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

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(54) **LEAD FRAME**

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(73) Assignee: **Panasonic Corporation**, Osaka (JP)

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

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(51) **LOC (9) Cl.** **13-03**

(52) **U.S. Cl.** **D13/180**

(58) **Field of Classification Search** D13/182;
174/527, 528, 529; 257/666, 676, 691, E23.037,
257/E23.038, E23.039; 324/754

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,300,815	A *	4/1994	Rostoker	.....	257/786
5,905,639	A *	5/1999	Warren	.....	361/776
5,925,935	A *	7/1999	Kim	.....	257/786
6,400,004	B1 *	6/2002	Fan et al.	.....	257/666
D466,093	S *	11/2002	Ebihara et al.	.....	D13/182
D471,167	S *	3/2003	Ebihara et al.	.....	D13/182
6,777,800	B2 *	8/2004	Madrid et al.	.....	257/690
6,809,409	B2 *	10/2004	Fukui et al.	.....	257/676
6,940,301	B2 *	9/2005	Chen	.....	324/770
6,958,532	B1 *	10/2005	Nakayama	.....	257/686
7,067,904	B2 *	6/2006	Wang et al.	.....	257/673
D540,273	S *	4/2007	Higashibata	.....	D13/182
7,199,478	B2 *	4/2007	Jung	.....	257/786
7,211,879	B1 *	5/2007	Yang et al.	.....	257/666
7,256,482	B2 *	8/2007	Kummerl et al.	.....	257/676
7,265,804	B2 *	9/2007	Chen	.....	349/150
2002/0079560	A1 *	6/2002	Ernst et al.	.....	257/666

2006/0105501	A1 *	5/2006	Kuah et al.	.....	438/123
2007/0029647	A1 *	2/2007	Torkington et al.	.....	257/666
2007/0099349	A1 *	5/2007	Adachi et al.	.....	438/123
2007/0126093	A1 *	6/2007	Ho et al.	.....	257/675
2007/0132077	A1 *	6/2007	Choi et al.	.....	257/676
2007/0281392	A1 *	12/2007	Yee et al.	.....	438/111

FOREIGN PATENT DOCUMENTS

JP	5-291483	11/1993
JP	6-85145	3/1994
JP	7-307428	11/1995
JP	982979	6/1997
JP	982980	6/1997
JP	982993	6/1997
JP	983004	6/1997
JP	983004/1	6/1997
JP	983005	6/1997
JP	983006	6/1997
JP	9-283690	10/1997
JP	1035067	3/1999
JP	1035067/1	3/1999
JP	1035068	3/1999
JP	1035068/1	3/1999
JP	1035074	3/1999
JP	D 1205291	5/2004
JP	D 1205551	5/2004
JP	D 1227768	1/2005
JP	D 1227769	1/2005
JP	D 1227770	1/2005
JP	D 1227771	1/2005
JP	D 1244236	6/2005
JP	D 1244448	6/2005
JP	D 1245149	7/2005
JP	D 1245150	7/2005
JP	D 1254153	10/2005
JP	D 1254154	10/2005
JP	D 1254410	10/2005

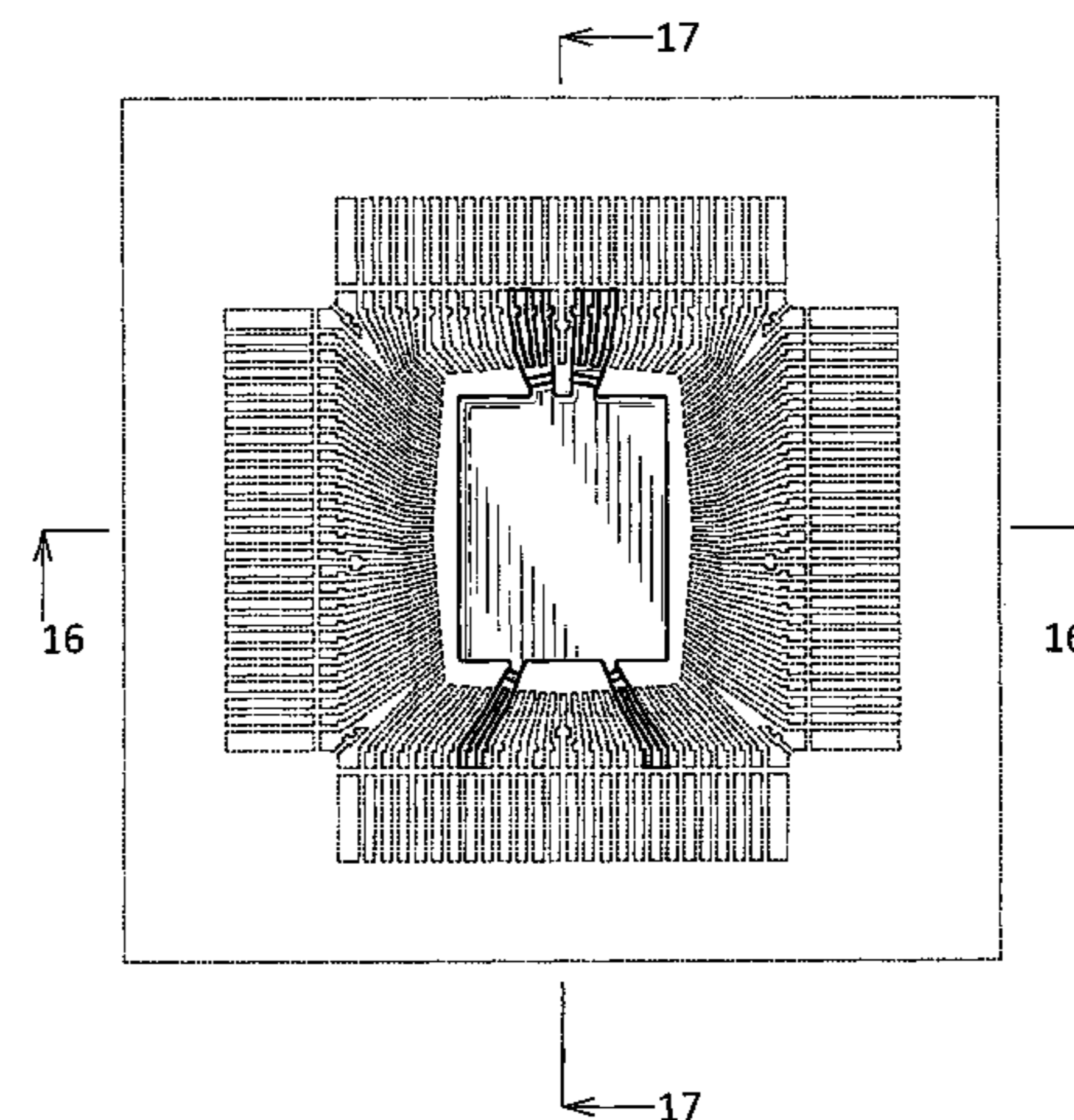
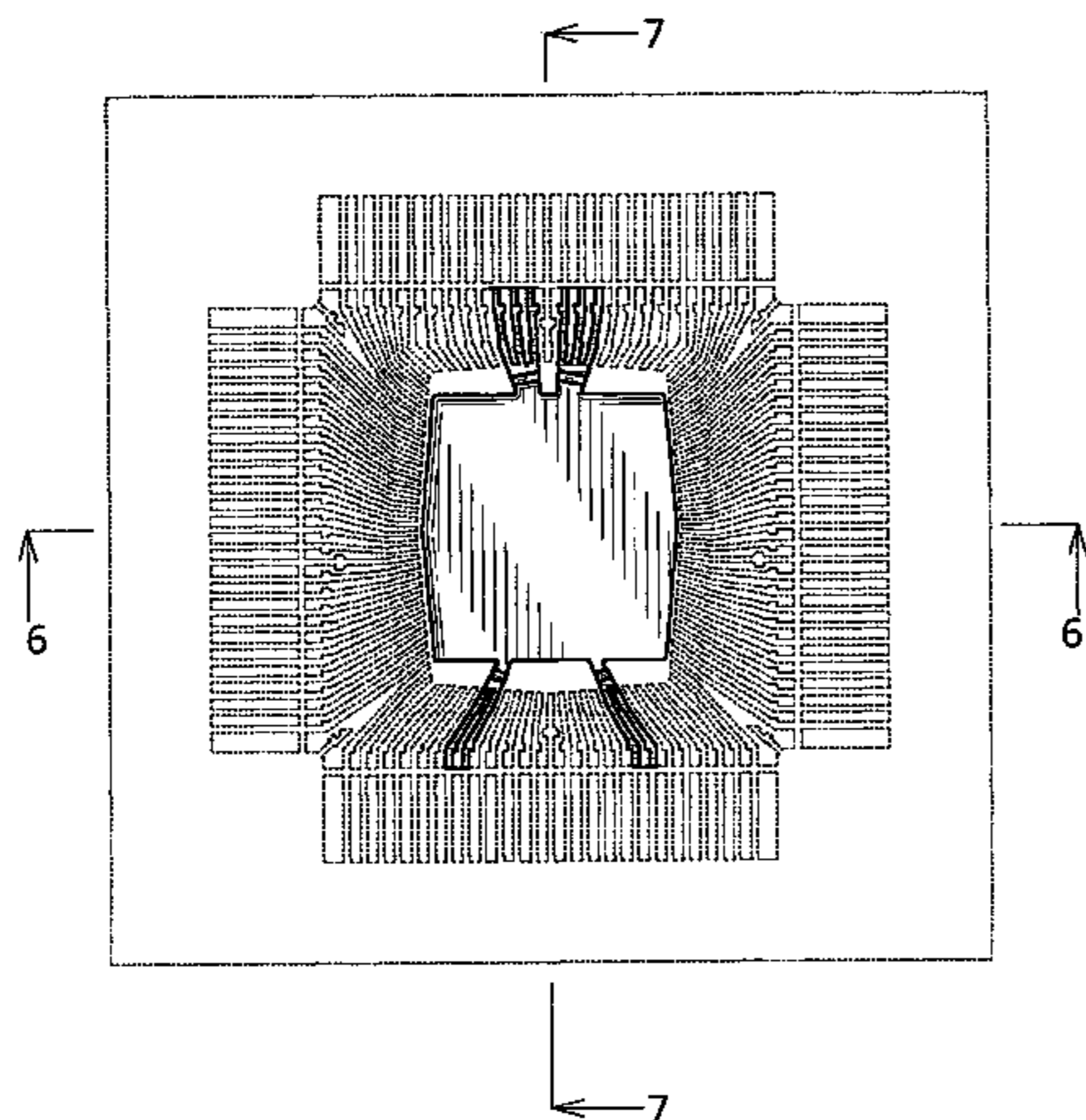
* cited by examiner

