

FIG. 1

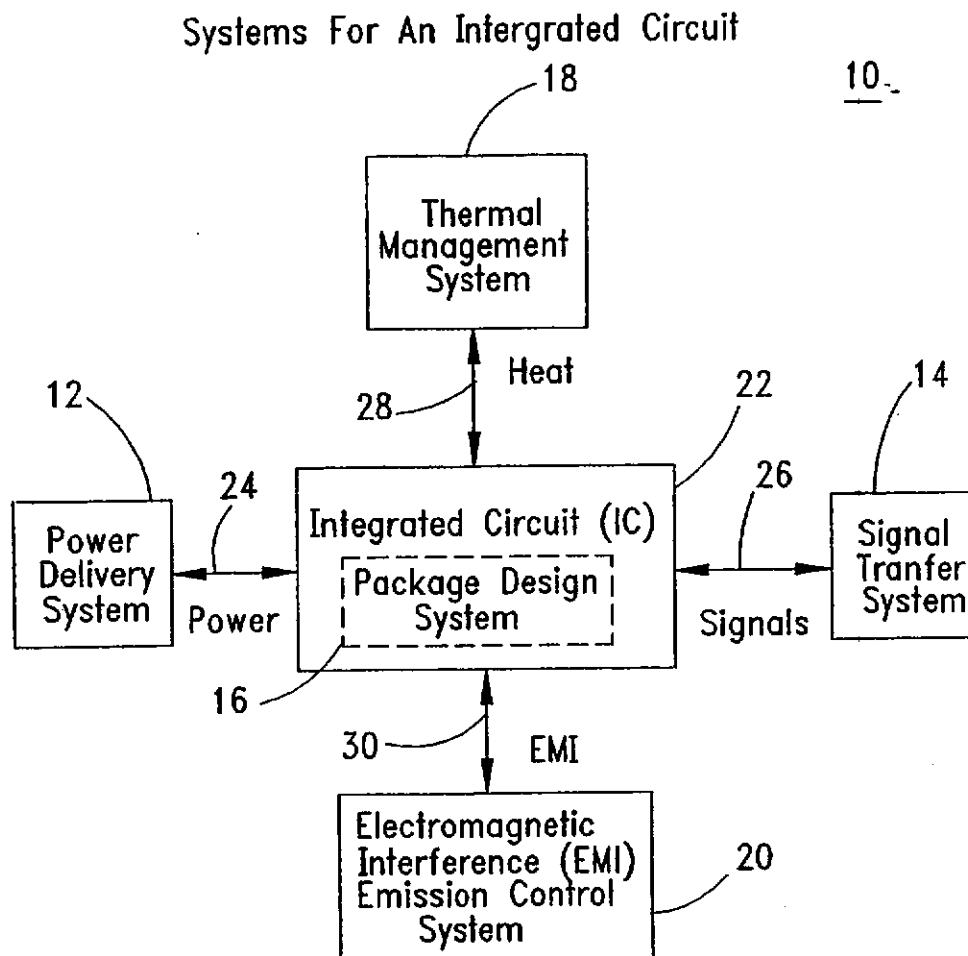


FIG. 2

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Power Delivery System And Signal Transfer For An Integrated Circuit

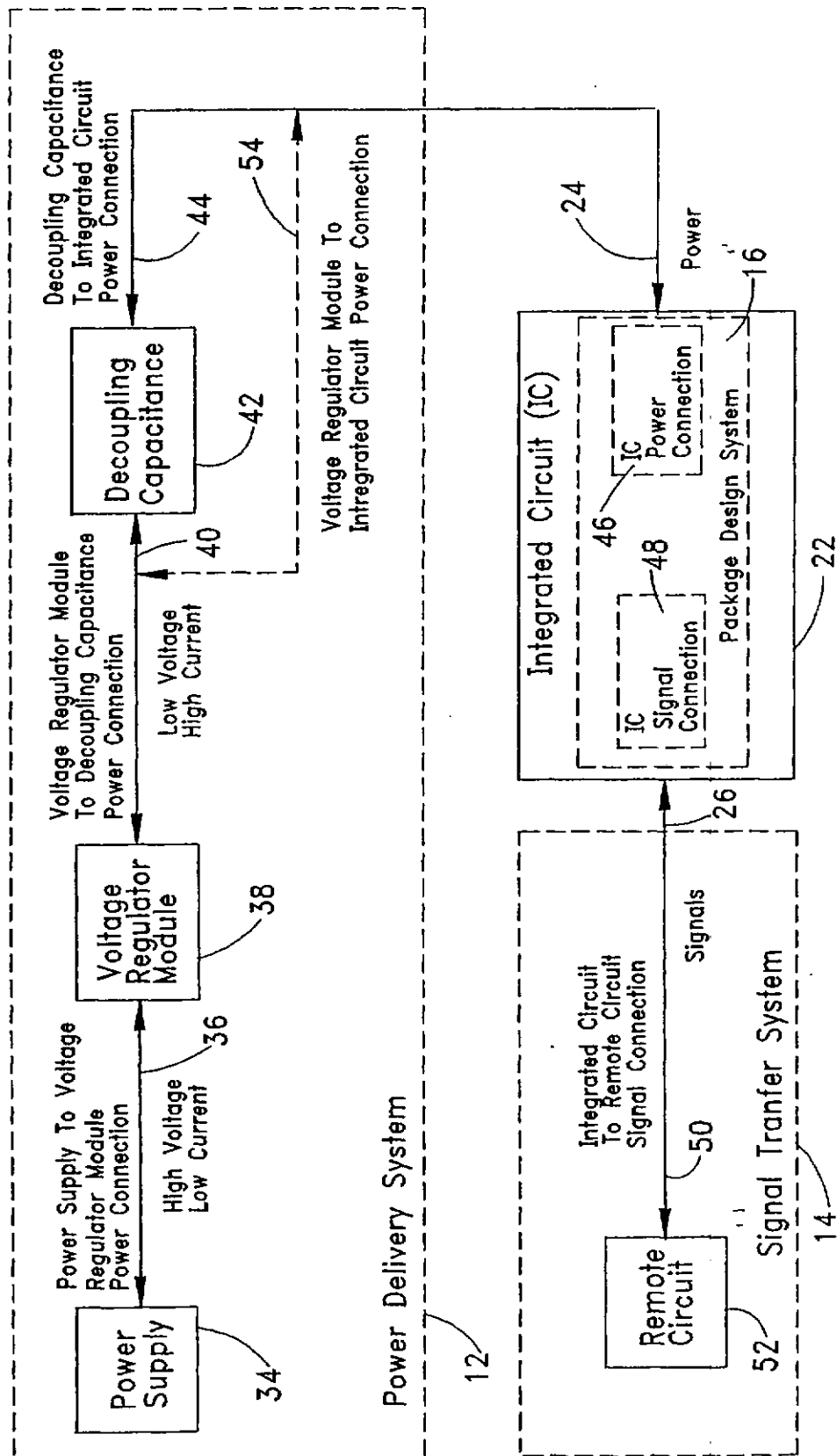


FIG. 3

Table Listing Alternative Locations For Each Block Shown In FIG.2
And Alternative Connections Between The Blocks Shown In FIG.2

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	(34)	36	(38)	40	(42)	44	(46)	(22)	(48)	50	(52)
	A	B	C	D	E	F	G	H	I	J	K
1	Power Supply Location	Power Supply To Voltage Regulator Module Power Connection	Voltage Regulator Module Location	Voltage Regulator Module To Decoupling Capacitance Power Connection	Decoupling Capacitance Location	Decoupling Capacitance to IC Power Connection	IC Power Connection Location	Integrated Circuit(IC) Location	IC Signal Connection Location	IC to Remote Circuit Signal Connection	Remote Circuit Location
2	Remote	Conductor	Conductor	Conductor	Conductor	Conductor	Top of IC	Connector	Top of IC	Conductor	Connector
3		PCB Trace	PCB	PCB Trace	PCB	PCB Trace	Side of IC	PCB	Side of IC	PCB Trace	PCB
4			Conductor		Conductor		Bottom of IC	Conductor	Bottom of IC		Conductor

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FIGS. 4A-4E

Integrated Circuit, As Shown in Figs. 1, 2, 3A and 3B,
Having Various Levels Of Integration (0-4)

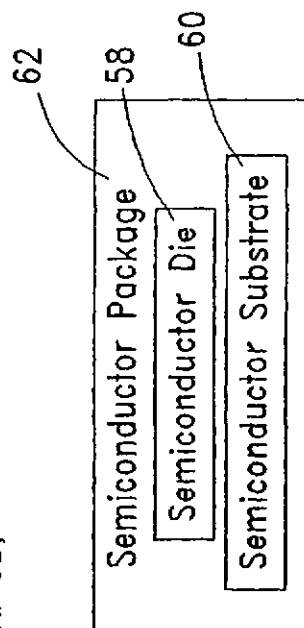
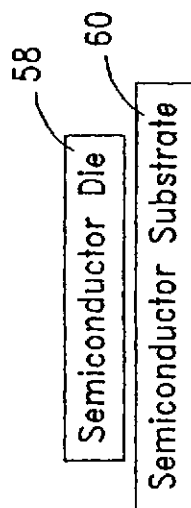
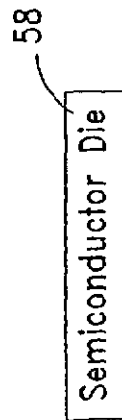
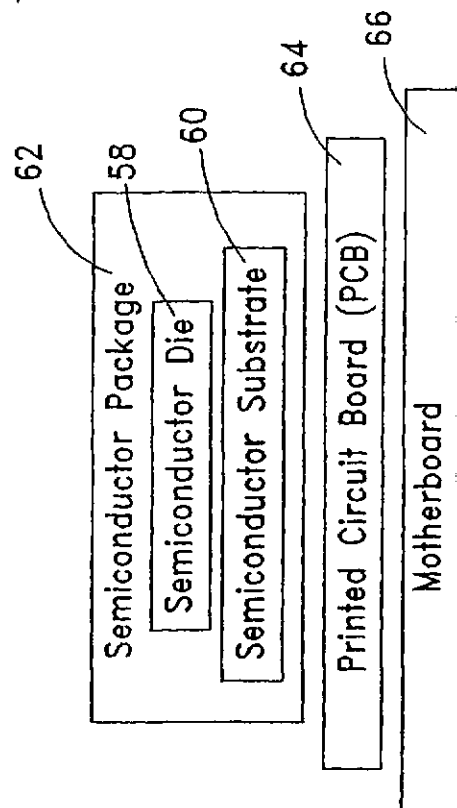
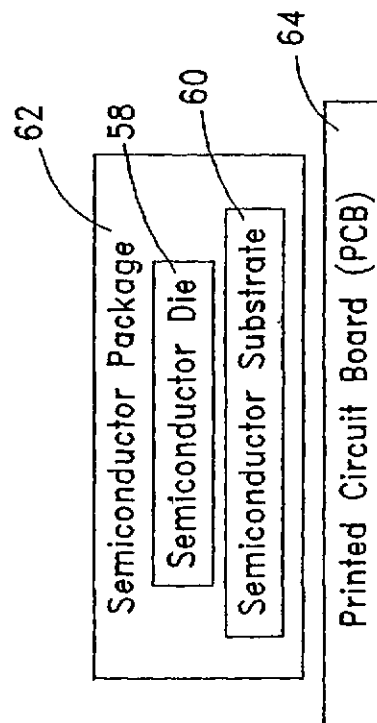


FIG. 4A (Level 0)

FIG. 4B (Level 1)

FIG. 4C (Level 2)

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FIG. 4D (Level 3)

22

FIG. 4E (Level 4)

FIG. 5

Integrated Circuit, As Shown in FIGS. 4A-4E,
Having Top, Bottom, And/or Side Signal And/or Power Connection Locations

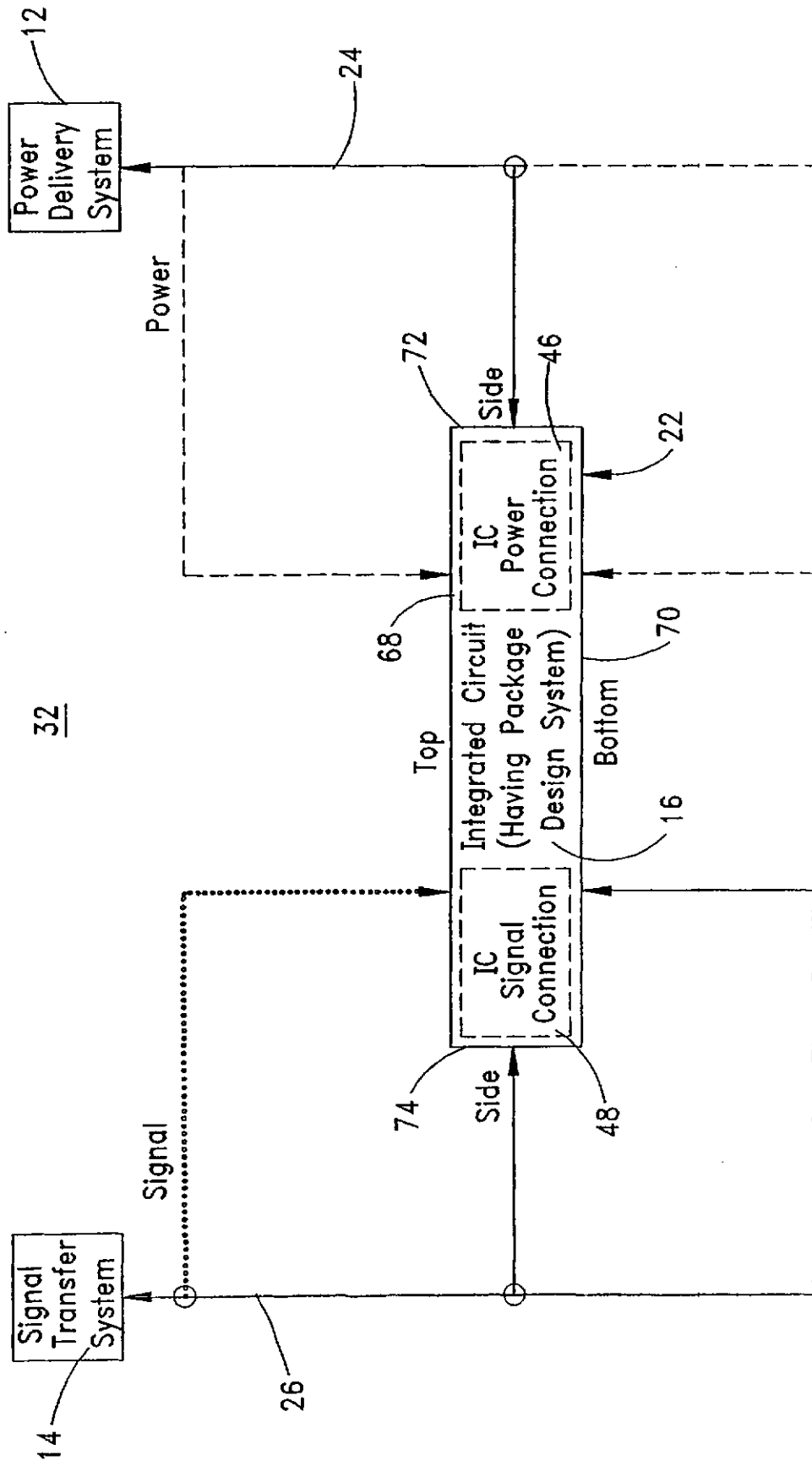
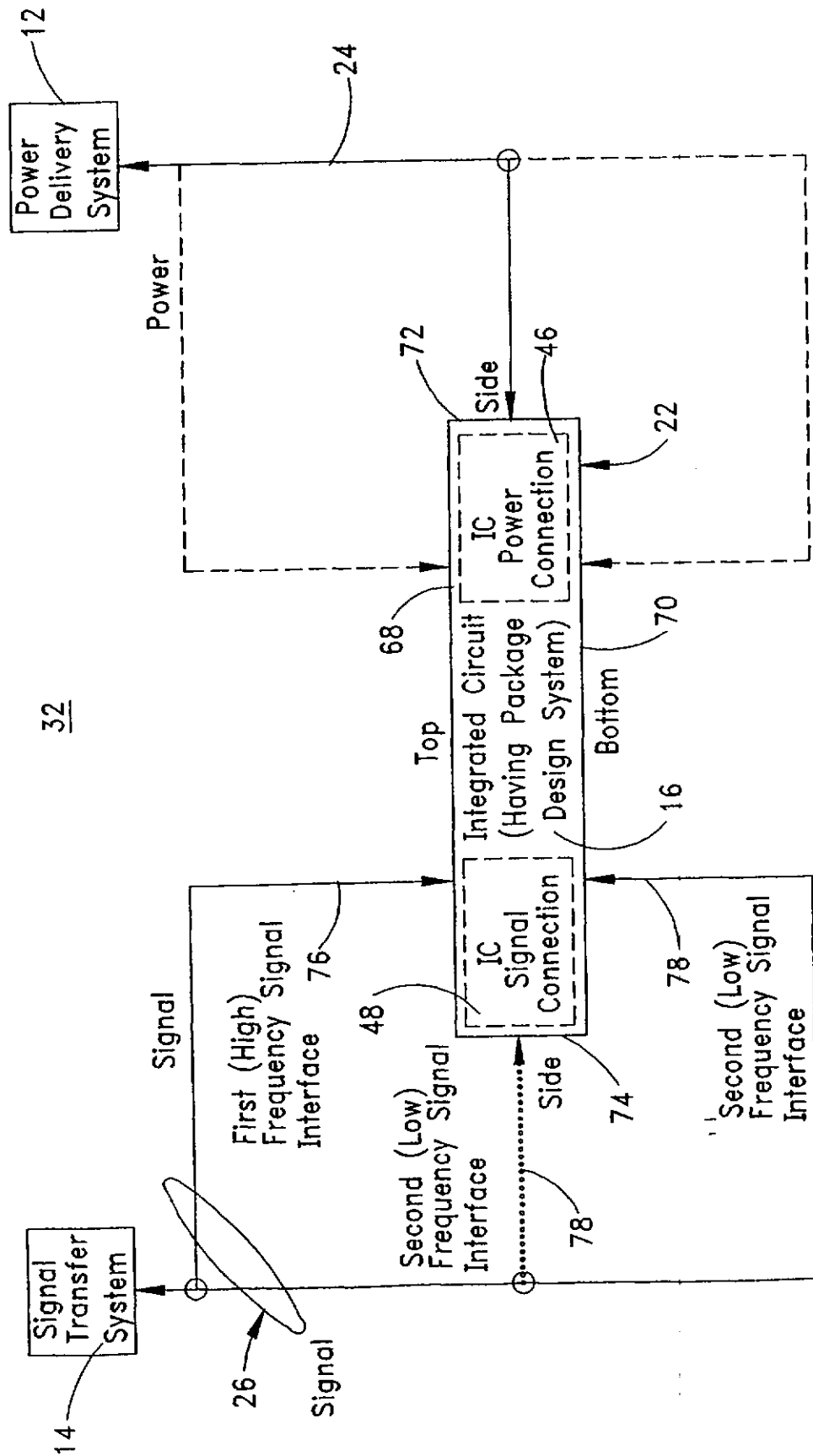


FIG. 6A Integrated Circuit, As Shown in FIG. 5, Having A First (High) Frequency Signal Interface And A Second (Low) Frequency Signal Interface, Different From The First Frequency Signal Interface, Each Coupled To Different Sides Of The Integrated Circuit

