



(12) PATENTANSØGNING

Patent- og
Varemærkestyrelsen

(51) Int.Cl⁷: A 23 F 5/28 A 23 F 3/22

(21) Patentansøgning nr: PA 2000 00648

(22) Indleveringsdag: 2000-04-17

(24) Løbedag: 2000-04-17

(41) Alm. tilgængelig: 2000-04-17

(71) Ansøger: Niro A/S, Gladsaxevej 305, 2860 Søborg, Danmark

(72) Opfinder: Ove Emil Hansen, Ravnholtvej 22, 3450 Allerød, Danmark
Per Bo Sørensen, Vejrogade 13 st.tv., 2100 København Ø, Danmark
Jørgen Ilkjær, Frederiksberg Allé 94, 3.tv., 1820 Frederiksberg C, Danmark
Jens Mourits Sørensen, Skovridergårdsvej 7, 2830 Virum, Danmark

(74) Fuldmægtig: Internationalt Patent-Bureau, Høje Taastrup Boulevard 23, 2630 Taastrup, Danmark

(54) Benævnelse: Process for the preparation of a water soluble coffee or tea product from a non-rewetted particulate material obtained from an extract by drying

(57) Sammendrag:

A moist non-rewetted particulate material obtained an extract of e.g. coffee by drying, is subjected heat treatment being carried out without affecting moisture content of the particulate material combination of temperature and time being adequate effecting fusion so as to form a compact cake structure, which is disintegrated into granular material before drying to final moisture content whereby fines may be separated without being subjected to final drying, and recirculated in the process. Hereby a product having an appearance similar to quality comparable to or better than that of fully dried coffee can be obtained in a less expensive manner.

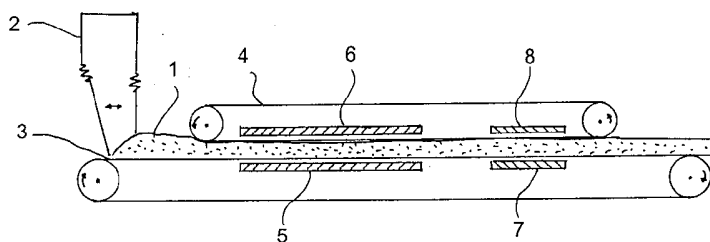


Fig. 1

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

1. A process for the preparation of a water soluble coffee or tea product from a non-rewetted
5 particulate material obtained from an extract by drying, c h a r a c t e r i z e d in subjecting a layer of particulate material having a substantially uniform moisture content which is higher than the moisture content desired in the final product to a heat treat-
10 ment, the heat treatment being carried out essentially without affecting the moisture content of the particulate material at a combination of temperature and time being adequate for effecting fusion so as to form a compact cake-like structure, disintegrating the
15 cake-like structure into granular material after cooling as necessary, and subjecting the granular material to final drying, optionally after separation of off-size particles.

20 2. A process according to claim 1, c h a r a c -
t e r i z e d in that the particulate material has been obtained from a spray drying process.

3. A process according to claim 1 or 2, c h a -
25 r a c t e r i z e d in that the particulate material has been obtained from a combined spray drying and belt drying process.

4. A process according to claim 1, c h a r a c -
30 t e r i z e d in that the particulate material has been obtained from a freeze drying process.

5. A process according to any of claims 1 - 4,
c h a r a c t e r i z e d in that the moisture content
35 of the particulate material is in the range from 4 - 12

%, particularly in the range from 5 - 11 % and preferably in the range from 6 - 10 % by weight.

6. A process according to any of claims 1 - 5, characterized in that the moisture content of the particulate material is 1 - 10%, particularly 3 - 8 % by weight (abs.) higher than the moisture content of the final product.

7. A process according to any of claims 1 - 6, characterized in that the heat treatment is carried out in an environment substantially in moisture equilibrium with the particulate material.

8. A process according to any of claims 1 - 7, characterized in that the layer of particulate material is confined between opposed barriers when the heat treatment is carried out.

9. A process according to claim 8, characterized in that the barriers are essentially non-pervious to gasses.

10. A process according to claim 8 or 9, characterized in that one of the opposed barriers or both are defined by or comprise an endless belt.

11. A process according to any of claims 1 - 10, characterized in that the layer of particulate material is supported on an endless belt or an array of trays during the heat treatment.

12. A process according to claim 11, characterized in that the endless belt or array of trays is moved continuously.

13. A process according to claim 11, c h a r a c -
t e r i z e d in that the endless belt or array of
trays is moved stepwise.

