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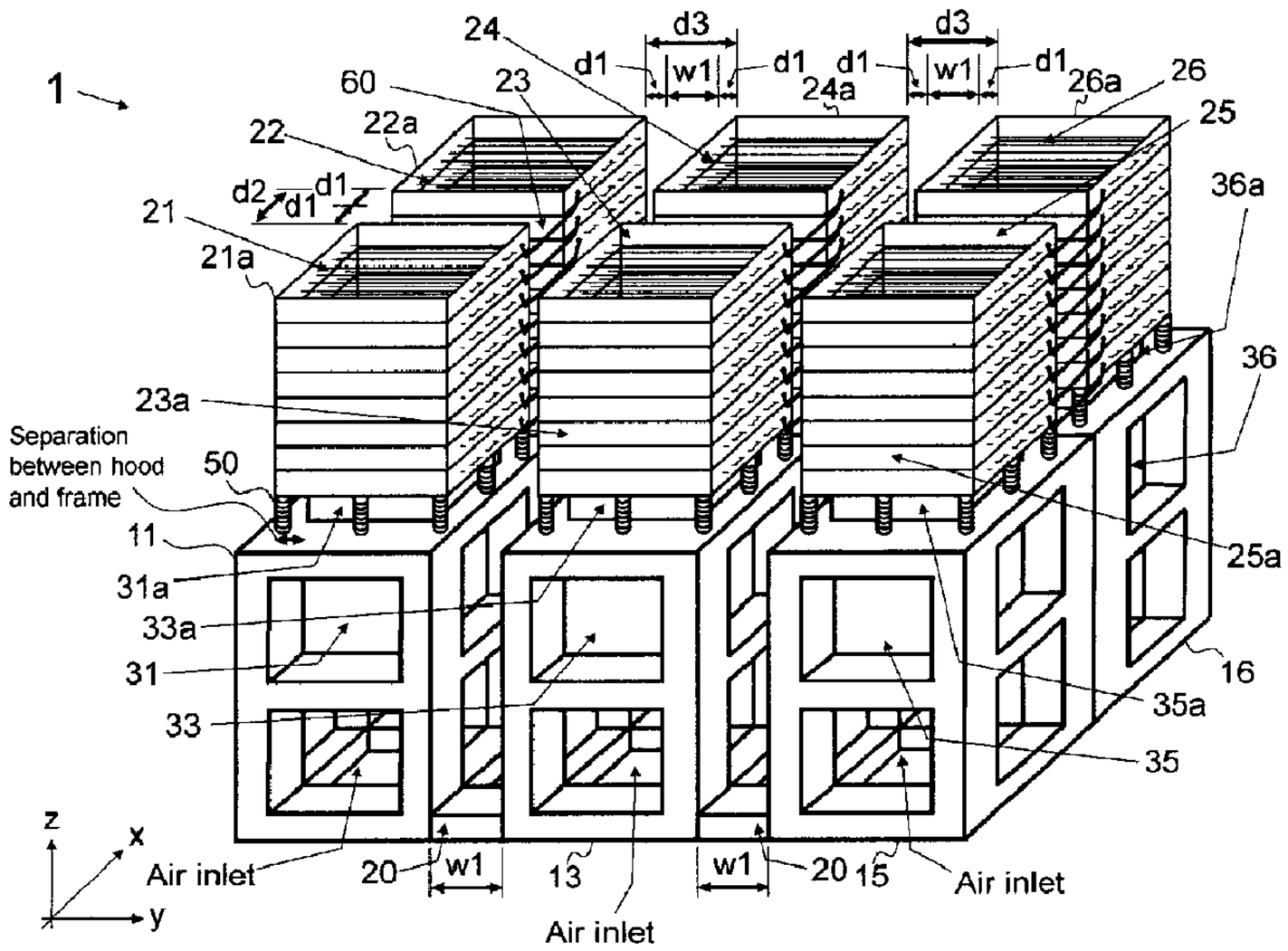
(54) **Titre : TESTEUR DE CHARGE**
(54) **Title: LOAD TESTING APPARATUS**

Fig. 3



(57) **Abrégé/Abstract:**
[Problem] To provide a load tester that comprises a plurality of resistance units and is easy to transport and set up. [Solution] This load tester is provided with two or more resistance units. In each of said resistance units, a plurality of resistor groups are arranged

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(13) **A1**

(57) **Abrégé(suite)/Abstract(continued):**
in a z direction, i.e. vertically, and in each of said resistor groups, resistors are arranged horizontally. Each resistance unit also has a frame that comprises an insulating material and covers the sides of the resistor groups in that resistance unit. The load tester is also provided with two or more separate base sections that have built-in cooling fans. At least one resistance unit is mounted to the top of each base section with insulators interposed therebetween. At least the parts of each frame that face other resistance units are positioned, as viewed from above, a first distance inwards of the sides of the base section to which the corresponding resistance unit is mounted. In order to insulate adjacent resistance units from each other, the resistance units are arranged such that the frames of adjacent resistance units are separated by at least a second distance. The second distance is twice the first distance, and the first distance is at least 45 mm.

Abstract

To provide a load testing apparatus that is configured with a plurality of resistance units and can be transported and set up easily the load testing apparatus includes at least two resistance units each with a plurality of resistor-groups arranged in stages along a z (vertical) direction, and including a frame configured with an insulating material covering a side face of the resistor-groups. Each of the resistor-groups includes resistors arrayed along a horizontal direction and at least two base parts each including a cooling fan. At least one resistance unit is provided on a top of each of the base parts via an insulator. Viewed from above, a face of the frame that at least faces another adjacent resistance unit is positioned in an inner side of a side face of the base part, on which the resistance unit is provided, by a first distance. The resistance units have a gap between the frames of adjacent resistance units, the gap being equal to or larger than a second distance to provide insulation between the adjacent resistance units.

CLAIMS

1. A load testing apparatus comprising:

at least two resistance units each configured with a plurality of resistor-groups arranged in stages along z direction, which is a vertical direction, and including a frame configured with an insulating material covering a side face of the resistor-groups, each of the resistor-groups including resistors arrayed along a horizontal direction; and

at least two base parts each including a cooling fan and provided separately, wherein

at least one of the resistance units are provided on a top of each of the base parts via an insulator,

a face of the frame that at least faces another adjacent resistance unit is positioned in an inner side of a side face of the base part, on which the resistance unit is provided, by a first distance when viewed from above,

the at least two resistance units are disposed to have a gap between the frames of adjacent resistance units, the gap being equal to or larger than a second distance to provide insulation between the adjacent resistance units,

the second distance is twice the first distance, and

the first distance is equal to or larger than 45 mm.

2. The load testing apparatus according to claim 1, wherein the resistance units are first to sixth resistance units, the cooling fans are first to sixth cooling fans, the base parts are first to sixth base parts,

the first base part includes the first cooling fan, the first resistance unit being disposed on a top of the first base part via the insulator,

the second base part includes the second cooling fan, the second resistance unit being disposed on a top of the second base part via the insulator,

the third base part includes the third cooling fan, the third resistance unit being disposed on a top of the third base part via the insulator,

the fourth base part includes the fourth cooling fan, the fourth resistance unit being disposed on a top of the fourth base part via the insulator,

the fifth base part includes the fifth cooling fan, the fifth resistance unit being disposed on a top of the fifth base part via the insulator,

the sixth base part includes the sixth cooling fan, the sixth resistance unit being disposed on a top of the sixth base part via the insulator,

the first base part, the third base part, and the fifth base

part are configured separately,

the second base part, the fourth base part, and the sixth base part are configured separately,

the first resistance unit and the second resistance unit are disposed along x direction perpendicular to the z direction with a gap equal to or larger than the second distance,

the third resistance unit and the fourth resistance unit are disposed along the x direction with a gap equal to or larger than the second distance,

the fifth resistance unit and the sixth resistance unit are disposed along the x direction with a gap equal to or larger than the second distance,

the first resistance unit, the third resistance unit, and the fifth resistance unit are disposed along y direction perpendicular to both the x direction and the z direction with a gap equal to or larger than a third distance larger than the second distance, and

the second resistance unit, the fourth resistance unit, and the sixth resistance unit are disposed along the y direction with a gap equal to or larger than the third distance.

3. The load testing apparatus according to claim 2, wherein

the first base part and the second base part are integrated,

the third base part and the fourth base part are integrated, and

the fifth base part and the sixth base part are integrated.

4. The load testing apparatus according to claim 2, wherein

the resistor-group is configured with a plurality of bar resistors each extending in the y direction arrayed along the x direction,

a gap adjusting member is provided between the first base part and the third base part, the second base part and the fourth base part, the third base part and the fifth base part, and the fourth base part and the sixth base part,

a width of the gap adjusting member in the y direction is larger than the second distance,

the third distance is a sum of twice the first distance and the width of the gap adjusting member in the y direction, and

a projecting length of a terminal of the resistor projecting from the frame covering a side face of the resistor-group is smaller than the first distance.

5. The load testing apparatus according to claim 2, further comprising

a coupling cable or a shorting bar, wherein

the coupling cable or the shorting bar is a coupling member used for detachably coupling, in a serial manner, adjacent resistor-groups of two resistance units adjacent along the x direction with a gap equal to or larger than the second distance, at least two couplings being provided between the resistor-groups adjacent along the x direction, and

the insulator has a size corresponding to a rated voltage of a power source when conducting a load test of the power source using a group of resistance units including serially connected resistor-groups of two resistance units adjacent along the x direction with a gap equal to or larger than the second distance.

6. The load testing apparatus according to claim 5, wherein

the coupling cable or the shorting bar is coupled to the resistor-group via a switching device including a case filled with an inactive gas, the case being embedded with a fixed connection point, a movable connection point, and a driving member that drives the movable connection point.

7. The load testing apparatus according to claim 2, wherein

a sleeve shaped hood is provided between the cooling fan and the resistance unit to introduce cooling air from the cooling fan to the resistance unit, the cooling fan being each of the first to sixth cooling fans, the resistance unit being each of the first to sixth resistance units, and

an upper portion of the sleeve shaped hood is positioned in an inner side of the frame covering a side face of the resistor-group with a gap of 10 mm or larger between the hood and the frame.

8. The load testing apparatus according to claim 1, wherein

the resistance units are a first resistance unit and a second resistance unit,

the cooling fans are a first cooling fan and a second cooling fan,

the base parts are a first base part and a second base part,

the first base part includes the first cooling fan, the first resistance unit being disposed on a top of the first base part,

the second base part includes the second cooling fan, the second resistance unit being disposed on a top of the second base part, and

the first resistance unit and the second resistance unit are disposed along x direction perpendicular to the z direction with a gap equal to or larger than the second distance.

9. A load testing apparatus comprising:

at least two resistance units each configured with a plurality of resistor-groups and including a frame configured with an insulating material covering a side face of the resistor-groups, each of the resistor-groups including an array of resistors; and

at least two cooling parts each including a cooling fan and provided separately, wherein

at least one of the resistance units is attached to each of the cooling parts via an insulator,

a face of the frame that at least faces another adjacent resistance unit is positioned in an inner side of a side face of the cooling part, to which the resistance unit

is attached, by a first distance when viewed from above,

the at least two resistance units are disposed to have a gap between the frames of adjacent resistance units, the gap being equal to or larger than a second distance to provide insulation between the adjacent resistance units,

the second distance is twice the first distance, and

the first distance is equal to or larger than 45 mm.

10. The load testing apparatus according to claim 9, wherein

the resistance units are a first resistance unit and a second resistance unit,

the cooling fans are a first cooling fan and a second cooling fan,

the cooling parts are a first cooling part and a second cooling part,

the first cooling part includes the first cooling fan, the first resistance unit being attached to the first cooling part,

the second cooling part includes the second cooling fan, the second resistance unit being attached to the second cooling part, and

the first resistance unit and the second resistance unit are disposed with a gap equal to or larger than the second distance.

11. The load testing apparatus according to claim 9, wherein

the cooling fan exhausts air in a horizontal direction,

the resistance unit includes an air inlet opening in the horizontal direction and an exhaust outlet opening in the horizontal direction, and

a duct including an air inlet opening in the horizontal direction and an exhaust outlet opening in a vertical direction provided in a downstream from the resistance unit is provided to exhaust air upward.

CLAIMS

1. A load testing apparatus comprising:

at least two resistance units each configured with a plurality of resistor-groups arranged in stages along z direction, which is a vertical direction, and including a frame configured with an insulating material covering a side face of the resistor-groups, each of the resistor-groups including resistors arrayed along a horizontal direction; and

at least two base parts each including a cooling fan and provided separately, wherein

at least one of the resistance units are provided on a top of each of the base parts via an insulator,

a face of the frame that at least faces another adjacent resistance unit is positioned in an inner side of a side face of the base part, on which the resistance unit is provided, by a first distance when viewed from above,

the at least two resistance units are disposed to have a gap between the frames of adjacent resistance units, the gap being equal to or larger than a second distance to provide insulation between the adjacent resistance units,

the second distance is twice the first distance, and

the first distance is equal to or larger than 45 mm.

2. The load testing apparatus according to claim 1, wherein the resistance units are first to sixth resistance units, the cooling fans are first to sixth cooling fans, the base parts are first to sixth base parts,

the first base part includes the first cooling fan, the first resistance unit being disposed on a top of the first base part via the insulator,

the second base part includes the second cooling fan, the second resistance unit being disposed on a top of the second base part via the insulator,

the third base part includes the third cooling fan, the third resistance unit being disposed on a top of the third base part via the insulator,

the fourth base part includes the fourth cooling fan, the fourth resistance unit being disposed on a top of the fourth base part via the insulator,

the fifth base part includes the fifth cooling fan, the fifth resistance unit being disposed on a top of the fifth base part via the insulator,

the sixth base part includes the sixth cooling fan, the sixth resistance unit being disposed on a top of the sixth base part via the insulator,

the first base part, the third base part, and the fifth base

part are configured separately,

the second base part, the fourth base part, and the sixth base part are configured separately,

the first resistance unit and the second resistance unit are disposed along x direction perpendicular to the z direction with a gap equal to or larger than the second distance,

the third resistance unit and the fourth resistance unit are disposed along the x direction with a gap equal to or larger than the second distance,

the fifth resistance unit and the sixth resistance unit are disposed along the x direction with a gap equal to or larger than the second distance,

the first resistance unit, the third resistance unit, and the fifth resistance unit are disposed along y direction perpendicular to both the x direction and the z direction with a gap equal to or larger than a third distance larger than the second distance, and

the second resistance unit, the fourth resistance unit, and the sixth resistance unit are disposed along the y direction with a gap equal to or larger than the third distance.

3. The load testing apparatus according to claim 2, wherein

the first base part and the second base part are integrated,

the third base part and the fourth base part are integrated, and

the fifth base part and the sixth base part are integrated.

4. The load testing apparatus according to claim 2, wherein

the resistor-group is configured with a plurality of bar resistors each extending in the y direction arrayed along the x direction,

a gap adjusting member is provided between the first base part and the third base part, the second base part and the fourth base part, the third base part and the fifth base part, and the fourth base part and the sixth base part,

a width of the gap adjusting member in the y direction is larger than the second distance,

the third distance is a sum of twice the first distance and the width of the gap adjusting member in the y direction, and

a projecting length of a terminal of the resistor projecting from the frame covering a side face of the resistor-group is smaller than the first distance.

5. The load testing apparatus according to claim 2, further comprising

a coupling cable or a shorting bar, wherein

the coupling cable or the shorting bar is a coupling member used for detachably coupling, in a serial manner, adjacent resistor-groups of two resistance units adjacent along the x direction with a gap equal to or larger than the second distance, at least two couplings being provided between the resistor-groups adjacent along the x direction, and

the insulator has a size corresponding to a rated voltage of a power source when conducting a load test of the power source using a group of resistance units including serially connected resistor-groups of two resistance units adjacent along the x direction with a gap equal to or larger than the second distance.

6. The load testing apparatus according to claim 5, wherein

the coupling cable or the shorting bar is coupled to the resistor-group via a switching device including a case filled with an inactive gas, the case being embedded with a fixed connection point, a movable connection point, and a driving member that drives the movable connection point.

