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(12) **United States Design Patent**
Mizuno

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(54) **PROBE FOR DETECTION OF BIOLOGICAL SIGNAL**

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(**) Term: **14 Years**
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Apr. 11, 2013 (JP) 2013-008155
Apr. 11, 2013 (JP) 2013-008156

(51) **LOC (10) Cl.** **24-01**

(52) **U.S. Cl.**
USPC **D24/187**

(58) **Field of Classification Search**

USPC D24/164, 167, 186-187, 169, 223-225, D24/200, 165, 158, 216; D10/106.1, 80; D13/168, 110, 107; D14/433, 230, D14/155, 218, 358, 436, 240, 435, 474, 384, D14/217; D9/707; D3/207-208; 600/301, 600/372, 382-386, 481, 529, 396; 381/182; 439/909
CPC .. A61B 5/0002; A61B 5/0004; A61B 5/0006; A61B 5/0205; A61B 5/02055; A61B 5/0404; A61B 5/08; A61B 5/082; A61B 5/085; A61B 5/087; A61B 5/0816; A61B 5/0878; A61B 5/0826; A61B 5/113; A61B 5/0416; H04M 1/05

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D273,053 S * 3/1984 Hamborg D3/207
4,852,571 A * 8/1989 Gadsby A61B 5/0416
600/396

(Continued)

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(57) **CLAIM**

The design for a probe for detection of biological signal, as shown and described.

DESCRIPTION

FIG. 1 is a front elevational view of a first embodiment of a probe for detection of biological signal;

FIG. 2 is a rear elevational view of the first embodiment thereof;

FIG. 3 is a right side elevational view of the first embodiment thereof;

FIG. 4 is a left side elevational view of the first embodiment thereof;

FIG. 5 is a top plan view of the first embodiment thereof;

FIG. 6 is a bottom plan view of the first embodiment thereof;

FIG. 7 is a cross-sectional view of the first embodiment taken along the line 7-7 in FIG. 1;

FIG. 8 is a perspective reference view of the first embodiment thereof;

FIG. 9 is a front elevational view of a second embodiment of a probe for detection of biological signal;

FIG. 10 is a rear elevational view of the second embodiment thereof;

FIG. 11 is a right side elevational view of the second embodiment thereof;

FIG. 12 is a left side elevational view of the second embodiment thereof;

FIG. 13 is a top plan view of the second embodiment thereof;