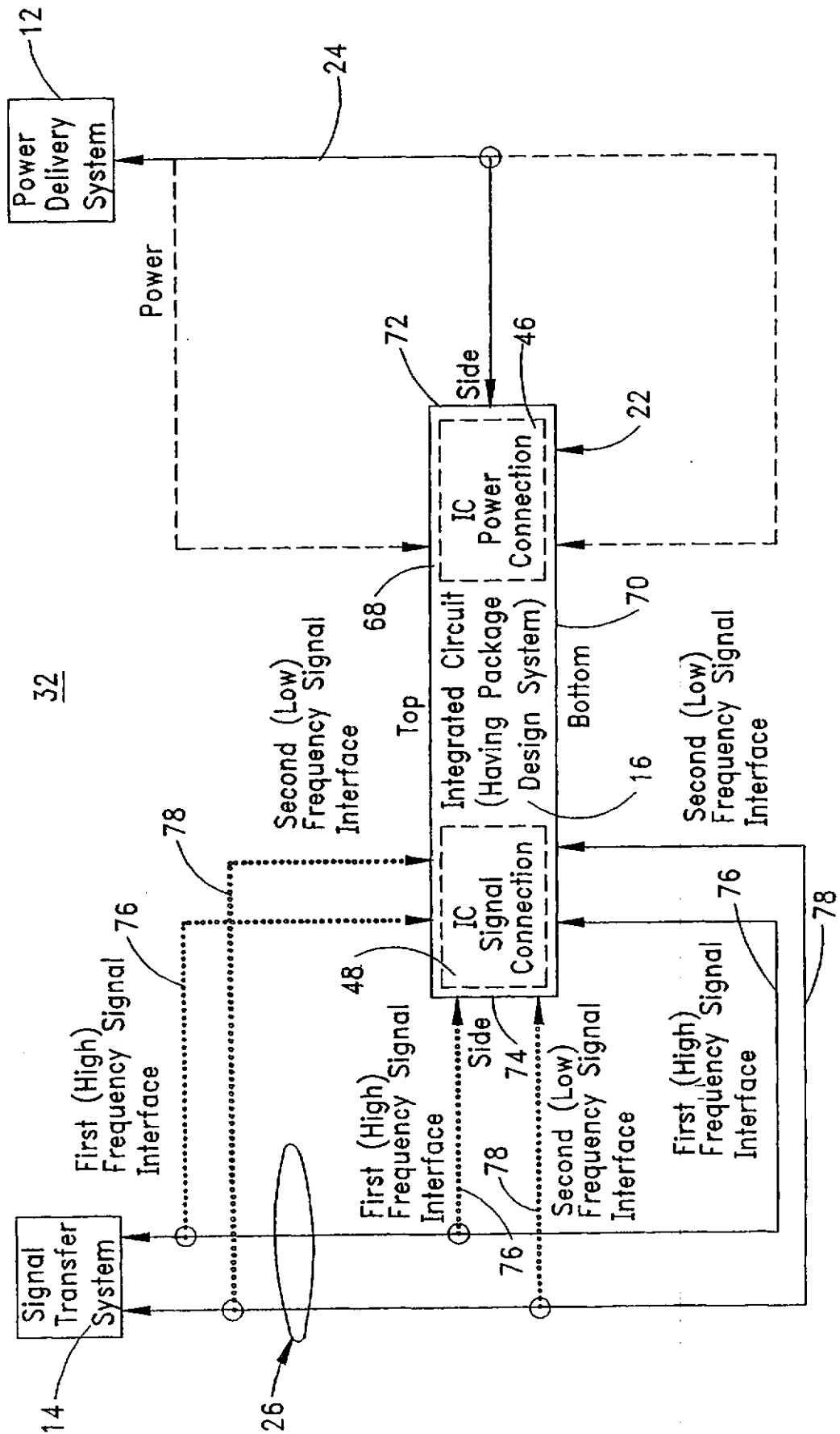


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FIG. 6B

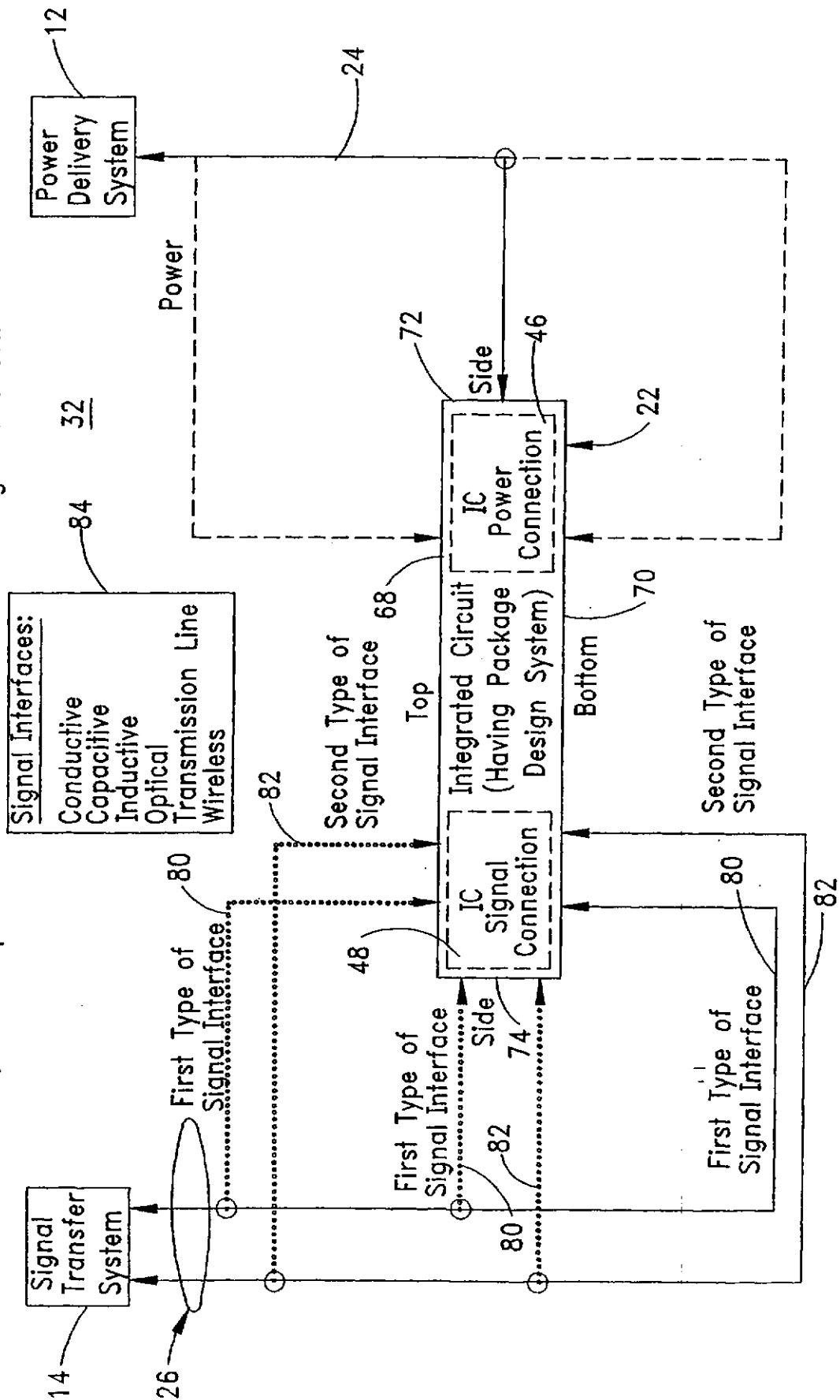
Integrated Circuit, As Shown in FIG. 5, Having A First (High) Frequency Signal Interface And A Second (Low) Frequency Signal Interface, Different From The First Frequency Signal Interface, Each Coupled To The Same Side Of The Integrated Circuit



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FIG. 7B

Integrated Circuit, As Shown in FIG. 5, Having A First Type Of Signal Interface
And A Second Type Of Signal Interface, Different From The First Type Of Signal
Interface, Each Coupled To Different Sides Of The Integrated Circuit



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Integrated Circuit, As Shown in FIGS. 4C and 5, Having Signal And/Or Power Connections Located Outside and Flush With, Respectively, the Semiconductor Package

FIGS. 8A and 8B

FIG. 8A

(Outside)

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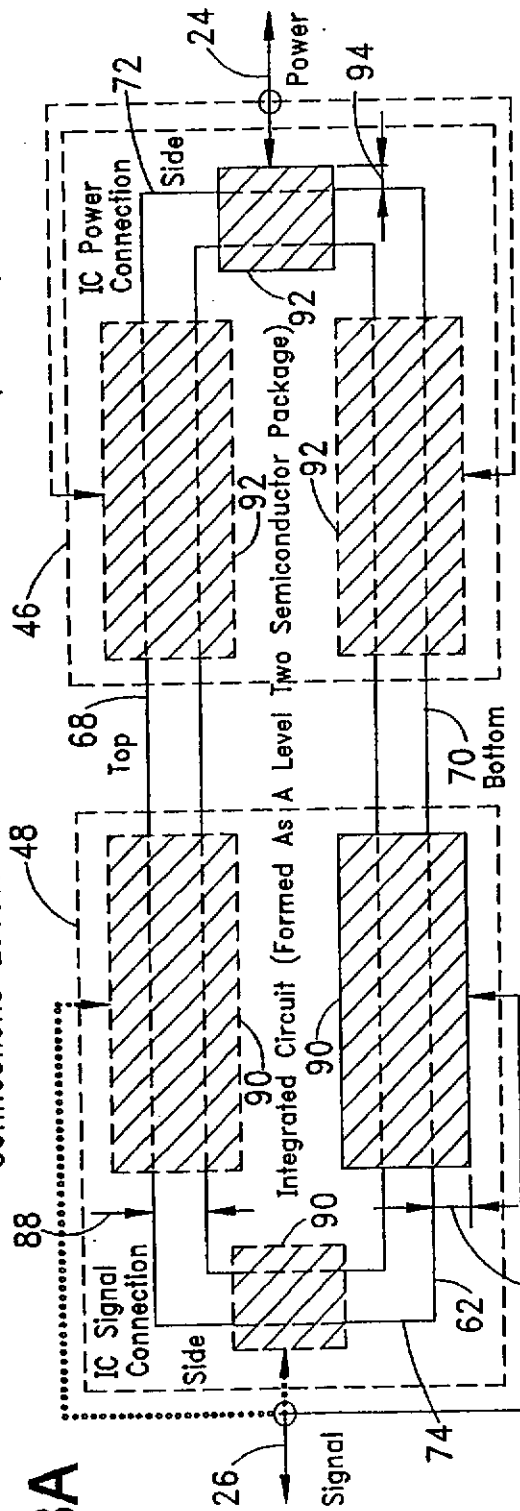
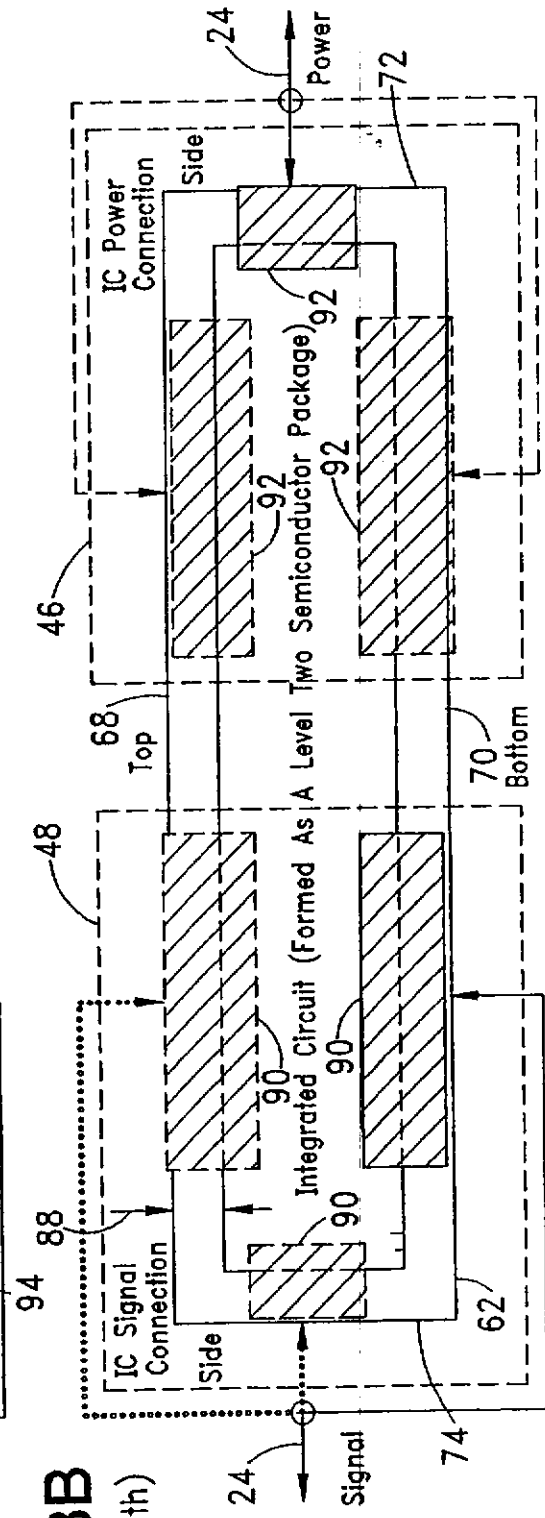


FIG. 8B

(Flush With)

22



FIGS. 8C and 8D

FIG. 8C
(Recessed)

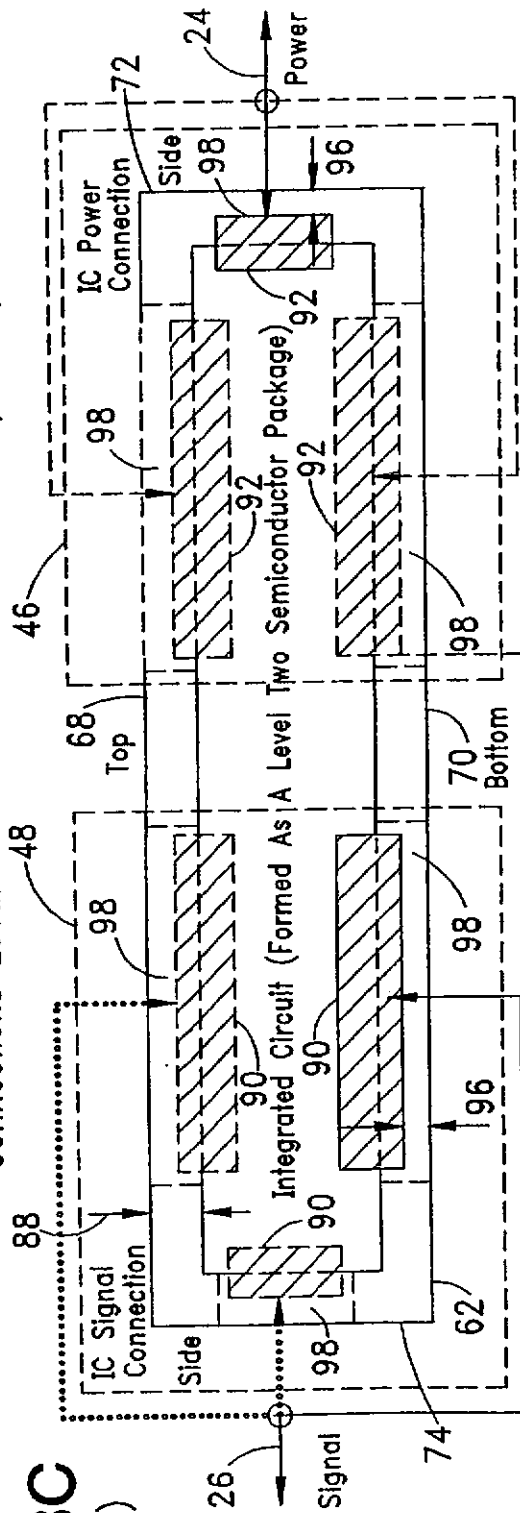
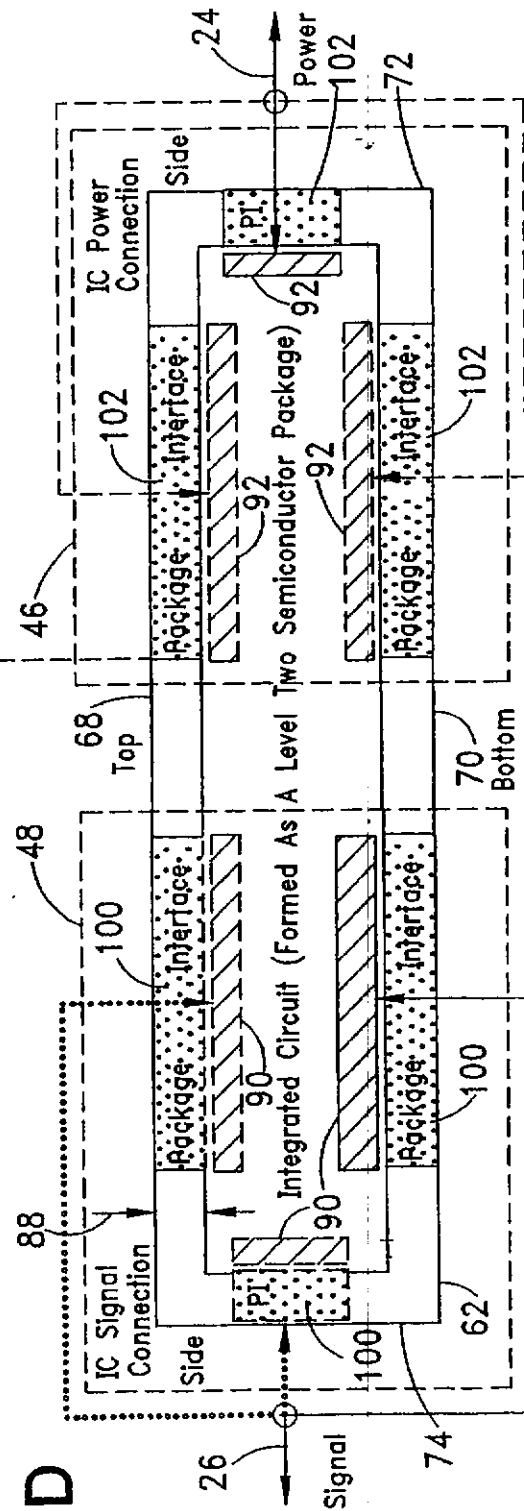


FIG. 8D
(Inside)
22



FIGS. 9A, 9B, 9C

Integrated Circuit, As Shown in FIGS. 4A, 4B, 4C, 4D or 4E and Fig. 5, Having Signal And/or Power Connections Located on the Top, Side And/or Bottom of the Integrated Circuit

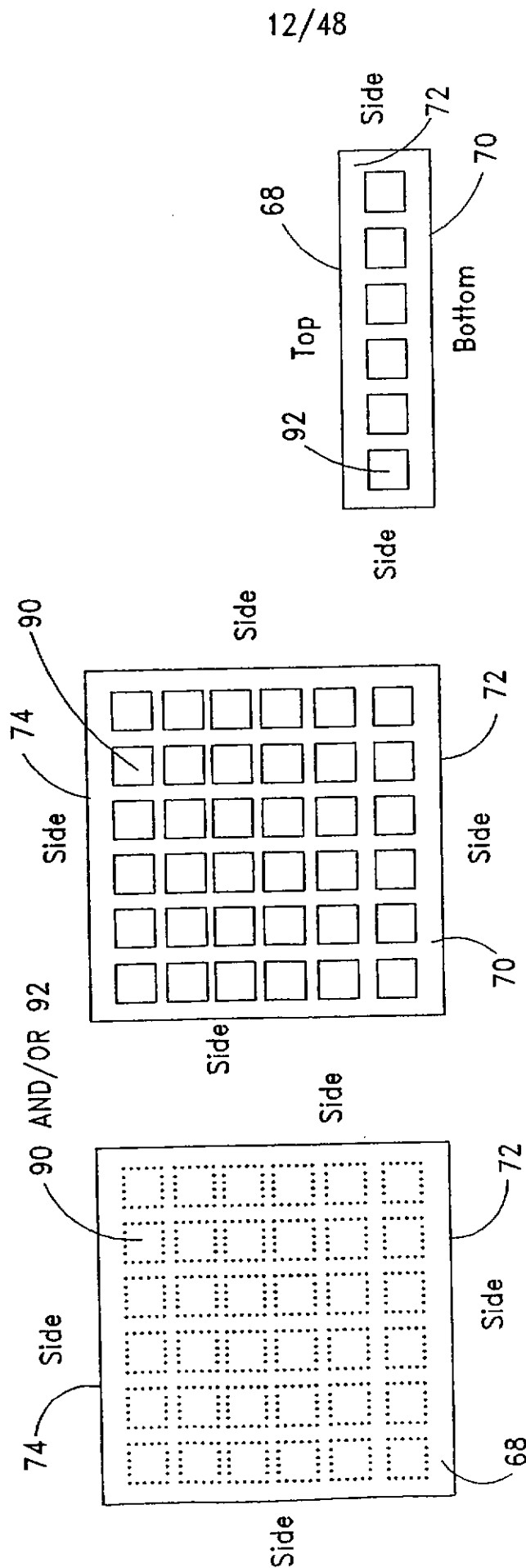


FIG. 9A 22

Top of IC
Alternate Power And/or
Signal Connections

FIG. 9B 22

Bottom of IC
Preferred Signal Connections
With or Without Power Connections

FIG. 9C 22

Side of IC
Preferred Signal Connections
With or Without Power Connections

FIGS.10A,10B,10C

Integrated Circuit,As Shown in FIGS.4A,4B,4C,4D or 4E and Fig.5,Having Signal And/or Power Connections Located on the Top,Side And/or Bottom of the Integrated Circuit