7. The load testing apparatus according to claim 5, further comprising

three coupling switch units, each of the three coupling switch units including a main body, a switching unit for controlling

resistor-groups used for a load test among the plurality of resistor-groups, and a first bus bar coupled to a first terminal of the switching unit and one of power source lines from a power source subjected to the load test, wherein

a terminal of the resistor of the resistor-group is coupled to a second terminal of the switching unit,

the main body includes a first face and a second face vertical to the first face, the switching unit being attached to the first face, the first bus bar being attached to the second face via an insulator with a certain gap between the first bus bar and the second face, and

the three coupling switch units are detachably attached to the first resistance unit, the third resistance unit, and the fifth resistance unit so as each of the three switching units to be positioned between the first bus bar and the terminal of the resistor coupled to the switching unit via a coupling cable.

8. The load testing apparatus according to claim 2, wherein

a sleeve shaped hood is provided between the cooling fan and the resistance unit to introduce cooling air from the cooling fan to the resistance unit, the cooling fan being each of the first to sixth cooling fans, the resistance unit being each of the first to sixth resistance units, and

an upper portion of the sleeve shaped hood is positioned in an inner side of the frame covering a side face of the resistor-group with a gap of 10 mm or larger between the hood and the frame.

9. The load testing apparatus according to claim 1, wherein

the resistance units are a first resistance unit and a second resistance unit,

the cooling fans are a first cooling fan and a second cooling fan,

the base parts are a first base part and a second base part,

the first base part includes the first cooling fan, the first resistance unit being disposed on a top of the first base part,

the second base part includes the second cooling fan, the second resistance unit being disposed on a top of the second base part, and

the first resistance unit and the second resistance unit are disposed along x direction perpendicular to the z direction with a gap equal to or larger than the second distance.

10. A load testing apparatus comprising:

at least two resistance units each configured with a plurality of resistor-groups and including a frame configured with an insulating material covering a side face of the resistor-groups,

each of the resistor-groups including an array of resistors; and

at least two cooling parts each including a cooling fan and provided separately, wherein

at least one of the resistance units is attached to each of the cooling parts via an insulator,

a face of the frame that at least faces another adjacent resistance unit is positioned in an inner side of a side face of the cooling part, to which the resistance unit is attached, by a first distance when viewed from above,

the at least two resistance units are disposed to have a gap between the frames of adjacent resistance units, the gap being equal to or larger than a second distance to provide insulation between the adjacent resistance units,

the second distance is twice the first distance, and

the first distance is equal to or larger than 45 mm.

11. The load testing apparatus according to claim 10, wherein

the resistance units are a first resistance unit and a second resistance unit,

the cooling fans are a first cooling fan and a second cooling fan,

the cooling parts are a first cooling part and a second cooling part,

the first cooling part includes the first cooling fan, the first resistance unit being attached to the first cooling part,

the second cooling part includes the second cooling fan, the second resistance unit being attached to the second cooling part, and

the first resistance unit and the second resistance unit are disposed with a gap equal to or larger than the second distance.

12. The load testing apparatus according to claim 10, wherein

the cooling fan exhausts air in a horizontal direction,

the resistance unit includes an air inlet opening in the horizontal direction and an exhaust outlet opening in the horizontal direction, and

a duct including an air inlet opening in the horizontal direction and an exhaust outlet opening in a vertical direction provided in a downstream from the resistance unit is provided to exhaust air upward.

Fig. 1

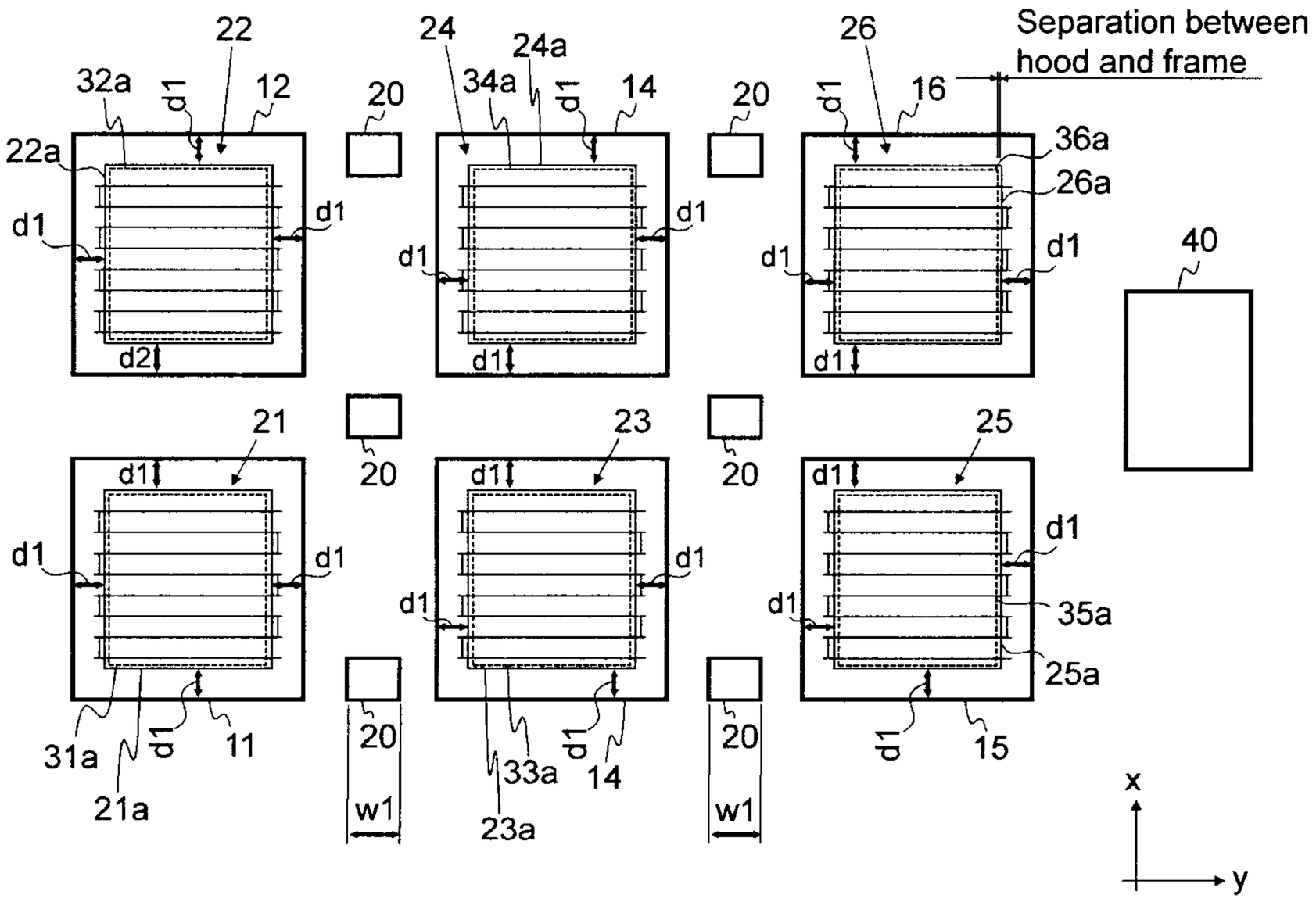

22
24
24a
26
Separation between hood and frame
32a
d1
12
20
34a
14
16
22a
36a
26a
40
21
23
25
35a
25a
31a
21a
11
33a
14
15
w1
x
y

Fig. 2

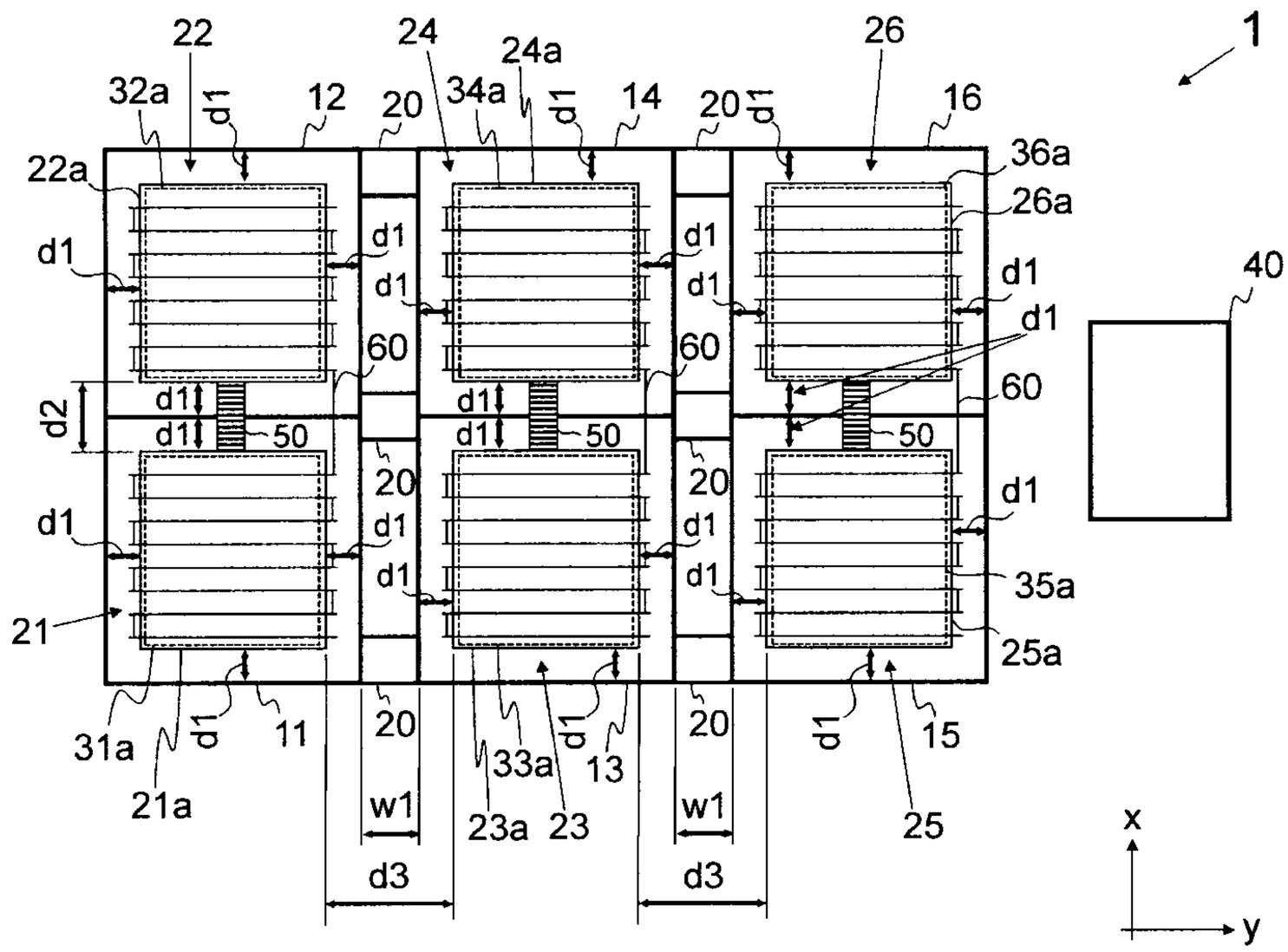

1
22
24
24a
26
32a
d1
12
20
34a
14
16
22a
36a
26a
40
60
d2
50
21
35a
25a
31a
21a
11
33a
23a
23
13
15
25
w1
d3
x
y

Fig. 3

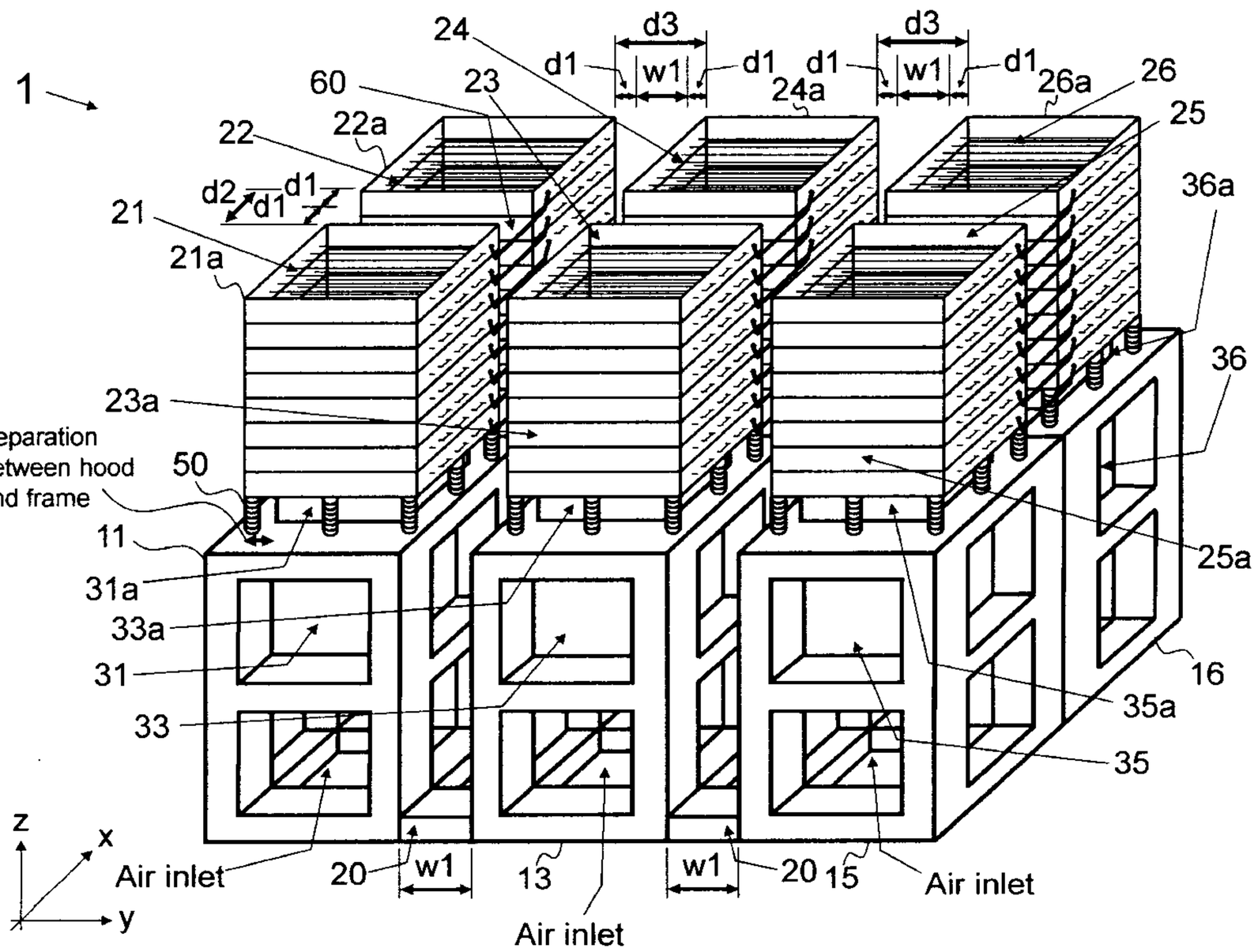

1
24
d3
d1
w1
d1
d1
d3
w1
d1
26a
26
25
24a
60
23
22
22a
d2
d1
d1
21
21a
36a
36
23a
Separation
between hood
and frame
50
11
31a
33a
31
33
25a
16
35a
35
z
x
y
Air inlet
20
w1
13
w1
20
15
Air inlet
Air inlet

