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(54) Title: A DUAL GAS FLOW DEVICE PROVIDED WITH COOLING FUNCTIONALITY

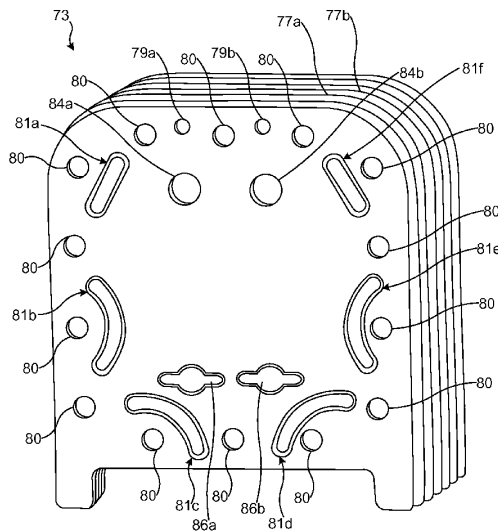


Fig. 5

(57) Abstract: A dual gas flow device (73) comprising: a first cooling plate structure (75a), a second cooling plate structure, a plurality of electrode plates (77a, 77b), wherein the first cooling plate structure (75a), the second cooling plate structure and the plurality of electrode plates (77a, 77b) are arranged in a stacked configuration, wherein the first cooling plate structure (75a) forms a first end of the stack and the second cooling plate structure forms a second end of the stack, wherein the plurality of electrode plates (77a, 77b) are arranged between the first cooling plate structure (75a) and the second cooling plate structure, wherein each electrode plate (77a, 77b) comprises a plurality of cooling channels extending through the electrode plate (77a, 77b), distributed along a peripheral portion of the electrode plate (77a, 77b), each cooling channel being aligned with the corresponding cooling channel of the other electrode plates (77a, 77b) in the stack, wherein each of the first cooling plate structure (75a) and the second cooling plate structure is provided with a plurality of connecting channels (81a-81f), each connecting channel (81a-81f) being configured to connect adjacent pairs of cooling channels of the electrode plates (77a, 77b), whereby the first cooling plate structure (75a) forms a return path for cooling fluid at the first end of the stack and the second cooling plate structure forms a return path for cooling fluid at the second end of the stack enabling cooling fluid to flow through all of the cooling channels.