(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 387 293 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
16.11.2011 Bulletin 2011/46

(51) Int Cl.:
H05B 37/02 *(2006.01)*

(21) Application number: **11165905.8**

(22) Date of filing: **12.05.2011**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(30) Priority: **13.05.2010 JP 2010111360**

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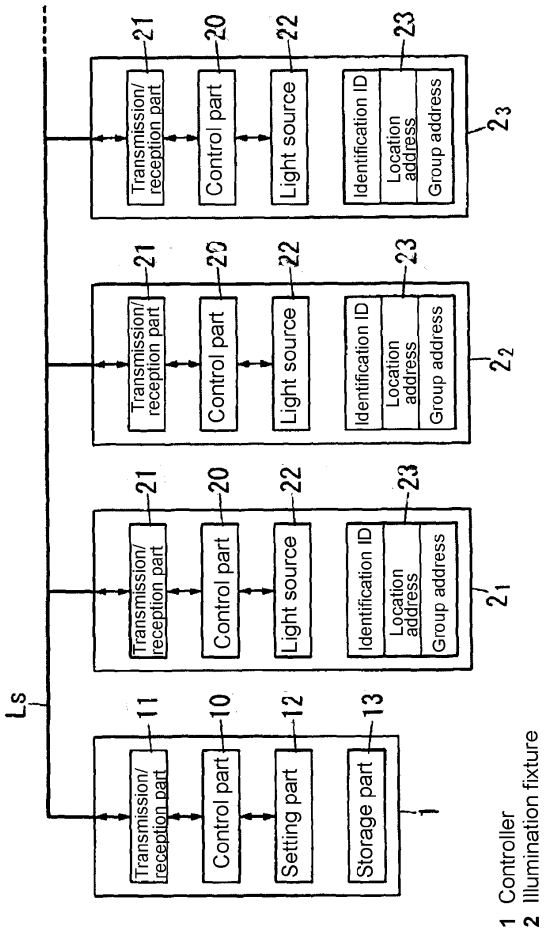
(54) Illumination system

(57) [Object] To provide an illumination system capable of easily identifying the installation location of each illumination fixture while improving operability.

[Means for Settlement] An illumination system includes a plurality of illumination fixtures 2 each having an assigned unique identification ID, and a controller 1 for controlling the plurality of illumination fixtures 2. The controller 1 transmits a transmission signal containing at least the identification ID assigned to each of the illumination fixtures 2 and control information for causing each of the illumination fixtures 2 to perform a predetermined operation to each of the plurality of illumination fixture 2, assigns a location address indicating an installation location to the illumination fixture 2 that performs the predetermined operation based on the installation location of the illumination fixture 2, and stores the location address in association of the identification ID of the illumination fixture. The controller 1 sets a correctively operated group based on the location address assigned to each of the illumination fixtures 2.

Figure 1



EP 2 387 293 A2

Description

[Field of the Invention]

[0001] The present invention relates to an illumination system.

[Background Art]

[0002] An illumination system in which a plurality of illumination fixtures are connected to a controller for controlling these illumination fixtures via a communication line has been conventionally provided. In this illumination system, a unique identification ID is assigned to each of the illumination fixtures, and according to a time schedule, a switching operation, or a sensor output or the like, a predetermined transmission signal containing the identification ID is transmitted from the controller to each illumination fixture. In the each illumination fixture that receives the transmission signal, when the identification ID contained in the transmission signal matches the identification ID assigned of its own, a light source is turned on, turned off, or flashed according to a control command contained in the transmission signal.

[0003] In a large-scale illumination system, a method of controlling the plurality of illumination fixtures in groups (refer to Patent document 1, for example) is more common than the above-mentioned method of controlling each illumination fixture. Examples of a group setting method include a method of sequentially setting each of the installed illumination fixtures to a group one by one and a method of previously setting each of the illumination fixtures to a group and installing the illumination fixtures according to the set groups.