Fig. 4

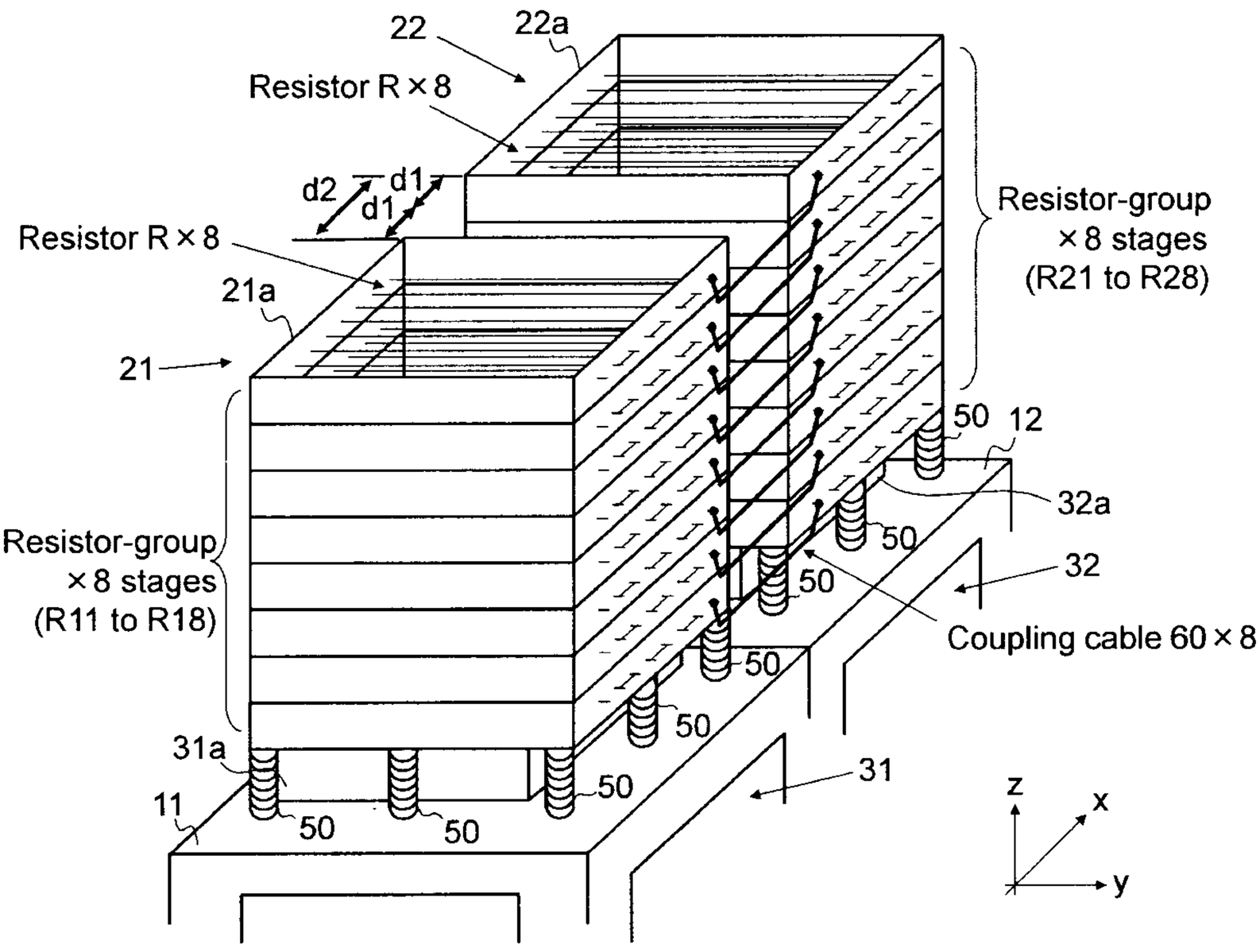

22
22a
Resistor R × 8
d2
d1
d1
Resistor R × 8
21a
21
Resistor-group
× 8 stages
(R11 to R18)
Resistor-group
× 8 stages
(R21 to R28)
50
12
32a
50
32
50
Coupling cable 60 × 8
50
50
31a
50
50
11
31
z
x
y

Fig. 5

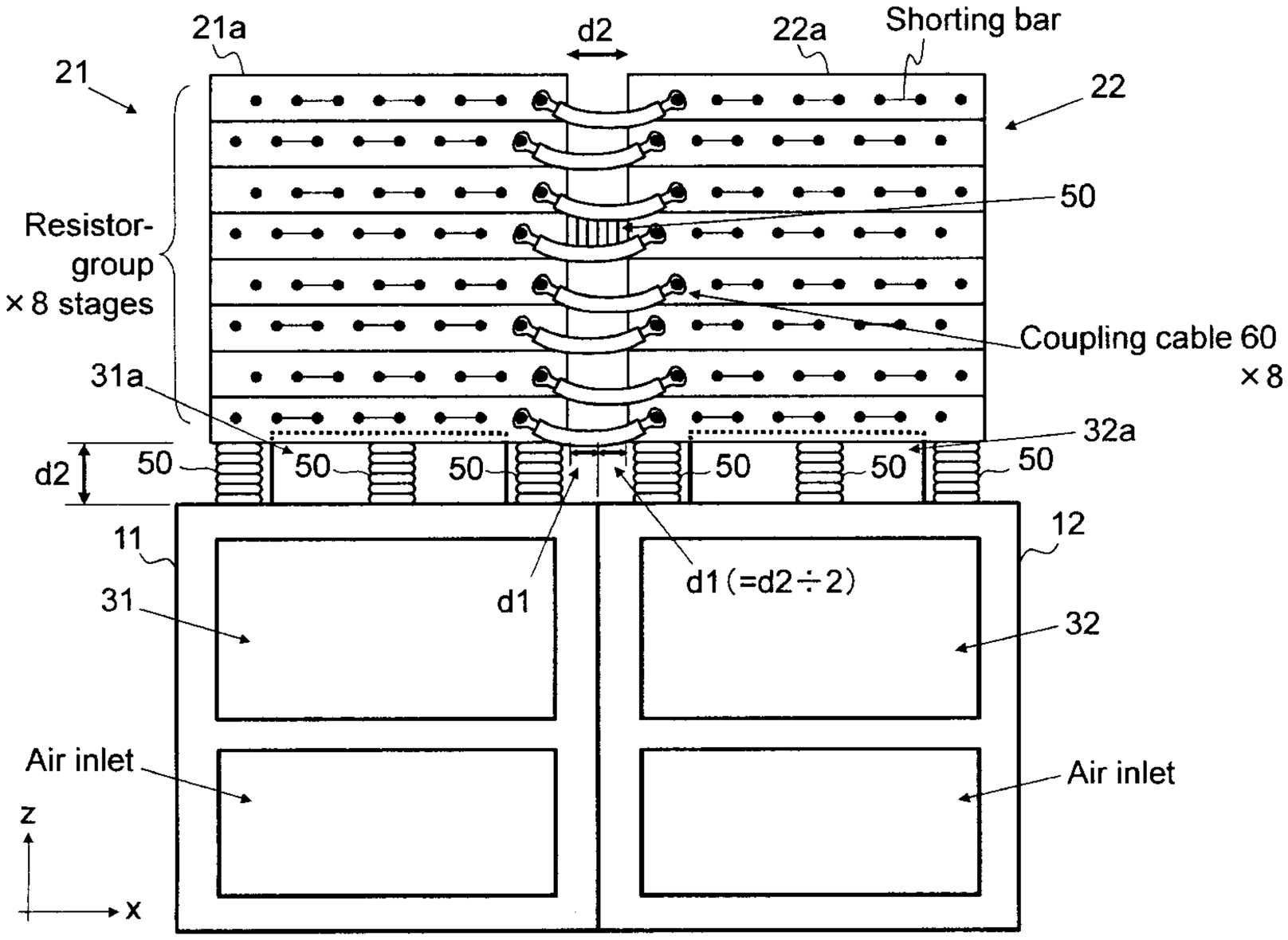

21a
d2
22a
Shorting bar
21
22
Resistor-group × 8 stages
50
Coupling cable 60 × 8
31a
32a
d2
50
50
50
50
50
50
50
12
11
d1
d1 (=d2÷2)
31
32
Air inlet
Air inlet
z
x

Fig. 6

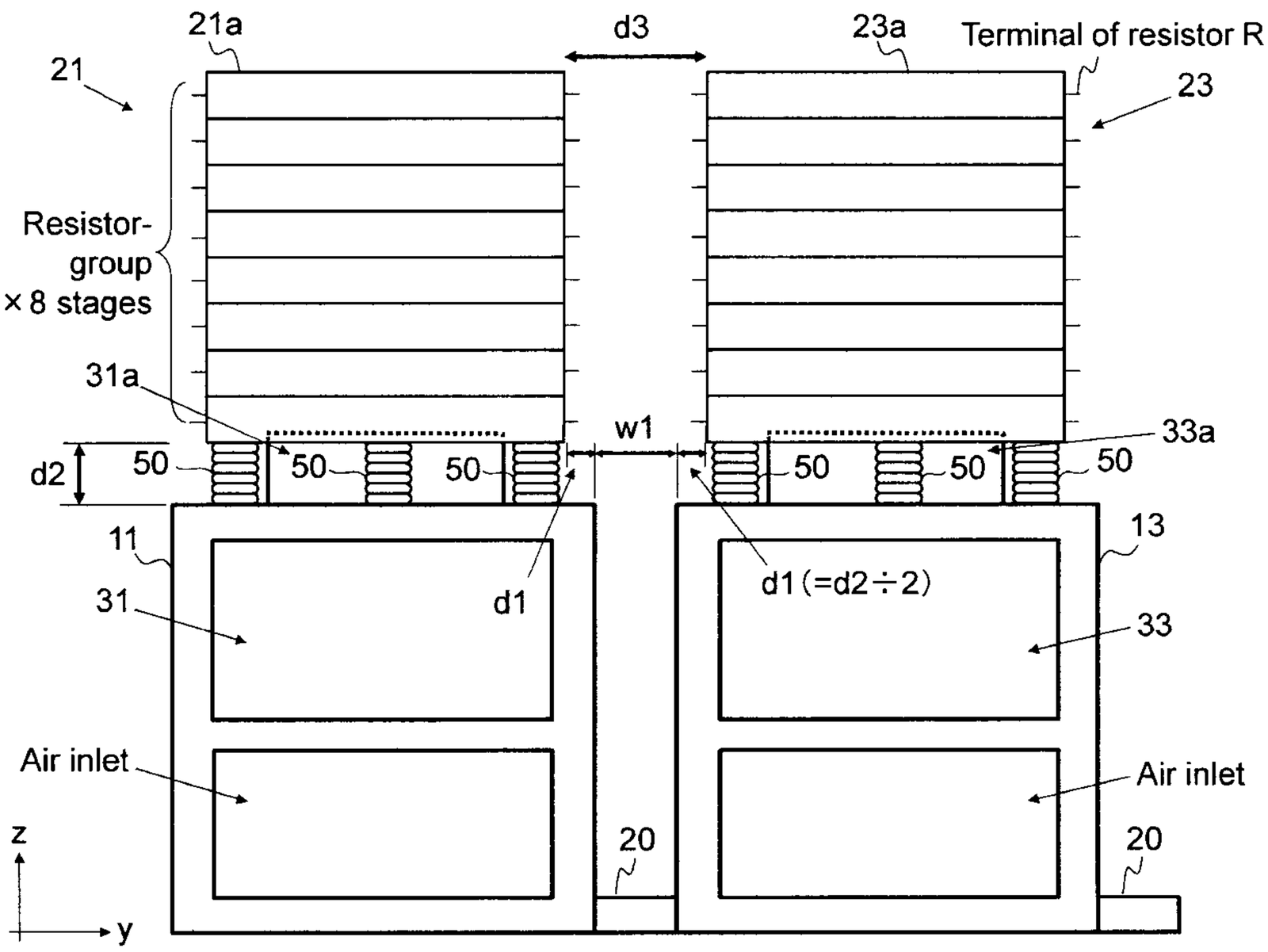

21a
d3
23a
Terminal of resistor R
21
23
Resistor-group × 8 stages
31a
w1
33a
d2
50
50
50
50
50
50
11
13
31
d1
d1 (=d2÷2)
33
Air inlet
Air inlet
z
y
20
20

Fig. 7

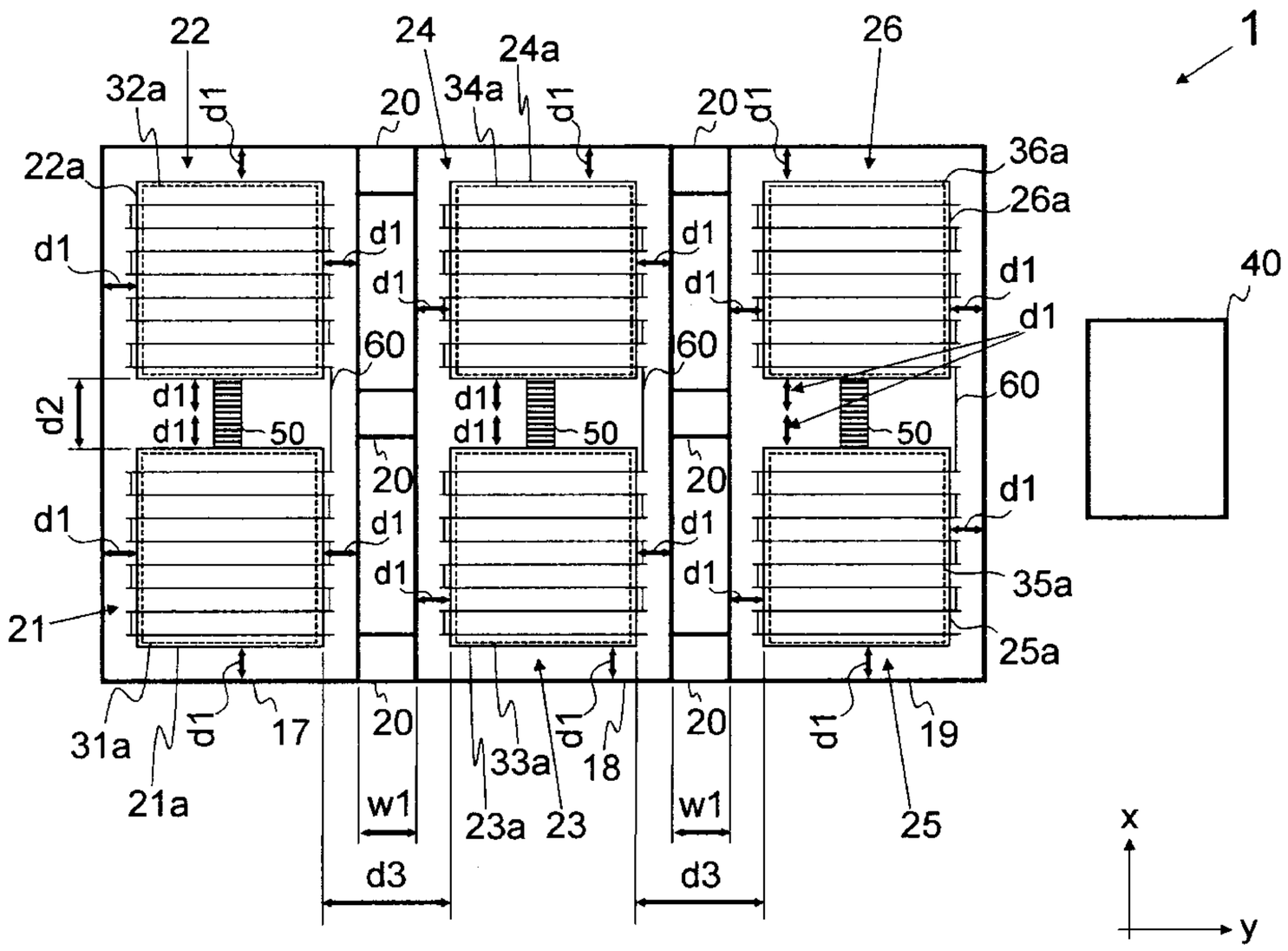

22
24
24a
26
1
32a
d1
20
34a
d1
20
d1
22a
36a
26a
d1
d1
d1
d1
d1
d1
d1
40
60
60
d1
d1
d1
d2
d1
50
50
60
20
20
d1
d1
d1
d1
d1
d1
d1
d1
35a
21
25a
31a
d1
17
20
20
d1
18
20
d1
19
21a
33a
23
w1
w1
25
23a
d3
d3
x
y