Primary Examiner—Selina Sikder

(74) *Attorney, Agent, or Firm*—Brinks Hofer Gilson & Lione

(57) **CLAIM**

The ornamental design for a lead frame, as shown and described.



DESCRIPTION

FIG. 1 is a front view of a first embodiment of a lead frame of the present invention;

FIG. 2 is a rear view thereof;

FIG. 3 is a first side view thereof with the opposite side being a mirror image thereof;

FIG. 4 is a top view thereof;

FIG. 5 is a bottom view thereof;

FIG. 6 is a cross-section view taken along the line 6—6 of FIG. 1;

FIG. 7 is a cross-section view taken along the line 7—7 of FIG. 1;

FIG. 8 is an enlarged second side view thereof taken along the lines 8 of FIG. 4;

FIG. 9 is an enlarged top view thereof taken along the lines 9—9 of FIG. 4;

FIG. 10 is an enlarged bottom view thereof taken along the lines 10—10 of FIG. 5;

FIG. 11 is a front view of a second embodiment of a lead frame of the present invention;

FIG. 12 is a rear view thereof;

FIG. 13 is a first side view thereof with the opposite side being a mirror image thereof;

FIG. 14 is a top view thereof;

FIG. 15 is a bottom view thereof;

FIG. 16 is a cross-section view taken along the line 16—16 of FIG. 11;

FIG. 17 is a cross-section view taken along the line 19—19 of FIG. 11;

FIG. 18 is an enlarged second side view thereof taken along the lines 18—18 of FIG. 13;

FIG. 19 is an enlarged top view thereof taken along the lines 19—19 of FIG. 14;

FIG. 20 is an enlarged bottom view thereof taken along the lines 20—20 of FIG. 15;

FIG. 21 is a front view of a third embodiment of a lead frame of the present invention;

FIG. 22 is a rear view thereof;

FIG. 23 is a first side view thereof with the opposite side being a mirror image thereof;

FIG. 24 is a top view thereof;

FIG. 25 is a bottom view thereof;

FIG. 26 is a cross-section view taken along the line 26—26 of FIG. 21;

FIG. 27 is a cross-section view taken along the line 27—27 of FIG. 21;

FIG. 28 is an enlarged second side view thereof taken along the lines 28—28 of FIG. 23;

FIG. 29 is an enlarged top view thereof taken along the lines 29—29 of FIG. 24;

FIG. 30 is an enlarged bottom view thereof taken along the lines 30—30 of FIG. 25;

FIG. 31 is a front view of a fourth embodiment of a lead frame of the present invention;

FIG. 32 is a rear view thereof;

FIG. 33 is a first side view thereof with the opposite side being a mirror image thereof;

FIG. 34 is a top view thereof;

FIG. 35 is a bottom view thereof;

FIG. 36 is a cross-section view taken along the line 36—36 of FIG. 31;

FIG. 37 is a cross-section view taken along the line 37—37 of FIG. 31;

FIG. 38 is an enlarged second side view thereof taken along the lines 42—42 of FIG. 33;

FIG. 39 is an enlarged top view thereof taken along the lines 39—39 of FIG. 34; and,

FIG. 40 is an enlarged bottom view thereof taken along the lines 44—44 of of FIG. 35.

The ornamental design which is claimed is shown in solid lines in the drawings. Any broken lines in the drawings are for illustrative purposes only and form no part of the claimed design.