[Conventional Technique Literature]

[Patent Literature]

[0004] [Patent literature 1] JP 2007-287682 A (paragraph [0011] and Fig. 2)

[Disclosure of the Invention]

[Problems to be solved by the Invention]

[0005] However, in the case where the illumination fixtures are sequentially set to a group one by one or the illumination fixtures are installed according to the previously set groups, as the number of the installed illumination fixture increases, time and effort also increase. Further, in the case where each of the illumination fixtures is directly set to the group, when a failure such as lamp exhaustion is transmitted to the controller through communication, the installation location of the illumination fixture having the failure cannot be determined based on only the identification ID.

[0006] In consideration of the above-mentioned problem, an object of the present invention is to provide an illumination system capable of easily identifying the installation location of each illumination fixture while improving operability.

[Means adapted to solve the Problems]

[0007] An illumination system according to the present invention includes a plurality of illumination fixtures each having an assigned unique identification sign, and a controller for controlling the plurality of illumination fixtures, and the controller transmits a transmission signal containing at least the identification sign assigned to each of the illumination fixtures and control information for causing each of the illumination fixtures to perform a predetermined operation to each of the illumination fixture, assigns a first address indicating an installation location to the illumination fixture that performs the predetermined operation based on the installation location of the illumination fixture, stores the first address in association of the identification sign of the illumination fixture and sets a correctively operated group based on the first address assigned to each of the illumination fixtures.

[0008] In this illumination system, the controller has a data table in which the first addresses and the second addresses associated with the group are associated with each other, and in the case where there is a plurality of spaces where the plurality of illumination fixtures are arranged with the same layout, it is preferred that group setting of the spaces are performed collectively by using the data table.

[Effect of the Invention]

[0009] An illumination system capable of easily identifying the installation location of each illumination fixture while improving operability can be provided.

[Brief Description of the Drawings]

[0010]

[Fig. 1] Fig. 1 is a schematic block diagram showing an illumination system in the present embodiment.
[Fig. 2] Fig. 2 is a diagram showing an example of arrangement of illumination fixtures configuring the illumination system.
[Fig. 3] Fig. 3 is a diagram showing another example of arrangement of the illumination fixtures configuring the illumination system.

[Best Mode for Carrying Out the Invention]

[0011] An embodiment of an illumination system according to the present invention will be described referring to Figs. 1 to 3.

[0012] As shown in Fig. 1, the illumination system in the present embodiment includes a plurality of (three in Fig. 1) illumination fixtures 2 and a controller 1 for controlling these illumination fixture 2, and these illumination fixtures 2 are connected to the controller 1 via a communication line Ls. In following description, when the illumination fixtures 2 need to be distinguished from one another, each is represented as the illumination fixture 2N (N = 1, 2, 3 ...).

[0013] Each of the illumination fixtures 2 has a transmission/reception part 21 for transmitting/receiving a transmission signal to/from the controller 1, a light source (for example, fluorescent lamp) 22, a control part 20 for controlling the transmission/reception part 21 and the light source 22 as well as performing general control and a storage part 23. A unique identification ID (identification sign) is assigned to each of the illumination fixtures 2 to distinguish the illumination fixtures 2 from one another, and is stored in the storage part 23. The identification ID may be stored in the storage part 23 at factory shipment or may be randomly set on boot-up of the system after installation and stored in the storage part 23.

[0014] The controller 1 has a transmission/reception part 11 for transmitting/receiving a transmission signal to/from each of the illumination fixtures 2, a setting part 12 for setting below-mentioned location addresses and group addresses, a control part 10 for controlling the transmission/reception part 11 and the setting part 12 as well as performing general control and a storage part 13. The location address and the group address set by the setting part 12 are associated with the identification ID assigned to each of the illumination fixtures 2 and stored in the storage part 13. Details will be described later.

[0015] Fig. 2 shows an example of arrangement of the illumination fixtures 2N (N =1, 2, ... 22) configuring the illumination system, for example, showing one floor of an office building or the like. In the example shown in Fig. 2, the floor is divided into four areas A to D, nine illumination fixtures 2_1 to 2_9 are arranged in the area A and three illumination fixtures 2_{10} to 2_{12} are arranged in the area B. The four illumination fixtures 2_{13} to 2_{16} are arranged in the area C and the six illumination fixtures 2_{17} to 2_{22} are arranged in the area D. In Fig. 2, numerals written in the illumination fixture 2_1 to 2_{22} indicate location addresses of the illumination fixtures 2_1 to 222.