5 14. A process according to any of claims 1 - 13,
c h a r a c t e r i z e d in that heat is transferred
to the layer of particulate material by means of
conduction.

10 15. A process according to claim 14, c h a r a c -
t e r i z e d in that heat is transferred to the layer
of particulate material using heating elements in
contact with at least one of the barriers, belts,
trays, or other supporting structures.

15 16. A process according to claim 15, c h a r a c -
t e r i z e d in that heat is supplied to the heating
elements by means of electricity or a fluid medium such
as hot oil, hot water or steam.

20 17. A process according to claim 15 or 16, c h a -
r a c t e r i z e d in that the surface temperature of
the heating elements is in the range from 60 - 120 °C,
particularly in the range from 60 - 90 °C.

25 18. A process according to any of claims 1 - 17,
c h a r a c t e r i z e d in that heat is transferred
to the layer of particulate material by means of
radiation or convection.

30 19. A process according to any of claims 1 - 18,
c h a r a c t e r i z e d in that heat is supplied to
provide a temperature in the layer of particulate
material in the range from 45 - 120 °C, particularly in
35 the range from 50 - 90 °C.

20. A process according to any of claims 1 - 19, characterized in that the heat treatment is carried out for 2 - 30 min.

5 21. A process according to any of claims 1 - 20, characterized in that the thickness of the layer of particulate material during the heat treatment is in the range from 10 - 50 mm.

10 22. A process according to any of claims 1 - 21, characterized in that the heat treatment is carried out under compression of the layer.

23. A process according to claim 22, characterized in that the layer is compressed to 65 - 90 %, particularly 70 - 85 %, of the initial thickness during the heat treatment.

24. A process according to any of claims 1 - 23, characterized in that fines are separated from the granular material before final drying and recirculated to the heat treatment step.

25. A process according to any of claims 1 - 24, characterized in that fines are separated from the granular material before final drying and recirculated to the drying process.