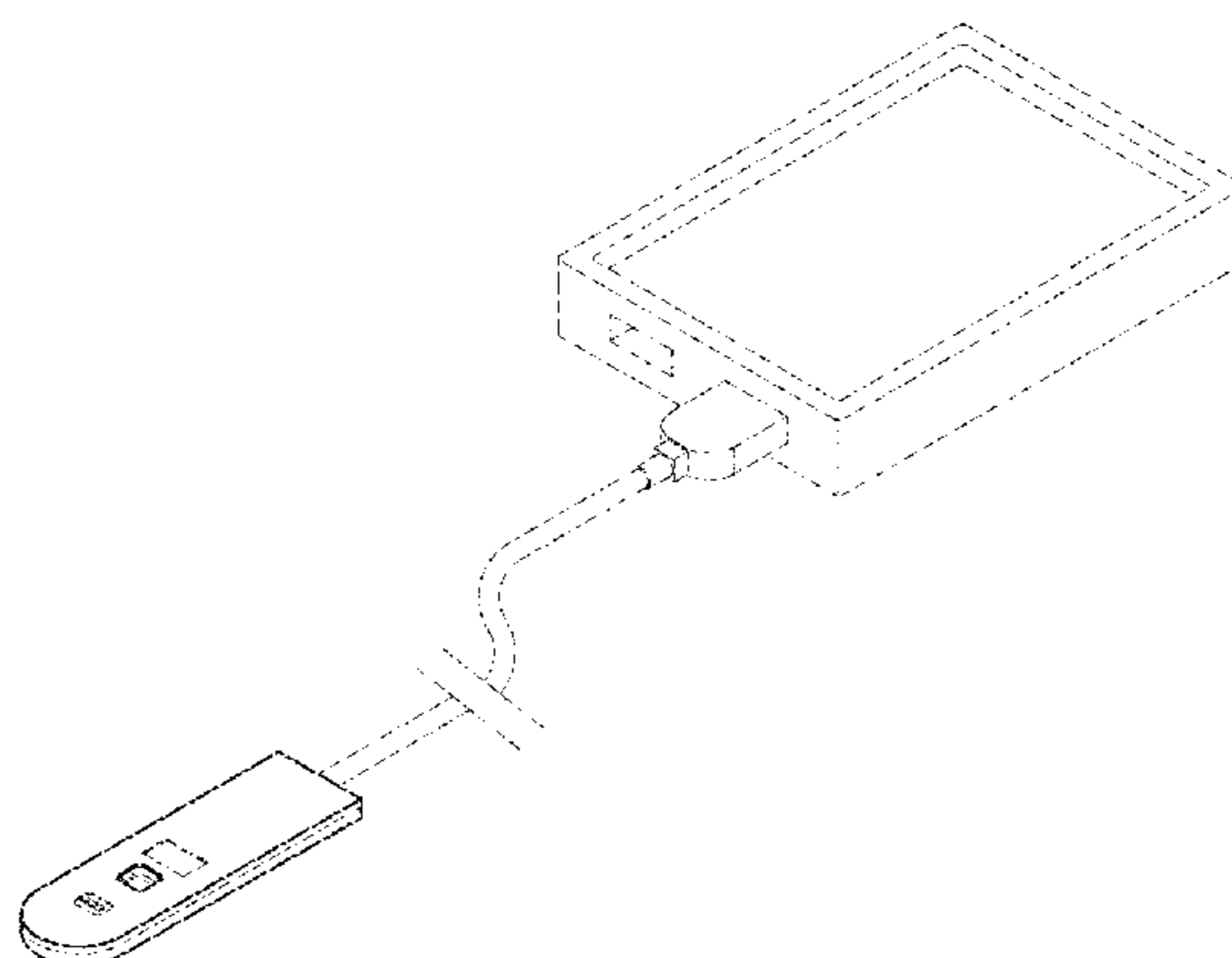
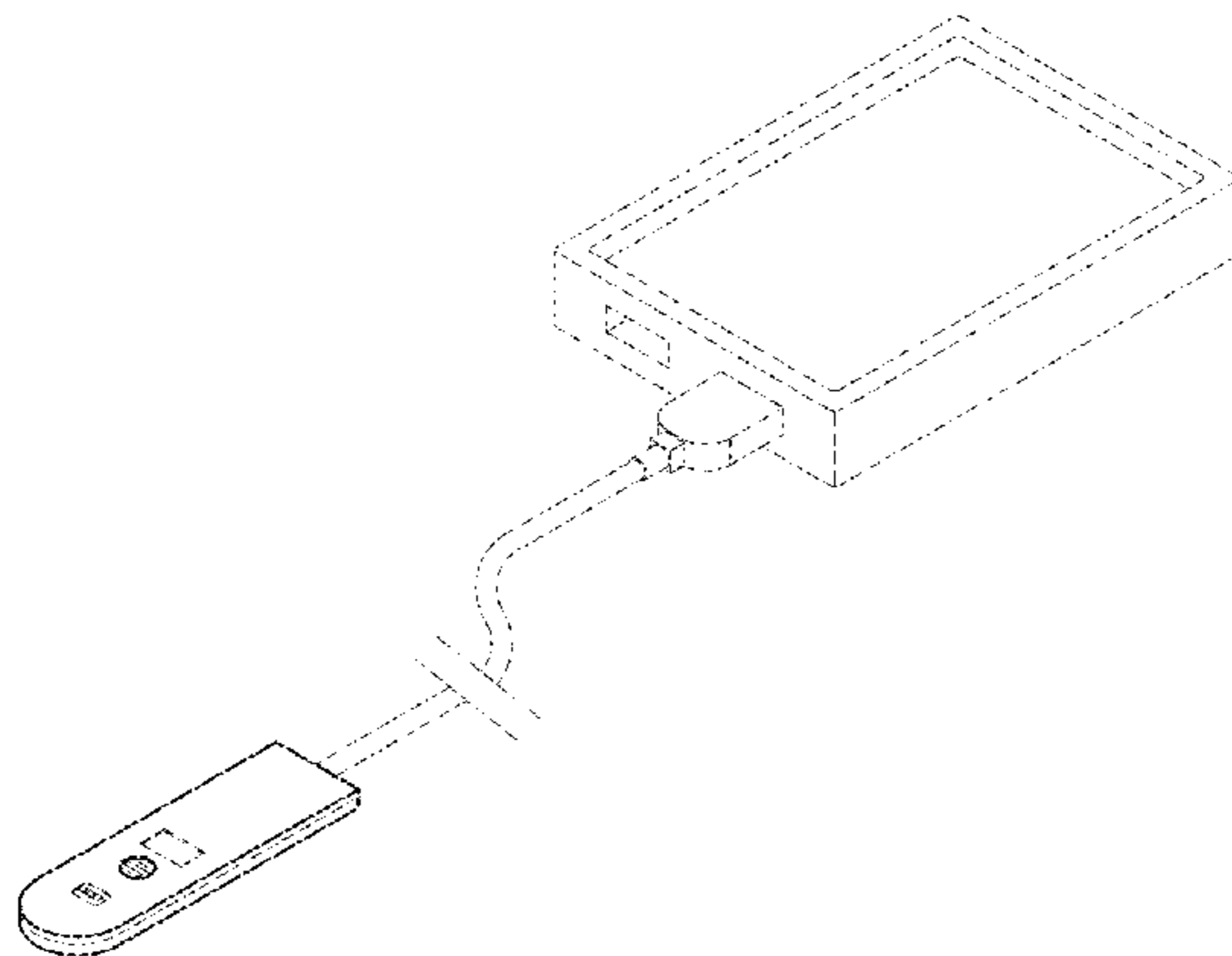
FIG. 14 is a bottom plan view of the second embodiment thereof;

FIG. 15 is a cross-sectional view of the second embodiment taken along the line 15-15 in FIG. 9; and,

FIG. 16 is a perspective reference view of the second embodiment thereof.

The broken lines set forth in the figures illustrate a light source and a light sensor on a front surface of the probe, a disclaimed line along the outer perimeter of the probe, and a connecting cable and main unit with which the probe is used. The broken lines form no part of the claimed design.

