

(54) Title of the invention : A PHOTOCATALYTIC APPARATUS FOR METHANE PRODUCTION AND A METHOD OF HYDROGENATION OF CARBON DIOXIDE (CO₂) INTO METHANE

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(57) Abstract :

A PHOTOCATALYTIC APPARATUS FOR METHANE PRODUCTION AND A METHOD OF HYDROGENATION OF CARBON DIOXIDE (CO₂) INTO METHANE 5 ABSTRACT A photocatalytic apparatus (100) for methane production is provided. The photocatalytic apparatus (100) includes a photoreactor (106) for performing the carbon dioxide 10 (CO₂) reduction reaction (110) employing a photocatalyst for generating methane gas. The apparatus (100) includes a first container (102a) associated with the photoreactor (106) for storing 70% of feedstock and a second container (102b) also associated with the photoreactor (106) for storing about 500 ml of potassium hydroxide (KOH) solution. The apparatus (100) further includes a first valve (104a) associated with the first 15 container (102a) for controlling the supply of nitrogen gas (N₂) to the photoreactor (106), a second valve (104b) associated with the second container (102b), for controlling the flow of the generated methane gas out from the photoreactor (106) to final biogas supply for the measurement of methane production. The photoreactor (106) is constantly exposed to a light source (108), for triggering a photocatalytic response. 20 [FIG.1]

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