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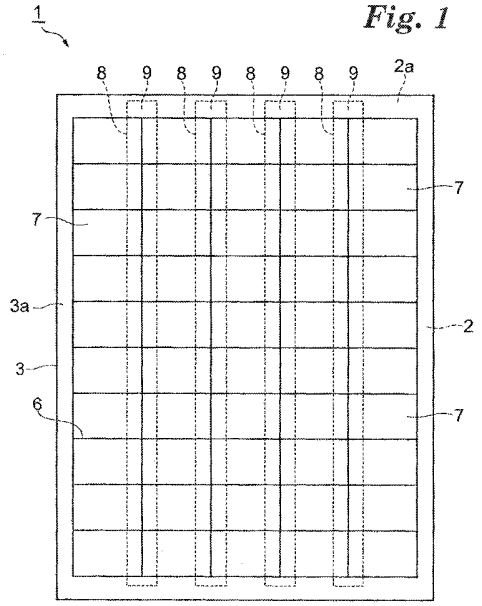
Fig. 1



(57) Abstract: A label assembly from which labels can be readily removed, the assembly comprising a carrier sheet having a front major surface and a back major surface and a label stock sheet removably attached to the front major surface of the carrier sheet, wherein (a) the carrier sheet is configured in two or more segments comprising at least one liner segment and one or more carrier strip segments, (b) the label stock sheet is configured in one or more segments comprising one or more labels and one or more strips or frames, and (c) the carrier strip segment overlaps the edge of one or more labels.

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LABEL ASSEMBLY

Field

The present invention relates to label assemblies, in particular, to label assemblies from which labels can be easily removed.

Background

Self-adhesive labels are widely used for a variety of organizational and communication purposes. In general, they have a basic construction comprising a body or facestock with an adhesive on its back surface (sometimes referred to as label stock). The body may be a single ply or may be of multilayer construction. The front surface is typically adapted to receive a legend, e.g., via typing, handwriting, printing with a computer printer, etc. For instance, an image receptive layer may be provided on the front surface of the body to make it easier to place a desired legend or information thereon. Illustrative examples of materials used in the label body include paper, polymeric films, fabrics, etc. with the selection being dependent in part upon the performance properties desired of the resultant labels. Many different adhesives are known to be used in label constructions with selection being dependent in part upon such factors desired label performance, intended substrates, body properties, etc.

Many label assemblies (sometimes referred to as "label sheets") currently sold in the marketplace contain die cut labels that can be removed from the label assembly either by peeling individual labels from a carrier sheet or liner or by individualizing the label assemblies into smaller label assemblies where each label remains adhesively attached to its liner. These individual labels are either offered on a label assembly with perforations that allow for separation or are already individualized.

Illustrative examples of some known label assemblies are disclosed in US Pat. Nos. 6,803,084 (Do et al.), 6,837,957 (Flynn et al.), 6,860,050 (Flynn et al.), and 7,208,212 (Do et al.), and 7,709,071 (Wong et al.), US Appln. Publn. Nos. 2005/0089663 (Wong et al.), and 2009/0075010 (Flynn et al.). Other examples include Japanese Laid-Open Patent Application No. 2007-271986 and Publication No. 2006-514335.

Despite the many variations of known label assembly constructions, the need exists for improved label assemblies from which labels can be easily removed. For example, labels which provide high conspicuity and pleasing aesthetic appearances are desired for many applications.

Reference to any prior art in the specification is not an acknowledgment or suggestion that this prior art forms part of the common general knowledge in any jurisdiction or that this prior art could reasonably be expected to be combined with other pieces of prior art by a skilled person in the art.

Summary of the Invention

The present invention provides label assemblies from which individual labels can be easily removed for subsequent use.

In one aspect of the invention, there is provided a label assembly comprising a carrier sheet having a front major surface and a back major surface and a label stock sheet removably attached to the front major surface of the carrier sheet. The carrier sheet is configured in two or more segments comprising at least one liner segment and one or more carrier strip segments. The label stock sheet is configured in one or more segments comprising one or more labels and one or more strips or frames. The carrier strip segment overlaps the edge of one or more labels. The label stock sheet further comprises an array of labels arranged in two or more columns and; a face strip segment that overlies a portion of a carrier strip segment and is narrower than the carrier strip segment and that abuts the edges of labels in adjacent columns on the label stock sheet..

Brief Description of the Drawings

The invention is further explained with reference to the drawing wherein:

Fig. 1 is a front view of an illustrative embodiment of a label assembly of the invention;

Fig. 2 is a cross-sectional view of a portion of the label assembly shown in Fig. 1;

Figs. 3 and 4 are each a front view of a portion of other embodiments of label assemblies of the invention;

Fig. 5 is a back view of a portion of the label assembly shown in Fig.1 during use;

Fig. 6 is a front view of a second illustrative embodiment of a label assembly of the present invention;

Fig. 7 is a cross-sectional view of a portion of the label assembly shown in Fig. 6;

Fig. 8 is a front view of a portion of a label assembly of the invention;

Figs. 9a to 9c are front view of portions of other embodiments of label assemblies of the invention;

Fig. 10 is a back view of a portion of the label assembly shown in Fig. 6 during use; and

Figs. 11 to 19 are front views of other illustrative embodiments of label assemblies of the invention.

These figures are not to scale and are intended to be merely illustrative and not limiting. In the explanations of the drawings, identical elements are given the same number, and duplicate explanations are omitted. Also, the ratios of dimensions on the drawings do not necessarily coincide with actual ratios of dimensions.

List of reference numbers used in the drawing.

Reference No.	Component
1, 11, 21, 31, 41, 51, 61	Label assembly
2	Carrier sheet
2a	Carrier frame segment
3	Label stock
3a	Face frame segment

Reference No.	Component
9, 53, 63	Carrier strip segment segment
9a	Carrier strip segment tab
8	Liner cut
12, 42, 44, 52, 62	Face strip segment
12a	Face strip segment tab
22	Carrier strip segment perforated cut
23	Carrier strip segment continuous cut
32	Lining joint
43	Carrier strip segment perforated line
44, 52	Face strip segment

Detailed Description of Illustrative Embodiments

As described above, a label assembly of the invention comprises a carrier sheet having a front major surface and a back major surface and a label stock sheet. The carrier sheet is configured in two or more segments comprising at least one liner segment and one or more carrier strip segments. The back major surface of the label stock sheet is removably adhered to front major surface of the carrier sheet. The label stock sheet is configured in one or more segments comprising one or more labels and one or more strips or frames. The carrier strip segment overlaps the edge of one or more labels.

The carrier sheet and label stock are each often provided as continuous sheets which are converted into a plurality of segments as described herein after the label stock sheet is removably adhered to the carrier sheet.

The front face of the label stock sheet desirably has a printable surface. By the phrase "printable surface" is meant a surface of any type of matter upon which a person or machine can draw, print, color, paint, photocopy, write, emboss, or make any other type of mark or graphic. Laser printers, ink jet printers, impact printers, thermal transfer printers, direct thermal printers, typewriters, or any other suitable graphic printing devices are preferred but not necessary for use with printable surfaces according to this invention.

The label stock sheet is preferably, but not necessarily, constructed of any suitable paper, paper composite, plastic, fabric, non-metal, and/or metal sheet material that can be used as a label. Selection of suitable materials will be dependent in part upon the desired application including such factors as desired color, moisture stability, flexibility, elongation, elasticity, receptivity to imaging materials, etc.

Those skilled in the art will be able to readily select appropriate label stock materials for desired applications. In many embodiments, the label stock sheet will comprise a face layer on the front major surface thereof and an adhesive layer on the rear major surface of the face layer.

In addition to removably adhering to the carrier sheet, the adhesive permits a label of the invention to, after removal as provided herein, be adhered to an adherend as desired. In many embodiments, the adhesive will be pressure sensitive though depending upon the labeling performance desired activated adhesives may be used if desired. Repositionable, removable, and permanent bonding adhesives may be used as desired. If a light transmissive adhesive is used, the color(s) of the substrate to which the label is applied will provide special effect through the label, e.g., if the labels are used as name tags the labels on persons wearing different colored clothing will have unique appearances. If desired, one or more colorants such as pigments and dyes may be incorporated into the adhesive layer to impart desired appearance to the resultant labels.

Suitable adhesives for selected labeling applications can be readily selected by those skilled in the art. Some illustrative examples of adhesives that can be used for adhesive layer 5 include acrylic pressure-sensitive adhesives, silicon pressure-sensitive adhesives, natural rubber pressure-sensitive adhesives, synthetic rubber pressure-sensitive adhesives, and urethane pressure-sensitive adhesives. In addition, either type of pressure-sensitive adhesives from permanent pressure-sensitive adhesives and removable pressure-sensitive adhesives can be used. Specific examples of acrylic pressure-sensitive adhesives include ARONTACK™ HV-C9500 and ARONTACK™ HV-C7559 from Toagosei Co., Ltd., FINETACK™ CT-5030 from DIC Corporation, and BPW6112 and BPW6116 from Toyochem Co., Ltd.

Suitable release treatments and coatings, e.g., silicon resin, may be applied to the front major surface of the carrier sheet to attain desired removable adhesion to the label stock sheet. The selection will be dependent in party upon such factors as properties of the adhesive, conditions under which the labels will stored, used, and applied.

First Embodiment

Fig. 1 is the front view showing the label assembly involved in the first embodiment of the present invention. Fig. 2 is the cross-sectional view of the label assembly shown in Fig. 1. As shown in Fig. 1 and Fig. 2, label assembly 1 comprises carrier sheet 2 in sheet form and label stock sheet 3 removably adhered to the front major surface thereof. The carrier sheet is formed in a fixed dimension, for example, a rectangle.