[0016] Table 1 is a data table showing correspondence between the location address and the group address, which are set to each of the illumination fixtures 2N (N = 1, 2, ... 22). According to this data table, the group address 1 is set to the illumination fixtures 2_1 to 2_9 to which the location addresses 1 to 9 are set, respectively (that is, the illumination fixtures arranged in the area A) and the group address 2 is set to the illumination fixtures 2_{10} to 2_{12} to which the location addresses 10 to 12 are set, respectively (that is, the illumination fixtures arranged in the area B). The group address 3 is set to the illumination fixtures 2_{13} to 2_{16} to which the location addresses 13 to 16 are set, respectively (that is, the illumination fixtures arranged in the area C) and the group address 4 is set to the illumination fixtures 2_{17} to 2_{22} to which the location addresses 17 to 22 are set, respectively (that is, the illumination fixtures arranged in the area D). This data table is previously prepared based on an address map not shown and stored in the storage part 13, and in setting the group address to each illumination fixture 2, is read from the storage part 13. In the present embodiment, the location addresses 1 to 22 are used as first addresses of the installation location of the illumination fixtures 2 and the group addresses 1 to 4 are used as second addresses associated with groups each operated collectively.

[0017]

[Table 1]

Installation area	Location address	Group address
A	1	1
	2	1
	3	1
	4	1
	5	1
	6	1
	7	1
	8	1
	9	1
B	10	2
	11	2
	12	2
C	13	3
	14	3
	15	3
	16	3
D	17	4
	18	4
	19	4
	20	4
	21	4
	22	4

[0018] Next, a method of setting the location address will be described. When an operation mode of the illumination system is set to a location address setting mode by operating the setting part 12, the controller 1 transmits the transmission signal containing at least the identification ID of an illumination fixture 2_1 and control information for causing the illumination fixture 2_1 to perform a predetermined operation (such as a flashing operation) to the illumination fixture 2_1 via the communication line Ls. Then, since the identification ID contained in the transmission signal transmitted from the controller 1 matches the identification ID assigned to the illumination fixture 2_1, the illumination fixture 2_1 starts the flashing operation based on the control information contained in the transmission signal.

[0019] When confirming that the illumination fixture 2_1 is flashing, a setting person sets the location address 1 corresponding to the flashing illumination fixture 2_1 by operating the setting part 12 of the controller 1, and transmits the transmission signal containing the identification ID and the location address 1 of the illumination fixture 2_1 via the communication line Ls. In the illumination fixture 2_1 that receives the transmission signal, since the identification ID contained in the transmission signal matches the identification ID of the illumination fixture 2_1, the location address 1 contained in the transmission signal is fetched and stored in the storage part 23. In the other illumination fixtures 2_2 to 2_{22}, the identification IDs contained in the transmission signal do not match the identification IDs of the illumination fixtures 2_2 to 2_{22}, the location address 1 is not fetched. In the controller 1, the location address 1 of the illumination fixture 2_1 is stored in the storage part 13 in association with the identification ID. Subsequently, through similar processing, the location addresses 2 to 22 are set to the illumination fixtures 2_2 to 2_{22}, respectively, and the location addresses 2 to 22 are stored in the storage parts 23 of the illumination fixtures 2_2 to 2_{22}, respectively, and are stored in the storage part 13 of the controller 1 in association with the respective identification IDs.

[0020] Next, a method of setting the group address will be described. In the present embodiment, since the data table (refer to Table 1) in which each of the illumination fixtures 2 is associated with the location address and the group address

is stored in the storage part 13 of the controller 1, the group addresses can be sequentially set to the illumination fixtures 2_1 to 2_{22}, for example, by operating the setting part 12. That is, since it is no need to individually set the group address to each of the illumination fixtures 2, the operating time can be reduced.

[0021] Next, Fig. 3 shows another example of arrangement of the illumination fixtures 2 configuring the illumination system. In this figure, the illumination fixtures 2_1 to 2_{22} are arranged on a plurality of (three in Fig. 3) floors with the same layout. In such case, by using the above-mentioned data table, group setting of the plurality of floors can be performed all at once, thereby further reducing the operating time.

