US 20240251843A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2024/0251843 A1**

KNAUSEDER (43) **Pub. Date: Aug. 1, 2024**

(54) **MOUTHPIECE LINING PAPER WITH THERMALLY EXPANDABLE PARTICLES**

(71) Applicant: **TANNPAPIER GMBH**, Traun (AT)

(72) Inventor: **Bernhard KNAUSEDER**, Leonding (AT)

(73) Assignee: **TANNPAPIER GMBH**, Traun (AT)

(21) Appl. No.: **18/290,075**

(22) PCT Filed: **May 4, 2022**

(86) PCT No.: **PCT/AT2022/060153**

§ 371 (c)(1),
(2) Date: **Nov. 9, 2023**

(30) **Foreign Application Priority Data**

May 12, 2021 (AT) ..... A 50370/2021

Publication Classification

(51) **Int. Cl.**
A24D 1/02 (2006.01)
A24C 5/56 (2006.01)

(52) **U.S. Cl.**
CPC ***A24D 1/02*** (2013.01); ***A24C 5/565*** (2013.01)

(57) **ABSTRACT**

The invention relates to a mouthpiece lining paper which can be provided with at least one elevation by the action of heat, the mouthpiece lining paper including thermally expandable particles which are present in the substrate of the mouthpiece lining paper or a printing or lacquer layer, which printing or lacquer layer is present on the substrate of the mouthpiece lining paper.