1 Claim, 6 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

4,942,617	A *	7/1990	Boylan	.....	H04M 1/05 381/182	D583,950	S *	12/2008	Itonaga	.....	D24/165
D313,568	S *	1/1991	Castleberry	.....	D10/106.1	D587,375	S *	2/2009	Mao	.....	D24/168
D330,364	S *	10/1992	Trinkle	.....	D13/107	D590,508	S *	4/2009	Tupin, Jr.	.....	D24/186
D331,807	S *	12/1992	Sodergren	.....	D24/224	D599,909	S *	9/2009	Rinott	.....	D24/186
D331,888	S *	12/1992	Lade	.....	D10/106.1	D608,451	S *	1/2010	Hanoun	.....	D24/186
5,195,523	A *	3/1993	Cartmell	.....	A61B 5/0416 439/909	D615,657	S *	5/2010	Anderson	.....	D24/187
D377,983	S *	2/1997	Sabri	.....	D24/167	D615,658	S *	5/2010	Anderson	.....	D24/187
D409,307	S *	5/1999	Phleps	.....	D24/158	D615,659	S *	5/2010	Anderson	.....	D24/187
D414,870	S *	10/1999	Saltzstein	.....	D24/186	D621,048	S *	8/2010	Severe	.....	D24/167
D432,524	S *	10/2000	Yamagishi	.....	D14/218	D639,437	S *	6/2011	Bishay	.....	D24/167
D442,598	S *	5/2001	Wallace	.....	D14/436	D644,329	S *	8/2011	North	.....	D24/187
D452,012	S *	12/2001	Phillips	.....	D24/186	D646,259	S *	10/2011	Daniel	.....	D14/155
D452,244	S *	12/2001	Wallace	.....	D14/436	D659,836	S *	5/2012	Bensch	.....	D24/167
D452,245	S *	12/2001	Wallace	.....	D14/436	D663,289	S *	7/2012	Murchison	.....	D14/218
D452,246	S *	12/2001	Wallace	.....	D14/436	D667,797	S *	9/2012	Saitou	.....	D13/168
D453,515	S *	2/2002	Brewer	.....	D14/435	D669,894	S *	10/2012	Cobbett	.....	D14/358
D461,561	S *	8/2002	Pham	.....	D24/225	D670,696	S *	11/2012	Cobbett	.....	D14/358
D484,879	S *	1/2004	Jones	.....	D14/358	D670,812	S *	11/2012	Huang	.....	D24/169
D487,750	S *	3/2004	Dietel	.....	D14/474	D671,916	S *	12/2012	Maier	.....	D14/218
D514,105	S *	1/2006	Ohta	.....	D14/384	D678,532	S *	3/2013	Powers	.....	D24/187
D514,951	S *	2/2006	Vaisnys	.....	D9/707	D678,546	S *	3/2013	Poletti	.....	D24/223
D528,215	S *	9/2006	Malmsater	.....	D24/216	D679,680	S *	4/2013	Wood	.....	D14/218
D531,321	S *	10/2006	Godfrey	.....	D24/225	D687,415	S *	8/2013	Vuillet	.....	D14/218
D535,031	S *	1/2007	Barrett	.....	D24/186	D695,272	S *	12/2013	Hansen	.....	D14/218
D544,099	S *	6/2007	Umeda	.....	D24/167	D702,364	S *	4/2014	Iqbal	.....	D24/225
D551,668	S *	9/2007	Newby	.....	D14/433	D717,960	S *	11/2014	Einck	.....	D24/187
D552,610	S *	10/2007	Newby	.....	D14/433	D720,336	S *	12/2014	Ervin	.....	D14/240
D561,703	S *	2/2008	Shimokawa	.....	D13/168	D720,864	S *	1/2015	Behar	.....	D24/223
D575,730	S *	8/2008	Hung	.....	D13/110	D723,478	S *	3/2015	Turksu	.....	D13/168
D580,415	S *	11/2008	Beaver, Jr.	.....	D14/230	D724,223	S *	3/2015	Nishiyama	.....	D24/169
						D732,173	S *	6/2015	Reaser, Jr.	.....	D24/167
						D735,879	S *	8/2015	Behar	.....	D24/223
						D738,526	S *	9/2015	Huang	.....	D24/224
						D739,035	S *	9/2015	Tavidian	.....	D24/200