Carrier sheet 2 has multiple cuts 8 configuring carrier sheet 2 into a plurality of segments, i.e., in this embodiment four carrier strip segments 9 in the form of elongated rectangles surrounded by carrier frame segment 2a.

Label stock sheet 3 is configured by cuts 6 into a plurality of segments including five adjacent columns of adjacent labels 7 and frame segment 3a surrounding the array of labels.

Cuts 6 in the label stock sheet may be perforations, partial slits through label stock sheet 3, etc., but are typically preferably substantially complete cuts through sheet 3 such that labels 7 are easily removed from assembly 1 and have smoother edges after removal.

Cuts 8 in carrier sheet 2 are weakened lines of separation in carrier sheet 2, including for example, perforations, partial slits through the sheet, etc. Cuts 8 do not reach the outer edge of carrier sheet 2. As cuts 8 do not reach the outer edge of carrier sheet 2, the outer edge of carrier strip segments 9 and the outer edge of label assembly 1 will be placed in different positions. Therefore, it will be easy to grasp the ends of carrier strip segments 9 with fingers when using label 7 as discussed below.

The width of carrier strip segments 9 is generally from about 2 to about 60 mm, preferably from about 4 to 40 mm.

As shown in Fig. 3, the ends of carrier strip segments 9 can also be equipped with tab 9a that is wider than carrier strip segment 9 to make carrier strip segment 9 easy to hold with fingers.

As shown in Fig. 2, label stock sheet 3 comprises face layer 4, e.g., comprising film or paper, and an adhesive layer 5 formed using pressure-sensitive adhesive, for example. Adhesive layer 5 on face material layer 4 is formed on the opposite side of the first side of carrier sheet 2, and glued face material layer 4 removable to the first side of carrier sheet 2.

Lattices of cuts 6 are made in label stock 3 to form rectangular labels 7. Typically cuts 6 are provided to form labels 7 which are adjacent to one another with no intervening portions of label stock sheet 3. As shown in Fig. 1, the lattices of cuts 6 are arranged only on the interior portions of label stock sheet 3 and do not reach the outer edge thereof, thereby defining face frame 3a surrounding the array of labels 7. If desired, however, depending on the purpose, one or more of cuts 6 can also be arranged so that it will reach the outer edge of label stock sheet 3, and making the whole area of label stock sheet 3 into label 7 arrangement area, as shown in Fig. 4.

Cuts 8 on carrier sheet 2 are arranged so that its longitudinally central axis aligns with the bordering edges of two columns of labels 7. As a result, each carrier strip segment 9 underlies the edge portions of labels 7 in two columns. The remaining portion of labels 7 is juxtaposed over other portions of carrier sheet 2, i.e., liner segments.

When using labels 7 in label assembly 1 having the configuration shown in Fig. 5, two columns of labels 7 and their respective edges are placed on both sides of a carrier strip segment 9 can be exposed at once by holding the ends of carrier strip segment 9 that do not come into contact with label assembly 1 edge with fingers, and peeling off carrier strip segment 9 from the second side of carrier sheet 2 along cut 8. Thereafter, labels 7 can be easily removed from the label assembly by grasping by hand and removing.

In addition, many labels 7 can be arranged against carrier sheet 2 on this label assembly 1 because labels 7 are arranged in a matrix without any gap. Meanwhile, carrier strip segments 9 can be extended as to stick out of the outer edges of the labels 7 as shown in Figs. 1 and Fig. 3. Carrier strip segment 9 can also be extended to a position where it overlaps label 7 at the farthest end inside of label 7.

In addition, there is no need to place carrier strip segments 9 to correspond with all the intervals between labels 7, carrier strip segments 9 can also be placed at alternate columns, i.e., underlying only every other bordering edge of labels columns. By placing carrier strip segments 9 in minimally required number of locations, the tasks of forming and peeling-off carrier strip segments 9 can be reduced to the minimum. Typically, each label 7 will have at least one carrier strip segment 9 underlying an edge thereof.

Second Embodiment

Fig. 6 is a front view showing the label assembly11 of a second embodiment of the present invention. Fig. 7 is a cross-section view of the label assembly shown in Fig. 6. As shown in Figs. 6 and 7, label assembly 11 is different from label assembly 1 of the first embodiment because face strip segment 12 is formed between labels 7 in adjacent columns in label stock 3.

In label assembly 11, an interval with narrower width than carrier strip segment 9 is prepared in label stock sheet 3 between labels 7 in adjacent columns, and an almost elongated rectangular face strip segment 12 is formed at an almost equal interval between labels 7 by forming almost elongated rectangular cut 13 in label stock 3 in the prepared area along label 7 and its edges.

The length of face strip segment 12 rectangle is shorter than the length of the carrier strip segment 9 and any part of face strip segment 12 is configured such that no portion of it extends beyond of the outer limit of carrier strip segment 9. As shown in Fig. 8, along with adding tabs 9a that are wider than carrier strip segment 9 at the ends of carrier strip segment 9, the ends of face strip segment 12 can also be equipped with tabs 12a that are wider than the face strip segment 12. Therefore, face strip segment 12 can be held with fingers easily.

As shown in Fig. 9(a), the ends of face strip segments 12 can match the boundary line between face frame 3a and labels 7 if desired, or as shown in Fig. 9(b), the ends of face strip segments 12 can be placed outside of the boundary line between face frame 3a and labels 7. Face strip segments 12 can also be placed inside of the boundary line between face frame 3a and labels 7 arrangement area as shown in Fig. 9(c).

The width of carrier strip segments 9 in label assembly 11 can be selected as the interval between adjacent columns of labels 7 with an added measure. For example, if the width of face strip segments 12 is X, then the width of carrier strip segments 9 can be set as X plus from about 2 to 60 mm.

As shown in Fig. 10, when using labels 7 in label assembly 11 having such configuration, by holding the ends of carrier strip segment 9 placed inside of the outer edge of label assembly 11 and peeling off carrier strip segment 9 along cuts 8 from the second side of carrier sheet liner 2, face strip segment 12 is peeled-off simultaneously following carrier strip segment 9, hence the two columns of label 7 and its edges placed on both sides of carrier strip segment 9 can be exposed at once. Thereafter, labels 7 can be readily grasped by hand and removed from label assembly 11.

In addition, labels 7 in label assembly 11 can be held easily with fingers because gaps will be created between label 7 and its edges when carrier strip segments 9 and face strip segments 12 are peeled-off. Again, even in the Second Embodiment, carrier strip segment 9 and face strip segments 12 do not necessarily must be placed corresponding to all the intervals between label 7, carrier strip segment 9 and face strip segments 12 can be placed at alternate columns. By placing carrier strip segment 9 and face strip segments 12 in minimally required number of locations, the task of forming and peeling-off carrier strip segments 9 can be minimized.

Other Embodiments

Fig. 11 is a front view showing label assembly 21 of a third embodiment of the invention wherein carrier strip segments 9 are defined by perforated cuts 22 in the middle portions thereof and continuous cuts 23 at the end portions thereof. Similar to the embodiments discussed above, two edges on the sides of two columns of labels 7 overly a carrier strip segment 9 and can be exposed by removing carrier strip segment 9 and face strip segment 12. In addition, by having perforated line 22 as the middle portion of carrier strip segment 9 border, carrier strip segment 9 can be prevented from being removed unintentionally, e.g., during processing and handling of the label assembly such as passing through a desk top printer, etc., and printing is facilitated by lessening the likelihood of jamming when passing label assembly 21 through a printer. In addition to this, the convenience of label assembly 21 increases as label 7 can be peeled-off after peeling off only face strip segments 12.

By forming both ends of carrier strip segment 9 border with continuous cut 23 rather than perforated line 22 as shown in Fig. 11, both ends can be made the starting point when peeling off carrier strip segment 9.

Fig. 12 is the front view showing the label assembly involved in another Embodiment of the invention. In label assembly 31, two portions of carrier strip segment 9 underlying portions of different columns of labels 7 are joined by linking joint 32. With this configuration, the edges of all of labels 7 and its edges can be exposed at once by removing carrier strip segment 9. As will be understood, linking joint 32 is not limited to the format where it connects the ends of carrier strip segment 9 together; it can also connect any part together, including middle part. In addition, when carrier strip segments 9 are placed in many columns, one of the other ends can be joined alternately with another end using the linking joint 32. Linking joint 32 can also be positioned in an area that overlaps with face frame segment 3a.

Furthermore, as shown in Fig. 13, in another embodiment labels 7 are not placed in the area where linking joint 32 is positioned. In this case, even after removing the carrier strip segment 9, face layer 4 will remain on the carrier sheet 2 in the area that corresponds to the position of linking joint 32, thereby enhancing the dimensional stability of label assembly 31.

Fig. 14 is a front view showing yet another embodiment wherein in label assembly 41 labels 7 are not abutting and prescribed intervals, i.e., face spacing segments 42 in face sheet 3 intersecting the

corners of adjoining labels 7. Face spacing segments 42 each lie completely over larger carrier strip segments 9 such that when carrier strip segments 9 are removed, face spacing segments are also removed, leaving the edges of the affected labels more easily grasped.

As shown in Fig. 15, in a case where perforated line 43 is formed on the carrier strip segment 9 in a direction that intersects longitudinally, the number of labels 7 used at one time can be adjusted as peeling off the carrier strip segment can be halted by the position of the perforated line 43. As shown in Fig. 16, face strip 44 can also be formed to come into contact with areas other than the corners of label 7, two locations on each adjacent column that make up to four locations in total.

Fig. 17 is a front view showing label assembly 51 of yet another embodiment. On the illustrated label assembly 51, the corners of labels 7 are shaped slightly rounded, and face strip 52 is formed without any gap between labels 7 in adjacent columns. In addition, triangular salients 54 on carrier strip segments 53 protrudes in the direction of the boundary between abutting labels 7. With a configuration like this, it is possible to expose the edges of labels 7 more extensively when carrier strip segment 53 and face strip segments 52 are removed.

