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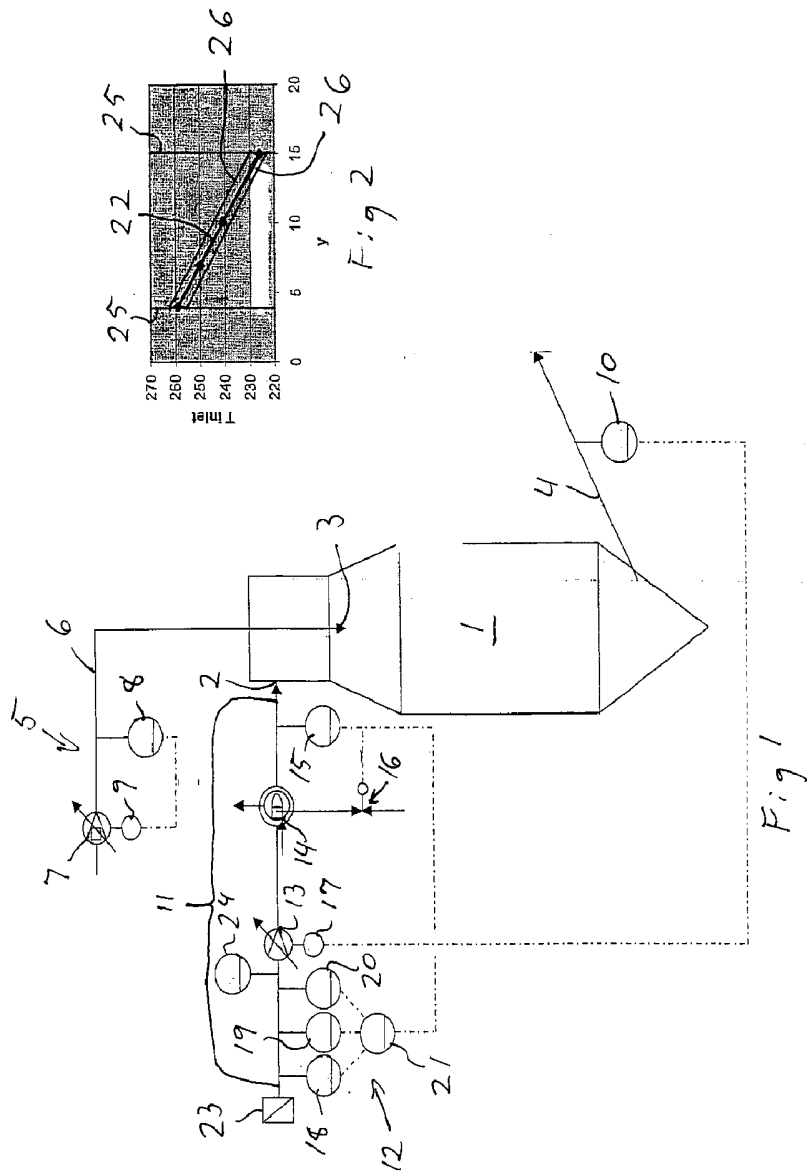
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(54) Benævnelse: **A method of controlling a spray dryer apparatus by regulating an inlet air flow rate, and a spray dryer apparatus**

(57) Sammendrag:

A method of controlling a spray dryer apparatus having a spray dryer chamber (1), an air inlet (2), an inlet air control system (11) including a fan (13) and an air heater (14), a feed inlet (3), and an exhaust air outlet (4), comprising determining a content (Y) of moisture of inlet air, determining an inlet air temperature set value (T_{inlet}) in dependence of the inlet air moisture content (Y), determining an inlet air temperature measured value of inlet air between the air heater (14) and the spray dryer chamber (1), and regulating the inlet air temperature in dependence of the inlet air temperature set value and the inlet air temperature measured value, and determining an outlet air temperature of the exhaust air and regulating an inlet air flow rate in dependence of the outlet air temperature.