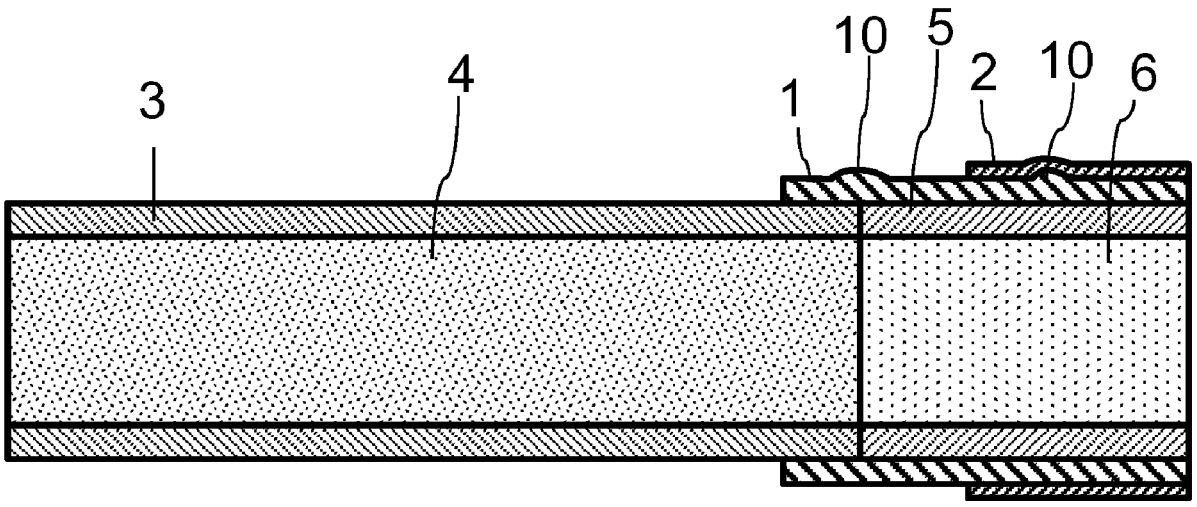


Fig. 1

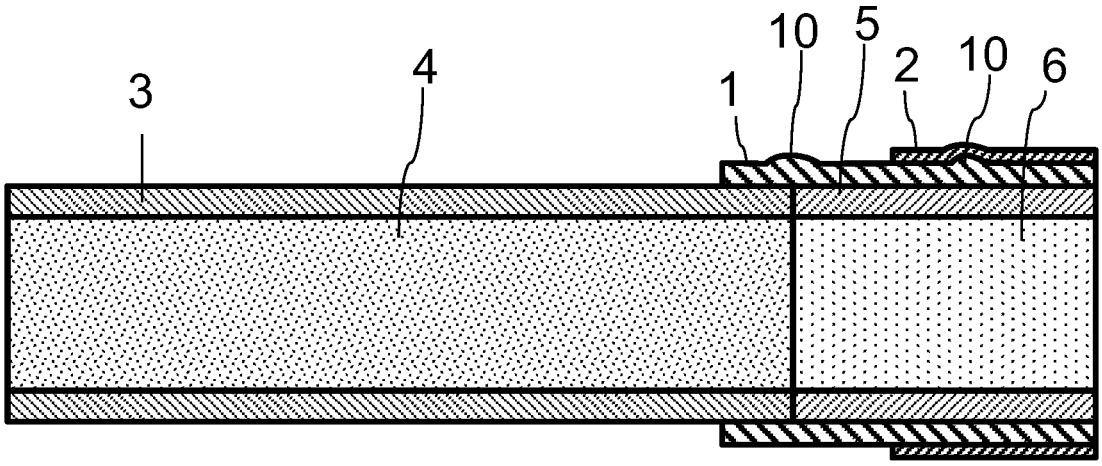


Fig. 2

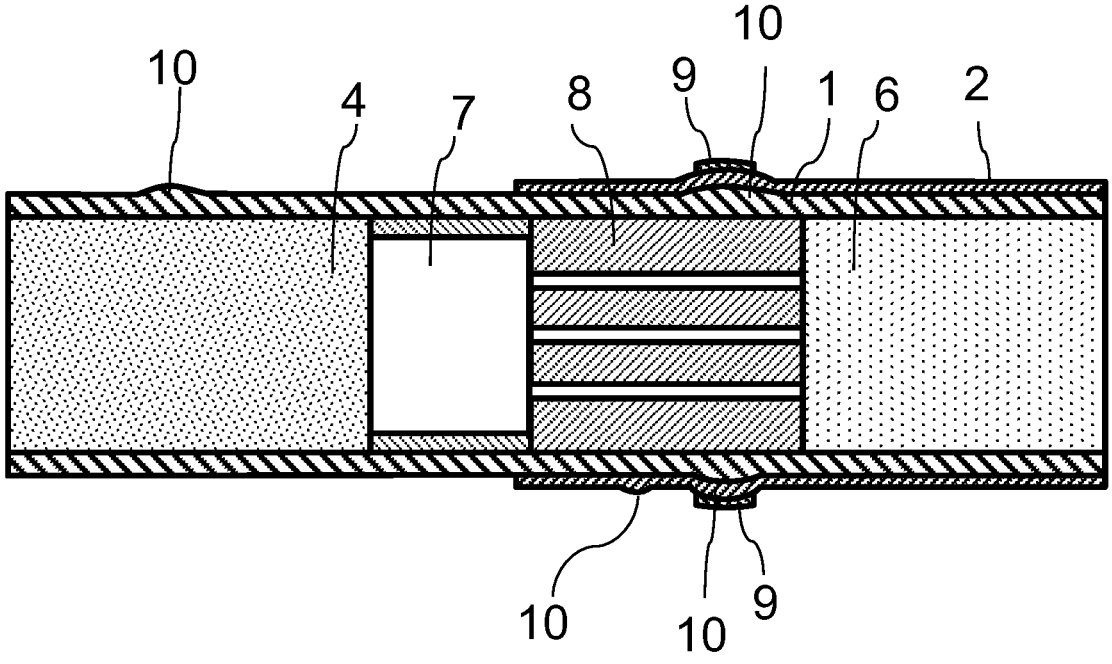


Fig. 3

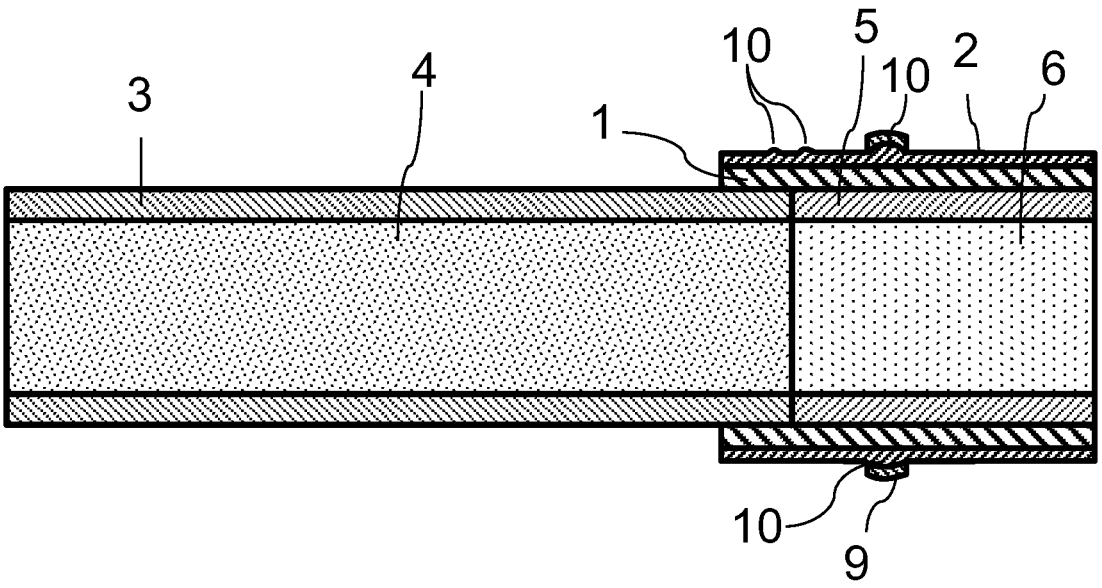


Fig. 4

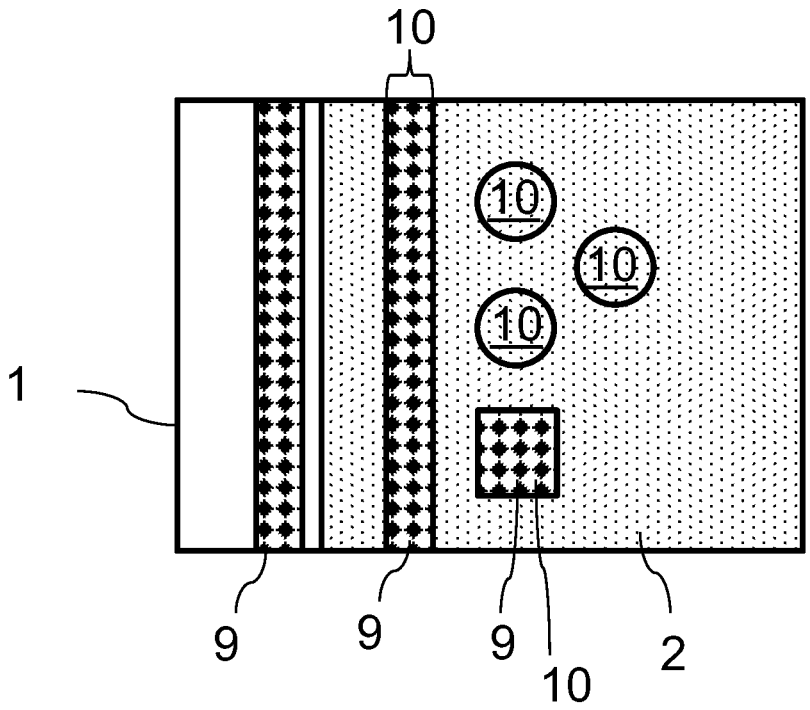


Fig. 5

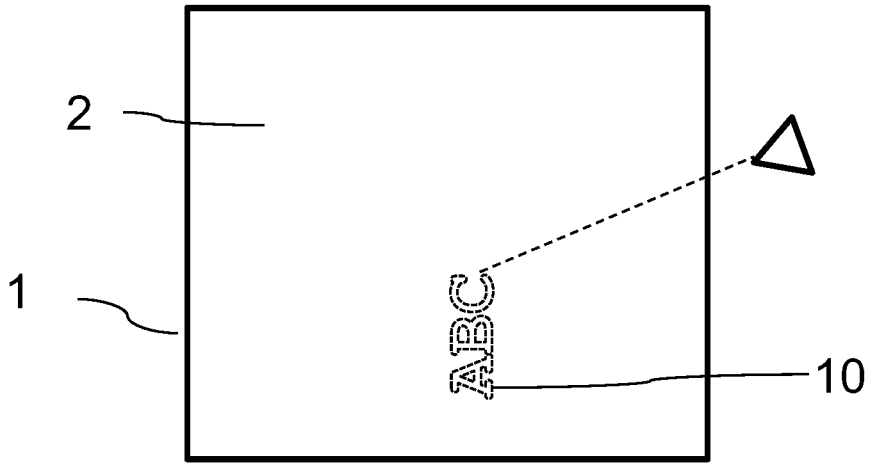
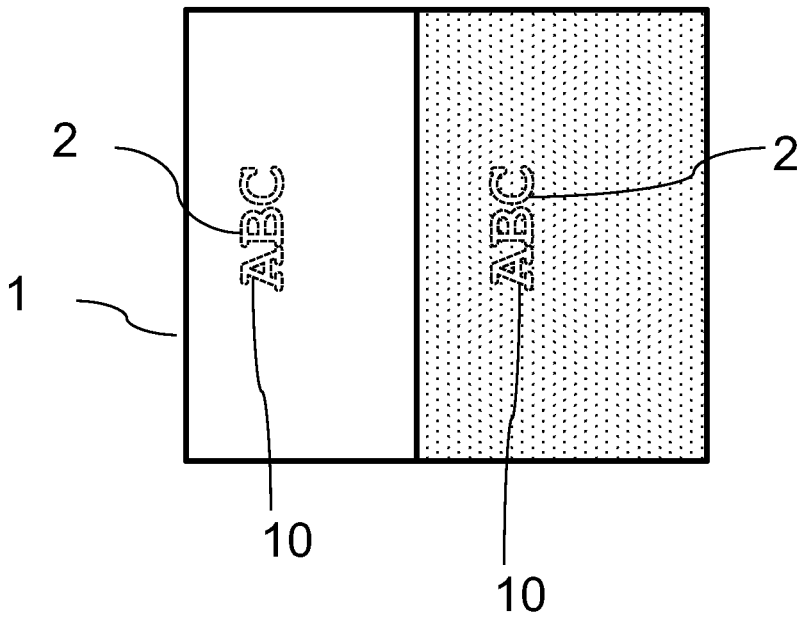


Fig. 6



MOUTHPIECE LINING PAPER WITH THERMALLY EXPANDABLE PARTICLES

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application is a national phase application of PCT Application No. PCT/AT2022/060153, filed May 4, 2022, entitled "TIPPING PAPER WITH THERMALLY EXPANDABLE PARTICLES", which claims the benefit of Austrian Patent Application No. A 50370/2021, filed May 12, 2021, each of which is incorporated by reference in its entirety.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0002] The invention relates to a mouthpiece lining paper with thermally expandable particles.

[0003] The invention relates in particular to mouthpiece lining paper for cigarettes and heat-not-burn consumer articles or, in general, to mouthpieces of aerosol-generating consumer articles.

2. Description of the Related Art

[0004] The mouthpiece lining paper, often referred to as "tipping paper" or "tipping" for short, is that part of the aerosol generating consumer article which is touched by the person's lips when smoking a filter cigarette or when heating the heat-not-burn consumer article. The mouthpiece lining paper envelops the filter part and usually also protrudes slightly in the longitudinal direction of the consumer article into the longitudinal region of the tobacco rod or the aerosol-generating substrate and there envelops the cigarette paper or the wrapping material of the aerosol-generating substrate. The mouthpiece lining paper forms the outermost wrapping material of an aerosol-generating consumer article and, in contrast to cigarette paper, is not burned when the consumer article is used.

[0005] The mouthpiece lining paper is in most cases actually a paper, but it can also be a foil or a composite material made of several layers of different materials.

[0006] The mouthpiece lining paper often comprises an imprint. For example, this imprint can be an imitation of cork. However, mouthpiece lining papers which are white in the area that is touched by the lips are also used.

[0007] U.S. Pat. No. 9,307,789 teaches applying a structure made of lacquer to a mouthpiece lining paper. The structured application of the lacquer requires a precisely operating application device.

SUMMARY OF THE INVENTION

[0008] The object of the present invention is to provide a structured mouthpiece lining paper and an improved method for producing a structured mouthpiece lining paper.

[0009] The mouthpiece lining paper contains thermally expandable particles which can be expanded by the action of heat to produce a raised structure or at least an elevation.

[0010] In one embodiment, the thermally expandable particles are contained in the substrate of the mouthpiece lining paper.