Salients 54 do not necessarily have to be the boundary between label 7. If desired, the salients can also protrude in the direction of the center of label 7, as shown in Fig. 18, for example. As will be understood, the shape of salients 54 is not limited to triangle, such as shown in Fig. 17 and Fig. 18, it can be in other shapes, such as a rectangle or a circle.

Fig. 19 is a front view showing label assembly 61 of yet another embodiment. On the illustrated label assembly 61, face strip segments 62 and carrier strip segments 63 are formed non-coaxial and asymmetrically. More specifically, on the label assembly 61, face strip segment 62 is placed only at the center of the interval between labels 7 in adjacent columns, and the main part of the carrier strip segment 63 is placed unevenly distributed closer to one side of label 7 columns. Then, salients 64 that protrude in the direction of the center of label 7 in a column on the other side of the main part of carrier strip segment 63 are formed on the carrier strip segment 63 to overlap face strip segments 62.

According to a configuration like this, it is possible to expose sufficiently extensive portions the edges of labels 7 when carrier strip segments 63 and face strip segments 62 are peeled off. This will make removal of labels 7 of one row very facile. In addition, even after peeling off carrier strip segment 63, label stock sheet 3 will remain on carrier sheet 2 in the areas where face strip segments 62 is not formed between labels 7, hence it is possible to guarantee the shape retention of label assembly 61.

Although the present invention has been fully described in connection with the preferred embodiments thereof with reference to the accompanying drawings, it is to be noted that various changes and modifications are apparent to those skilled in the art. Such changes and modifications are to be understood as included within the scope of the present invention as defined by the appended claims unless they depart therefrom.

What is claimed is:

1. A label assembly comprising a carrier sheet having a front major surface and a back major surface and a label stock sheet removably attached to the front major surface of the carrier sheet, wherein

(a) the carrier sheet is configured in two or more segments comprising at least one liner segment and one or more carrier strip segments,

(b) the label stock sheet is configured in one or more segments comprising one or more labels and one or more strips or frames, and

(c) the carrier strip segment overlaps the edge of one or more labels;

and wherein the label stock sheet further comprises:

an array of labels arranged in two or more columns and;

a face strip segment that overlies a portion of a carrier strip segment and is narrower than the carrier strip segment and that abuts the edges of labels in adjacent columns on the label stock sheet..

2. The label assembly of claim 1 wherein the label stock sheet comprises an array of labels arranged in one or more columns.

3. The label assembly of claim 2 wherein the label stock sheet comprises an array of labels arranged in two or more columns.

4. The label assembly of claim 2 wherein a carrier strip segment overlaps the edges of labels in adjacent columns.

25 5. The label assembly of claims 1 through 5 wherein the carrier strip segments are defined at least in part by perforated lines in the carrier sheet.