* cited by examiner

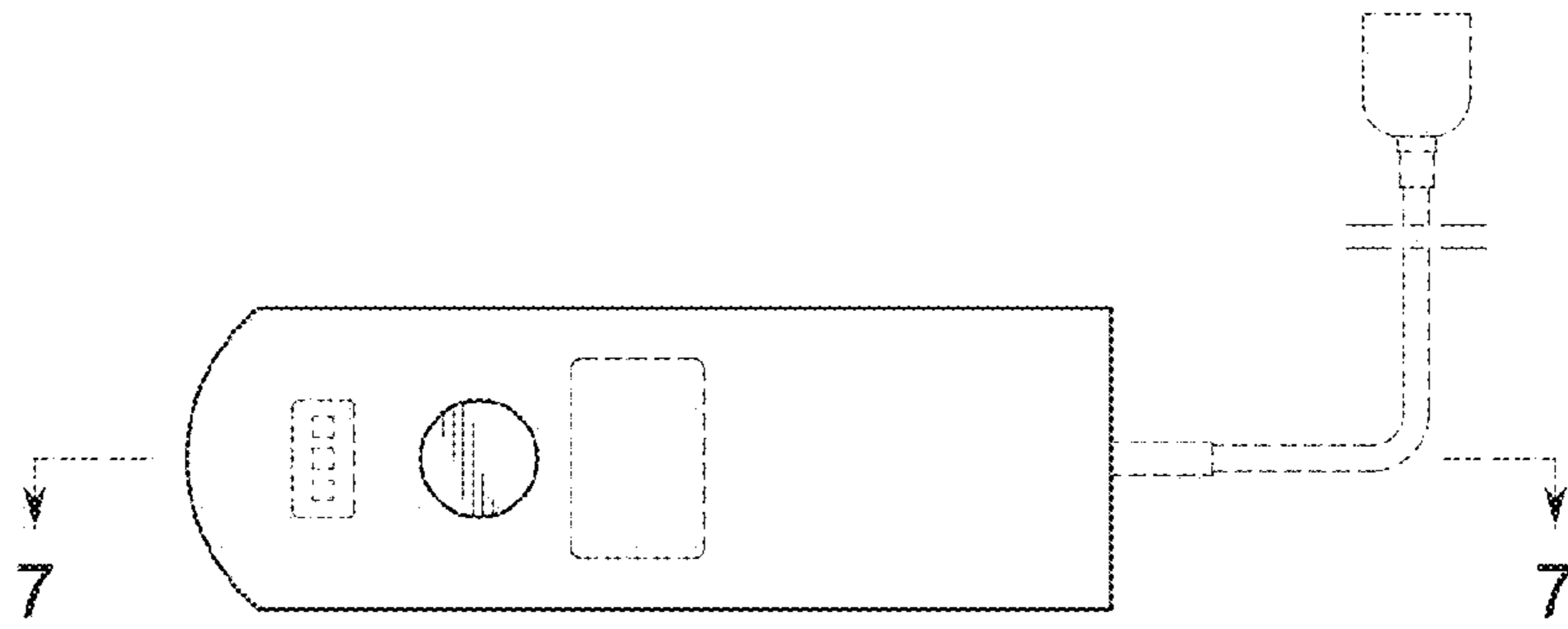


FIG. 1

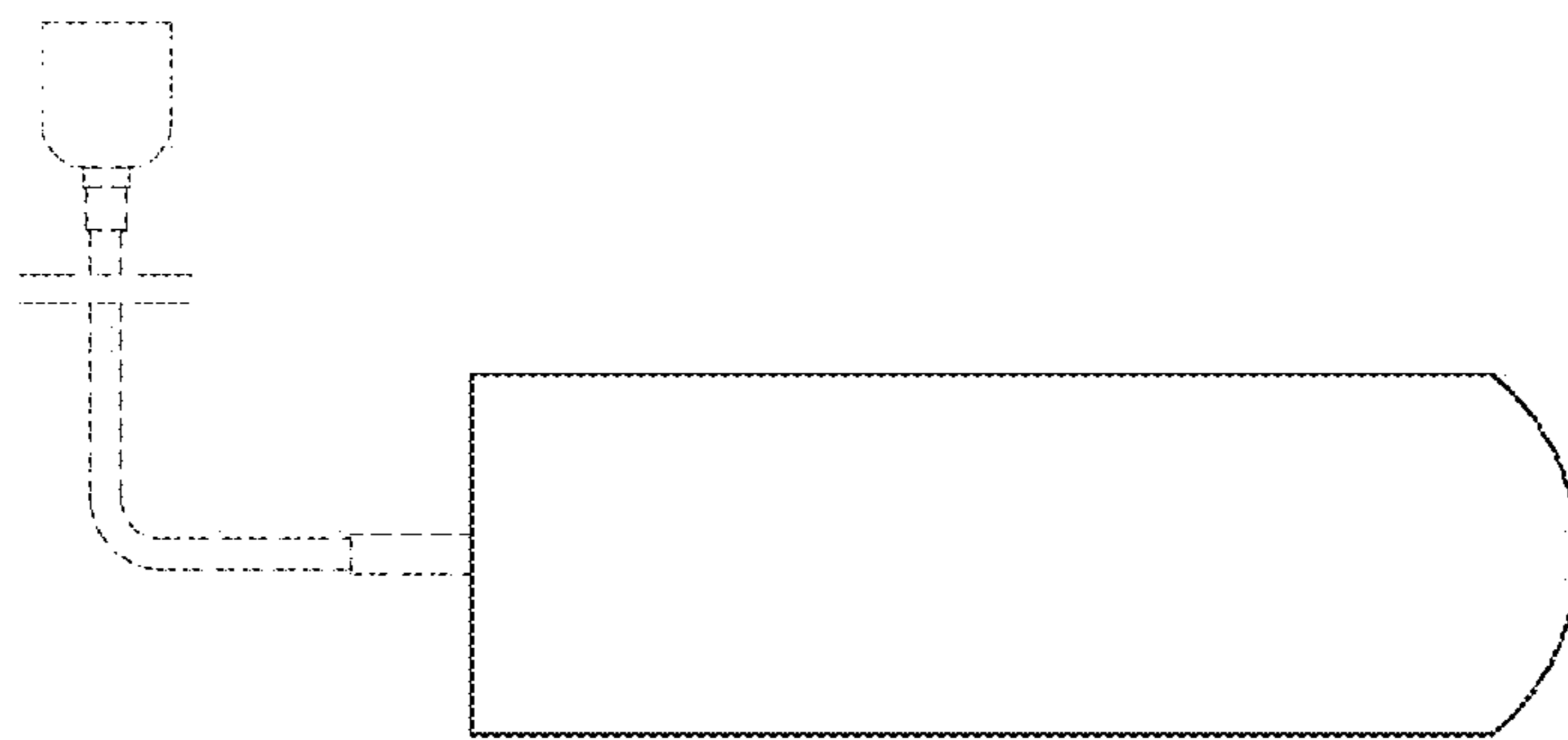


FIG. 2



FIG. 3

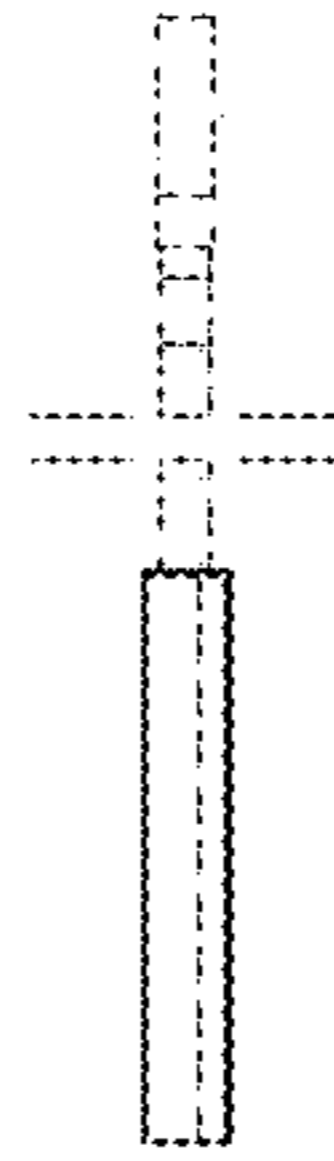


