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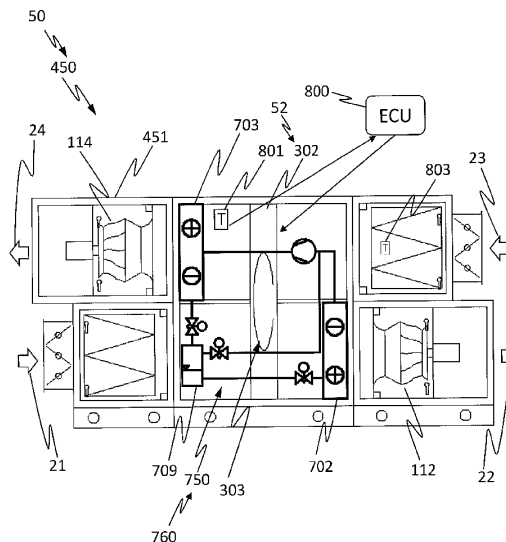


Fig. 8

(57) Abstract: A method and Air Handling Unit (50, 100, ...650) with ECU (800) comprising a heat exchanger function, a First coil (703) gas cooler placed in extract air channel, to receive non-hot air from a building, via a CO₂ (R744) refrigerant circuit, an integrated cooling and heating block without (700) or with CO₂ pressure optimization (750); for exchanging heat with a First coil (703) a gas-cooler, and a Second coil (702) placed in the AHU's air supply channel to the building (900) Placement of the First coil (703) after the heat exchanger in an extract air flow/channel (23), lets the ECU (800) control/adjust of the air temperature (801) at the First coil (703) by regulating the efficiency (53, 103, 303, 503) of heat exchanger (52) by regulating: damper for a by-pass channel (53, 103) of cross/counterflow heat exchanger; rotation speed (303) of rotary heat exchanger; and/or liquid flow (503) in run around coil (RAC) system, which maximizes the CO₂ refrigerant cycle efficiency.

WO 2025/084972 A1