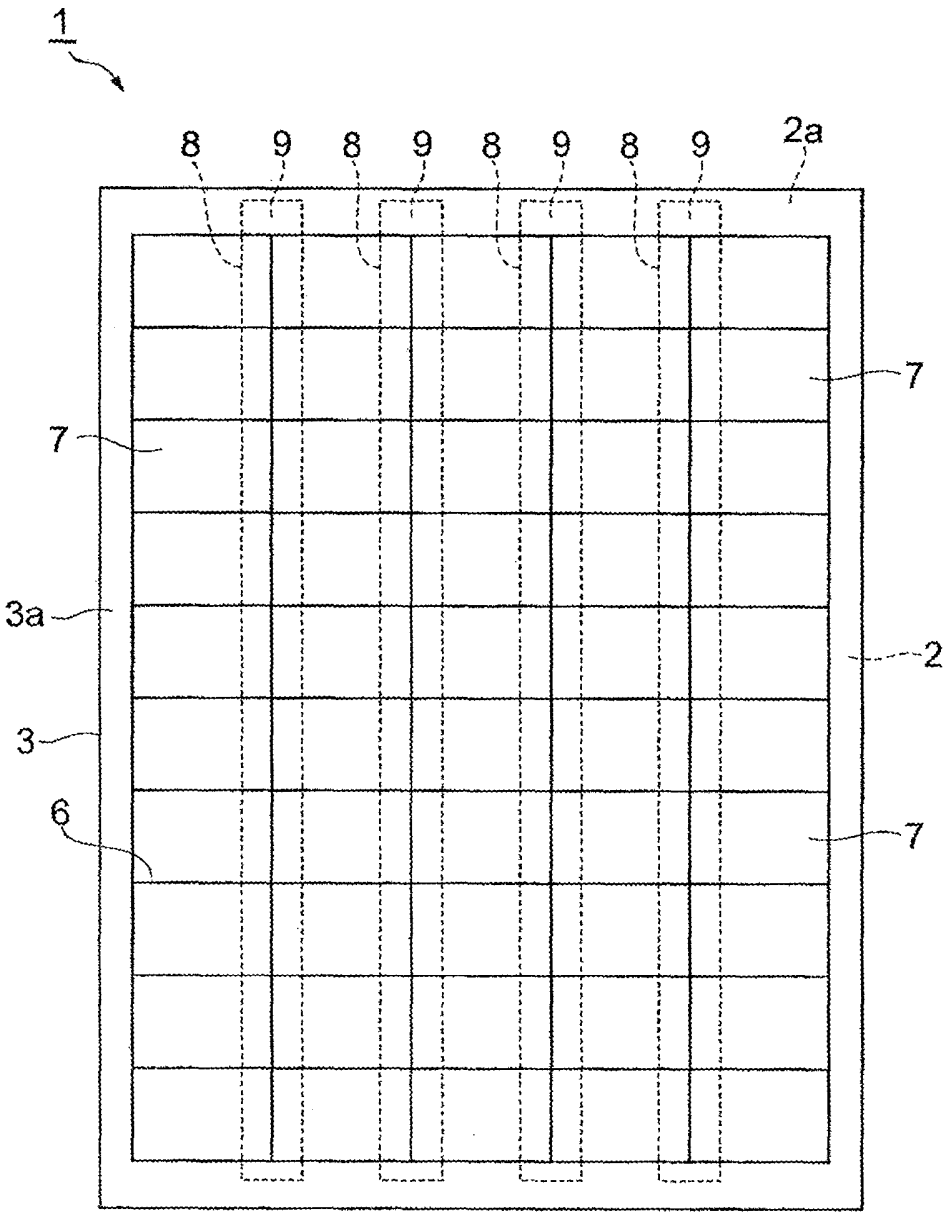

Fig. 1

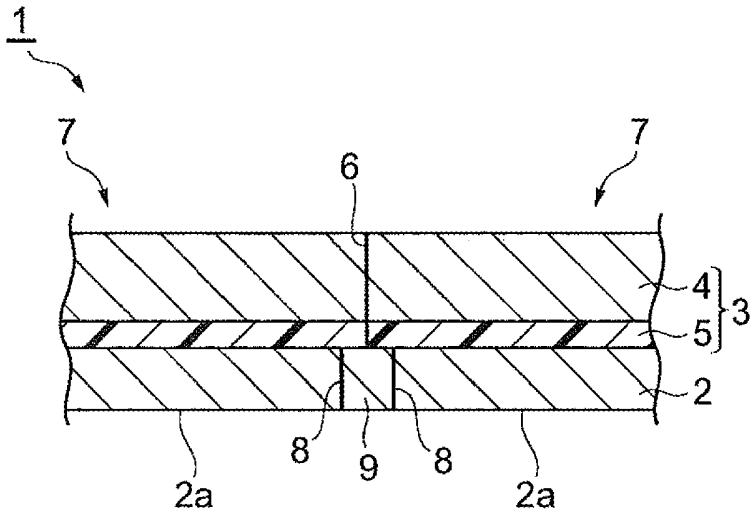

Fig. 2

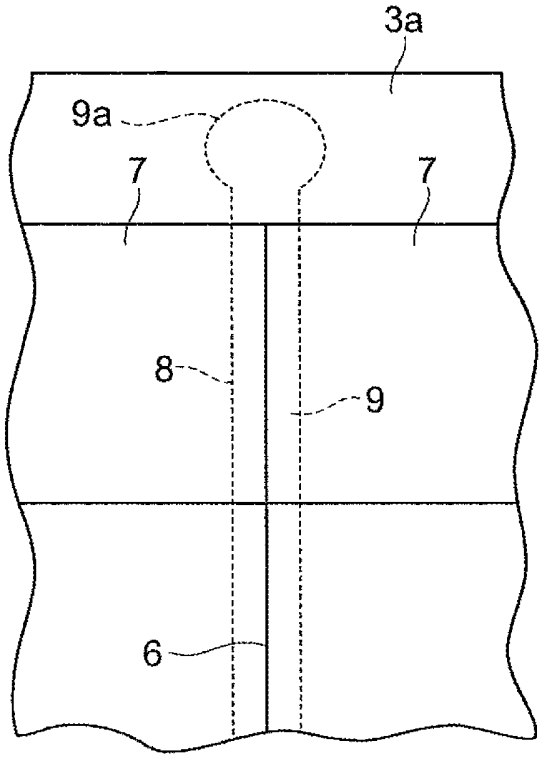

Fig. 3

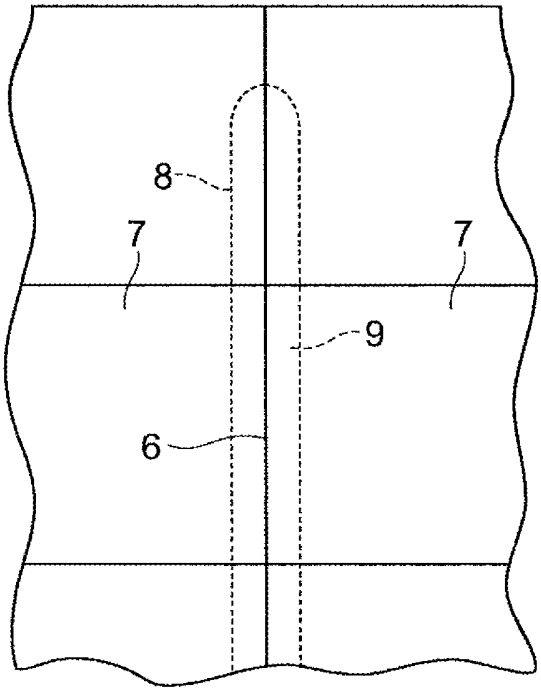

Fig. 4

