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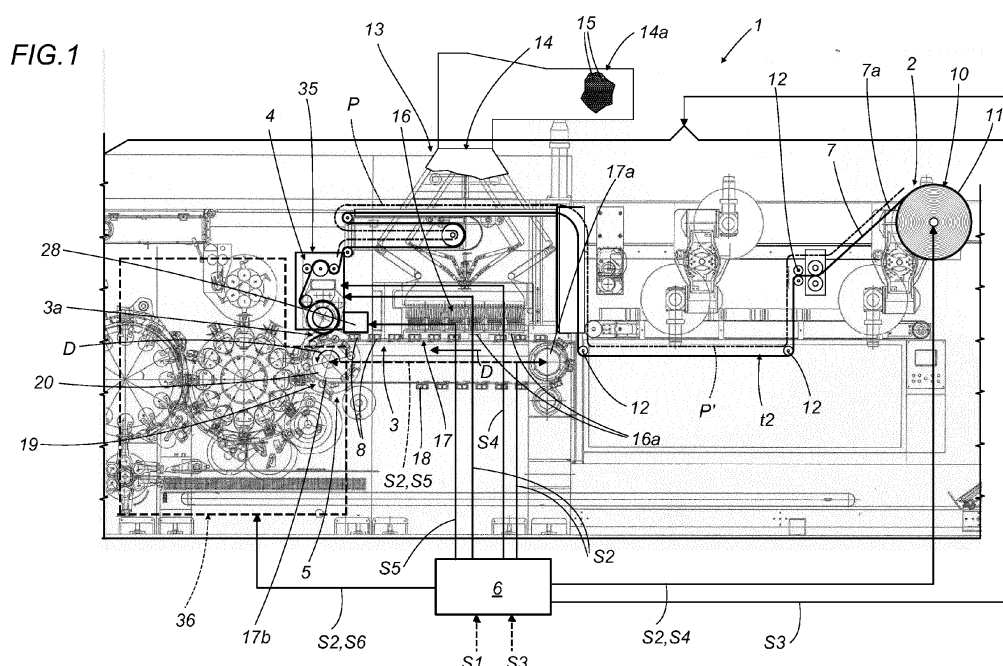
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(54) **Method for packaging and machine for packaging groups of aromatised cigarettes**

(57) Described is a method for packaging groups of cigarettes with sheets aromatised with aromatising substance or additive, according to which a first aromatised wrapping material (7) is fed along a predetermined unwinding path (P) from an unwinding station (2) to a first operating unit (35) wherein a feed unit (4) operates and the first wrapping material (7) is cut into sheets (9) and each sheet (9) is fed to a second operating unit for wrapping each group (8) of cigarettes (15); at the first operating unit (35), the first wrapping material (7) is subjected to at

least a first heating such that the aromatising additive reaches at least a sublimation temperature (t1), whilst in the second wrapping operating unit (36), a sheet (9) is coupled to each group (8) of cigarettes and folded on the latter to allow the absorption of the aroma of the substance or additive by the group (8) of cigarettes (15); there is a step of rejecting a number of sheets (9) equal to the one obtained from the cutting of the portion of the first wrapping material (7) between at least the unwinding station (2) and the feed unit (4).



## Description

**[0001]** This invention relates to a machine for packaging groups of cigarettes in particular aromatised cigarettes and a machine which is able to execute the method.

**[0002]** Machines for packaging groups of cigarettes are machines designed to produce packets of different types, each of which normally contain a group consisting of a predetermined number of cigarettes.

**[0003]** Each type of packet, whether it is of the rigid, soft or semi-rigid type, normally has an inner case made of a first wrapping material, which wraps the group of cigarettes moving in direct contact with them.

**[0004]** The first wrapping material is normally tin foil.

**[0005]** The prior art packaging machines produce a succession of groups of cigarettes and transfer these groups towards a plurality of wrapping stations, which make the finished packets.

**[0006]** In a first wrapping station each single group of cigarettes is wrapped with a respective sheet of wrapping material (tin foil) and in the successive wrapping stations it is wrapped further with an outer cover of the rigid, semi-rigid or soft type.

**[0007]** A method currently followed for producing packets of aromatised cigarettes, for example with menthol flavour, comprises using a first wrapping material aromatised with aromatising substances or additives. This means that the first wrapping material can be imbibed with these substances or additives or have a layer of aromatised substances or additives on at least a respective surface.

**[0008]** Once wrapped with this type of wrapping material the groups of cigarettes tend to absorb the aroma released by the aromatising substance or additive, assuming the predetermined characteristic flavour.

**[0009]** So that the aromatising substances or additives can be well absorbed by the group of cigarettes, the first wrapping material must be heated and the sheets obtained must be quickly wrapped around the respective groups of cigarettes.

**[0010]** It is therefore essential that the time that passes between the heating of the wrapping material and the wrapping of each sheet around the respective group of cigarettes is as short as possible.

**[0011]** In effect, once heated, the aromatising substances or additives tend to vaporise and disperse into the surrounding environment, thereby compromising their correct absorption by the cigarettes. Consequently, in such conditions, the above-mentioned first wrapping material could no longer be used.

**[0012]** It is also important that the aromatising substances or additives do not remain exposed to the air for a relatively long period of time since they tend to oxidise extremely easily and, consequently, undergo a rapid deterioration of their aromatising characteristics. In this case, too, the above-mentioned first wrapping material could no longer be used.