Fig. 8

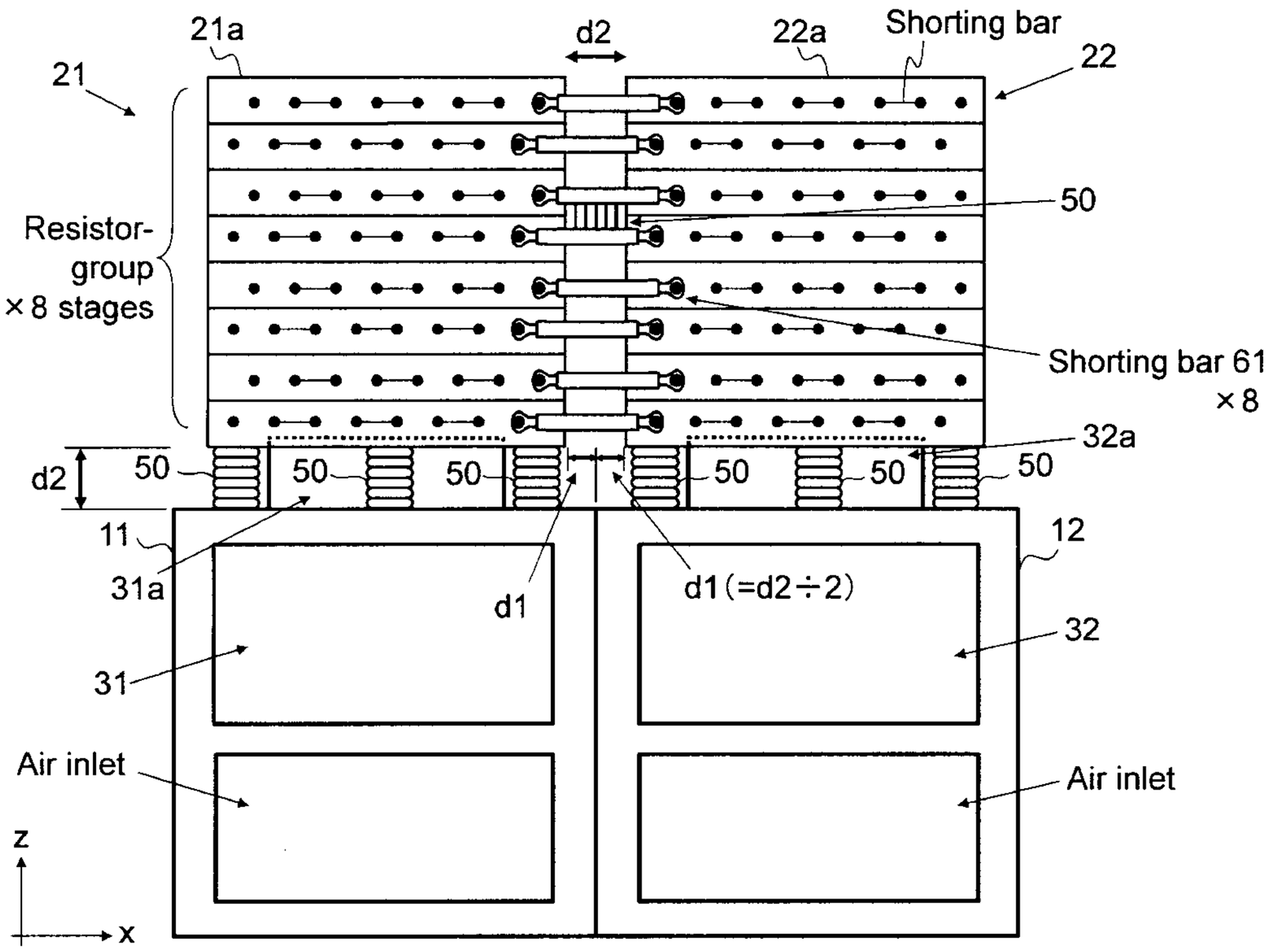

21a
d2
22a
Shorting bar
22
21
Resistor-group ×8 stages
50
Shorting bar 61 ×8
32a
d2
50
50
50
50
50
50
11
12
31a
d1
d1(=d2÷2)
32
31
Air inlet
Air inlet
z
x

Fig. 9

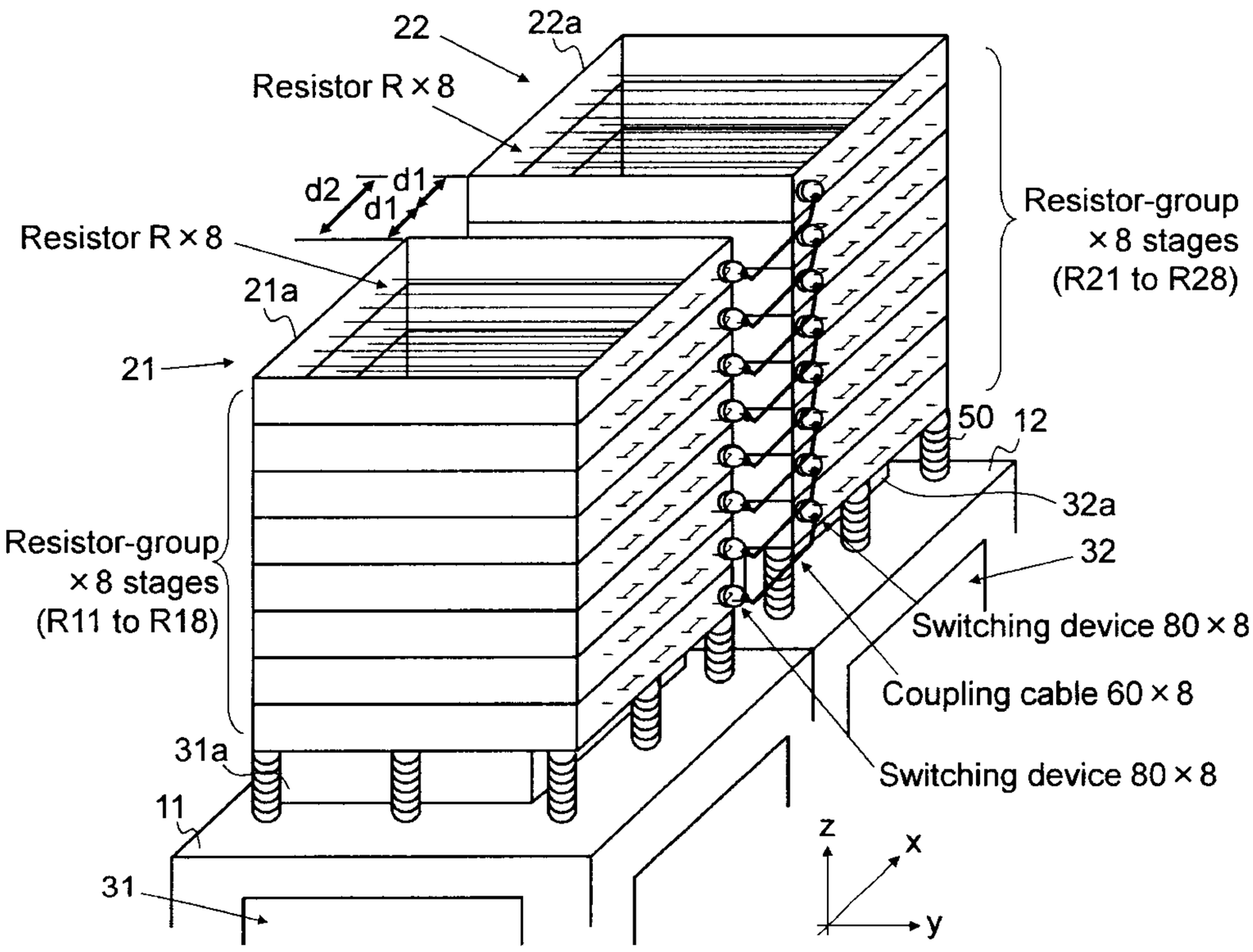

22
22a
Resistor R × 8
d2
d1
d1
Resistor R × 8
21a
21
Resistor-group
× 8 stages
(R21 to R28)
50
12
32a
32
Switching device 80 × 8
Coupling cable 60 × 8
Switching device 80 × 8
Resistor-group
× 8 stages
(R11 to R18)
31a
11
31
z
x
y

Fig. 10

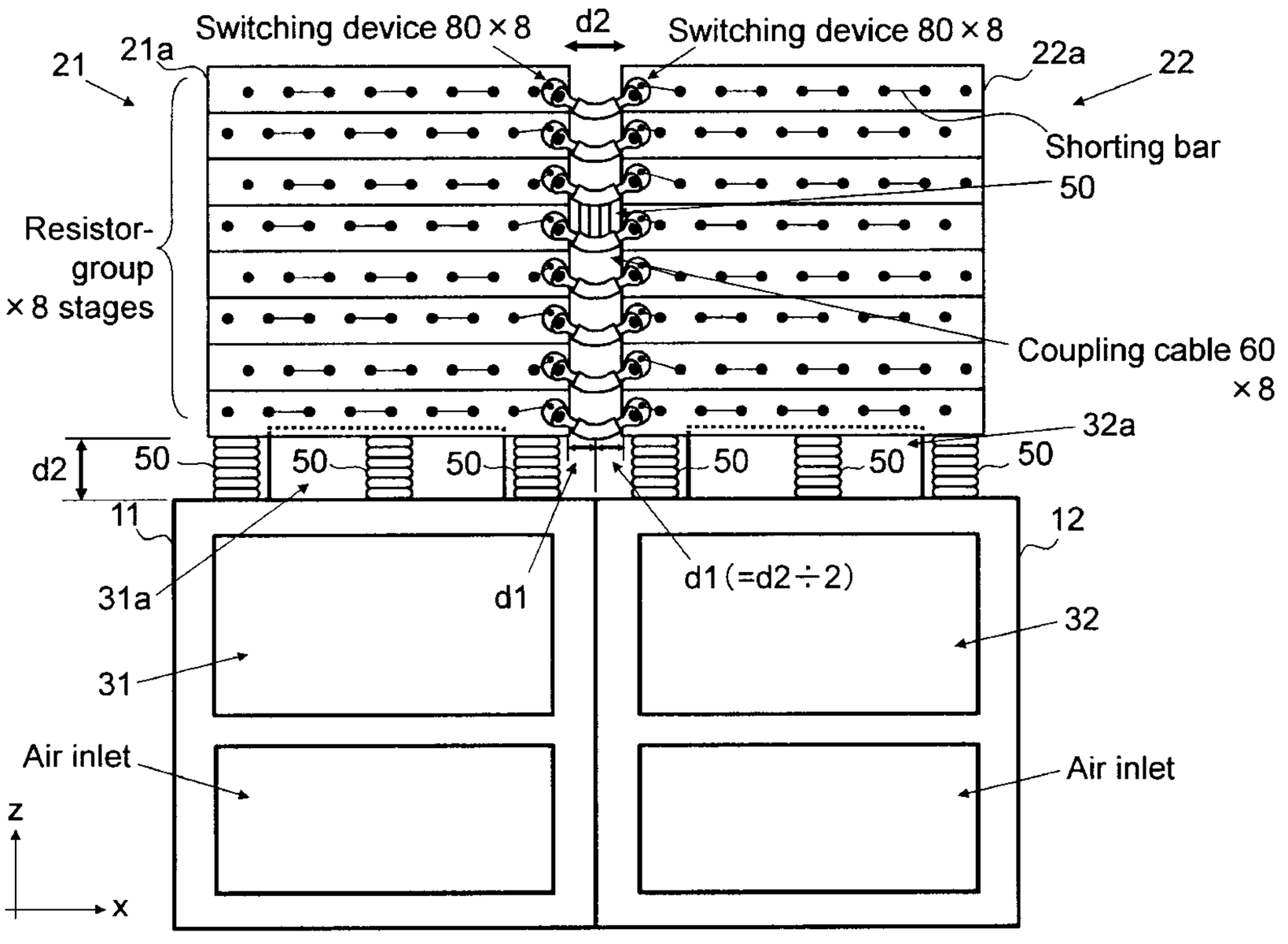

Switching device 80 × 8
d2
Switching device 80 × 8
21
21a
22a
22
Shorting bar
50
Resistor-group × 8 stages
Coupling cable 60 × 8
32a
d2
50
50
50
50
50
50
11
12
31a
d1
d1 (=d2÷2)
32
31
Air inlet
Air inlet
z
x

Fig. 11

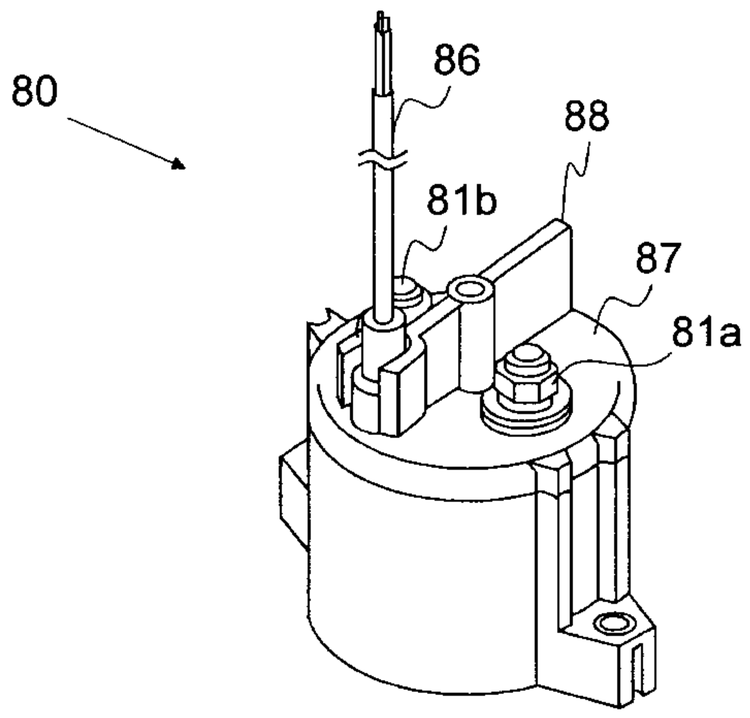


Fig. 12

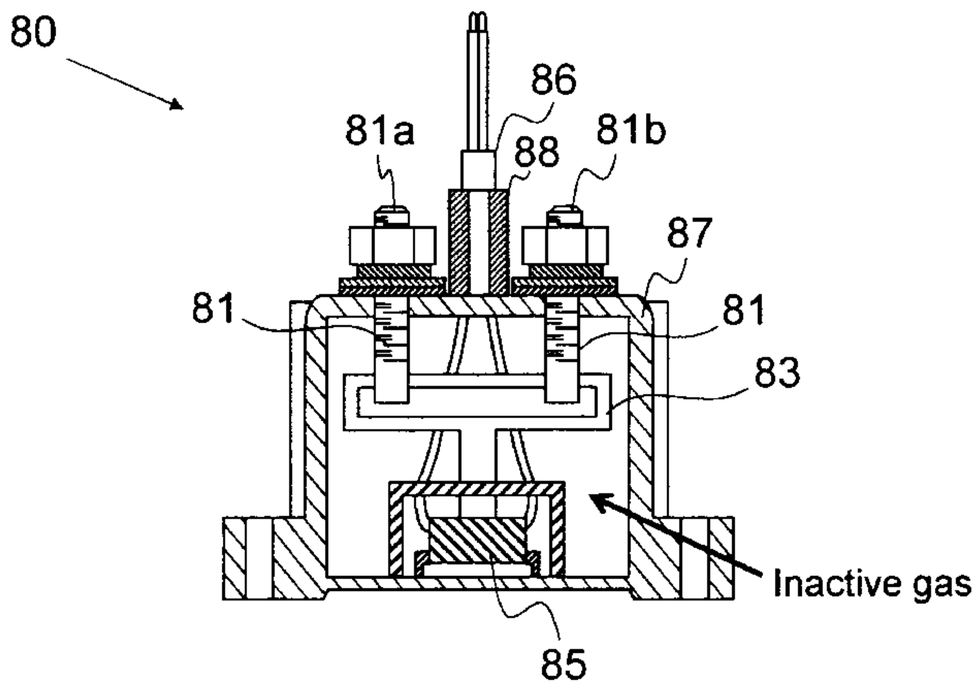


Fig. 13

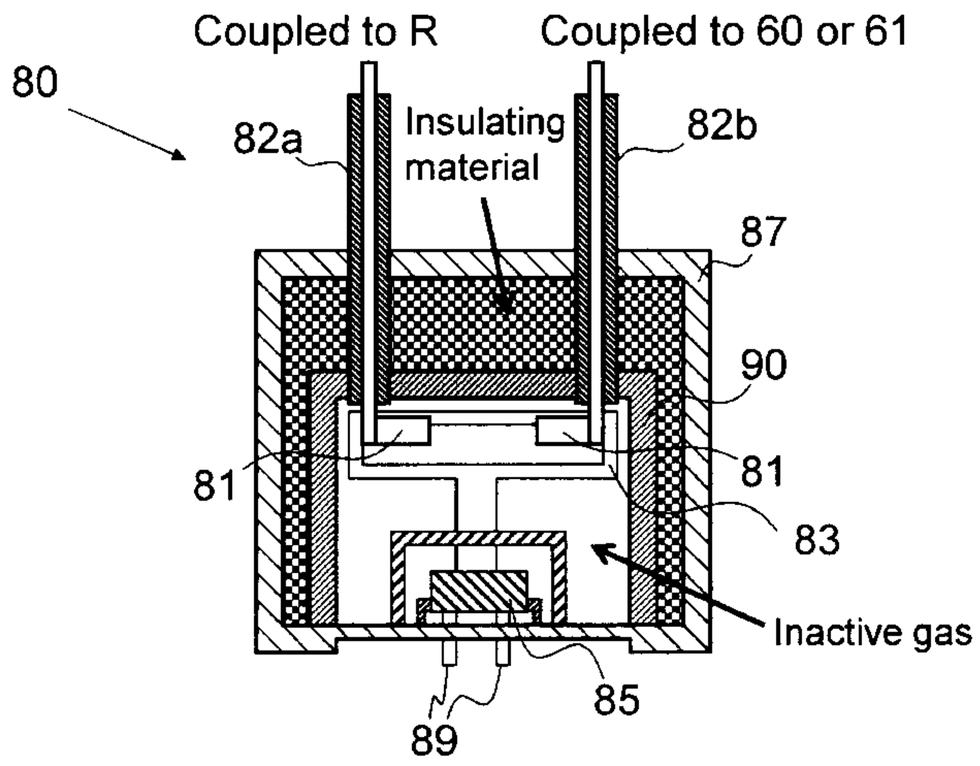

Coupled to R
Coupled to 60 or 61
80
82a
Insulating material
82b
87
90
81
81
83
Inactive gas
85
89