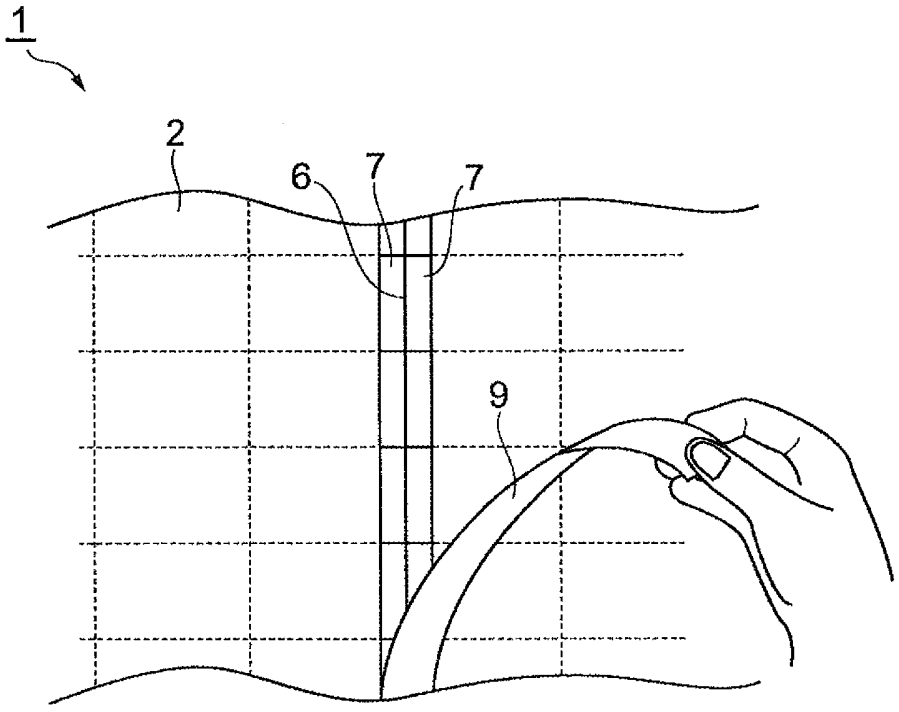

Fig. 5

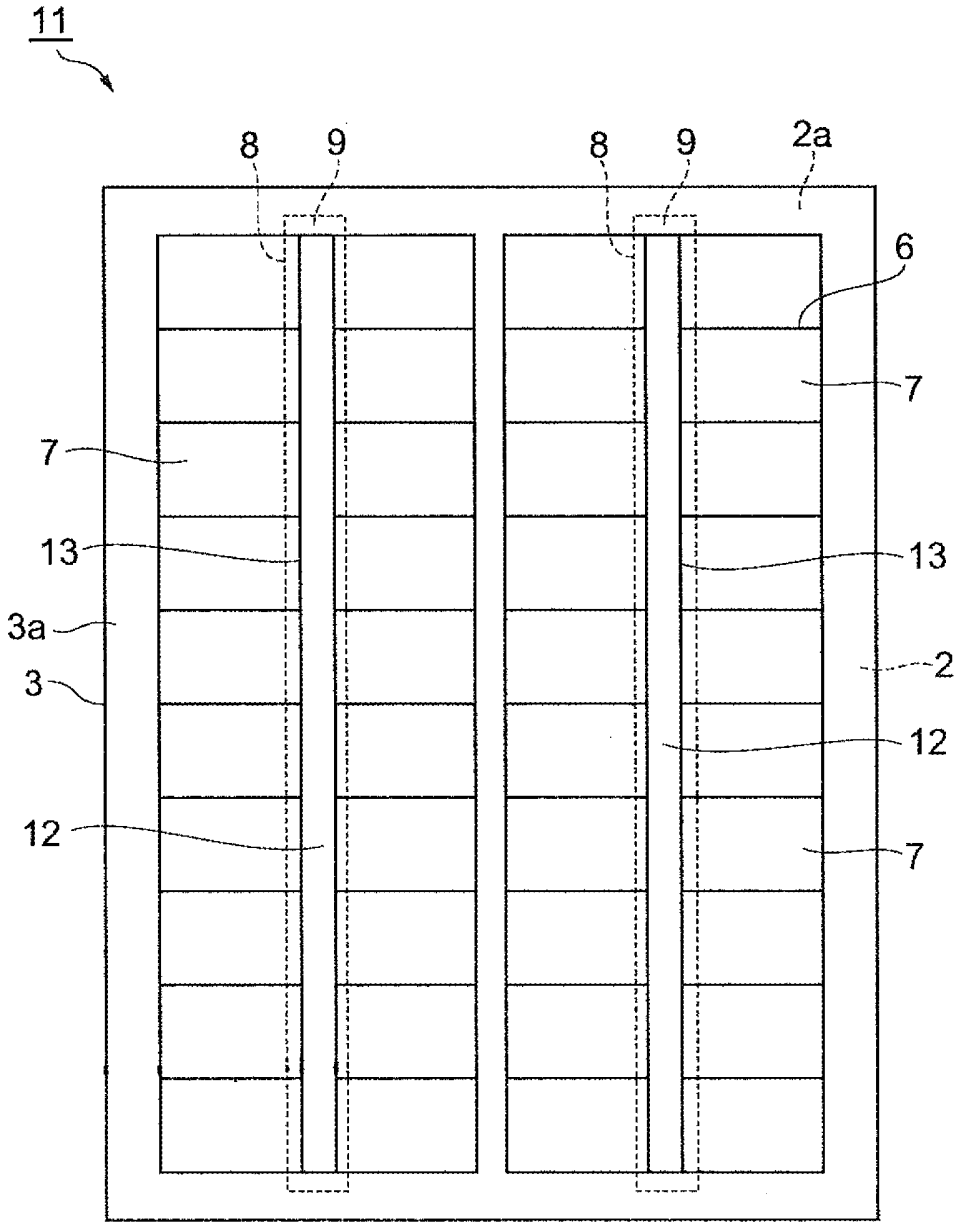

Fig. 6

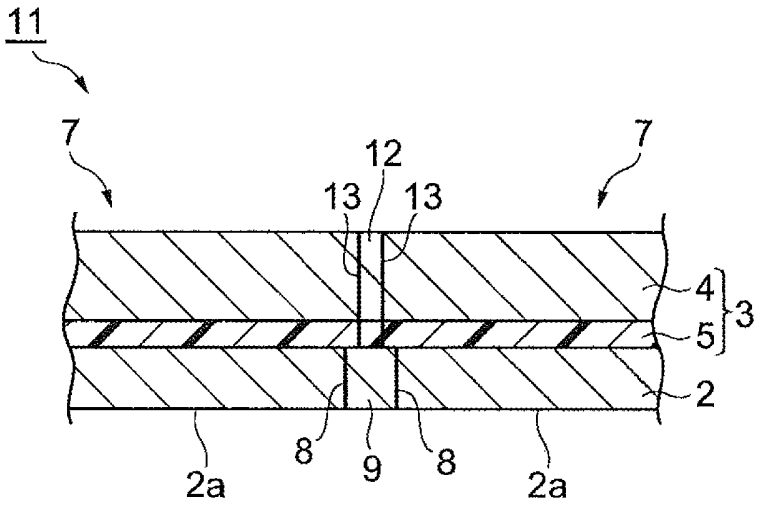

Fig. 7

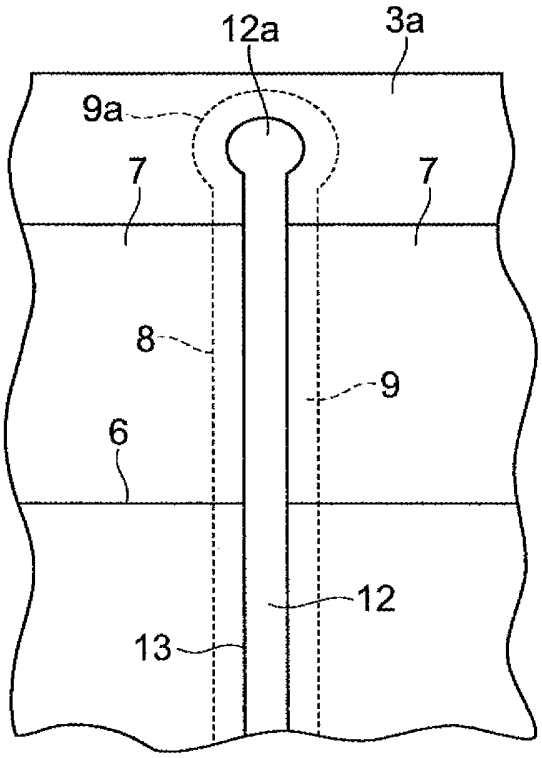

Fig. 8

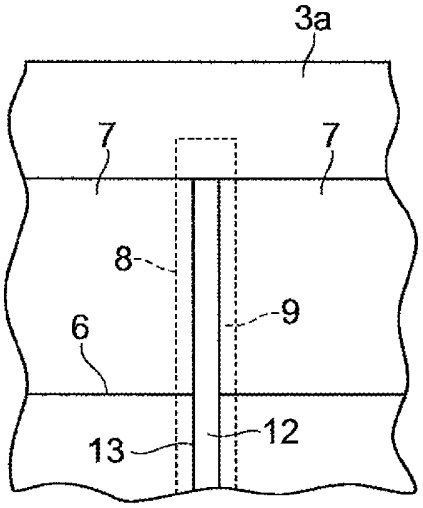

