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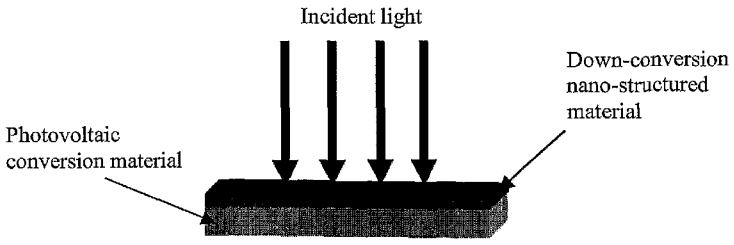
FIG 4



(57) Abstract: The present invention provides a photovoltaic apparatus comprising: (a) at least one photovoltaic conversion material; and (b) at least one down-conversion and/or up-conversion nano- structured material, wherein the at least one down-conversion nano-structured material comprises at least one dimension of size < 450 nm and the at least one up-conversion nano-structured material comprises at least one dimension of size ≤1100 nm. The present invention also provides a method of improving the efficiency of a photovoltaic apparatus comprising the steps of: (a) providing at least one up- conversion and/or down-conversion nano-structured material as defined above on at least one surface of or in close proximity of a photovoltaic conversion material comprised in a photovoltaic apparatus.

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