FIG. 4

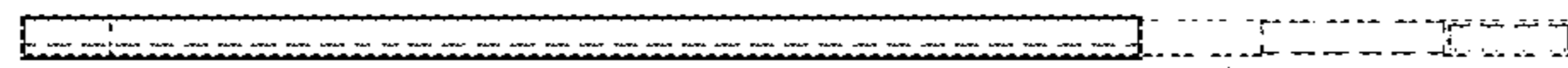


FIG. 5

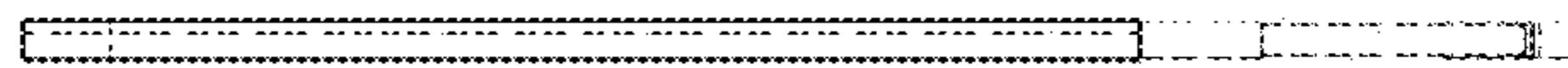


FIG. 6

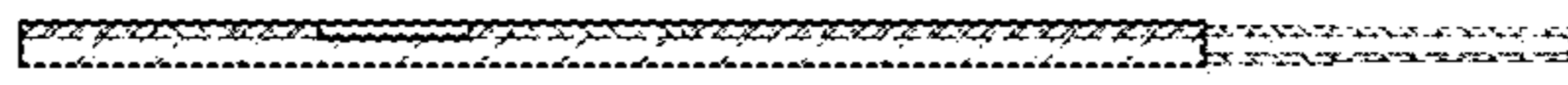


