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WIRING STRUCTURE OF SOLAR CELL MODULE

DETAILED EXPLANATION OF THE INVENTION

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FIELD OF THE INVENTION

This invention concerns the wiring structure of the solar cell module installed in walls of curtain walls of the wire truss type and the frame type, etc.

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CONVENTIONAL TECHNOLOGY

Fig. 8 is a partial view of conventional wiring structure by which consecutive solar cell modules are connected, and Fig. 9 is a whole view of this wiring. Terminal box 101 connected with each solar cell module 100 is big shape, and this terminal box 101 is connected with the back of the solar cell module 100. Wirings 102 by which each solar cell module 100 is connected are exposed complicatedly. Therefore, these structures damage the fine sight from the room.

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Especially, the fine sight is considered from the inside as for the curtain wall of the wire truss type shown in Fig. 10. When the solar cell module is arranged partially of such a curtain wall, the fine sight from the inside is spoilt further.

Then, the terminal which can be installed in the edge of the solar cell module is developed in recent years. If such a terminal is used, a big terminal box is not seen from the room.

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PROBLEM WHICH INVENTION SOLVES

However, even if an individual terminal is small, these become eyesores by installing them in each solar cell module. Moreover, the complex wiring by which two or more terminals are connected cannot be prevented being exposed. Therefore,

the state that such complex wiring is seen from the room was a big problem in the curtain wall of the wire truss type and the flame type that the fine sight is demanded.

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SUMMARY OF THE INVENTION

According to one aspect of this invention, an installation section for an electrical conductor is formed one side of a solar cell module. A terminal is installed in the installation section. The terminal installed in the installation section is concealed with a setting block installed in a joint of a consecutive solar cell module. Wires from the terminal are drawn out to a ditch formed to the setting block. Each of the wires is led to and stored in a connecting tube where the setting block is connected.

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DESCRIPTION OF THE PREFERRED EMBODIMENTS

The form of the execution of this invention is explained according to the drawing as follows.

Fig. 1 is an explanation view by which the connection of the terminal is shown. Fig. 2 is an explanation view by which other connections of the terminal are shown. Fig. 3 is an explanation view by which the connection of the terminal is shown. Fig. 4 is an explanation view by which the connection of the terminal is shown. Fig. 5 is a partially broken plan view by which the wiring is shown.

Fig. 6 is a cross section where the state of a setting block and connecting tube is shown. Fig. 7 is an explanation view by which the installation of the setting block is shown. In the drawings, 1 is a solar cell module. In the drawings, the display of each cell which composes the solar cell module has been omitted. An installation section 3 is formed on an electrical conductor 2 of one side of this solar cell module. A terminal 4 has been installed in the installation section 3.

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The state of the installation section 3 of the terminal 4 is showing in Fig. 1. A difference section 6 of width where the terminal 4 can be set up is formed to a glass 5 of the electrical conductor 2 of the solar cell module 1. This difference section 6 becomes the installation section 3. The terminal 4 is installed in the difference section 6. Therefore, the terminal 4 is stored in the thickness of the solar cell module 1. The terminal 4 does not project to the surface of the solar cell module 1, or be installed in the extent which projects slightly.

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The state of the installation section 3 of the terminal 4 is not limited to the above-mentioned composition. It is possible to form a slight cutting lack 7 where the terminal 4 can be set up to the glass 5 of the electrical conductor 2 of the solar cell module 1 as shown in Fig. 2. This cutting lack 7 becomes the installation section 3. The terminal 4 is installed so that it is stored within the cutting lack 7. Thus, the terminal 4 is stored as well in the thickness of the solar cell module 1. The terminal 4 does not project to the surface of the solar cell module 1, or be installed in the extent which projects slightly.

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Wires 8 from the terminal 4 which is installed in each solar cell module 1 are drawn out to a setting block 9 and stored in a connecting tube 10 where the setting block 9 is connected and led as shown in Fig. 5 and Fig. 6.

Any structure is acceptable for this setting block 9. In the present embodiment, the setting block 9 is metallic of aluminum etc., and, as shown in the drawings, installed in connected location where the bond of each solar cell module 1 is composed. This setting block 9 is installed in a breadth joint 12, where a length joint 11 has been placed in-between, by a pushing edge 13 applied from an opposite side. Fixed

sections 14 on both sides of the setting block 9 are connected and supported in a connecting section 15. The connecting tube 10 is arranged in this connecting section 15. The setting block 9 is set up so that this connecting tube 10 can be along the length joint 11. If the connecting tube 10 has an inlet 20 in connected part with the connecting section 15, and, further, is assumed the structure that connected each tubes are connected in the vicinity of connected part, the condition in work is good.

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A slot 16 which guides the wiring 8 is formed in this setting block 9. Each of the wires 8 guided by this slot 16 is led in the connecting tube 10 through the inlet 20. A length window 21 of wiring work formed in front of the setting block 9 opens this slot 16. A setting detachable cover 22 with rubber and plastic, etc. shuts this length window 21.