1 Claim, 24 Drawing Sheets

FIG. 1

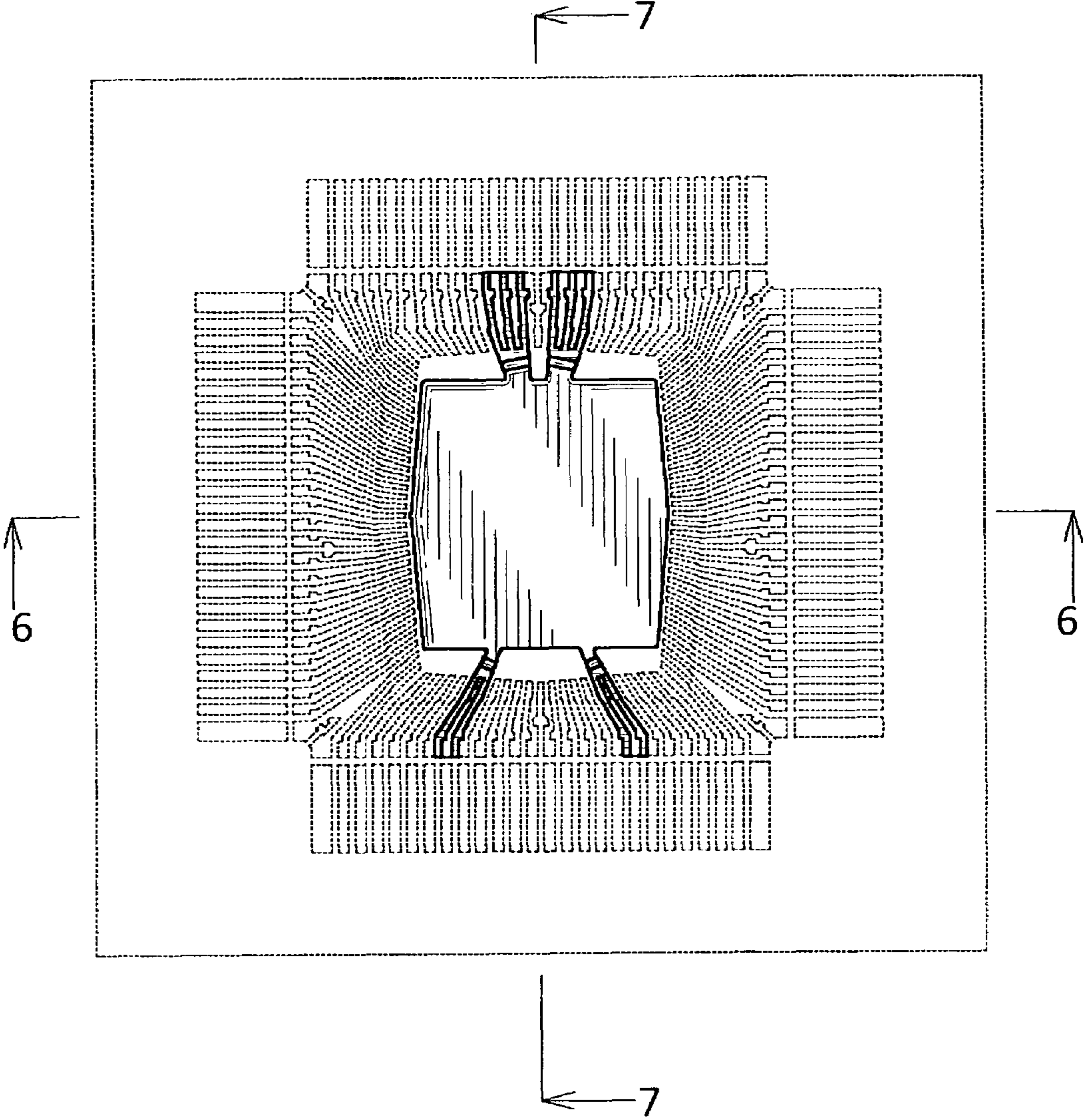


FIG. 2

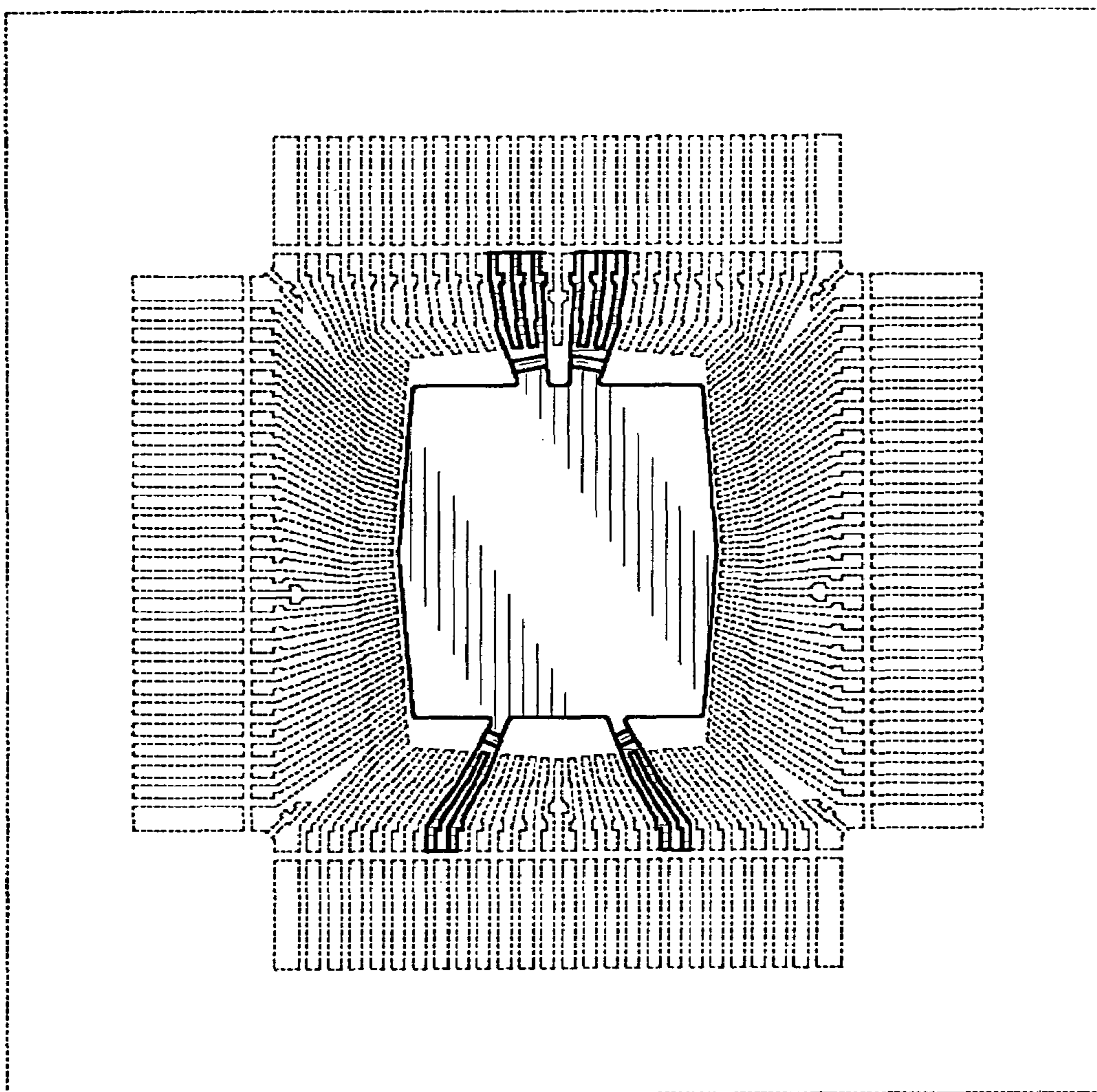


FIG.3

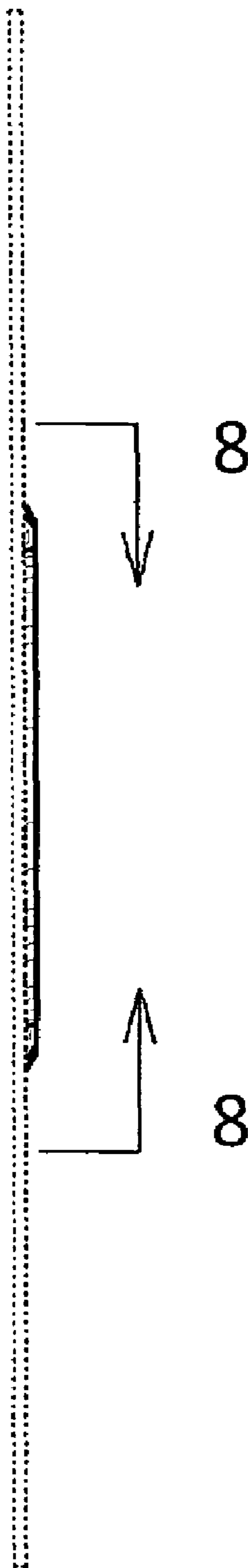


FIG.4



FIG.5

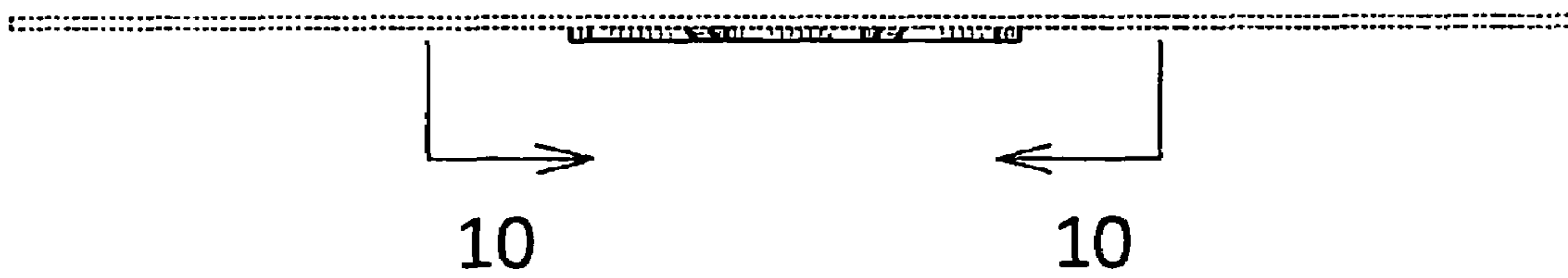


FIG.6