P A T E N T C L A I M S

1. A method of controlling a spray dryer apparatus having a spray dryer chamber, an air inlet, an inlet air control system including a fan and an air heater, a feed inlet, and an exhaust air outlet, comprising
5 determining a content of moisture of inlet air, determining an inlet air temperature set value in dependence of the inlet air moisture content, determining an inlet air temperature measured value of inlet air between the air heater and the spray dryer chamber, and regulating the inlet air temperature in dependence of the inlet air temperature set
10 value and the inlet air temperature measured value, and determining an outlet air temperature of the exhaust air and regulating an inlet air flow rate in dependence of the outlet air temperature.

2. A method according to claim 1, wherein the inlet air moisture content determined is the moisture content of the ambient air, and
15 wherein any moisture added to ambient air before reaching the air inlet is taken into account when determining the inlet air temperature set value.

3. A method according to claim 1 or 2, wherein determining an inlet air temperature set value in dependence of the inlet air moisture
20 content comprises providing a priori for a specific spray dryer apparatus and for a specific product to be processed by the spray dryer apparatus an expression for the inlet air temperature set value in dependence of varying inlet air moisture content.

4. A method according to any of the claims 1 to 3, wherein an
25 automatic system is used to carry out said regulations.

5. A method according to claim 3, comprising displaying said expression to an operator.

6. A method according to any of the claims 1 to 5, comprising displaying to an operator at least one current operational parameter
30 together with at least one limit of an acceptable range for said operational parameter.

7. A method according to claim 6, wherein said operational parameter is selected from a group comprising inlet air moisture content, ambient air moisture content, ambient air relative humidity,

inlet air temperature measured value, inlet air temperature set value, inlet air flow rate, a fan speed, and outlet air temperature.

8. A method according to any of the claims 1 to 5, wherein a feed flow through said feed inlet is kept constant unless the moisture
5 content of the inlet air falls outside an acceptable range.

9. A spray dryer apparatus comprising a spray dryer chamber, a feed inlet, a feed control device, an air inlet, an inlet air control system and an exhaust air outlet with an outlet air temperature measuring device, said inlet air control system comprising a fan, an inlet
10 air flow rate control device, an air heater with an air heater control device, and an inlet air temperature measuring device for measuring temperature of inlet air between the air heater and the spray dryer chamber, said spray dryer apparatus further comprising an inlet air moisture content measuring device, a controller for determining an inlet
15 air temperature set value depending on the inlet air moisture content, a connection for forwarding said inlet air temperature set value to the air heater control device and a connection for forwarding an outlet temperature measured value from the outlet air temperature measuring device to the inlet air flow rate control device.

20 10. A spray dryer apparatus according to claim 9, wherein said inlet air moisture content measuring device is an ambient air moisture content measuring device.

11. A spray drying apparatus according to claim 9 or 10, wherein said inlet air moisture content measuring device comprises a
25 hygrometer, a thermometer, a barometer, and a controller.

