

(54) **CARBONIC ANHYDRASE BIOREACTOR AND PROCESS FOR CO₂ CONTAINING GAS EFFLUENT TREATMENT**

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(58) **Field of Classification Search** 435/283.1–309.4
See application file for complete search history.

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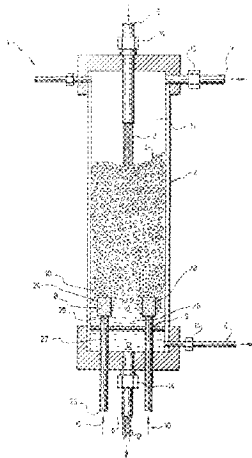
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(57) **ABSTRACT**

A triphasic bioreactor for physico-chemically treating a gas is disclosed. The triphasic bioreactor comprises a reaction chamber with a liquid and biocatalysts in suspension in the liquid, for catalyzing a reaction between the gas and the liquid to obtain a treated gas and a solution containing a reaction product. A gas bubbling means is provided in the reaction chamber for bubbling the gas to be treated into the liquid thereby dissolving the gas into the liquid and increasing a pressure inside the reaction chamber. The bioreactor further comprises a liquid inlet in fluid communication with the reaction chamber for receiving the liquid and filling the reaction chamber, a liquid outlet in fluid communication with the reaction chamber for releasing the solution and a gas outlet in fluid communication with the reaction chamber to release the treated gas. The bioreactor further comprises a retention device to retain the biocatalysts in the reaction chamber. The invention also concerns a process using the triphasic bioreactor. The triphasic bioreactor may advantageously be used for removing carbonic dioxide from a CO₂-containing gas.

43 Claims, 4 Drawing Sheets



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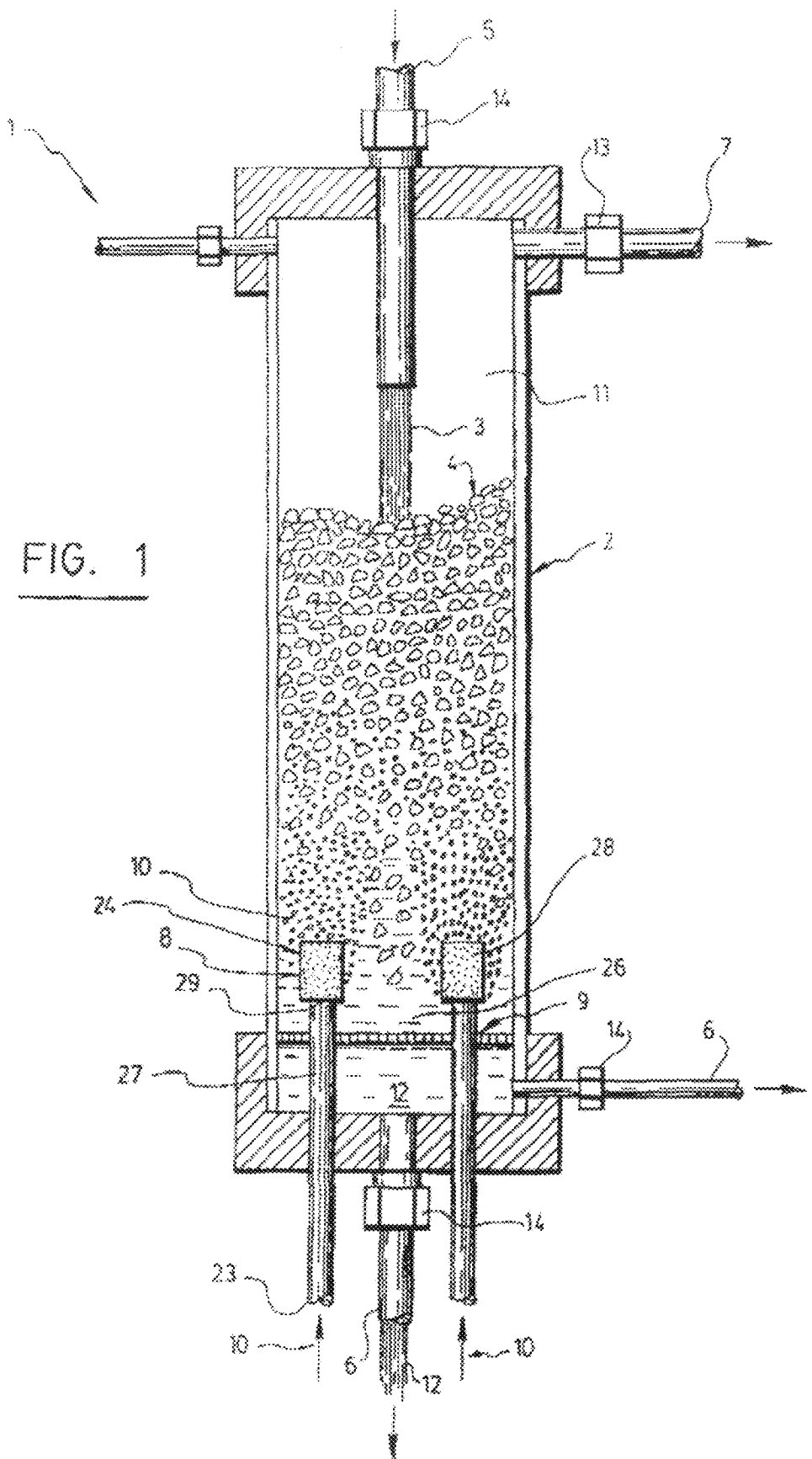