**[0013]** The problem is worsened if the first wrapping

material is unwound from a reel at a point of the machine relatively far from the first wrapping station and it has also undergone the first heating step, too.

**[0014]** The aim of this invention is to provide a method and a machine for packaging packets of aromatised cigarettes which can overcome the above mentioned drawbacks.

**[0015]** Another aim of the invention is to provide a machine for packaging packets of cigarettes which is able to reduce the waste of wrapping materials after a production shutdown whether it is due to extraordinary causes (mechanical failures, congestions, lack of feed of cigarettes, lack of feed of wrapping materials, etc.) or routine causes (end of shift, planned cleaning, maintenance, etc.)

**[0016]** This invention accordingly provides a method for packaging groups of cigarettes, in particular aromatised cigarettes, and the relative machine which is able to execute the method comprising the technical features set out in one or more of the accompanying claims.

**[0017]** This invention refers, by way of a non-limiting example, to a packaging machine for the production of packets of the rigid type. However, this invention could be extended to machines for the production of packets of aromatised cigarettes of the semi-rigid or soft type.

**[0018]** The invention will now be described with reference to the accompanying drawings which illustrate a preferred embodiment of it and in which:

- Figure 1 shows a side view of a portion of a machine for packaging packets of cigarettes and in particular groups of aromatised cigarettes according to this invention;
- Figure 2 is an enlarged side view of a detail of the machine of Figure 1;
- Figure 3 is a perspective view, with some parts in cross section, of a further detail of the machine of Figure 1;
- Figure 4 is a side view, with some parts in cross section, of the detail of Figure 3;

**[0019]** With reference to Figure 1, the numeral 1 denotes in its entirety a machine for packaging packets of groups of aromatised cigarettes made according to this invention.

**[0020]** The machine 1 comprises, starting from the right and proceeding to the left for someone observing Figure 1, a station 2 for unwinding a first wrapping material 7 aromatised with an aromatising substance or additive, a station 3 for feeding groups 8 of cigarettes 15 (Figure 2) and a first operating unit 35, positioned at an outfeed 3a of the station 3 for feeding the groups 8. Downstream of the above-mentioned feed station 3, with reference to a direction of travel D of the groups 8 of cigarettes 15, transversal to the axes of the latter and extending along the station 3, the machine 1 also comprises a second wrapping operating unit 36.

**[0021]** The station 2 for unwrapping the first wrapping

material 7, of known type, has one or more magazines 10 of wrapping material 7.

**[0022]** In the embodiment illustrated, the machine 1 comprises a magazine 10 supporting a reel 11 of the above-mentioned first wrapping material 7. More specifically, the first wrapping material 7 comprises a strip 7a of tin foil that can be imbibed with aromatised substance or additive or have a layer of aromatised substance or additive on at least a respective surface intended to come into contact with the groups 8 of cigarettes 15.

**[0023]** With reference to Figure 2, the first operating unit 35 comprises a feed unit 4 which is able to feed, by pulling, starting from the respective unwinding station 2 (Figure 1) and along a predetermined unwinding path P, the first aromatised wrapping material 7 to the first operating unit 35. The feed unit 4 comprises a pair of pulling rollers 23, substantially tangential to each other and between which the tin foil 7a passes which is pulled along the above-mentioned path P, unwinding it from the reel 11. Downstream of the feed unit 4, the first operating unit 35 also comprises a cutting unit 24 which is able to divide the strip 7a of tin foil into respective aromatised sheets 9.

**[0024]** The cutting unit 24 comprises a cutting roller 24a equipped with at least one blade (not visible) and a counter-roller 24b which allow the strip 7a of tin foil to be divided into sheets 9 of desired size.

**[0025]** Downstream of the cutting unit 24 there are means 25 for transferring each sheet 9 to the second wrapping operating unit 36.

**[0026]** As will be explained in more detail below, each sheet 9 is designed to firstly wrap the corresponding group 8 of cigarettes, forming the first inner case of each packet of cigarettes.

**[0027]** As illustrated in Figure 1, the station 3 for feeding the groups 8 of cigarettes 15 comprises a hopper 13 containing a mass of cigarettes 15 fed to the upper infeed 14 of the hopper 13 using a horizontal channel 14a from a cigarette making machine not illustrated.

**[0028]** The hopper 13, inside which the cigarettes 15, positioned side by side horizontally, move transversely to the respective axes, has a lower part 16 formed by a plurality of lower outlet openings 16a equidistant from one another, six in number in Figure 1.

**[0029]** The outlet openings 16a, of known type, are closed by respective horizontal bottom plates, are delimited laterally by side walls and are divided internally by a plurality of partitions forming channels inside which the cigarettes 15 are positioned in substantially vertical piles.

**[0030]** At the outlet openings 16a there is a horizontal belt conveyor 17, looped on respective wheels 17a and 17b, and supporting a plurality of containment means comprising a plurality of containers 18 with longitudinal axis parallel to the axis of the cigarettes 15.

**[0031]** The belt conveyor 17 forms the above-mentioned station 3 for feeding the groups 8 of cigarettes 15 and the outlet 3a is defined by the wheel 17b (to the left of the conveyor 17 for someone looking at Figures 1 and

2).

**[0032]** The containers 18 are designed to contain respective groups 8 of cigarettes 15 and feed according to direction D with a law of motion whereby with each feed of the conveyor 17 an empty box is aligned with a respective outlet opening 16a of the hopper 13.