[0022] Therefore, in the present embodiment, since the controller 1 performs assignment of the location addresses (first addresses) and group setting after installation of the illumination fixtures 2, as compared to the case where the illumination fixtures 2 previously set to the groups are installed, time and effort to select the illumination fixture 2 according to the installation location can be saved, thereby advantageously improving operability. Further, since the installation location of each of the illumination fixtures 2 can be identified based on the location address set to each of the illumination fixtures 2, for example, when a failure such as lamp exhaustion or overpower occurs, the illumination fixture 2 having the failure can be easily identified.

[0023] Although the predetermined operation in setting the location address is the flashing operation of the illumination fixture 2 in the present embodiment, the illumination fixture 2 to be targeted may be operated so that it can be visually distinguished from the other illumination fixtures 2, for example, the illumination fixture 2 to be targeted may be turned on, or the illumination fixture 2 to be targeted may be turned off while the other illumination fixtures 2 are turned on. The identification ID (identification sign) assigned to each of the illumination fixtures 2 may be a numeral, a sign such as alphabet or a combination of numeral and sign. Although the location addresses and the group addresses are set by operating the setting part 12 of the controller 1 in the present embodiment, the addresses may be set by use of an infrared remote controller, for example. The number of illumination fixtures 2 is not limited to that of the present embodiment and may be any plural number. Further, although the location addresses and the group addresses are set in order from the illumination fixture 2_1 in the present embodiment, the addresses may be set in order from the illumination fixture 2_{22} or may be set in a random order.

[Description of Reference Numerals]

[0024]

1 Controller
2 Illumination fixture

Claims

1. An illumination system comprising: a plurality of illumination fixtures each having an assigned unique identification sign; and a controller for controlling the plurality of illumination fixtures, wherein
the controller transmits a transmission signal containing at least the identification sign assigned to each of the illumination fixtures and control information for causing each of the illumination fixtures to perform a predetermined operation to each of the plurality of illumination fixtures, assigns a first address indicating an installation location to the illumination fixture that performs the predetermined operation based on the installation location of the illumination fixture, stores the first address in association of the identification sign of the illumination fixture and sets a correctively operated group based on the first address assigned to each of the illumination fixtures.

2. The illumination system according to claim 1, wherein
the controller has a data table in which the first addresses and second addresses associated with the group are associated with each other, and in a case where there is a plurality of spaces where the plurality of illumination fixtures are arranged with the same layout, group setting of the spaces are performed collectively by using the data table.