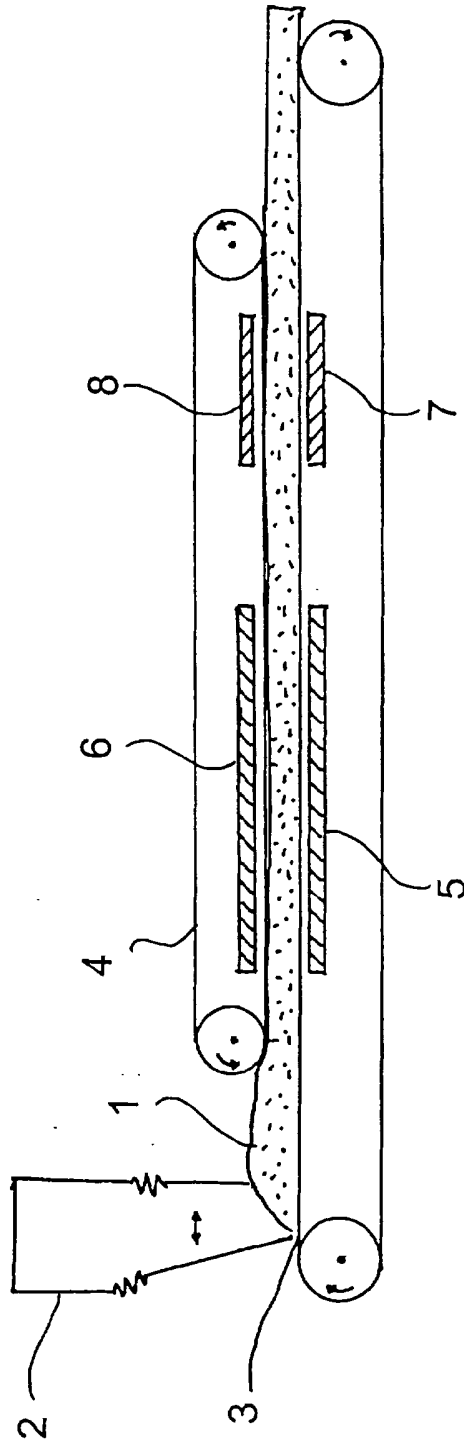


Fig. 1

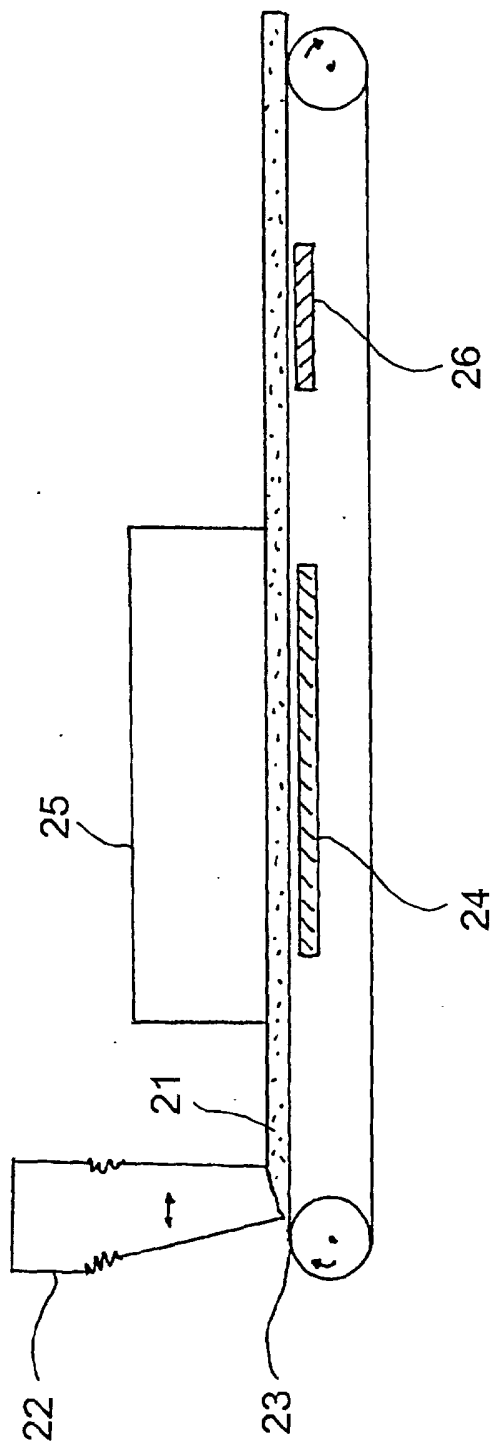


Fig. 2

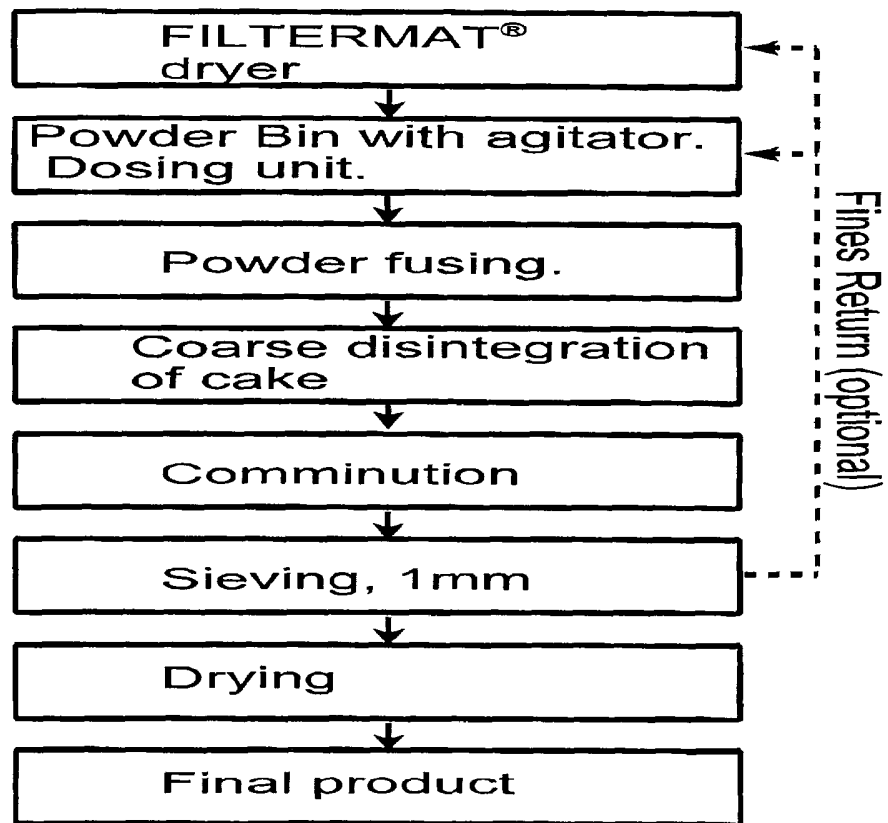


Fig. 3