**[0033]** The release of the cigarettes 15 from the hopper 13 to the conveyor 17 with containers 18 and the formation of the ordered groups 8 of cigarettes 15 inside each box 18 by pusher elements (not illustrated) is performed according to known methods and, therefore, not further described.

**[0034]** As illustrated in Figures 1 and 2, the above-mentioned second wrapping operating unit 36 comprises, positioned close to its infeed, a first wrapping station 5.

**[0035]** The first wrapping station 5 comprises a first wrapping conveyor 19 designed to receive the groups 8 of cigarettes 15 and, for each of these, a sheet 9.

**[0036]** More specifically, the first wrapping conveyor 19 comprises a rotary support 20, able to rotate coaxially with the above-mentioned wheel 17b of the belt conveyor 17, but positioned on a plane parallel to the plane in which the wheel 17b lies. More specifically, the plane in which the wheel 17b lies is behind the plane in which the rotary support 20 lies for someone looking at Figures 1 and 2.

**[0037]** The rotary support 20 has on the relative periphery a plurality of pockets 21.

**[0038]** The pockets 21 face the containers 18 of the conveyor 17 and receive the groups 8 of cigarettes 15 and the sheets 9 of aromatised tin foil which are intended to be coupled with each group 8.

**[0039]** Immediately upstream of the interconnecting zone between the first wrapping conveyor 19 and the conveyor 17 with containers 18, there are the above-mentioned means 25 of transferring each sheet 9 to the second wrapping operating unit 36.

**[0040]** The peripheral pockets 21 of the first wrapping conveyor 19 receive in succession a respective group 8 of cigarettes 15 associated with a respective sheet 9 of aromatised tin foil.

**[0041]** Proceeding in the wrapping step, using pusher elements of known type and not illustrated, each set comprising a sheet 9 of tin foil and group 8 of cigarettes 15 is pushed from the peripheral pocket 21 of the first wrapping conveyor 19 inside the cavity 34 of a respective device 37 of a second wrapping conveyor 38 of which, in Figure 2, only a single device 37 is partially visible.

**[0042]** When transferring from a pocket 21 to a respective cavity 34, each sheet 9 couples to each respective group 8 forming a first C-shaped wrapping.

**[0043]** Subsequently the wrapping will be completely wrapped and folded on the group 8 inside the second wrapping operating station 36 according to methods known and not further described. As illustrated in Figure 2, the first operating unit 35 comprises a first unit 22 for heating the wrapping material.

**[0044]** It should be noted that that the first heating unit

22 is formed by the above-mentioned feed unit 4 comprising the pair of pulling rollers 23.

**[0045]** More specifically, the pair of pulling rollers 23 are heated using a device of known type and allow the aromatised substance or additive present on the tin foil to be heated.

**[0046]** More specifically, at least one of the pulling rollers 23 is a roller for embossing the strip 7a of tin foil.

**[0047]** The first heating unit 22 operates along a final portion of the predetermined path "P" and it is able to heat the above-mentioned first aromatised wrapping material 7 until the aromatised additive reaches at least a predetermined sublimation temperature t1.

**[0048]** The above-mentioned transfer means 25 comprise a suction transfer roller 26 which receives the sheets 9 of aromatised tin foil from the cutting unit 24.

**[0049]** The suction transfer roller 26 comprises a rotary support 27, according to the arrow F, and equipped on its respective peripheral surface 26a with a series of suction holes, not illustrated.

**[0050]** The suction transfer roller 26 transfers in an orderly fashion the sheets 9 of tin foil to the ordered groups 8 of cigarettes 15 of the conveyor 17 with containers 18.

**[0051]** The release of the sheets 9 of tin foil from the suction transfer roller 26 to the conveyor 17 with containers 18 is performed according to known methods and, therefore, not further described.

**[0052]** However, it should also be noted that, once separated from the tin foil strip 7a, the single sheets 9 are fed to the suction roller 26 and are moved away from one another by a predetermined step which is able to place in reciprocal timing the feeding of the groups 8 of cigarettes 15 with the feeding of the single sheets 9 which must be coupled to each group 8. The machine 1 also comprises a device 28 for rejecting the sheets 9, schematically illustrated as a block in Figure 1 and located in the proximity of of the first operating unit 35.

**[0053]** More in detail, as illustrated in Figures 2, 3 and 4, the rejecting device 28 is positioned at an interconnecting area between the suction transfer roller 26 and the conveyor 17 with containers 18, at the outfeed 3a of the station for feeding groups 8 of cigarettes 15.

**[0054]** As shown more clearly in Figures 3 and 4, the rejecting device 28 is formed by a Venturi effect vortex suction device 28. It has a tubular suction manifold 29, a suction opening 30, an outlet opening 32 and a supply of pressurised air 31.

**[0055]** As illustrated in Figure 2, the tubular suction manifold 29 extends with its suction opening 30 towards an area for rejecting the sheets 9, between the suction transfer roller 26 and the first wrapping conveyor 19. More specifically, the suction opening 30 is positioned at the surface 26a of the suction transfer roller 26 of the sheets 9 of tin foil at the assembly comprising the wheel 17b and the first wrapping conveyor 19.

**[0056]** The discharging device 28 is normally supported by a substantially vertical wall 33 which can be provided on a guard of the machine 1.