Fig. 14

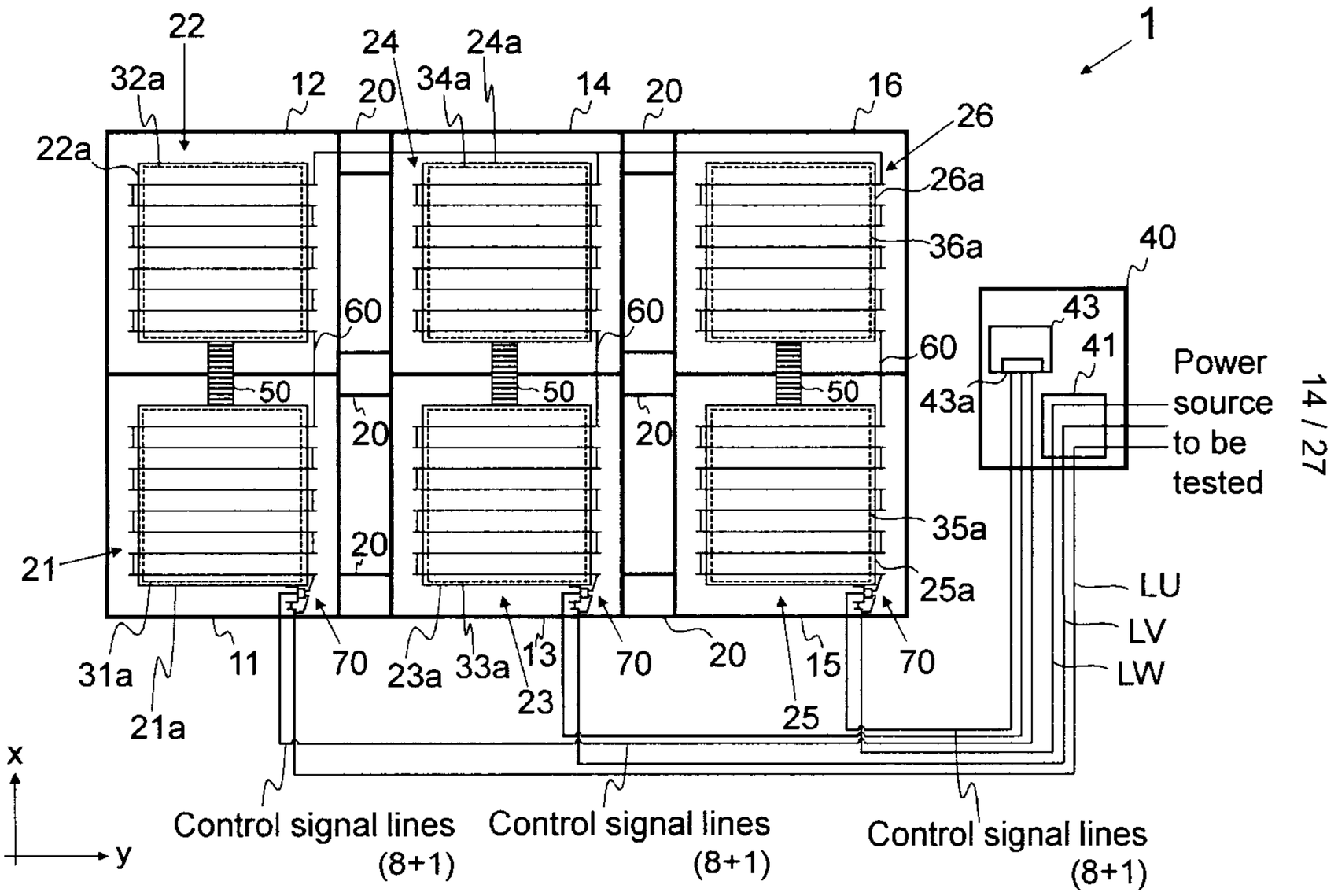

1
22
24
24a
32a
12
20
34a
14
20
16
26
22a
26a
36a
40
60
60
60
43
41
50
50
50
Power source to be tested
43a
20
20
20
21
35a
25a
LU
LV
LW
31a
21a
11
70
23a
33a
13
23
70
20
15
25
70
x
y
Control signal lines (8+1)
Control signal lines (8+1)
Control signal lines (8+1)

Fig. 15

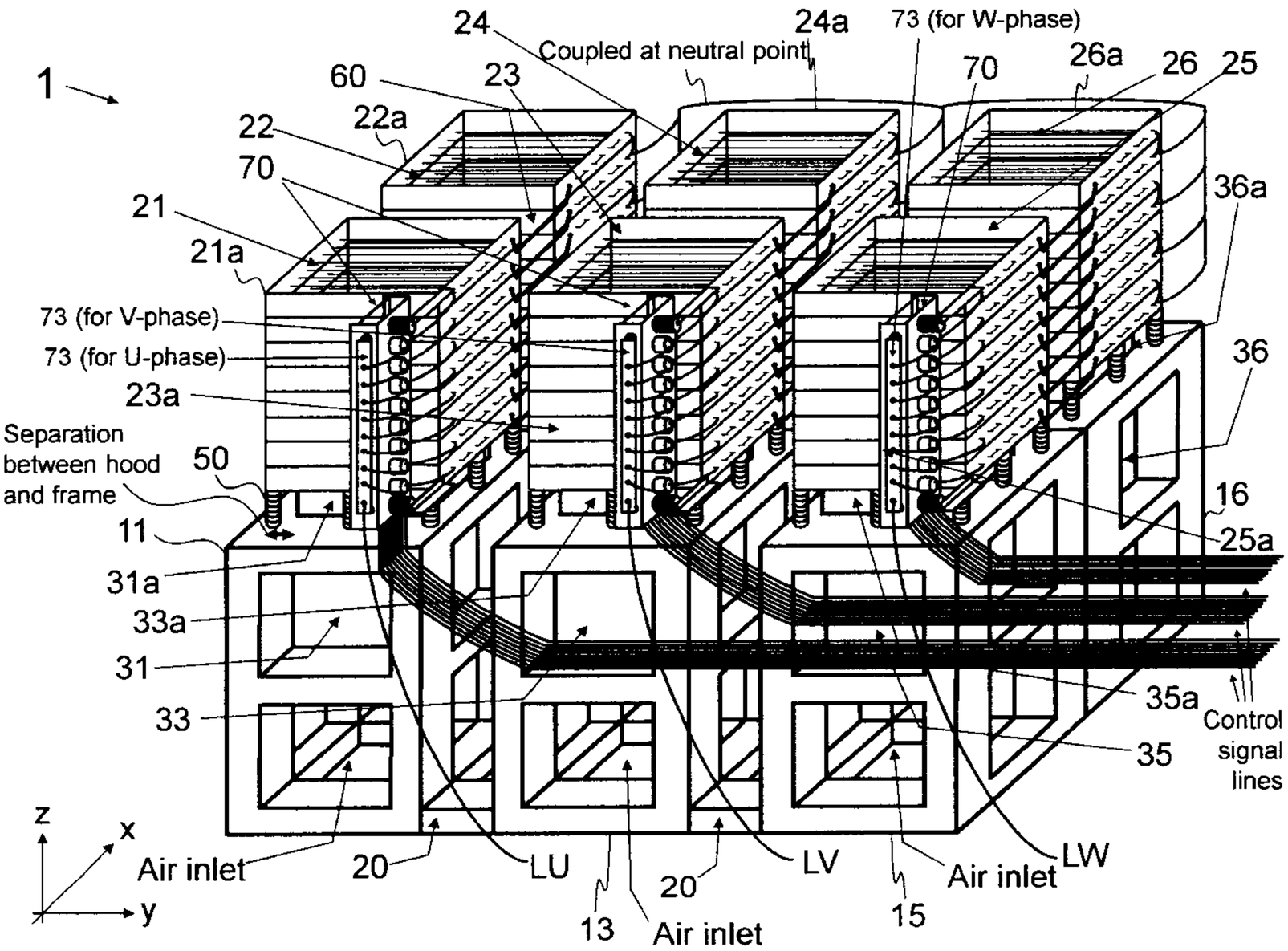

1
24
24a
73 (for W-phase)
Coupled at neutral point
60
23
70
26a
26
25
22
22a
70
21
21a
36a
73 (for V-phase)
73 (for U-phase)
23a
36
Separation between hood and frame
50
16
11
25a
31a
33a
31
35a
Control signal lines
33
35
z
x
y
Air inlet
20
LU
13
Air inlet
20
LV
15
Air inlet
LW

Fig. 16

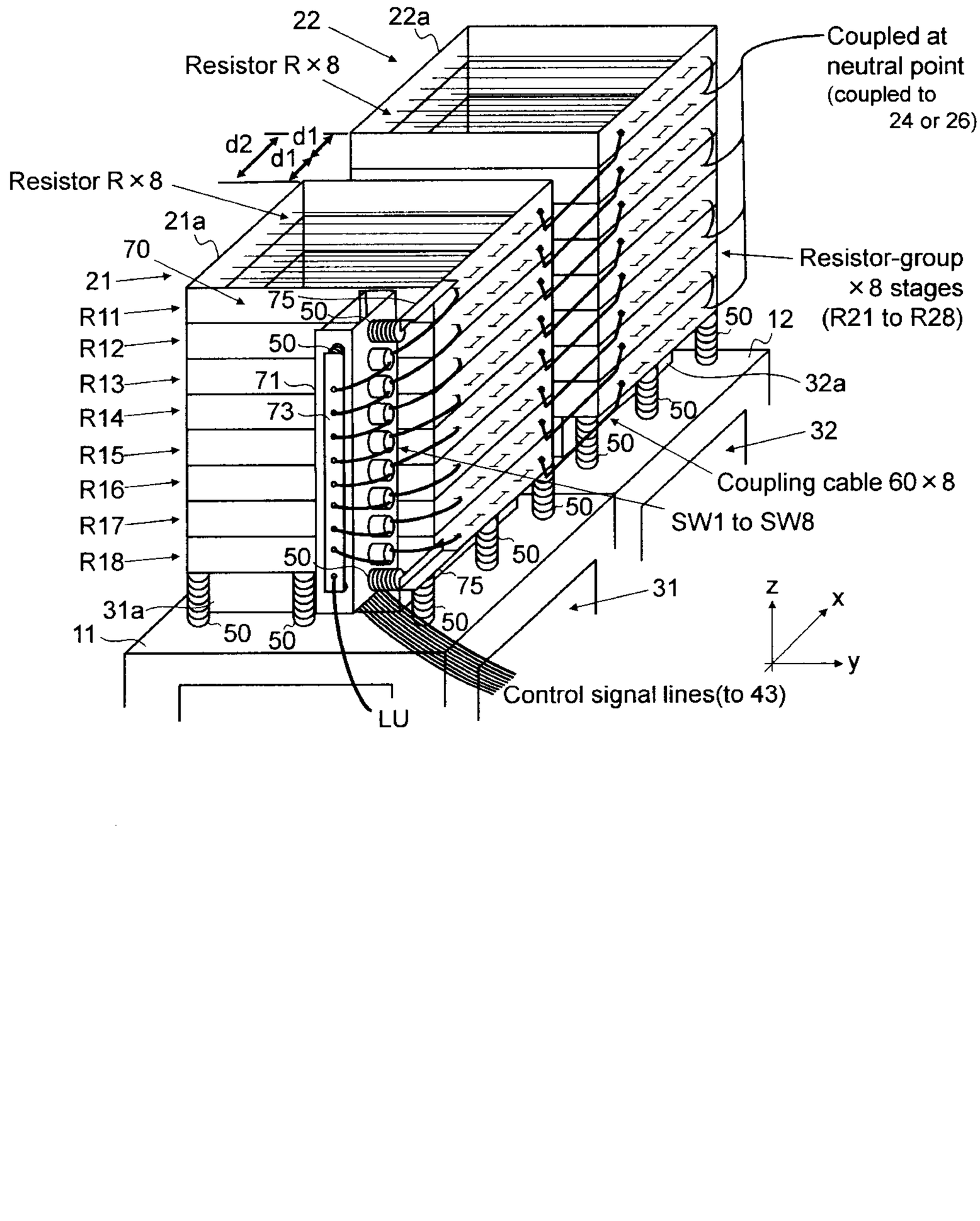

22
22a
Resistor R × 8
d2
d1
d1
Resistor R × 8
21a
70
21
R11
R12
R13
R14
R15
R16
R17
R18
75
50
50
71
73
50
50
31a
11
50
50
LU
Coupled at
neutral point
(coupled to
24 or 26)
Resistor-group
× 8 stages
(R21 to R28)
50
12
32a
50
50
32
Coupling cable 60 × 8
SW1 to SW8
50
50
75
50
31
z
x
y
Control signal lines(to 43)

