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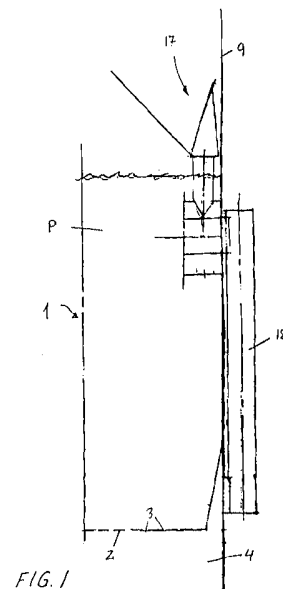
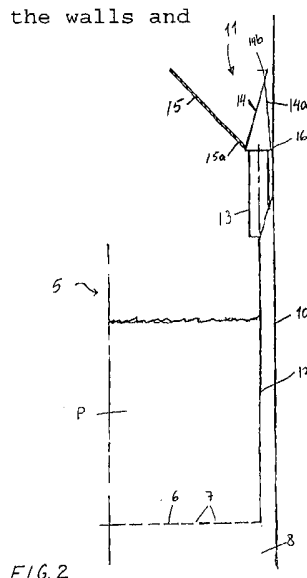
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(54) Benævnelse: A method and apparatus for processing a pulverulent or particulate material

(57) Sammendrag:

In a fluid bed apparatus in which a layer of pulverulent or particulate material is fluidized by means of fluidizing gas which is introduced through openings in a bed plate in a first plurality of streams or flows of gas, means are provided for introducing a second plurality of streams or flows of gas at a site or sites of introduction and is directed from said site or sites along the surfaces of at least some of the walls of the housing to form a gas barrier covering at least a substantial part of said wall surfaces and the ceiling of the housing thus reducing detrimental effects, in particular deposition of products, condensation and corrosion, on the surfaces of the walls and ceiling of the housing.



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

1. A method of processing a layer of pulverulent or particulate material which is fluidized on a bed plate of a fluid bed apparatus by means of fluidizing
5 gas which is introduced through openings in the bed plate in a first plurality of streams or flows of gas, said fluid bed apparatus comprising a housing having a mainly polygonal shape and comprising a number of walls and a ceiling, said method further comprising a reduc-
10 tion of detrimental effects, in particular deposition of products, condensation and corrosion, on the surfaces of said walls and ceiling,

c h a r a c t e r i z e d i n t h a t

a second plurality of streams or flows of gas is
15 introduced into said housing at a site or sites of introduction and is directed from said site or sites along the surfaces of at least some of the walls of the housing to form a gas barrier covering at least a substantial part of said wall surfaces and the ceiling
20 of the housing.

2. A method according to claim 1, c h a r a c -
t e r i z e d i n t h a t said second plurality of streams or flows of gas has a first flow component directed upwardly from said site or sites of introduction and/or
25 a second flow component at right angles to said first flow component.

3. A method according to claim 1 or 2, c h a -
r a c t e r i z e d i n t h a t said site or sites of introduction is/are situated at a level above the layer
30 of material on the bed plate.

4. A method according to claim 1, 2 or 3, c h a -
r a c t e r i z e d i n t h a t the velocity of the streams or flows of gas of said second plurality is sufficiently low so as not to entrain said fluidizing
35 gas.

5. A method according to any of the preceding claims, characterized in that the amount of said second plurality of streams or flows of gas is 2-25% of the total amount of gas.

5 6. A method according to any of the preceding claims, characterized in that the temperature of said second plurality of streams or flows of gas is higher than the temperature of the layer of material.

10 7. A method according to any of the preceding claims, characterized in that said second plurality of streams or flows of gas is utilized for heating said wall or walls below the site or sites of introduction.

15 8. A method according to any of claims 1-6 applied to a fluid bed apparatus of the type comprising a first fluid bed section of the back-mix flow type and a second fluid bed section of the plug flow type, characterized in that said second plurality of
20 streams or flows of gas is utilized for heating said wall or walls below the site or sites of introduction in at least one of said sections.

9. A fluid bed apparatus comprising a housing having a mainly polygonal shape and comprising a number
25 of walls and a ceiling, and a bed plate on which a layer of pulverulent or particulate material is fluidized by means of fluidizing gas which is introduced through openings in the bed plate in a first plurality of streams or flows of gas, means being
30 provided for reducing detrimental effects, in particular deposition of products, condensation and corrosion, on the surfaces of said walls and ceiling,

characterized in that

means are provided for introducing a second
35 plurality of streams or flows of gas at a site or sites

of introduction and is directed from said site or sites along the surfaces of at least some of the walls of the housing to form a gas barrier covering at least a substantial part of said wall surfaces and the ceiling
5 of the housing.

10. A fluid bed apparatus according to claim 9, characterized in that said introduction means are designed to impart to said second plurality of streams or flows of gas a first flow component
10 directed upwardly from the introduction means and/or a second flow component at right angles to said first flow component.

11. A fluid bed apparatus according to claim 9 or 10, characterized in that said introduction
15 means are situated at a level above the layer of material on the bed plate.