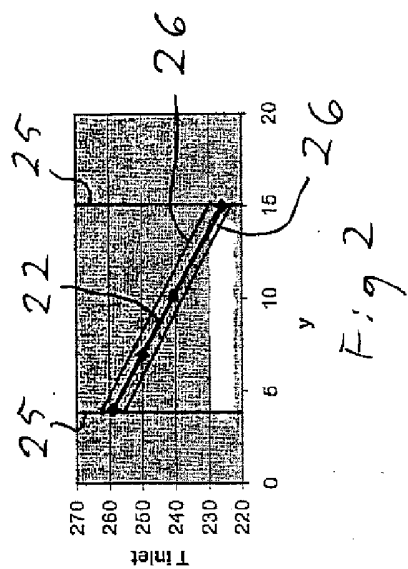
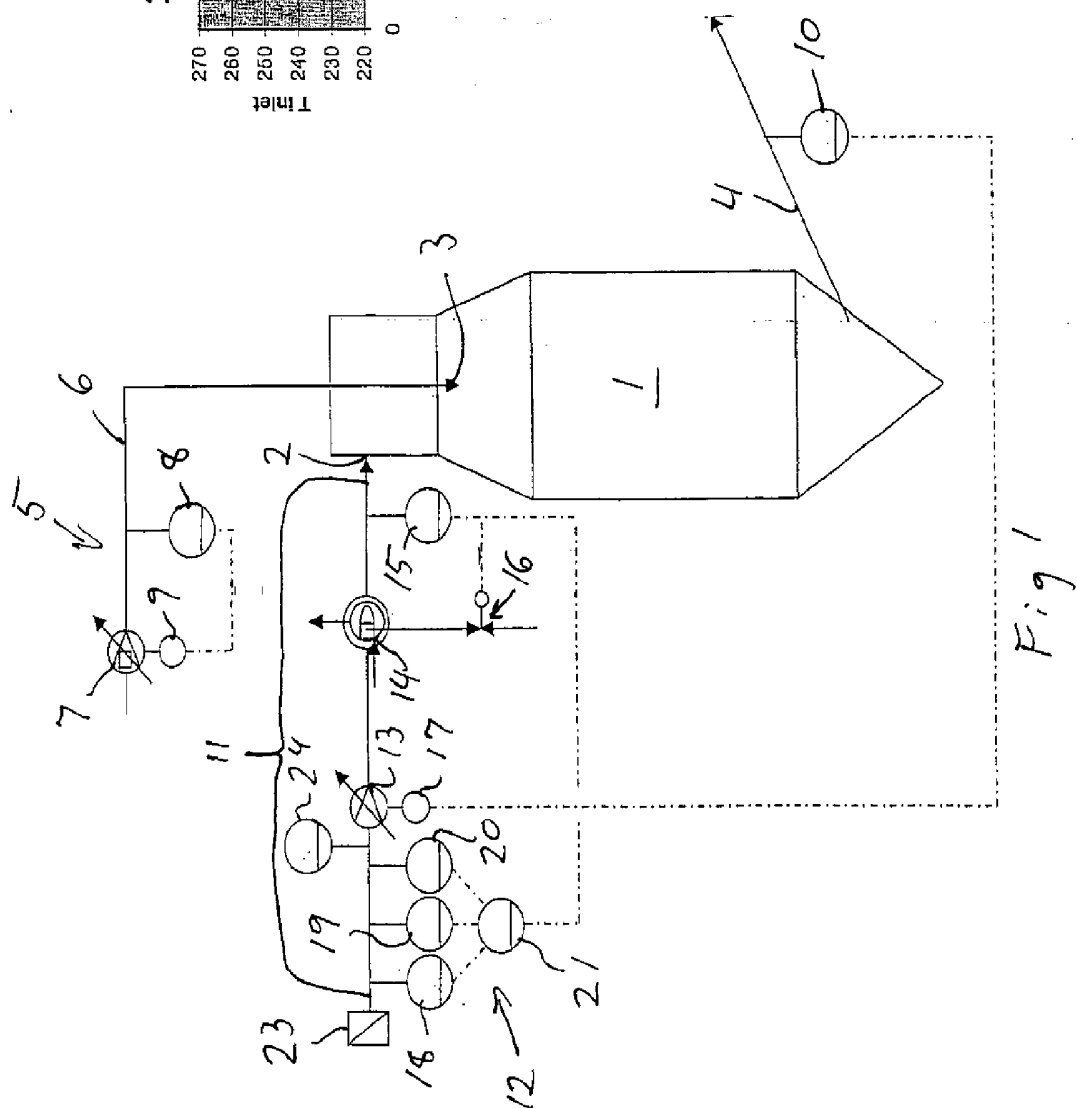
12. A spray drying apparatus according to any of claims 9 to 11, wherein the air inlet flow rate control device comprises said fan and a fan controller.

13. A spray dryer apparatus according to claim 12 wherein said
30 fan is placed upstream of the spray dryer chamber.

14. A spray dryer apparatus according to claim 12 wherein said fan is a suction fan placed downstream of the spray dryer chamber.

15. A spray dryer apparatus according to any of the claims 9 to 14, comprising a graphic display device for displaying to an operator at

least a current value of an operational parameter.