Fig. 9a

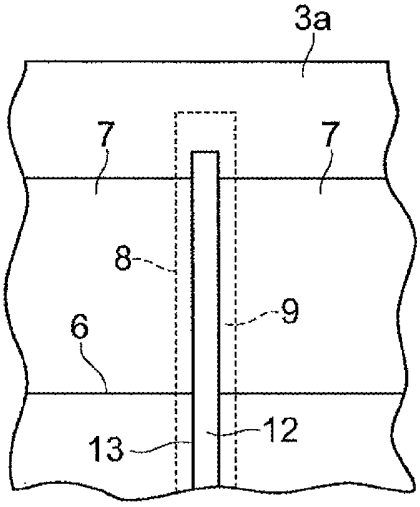

Fig. 9b

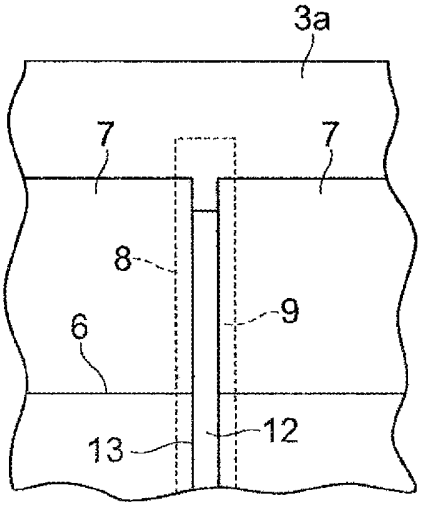

Fig. 9c

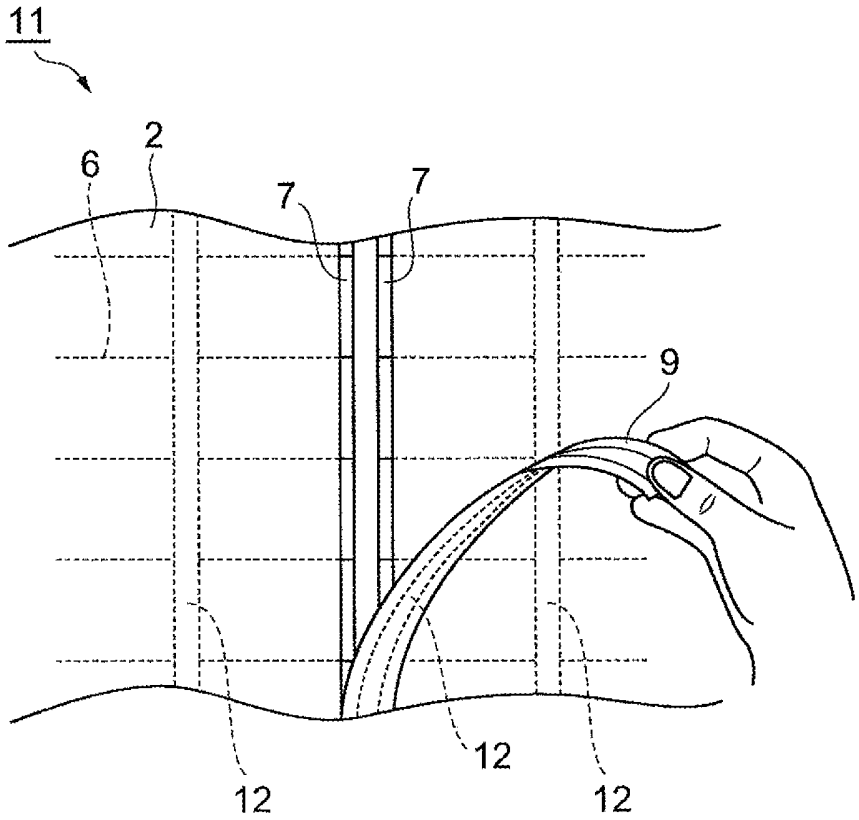

Fig. 10

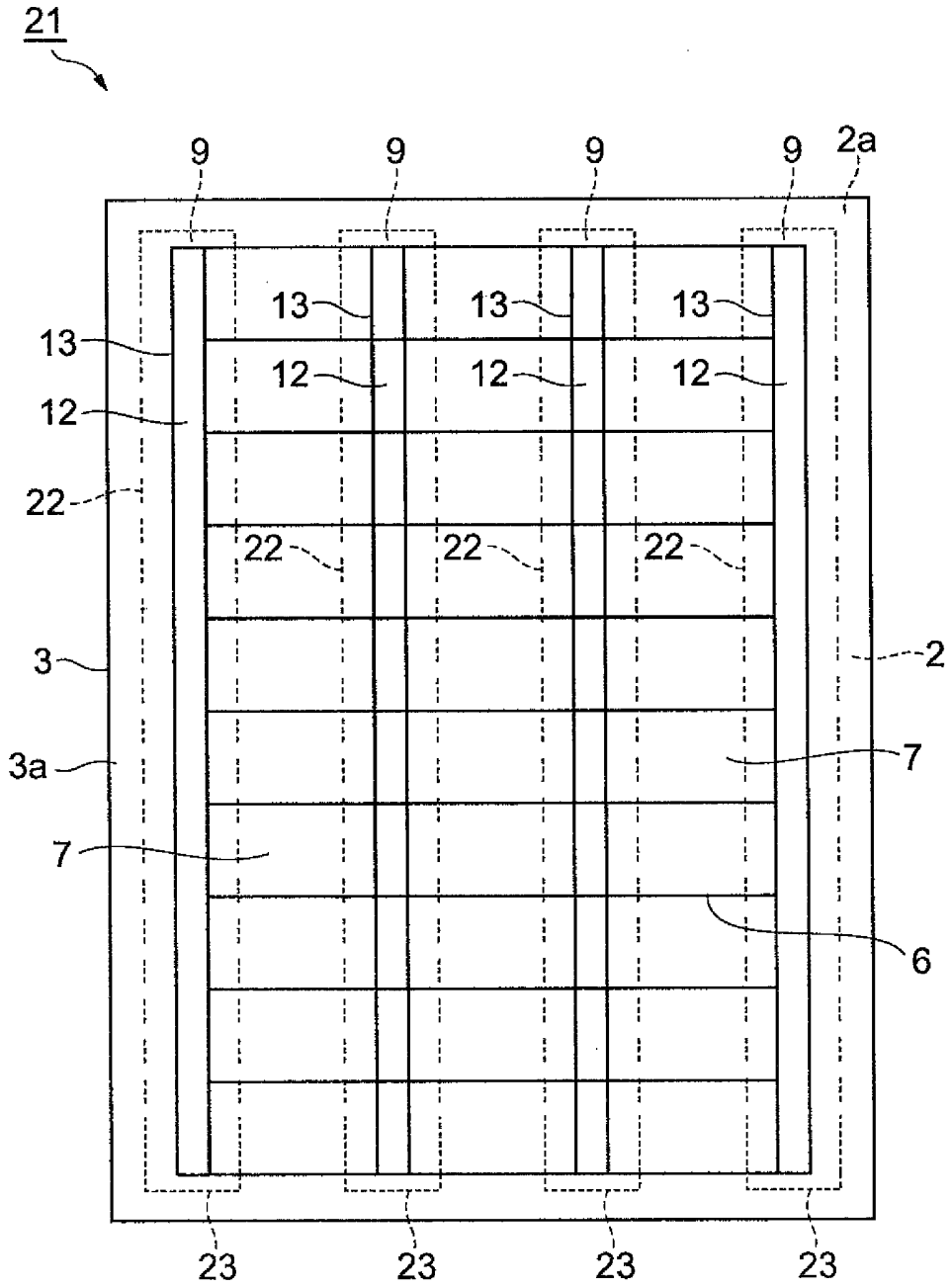