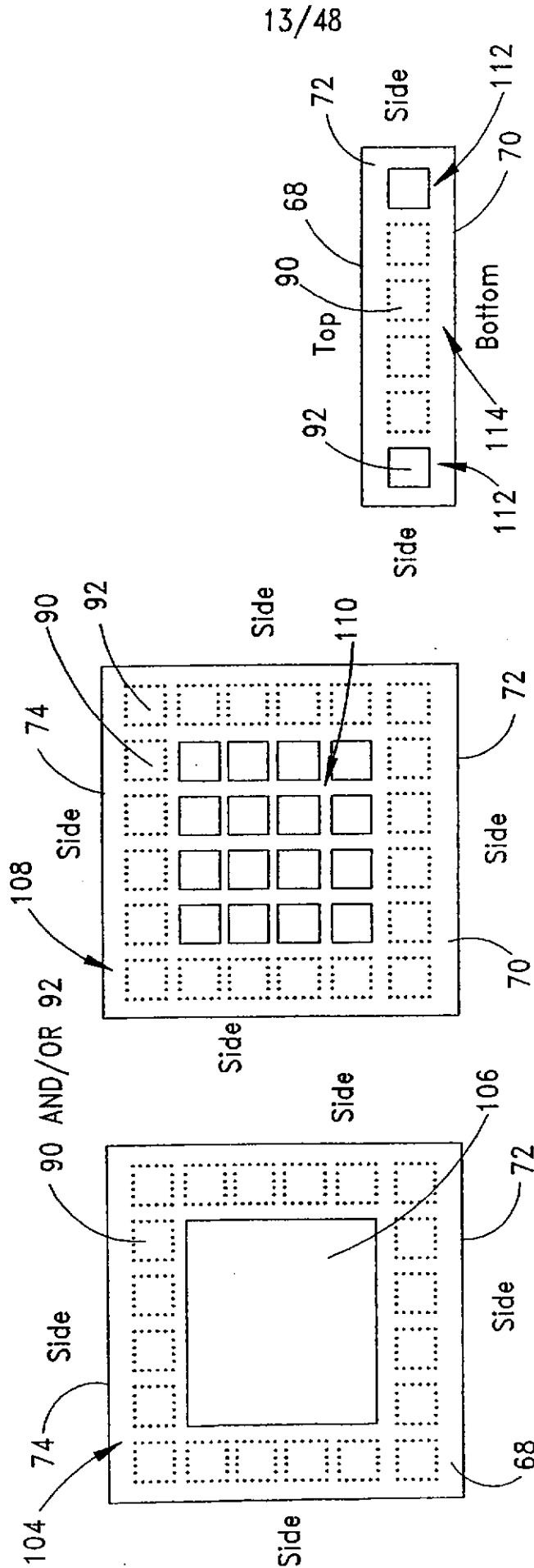


FIG.10A 22

Top of IC

Alternate Power And/or Signal Connections

FIG.10B 22

Bottom of IC

Preferred Signal Connections With or Without Power Connections

FIG.10C 22

Side of IC

Preferred Power Connections with or Without Alternate Signal Connections

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FIG. 11 Integrated Circuit, As Shown in FIG. 5, Located in a Connector or on a Printed Circuit Board (PCB) and Having Signal And/or Power Connections Formed As a Conductor And/or As a PCB Trace

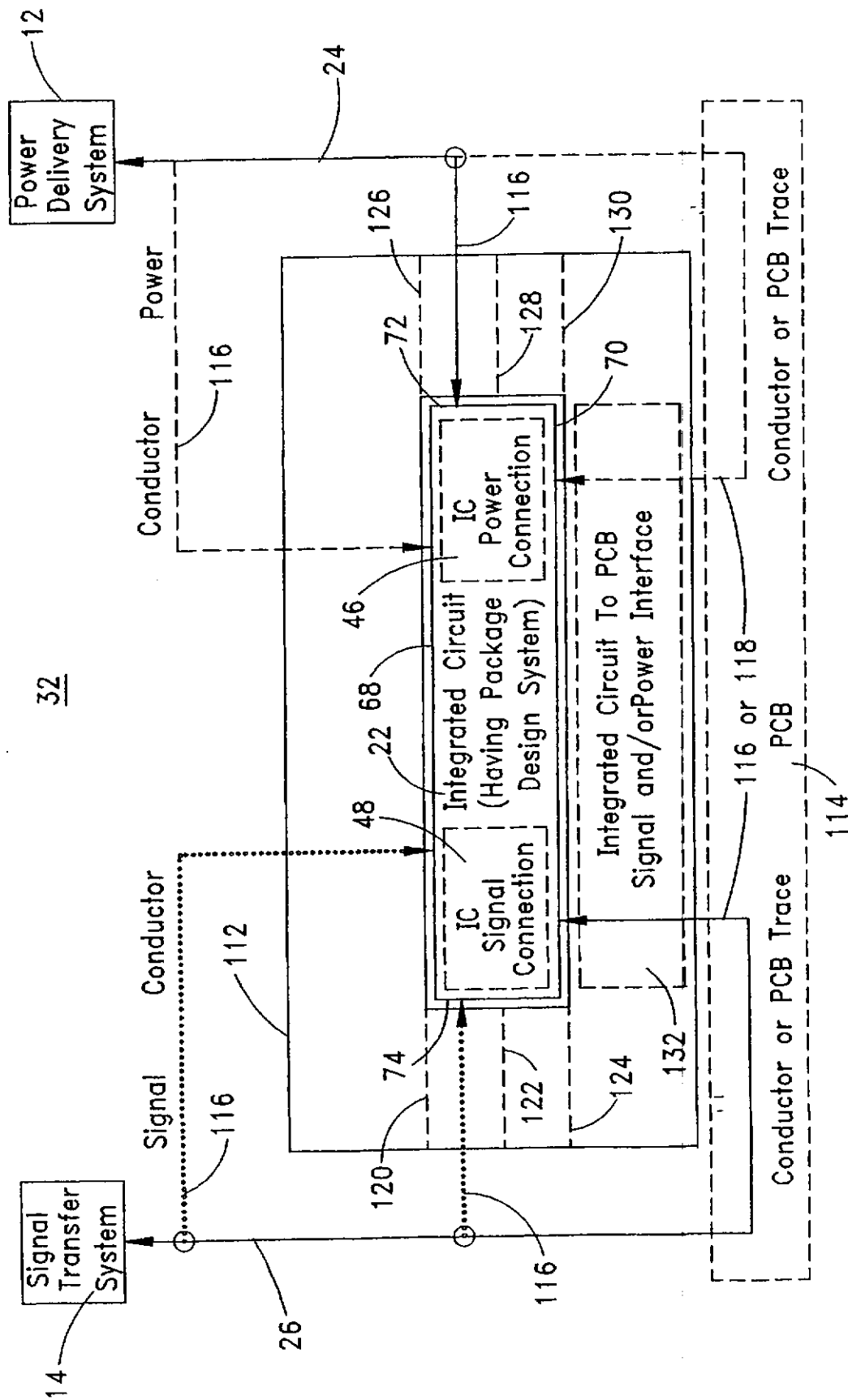
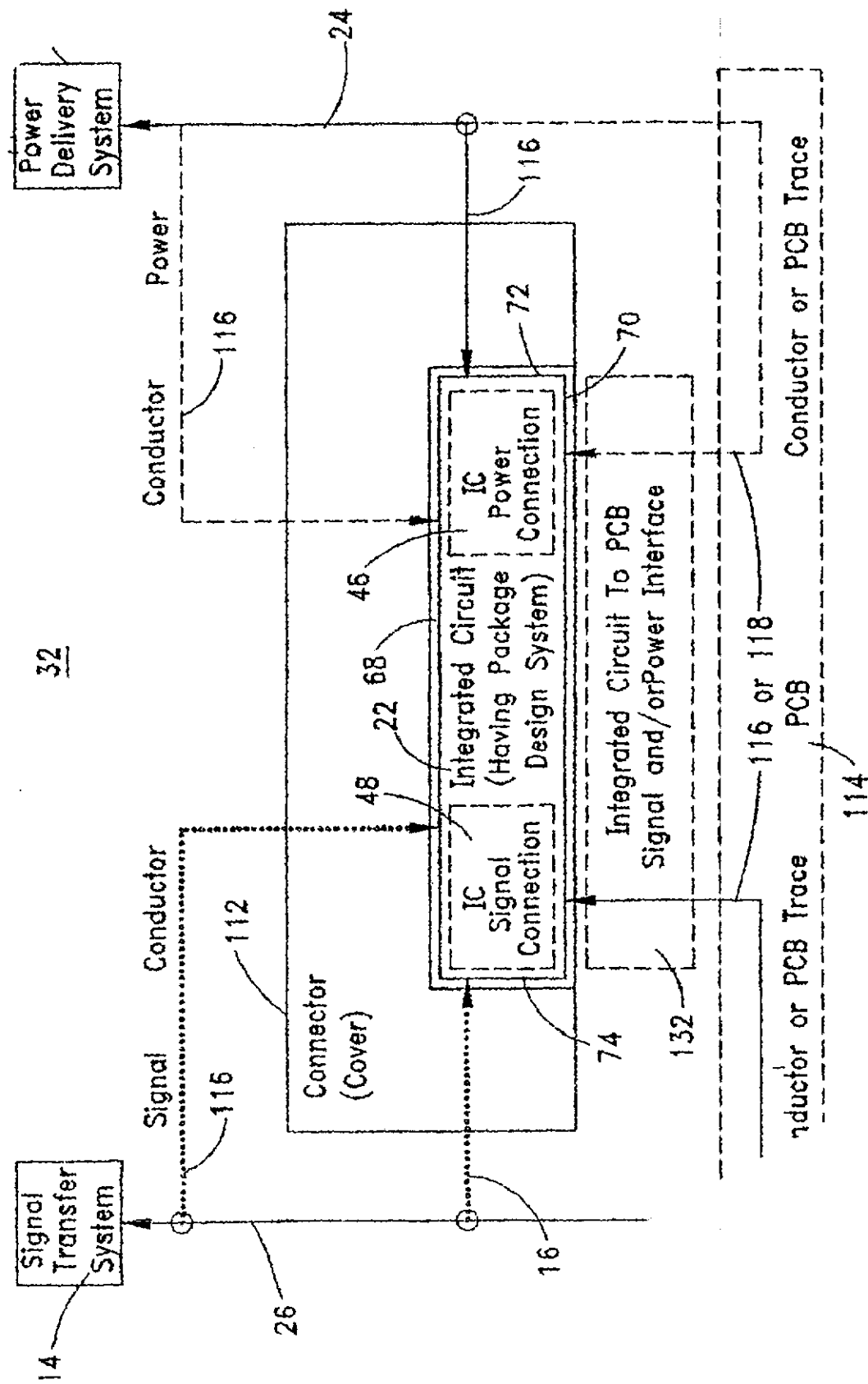


FIG. 12A

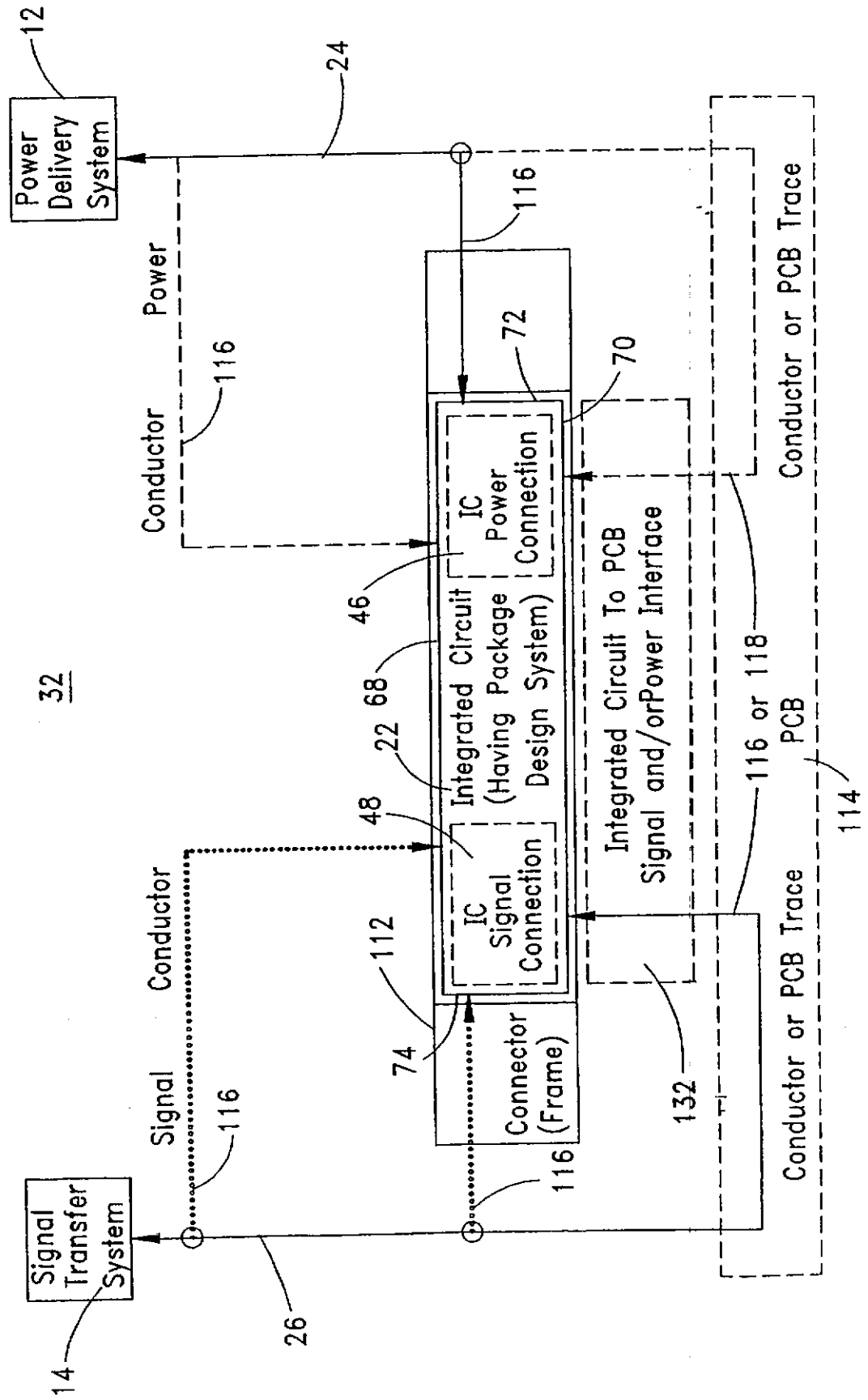
Integrated Circuit, As Shown In FIG. 11, Located In a Connector Formed As A C



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FIG. 12C

Integrated Circuit, As Shown In FIG. 11, Located In a Connector Formed As A Frame



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FIG. 13 Integrated Circuit, As shown In FIG. 11, Coupled To A Remote Circuit Located In A Connector Or On A Printed Circuit Board

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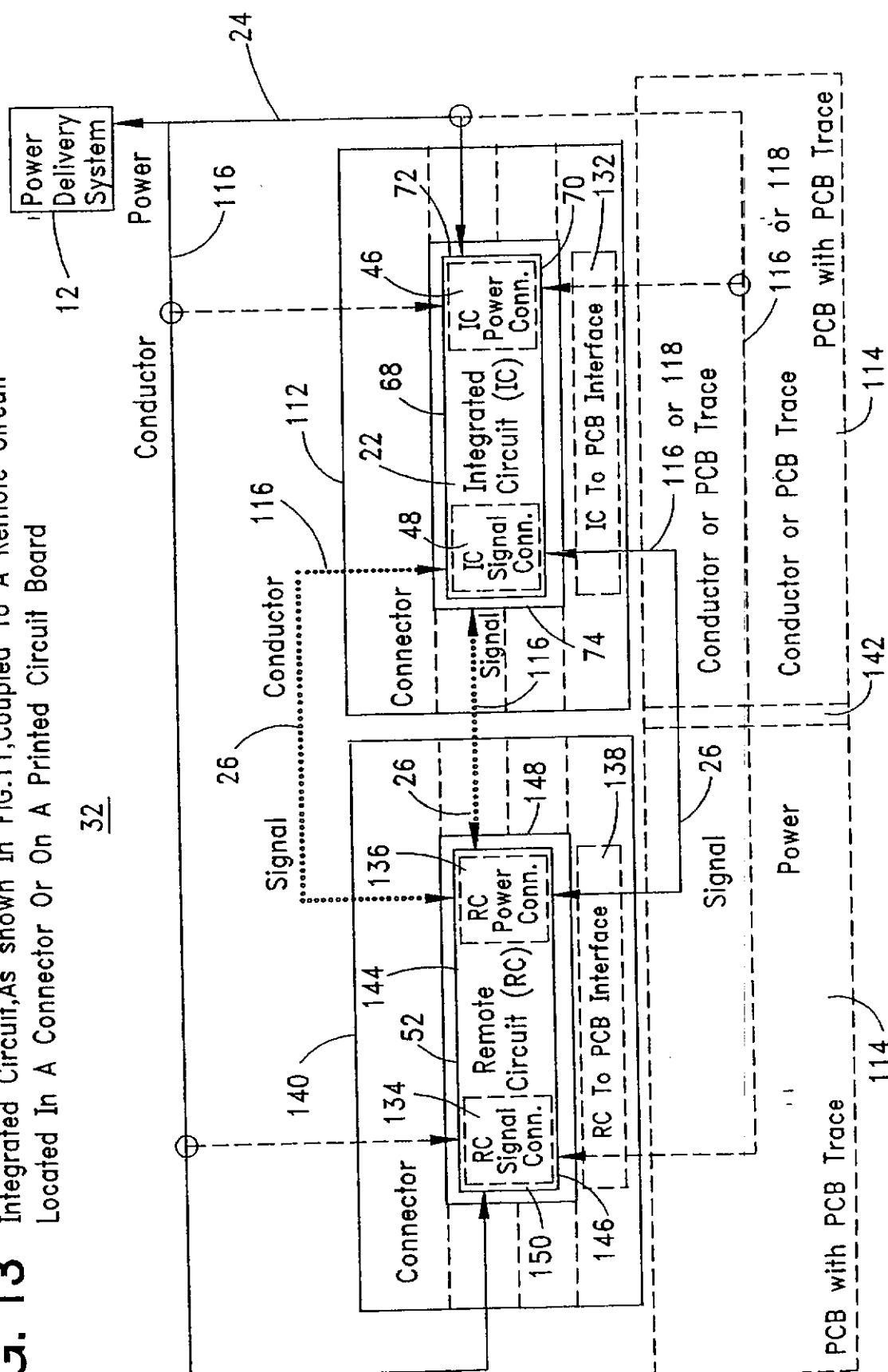
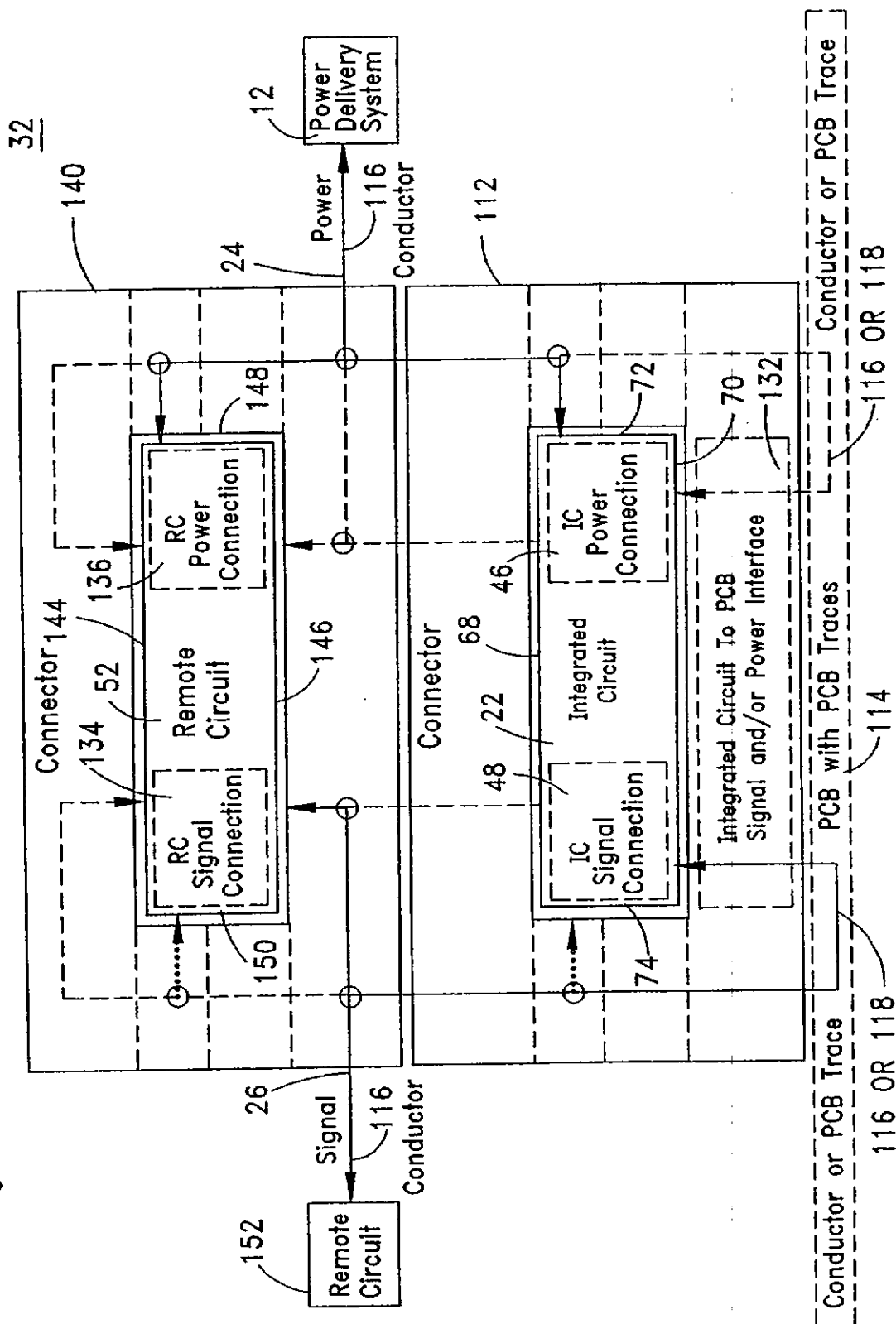
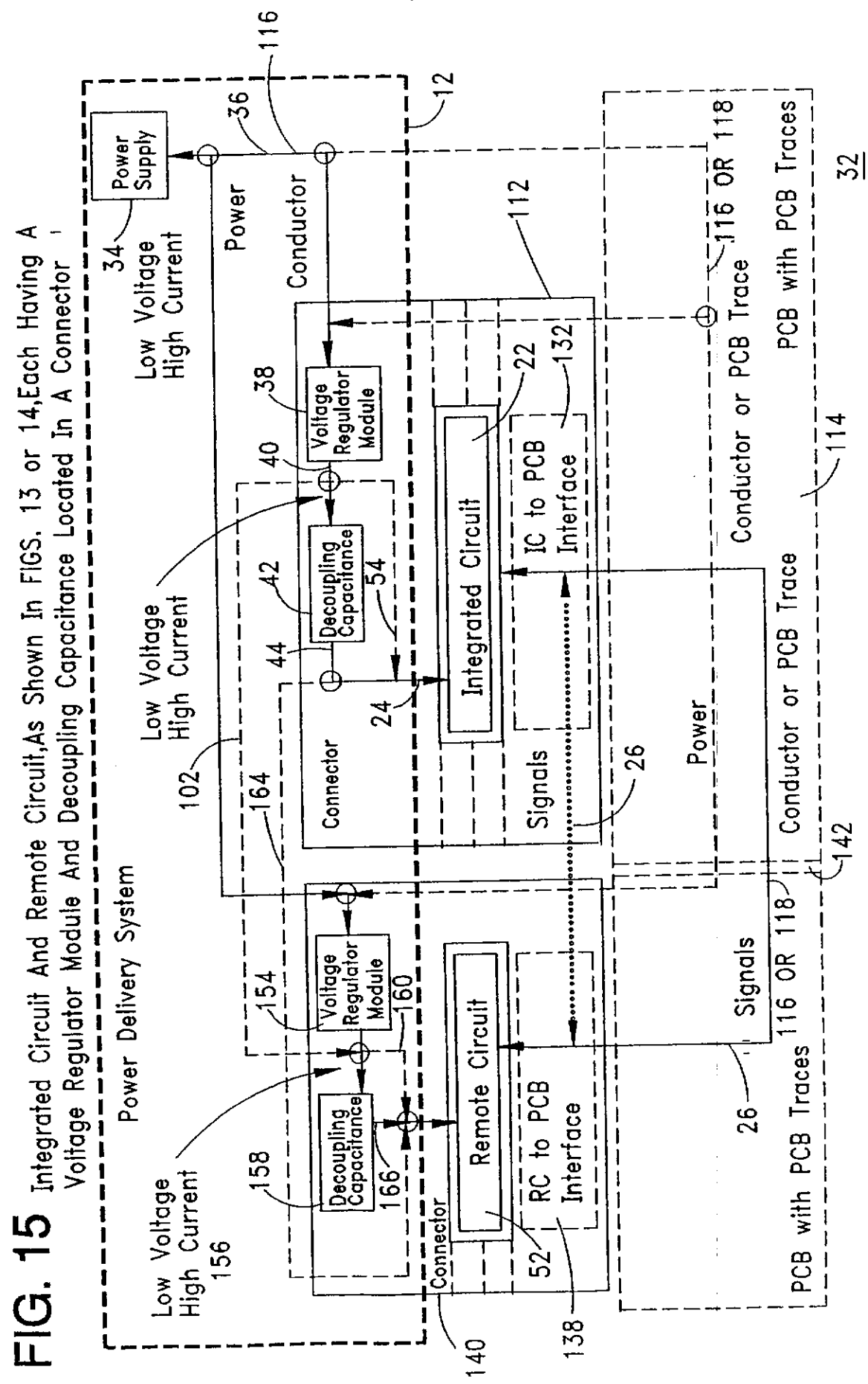