FIG. 7

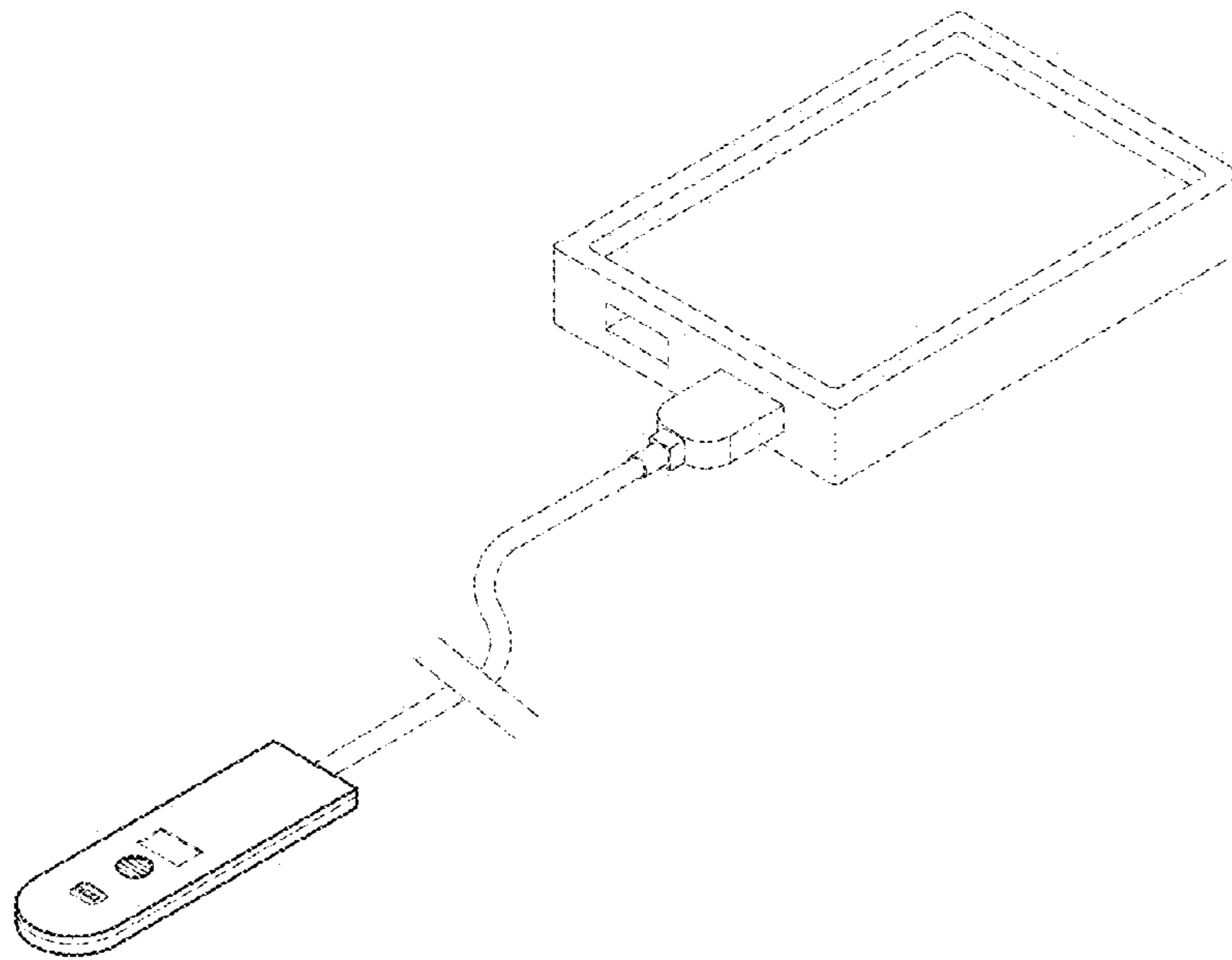


FIG. 8

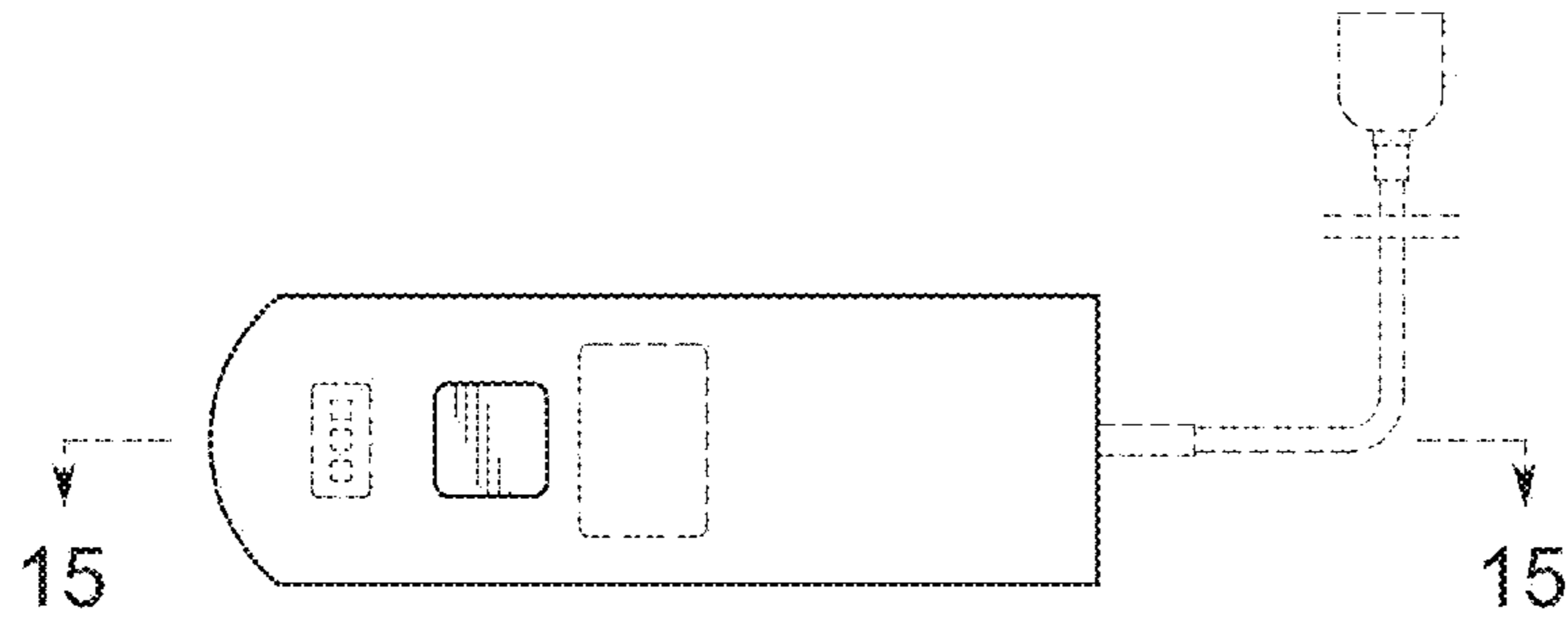


FIG. 9

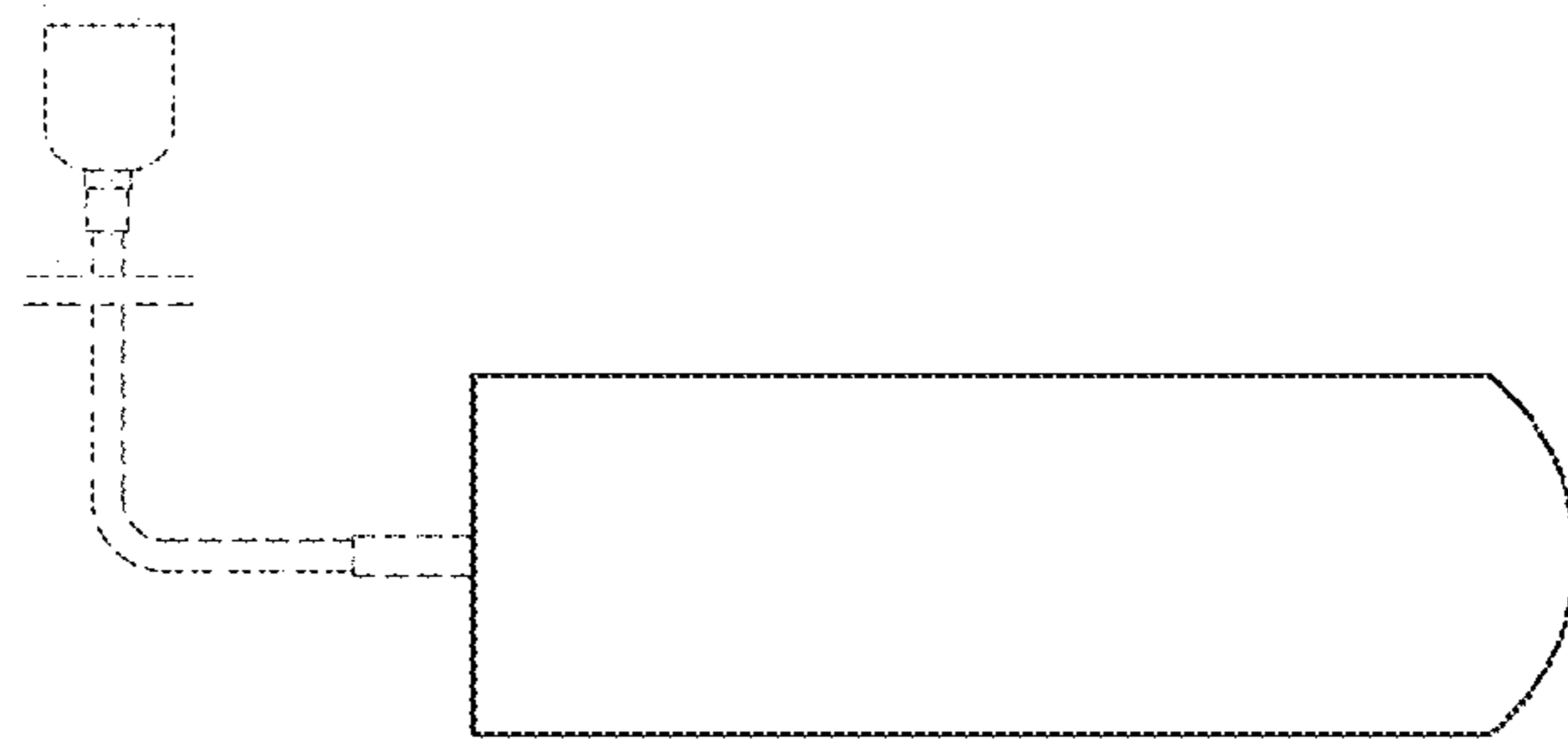