**[0057]** As shown in Figure 1, the machine 1 also comprises a control and drive unit 6 designed to receive as input a first machine stationary signal S1 after which it emits a signal S5 for activating the rejecting device 28 which is able to reject a number of sheets 9 equal to those obtained from the cutting of the portion of the first wrapping material 7 between at least the unwinding station 2 and the feed unit 4.

**[0058]** The signal S5 for activating the rejecting device 28 is sent before restarting the machine 1, as a result of which the rejecting step is also performed before restarting the machine 1.

**[0059]** More specifically, after receiving the above-mentioned first machine stationary signal S1, as a result of a fault along the machine 1, the unit 6 emits, in real time, a plurality of signals S2 locking the unwinding station 2, the feed unit 4, the cutting unit 24, the transfer means 25 and the above-mentioned feed station 3.

**[0060]** The unit 6 can also emit a signal S2 for locking at least the first wrapping station 5 which forms part of the second wrapping operating unit 36. Or, if the machine shutdown does not stop the second operating unit 36, the unit 6 could send a signal for locking all the second operating unit 36.

**[0061]** The control and drive unit 6 is designed to also receive as input a second signal S3 indicating the restarting production of the machine 1. After receiving this second restarting signal S3, the unit 6 emits a plurality of signals S4 for restarting the unwinding station 2, the feed unit 4, the cutting unit 24, the transfer means 25 and the above-mentioned feed station 3.

**[0062]** More specifically, the unit 6 sends to the rejecting device 28 a signal S5 for rejecting a plurality of sheets 9 corresponding to the quantity of wrapping material 7 between, at least, the unwinding station 2 and the feed, cutting and transfer station 4.

**[0063]** In other words, after receiving as input the first machine stationary signal S1 and having emitted as output signals S2 for respectively locking the first operating unit 35, the unwinding station 2 and the second wrapping operating unit 36, the control and drive unit 6 is able to emit a second signal S3 for restarting production which is preceded by the emission as output of a plurality of signals S4 for restarting the feed unit 4, the unwinding station 2, the cutting unit 24, the feeding means 25 and the rejecting device 28. The latter is able to reject by suction from the surface 26a of the suction transfer roller 26 a plurality of sheets 9 equal in number to those obtained from the cutting of the portion of the first wrapping material 7 between the unwinding station 2 and the feed unit 4.

**[0064]** After the rejecting step, the unit 6 emits a further signal S6 for restarting the second wrapping unit 36.

**[0065]** In use, the strip 7a of tin foil is fed along the predetermined path P starting from the unwinding station 2 up to the first operating unit 35.

**[0066]** At least at a portion of the path P extending inside the first operating unit 35, at the feed unit 4, the strip

7a of tin foil is subjected to at least a first heating, in such a way that the aromatised substance or additive reaches at least a predetermined sublimation temperature t1.

[0067] The sublimation of an aromatised substance or additive means the phase transition from the solid state to the gaseous state, without passing through the liquid state.

[0068] More specifically, as described in more detail below, during the first heating the strip 7a is brought to a temperature t3 greater than the sublimation temperature t1.

[0069] Moreover, during the unwinding, the strip 7a of tin foil is subjected, along a first portion P' of the predetermined path P, to a second heating and, more in detail, it is brought to a predetermined unwinding temperature (t2) of the aromatised material. That is to say, to a temperature which allows the aromatised substance or additive to be dried and allows a correct unwinding of the first wrapping material 7. As well as preparing the latter for the further heating step by which it reaches the sublimation temperature t1.

[0070] The step for second heating of the strip 7a to the predetermined unwinding temperature t2 is obtained by a plurality of drive rollers 12 provided along the feed path P. More specifically, the rollers 12 are heated using heating means of known type.

[0071] The strip 7a is advanced in unwinding by the first heating unit 22 and, in particular, by the above-mentioned pair of pulling rollers 23 and wrapping itself partially about the feed rollers 12 it is brought to the unwinding temperature t2.

[0072] The strip 7a of tin foil is then sent to the cutting unit 24 which divides the strip 7a into single sheets 9.

[0073] The single sheets 9 are then fed to the wrapping station 5 of the group 8 of cigarettes 15 using the suction roller 26 of the transfer unit 25 positioned downstream of the cutting unit 24.

[0074] The strip 7a of tin foil is brought to the above-mentioned temperature t3, greater than the sublimation temperature t1, because each cut sheet 9 undergoes a cooling during transfer from the suction transfer roller 26 to the first wrapping station 5. For this reason it is heated to a temperature greater than the sublimation temperature.

[0075] In this way, the sheet 9 reaches the respective group 8 of cigarettes 15 at the correct sublimation temperature t1 of the aromatising substance or additive and guarantees that the group 8 of cigarettes 15 can correctly absorb the aroma emanated from the substance when the single sheet 9 is coupled to the group 8 and wrapped around it.

[0076] Following a machine shutdown, and before restarting production of the machine, which follows resetting of the transfer of the sheets 9 of wrapping material 7 to the first wrapping station 5, a plurality of sheets 9 is rejected corresponding to the quantity of wrapping material 7 between, at least, the unwinding station 2 and the feed, cutting and transfer station 4. The machine is

stopped by the control unit 6 which sends the above-mentioned locking signals S2.

[0077] The successive operation of the control and drive unit 6 can be clearly inferred from the above description and does not require further explanation.

[0078] However, it should be noted once again that the rejecting of the sheets 9 is performed whilst the packaging means of the second wrapping operating unit 36 are stationary.