FIG.7



FIG.8

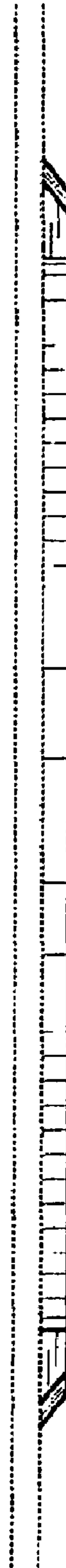


FIG.9

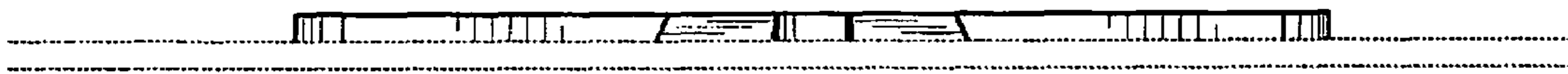


FIG.10

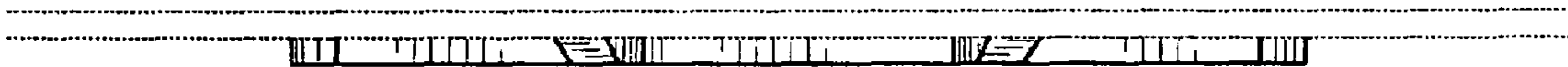


FIG.11

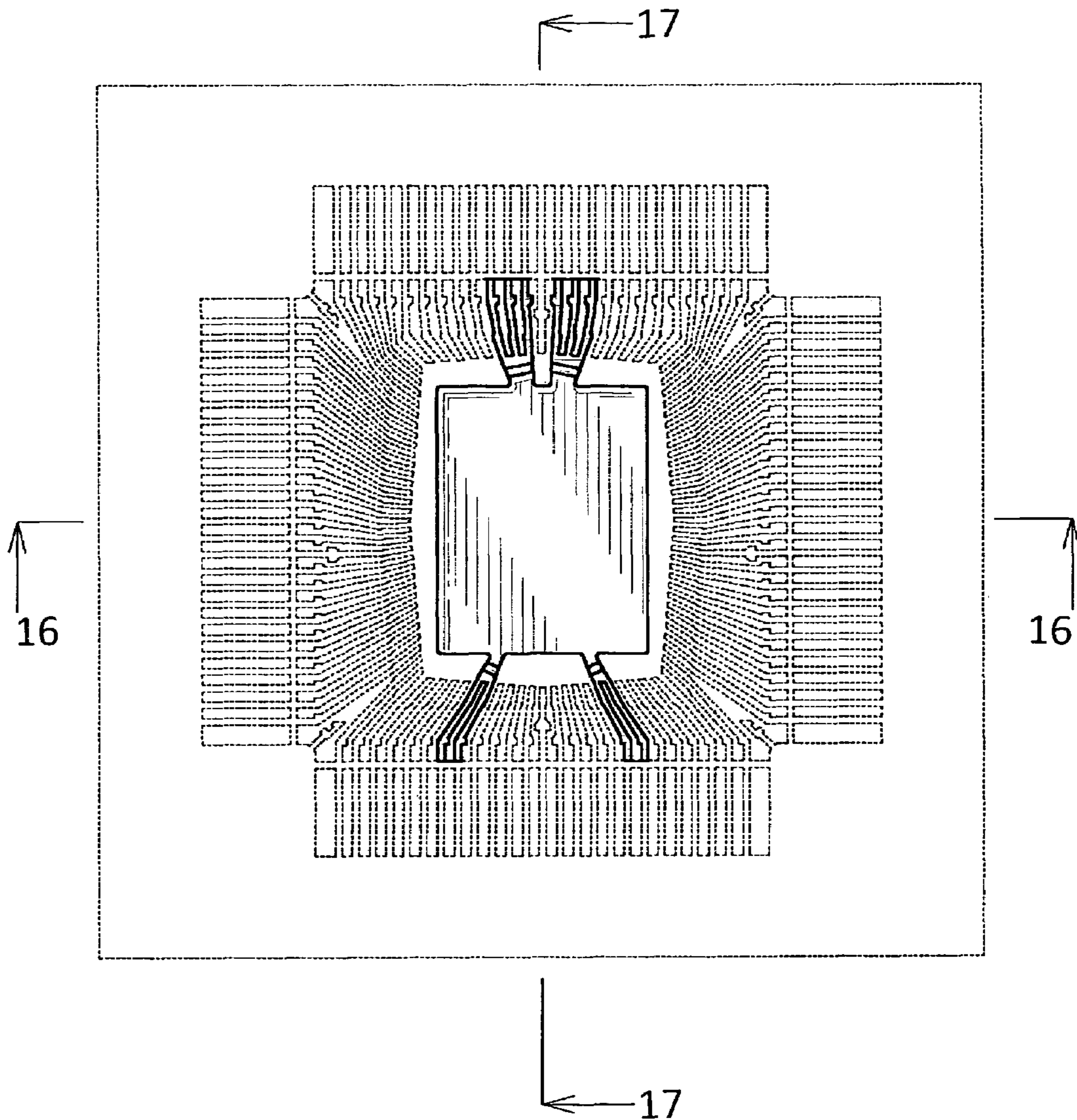


FIG.12

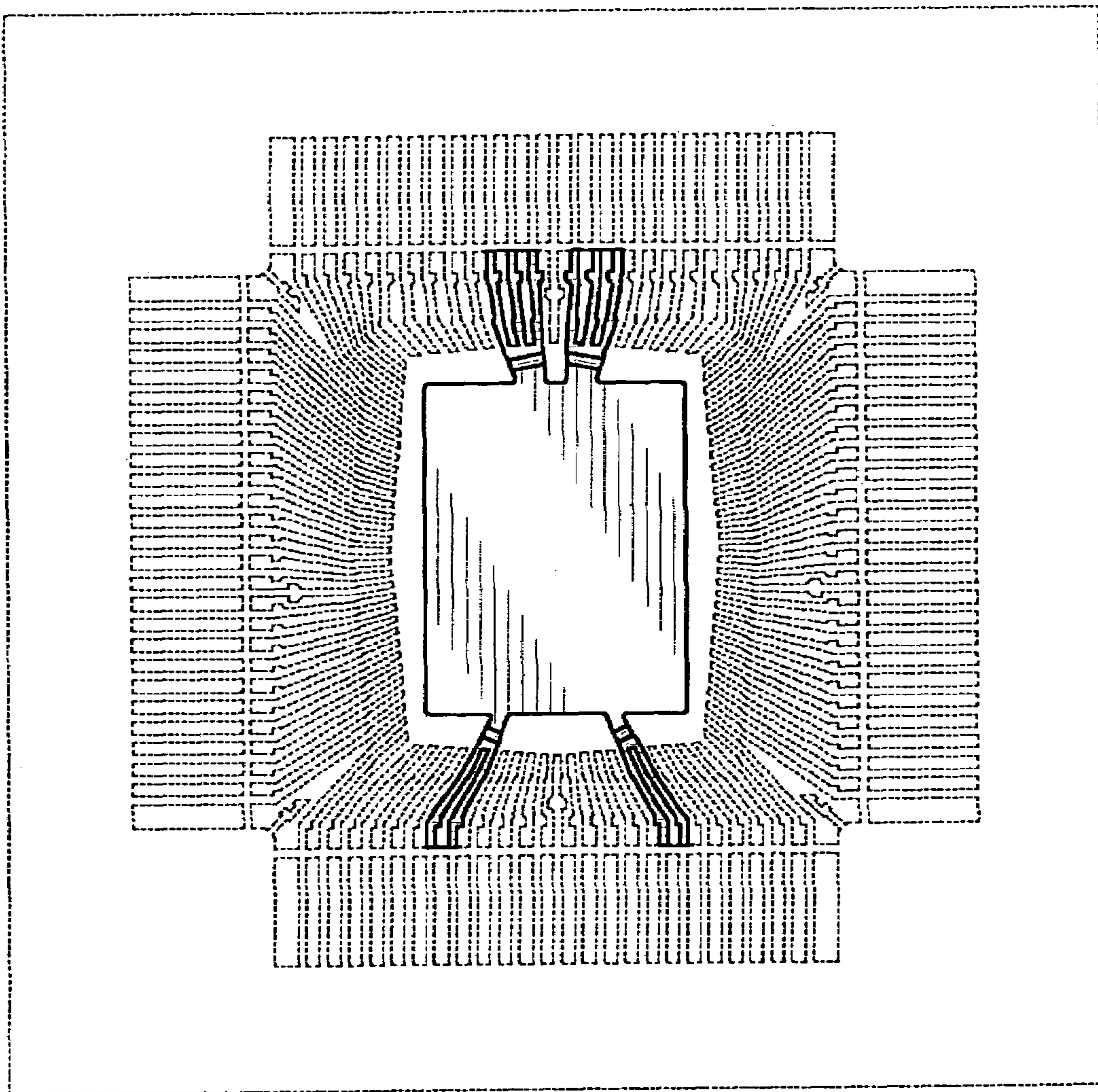