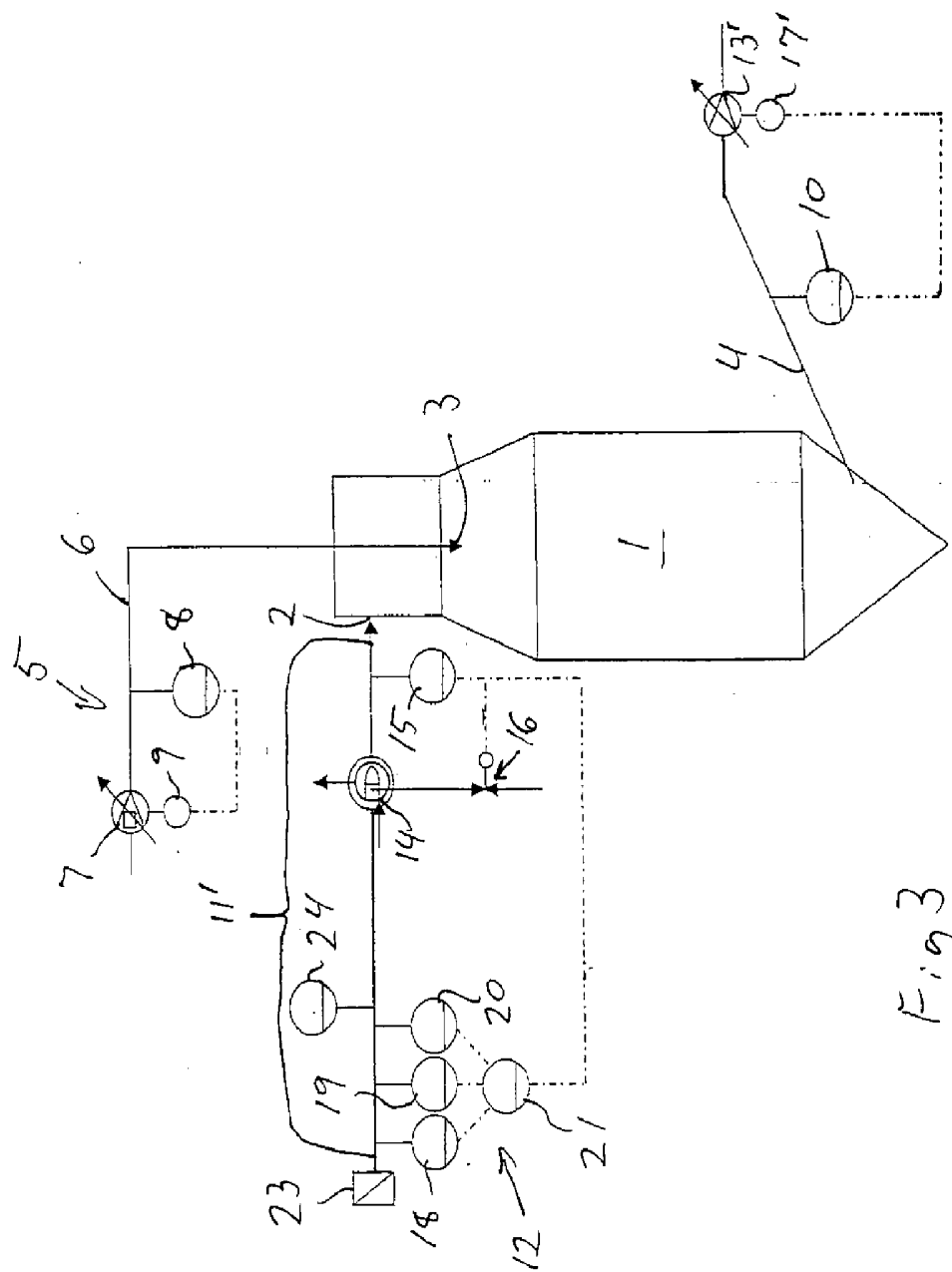


Fig 3