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(54) Benævnelse: A method for producing chewing gum granules, a gum composition extruder and granulating system, and a chewing gum products

(57) Sammendrag:

The invention relates to a method for producing chewing gum granules. The method comprises at least the steps of feeding a gum composition including at least gum base into an extruder (2), pressurizing the gum composition in the extruder, extruding the gum composition through a die plate (5), and cutting the extruded gum composition in a liquid filled chamber (4). Flavour is added to the composition in the extruder prior to the granulation into cooling liquid. The temperature and pressure of the flavoured gum composition is controlled so that the temperature is below 70°C when the pressure is in the range from 1 to 5 hPa.

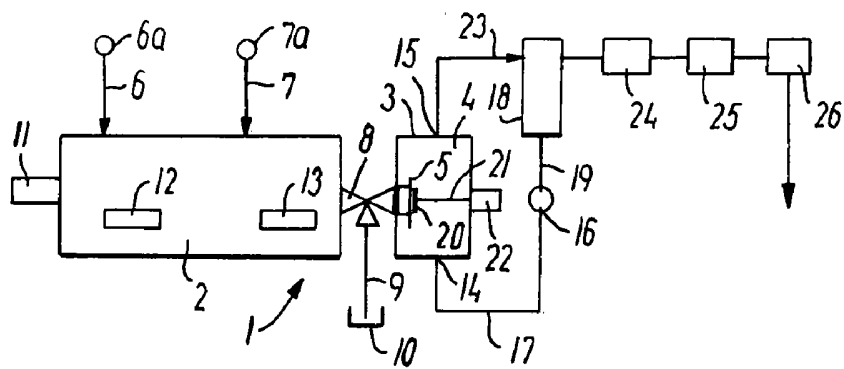


FIG.1

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

1. A method for producing chewing gum granules,
which method comprises at least the steps of:

- a) feeding a gum composition into an extruder;
- 5 b) pressurizing the gum composition in the
extruder;
- c) extruding the gum composition through a die
means;
- d) cutting the extruded gum composition in a
10 liquid filled chamber;

characterized in that at least one flavour
including fragile flavour components is added to the
gum composition in the extruder and that the
temperature and pressure of the thus flavoured gum
15 composition is controlled so that the temperature of
the flavoured gum composition is below 70°C when the
pressure of the flavoured gum composition is in the
range from 1 to 5 hPa, whereas the pressure of the
flavoured gum composition is of at least 5 hPa if the
20 temperature of the flavoured gum composition exceeds
70°C.

2. A method according to claim 1 in which the
flavoured gum composition is maintained enclosed in
the extruder and possible subsequent equipment until
25 the extrusion in step c).

3. A method according to claim 1 or 2, wherein
the temperature of the flavoured gum composition is
kept below 55°C, when the pressure of the flavoured
gum composition is in the range from 1 to 5 hPa.

30 4. A method according to any one of claims 1 to
3, wherein the flavour added includes liquid flavour.

5. A method according to anyone of claims 1 to 4, wherein the gum composition in step a) is a gum base, preferably gum base pellets.

6. A method according to any one of claims 1 to 5, wherein the flavour added includes dry flavour.

7. A method according to any one of claims 1 to 6, wherein at least one sweetener is added to the gum composition in the extruder.

8. A method according to claim 7 in which the 10 sweetener is a high potent sweetener, preferably one or more selected from the group of dipeptides and N-sulfonylamides.

9. A method according to claims 7 and 8, wherein dry flavour and powder sweetener are blended 15 before entering the extruder.

10. A method according to claims 6, and 7 or 8, wherein gum base particles or pellets are blended with dry flavour and/or powder sweetener before entering the extruder.

20 11. A method according to any one of the preceding claims, wherein the flavoured and extruded gum composition, cut into granules, is conveyed to a tablet pressing apparatus and included in compressed chewing gum tablets.

25 12. A method according to claim 11, wherein in addition to the granulated gum composition also at least one bulk sweetener, preferably sorbitol, is supplied to the tablet pressing apparatus.

13. A method according to claim 11 or 12, 30 wherein the granulated gum composition has an average diameter in the range from 0.1 mm to 2.5 mm,

preferably from 0.25 to 1.95 mm.

14. A method according to anyone of claims 1 to 4, 6 to 9, and 11 to 13, wherein the gum composition in step a) is a gum base, preferably gum base from a gum base production line.

15. A method according to claim 14, wherein the gum base has a temperature in the range 95 - 135°C, preferably in the range 105 - 125°C.

16. A method according to claim 14 or 15, wherein the gum base is cooled to a temperature of 70°C and below, suitable below 55°C.

17. A gum composition extruder and granulating system comprising an extruder with at least one inlet and an outlet, and a granulating device communicating with the outlet of the extruder and having a die means for extruding the gum composition, characterized in that said at least one inlet of the extruder communicates with a supply for gum composition and at least a supply for gum flavour and that the system is adapted to control the temperature and/or the pressure of the flavoured gum composition so that the temperature is below 70°C when the pressure of the flavoured gum composition is in the range from 1 to 5 hPa, whereas the pressure of the flavoured gum composition is of at least 5 hPa if the temperature of the flavoured gum composition exceeds 70°C.