[0079] Moreover, the restarting of the packaging means of the second wrapping operating unit 36 and of the machine in its entirety, including the hopper 13, the feed station 3 of the groups 8 of cigarettes and all the other operations of the machine 1, is only performed upon completion of the rejecting of all the sheets 9 which would have been obtained from the cutting of the portion of the first wrapping material 7 which, following the machine shutdown, would have had the respective aromatising substance or additive exposed to the air for a relatively long period of time with its relative oxidation and subjected to one or more heating steps would have vaporised dispersing into the surrounding environment, thereby compromising their correct absorption by the cigarettes.

[0080] The machine 1 for packaging groups of aromatised cigarettes as described has many advantages.

[0081] Firstly, it is able to reduce the quantity of first wrapping material 7 that must be necessarily rejected when restarting the machine 1 following a machine shutdown.

[0082] Moreover, the rejecting device 28 as described allows the process for rejecting the sheets 9 to be made more efficient, reducing the total time necessary to perform the rejecting of the material, without adversely affecting the complexity and the dimensions of the machine 1.

[0083] In effect, the use of a Venturi effect vortex 29 is not invasive on the structure of the machine 1 and, at the same time, picking up the sheets 9 by suction makes the rejecting process quicker and more efficient.

## Claims

1. A method for packaging groups of cigarettes with sheets aromatised with aromatising substance or additive, comprising the steps of feeding a first aromatised wrapping material (7) along a predetermined unwinding path (P) from an unwinding station (2) to a first operating unit (35) wherein a feed unit (4) operates and the first wrapping material (7) is cut into sheets (9) and each sheet (9) is fed to a second operating unit for wrapping each group (8) of cigarettes (15); **characterised in that** it comprises the steps of subjecting the first wrapping material (7), at least in the first operating unit (35), to at least a first heating such that the aromatising additive reaches at least a sublimation temperature (t1); coupling, in the second wrapping operating unit (36), a sheet (9)

- to each group (8) of cigarettes and folding the sheet around the group of cigarette allowing the absorption of the aroma of the substance or additive by the group (8) of cigarettes (15); providing, following a machine shutdown, a step of rejecting a number of sheets (9) equal to the one obtained from the cutting of the portion of the first wrapping material (7) between at least the unwinding station (2) and the feed unit (4).
2. The method according to claim 1, **characterised in that** during the rejecting step the sheets (9) are intercepted, by a rejecting device (28), at a zone for transferring the sheets (9) from the first operating unit (35) to the second wrapping operating unit (36), and only the steps of feeding the first wrapping material (7), cutting the first wrapping material (7) into sheets (9) and feeding each sheet (9) are performed, whilst at least the second operating wrapping unit (36) is stationary.
  3. The method according to claim 2, **characterised in that** the second wrapping operating unit (36) restarts its operation at the end of the rejecting step.
  4. The method according to any one of preceding claims 1 to 3, **characterised in that** the first wrapping material (7) is subjected to a second heating along a first portion (P') of the path (P) such that the aromatised substance or additive reaches a predetermined unwinding temperature (t2).
  5. The method according to any one of preceding claims 1 to 4, **characterised in that** the first heating step of the wrapping material (7) is such that the aromatised substance or additive reaches a third temperature (t3) greater than the sublimation temperature (t1).
  6. The method according to any one of preceding claims 1 to 5, **characterised in that** the first heating step of the wrapping occurs at a first heating unit (22) defined by the feed unit (4).
  7. The method according to any one of preceding claims 1 to 6, and wherein the first wrapping material (7) aromatised with aromatising substance or additive consists of a strip (7a) of tinfoil which passes through the feed unit (4) comprising a pair of opposite pulling rollers (23), **characterised in that** the first step of heating the first wrapping material (7) is achieved by means of a step of heating the pulling rollers (23).
  8. The method according to claim 7, **characterised in that** simultaneously with the pulling step the feed unit (4) also performs a step of embossing the first wrapping material (7).
  9. The method according to any one of preceding claims 1 to 8, **characterised in that** the rejecting step is performed by suction of each sheet (9) by the rejecting device (28).
  10. The method according to claim 9, wherein the step of feeding the sheets (9) from the first operating unit (35) to the second wrapping operating unit (36) is performed by transfer means (25), **characterised in that** the transfer means (25) continue to transfer the sheets (9) during the rejecting step wherein each sheet (9) is sucked by the transfer means (25).
  11. The method according to claim 10, **characterised in that** the transfer means (25) comprise a suction roller (26) and the rejecting step provides for the suction of each sheet (9) from the surface (26a) of the suction roller (26).
  12. A machine for packaging groups of cigarettes with sheets (9) aromatised with aromatising substance or additive, comprising a first operating unit (35) comprising a feed unit (4) designed to feed, from an unwinding station (2) and along a predetermined unwinding path (P) to at least the first operating unit (35), a first wrapping material (7) aromatised with aromatising substance or additive, a unit (24) for cutting the first wrapping material in sheets (9) and means (25) of transferring each sheet (9) to a second operating unit (36) for wrapping each group (8) of cigarettes (15); **characterised in that** it comprises a first unit (22) for heating the first wrapping material (7) positioned at the first operating unit (35) and able to make the aromatising substance or additive reach at least a predetermined sublimation temperature (t1); a first wrapping station (5), positioned at the infed to the second wrapping operating unit (36), for receiving the sheets (9) and the groups (8) and designed to transfer both to the second wrapping operating unit for coupling a sheet (9) to each group (8) of cigarettes (15) and folding the sheet (9) around the group (8) of cigarette (15) allowing the absorption of the aroma of the substance or additive by the group (8) of cigarettes (15); a device (28) for rejecting sheets (9) positioned at a zone for transferring the sheets (9) from the first operating unit (35) to the second wrapping operating unit (36); a control and drive unit (6) designed to receive as input a first machine stationary signal (S1) after which it emits, before restarting the machine, a signal (S2) for activating the rejecting device (28) which is able to reject a number of sheets (9) equal to those obtained from the cutting of the portion of the first wrapping material (7) between at least the unwinding station (2) and the feed unit (4).
  13. The machine according to claim 12, **characterised in that**, after receiving as input the first machine sta-