FIG. 14

Integrated Circuit and Remote Circuit, As Shown In FIG. 13, Coupled Together In A Stacked Arrangement





Integrated Circuit And Remote Circuit,As Shown In FIGS. 13 or 14,Each Having A Voltage Regulator Module And Decoupling Capacitance Located In A Conductor

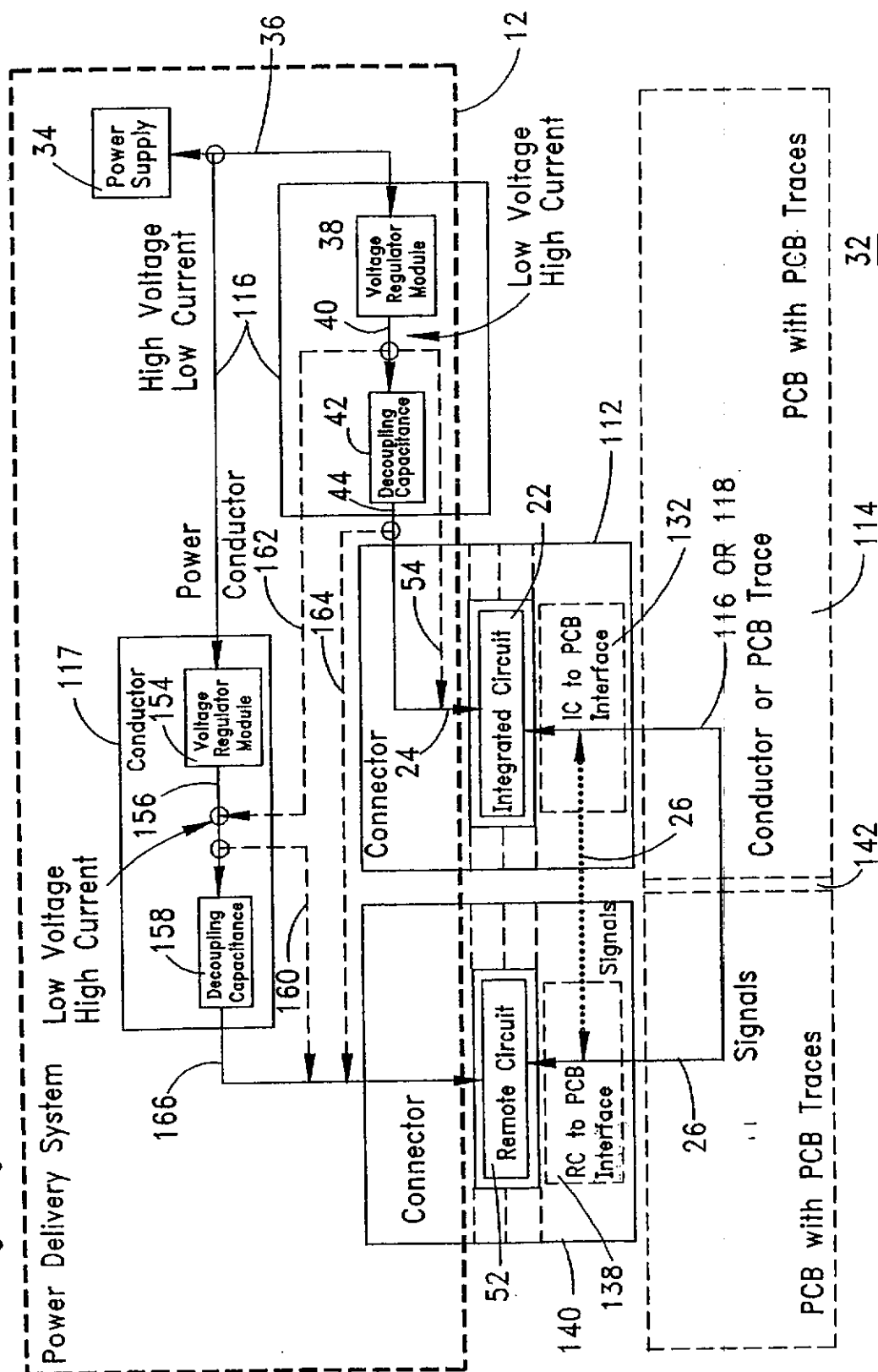


FIG. 18 Integrated Circuit And Remote Circuit, As Shown In FIGS. 13 or 14, Each Having A Voltage Regulator Module Located On A Conductor And Having Decoupling Capacitance Located In A Connector

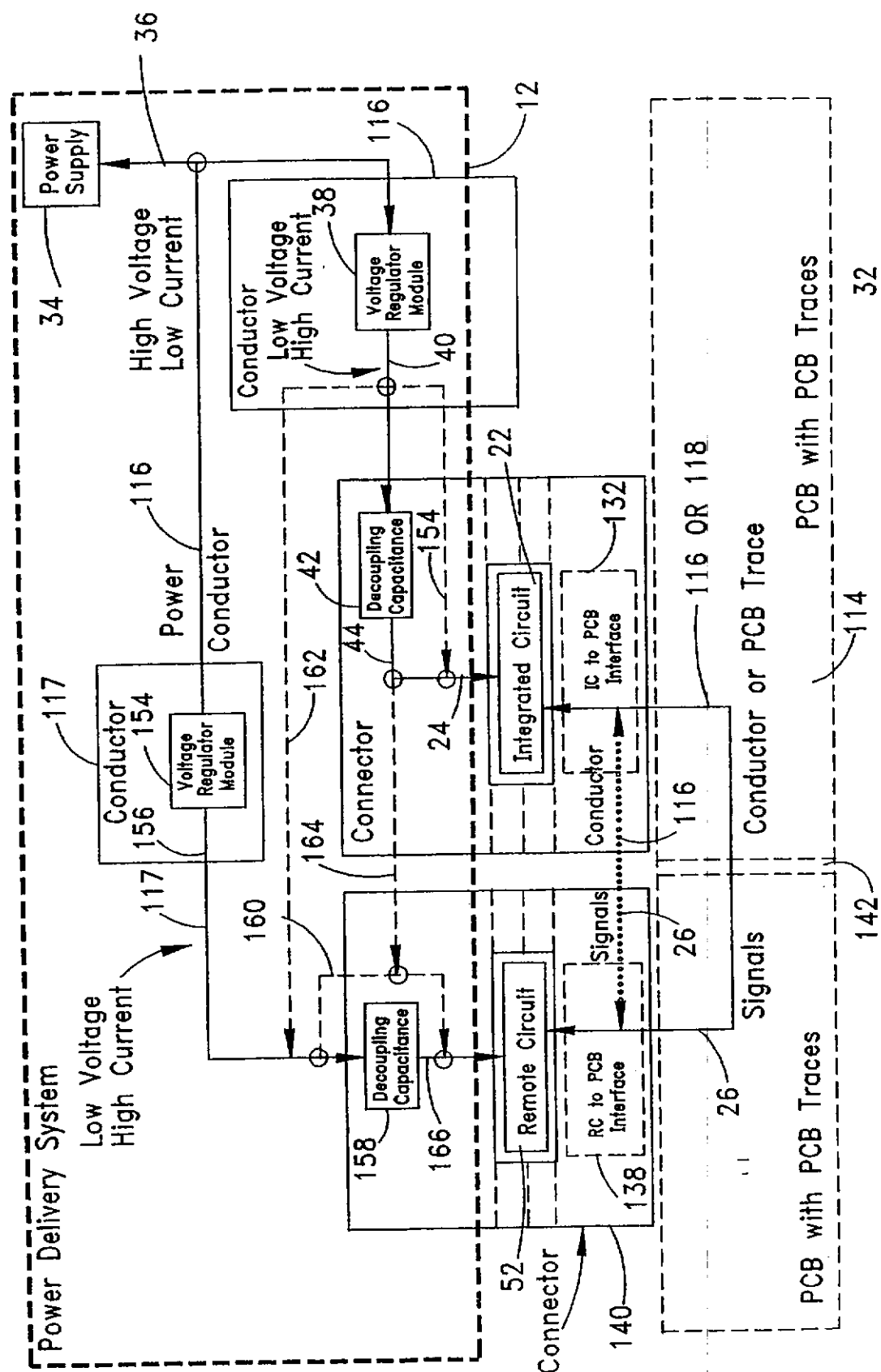


FIG. 20 Integrated Circuit, AS Shown In FIG. 11, And Having A Thermal Management System And An Electromagnetic Interference (EMI) Control System

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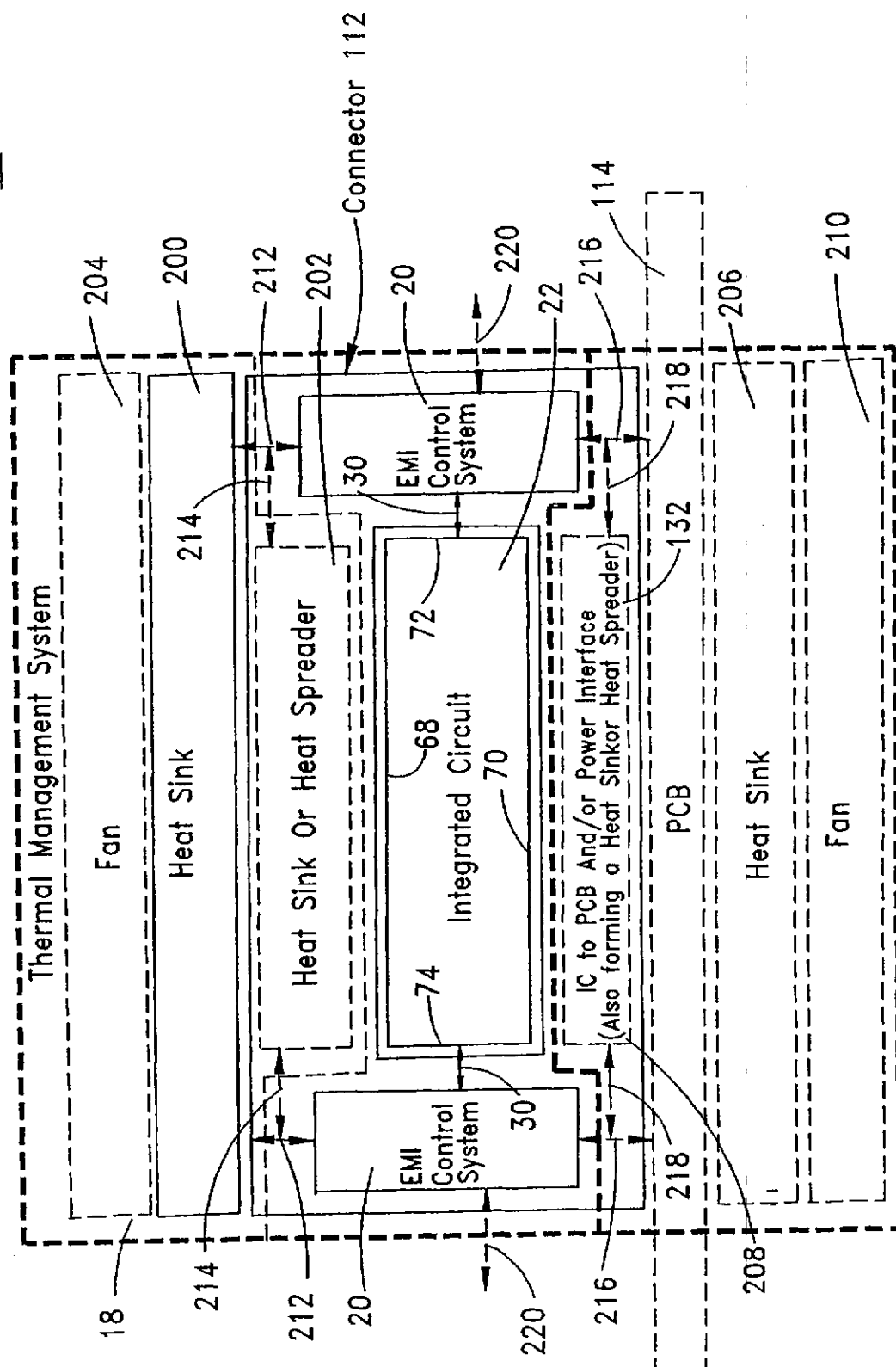


FIG. 21

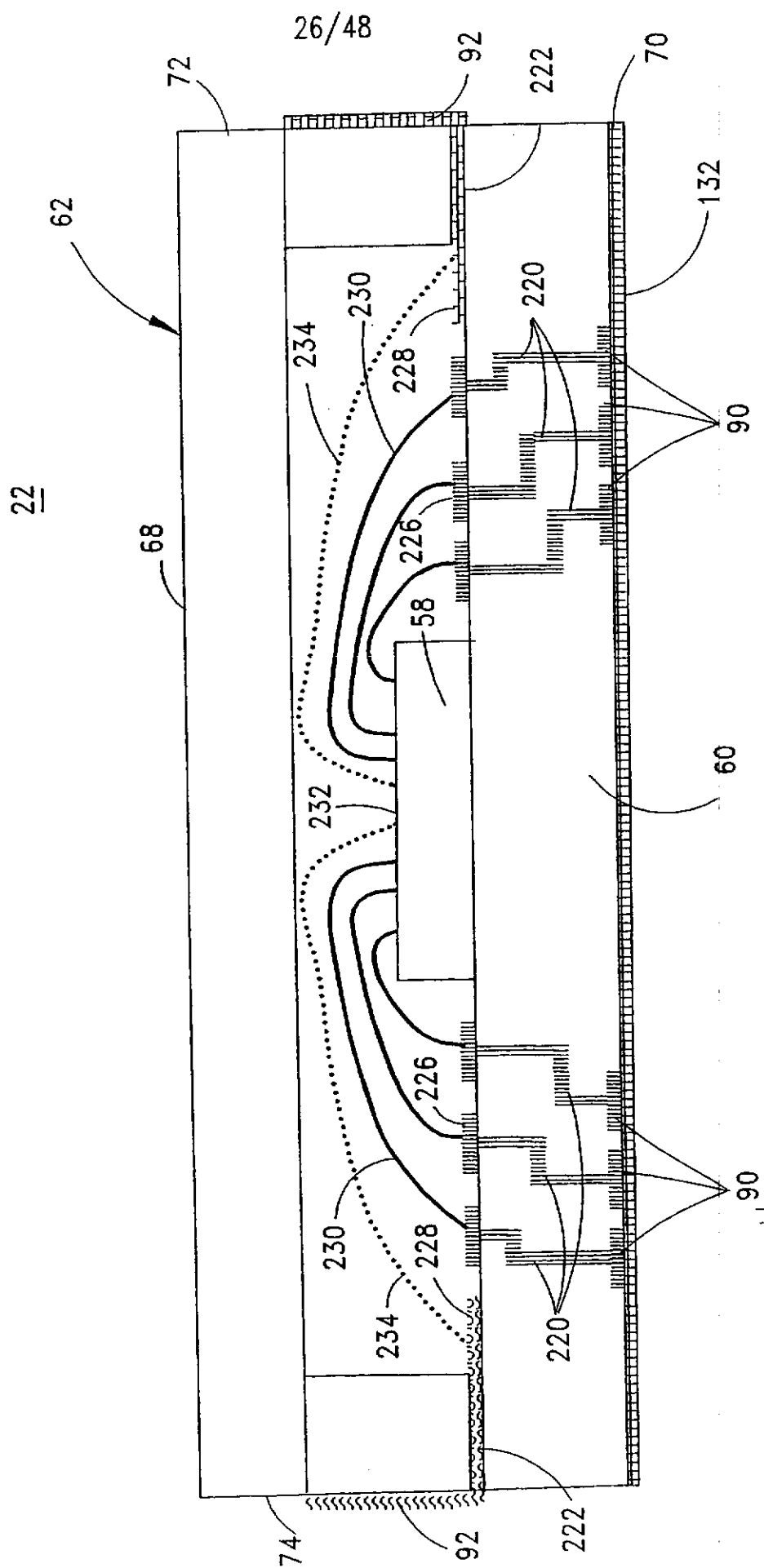
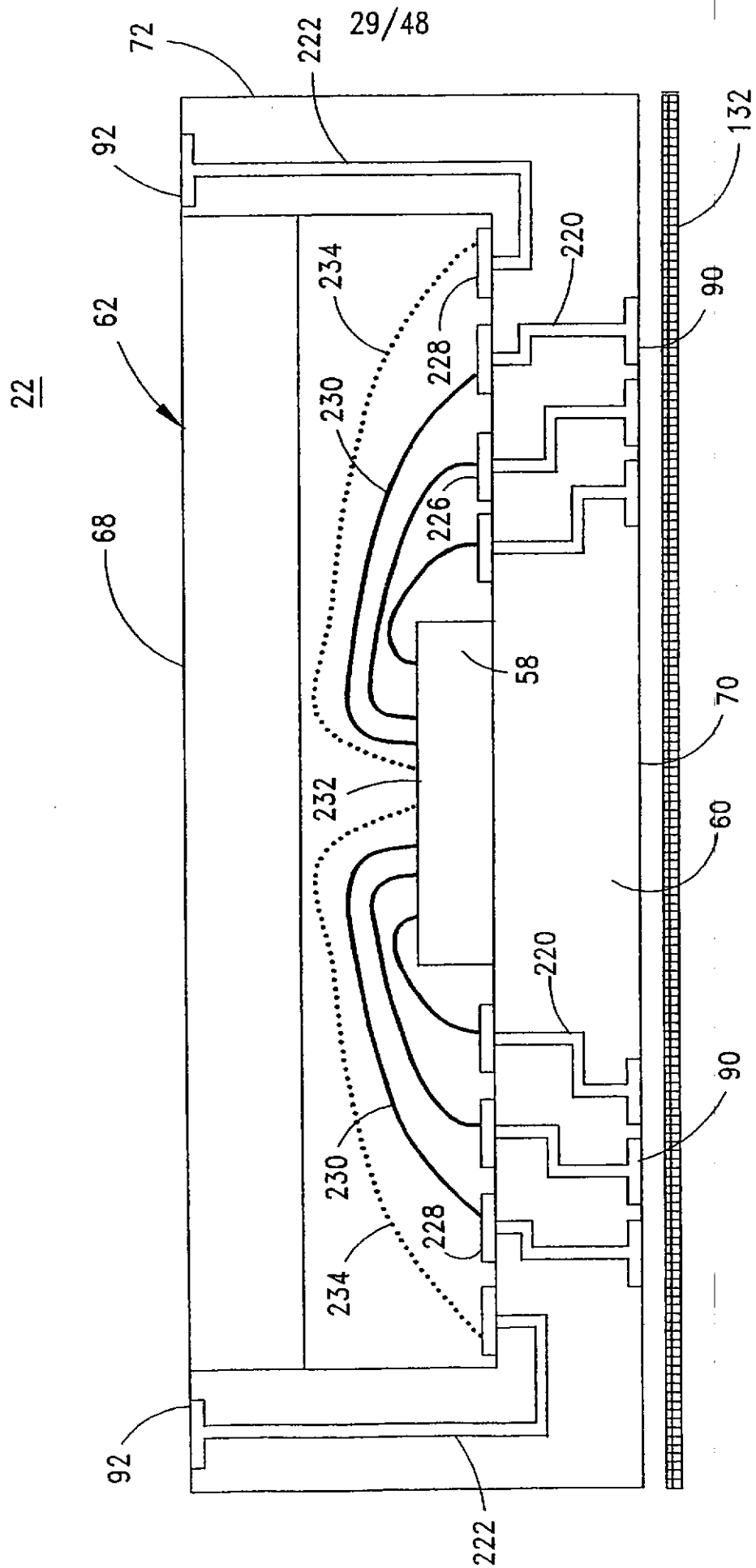