12. A fluid bed apparatus according to any of claims 9-11, characterized in that said introduction means comprise a profile extending in the
20 longitudinal direction of the wall.

13. A fluid bed apparatus according to any of claims 9-11, characterized in that said introduction means are designed as openings in the wall.

25 14. A fluid bed apparatus according to any of claims 9-11, characterized in that said introduction means comprise at least one nozzle at each site of introduction.

15. A fluid bed apparatus according to any of
30 claims 9-14, characterized in that a shielding arrangement is provided at the site or sites of introduction for deflecting spouting material from the fluid bed from the introduction means.

16. A fluid bed apparatus according to claim 15,
35 characterized in that an aperture is

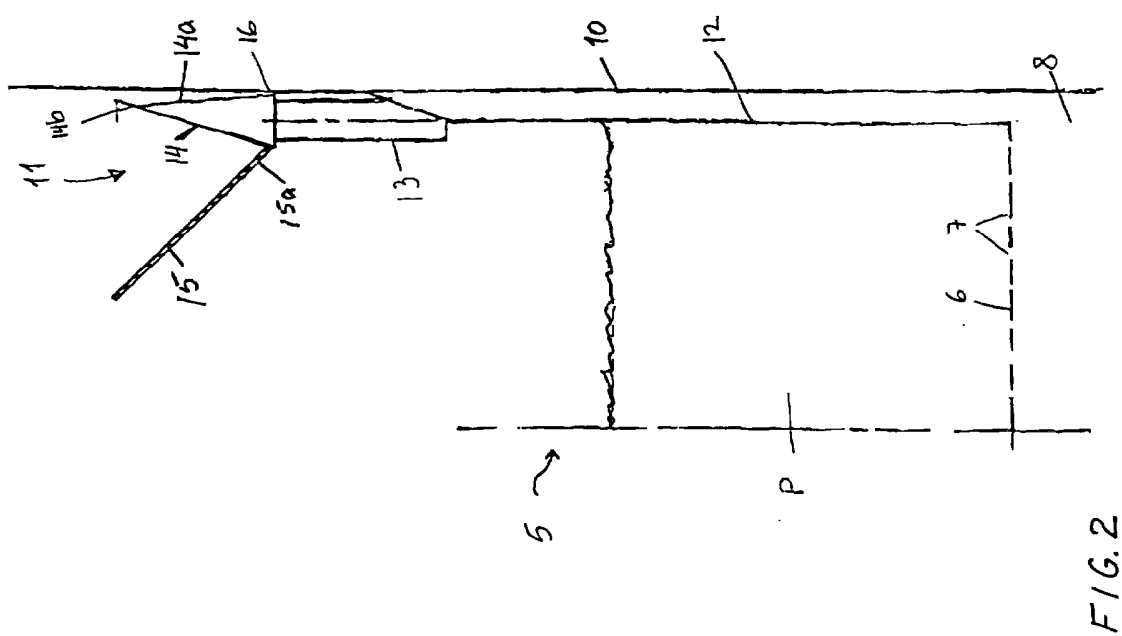
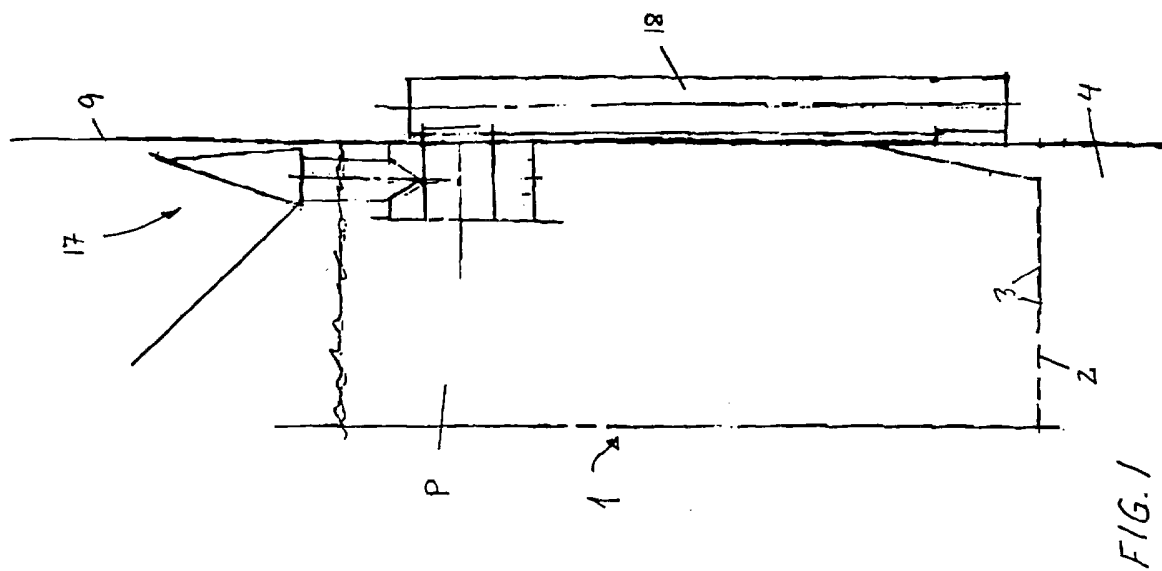
provided in said shielding arrangement for permitting spouting material to return to the fluid bed.