[0011] The substrate is preferably paper, in particular a so-called base paper with a grammage of 30 to 60 g/m^2, particularly preferably 30 to 50 g/m^2.

[0012] Less preferably, in addition to the base paper, the substrate can comprise a foil, in particular made of cellulose hydrate. Less preferably, the substrate can consist of a foil, in particular of cellulose hydrate, or be present as a laminate of several foils. In these cases, the thermally expandable particles can be contained in a foil.

[0013] Preferably, the mouthpiece lining paper is actually a paper and the thermally expandable particles are contained in the paper, in particular in that they are enclosed in the fiber matrix of the paper during the papermaking process.

[0014] In a second embodiment, the thermally expandable particles are contained in a print or coating. The thermally expandable particles can be applied with a non-film-forming printing ink or a film-forming clear lacquer or a film-forming colored lacquer.

[0015] The particles are preferably expanded by the action of heat when a web of mouthpiece lining paper is transported along a hot cylinder or a hot embossing roller of a hot stamping machine.

[0016] In a first embodiment, only heating takes place, so that, contrary to conventional use of the hot stamping machine, no hot stamping foil is transferred.

[0017] In a second embodiment, a hot stamping foil is transferred in addition to the heating or with the heating. As a result, there is a hot stamping foil on the raised areas which are formed by the expanded particles. The foil highlights the raised areas optically.

[0018] The expansion can also be carried out with other machines which enable targeted or structured heating of the web of the mouthpiece lining paper, for example thermal printers, in particular thermal Braille printers.

[0019] In another embodiment, the heating takes place on the mouthpiece lining paper when it is already present on an aerosol-generating consumer product. The mouthpiece lining paper forms the outer layer of the consumer article. The heating is preferably carried out before the consumer article is packaged for sale. In another embodiment, the heating takes place when the consumer article is used by the consumer, for example by heating the consumer article in a heat-not-burn device.

[0020] In one embodiment, a printing or coating which comprises thermally expandable particles is applied over a continuous surface to the mouthpiece lining paper, the subsequent structure being formed by heating with a structured heating surface.

[0021] In one embodiment, a printing or coating which has thermally expandable particles is applied in a structured manner to the mouthpiece lining paper. In this case, the subsequent structure can also be formed by heating with a flat heating surface or by heating an aerosol-generating consumer article which is provided with the mouthpiece lining paper.

[0022] In one embodiment, a continuous area is provided with the printing or coating, which area extends in the form of a band along an entire side of the mouthpiece lining paper so that an annular area with thermally expandable particles is present on the aerosol-generating product.

[0023] The expansion is preferably carried out on a continuously moving band of mouthpiece lining paper, which is provided with the thermally expanded structure between two rollers (embossing roller and counterpressure roller) by transferring the embossing structure of the embossing roller to the mouthpiece lining paper by means of heat and pressure.

[0024] In one embodiment, the expandable particles are applied with a lacquer and are thus contained in a lacquer layer on the mouthpiece lining paper.

[0025] The term lacquer includes all kinds of film-forming substances.

[0026] In a first embodiment, the lacquer is a clear lacquer which hardens to form a transparent lacquer layer.

[0027] The clear lacquer is particularly preferably a nitrocellulose lacquer.

[0028] The clear lacquer preferably comprises nitrocellulose or ethyl cellulose, the thermally expandable particles and one or more solvents selected from the group of solvents comprising: ethanol, ethyl acetate, isopropanol. The solvents mentioned can be present in the form of an aqueous solution, so that the paint comprises thermally expandable particles, nitrocellulose or ethyl cellulose, an organic solvent and water. The clear lacquer can also comprise effect pigments.

[0029] The clear lacquer composition is preferably applied in an amount of 0.25 g/m^2 to 2 g/m^2, particularly preferably 0.5 g/m^2 to 1 g/m^2.

[0030] In a second embodiment, the lacquer is a colored lacquer which hardens to form a colored lacquer layer.

[0031] The colored lacquer comprises nitrocellulose or ethyl cellulose, the thermally expandable particles and color pigments and one or more solvents selected from the group of solvents comprising: ethanol, ethyl acetate, isopropanol. The solvents mentioned can be present in the form of an aqueous solution, so that the colored lacquer comprises nitrocellulose or ethyl cellulose, color pigments and an organic solvent and water. The colored lacquer can also contain additives and/or fillers.

[0032] The colored lacquer can also comprise effect pigments.

[0033] The colored lacquer composition is preferably applied in an amount of 0.25 g/m^2 to 8 g/m^2, particularly preferably 1 g/m^2 to 4 g/m^2.

[0034] The colored lacquer is applied to the surface in the form of a single-colored coating. The coating can be present as a band or a plurality of bands that are spaced apart from one another. The colored lacquer composition preferably has a viscosity of 8 to 16 seconds, in particular 10-14 seconds. The viscosity value is determined using a flow cup test with a cup diameter of 4 mm (ISO cup 4 mm according to EN ISO 2431 version 1993-02-15).

[0035] The clear lacquer or colored lacquer is preferably applied by gravure printing, in particular rotogravure printing.

[0036] The lacquer layer is preferably applied in 1, less preferably 2, layers.

[0037] The lacquer is preferably applied directly on the base paper of the mouthpiece lining paper.

[0038] The base paper preferably has a grammage of 30 to 60 g/m^2, particularly preferably 30 to 50 g/m^2.

[0039] The lacquer is preferably applied to an untreated surface of the base paper. The base paper is therefore preferably not coated.

[0040] In one embodiment, the coating takes place in the form of one or more bands of colored lacquer, which are present on white base paper. The coated mouthpiece lining paper preferably has at least one white area and one area with a colored layer, these preferably running in the form of a band in the circumferential direction of the aerosol-generating consumer article.

