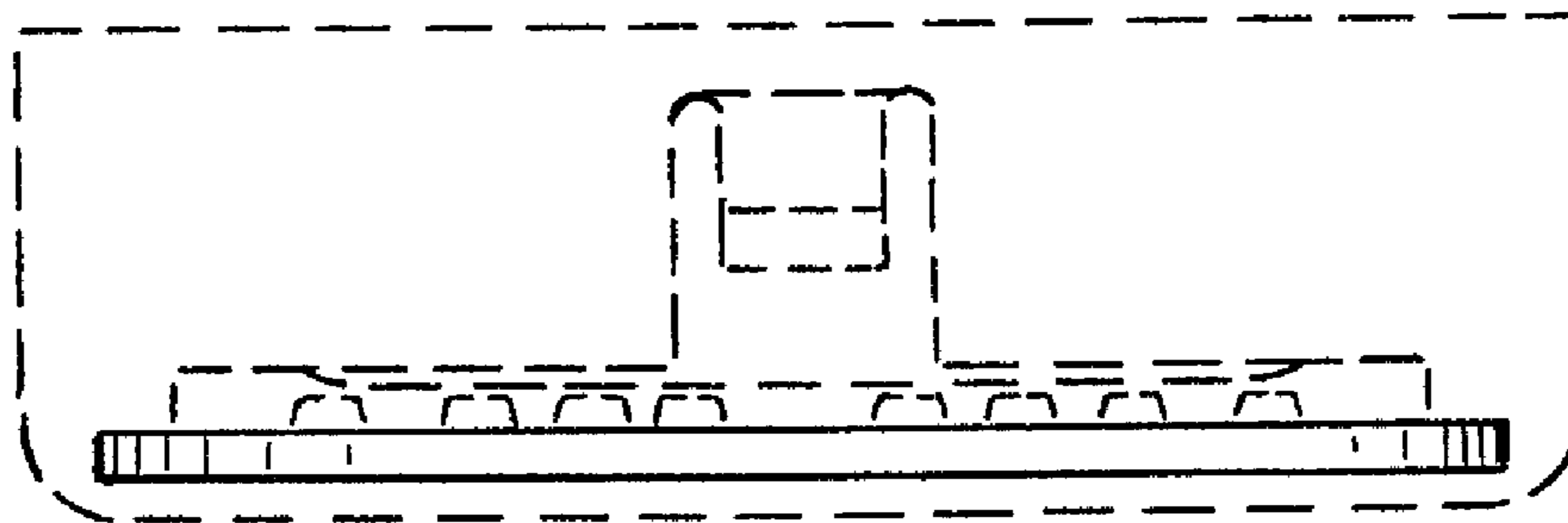


Fig. 5

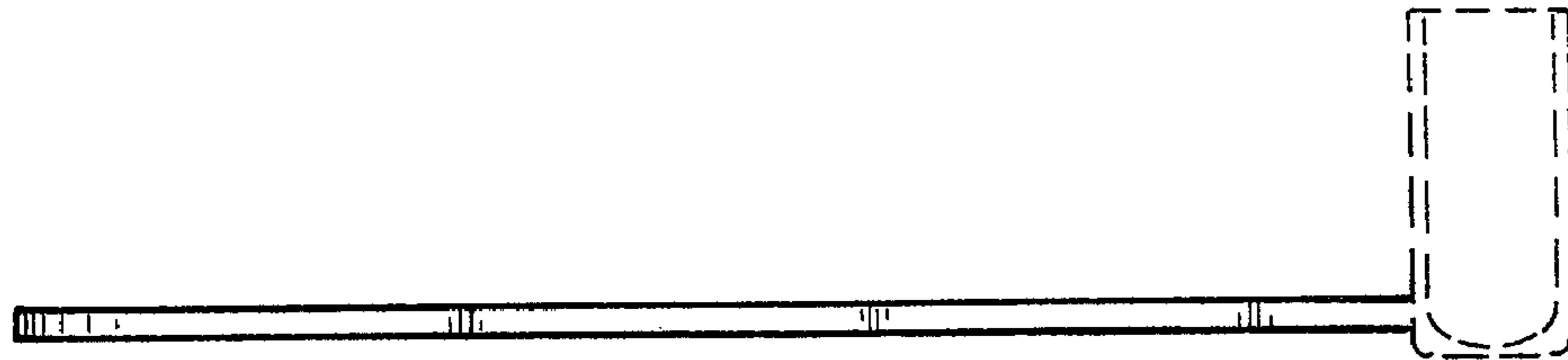


Fig. 6

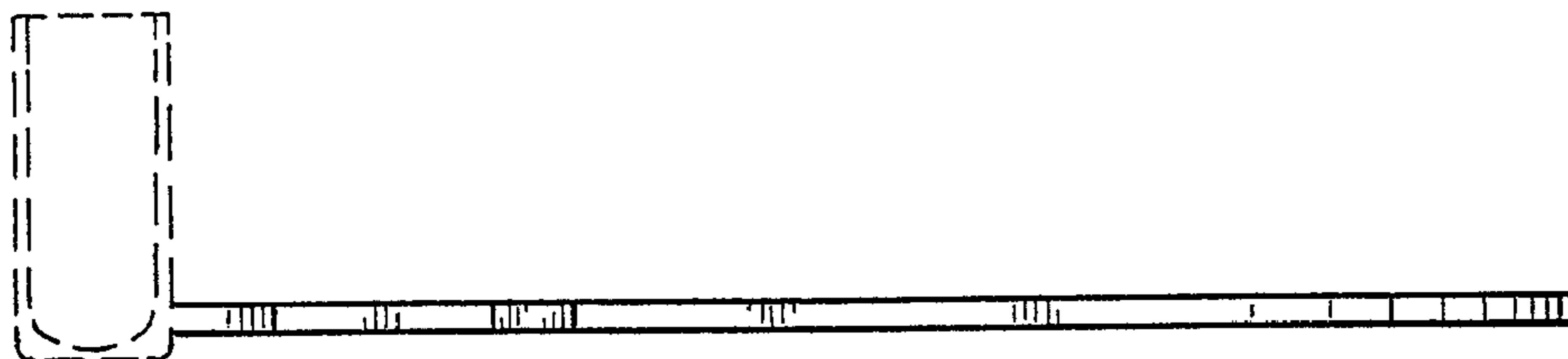


Fig. 7