FIG. 13

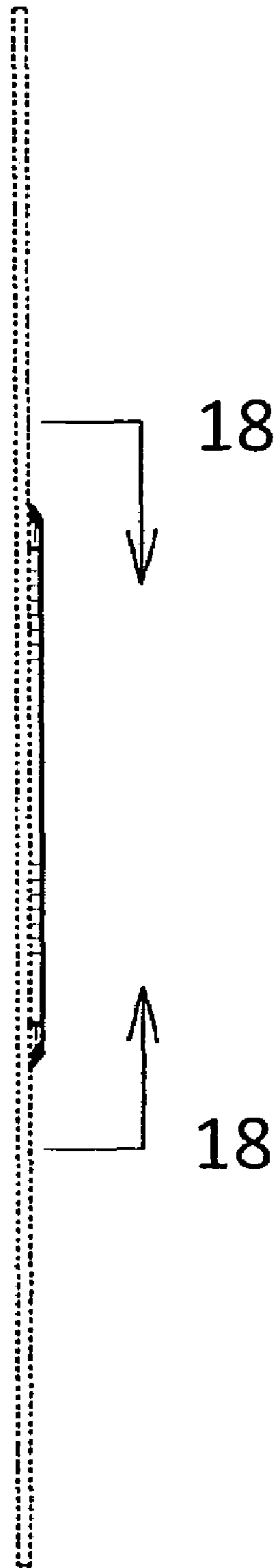


FIG.14



FIG.15

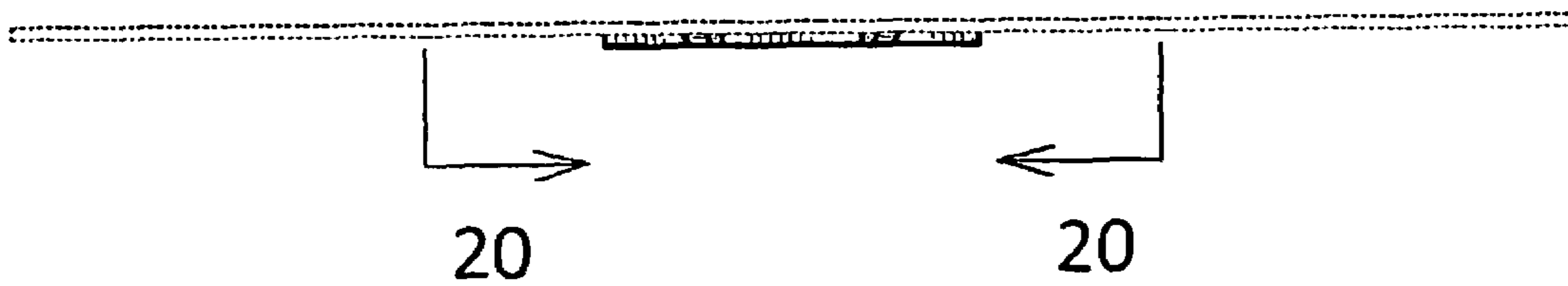


FIG.16



FIG.17



FIG.18

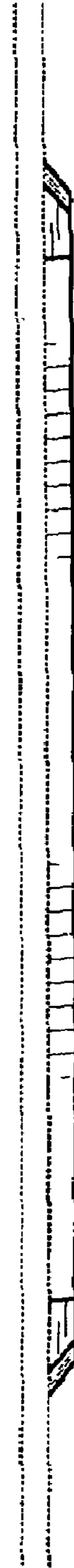


FIG.19

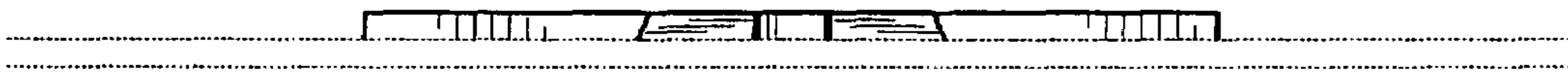