18. A gum composition extruder and granulating system according to claim 17, wherein said at least one inlet of the extruder communicates with a supply for at least one sweetener.

19. A gum composition extruder and granulating system according to claim 17 or 18, wherein a blender device blends gum composition and gum flavour and possibly also gum sweetener before it supplies the
5 blended gum materials to the inlet of the extruder.

20. A gum composition extruder and granulating system according to claim 19, wherein said supply for gum flavour includes a nozzle for spraying liquid flavour onto gum composition pellets.

10 21. A gum composition extruder and granulating system according to any one of claims 17 to 20, wherein a hopper for supplying gum composition pellets is mounted at one inlet, and said supply for gum flavour includes a liquid dosing device mounted
15 at another inlet of the extruder.

22. Use of the method according to any one of claims 1 to 16 in the production of a chewing gum product, preferably compressed gum tablets.

23. Chewing gum product obtained by the method
20 according to any one of claims 1 to 16.

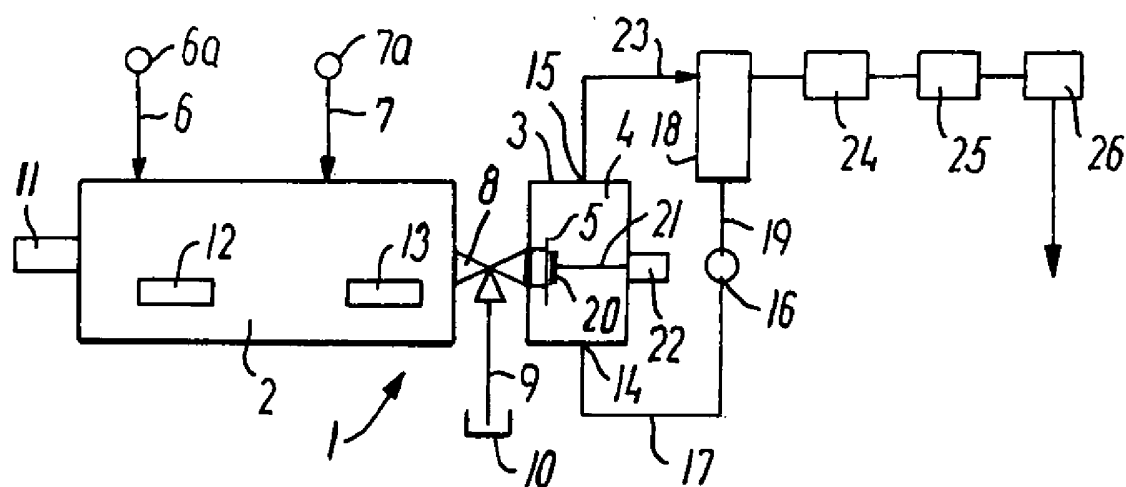


FIG. 1

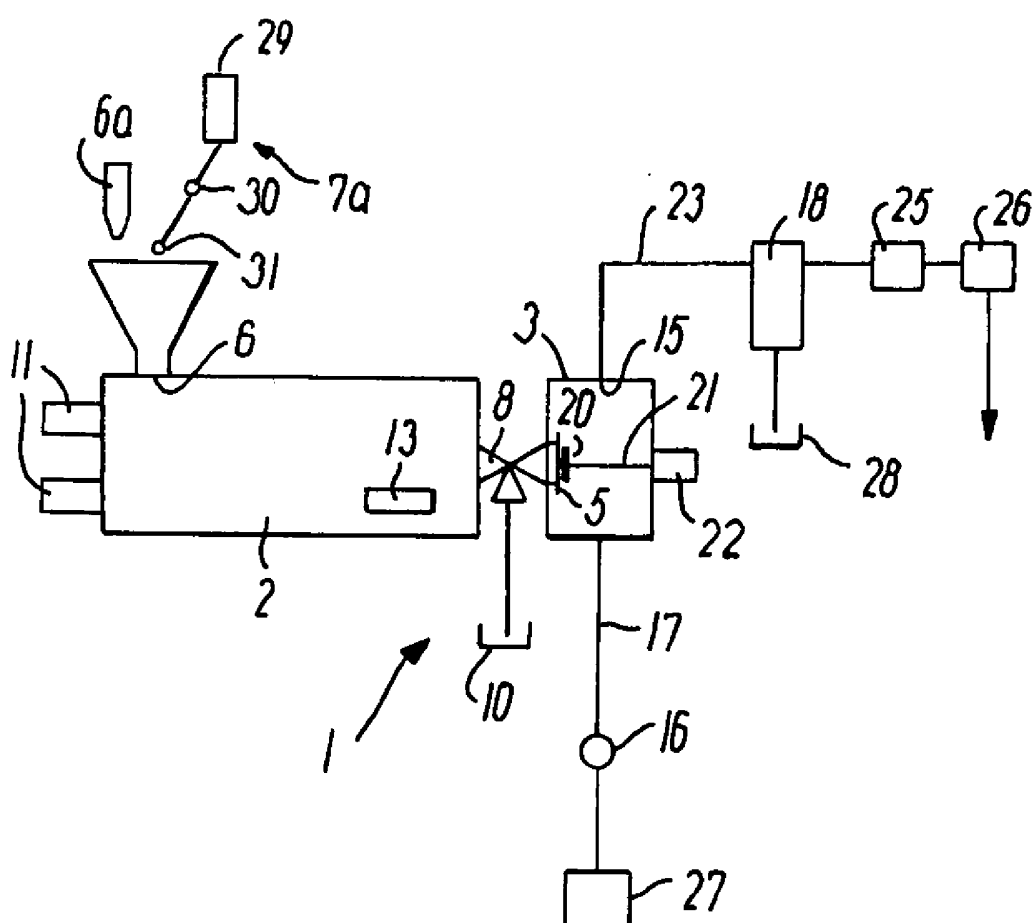


FIG. 2

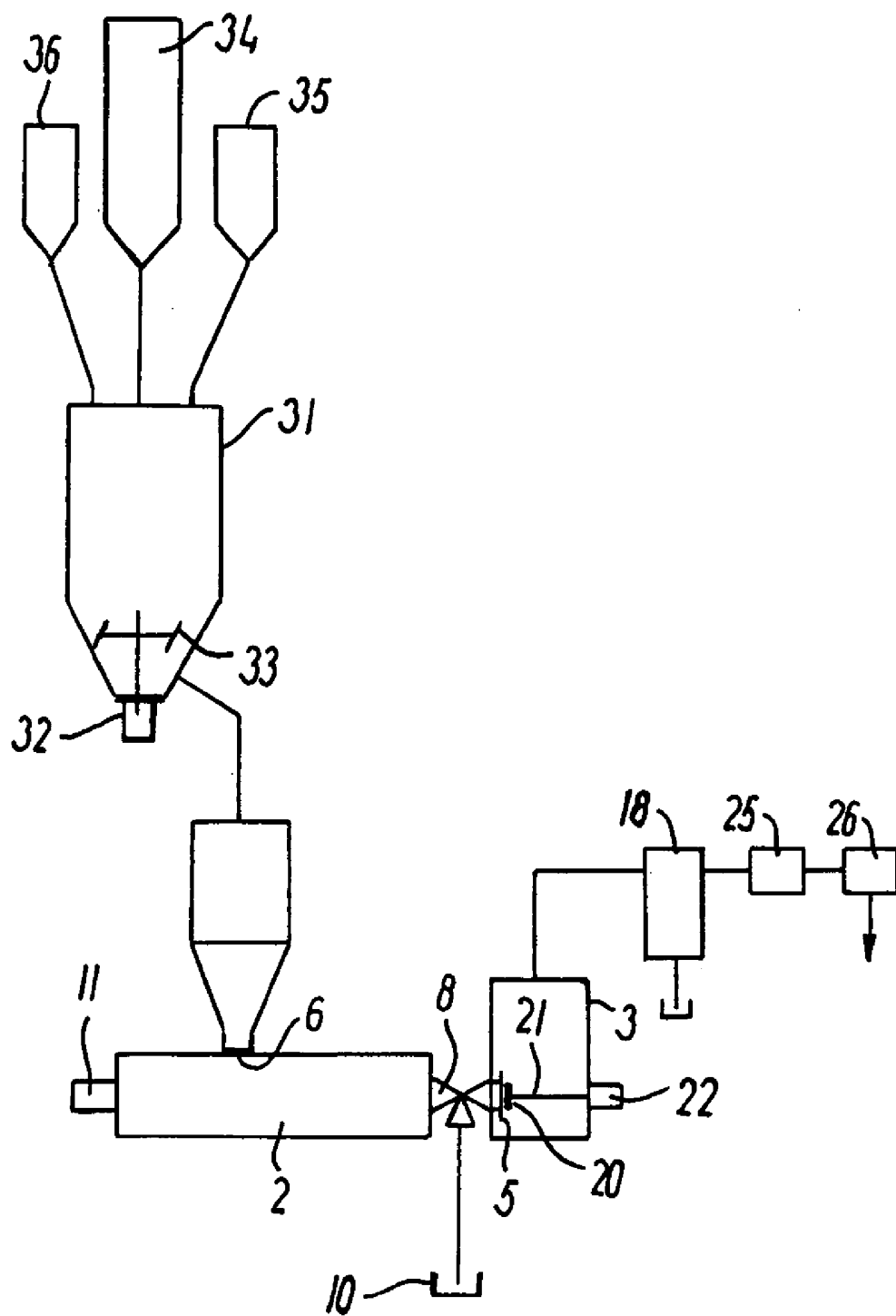


FIG. 3