FIG. 10

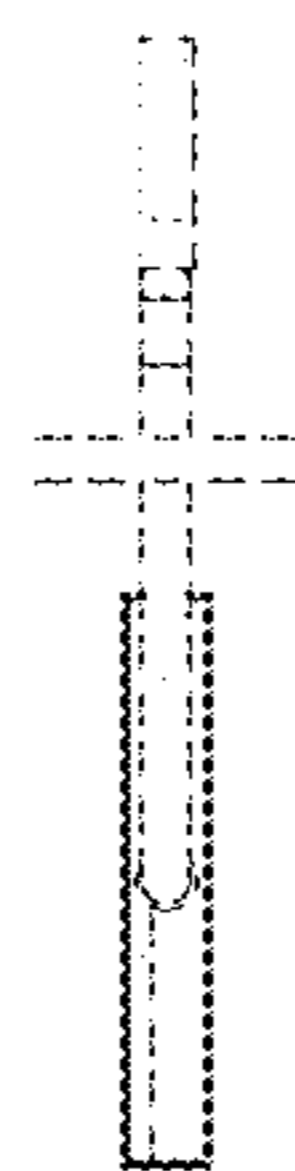


FIG. 11

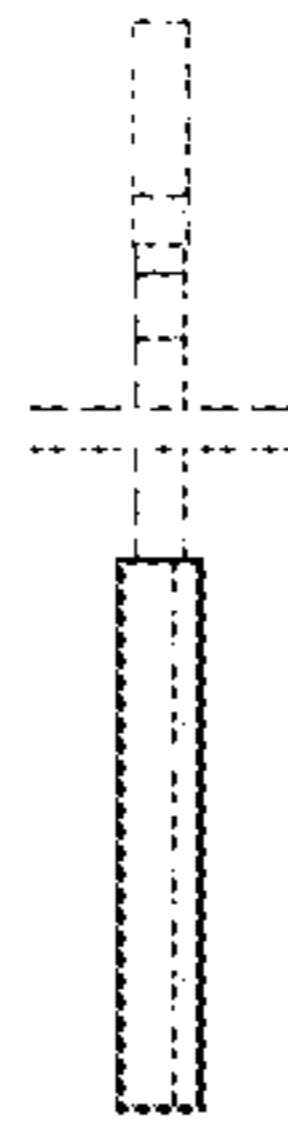


FIG. 12

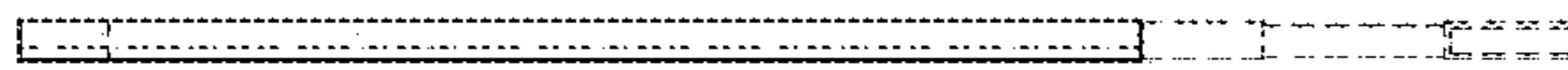