tionary signal (S1), the control and drive unit (6) emits as output signals (S2) for respectively locking at least the first operating unit, the unwinding station (2) and the second wrapping operating unit; the control and drive unit (6) being designed to also emit a second signal (S3) for restarting production which is preceded by the emission as output of a plurality of signals (S4) for restarting the feed unit (4), the unwinding station (2), the cutting unit, the feeding means and the device (28) for rejecting a plurality of sheets (9) with a number equal to those obtained from the cutting of the portion of the first wrapping material (7) between at least the unwinding station (2) and the feed unit (4); and a signal (S6) for restarting the second wrapping unit.

14. The machine according to claim 12, **characterised in that** the first heating unit (22) is formed by the feed unit (4) comprising at least a pair of opposite pulling rollers (23).
15. The machine according to any one of preceding claims 12, 13 or 14, **characterised in that** the first unit (22) for heating the first wrapping material (7) comprises heated embossing rollers (23).
16. The machine according to claim 14 or 15, **characterised in that** the rollers (23) for pulling the feed unit (4) or the embossing rollers (23) have a predetermined operating temperature such that the aromatising substance or additive reaches a third temperature (t3) greater than the sublimation temperature (t1).
17. The machine according to any one of preceding claims 12 to 16, **characterised in that** it comprises heated drive rollers (12) designed to subject the first wrapping material (7) to a second heating along a first portion (P') of the predetermined path (P) such that the aromatised substance or additive reaches a predetermined unwinding temperature (t2).
18. The machine according to any one of preceding claims 12 to 17, **characterised in that** the means of feeding the sheets (9) comprise a suction roller (26) acting in conjunction with the first wrapping station (5) and the rejecting device (28) comprises a Venturi effect vortex (29) comprising a suction opening (30), an outlet opening (32) and a supply (31) of pressurised air; the suction opening (30) being positioned at the surface (26a) of suction roller (26) for feeding the sheets (9) of wrapping material (7) to the first wrapping station (5).