Fig. 17

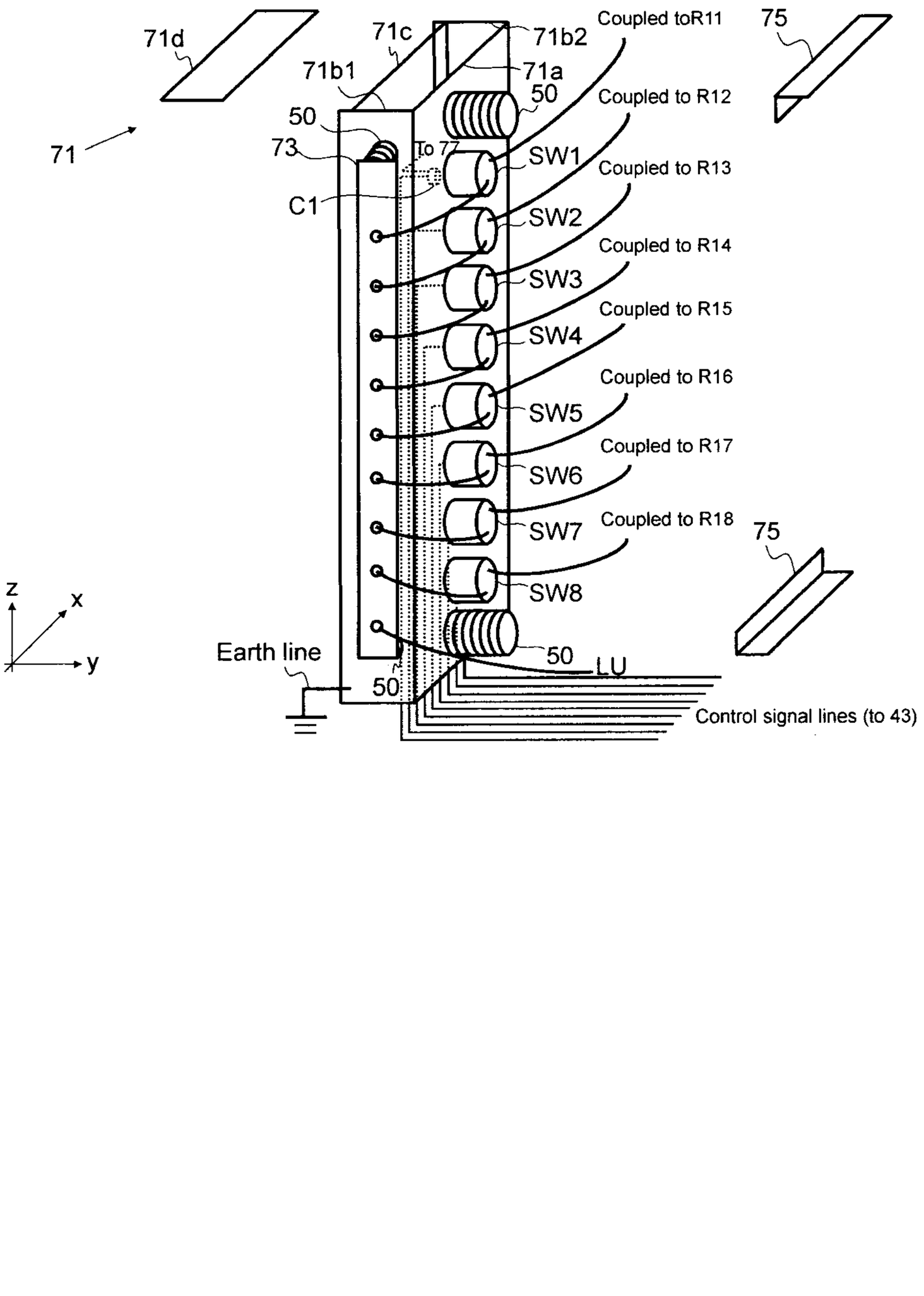

71d
71c
71b2
71b1
71a
71
50
73
To 77
C1
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
Coupled toR11
Coupled to R12
Coupled to R13
Coupled to R14
Coupled to R15
Coupled to R16
Coupled to R17
Coupled to R18
75
Earth line
LU
Control signal lines (to 43)
z
x
y

Fig. 18

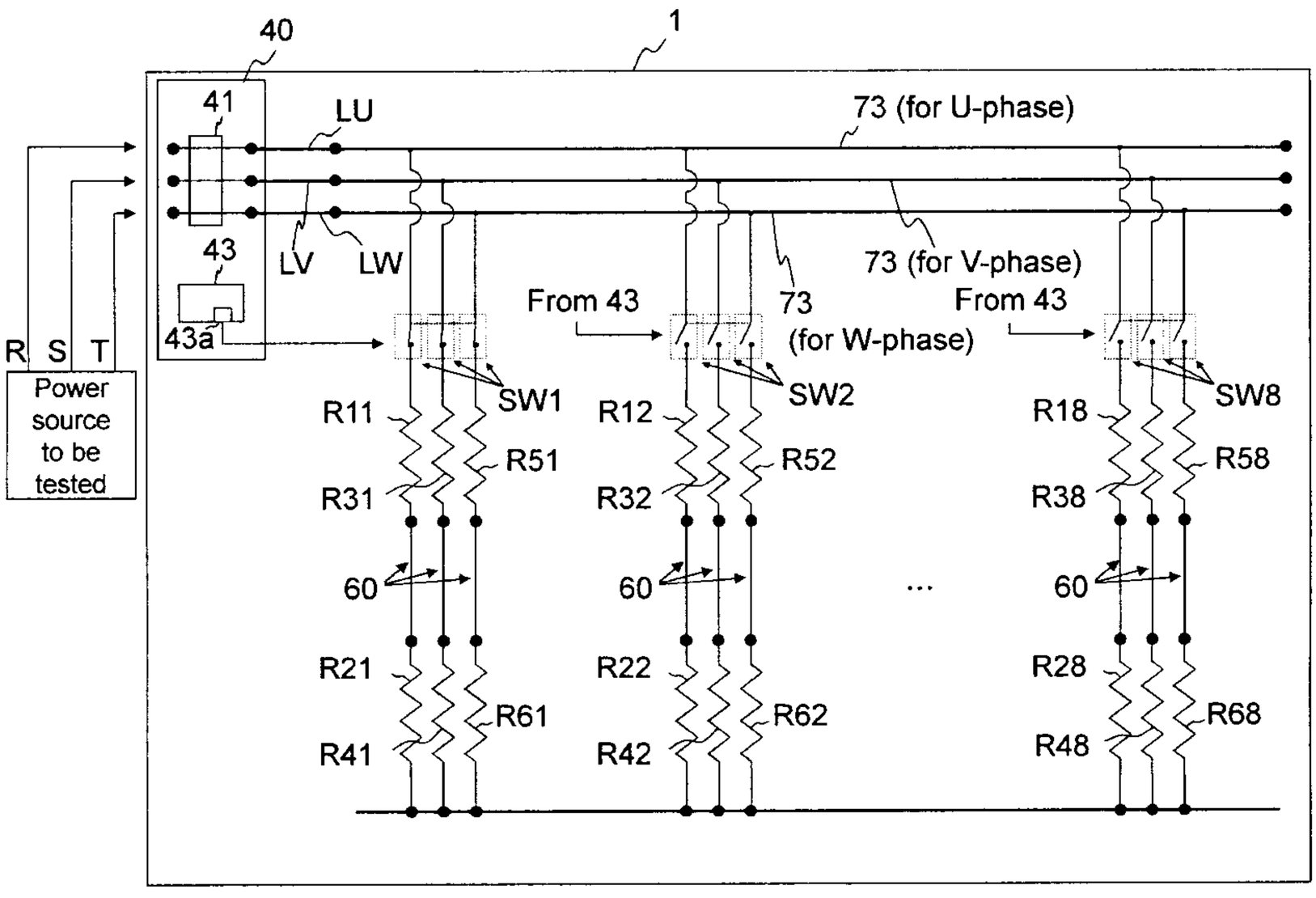

40
1
41
LU
73 (for U-phase)
43
LV
LW
73 (for V-phase)
43a
From 43
73
(for W-phase)
From 43
R S T
Power source to be tested
SW1
SW2
SW8
R11
R12
R18
R51
R52
R58
R31
R32
R38
60
60
60
...
R21
R22
R28
R61
R62
R68
R41
R42
R48

Fig. 19

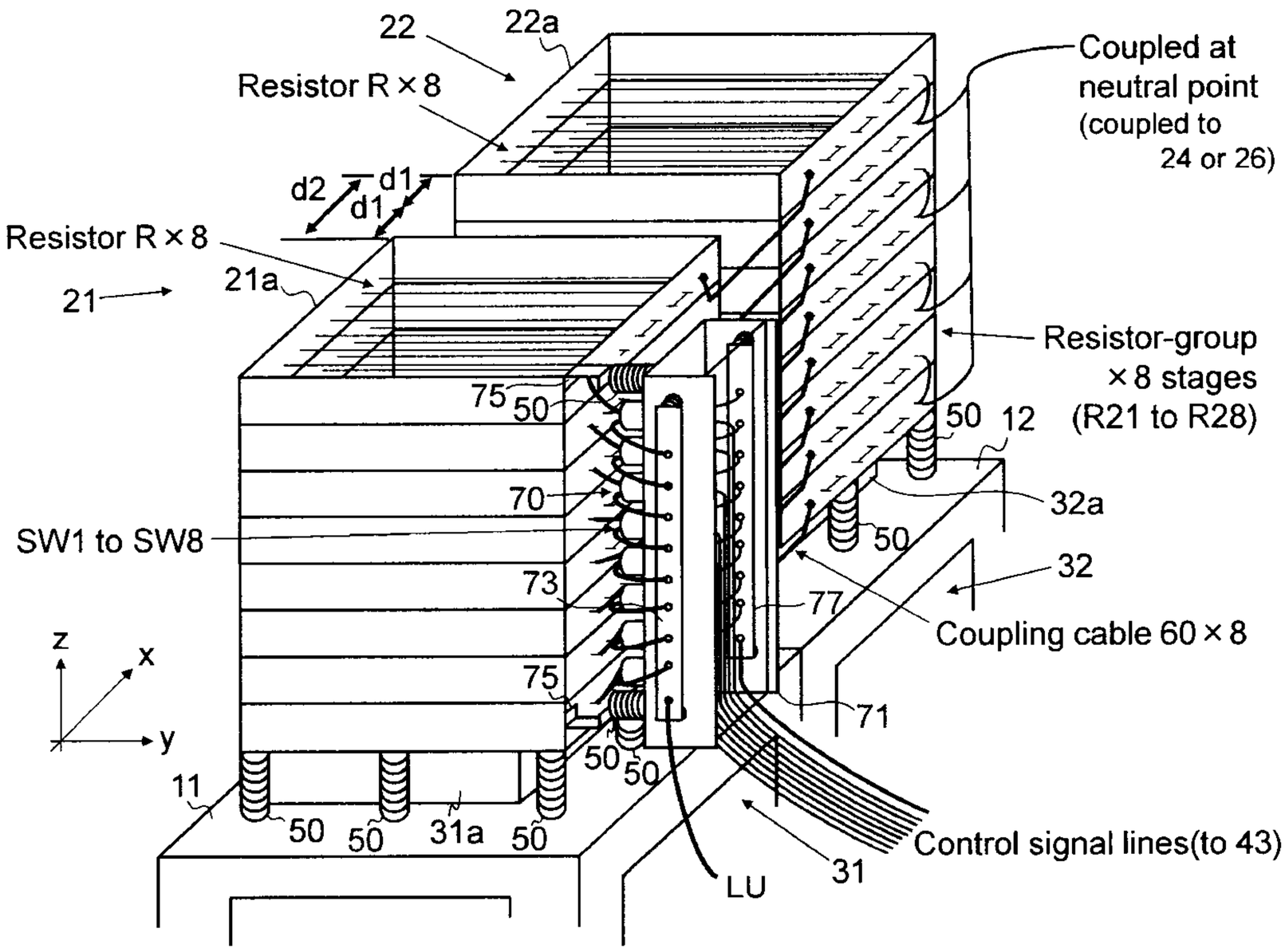

22
22a
Resistor R × 8
d2
d1
d1
Resistor R × 8
21
21a
Coupled at neutral point (coupled to 24 or 26)
Resistor-group × 8 stages (R21 to R28)
75
50
50
12
70
32a
SW1 to SW8
50
32
73
77
Coupling cable 60 × 8
z
x
y
75
71
50
50
11
50
50
31a
50
Control signal lines(to 43)
LU
31

Fig. 20

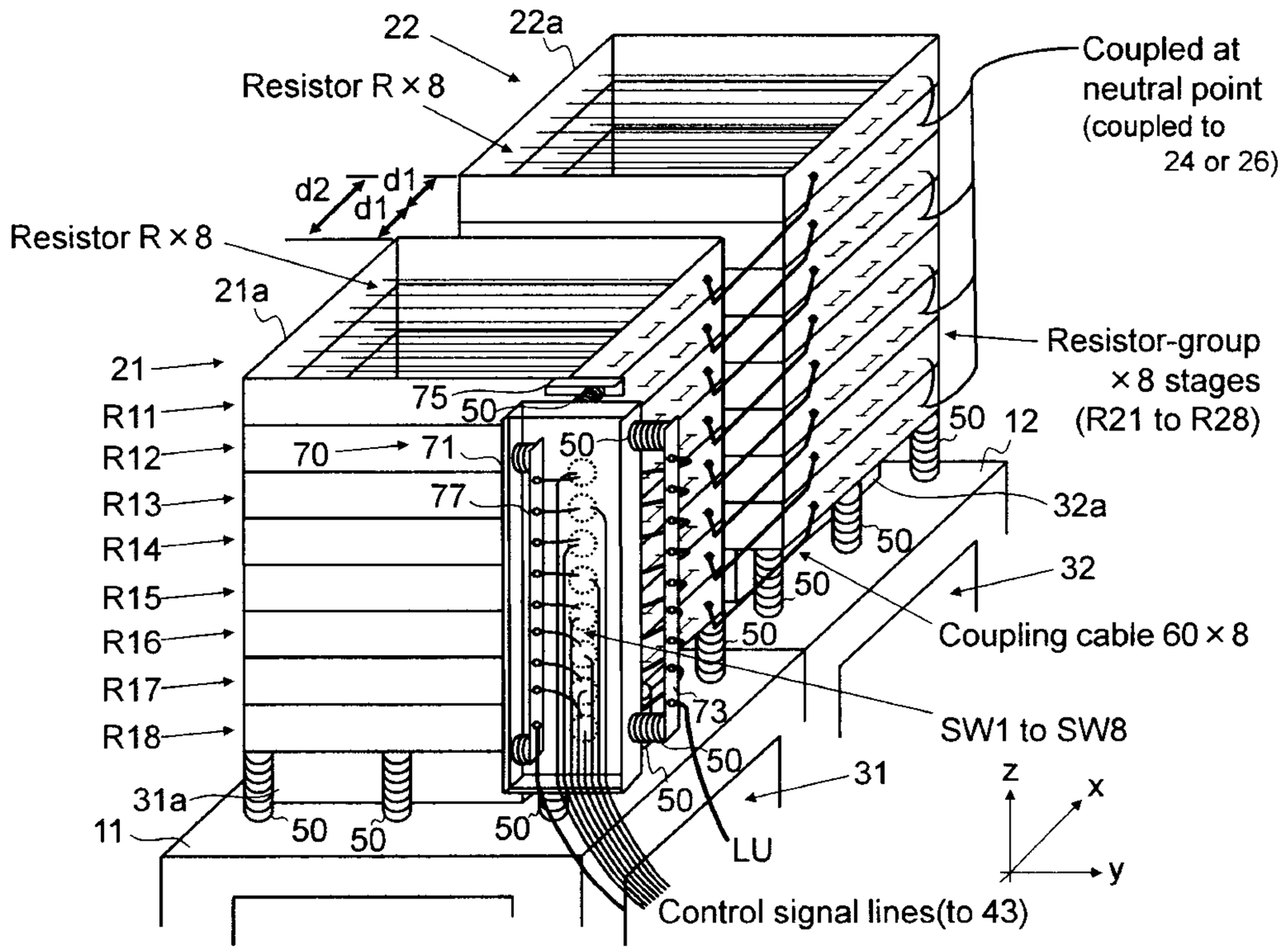

22
22a
Resistor R × 8
Coupled at neutral point (coupled to 24 or 26)
d2
d1
d1
Resistor R × 8
21a
21
Resistor-group × 8 stages (R21 to R28)
R11
R12
R13
R14
R15
R16
R17
R18
75
50
70
71
50
77
50
12
32a
50
32
50
Coupling cable 60 × 8
50
73
SW1 to SW8
50
31
50
31a
11
50
50
50
LU
z
x
y
Control signal lines(to 43)