Fig. 11

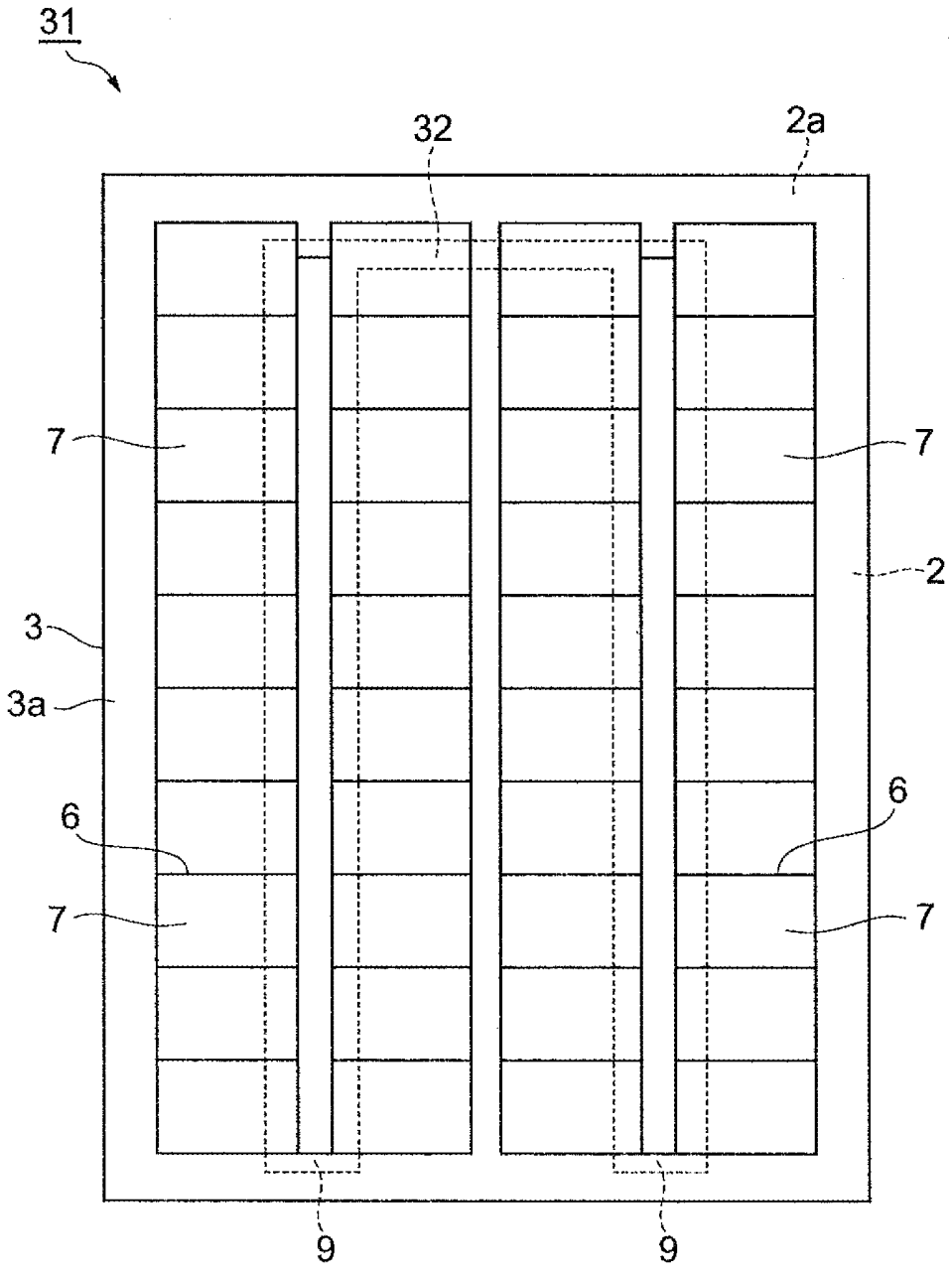

Fig. 12

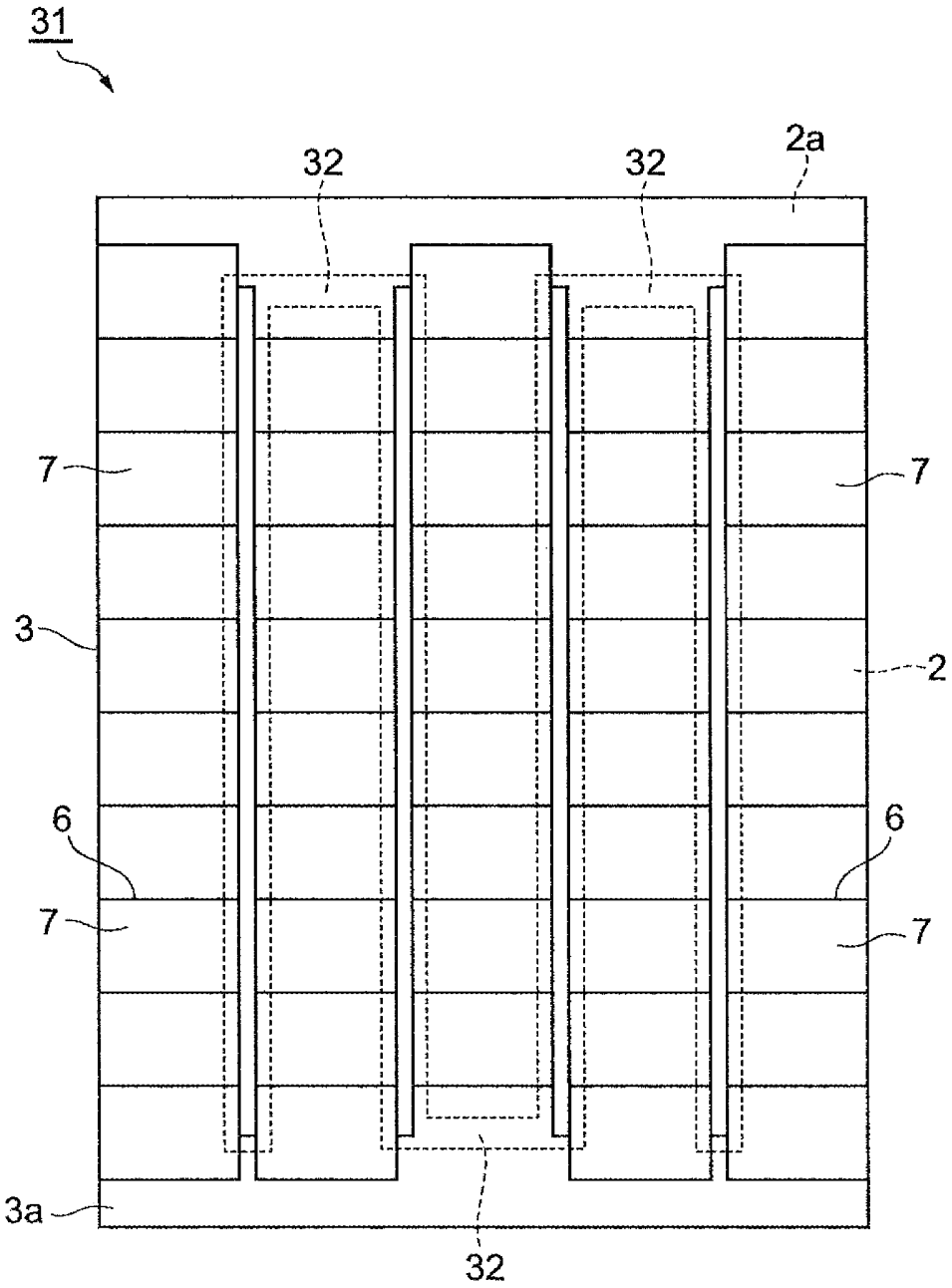

Fig. 13

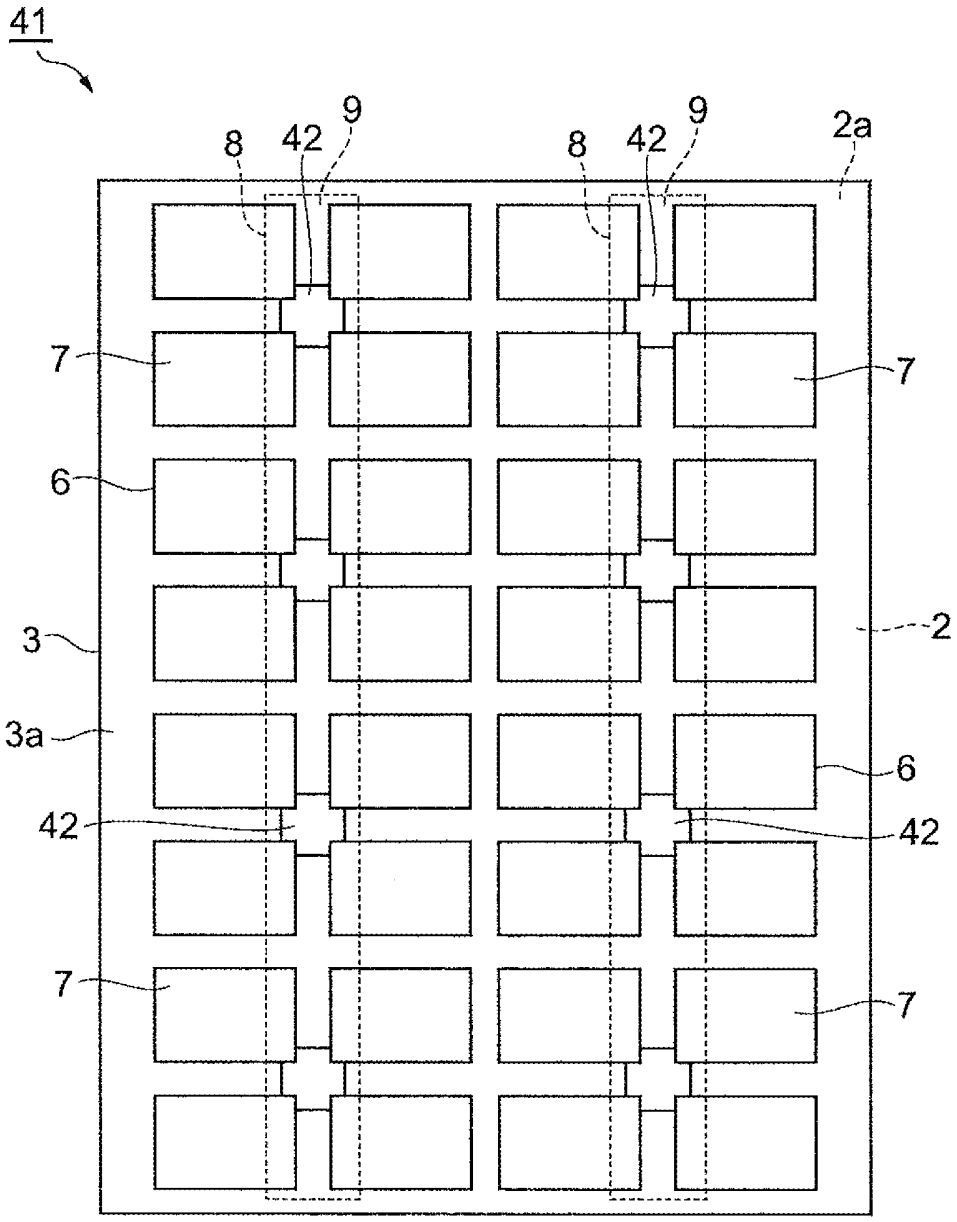

Fig. 14

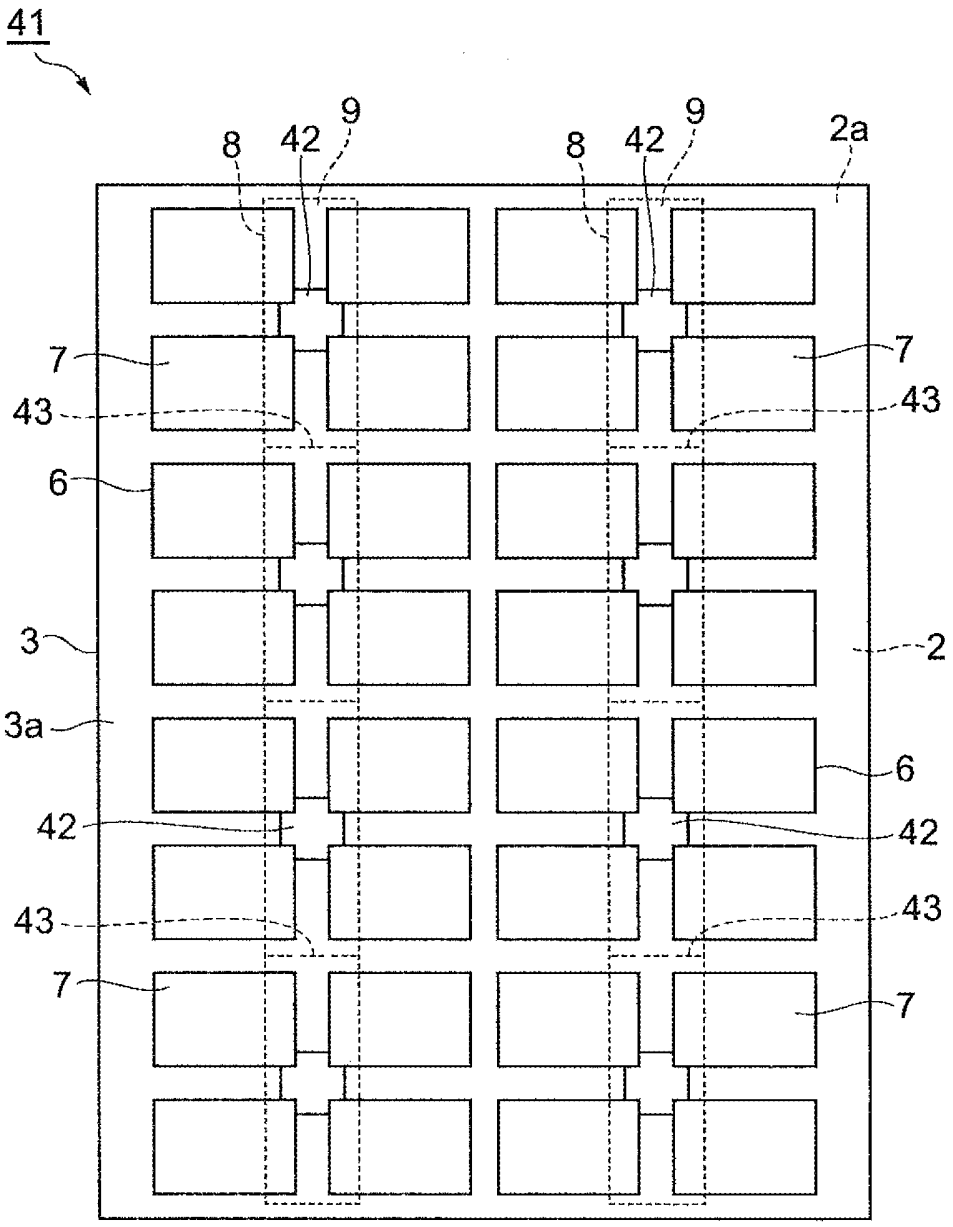

