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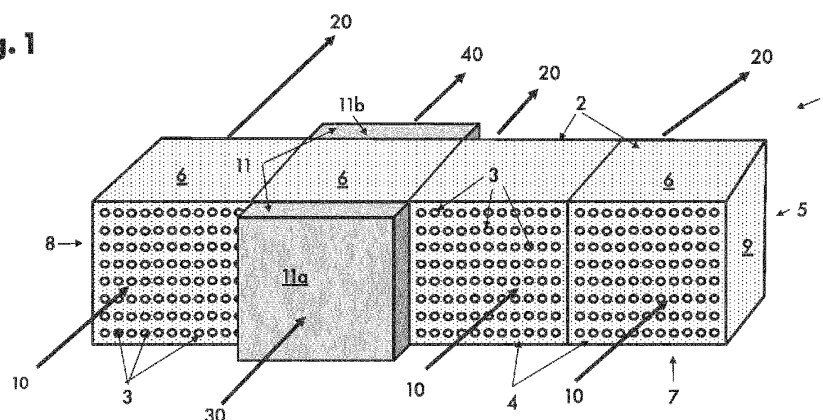
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(54) Title: A PROCESS FOR CAPTURE OF CARBON DIOXIDE

Fig. 1



(57) Abstract: The present invention provides a process for capture of carbon dioxide (CO₂) from a gaseous CO₂-containing stream, the process at least comprising the steps of: (a) providing a gaseous CO₂-containing stream (10), in particular ambient air; (b) passing the gaseous CO₂-containing stream (10) through a plurality of adjacent porous monolith sorbent blocks (2) thereby adsorbing CO₂ from the CO₂-containing stream onto the monolith sorbent blocks (2), wherein each of the monolith sorbent blocks (2) defines substantially parallel internal channels (3) from a first side (4) of the monolith sorbent block (2) that during a CO₂-adsorption phase can receive the gaseous CO₂-containing stream (10) to a second side (5) from which a treated gaseous stream (20) having a reduced CO₂-concentration can exit the monolith sorbent block (2); (c) removing a treated stream (2) from the second side (5) of the monolith sorbent blocks (2) having a reduced CO₂-concentration compared to the gaseous CO₂-containing stream (10) provided in step (a); (d) sealing the first (4) and second sides (5) of a monolith sorbent block (2) once it has reached a predetermined CO₂ saturation level, wherein during the sealing of the first (4) and second sides (5) of the monolith sorbent block (2) the remainder of the monolith sorbent block (2) is not fully sealed thereby obtaining a partly sealed monolith sorbent block (2); (e) desorbing the partly sealed monolith sorbent block (2) by passing a stream of a desorption fluid (30) through the partly sealed monolith sorbent block (2) thereby releasing CO₂ adsorbed to the partly sealed monolith sorbent block (2) and thereby

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obtaining a CO₂-enriched stream (40) and a partly sealed CO₂-depleted monolith sorbent block; (f) removing the CO₂-enriched stream (40) obtained in step (e) from the partly sealed monolith sorbent block (2); (g) undoing the sealing of the first (4) and second sides (5) of the partly sealed CO₂-depleted monolith sorbent block (2) thereby obtaining an unsealed CO₂-depleted monolith sorbent block (2); and (h) recommencing the passing of gaseous CO₂-containing stream (10) through the unsealed CO₂-depleted monolith sorbent block (2) obtained in step (g).