17. A fluid bed apparatus according to any of claims 9-16, c h a r a c t e r i z e d in that said
5 wall or walls is/are hollow in part or in full to conduct at least said second plurality of streams or flows of gas.

18. A fluid bed apparatus according to claim 17, c h a r a c t e r i z e d in that said second plural-
10 ity of streams or flows of gas is utilized for heating said wall or walls.

19. A fluid bed apparatus according to any of claims 9-17, comprising a first fluid bed section of the back-mix flow type and a second fluid bed section
15 of the plug flow type, c h a r a c t e r i z e d in that said second plurality of streams or flows of gas is utilized for heating said wall or walls in at least one of said sections.

20. A fluid bed apparatus according to any of
20 claims 9-18, c h a r a c t e r i z e d in that the transition between the walls and the ceiling of the housing is designed as an area of an oblique or rounded shape.



3.53e+02

3.51e+02

3.49e+02

3.47e+02

3.45e+02

3.43e+02

3.40e+02

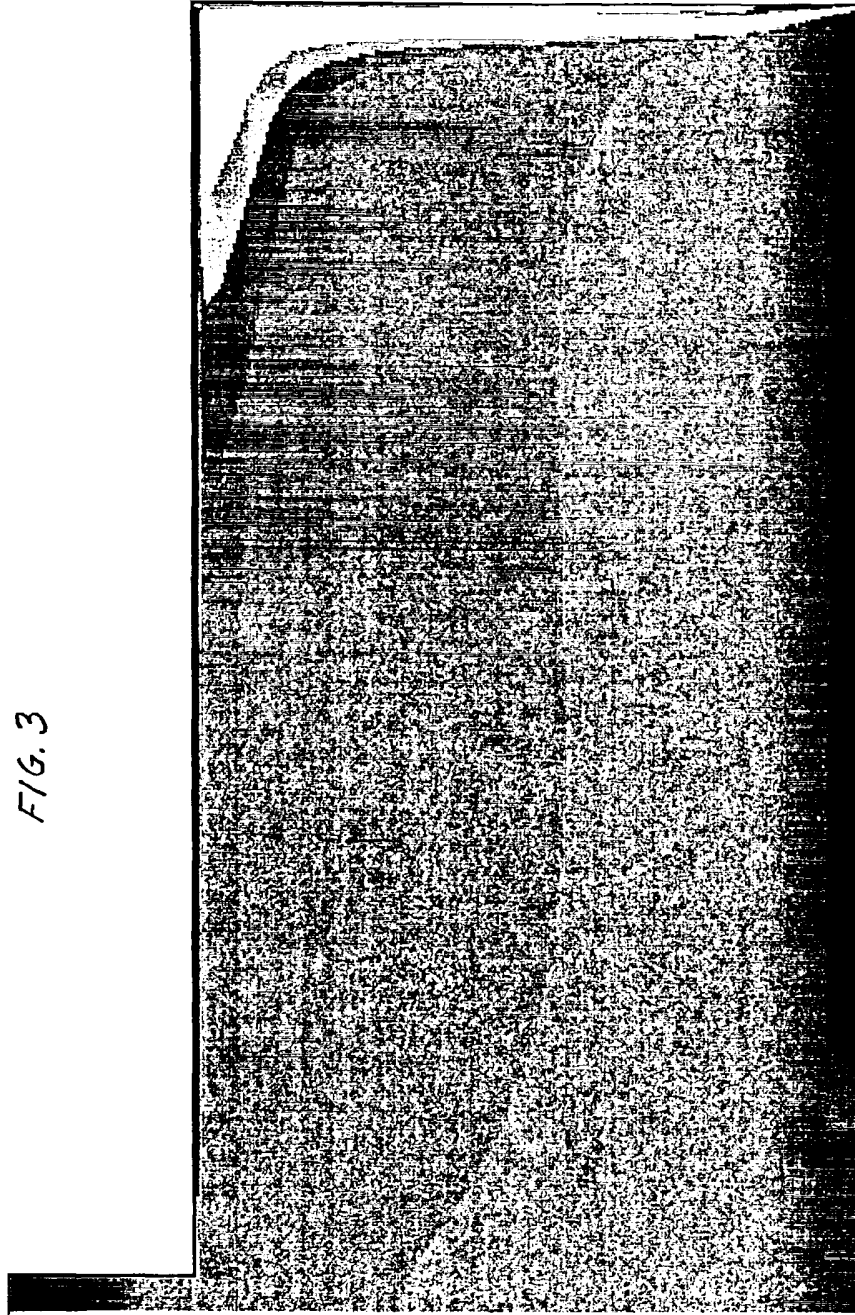
3.38e+02

3.36e+02

3.34e+02

3.32e+02

FIG. 3



Contours of Static Temperature (K)
1.13e+01

FLUENT 5.1 (2d, segregated, ke)
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