[0041] In one embodiment, the expandable particles are applied with a water-based printing ink and are thus included in the printing on the mouthpiece lining paper.

[0042] The water-based printing ink preferably has a viscosity of 15 to 60 seconds, particularly preferably 16-35 seconds, in particular 16-21 seconds.

[0043] The water-based printing ink is preferably applied in an amount of 0.25 g/m^2 to 8 g/m^2, particularly preferably 1 g/m^2 to 4 g/m^2.

[0044] The mouthpiece lining paper preferably comprises a color imprint which mimics the appearance of cork.

[0045] As already described, the color imprint is a colored lacquer layer in one embodiment.

[0046] In a second embodiment, the color imprint can be a non-film-forming coating or printing, for example in the form of a colored ink or printing ink. A clear lacquer can be applied over the colored coating as described above. The clear lacquer layer is preferably present continuously over the entire mouthpiece lining paper or registered to one or several band-shaped colored layers. The expandable particles can be contained in the colored ink or printing ink and/or in the clear lacquer layer.

[0047] The application of the colored ink and/or the lacquer takes place on a continuously moving material web of the base paper. After the application, the material web is preferably moved through a drying device.

[0048] Heating dryers, in particular hot air dryers and/or heated rollers, are preferably used as drying devices. Less preferably, infrared emitters can also be used in addition or as an alternative.

[0049] The drying is preferably carried out at temperatures which are below the expansion temperature of the particles.

[0050] If the expandable particles are contained in a print or lacquer layer applied in limited areas or in a structured manner, drying can also take place above the expansion temperature, so that the elevation is formed during drying.

[0051] After the lacquer layer has dried, the material web is rolled up on a bobbin or fed directly to an embossing device or hot foil machine to produce the thermally expanded structure. After the structure has been produced, the material web is rolled up on a bobbin or the structured material web is fed to a cigarette production machine.

[0052] The mouthpiece lining paper can be provided with foil elements, in particular metallic foil elements, in the hot foil machine. These are in particular applied as thin bands or logos.

[0053] The hot stamping is carried out according to known methods, in that the foil elements are applied to the mouthpiece lining paper by means of pressure and heat from a transfer element. The areas of the mouthpiece lining paper that are provided with the foil elements are heated more intensely in the hot stamping process, so that the thermally expandable particles located under a foil element expand.

[0054] The invention also comprises a plant for the production of a mouthpiece lining paper, comprising:

[0055] a machine for printing or coating the mouthpiece lining paper with printing ink or lacquer and a machine for hot stamping the mouthpiece lining paper.

[0056] Optionally, a machine for coating the mouthpiece lining paper with ink can be arranged upstream of the machine for coating the mouthpiece lining paper with lacquer, or the machine for coating the mouthpiece lining paper with lacquer can also comprise means for coating with an additional printing ink.

[0057] Optionally, there can also be a machine for printing the mouthpiece lining paper, which prints multicolored logos on the mouthpiece lining paper.

[0058] The mouthpiece lining paper is moved as a band through the respective machine, the application of printing ink or lacquer and the hot stamping preferably taking place continuously in the longitudinal direction of the band.

[0059] In an advantageous embodiment, the band of the mouthpiece lining paper is not transferred from one machine to the next, but rather wound up on a bobbin after the respective machine and transferred to the next machine.

[0060] The band, which is moved through the machine for coating the mouthpiece lining paper with printing ink or lacquer, is composed of several mouthpiece lining papers aligned transversely to the direction of movement, wherein the direction of the mouthpiece lining paper which is transverse to the direction of movement, that is, along the width of the band, is later aligned in the longitudinal direction of the consumer article.

[0061] The machine for printing or coating the mouthpiece lining paper with printing ink or lacquer preferably comprises a cutting device, which cuts the band in the longitudinal direction after it has been provided with the printing ink or lacquer layer, so that at least two narrower bands of mouthpiece lining papers coated with printing ink or lacquer are obtained. Each of the narrower bands is wound up on a bobbin.

[0062] These bobbins of narrower bands are preferably fed to the machine for hot stamping the mouthpiece lining paper.

[0063] Particularly suitable thermally expandable particles are expandable microspheres which, when exposed to heat, expand to form hollow spheres with a larger volume. The expandable microspheres can contain a gas or a liquid, which gas expands under the action of heat or which liquid evaporates with an increase in volume. The deformation is irreversible and persists after cooling.

[0064] The thermally expandable particles are preferably thermoplastic polymer particles or gel particles.

[0065] The particles are preferably expanded using contact technology. A raised structure of a hot surface is transferred as a raised structure to the mouthpiece lining paper. This is in contrast to conventional embossing processes in which the raised structure of a surface is transferred to the mouthpiece lining paper as depressions.

[0066] The expansion of the particles can also take place without contact, for example by heating the partial area to be expanded with a laser beam.

[0067] The expandable particles preferably have an expansion temperature of between 100 and 250 degrees Celsius.

[0068] Preferably the expandable particles in the unexpanded state have an average particle size of 1 μm to 50 μm. When expanding, their diameter preferably increases by five to fifteen-fold.

[0069] In addition to hollow microspheres made of polymer, inorganic particles such as expanded mica, expandable graphite or perlite can be used.