FIG.20



FIG.21

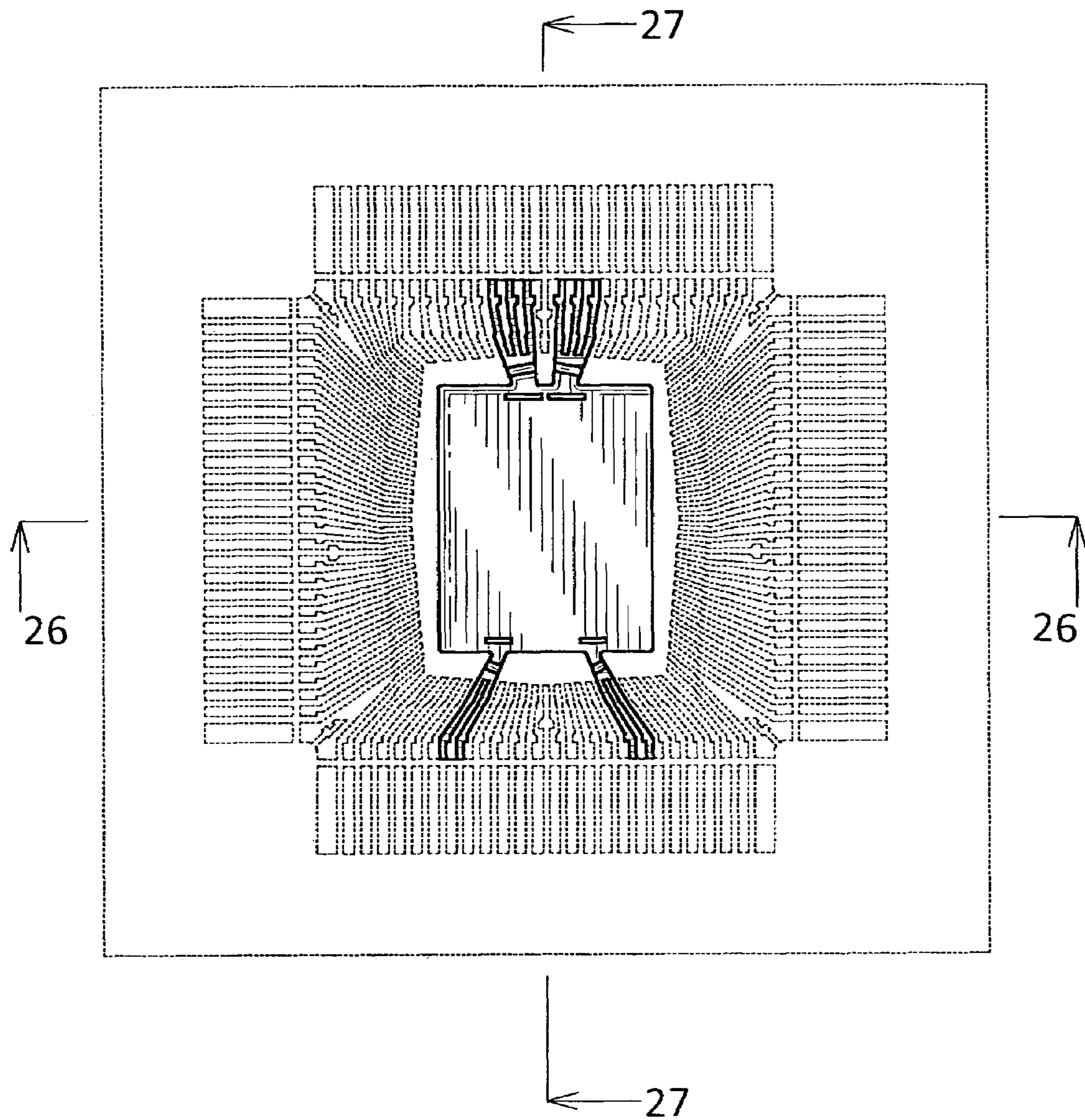


FIG.22

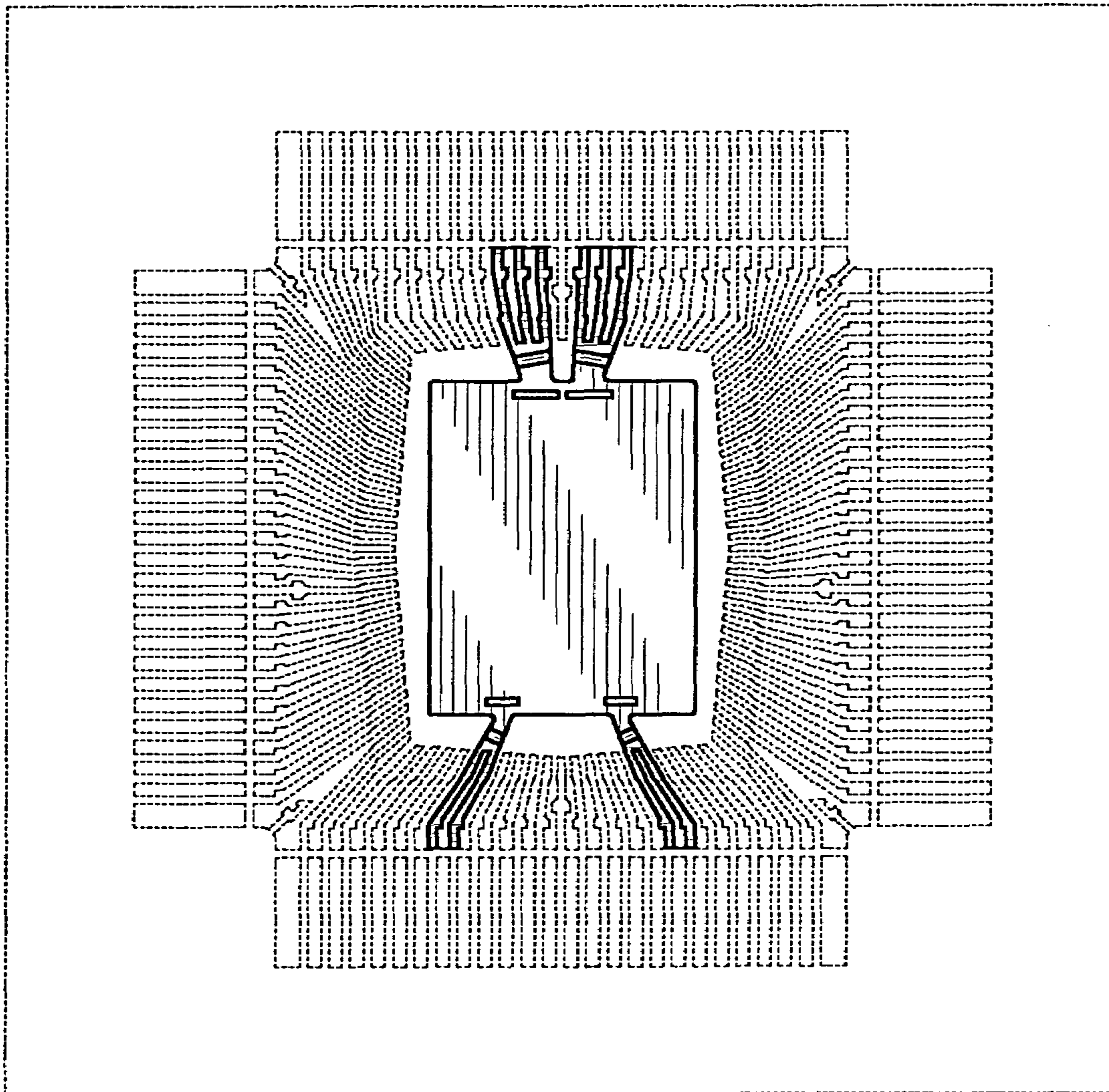


FIG. 23

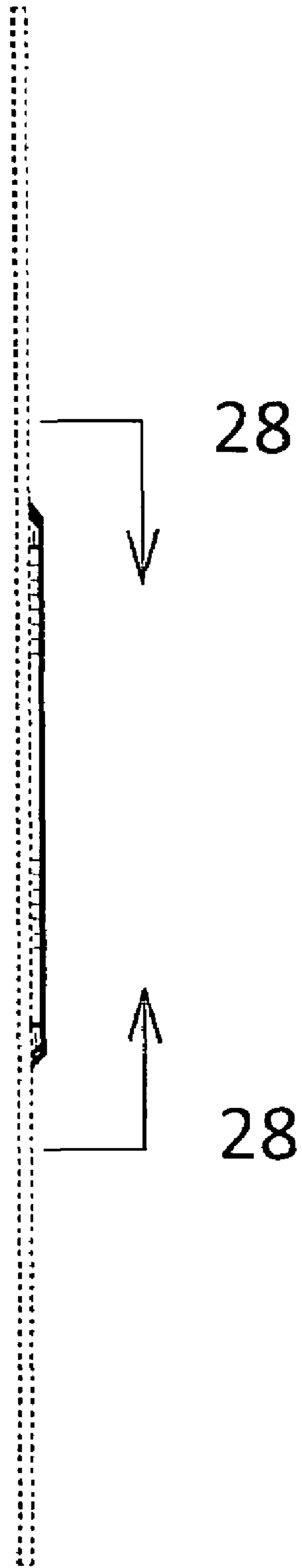


FIG.24



FIG.25

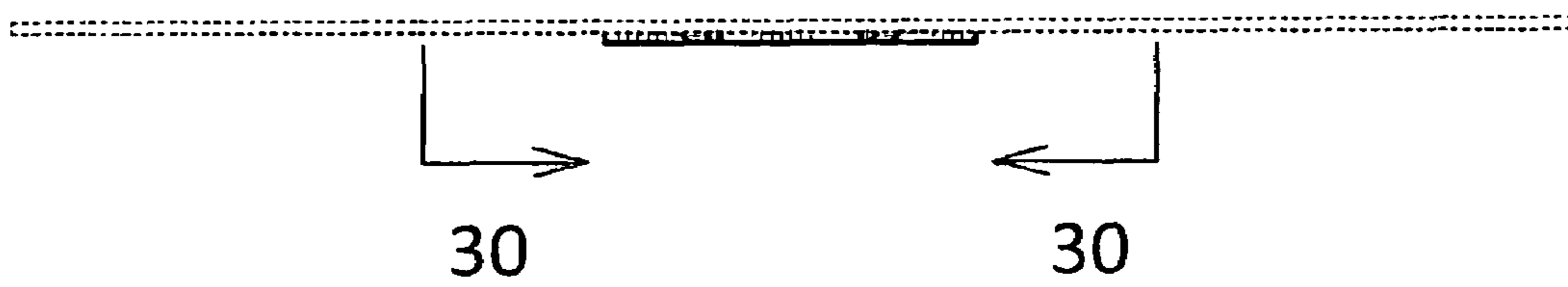


FIG.26



FIG.28