Figure 1

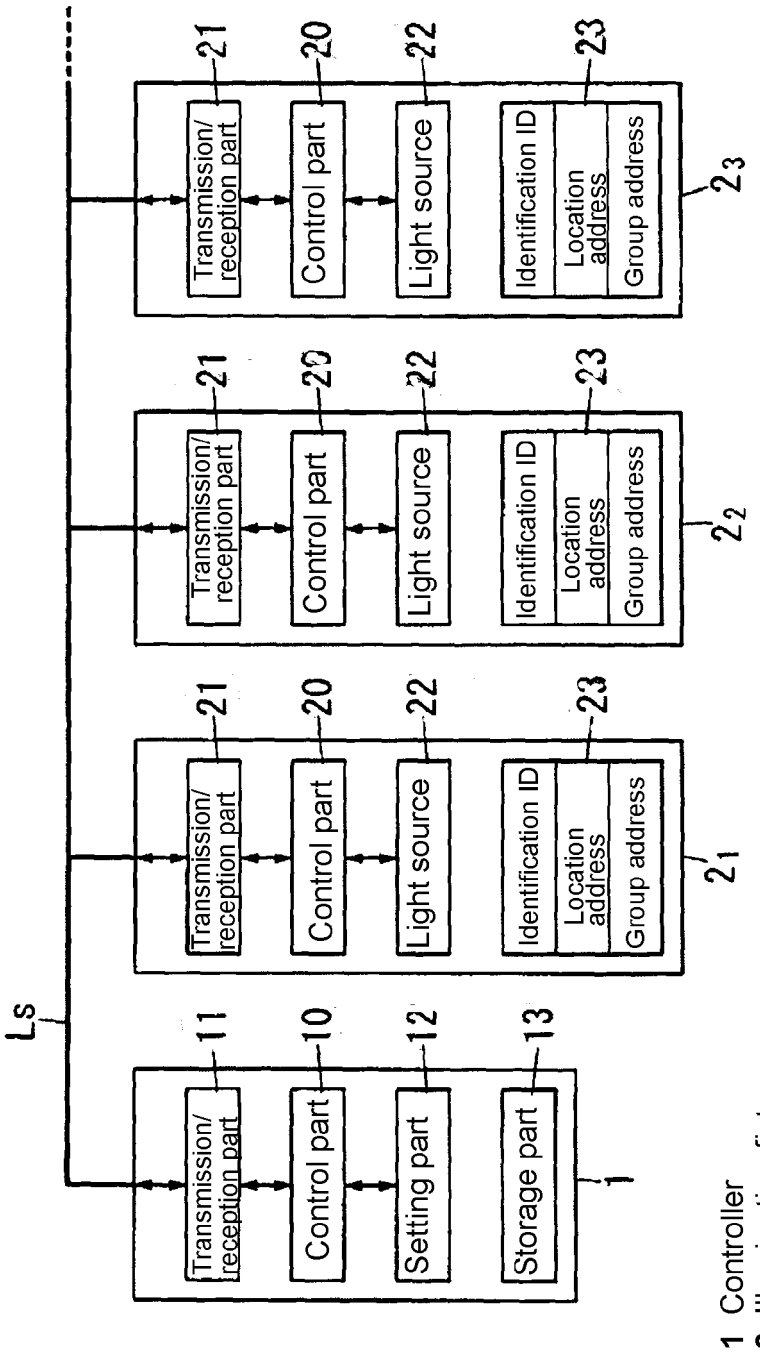
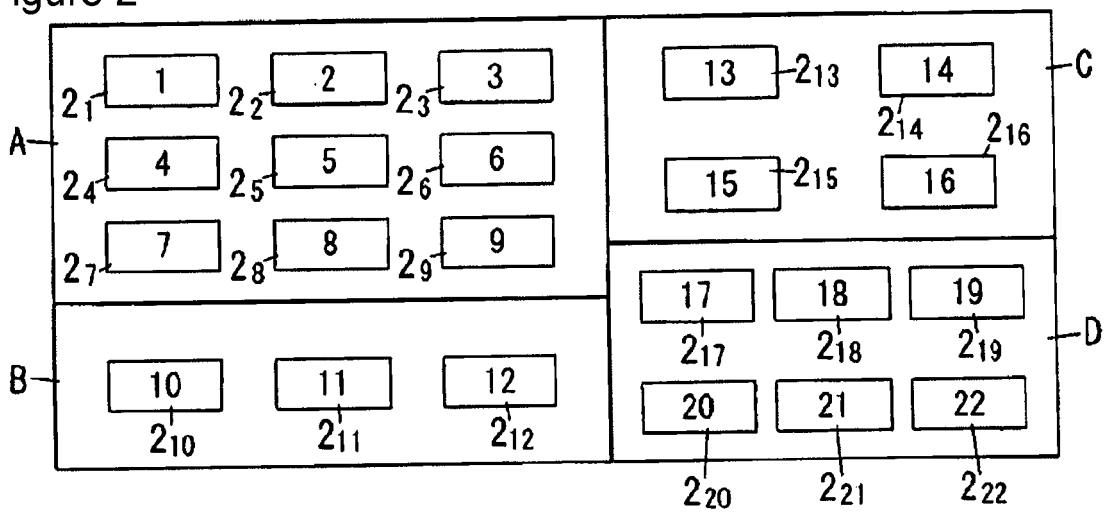

Ls
Transmission/ reception part
Control part
Setting part
Storage part
Light source
Identification ID
Location address
Group address
1
2
10
11
12
13
20
21
22
23
1 Controller
2 Illumination fixture