[0070] In one embodiment, the mouthpiece lining paper is heated selectively by means of a laser beam. As a result, the mouthpiece lining paper can be provided with a structured surface directly after printing or coating or on the cigarette machine or on the finished cigarette by means of a laser before packaging. The laser can be used to create fine lines, logos, codes, QR codes or company symbols (coats of arms, identification marks, etc.) as a raised structure in areas of the mouthpiece lining paper that comprise thermally expandable particles. The laser can be moved line by line over the surface of the mouthpiece lining paper, wherein the laser beam strikes or is turned on only on the subsequently raised surfaces. The laser beam can also be moved over the surface of the mouthpiece lining paper according to a predefined path along two coordinates. If the laser beam is irradiated onto a continuously moving web of the mouthpiece lining paper, a movement of the laser beam transverse to the transport direction of the mouthpiece lining paper can be sufficient.

[0071] The path of the laser beam and/or the on-off pattern of the laser beam can be programmed individually so that differently shaped elevations on the mouthpiece lining paper can be made. In one embodiment, the elevations of mouthpiece lining papers following one another in the web direction can differ from one another in terms of their shape or position or, if a code is present, in terms of their meaning. In one embodiment, the elevations of mouthpiece lining papers aligned transversely to the web direction can differ from one another in terms of their shape or position or, if a code is present, in terms of their meaning.

[0072] In another embodiment, the mouthpiece lining paper is provided with a lacquer or a water-based printing ink only in limited areas, the thermally expandable particles being contained in the lacquer or in the printing ink. As a result, the expandable particles are only present in limited areas on the mouthpiece lining paper, so that the mouthpiece lining paper has at least one area with expandable particles and at least one area without expandable particles. At least one of the areas can be present as a symbol, code or pattern. The lacquer or the water-based printing ink can be transparent or in the color of the background or in the color of the area of the mouthpiece lining paper that is not provided with this lacquer or this water-based printing ink. As a result, the area which has expandable particles cannot be distinguished optically from the area which has no expandable particles. Only by heating do the areas become tactile and consequently perhaps also visually distinguishable, since after heating the areas which have expandable particles stand out as a relief from the other areas.

[0073] The heating can take place on the web material of the mouthpiece lining paper, on the cigarette machine or on a finished aerosol-generating consumer article before, during or after use.

[0074] This embodiment makes it possible to implement a security feature which is initially not recognizable and which can be made detectable by heating in order to detect counterfeit products which do not have this security feature.

BRIEF DESCRIPTION OF THE DRAWINGS

[0075] The invention is illustrated with the aid of drawings:

[0076] FIG. **1**: illustrates the application of an exemplary mouthpiece lining paper according to the invention to a filter cigarette.

[0077] FIG. **2**: illustrates the application of an exemplary mouthpiece lining paper according to the invention to a heat-not-burn consumer article.

[0078] FIG. **3**: illustrates the application of an exemplary mouthpiece lining paper according to the invention to a filter cigarette.

[0079] FIG. **4**: illustrates an exemplary mouthpiece lining paper according to the invention.

[0080] FIG. **5**: illustrates the production of an elevation by means of a laser.

[0081] FIG. **6**: illustrates another exemplary mouthpiece lining paper according to the invention.

DETAILED DESCRIPTION

[0082] FIG. **1** illustrates an exemplary structure of a filter cigarette which is equipped with a mouthpiece lining paper **1** according to the invention, which comprises a lacquer layer or printing **2**. The substrate of the mouthpiece lining paper **1** or the lacquer layer or printing **2** contains thermally expandable particles.

[0083] A conventional filter cigarette further comprises a cigarette paper **3**, which envelops a rod **4** of aerosol-generating substrate, which in the case of a filter cigarette is usually referred to as a tobacco rod. A conventional filter cigarette further comprises a filter paper **5** which envelops the filter **6**. The subject mouthpiece lining paper **1** can also be provided on cigarettes without a filter.

[0084] FIG. **2** illustrates an exemplary structure of a heat-not-burn consumer article which is equipped with a mouthpiece lining paper **1** according to the invention, which comprises a lacquer layer or printing **2**. The substrate of the mouthpiece lining paper **1** or the lacquer layer or printing **2** contains thermally expandable particles.

[0085] A conventional heat-not-burn consumer article further comprises a rod **4** of aerosol-generating substrate, a hollow section **7**, a cooling section **8** and a filter **6**. These sections may or may not each include their own wrapping materials.

[0086] Since the rod **4** of the heat-not-burn consumer article is heated without burning the wrapping material, the mouthpiece lining paper **1** can extend over the entire length of the heat-not-burn consumer article. The mouthpiece lining paper **1** can be designed in multiple layers and, for example, have an internal aluminum layer, at least in the area of the rod **4**. In contrast to what is shown, a mouthpiece lining paper **1** that only extends over a partial area of the heat-not-burn consumer article can also be attached to the heat-not-burn consumer article, in which case an additional wrapping material for the rod and optionally also the other components **6**, **7**, **8** may be present.

[0087] The heat-not-burn consumer article can be heated with an electronic device (heat-not-burn device), wherein the heat-not-burn consumer article with the rod **4** is introduced into the device first, so that the mouthpiece lining paper **1** and the imprint or lacquer layer **2** are exposed for the user's lips. As shown, there is no printing or lacquer layer **2** in that area in which the rod **4** is present, or in that area which is fed into the device.

[0088] In another known embodiment of a heat-not-burn consumer article, the heat-not-burn consumer article has a heat source in front of the rod **4**, in particular in the form of carbon.

[0089] A print or lacquer layer **2** containing thermally expandable particles can be located in the area of the heat source or in the area of the rod **4**, so that the raised structure is created when the consumer article is used, if the imprint or lacquer layer **2** is only present in limited areas or in a structured manner.

[0090] As shown in FIGS. **1** and **2**, the print or lacquer layer **2** extends only over a partial area of the mouthpiece lining paper **1** and, for example, is only located in the rear end of the aerosol-generating consumer article facing away from the rod **4**.