Fig. 21

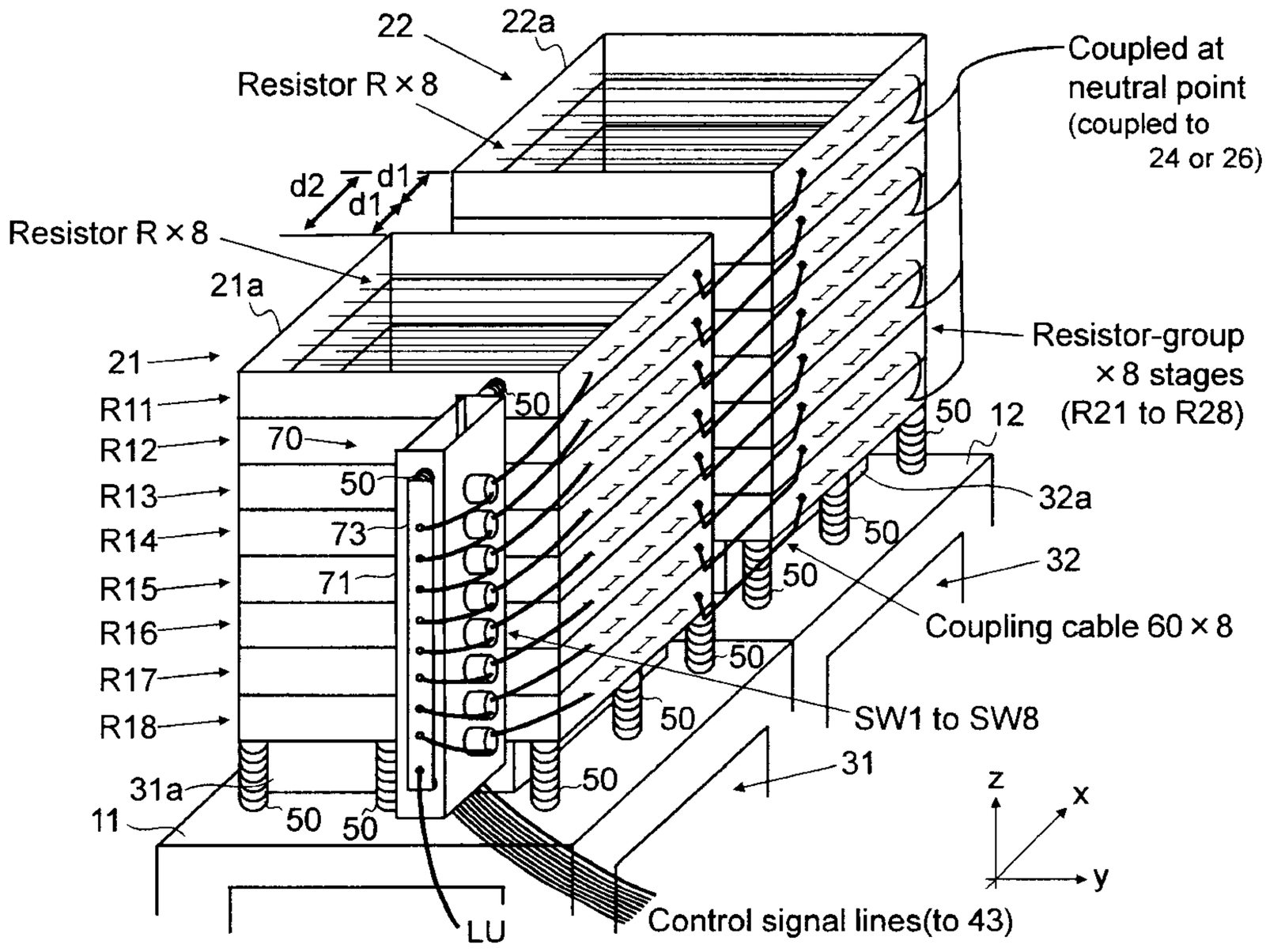

22
22a
Resistor R × 8
d2
d1
d1
Resistor R × 8
21a
21
R11
R12
R13
R14
R15
R16
R17
R18
31a
11
50
70
50
73
71
50
50
50
LU
Coupled at
neutral point
(coupled to
24 or 26)
Resistor-group
× 8 stages
(R21 to R28)
50
12
32a
50
50
32
Coupling cable 60 × 8
50
SW1 to SW8
50
31
z
x
y
Control signal lines(to 43)

Fig. 22

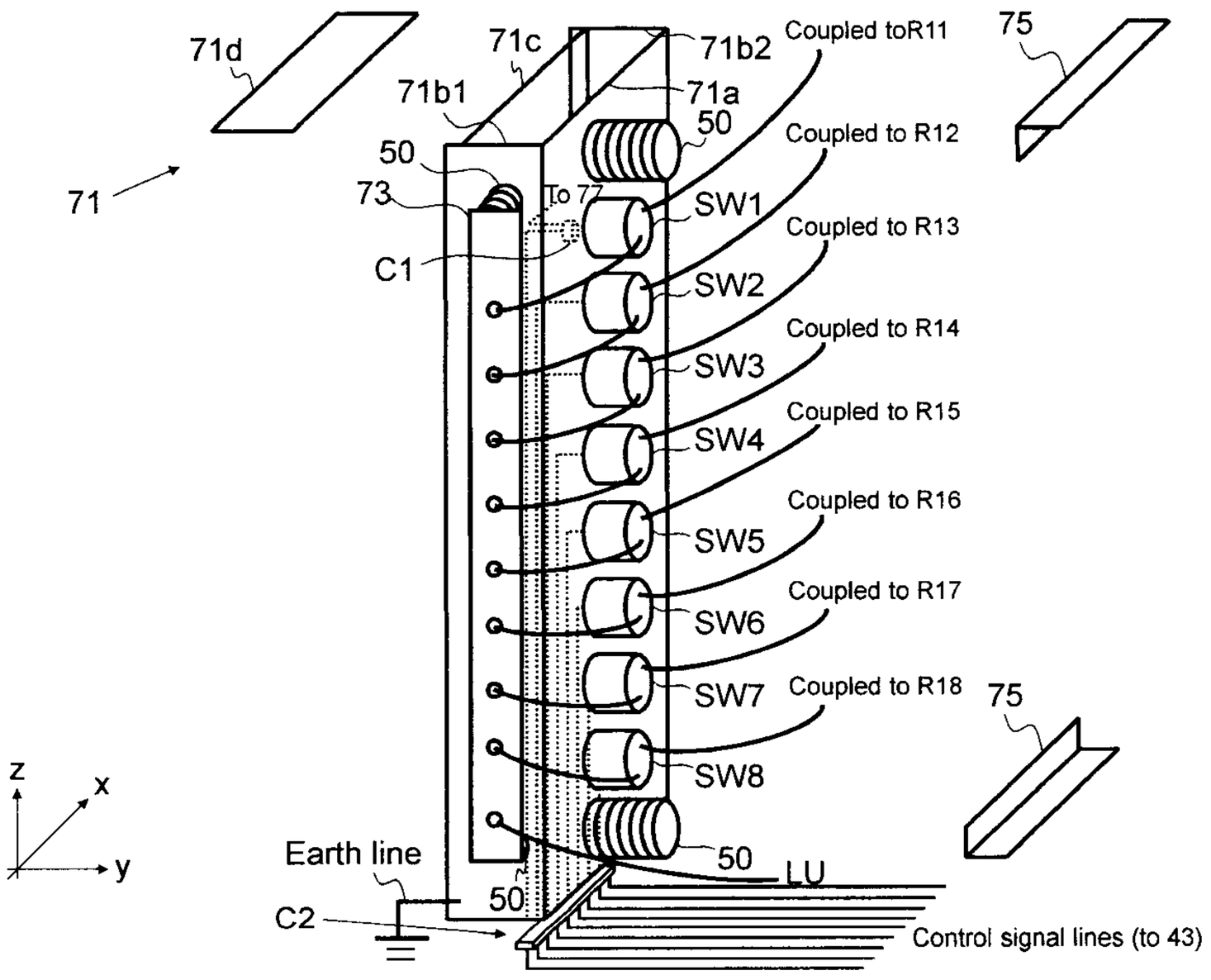

71d
71c
71b2
71b1
71a
75
Coupled toR11
Coupled to R12
Coupled to R13
Coupled to R14
Coupled to R15
Coupled to R16
Coupled to R17
Coupled to R18
50
73
To 77
71
C1
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
LU
Earth line
C2
Control signal lines (to 43)
z
x
y

Fig. 23

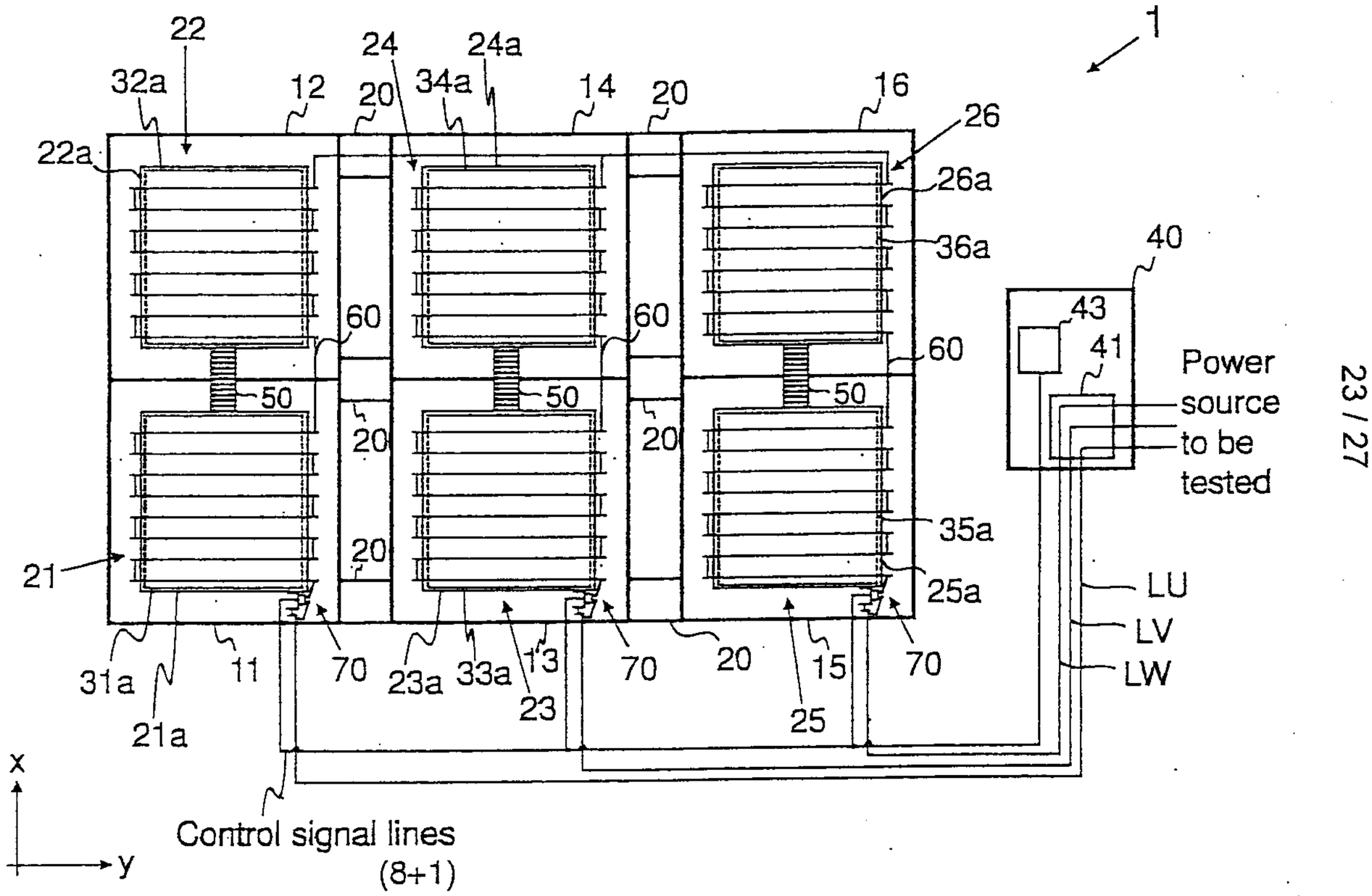

1
22
24
24a
32a
12
20
34a
14
20
16
26
22a
26a
36a
40
60
60
60
43
41
50
50
50
Power
source
to be
tested
20
20
20
35a
21
20
25a
LU
LV
LW
31a
11
70
23a
33a
13
70
20
15
70
21a
23
25
x
y
Control signal lines
(8+1)

Fig. 24

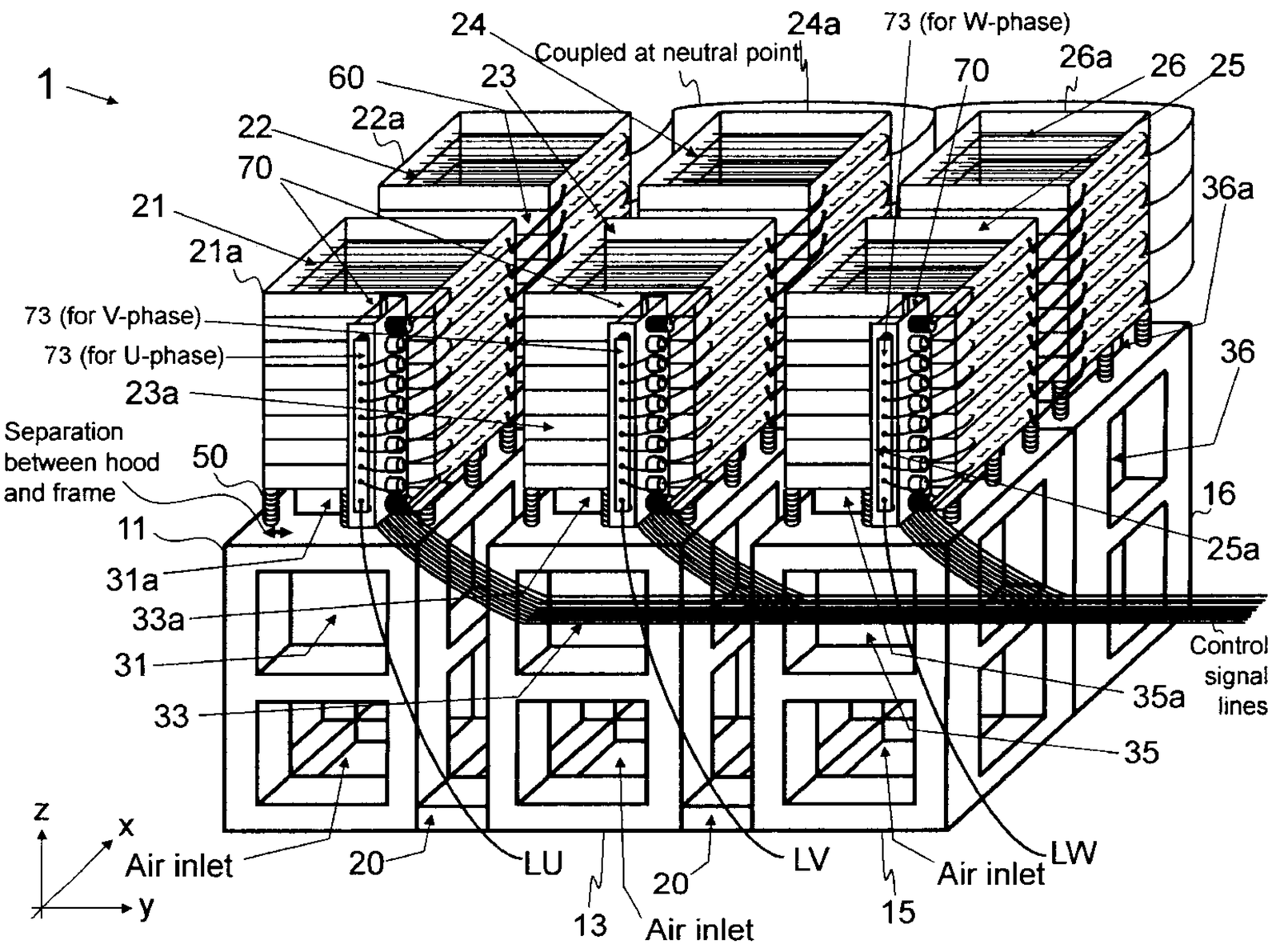

1
24
24a
73 (for W-phase)
Coupled at neutral point
60
23
70
26a
26
25
22
22a
70
36a
21
21a
73 (for V-phase)
73 (for U-phase)
23a
36
Separation between hood and frame
50
16
11
25a
31a
33a
Control signal lines
31
35a
33
35
z
x
y
Air inlet
20
LU
LV
20
LW
Air inlet
13
Air inlet
15

