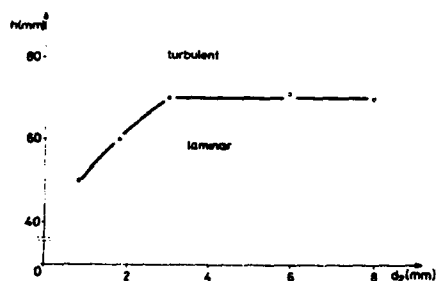


boiler and then back to the hot coke in a coke cooling chamber. This completes the first closed cycle. Water is supplied to the waste heat boiler to form steam. The steam is supplied to a fluidized bed of wet coal to indirectly preheat and dry the wet coal in a second cycle. The wet coal is fluidized using fluidizing gas which converts water in the wet coal into steam. Some of the steam is condensed from the combination of fluidizing gas plus steam and then the fluidizing gas is returned to the bed. Steam from the waste heat boiler is also supplied to the fluidizing gas before it re-enters the bed to heat the fluidizing gas.

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### FLUIDIZED-BED REACTOR WITH OPEN REACTION GAS INPUT AND METHOD OF INCREASING THE DUCT

Eike Barnert; Wolfgan Frommelt; Erich Zimmer assigned to Kernforschungs-anlage Julich GmbH



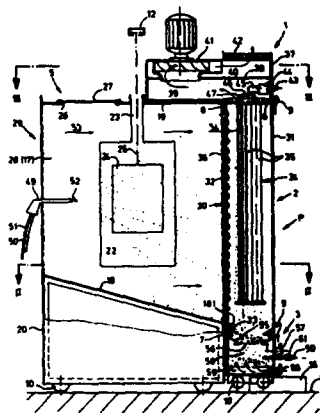
The reaction gas throughout of the supply duct feeding gas to the bottom of a fluidized bed reactor of the kind shown in U. S. Pat. No. 4,153,004, issued May 8, 1979, is increased by providing the reaction gas supply tube in the form of a bundle of tubes of small cross-section of about 2 mm diameter. Subdivision of the supply tube into hexagonal ducts in honeycomb arrangement maximizes the useful cross-sectional area of the supply tube. With the smaller elemental tube diameters, a higher rate of flow is maintainable without loss of laminar flow behavior, which behavior is maintained in the jet issuing from the subdivided reaction gas supply duct as it flows towards the constricted entrance into the fluidized

bed container while being surrounded by a sheath of inert carrier gas supplied by an annular duct surrounding the reaction gas tube. It is thus possible to increase the input of reaction gas without increasing the diameter of the jet or loss of the laminar flow characteristics necessary to prevent the reaction gas from making deposits that would interfere with the introduction of gas into the bottom of the bed.

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### DEVICE FOR SPRAY-COATING A WORKPIECE WITH POWDER PARTICLES

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A booth forming a spraying chamber for workpieces to be coated with powder particles has a substantial fully open front side, giving access to an electrostatic spray gun, and a substantially fully open rear side adjoining a housing of a detachable powder-collecting unit which is open toward the chamber while being separated therefrom by an apertured screen. Tubular filter elements in the housing of the powder-collecting unit, having air-permeable peripheral surfaces, communicate with the suction end of a blower in an overlying clean-air unit, thereby giving rise to an air stream which passes generally horizontally through the chamber from its front side to its rear side and entrains particles discharged by the spray gun. Particles bypassing the workpiece to be coated may traverse the apertured