[0091] The mouthpiece lining paper **1** can comprise perforations which can be present in the area that is not provided with a print or lacquer layer **2**, or can run through the print or lacquer layer **2** and the base paper.

[0092] In another embodiment, the mouthpiece lining paper **1** can be provided with the printing or lacquer layer **2** over the entire surface, as illustrated in FIG. **3**.

[0093] As illustrated in FIGS. **2** to **4**, the mouthpiece lining paper **1** can additionally comprise a foil element **9**, whereby this can be applied over the printing or lacquer layer **2**, or in an area which is not covered by the printing or lacquer layer **2**.

[0094] The printing or lacquer layer **2** can be a clear lacquer layer or a colored lacquer layer or a color imprint of a non-film-forming printing ink.

[0095] In the case of a clear lacquer layer, this can be on white base paper or on color-printed or color-coated base paper. The clear lacquer layer can cover a larger area than the colored printing or colored coating.

[0096] In the case of a colored lacquer layer, the colored lacquer layer itself forms the colored coating or the colored area of the mouthpiece lining paper.

[0097] In FIG. **4**, a strip of a single mouthpiece lining paper **1** is shown in a view from above, which comprises a base paper, a printing or lacquer layer **2**, and three foil elements **9**. The printing or lacquer layer **2** is illustrated by the dotted area.

[0098] Because the base paper of the mouthpiece lining paper **1** or the printing or lacquer layer **2** contains thermally expandable particles, a structure that is tactilely perceptible on the surface can be produced. In FIGS. **1** to **4**, exemplary elevations **10** are shown, which can be produced within the scope of the present invention.

[0099] In the example in FIG. **1**, the thermally expanding particles are contained, for example, only in the base paper or substrate of the mouthpiece lining paper **1**, in particular enclosed therein. When a sub-area of the mouthpiece lining paper **1** is heated, the thermally expanding particles expand in this sub-area and an elevation **10** arises in the base paper or in the substrate of the mouthpiece lining paper **1**. These elevations **10** can be present in a region of the mouthpiece lining paper **1** which has no printing or lacquer layer **2**. These elevations **10** can also be present in a region of the mouthpiece lining paper **1** which has an imprint or lacquer layer **2**, the elevations **10** being formed under the imprint or lacquer layer **2**.

[0100] In the example in FIG. **2**, the thermally expanding particles are contained in the base paper or in the substrate of the mouthpiece lining paper **1** and in the printing or lacquer layer **2**. These elevations **10** can be present in a region of the mouthpiece lining paper **1** which has no printing or lacquer layer **2**. These elevations **10** can also be present in a region of the mouthpiece lining paper **1** which has an imprint or lacquer layer **2**, the elevations **10** being under the imprint or lacquer layer **2** and in the imprint or lacquer layer **2**. If the action of heat is applied over a small area, the expansion of the particles can be limited to the printing or lacquer layer **2**, as is illustrated by the small elevation **10** on the underside of the consumer article.

[0101] In FIG. **2**, a band of a foil element **9** is also illustrated, which was applied to the mouthpiece lining

paper **1** by hot stamping. As a result of the action of heat during hot stamping, the particles underneath the band of the foil element **9** are expanded, so that an elevation **10** is present, which is registered with the band of the foil element **9**.

[0102] In FIGS. **3** and **4** it is illustrated that the thermally expanding particles are contained, for example, only in the printing or lacquer layer **2**, in particular are enclosed in the printing or lacquer layer **2**. In this case, heating of the mouthpiece lining paper **1** causes the particles in the printing or lacquer layer **2** to expand, so that the substrate, in particular the base paper, has no elevations **10**. The foil element **9** illustrated in FIG. **4** in the area of the substrate not provided with the printing or lacquer layer **2** thus does not produce any elevation **10**. As illustrated in FIGS. **3** and **4**, the elevations **10** are present in the printing or lacquer layer **2** and can be formed by the action of local heat with or without attachment of a foil element **9**. As already mentioned, the foil element **9** can be present in the form of a band on the mouthpiece lining paper **1**, or, as also illustrated in FIG. **4**, as a locally delimited foil element **9**, for example in the form of a point or logo.

[0103] FIGS. **3** and **4** also show elevations **10** in the printing or lacquer layer **2**, which are present in punctiform fashion and are not covered with foil elements **9**. The dots can be arranged corresponding to Braille characters. The dots or other shapes can also run as a regular pattern over the entire surface of the printing or lacquer layer **2**.

[0104] A regular pattern of elevations **10** or Braille characters as elevations **10** can of course also be present in the substrate or base paper of the mouthpiece lining paper **1** in the embodiments of FIGS. **1** and **2**.

[0105] As illustrated in FIG. **5**, a raised structure or at least one elevation **10** can be formed in a continuous area on which thermally expandable particles are present by heating with a laser beam which is moved over this area. In the example in FIG. **5**, the lettering ABC is written as a raised structure with the laser beam. The thermally expandable particles can be present in the substrate or the printing or lacquer layer **2**. The example in FIG. **5** also shows that the mouthpiece lining paper **1** can be present without colored printing, with the thermally expandable particles being present in the base paper or a colorless printing or transparent lacquer layer **2**. This colorless printing or transparent lacquer layer **2** can be present on the entire surface of the mouthpiece lining paper **1** or on one or more partial areas. Depending on the energy of the laser beam, it can also cause a color change in the mouthpiece lining paper **1**, so that the structure either only stands out from the surrounding areas in a tactile manner or additionally in color.

[0106] Instead of a laser beam, the raised structure or the at least one elevation **10** could be formed by a hot stamp or by heating through the openings of a template.