FIG. 24



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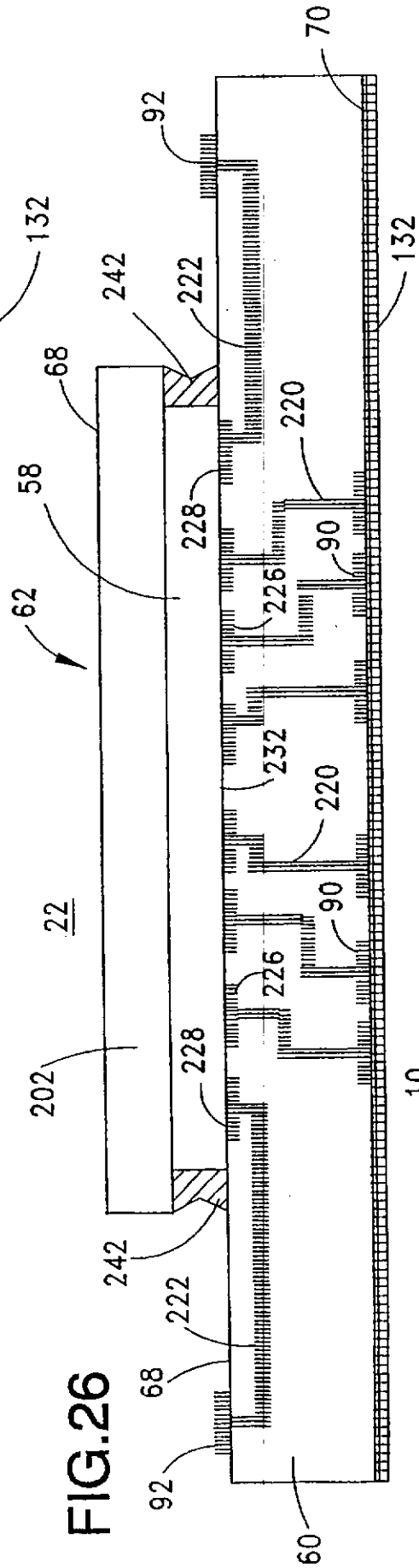
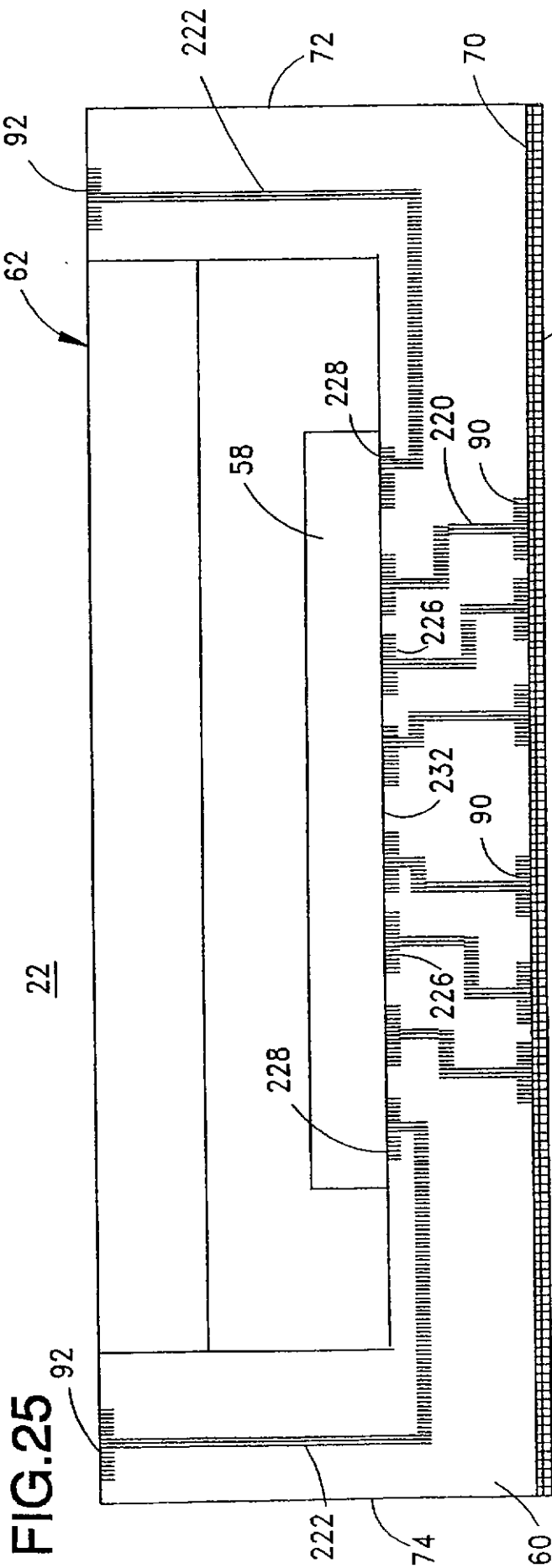
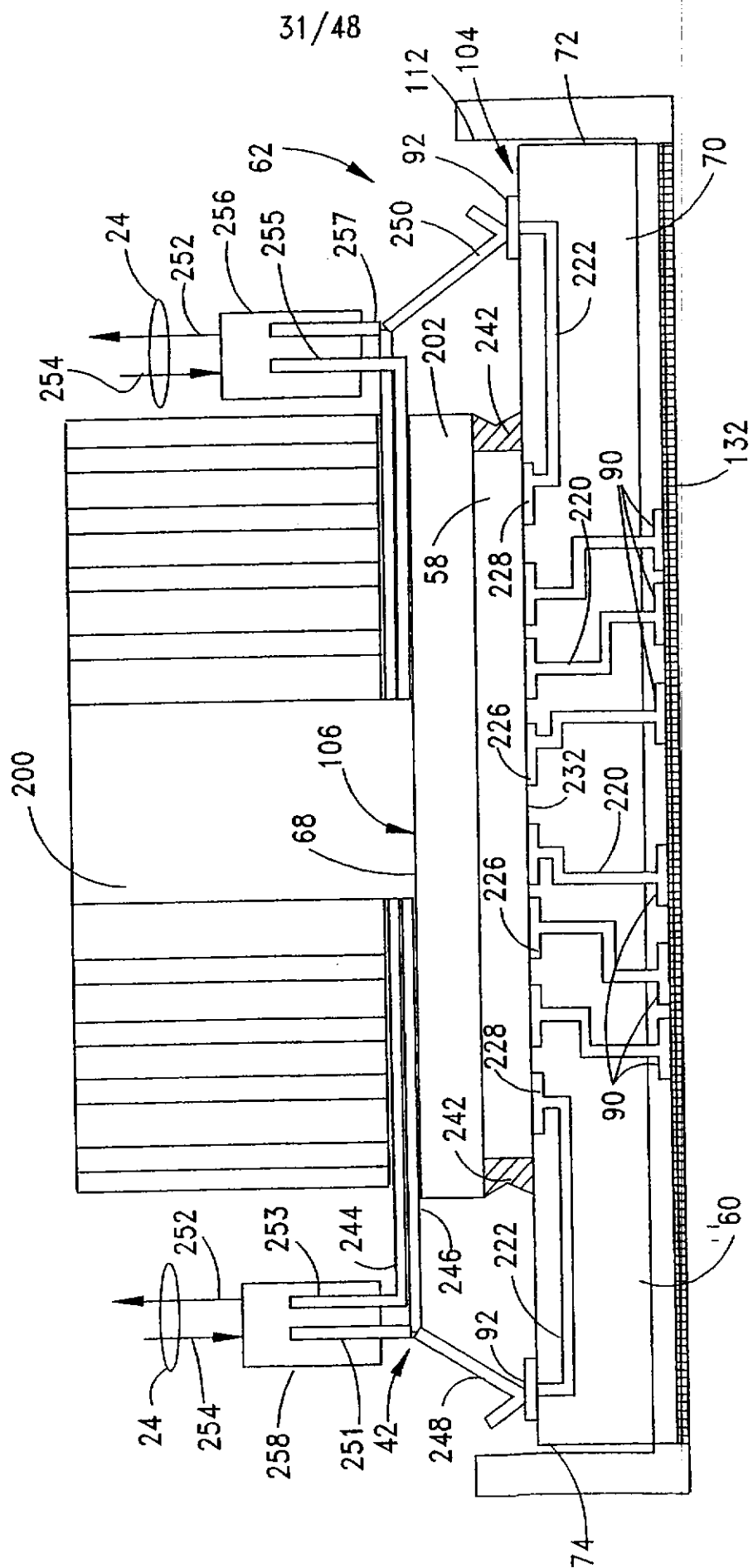
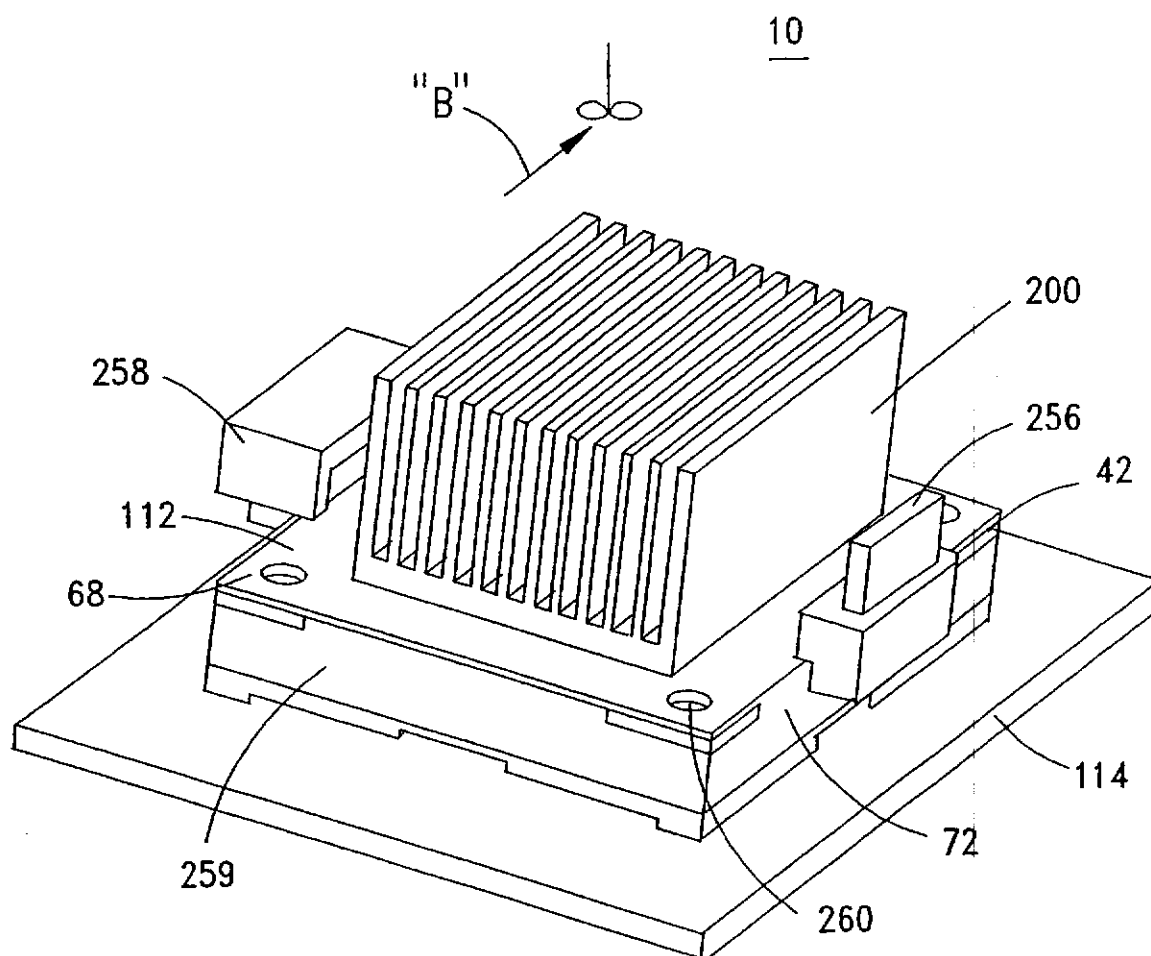


FIG. 27



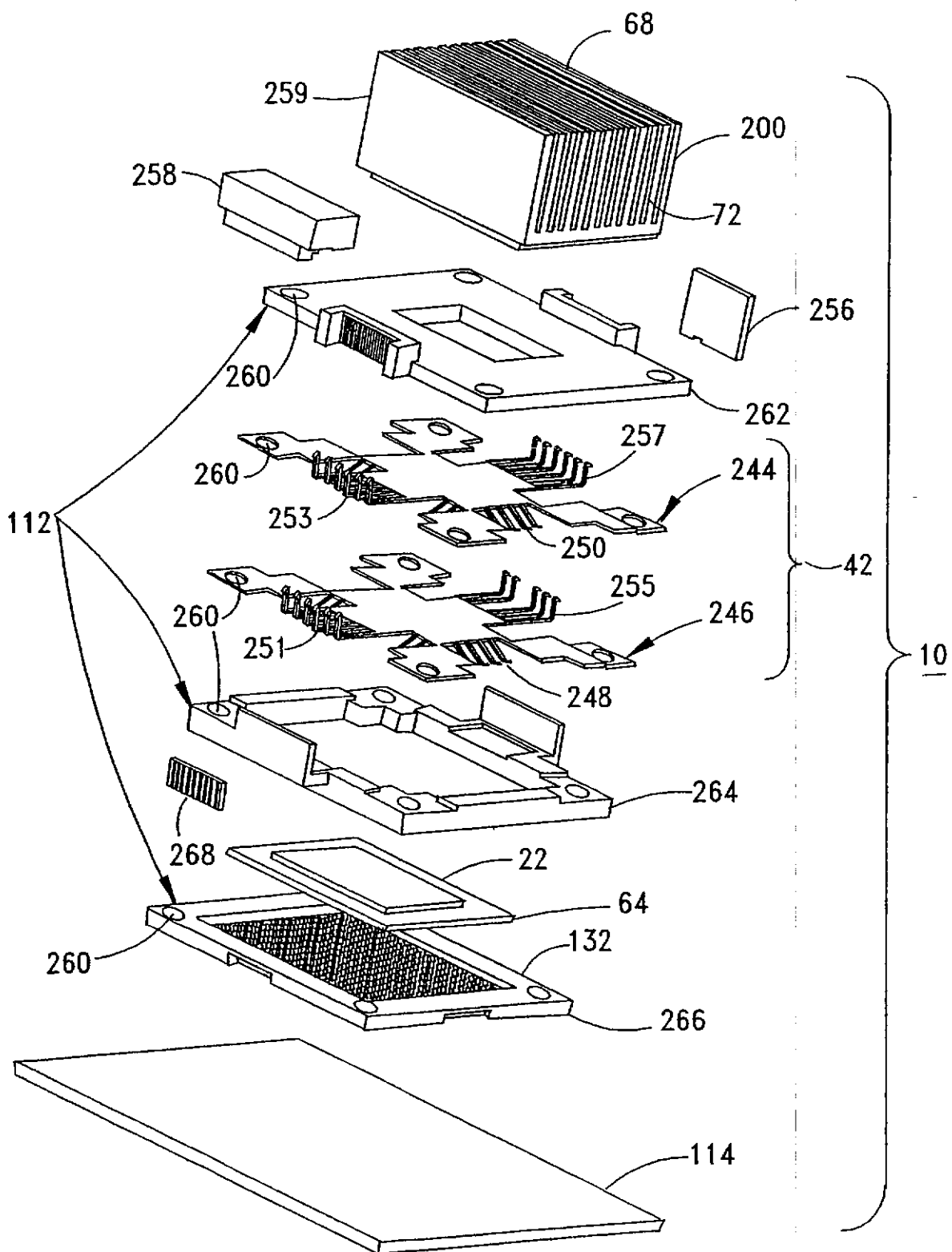
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FIG. 28



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FIG. 29



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FIG. 30

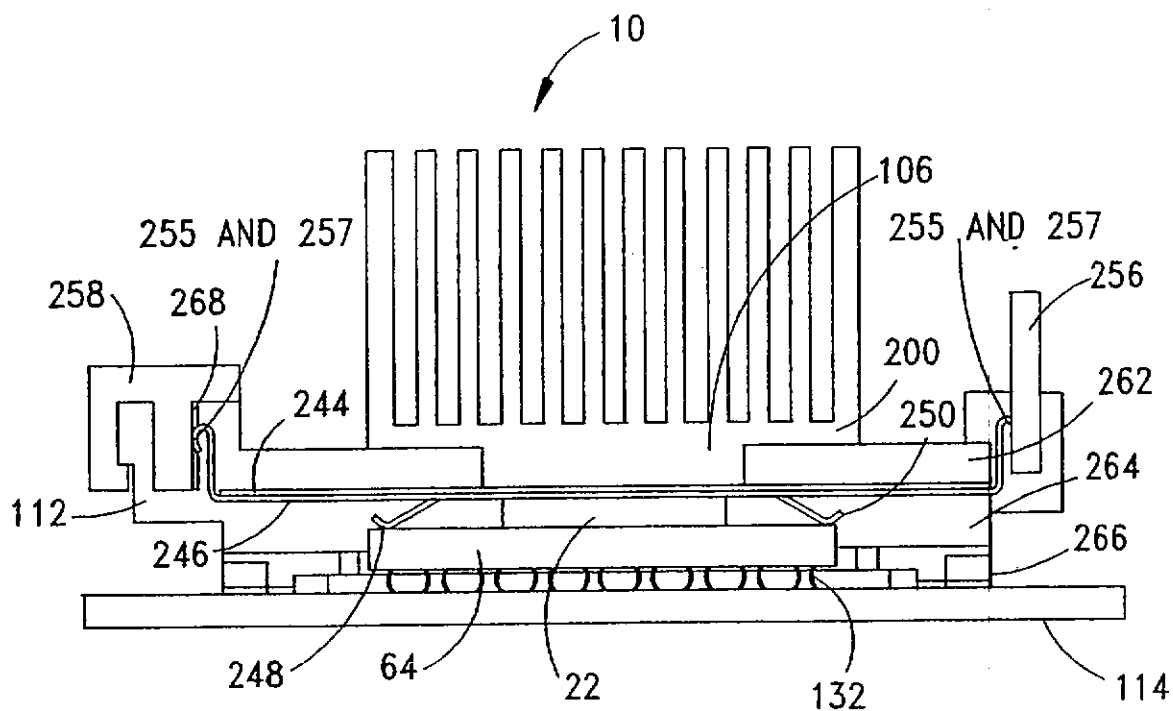
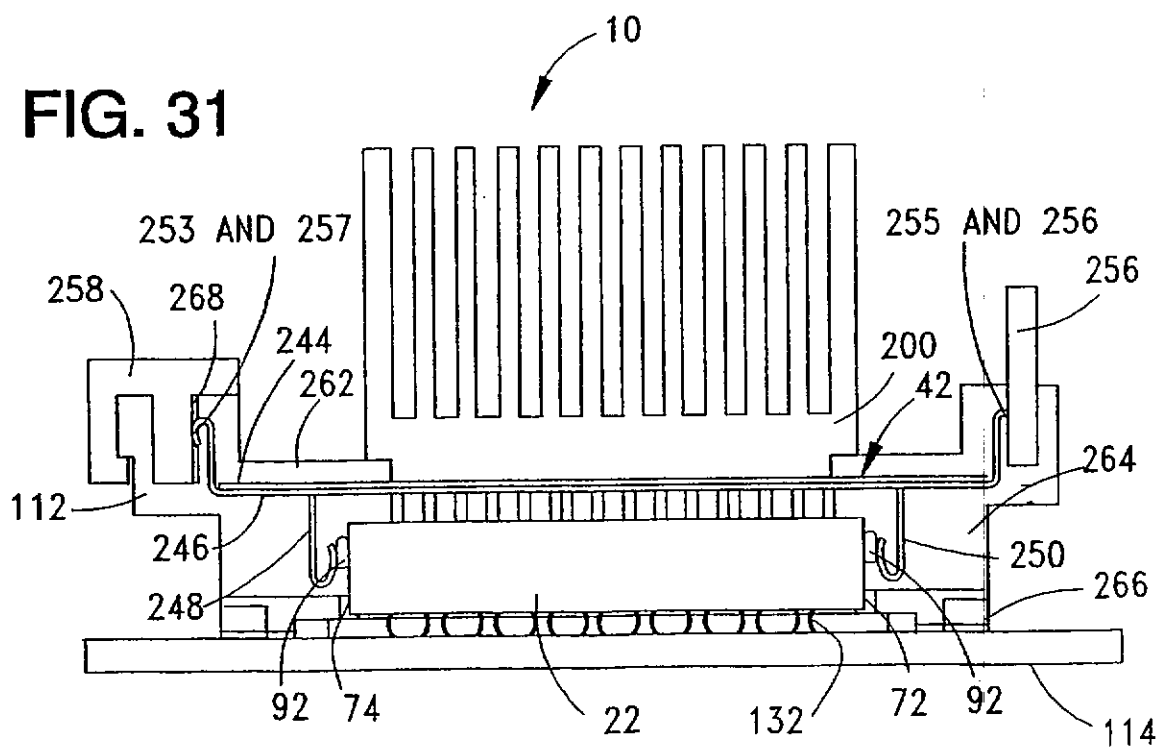