FIG.27

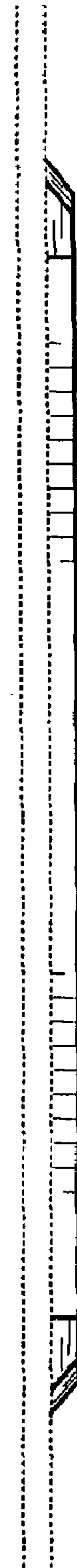


FIG.29

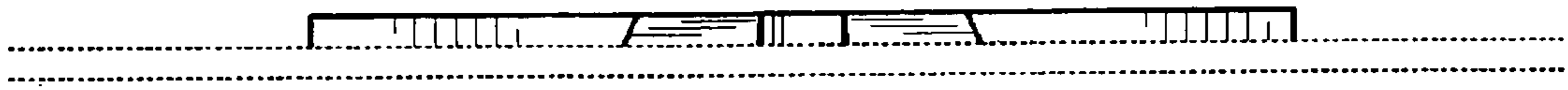


FIG.30

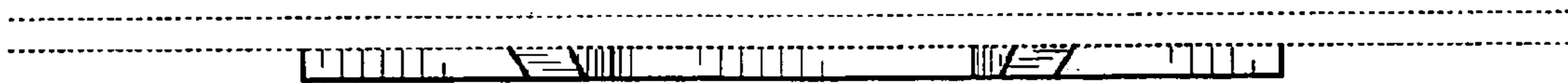


FIG.31

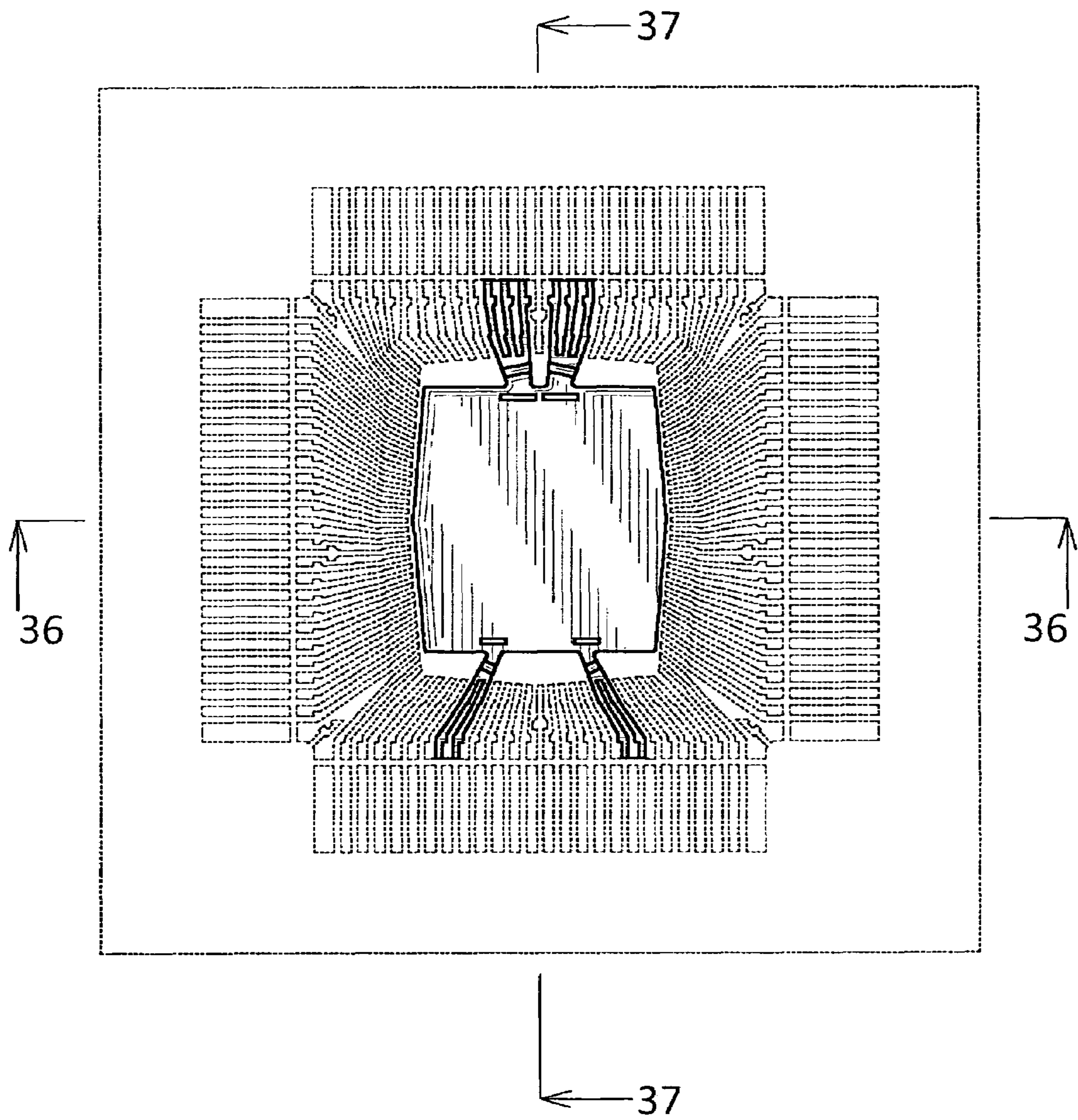


FIG.32

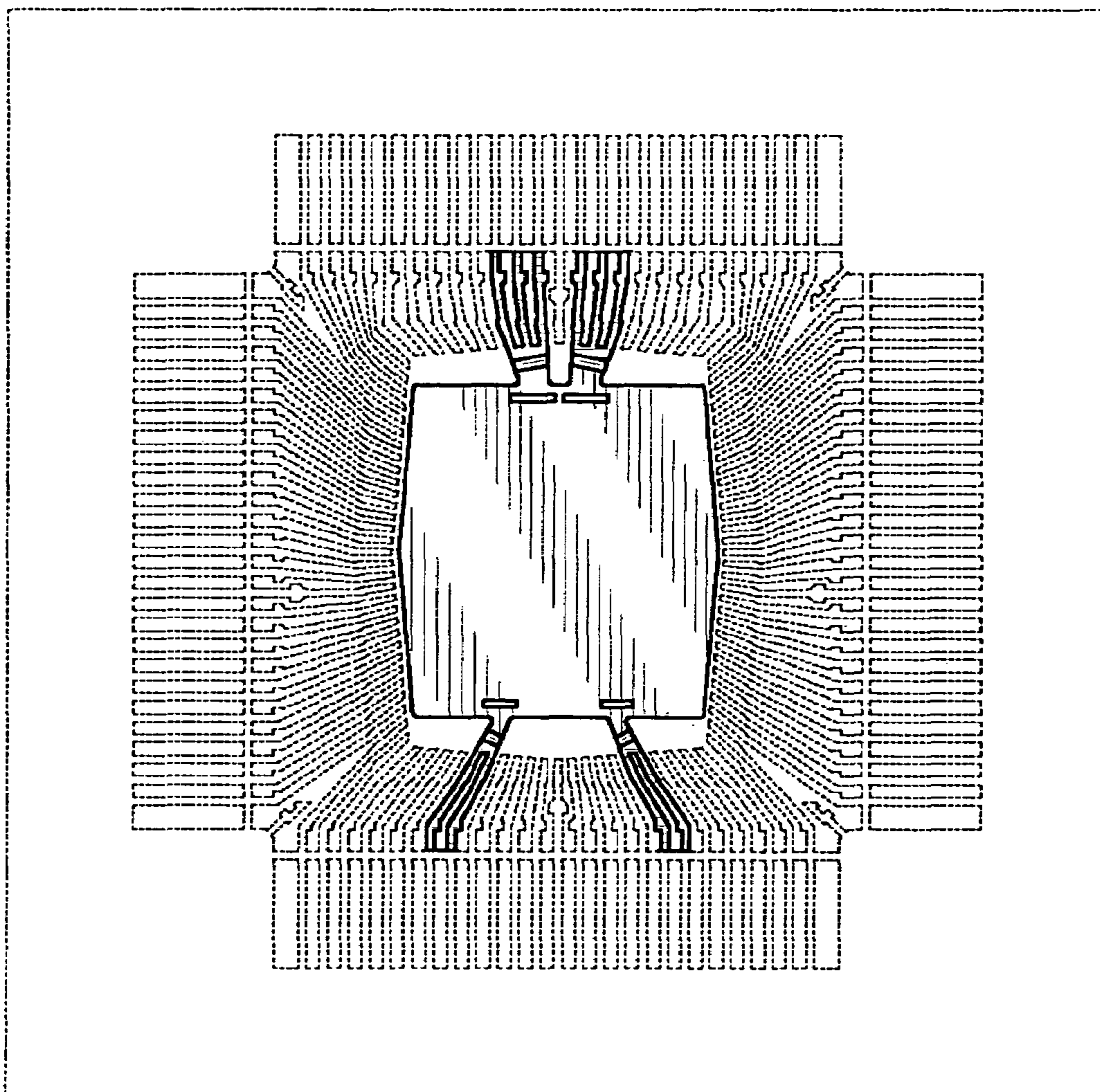