[0107] As illustrated in FIG. **6**, a printing or lacquer layer **2** containing thermally expandable particles can be present on the mouthpiece lining paper **1** only in limited areas. In the example in FIG. **6**, two areas or structures are printed on or coated, each of which is shown as lettering ABC. By heating the mouthpiece lining paper **1** or the respective area, a raised structure or an elevation **10** can be produced in both areas or only one of the areas. As shown, it is preferred that the areas with thermally expandable particles do not differ in color from the surrounding surface. This can be done by means of transparent printing or lacquering or by using colored printing or lacquering which is in the background color or the color of the surrounding section. In the example in FIG. **6**, the dotted area symbolizes printing which imitates cork. The printing or lacquer layer **2** in this area can thus be either transparent or in the color of the cork imitation printing.

[0108] The mouthpiece lining paper **1** in the sense of the outermost wrapping material of an aerosol-generating consumer article which is not burned during consumption can be attached to a heat-not-burn consumer article in such a way that it is present in the area of the rod **4**. The mouthpiece lining paper **1** preferably has an area with printing or a lacquer layer **2** containing thermally expandable particles, which is surrounded or interspersed by an area without thermally expandable particles, this area with thermally expandable particles being heated by a heat-not-burn device during heating.

[0109] The examples are to be understood as purely explanatory. The mouthpiece lining paper **1** with elevations **10**, which are formed by thermally expanded particles, can be present on any type of aerosol-generating consumer article, for example as wrapping material for cigars or cigarillos or as sheets of wrapping material for roll-your-own cigarettes.

[0110] The mouthpiece lining paper **1** is to be arranged on the aerosol-generating consumer article in such a way that the printing or lacquer layer **2** is located on the outside of the aerosol-generating consumer article. If the printing or lacquer layer **2** is only present in a partial area, this can be arranged facing away from the rod **4**, or in the area of the rod **4** of a heat-not-burn consumer article.

1-14. (canceled)

15. A mouthpiece lining paper configured to provide at least one elevation by action of heat, comprising:

thermally expandable particles in one of:

a substrate of the mouthpiece lining paper;

a printing layer located on the substrate of the mouthpiece lining paper; and

a lacquer layer located on the substrate of the mouthpiece lining paper.

16. The mouthpiece lining paper according to claim **15**, further comprising:

at least one elevation formed by thermally expanded particles;

wherein the at least one elevation is formed from the thermally expandable particles by heating the mouthpiece lining paper.

17. The mouthpiece lining paper according to claim **15**, wherein the thermally expandable particles are present in the substrate of the mouthpiece lining paper and the substrate is paper.

18. The mouthpiece lining paper according to claim **15**, wherein the thermally expandable particles are present in the printing layer or the lacquer layer.

19. The mouthpiece lining paper according to claim **18**, wherein the printing layer or the lacquer layer is only present in limited areas on the mouthpiece lining paper, the mouthpiece lining paper having at least one surface area in which thermally expandable particles are present and at least one further surface area in which there are no thermally expandable particles.

20. The mouthpiece lining paper according to claim **19**, wherein:

the at least one surface area in which there are thermally expandable particles is optically identical to the at least one further surface area in which there are no thermally expandable particles; and

after exposure to heat the at least one surface area and the at least one further surface area become distinguishable due to expanded particles formed from the thermally expandable particles.

21. The mouthpiece lining paper according to claim **15**, wherein the printing layer or the lacquer layer is a printing ink, a clear lacquer layer, or colored lacquer layer.

22. The mouthpiece lining paper according to claim **15**, wherein a foil element is present above the at least one elevation.

23. A method for producing a mouthpiece lining paper having at least one elevation, comprising:

expanding thermally expandable particles by one of:

contacting the mouthpiece lining paper with a hot surface; and

irradiating the mouthpiece lining paper with a laser beam;

wherein the thermally expandable particles are in one of:

a substrate of the mouthpiece lining paper;

a printing layer located on the substrate of the mouthpiece lining paper; and

a lacquer layer located on the substrate of the mouthpiece lining paper; and

wherein the thermally expandable particles in areas of the mouthpiece lining paper in contact with the hot surface or heated by the laser beam expand and form the at least one elevation.

24. The method according to claim **23**, wherein a continuous web of mouthpiece lining paper is moved along an embossing roller with a hot structured surface, further elevations of a structure of the embossing roller being transferred as the at least one elevation to the mouthpiece lining paper.

25. The method according to claim **23**, wherein:

a continuous web of mouthpiece lining paper is moved through a hot stamping device, the hot stamping device attaching a foil element to the mouthpiece lining paper; and

the thermally expandable particles of the mouthpiece lining paper present in an area of the foil element expand and form the at least one elevation.

26. An aerosol-generating consumer article comprising:

a mouthpiece lining paper configured to provide at least one elevation by action of heat, the mouthpiece lining paper including thermally expandable particles in one of:

a substrate of the mouthpiece lining paper;

a printing layer located on the substrate of the mouthpiece lining paper; and

a lacquer layer located on the substrate of the mouthpiece lining paper;

wherein the mouthpiece lining paper is heated to form the at least one elevation on an outside of the aerosol-generating consumer article in a heated area.

27. The aerosol-generating consumer article according to claim **26**, wherein the elevation is in a form of a symbol, a structure, or a code.

28. An apparatus for producing a mouthpiece lining paper according to claim **15**, comprising:

a first machine for printing or coating the mouthpiece lining paper; and

a second machine for hot stamping the mouthpiece lining paper;

wherein a band is transportable through the first machine and the second machine, the band being composed in a transverse direction of a plurality of mouthpiece lining papers, the plurality of mouthpiece lining papers including the mouthpiece lining paper, each of the plurality of mouthpiece lining papers being for one aerosol-generating consumer article.

* * * * *