

Title (en)
METHOD AND APPARATUS FOR FRACTIONATING AIR AT LOW TEMPERATURES

Title (de)
VEFAHREN UND VORRICHTUNG ZUR TIEFTEMPERATURZERLEGUNG VON LUFT

Title (fr)
PROCÉDÉ ET DISPOSITIF DE DÉCOMPOSITION DE L'AIR À BASSE TEMPÉRATURE

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Application
EP 07723062 A 20070306

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Abstract (en)
[origin: WO2007104449A1] Disclosed are a method and an apparatus for fractionating air at low temperatures by means of a nitrogen-oxygen separating distillation column system which comprises at least one fractionating column 21, 22). A main air flow (1, 5) is condensed in an air condenser (2) and is purified in a purifying device (4). A first and a second air flow (7, 8) are diverted from the main air flow (5). The first air flow (7) is re-condensed in two serially connected re-condensers (10, 13). The re-condensed first air flow (15) is cooled and liquefied or pseudo-liquefied at least in part by indirectly exchanging heat (16) and is then introduced into the nitrogen-oxygen separating distillation column system (20). The second air flow (8) is cooled by indirectly exchanging heat (16), is divided into two partial flows (24, 27), and is then expanded in a power-generating manner in two expanders (25, 28) which are provided with substantially the same inlet pressure. At least some of the partial flows (26, 29) of the second air flow, which have been expanded in a power-generating manner, is introduced into the nitrogen-oxygen separating distillation column system (20) (30, 129). At least some of the mechanical power generated during the power-generating expansion (25, 28) of the second air flow is used for driving the two serially connected re-condensers (10, 13). A liquid product flow (31) is removed from the nitrogen-oxygen separating distillation column system (20), is pressurized (32) in the liquid state, is evaporated or pseudo-evaporated in said pressurized state by indirectly exchanging heat (16) with the first air flow (15), and is finally withdrawn as a gaseous product flow (34). Both re-condensers (10, 13) are operated at an input temperature exceeding 250 K, especially exceeding 270 K.

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