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(54) Title: ELECTROSTATIC SPRAY DRYER APPARATUS AND METHOD

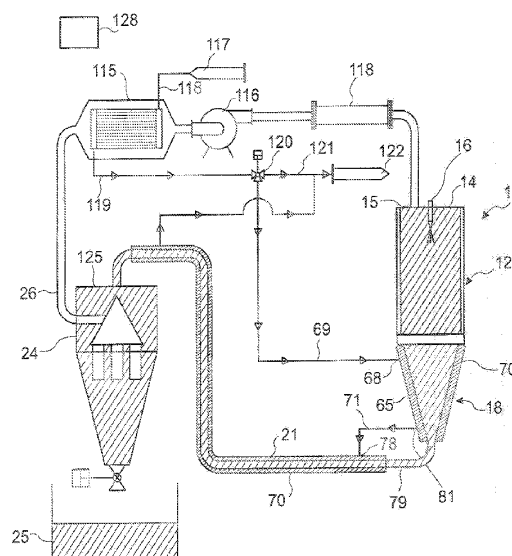


FIG. 2

(57) **Abstract:** An electrostatic spray drying system comprising an electrostatic spray nozzle for directing electrically charged liquid into a drying chamber, a drying gas inlet from which drying gas is simultaneously directed, and a conical powder direction plenum for receiving drying gas and entrained dried powder for direction to a filter containing powder separation plenum via a connecting conduit. The powder direction plenum and connecting conduit each have a surrounding water jacket heat exchanger through which cooling water is directed for cooling the drying gas and powder below damaging temperatures prior to entry into the powder separation plenum. The powder separation plenum has a return line for redirecting separated drying gas to the drying chamber through a condenser, blower, and heater for reuse in the system, with condensed water being selectively redirected to the inlet of the powder direction plenum heat exchanger and/or to the cooling water supply.

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