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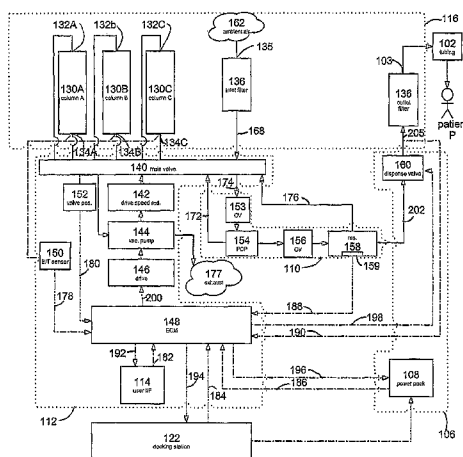
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[Continued on next page]

(54) Title: AMBULATORY OXYGEN CONCENTRATOR CONTAINING A THREE PHASE VACUUM SEPARATION PROCESS



(57) Abstract: An oxygen concentrator (100) comprises an oxygen reservoir and adsorbent columns (130) that each have an inlet (132), an outlet (134), and a bed of adsorbent material (282). The concentrator (100) also comprises an air inlet (135), an exhaust outlet (177), and a vacuum pump (144) for pumping nitrogen rich gas from one of the column inlets (132) to the exhaust outlet (134). A product control pump pumps oxygen rich gas from one of the column outlets (134) to the oxygen reservoir (158). A control valve (140) controls flow in and out of the columns (130) by selectively connecting the air inlet (135) to one column inlet (132), connecting the vacuum pump (144) to another column inlet (132), and connecting the product control pump (154) to a column outlet (134). A motor (146) drives the vacuum pump (144) and control valve (140) to produce vacuum swing adsorption (VSA) cycles in which oxygen-rich product gas is separated and accumulated in the reservoir (158).

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) USPC: 128/201.25; 128/205.11				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC: 128/205.11, 128/205.18, 128/202.26				
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWest oxygen, concentrator, vacuum, swing, adsorption, column, valve, pump				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	US 6,691,702 B2 (APPEL et al) 17 February 2004 (17.02.2004), Col.6, ln 12-17, ln 40-54, Col.8, ln 53-56, Col.9, ln 35-55, Col.10, ln 15-32, Col.12, ln 47-67, Col.13, ln 1-26, Col.14, ln 25-54, Col.22, ln 55-67	1-21		
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>				
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