FIG. 13

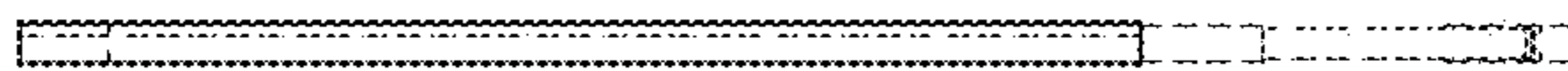


FIG. 14

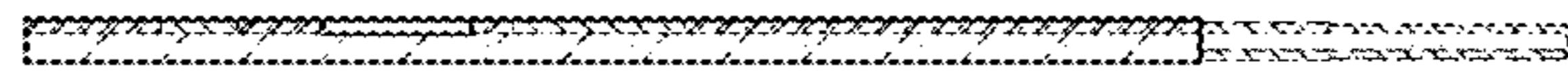


FIG. 15

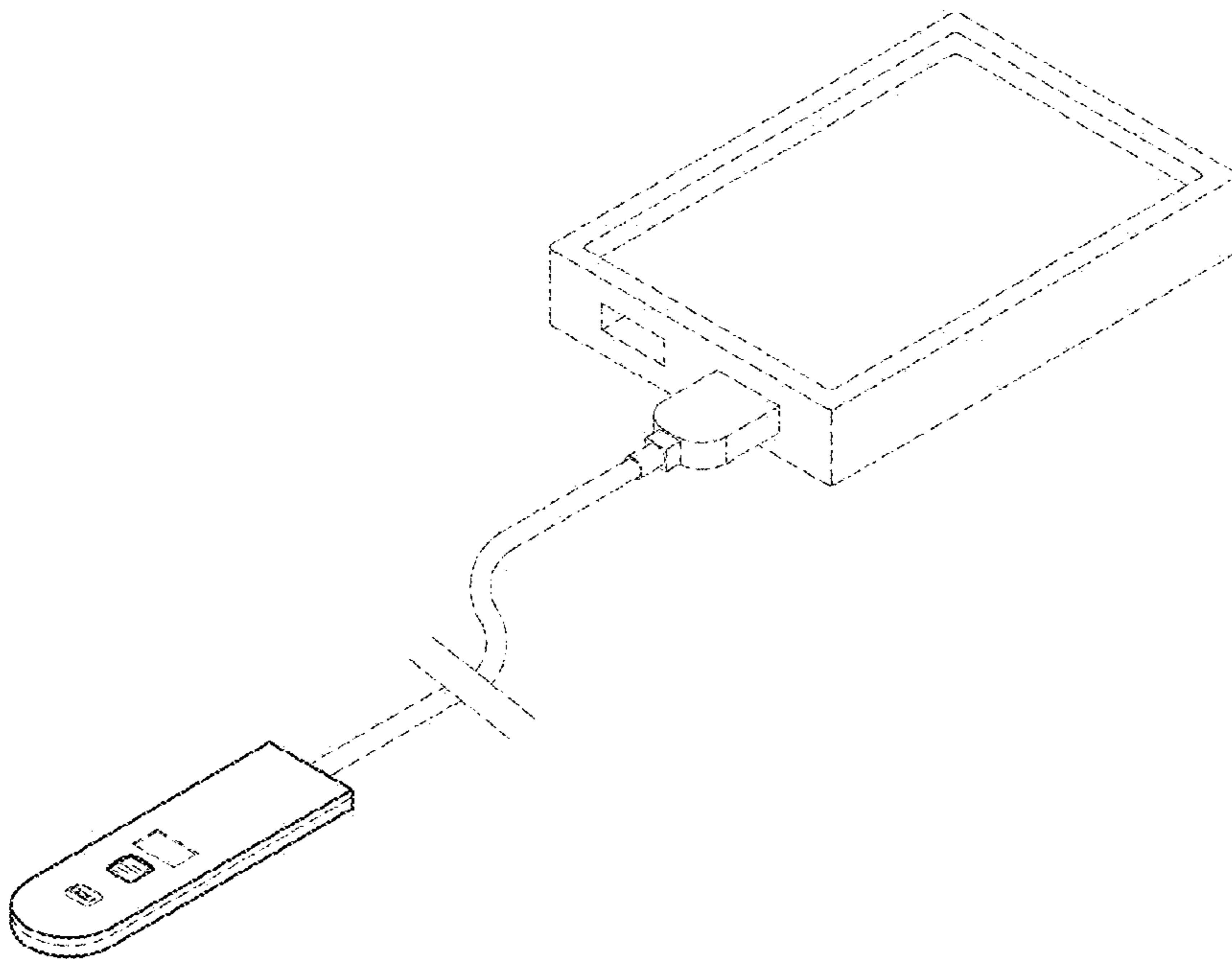


FIG. 16