Fig. 25

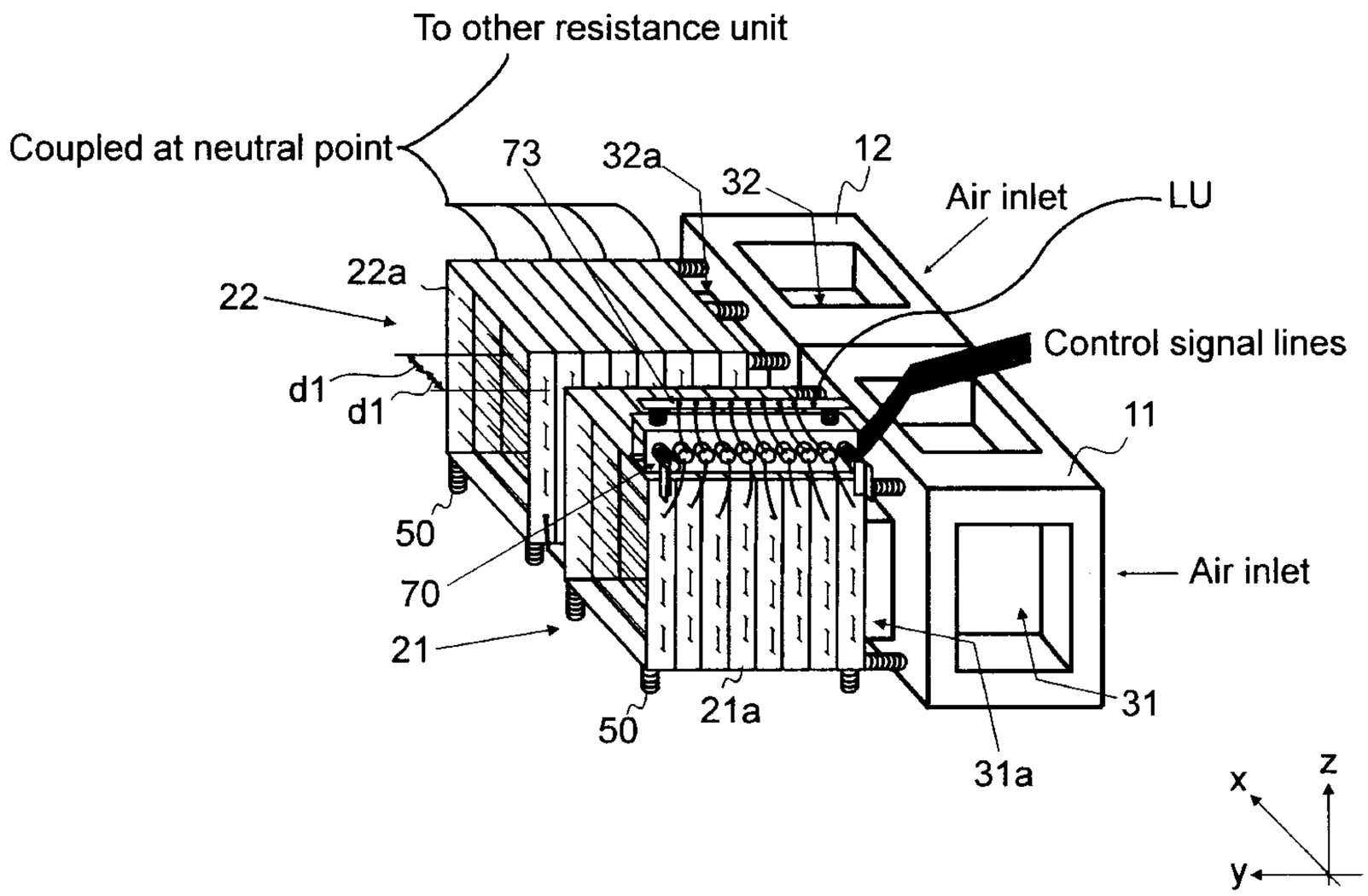

To other resistance unit
Coupled at neutral point
73
32a
32
12
Air inlet
LU
22a
22
Control signal lines
d1
d1
11
50
70
Air inlet
21
21a
50
31
31a
x
z
y

Fig. 26

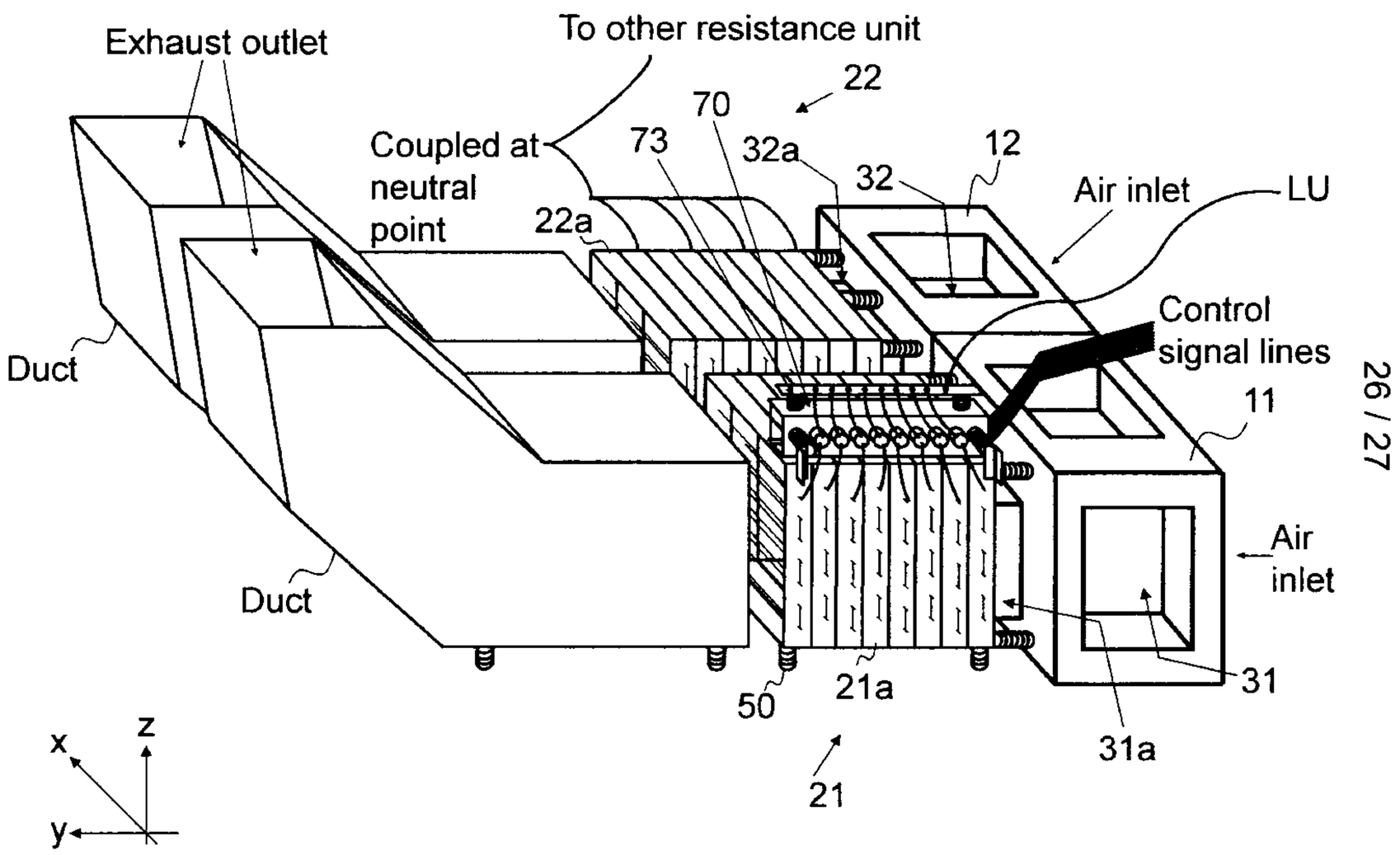
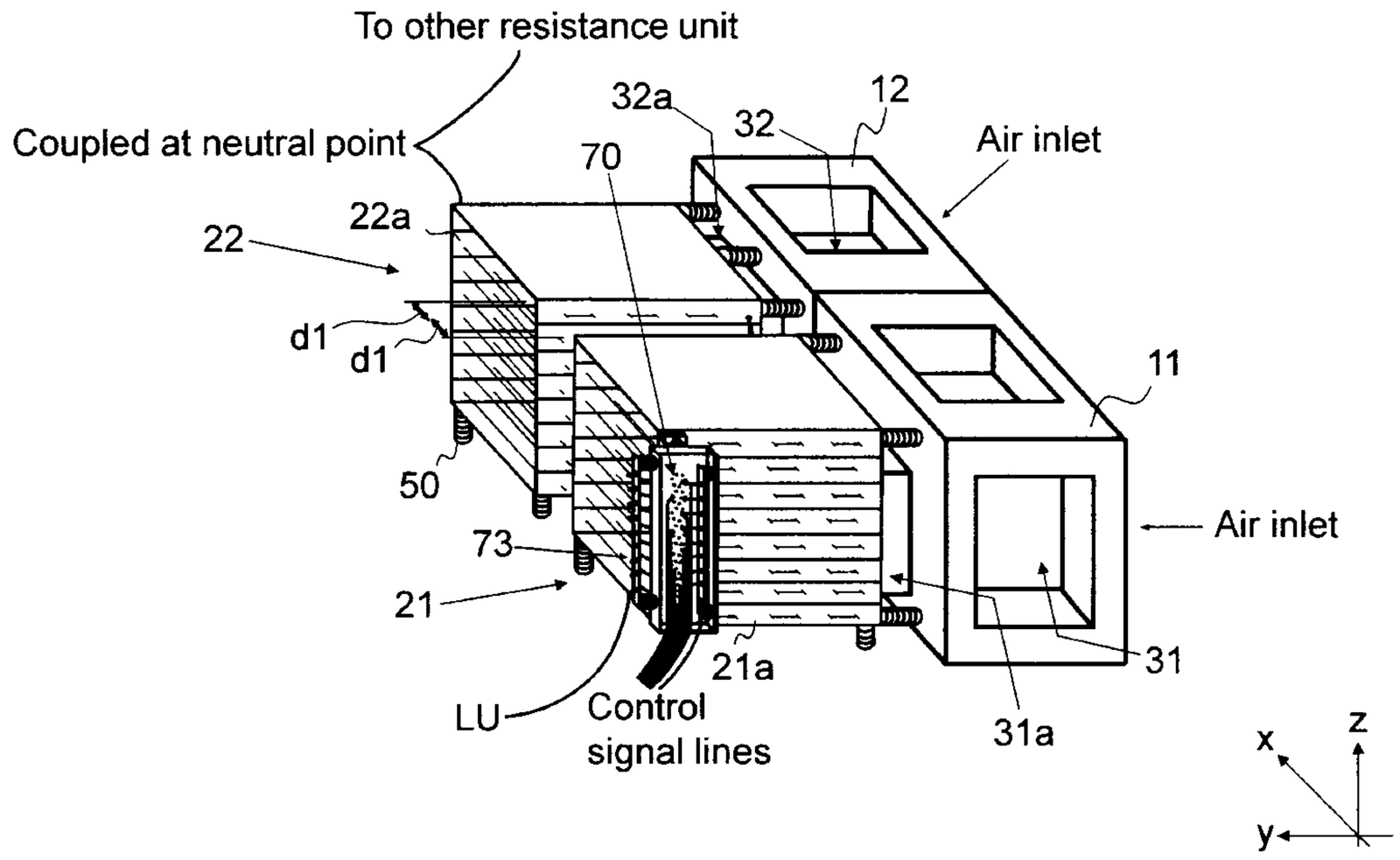
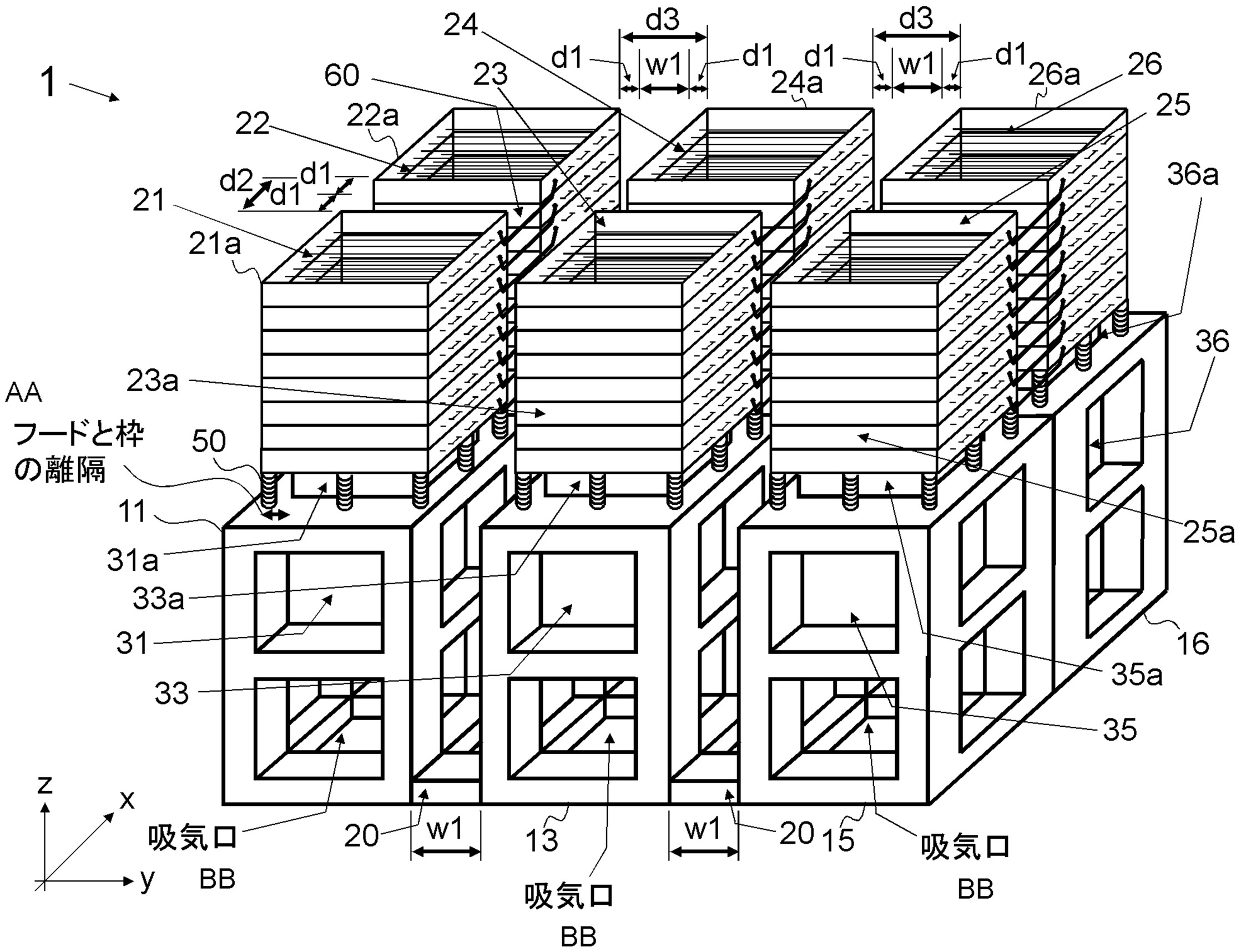

Exhaust outlet
To other resistance unit
22
70
73
32a
32
12
Coupled at neutral point
22a
Air inlet
LU
Control signal lines
11
Duct
Duct
Air inlet
31
31a
50
21a
21
x
z
y

Fig. 27


To other resistance unit
Coupled at neutral point
32a
32
12
Air inlet
70
22a
22
d1
d1
11
50
73
21
21a
LU
Control
signal lines
Air inlet
31
31a
x
z
y



AA Separation between hood and frame

BB Intake