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Further, the setting block 9 has an installation section 17 which installs the pushing edge 13. An installing projection 18 formed on the pushing edge 13 is set in the installation section 17 and fixed with a bolt 19 as an unit.

23 is a turnbuckle, and 24 is a clamping of the middle. 25 is a wire rope which composes the wire truss.

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According to the above-mentioned construction, the difference section 6 formed to the electrical conductor 2 of one side of the solar cell module 1, or the terminal 4 which is fixed in the cutting edge 7 are stored in the setting block 9 on externals and the pushing edge 13. The wires 8 from terminal 4 are guided in the slot 16 in the setting block 9. The wires 8 are further led in the connecting tube 10 where the setting block 9 is connected, and stored and led by the inlet 20. Therefore, the terminal 4 and the wires 8 are concealed, and enter the state not seen on externals.

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If the connecting tube 10 is connected in connected location with the connected section 15, the encumbrance in work is few during wiring works of the connection, maintenance and checking.

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EFFECT OF THE INVENTION

As it has been described above, according to the present invention, an installation section of an electrical conductor which is formed on one side of a solar cell module, a terminal which is installed in the installation section, the terminal in the installed section is concealed with a setting block which is installed in a joint of consecutive solar cell modules, wires from each of the terminals are drawn out in the slot formed to the setting block, and each of the wires are wiring is led and stored in a connecting tube where the setting block is connected.

As a result, each of the terminals is concealed with the setting blocks. Further, the wires from each of the terminals are stored in the connecting tube in the setting blocks and concealed. Therefore, the appearance of the solar cell module installed in the surface etc. of the curtain wall becomes excellent, and becomes not unsightly, even if it is seen from the inside of the wall.

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Furthermore, each of the terminals and each of the wires are only concealed with the setting block installed in the joint. Therefore, the work of the installation is excellent. Further, maintenance and the check of the wiring in the setting block become easy by a detachable cover.

BREIF DESCRIPTION OF THE DRAWINGS

Fig. 1

Fig. 1 is an explanation view by which the connection of a terminal is shown.

Fig. 2

Fig. 2 is an explanation view by which other connections of the terminal are shown.

Fig. 3

Fig. 3 is a whole explanation view by which the connection of the terminal is shown.

Fig. 4

Fig. 4 is an explanation view by which the connection of the terminal is shown.

Fig. 5

Fig. 5 is a partially broken plan view by which the wiring is shown.

Fig. 6

Fig. 6 is a cross sectional view where the state of a setting block and a connecting tube is shown.

Fig. 7

Fig. 7 is an explanation view by which the installation of the setting block and the connecting tube is shown.

Fig. 8

Fig. 8 is a partial explanation view by which wiring of the conventional solar cell module is shown.

Fig. 9

Fig. 9 is a whole explanation view by which the wiring of the conventional solar cell module is shown.

Fig. 10

Fig. 10 is an explanation view by which the example of the curtain wall of the wire truss type is shown.

DESCRIPTION OF THE SIGN

1 solar cell module
2 electrical conductor
3 installation section
4 terminal
5 glass

6 difference section
7 cutting lack
8 wiring
9 setting block
10 connecting tube
11 length joint
12 breadth joint
13 pushing edge
14 fixed section
15 connecting section
16 slot
17 installation section
18 installing projection
21 length window
22 cover

WHAT IS CLAIMED IS

Claim 1: A wiring structure of a solar cell module comprising:

an installation section of an electrical conductor which is formed on one side of a solar cell module,

a terminal which is installed in said installation section, said terminal in said installed section is concealed with a setting block which is installed in a joint of consecutive solar cell modules,

wires from each of said terminal are drawn out in said slot formed to said setting block, and

each of said wires is led and stored in a connecting tube where said setting block is connected.

Claim 2: The wiring structure of solar cell module according to claim 1, wherein said installation section is formed by forming a difference section having a predetermined width for setting up the terminal in said solar cell module.

Claim 3: The wiring structure of solar cell module according to claim 1, wherein said installation section is formed by forming a cutting lack for installing said terminal in said solar cell module.

Claim 4: The wiring structure of solar cell module according to claim 1, wherein said connecting tube where the setting block is connected is along a joint of said solar cell module.

Claim 5: The wiring structure of solar cell module according to claim 1, wherein said setting block is fixed with the pushing edge from opposite side.

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ABSTRACT OF THE DISCLOSURE

WIRING STRUCTURE OF SOLAR CELL MODULE

SUMMARY

PROBLEMS: In a curtain wall of the wire truss type, the terminal box which is installed to a solar cell module and its wiring are complexity exposed toward the inside of a room. The fine sight from the inside is spoiled because of this state.

SOLUTION: An installation section for an electrical conductor is formed one side of a solar cell module. A terminal is installed in the installation section. The terminal installed in the installation section is concealed with a setting block installed in a joint of a consecutive solar cell module. Wires from the terminal are drawn out to a ditch formed to the setting block. Each of the wires is led to and stored in a connecting tube where the setting block is connected.

SELECTED FIGURE: Fig. 1