What is claimed is:

1. A manufacturing method of a photovoltaic solar cell module, comprising the steps of:

S1: arranging a plurality of leading connecting ribbons in an orderly manner, placing a first cell on the leading connecting ribbons, arranging a plurality of metal connecting ribbons in an orderly manner and placing the metal connecting ribbons on the first cell, and placing a main jig on a middle part of an upper side of the first cell to compress the metal connecting ribbons and the cell, wherein a length of the metal connecting ribbon is greater than a length of the cell;

S2: placing a second cell on the metal connecting ribbons beyond the cell, and then arranging a plurality of metal connecting ribbons in an orderly manner and placing the metal connecting ribbons on the second cell, placing an auxiliary jig on one side of the main jig, laminating the metal connecting ribbons on surfaces of the two adjacent cells by the auxiliary jig, and placing the main jig on a middle part of an upper side of the second cell;

S3: repeating the step of S2 according to needs to form an element cluster, that is, a cell string with the main jig and the auxiliary jig;

S4: heating the element cluster to complete welding of the metal connecting ribbons and the cells; and

S5: taking down all the main jig and the auxiliary jig, applying an adhesive pattern at a designated position on a first surface of the cell string and performing curing, inverting the cell string, and applying an adhesive pattern at a designated position on a second surface of the cell string and performing curing, in order to complete fabrication of the cell string.

2. The manufacturing method of a photovoltaic solar cell module according to claim 1, wherein a plurality of pressing pins are provided on surfaces of the main jig and the auxiliary jig facing the cells, and the pressing pins compress the metal connecting ribbons and the cells.

3. The manufacturing method of a photovoltaic solar cell module according to claim 2, wherein the pressing pin is provided perpendicular to the surface of the main jig or the auxiliary jig.

4. The manufacturing method of a photovoltaic solar cell module according to claim 2, wherein a non-hollowed plate structure is adopted for both the main jig and the auxiliary jig, and after placement, the main jig and the auxiliary jig are attached to each other.

5. The manufacturing method of a photovoltaic solar cell module according to claim 4, wherein a cross-sectional area of the metal connecting ribbon is 0.00785-0.1256 mm^2.

6. The manufacturing method of a photovoltaic solar cell module according to claim 5, wherein the cross-sectional area of the metal connecting ribbon is 0.049-0.07 mm^2.

7. The manufacturing method of a photovoltaic solar cell module according to claim 6, wherein a cross section of the metal connecting ribbon is triangular, circular or rectangular.

8. The manufacturing method of a photovoltaic solar cell module according to claim 5, wherein an outer layer of the metal connecting ribbon is provided with a coating, and in step S4, a surface of the metal connecting ribbon is coated with flux prior to welding.

9. The manufacturing method of a photovoltaic solar cell module according to claim 1, wherein the adhesive pattern is a dotted pattern or a linear pattern.

10. The manufacturing method of a photovoltaic solar cell module according to claim 1, wherein the applying an adhesive pattern is achieved by means of glue dispensing or printing.

11. The manufacturing method of a photovoltaic solar cell module according to claim 1, wherein in step S5, the cell string is inverted while being kept at 40-140°C, and then the adhesive pattern is applied to the rear surface of the cell and cured.

12. The manufacturing method of a photovoltaic solar cell module according to claim 1, wherein in step S4, an alloy or metal on the surface of the metal connecting ribbon is melted and welded to the cell by heating.

13. A photovoltaic solar cell module fabricated and formed by the manufacturing method of a photovoltaic solar cell module according to claim 1, wherein the photovoltaic solar cell module comprises:

a plurality of cell strings, each cell string comprising a leading cell, a trailing cell, and at least one intermediate cell positioned between the leading cell and the trailing cell;

wherein in respect of the two adjacent cells a light receiving surface of the one cell and a light shading surface of the other cell are electrically connected through the metal connecting

ribbon;

a light shading surface of the leading cell and a light receiving surface of the trailing cell are respectively provided with a separate metal connecting ribbon for electrically leading out the cell respectively; and

the metal connecting ribbons are connected to a front surface and the rear surface of the cell by welding, the metal connecting ribbons and fingers of the cell are provided in a cross manner, and the metal connecting ribbon on the surface of the cell is further provided with at least one adhesive pattern.