FIG. 1

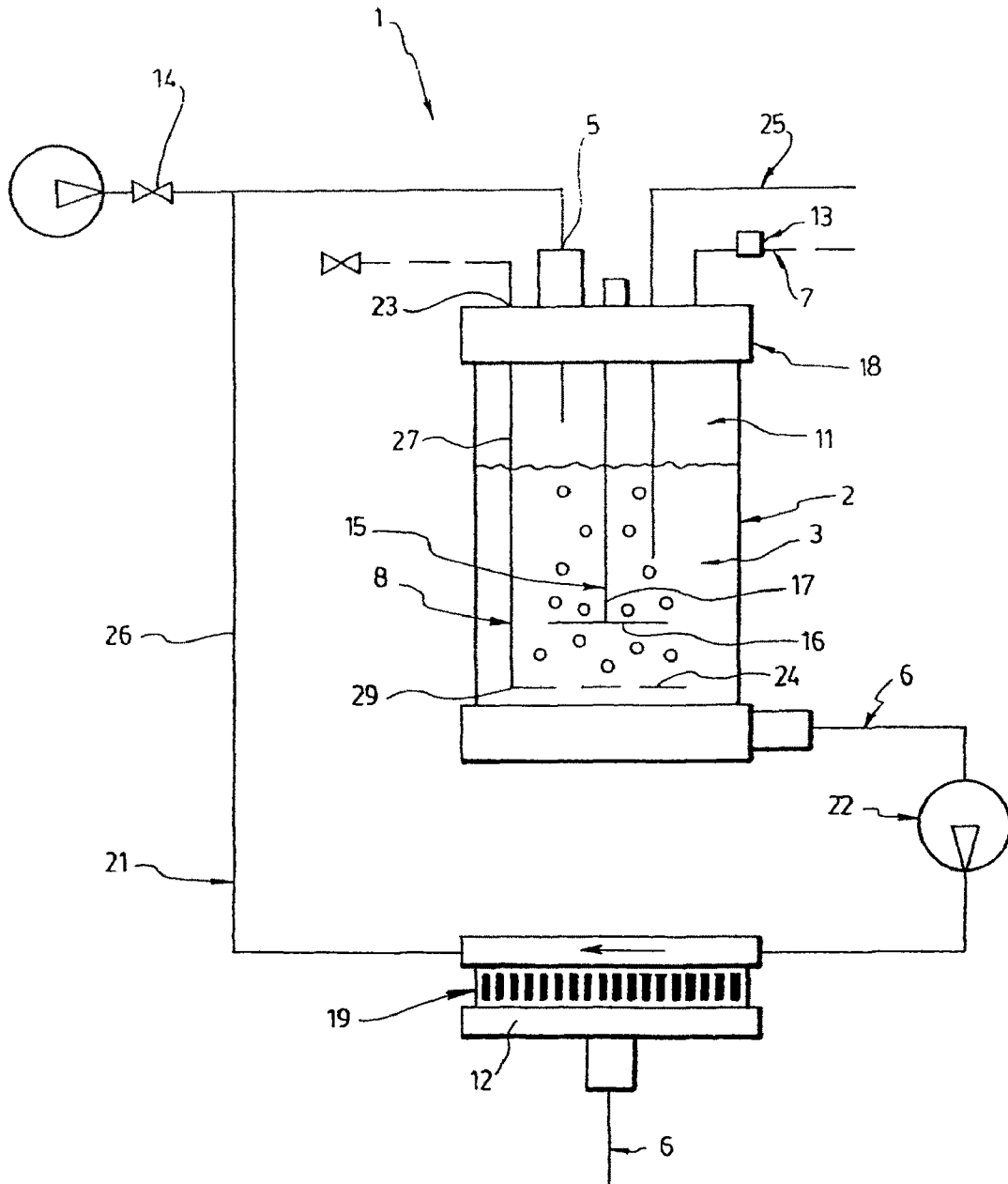


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