Figure 2


A
B
C
D
1
2
3
4
5
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7
8
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11
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14
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17
18
19
20
21
22
2_1
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2_3
2_4
2_5
2_6
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2_{10}
2_{11}
2_{12}
2_{13}
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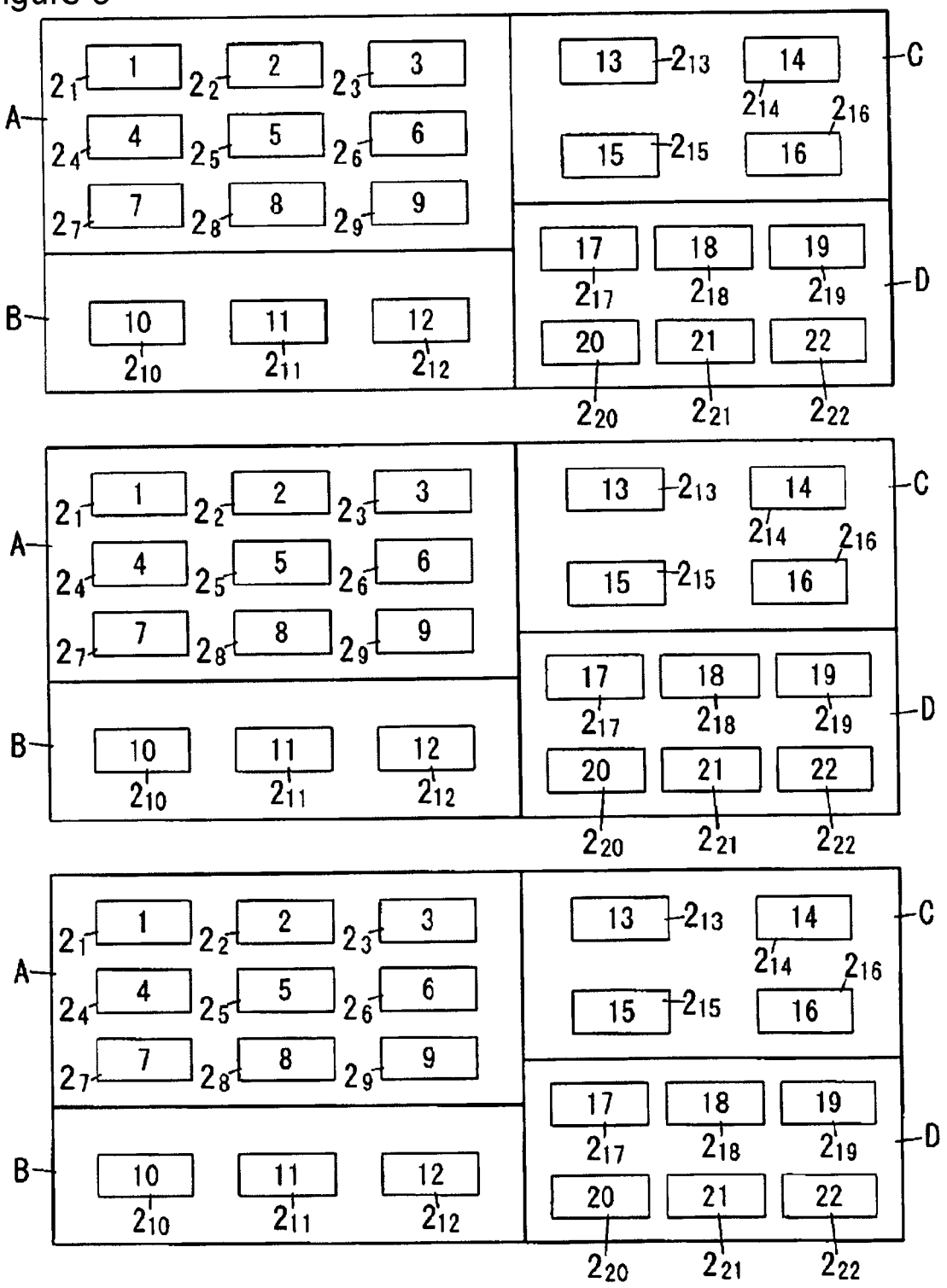
2_{22}

Figure 3


A
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Patent documents cited in the description

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