FIG. 31



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FIG. 32

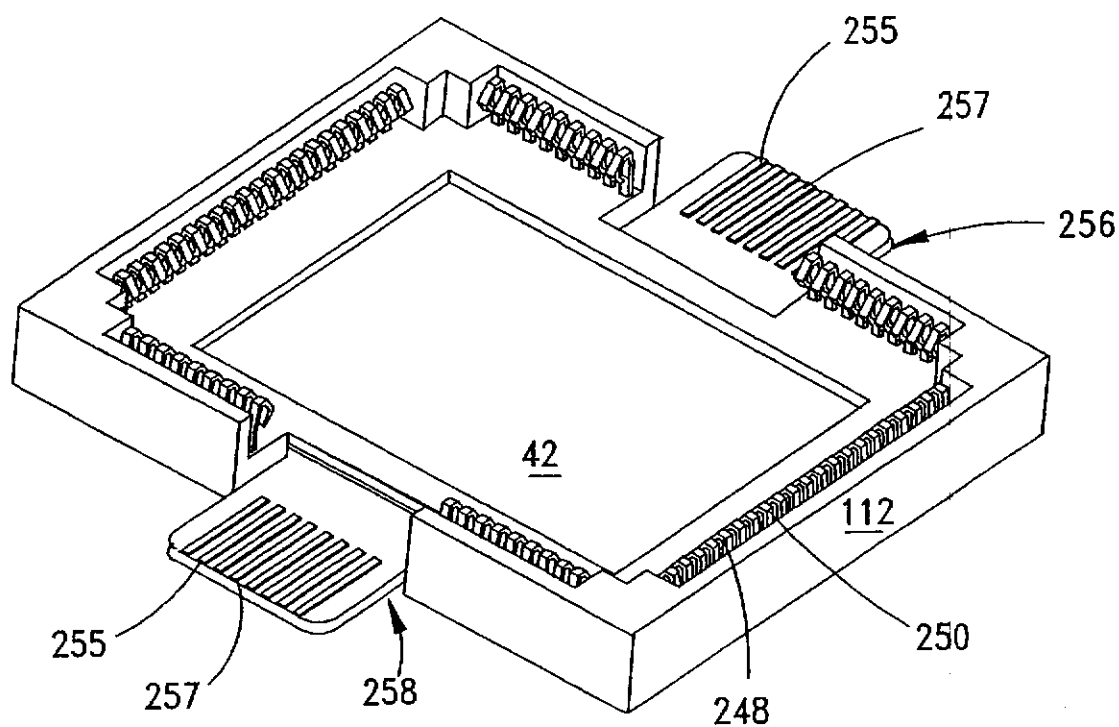


FIG. 33

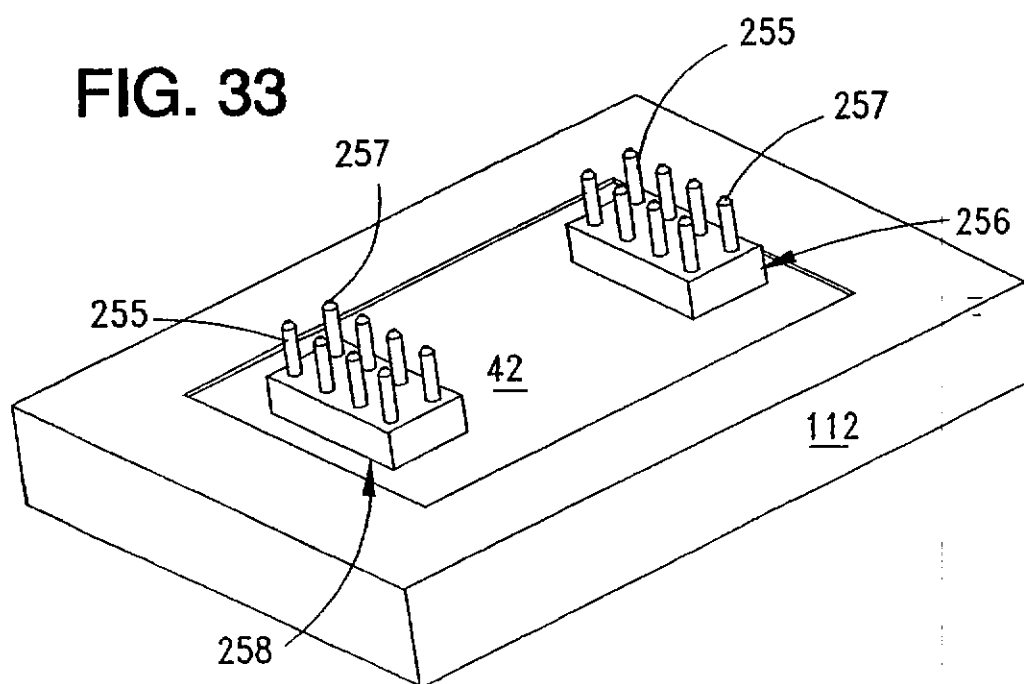


FIG. 34

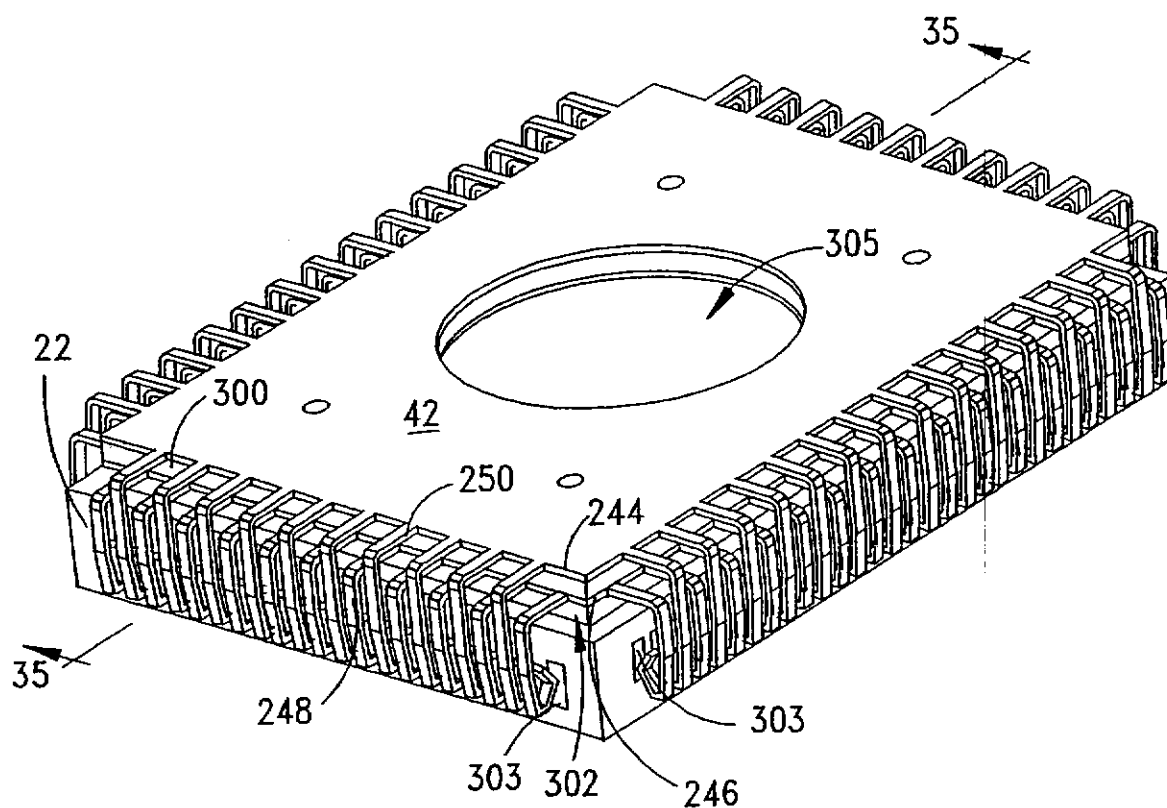


FIG. 35

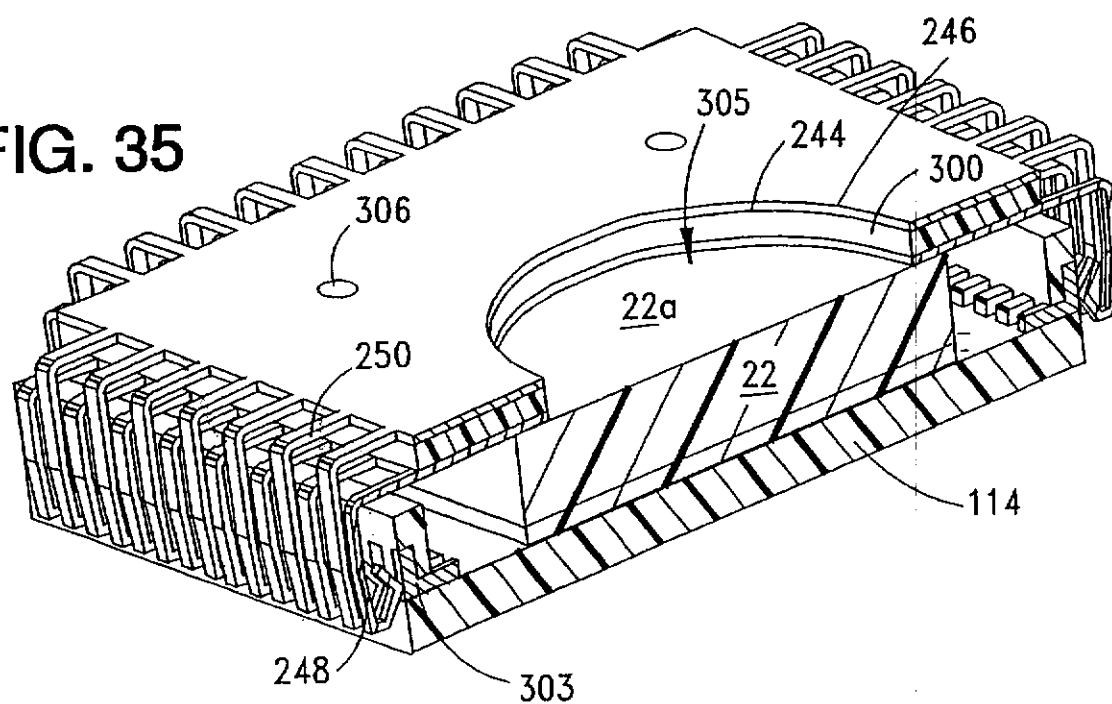


FIG.37

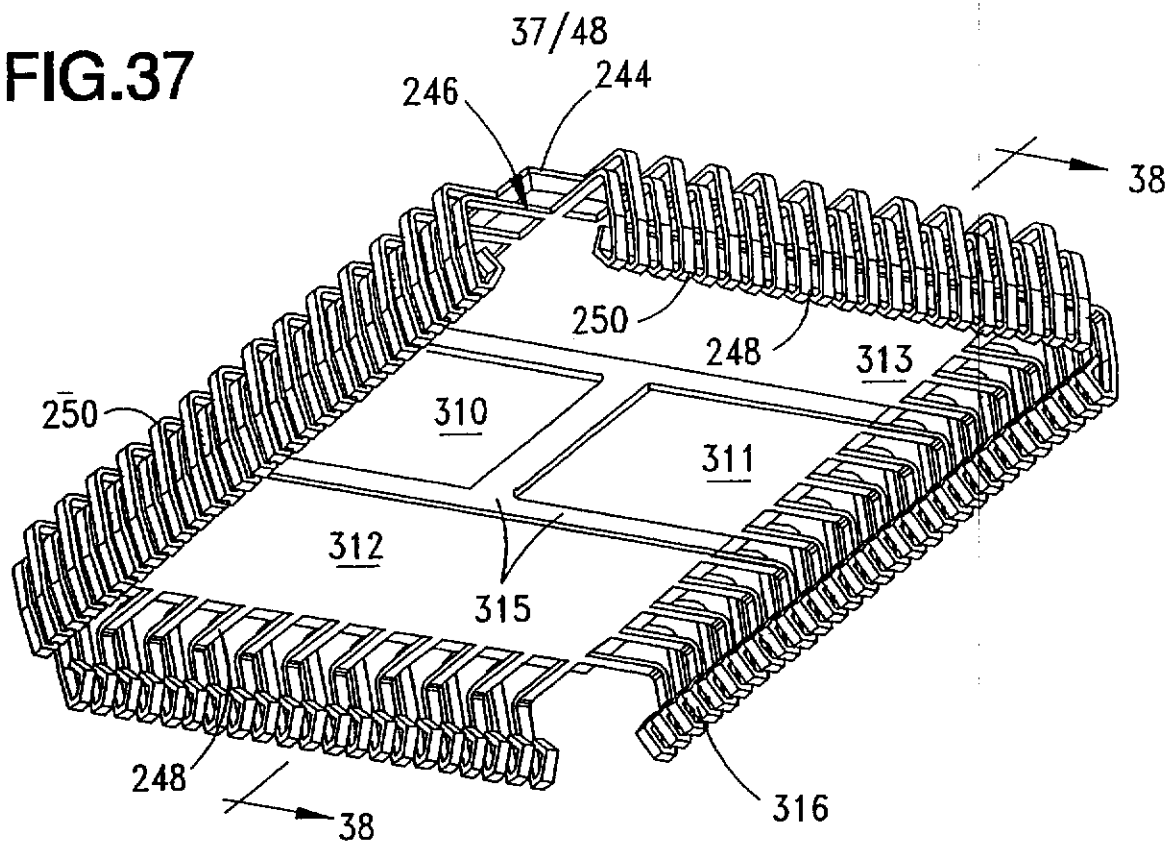
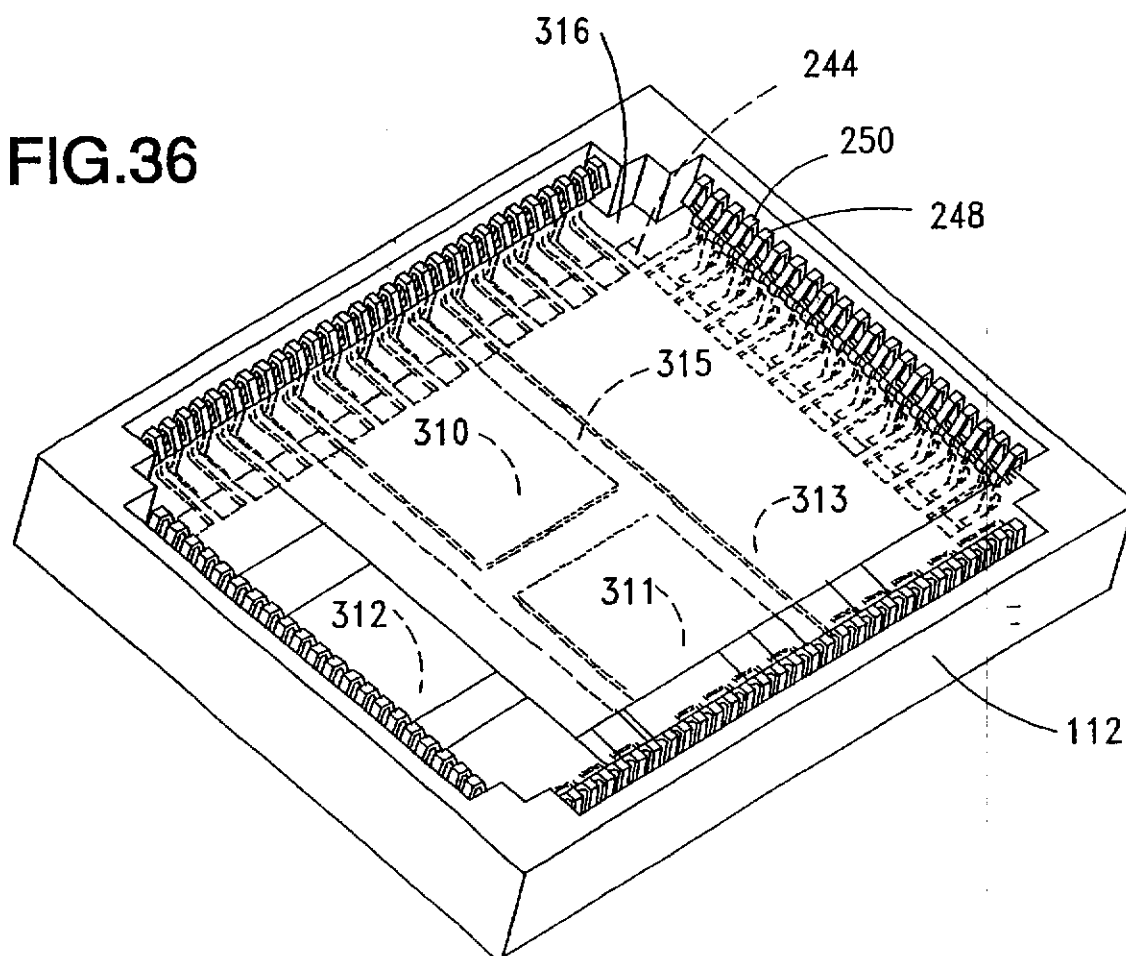


