CLAIMS:

1. A furnace for firing electrodes on a solar cell device, comprising a transport member for transporting a substrate having a conductive paste applied thereto by moving while holding the substrate in contact with portions of the substrate applied with the paste, a heating zone for heating the substrate with the transport member to fire the conductive paste, and a cooling zone for cooling the heated substrate, the furnace further comprising ~~a~~ means for preheating the transport member, so that the temperature difference between the heating zone atmosphere and the transport member is 0 to 20°C.

~~2. The firing furnace of claim 1 wherein the temperature difference between the heating zone atmosphere and the transport member is 0 to 200°C.~~

~~3~~2. The firing furnace of claim 1 ~~or 2~~ wherein the transport member comprises at least two wires extended for parallel and horizontal motion in a longitudinal direction of the furnace wherein the substrate is transported by the wires while it is rested thereon.

~~4~~3. The firing furnace of any one of claims 1 to ~~3~~ 2 wherein the transport member is of the walking beam system.

~~5~~4. The firing furnace of any one of claims 1 to ~~4~~ 3 wherein the means for preheating the transport member is an electrical means for directly heating the transport member by applying a voltage across the transport member to conduct AC or DC current flow.

5. The firing furnace of any one of claims 1 to 3 wherein the means for preheating the transport member is a means for indirectly heating the transport member at a heating area outside the firing furnace.

6. A method for manufacturing a solar cell device, comprising the steps of forming a pn junction in a semiconductor substrate, applying a conductive paste to a light-receiving surface and non-light-receiving surface of the semiconductor substrate, and firing the conductive paste to form power-extracting electrodes,

the step of firing the conductive paste being performed in the firing furnace of any one of claims 1 to 5.

7. A solar cell device obtained by the method of claim 6.