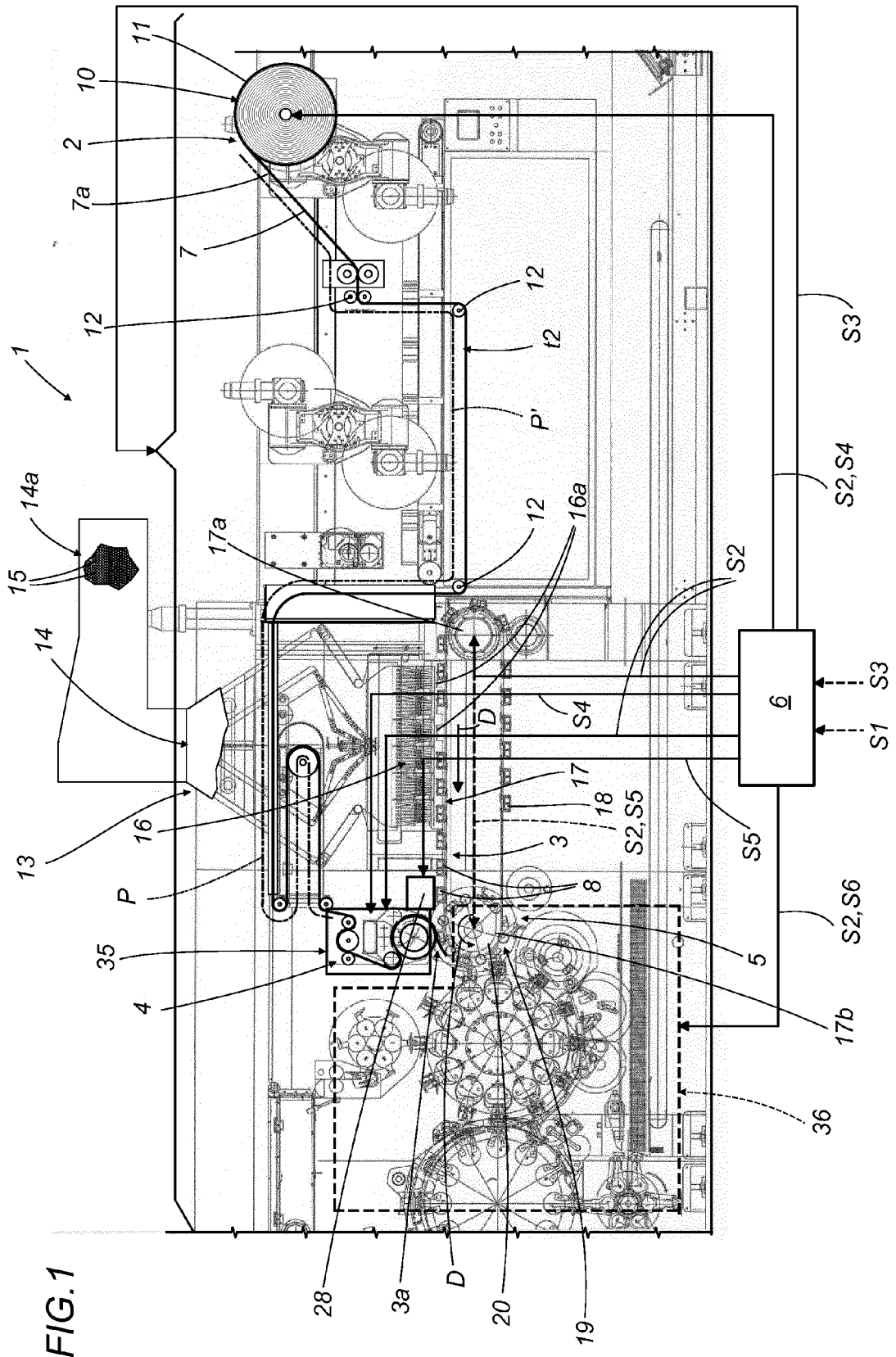


FIG.2

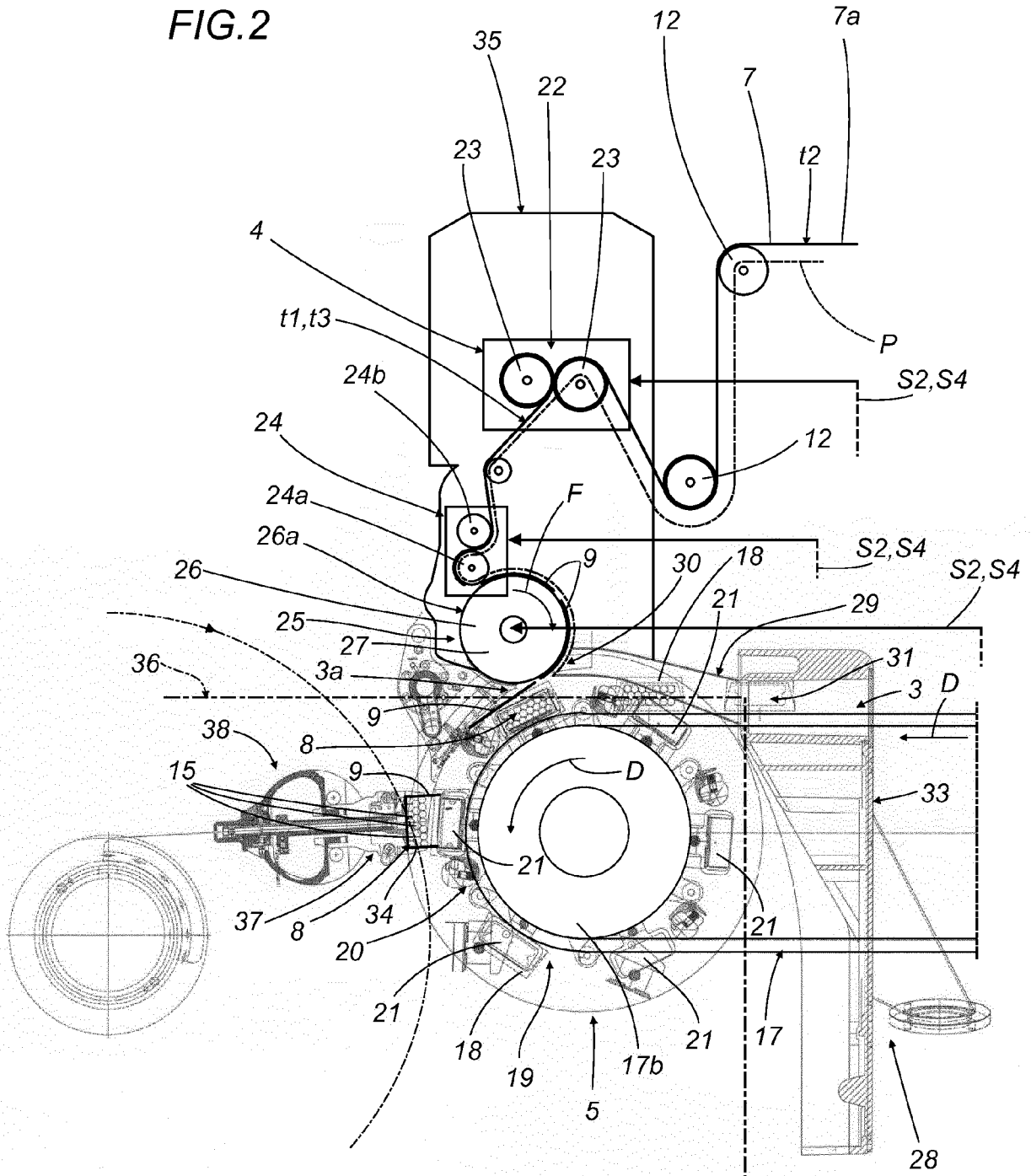


FIG.3

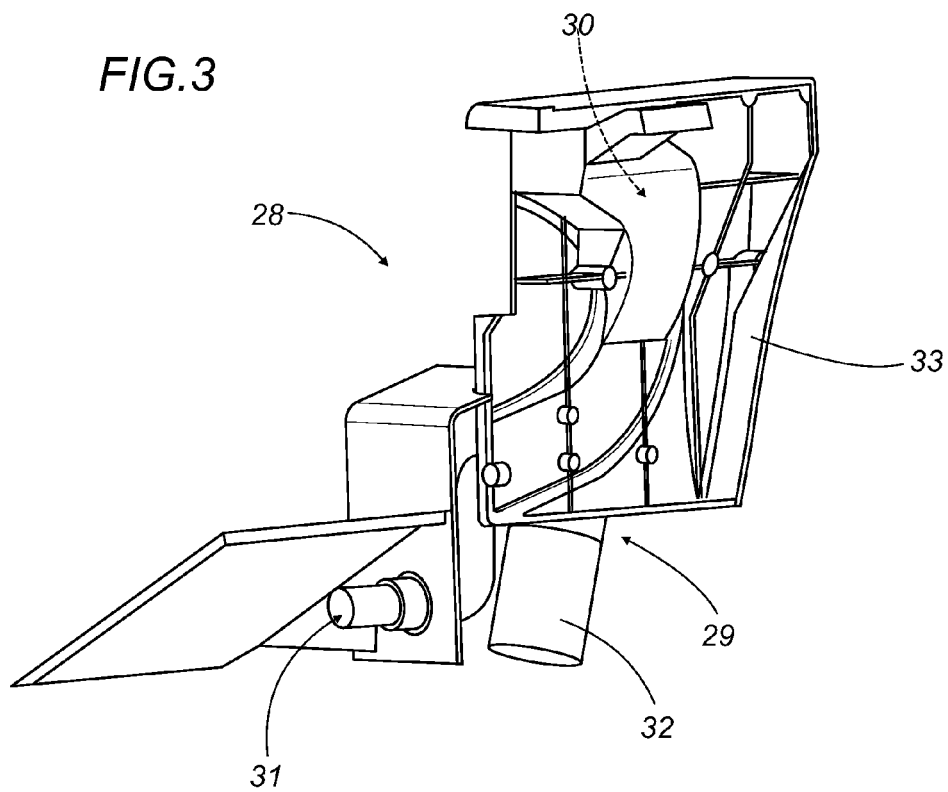
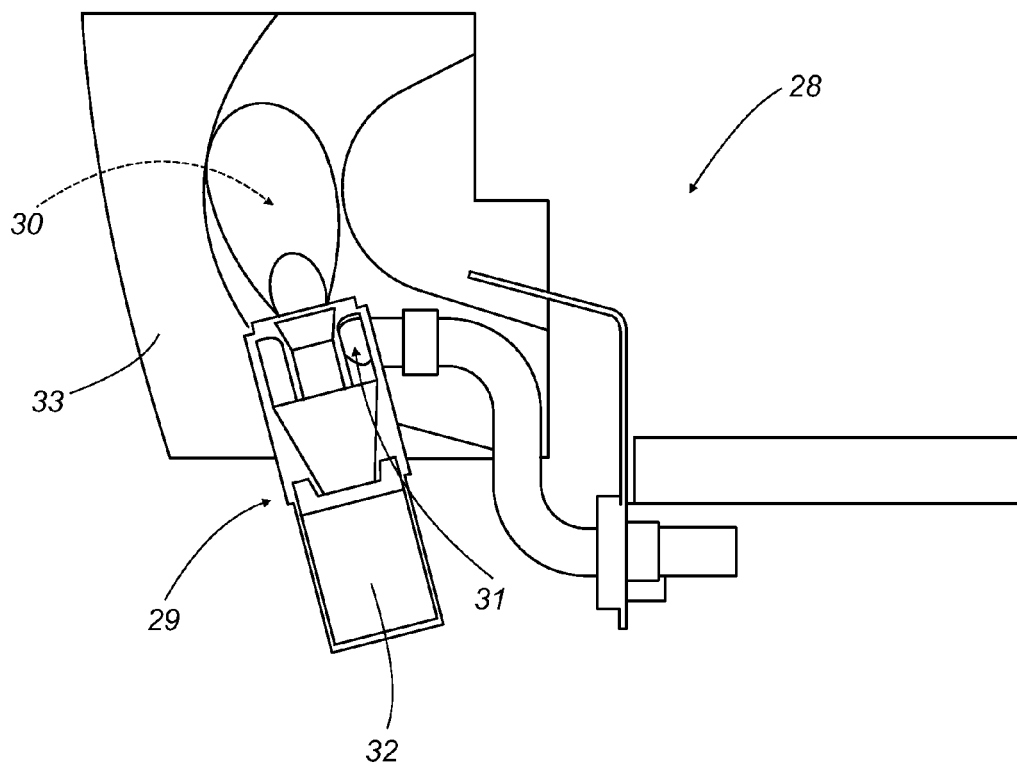


FIG.4





## EUROPEAN SEARCH REPORT

Application Number  
EP 12 19 7303

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                     |                                                                                                       |                                                                                                                                                                                                                                                                                       |                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| Category                                                                                                                                                                                                                | Citation of document with indication, where appropriate, of relevant passages                         | Relevant to claim                                                                                                                                                                                                                                                                     | CLASSIFICATION OF THE APPLICATION (IPC) |
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