FIG.36



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FIG. 38

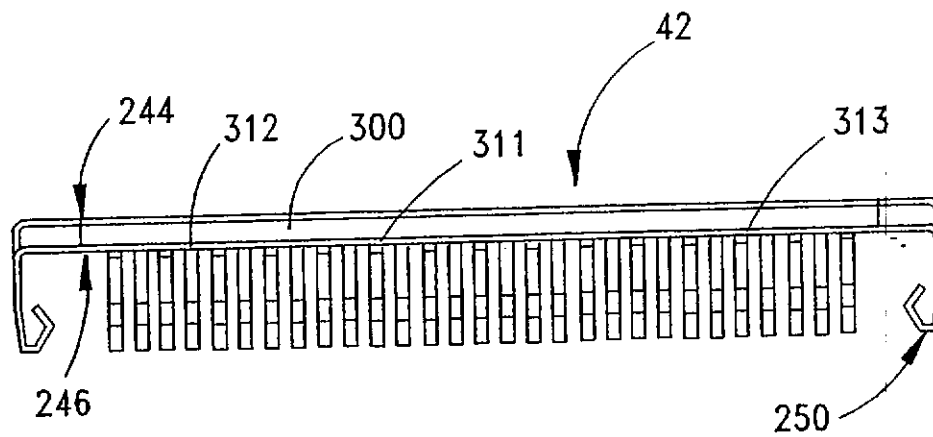


FIG. 39

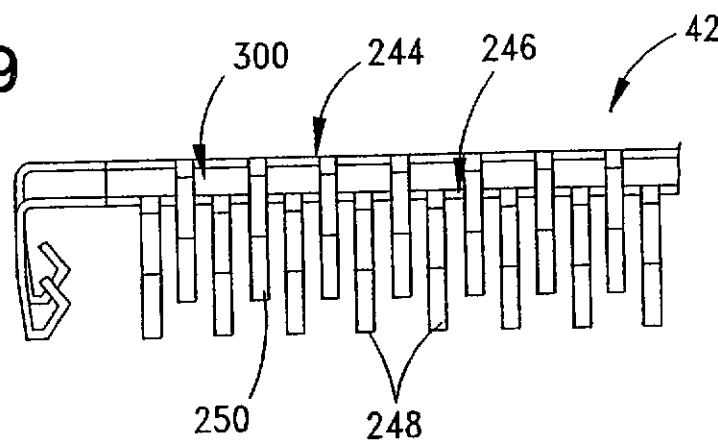


FIG. 40

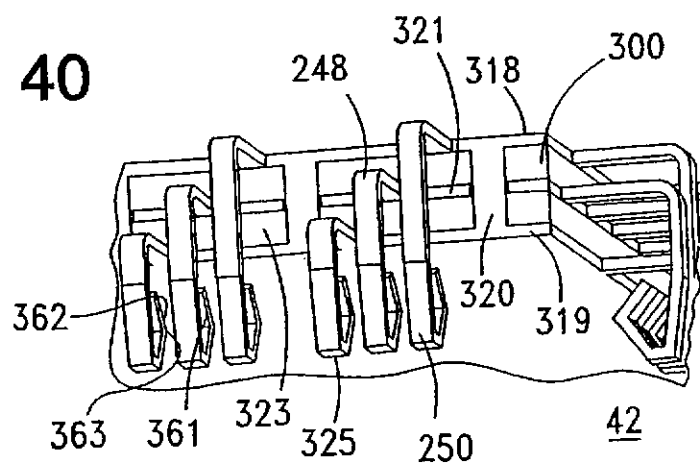


FIG. 41

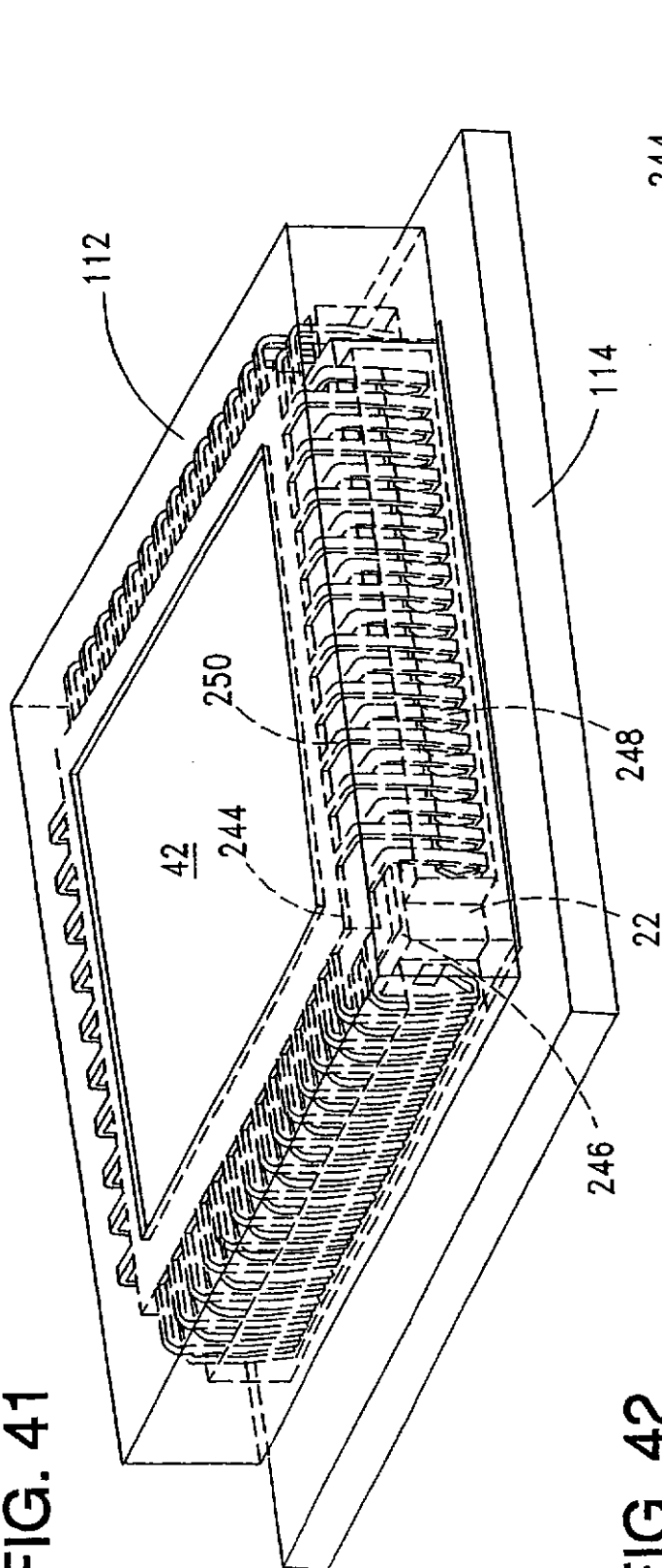
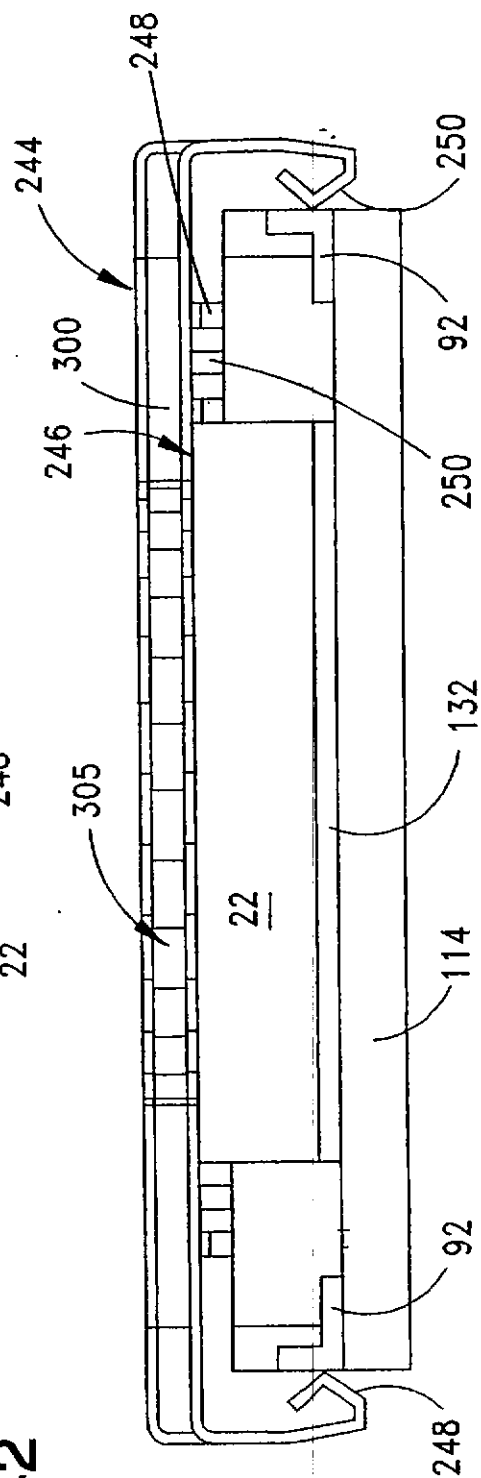


FIG. 42



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FIG.43

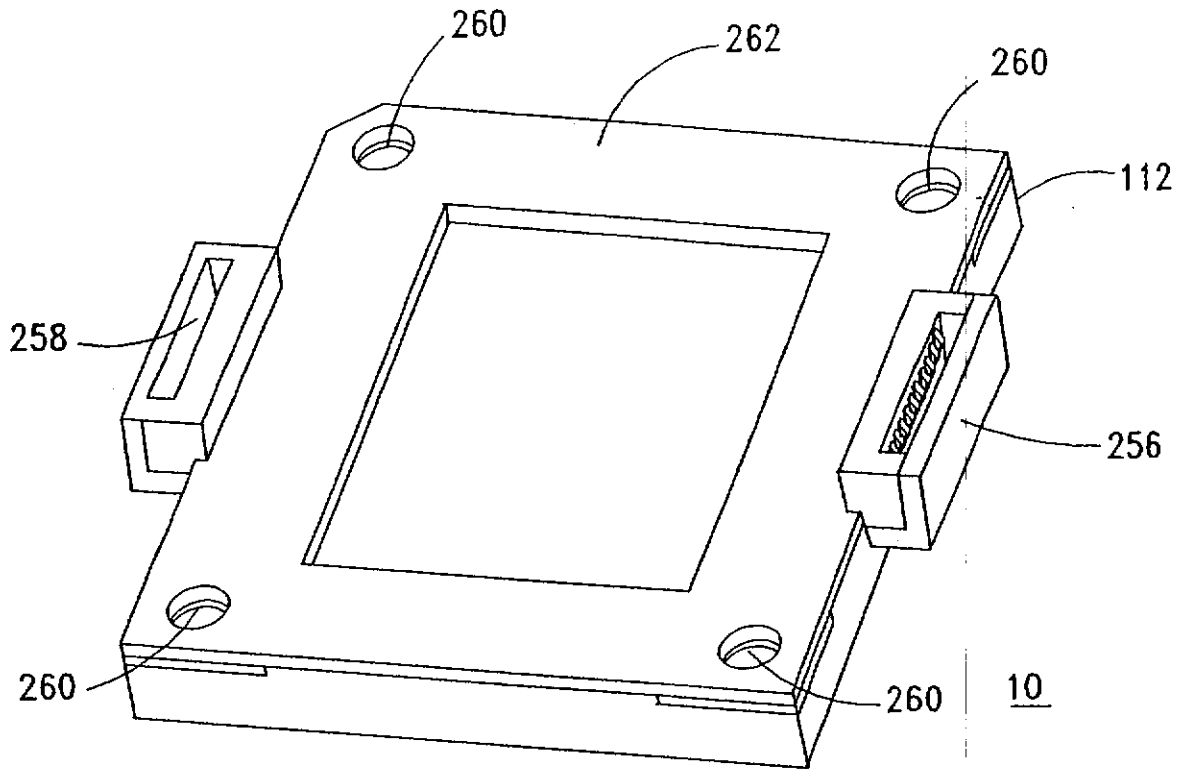
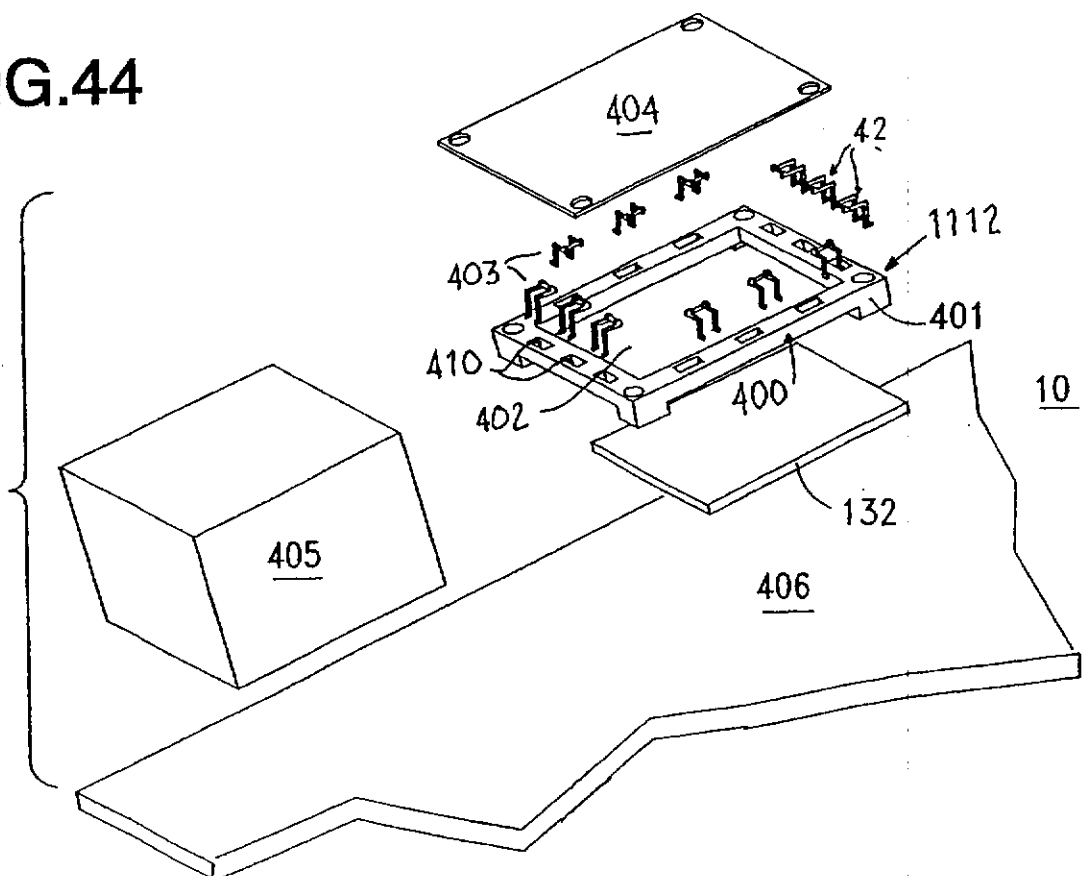


FIG.44



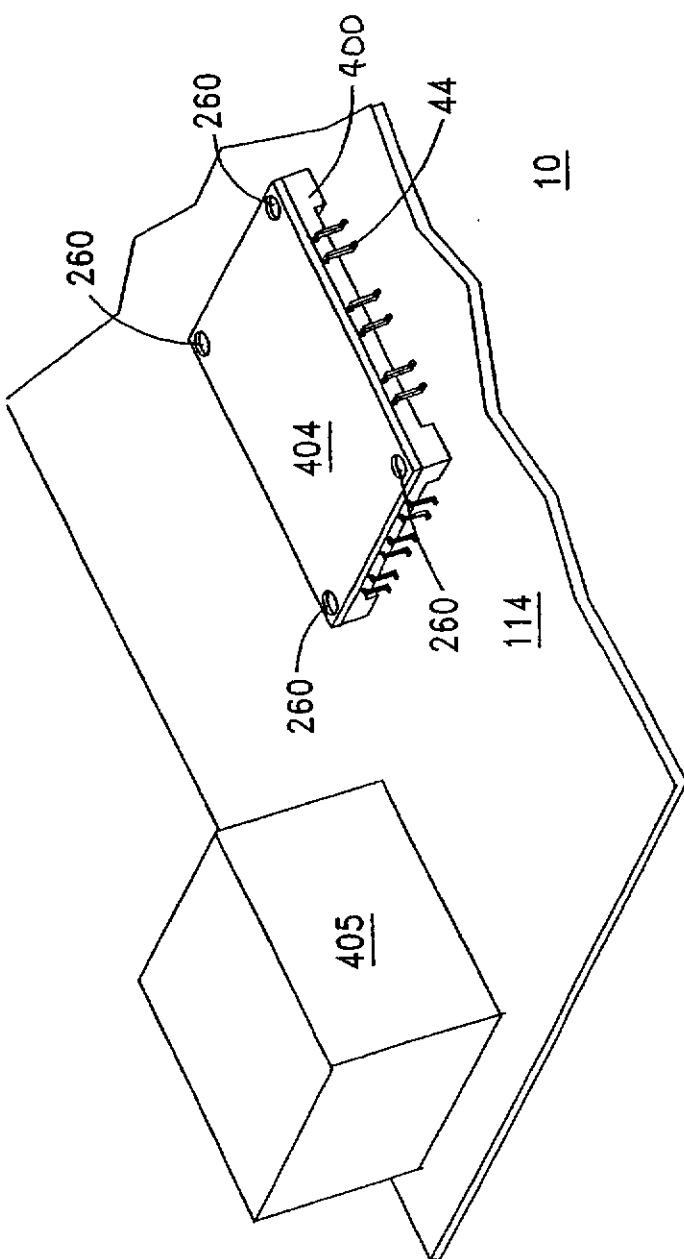


FIG. 45

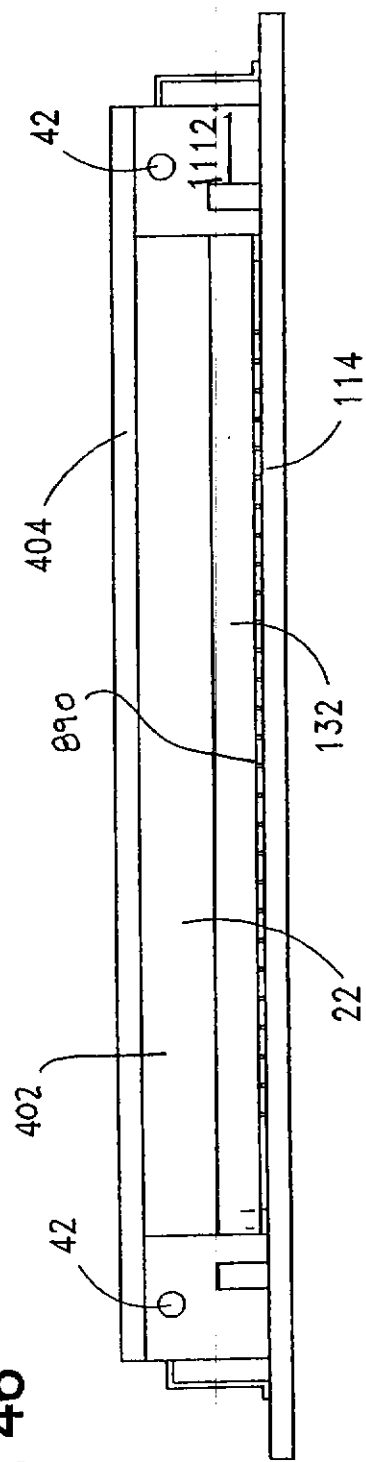


FIG. 46

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FIG.47

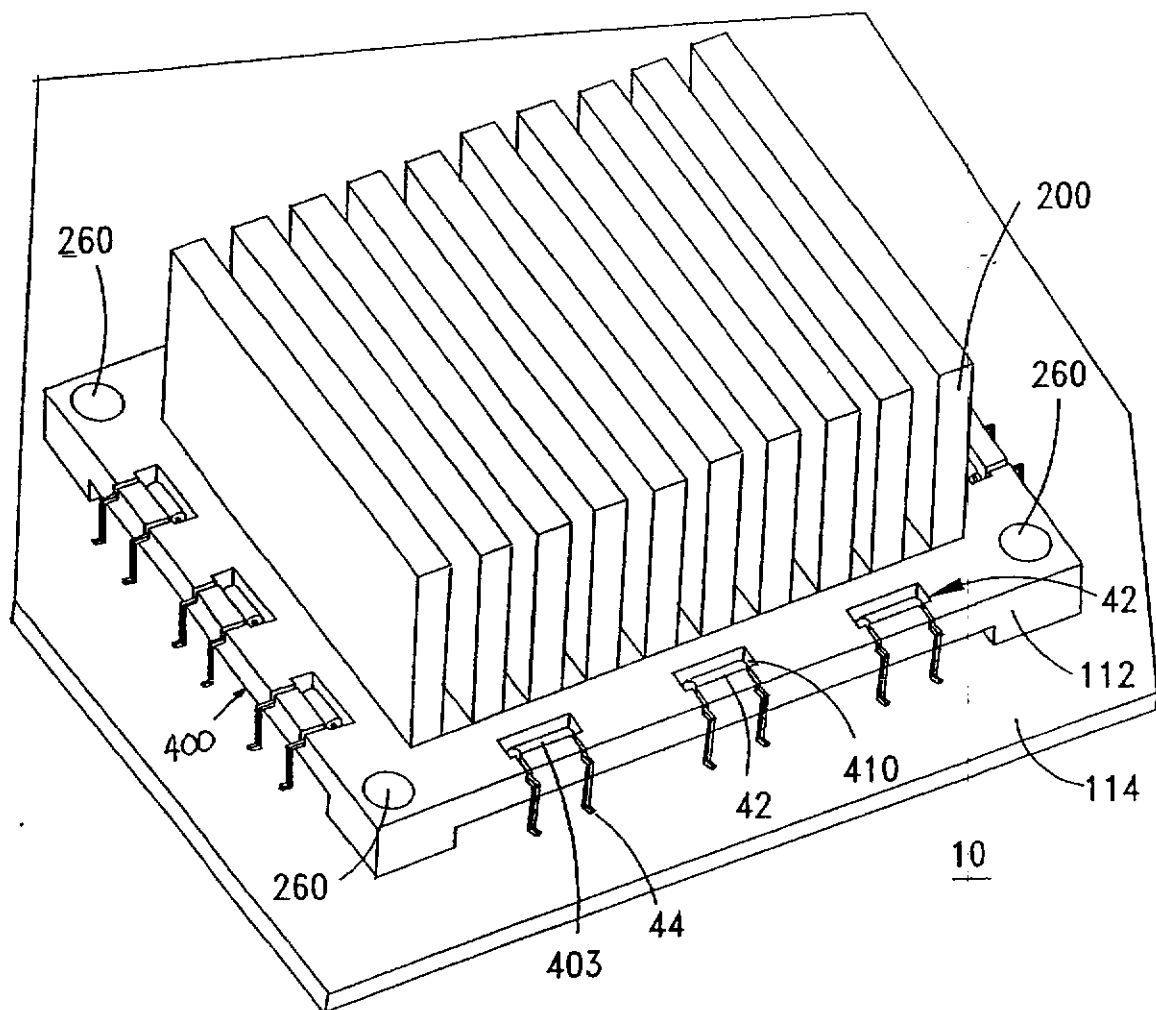
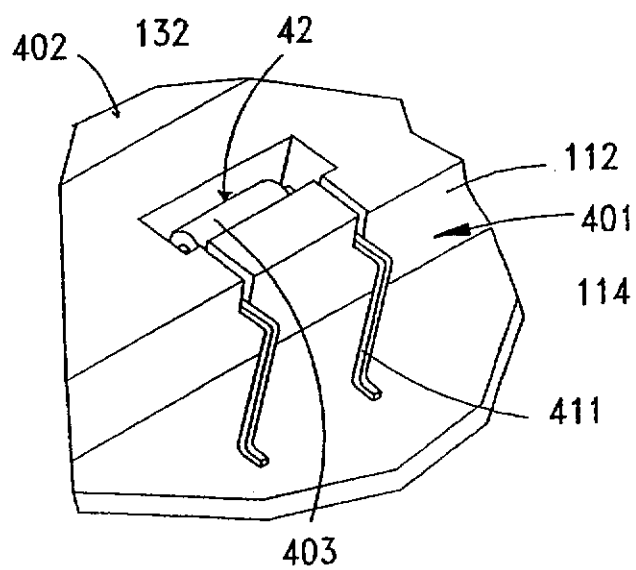


