Patent Search

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Abstract:

The present invention pertains to a nanocoated solar water heater system designed to elevate the efficiency and durability of traditional solar water heating. By utiliz specially-engineered nanocoating on the solar collector surface, the system maximizes sunlight absorption and reduces heat losses, leading to enhanced performanc addition, the nanocoating offers inherent anti-corrosive properties and the potential for aesthetic customizations. Embedded micro-sensors enable real-time monito providing users with valuable feedback and predictive insights. This holistic approach amalgamates efficiency, durability, aesthetics, and smart features, setting a new in solar water heating solutions.

Complete Specification

Description:The present invention pertains to the domain of renewable energy and more specifically to solar water heating systems. This invention deals with a nan solar water heater system and an associated method that aims at improving the heat transfer efficiency of the system. The invention integrates advances in nanotechnology with traditional solar water heating mechanisms to maximize the thermal conductivity and minimize heat losses, thereby providing a more efficien cost-effective solution for harnessing solar energy for water heating purposes.

Background of the invention:

Solar water heaters have been in use for several decades, serving as an eco-friendly and sustainable solution to meet the ever-growing demand for hot water in var sectors including domestic, commercial, and industrial. These systems typically rely on the sun's radiant energy to heat water or a transfer fluid that subsequently h water. The primary components include solar collectors, which absorb the sunlight, and heat exchangers, which transfer the heat from the collectors to the water.

Traditionally, the efficiency of these systems was limited by several factors. First, the materials used for the solar collectors often had suboptimal absorption charac reflecting a significant portion of the sunlight and thus failing to fully utilize the available solar energy. Second, there was the challenge of heat losses from the colle surface, mainly due to radiation, conduction, and convection. Such losses reduced the overall temperature difference between the collector surface and the water, t limiting the potential heat transfer efficiency.

Additionally, the design and build of earlier solar water heaters were largely influenced by material constraints and lacked the finesse that modern technology offer were bulky, had low aesthetic appeal, and were difficult to integrate seamlessly into building architectures. They also had limited durability and would often require maintenance or replacements due to wear and tear or corrosion.

View Application Status