Fig. 15

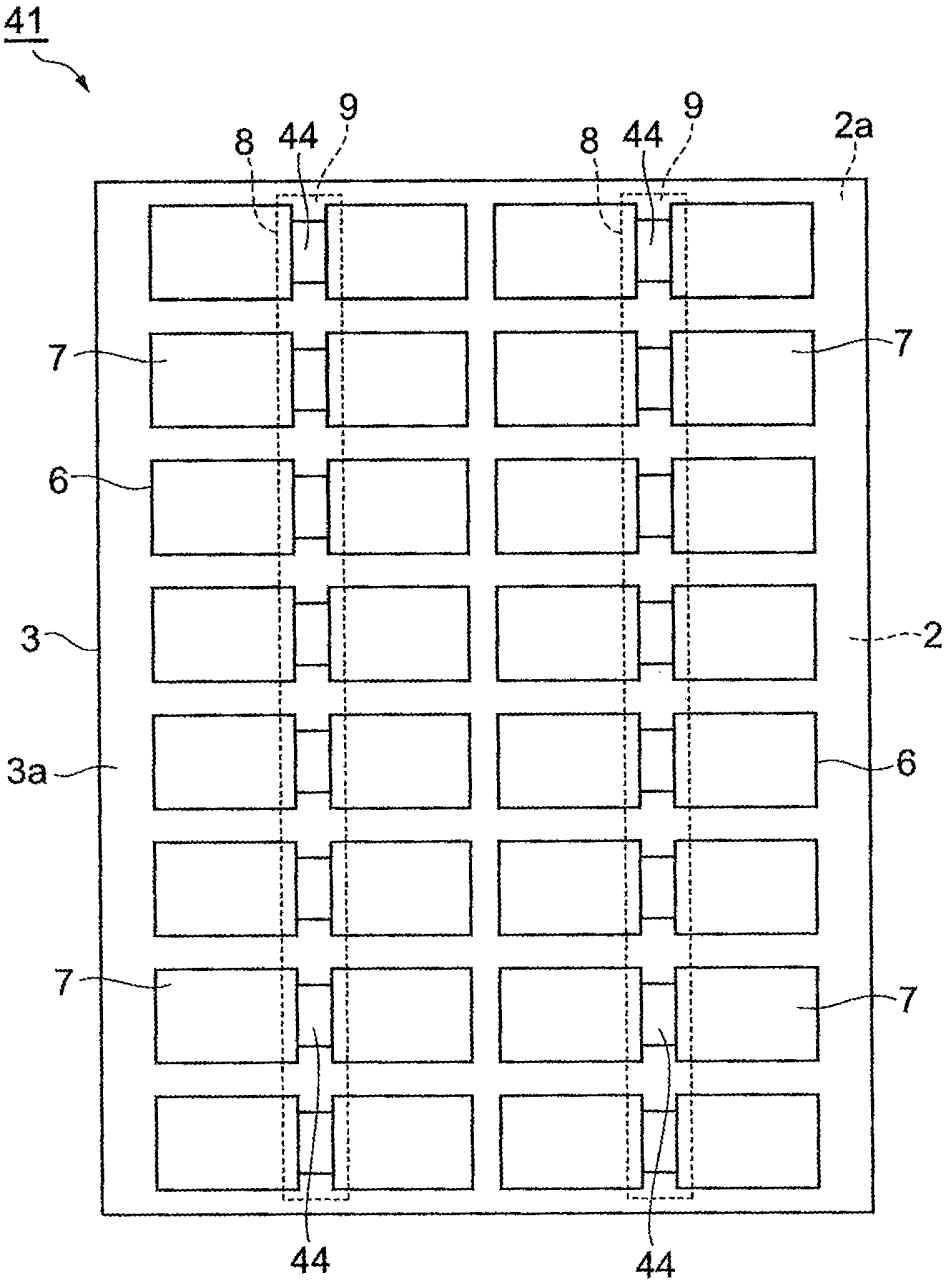

Fig. 16

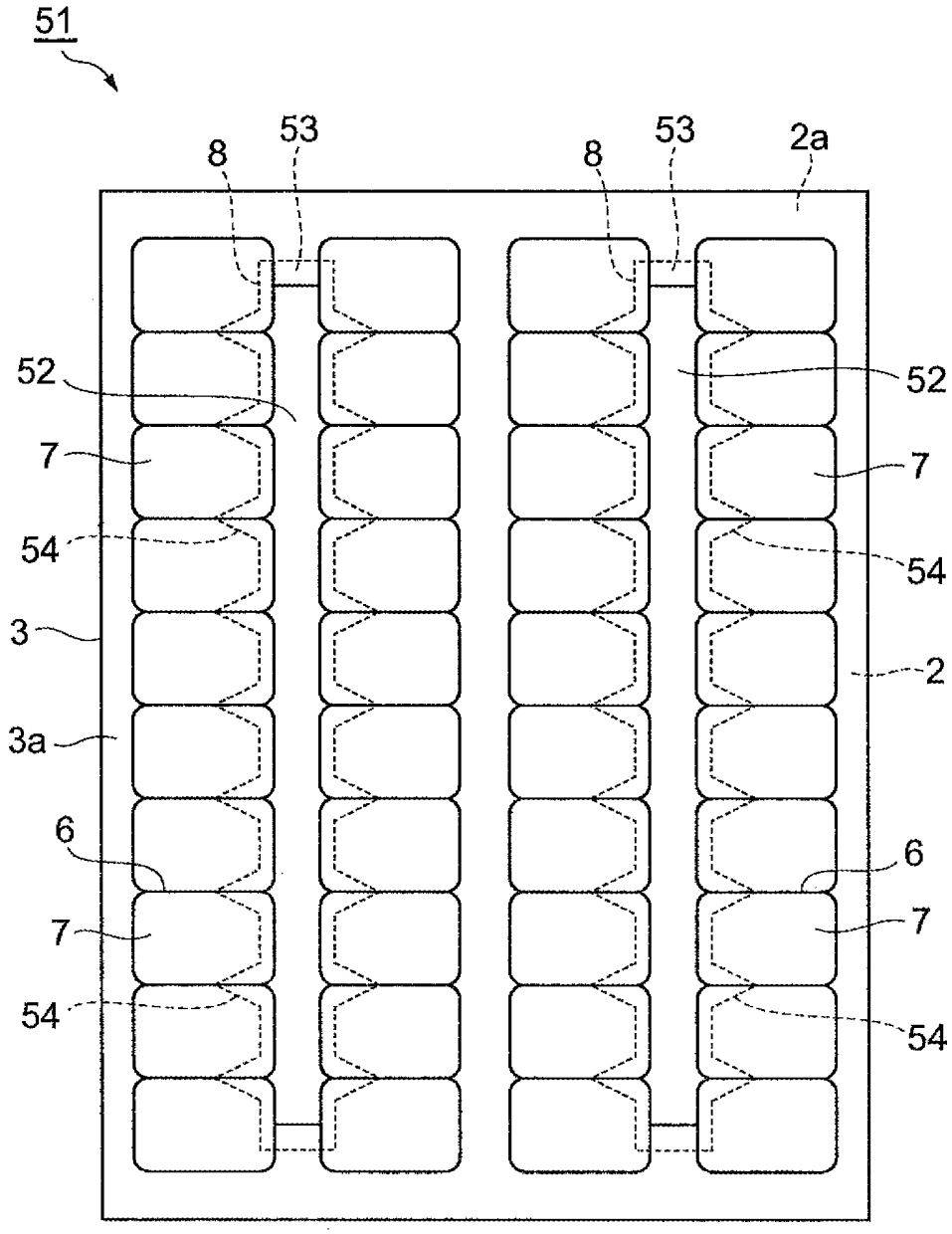

Fig. 17

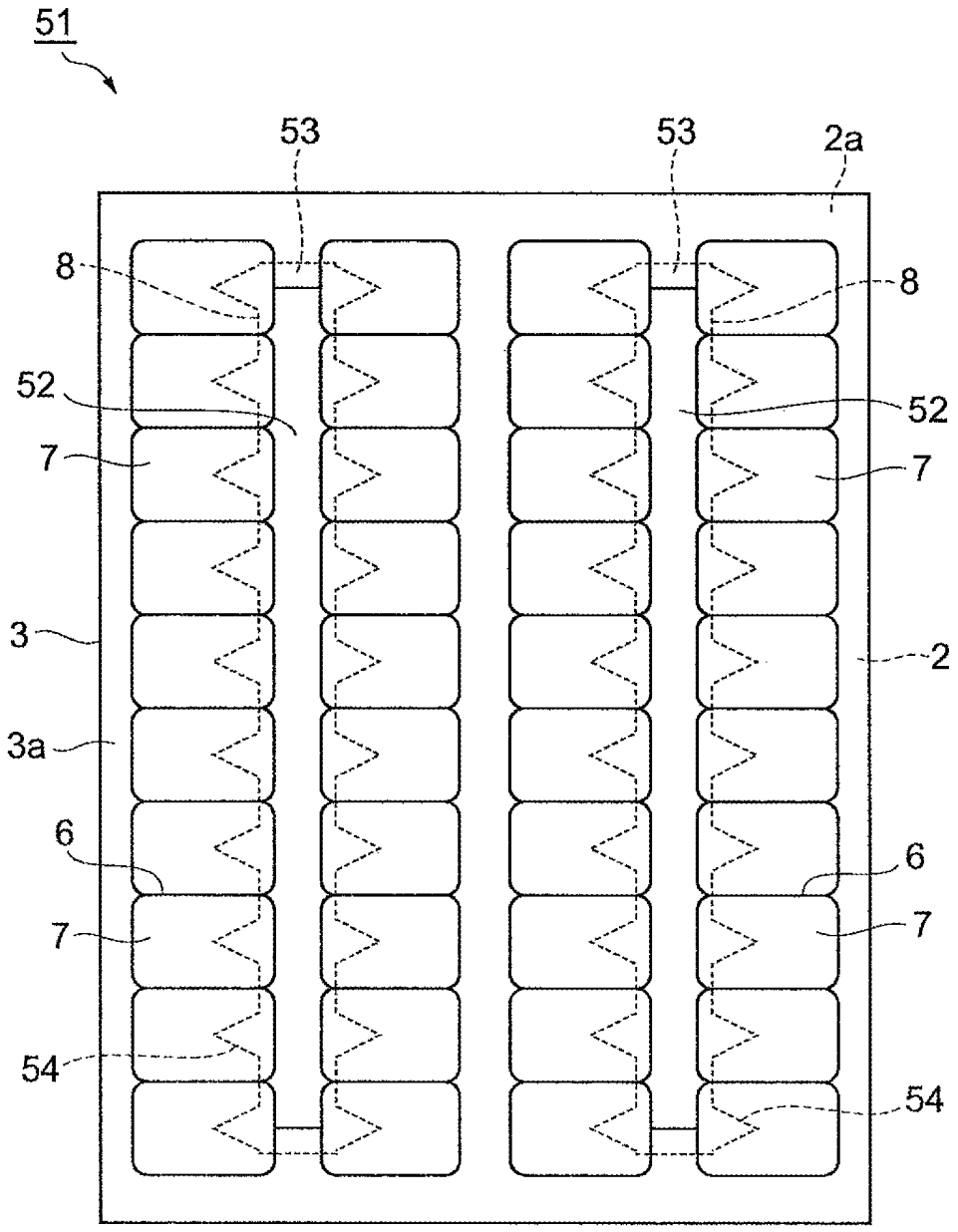

Fig. 18

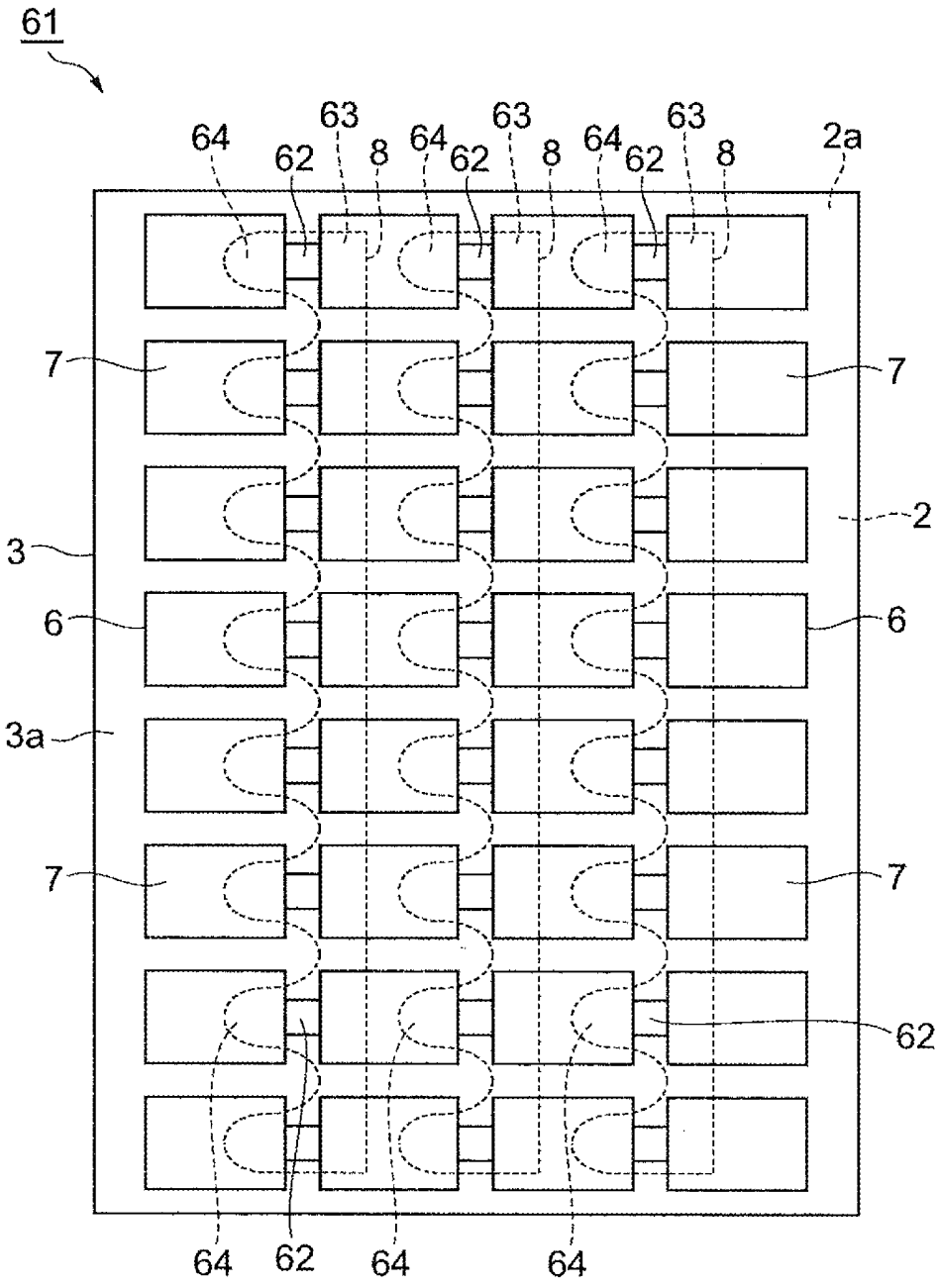

Fig. 19