FIG.48



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FIG. 49

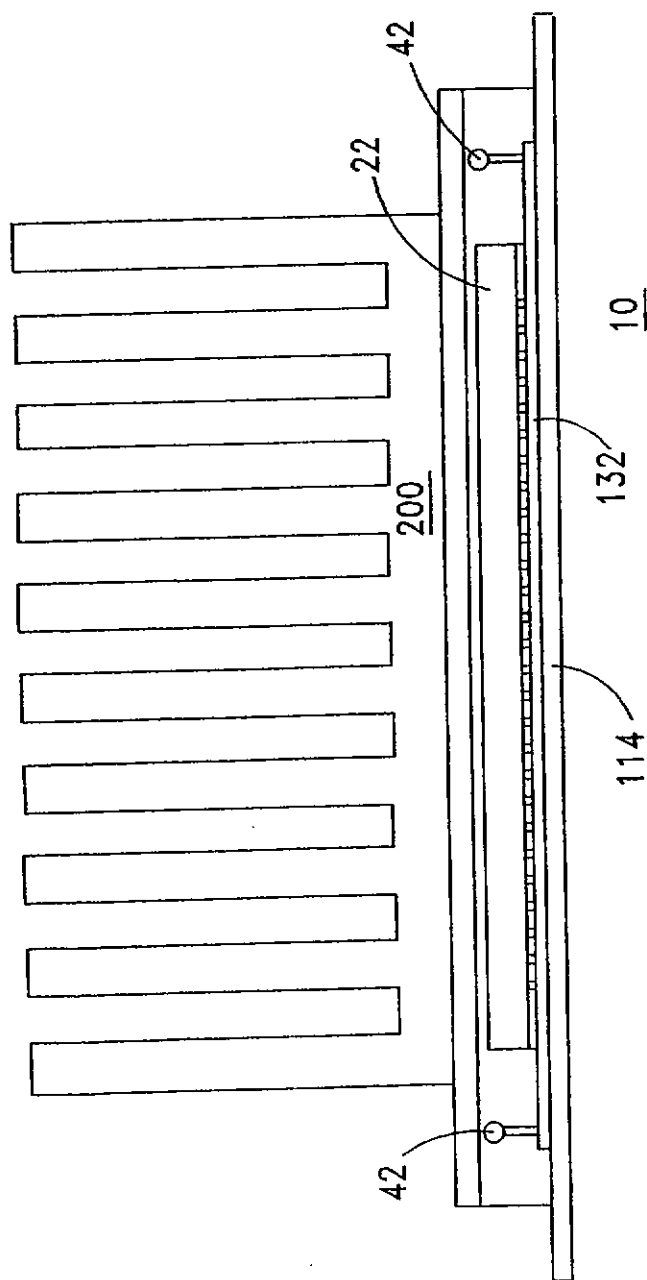
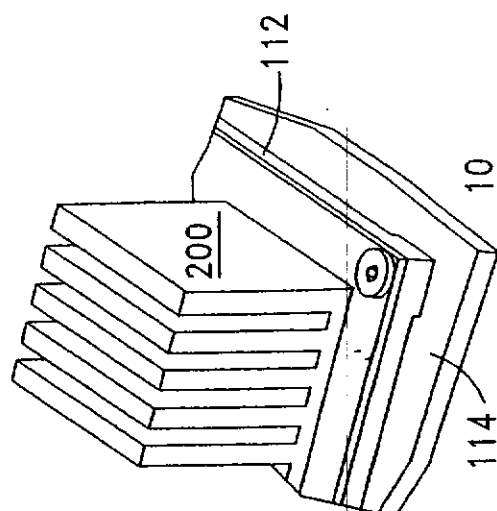


FIG. 50



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FIG. 51

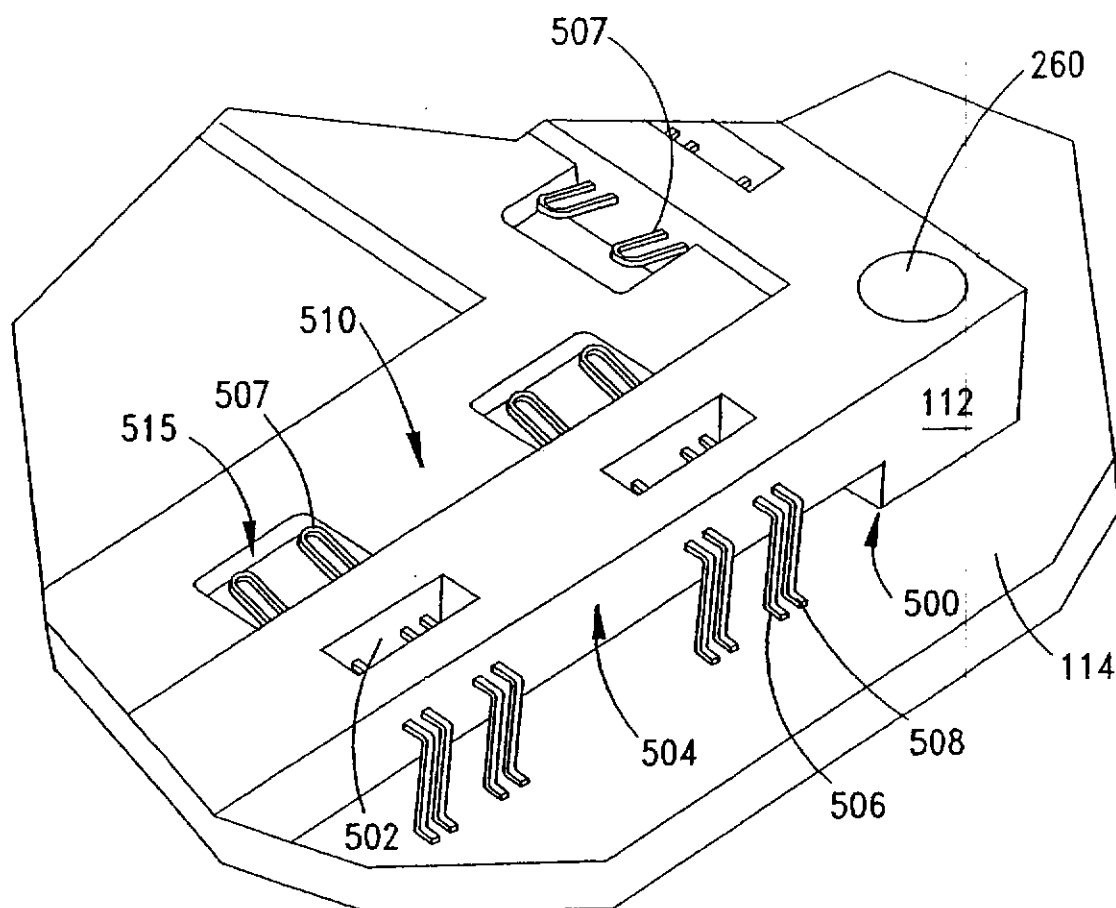
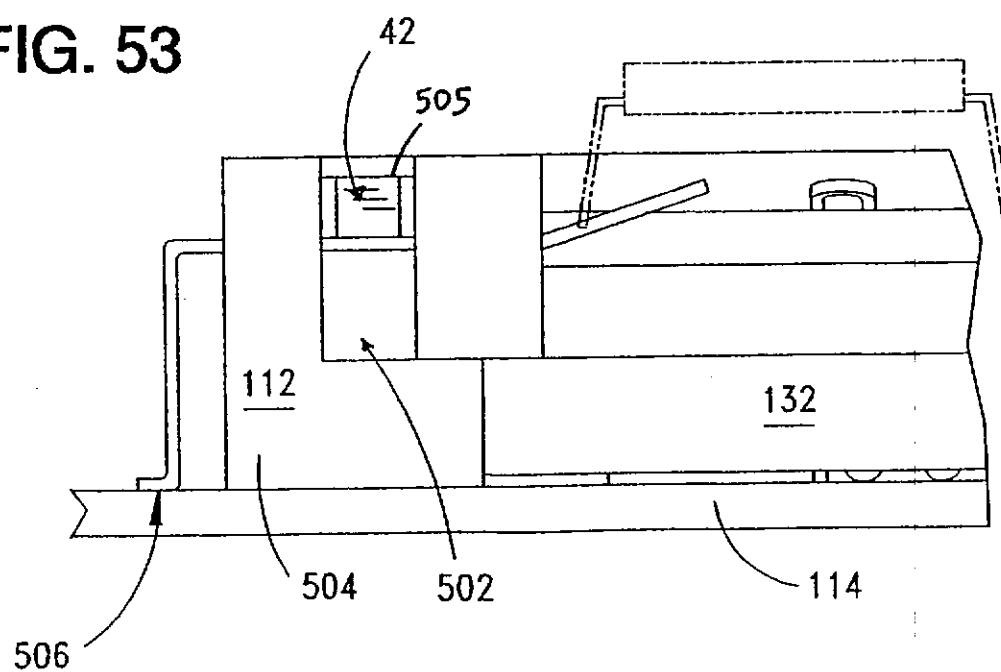
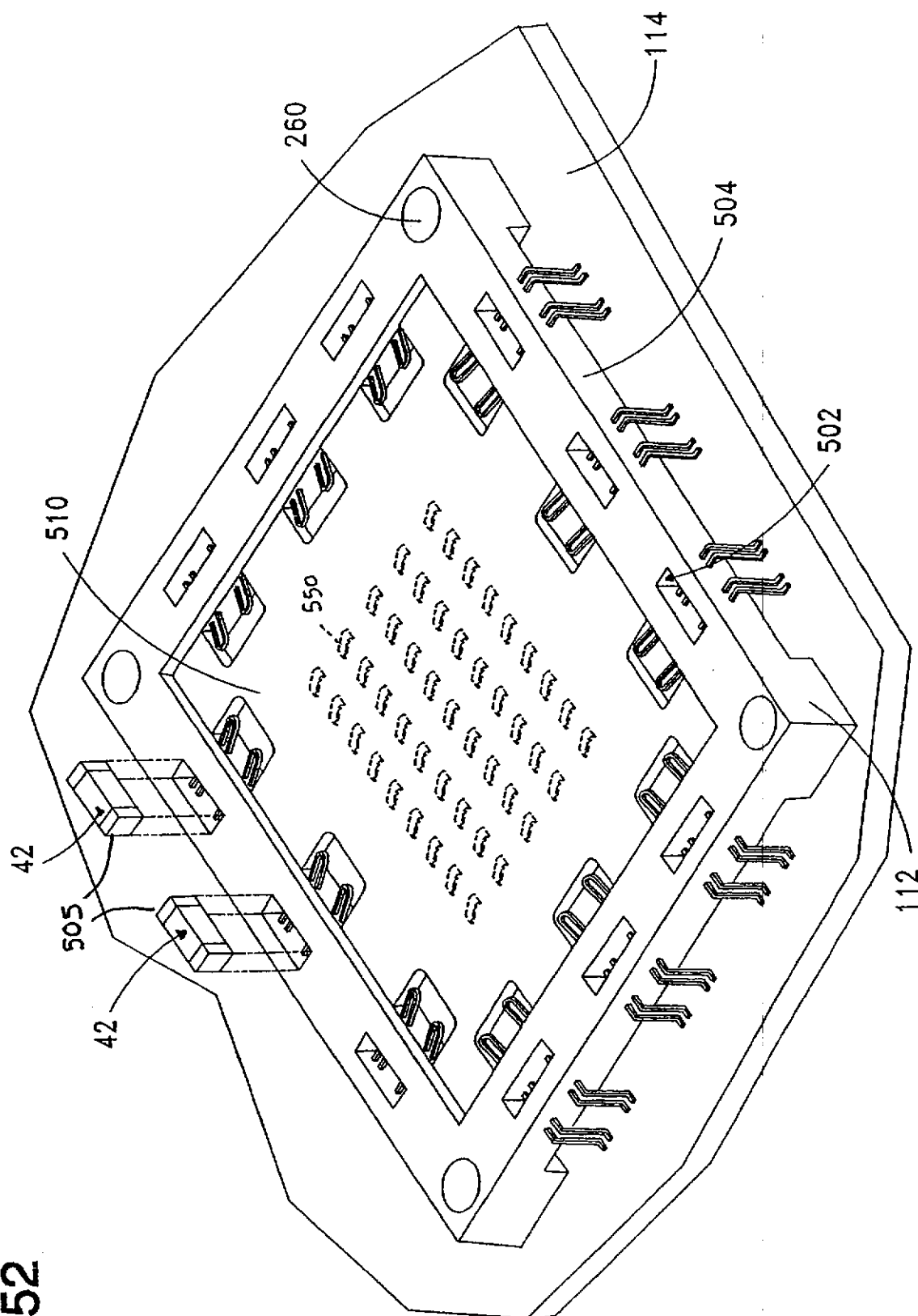


FIG. 53



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FIG. 52



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FIG. 54

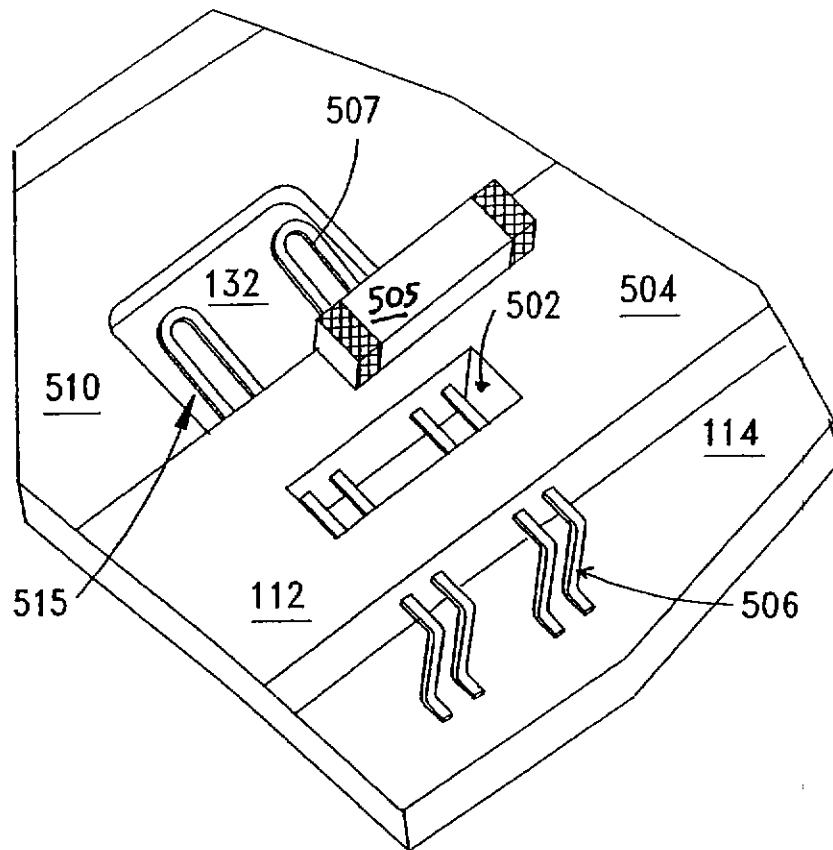
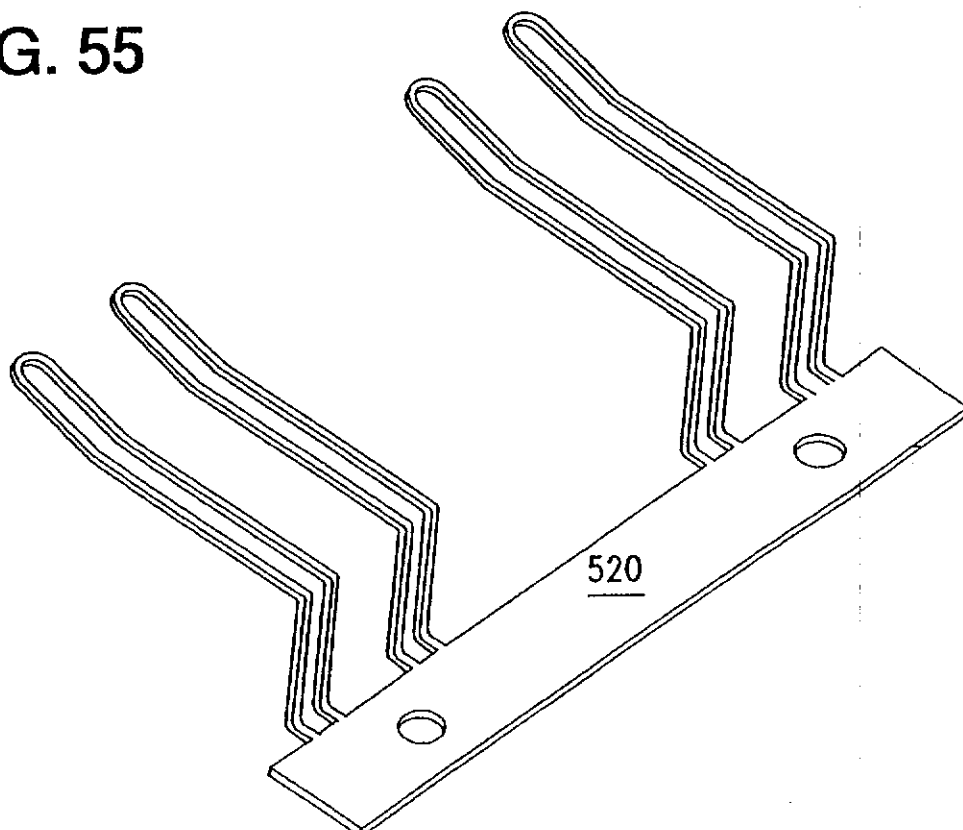


FIG. 55



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FIG. 56

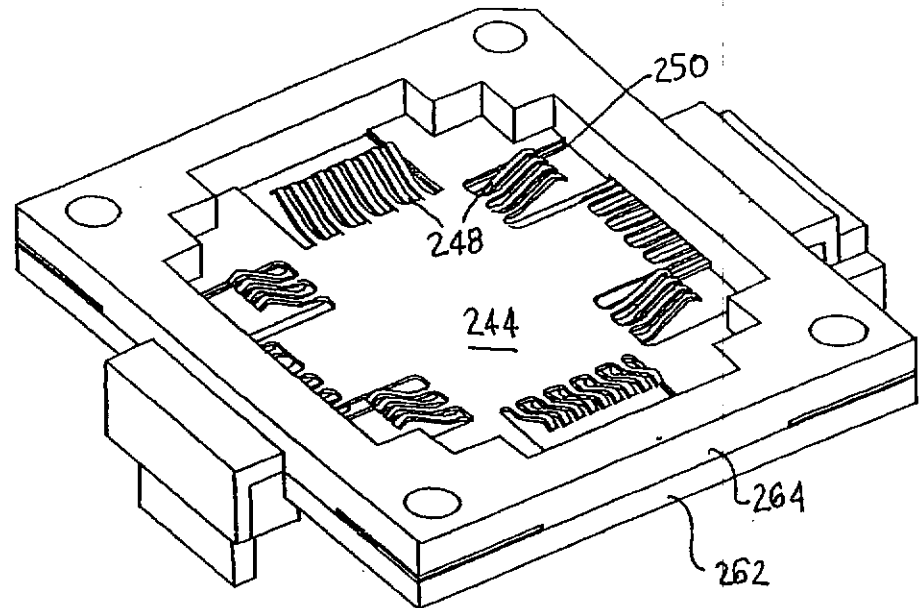
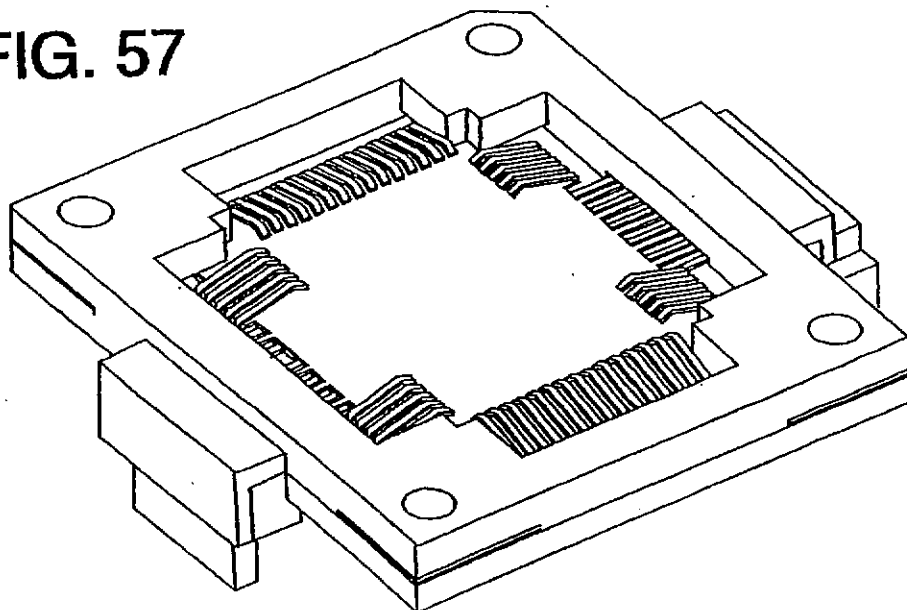


FIG. 57



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FIG. 58