FIG. 33

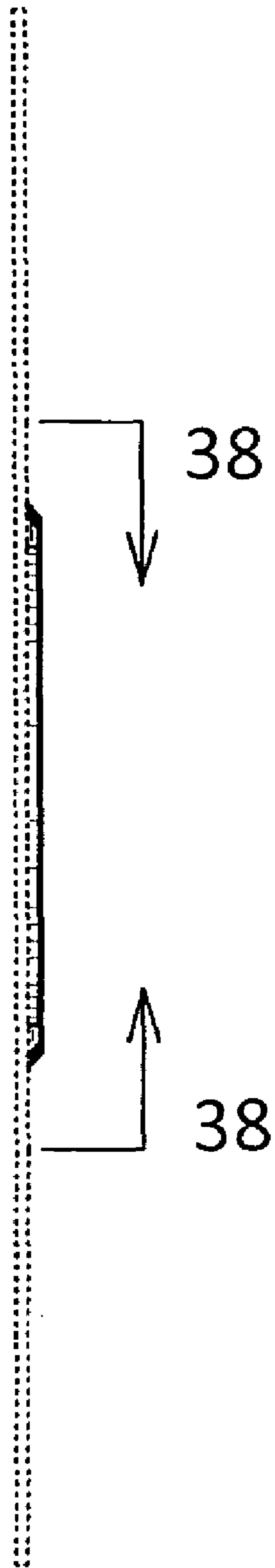


FIG.34



FIG.35

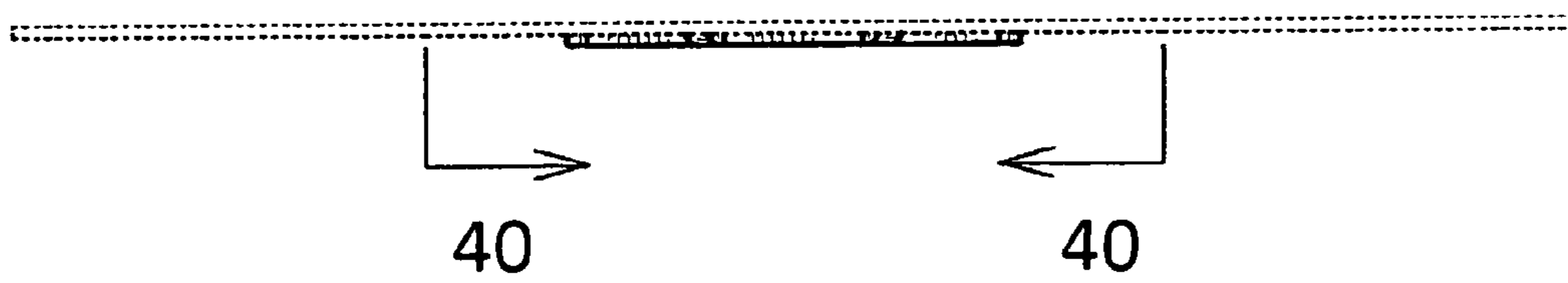


FIG.36



FIG.37



FIG.38

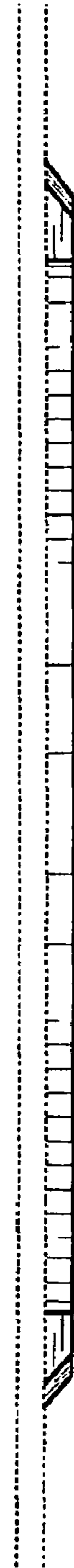


FIG.39

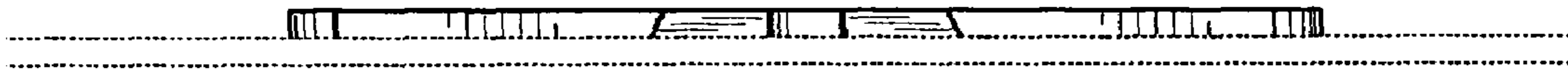


FIG.40

