A method and device is provided for processing an enveloping material for a tobacco product. An enveloping material is supplied to an operative range of at least one radiation source. A marking is created in at least one section of the enveloping material by subjecting the enveloping material to radiation emitted by the at least one radiation source. The marking has a geometric form with an outline having at least one of (a) a discontinuous slope in some sections and (b) convex or concave regions.
METHOD AND SYSTEM FOR AUTHENTICATING TOBACCO PRODUCTS

RELATED APPLICATIONS

[0001] Priority is claimed with respect to German Patent Application No. 10128043.2, filed Jun. 8, 2001, the disclosure of which, along with the disclosures of each and every U.S. and foreign patent and patent application mentioned herein, being incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The invention relates to a method and a device for processing an enveloping and/or packaging material for a product in the tobacco-processing industry, as well as a method and system for testing the authenticity of products in the tobacco-processing industry.

BACKGROUND OF THE INVENTION

[0003] An existing problem in the tobacco-processing industry is that a great number of counterfeit products are available on the market either in original packages (so-called repackaged items) and/or in counterfeit packages and, in the case of cigarettes, in cigarette packs. The quality of counterfeit cigarettes in the tobacco-processing industry is poor since they are generally produced by cheaper methods. Products of this type normally contain tobacco of a lower quality.

[0004] Counterfeit products of this type deceive the end user, namely the smoker, about the origin of the products. The smoker thus may blame the bad taste of the tobacco product on the producer of the original product and may choose another brand. Producers of the original products can consequently suffer damage to their brand names, as well as financial damages.

[0005] From the outside appearances, the counterfeit products or pirated products are sometimes hard to detect even by experts.

[0006] In the past, holograms were introduced and affixed to the packaging material for original tobacco products to distinguish them from counterfeit goods or pirated products. Also used were filters or coating papers provided with an inscription.

[0007] These measures were all costly or easy to copy. For example, producing holograms of this type and attaching them to the packaging material of cigarettes is rather expensive.

SUMMARY OF THE INVENTION

[0008] Accordingly, it is an object of the invention is to specify a method and a device for providing authenticating elements to tobacco packaging material or products, permitting a simple, quick and reliable determination whether the product is an original product or a counterfeit product. The elements to be affixed or marked for detecting the authenticity of the respective products should be difficult or expensive to copy. It is further an object of the present invention to provide a method and system for ensuring the authenticity of products in the tobacco-processing industry, which make it possible to test or ensure in a relatively fast and cost-effective manner the authenticity of the products.

[0009] The above and other objects are accomplished according to one aspect of the invention by the provision of a method for processing an enveloping material for a product in the tobacco-processing industry, which method comprises the following steps: supplying the enveloping material to an operative range of at least one radiation source; and creating a marking in at least one section of the enveloping material by subjecting the enveloping material to radiation emitted by the at least one radiation source, wherein the marking has a geometric form with an outline having at least one of (a) a discontinuous slope in some sections and (b) convex or concave regions.

[0010] Markings of this type make it easy to test the authenticity of the products in the tobacco-processing industry. For the purpose of this invention, enveloping material is understood to include in particular coating paper, cigarette paper, box blanks, wrapping foil and packaging material in general. It is advantageous if the geometric form of the marking can be predetermined. The form can be relatively simple, for example resembling the cross in the Swiss flag, or it can also be very complex and should alternate between acute and obtuse angles. The marking advantageously has characteristic features that can be specified.

[0011] A marking of this type is extremely difficult to copy if the step of changing the enveloping material in some sections involves the removal of material. The markings can also be used to replace the standard perforations in cigarette paper, for example, if the enveloping material is to be provided with a perforation. In that case, additional perforations normally used for the cigarette production can be omitted or provided only in some sections.

[0012] If the sectional change of the enveloping material involves a chemical change, the marking can be made more visible, thus simplifying an automatic detection. A chemical change is understood to mean a different coloring, a different structure than the original material, e.g. amorphous or crystalline, the creation of new chemical compounds or an oxidation. As a result, for example, the reflection coefficient of the enveloping material can be changed. The enveloping material can be changed easily if the sectional changes involve a melting. One or several weakening lines can be created to produce several markings while the enveloping material is transported over a specified distance during the time between two instances of creating at least one marking. With respect to this, reference is made in particular to German Patent No. 195 11 393 and German Patent Application No. 100 41 020.0, both owned by the assignee of the present application. The content disclosed in these two patent applications is to be incorporated fully into the present application.

[0013] The radiation is preferably focused onto the enveloping material or a focal point near the enveloping material. A marking with dimensions of up to 50 μm is difficult to produce mechanically, e.g. by punching it out, thus making it even more difficult to copy this marking. Dimensions of this type are generally produced with a CO₂ laser, wherein markings of up to 10 μm can be produced with a YAG laser. In principle, the resolution, meaning the sharpness of the edges of the markings, depends on the wavelength of the light that is used and the quality of the focusing optics. The maximum possible resolution is approximately half the wavelength of the light used, thus making it advantageous to use a laser that emits short-wave radiation.
According to another aspect of the invention, there is provided a device for processing enveloping material in the tobacco-processing industry comprising: at least one radiation device for directing radiation onto the enveloping material, at least one radiation device including means for controlling the at least one radiation device to create a marking in at least one section of the enveloping material, wherein the marking has a geometric form with an outline having at least one of (a) a discontinuous slope in some sections and (b) convex or concave regions. The geometric form preferably can be predetermined. The marking concerns a region where the enveloping material has been changed mechanically, physically or chemically, for example by removing material. The material removal can go so far as to create a perforation or it can be stopped before that, so that material remains in the region of the marking. The marking can also involve a coloring or melting down of the enveloping material.

If a device for conveying the enveloping material is provided, a number of markings can be affixed at different locations to the enveloping material. Rows of markings provided with a type of encoding can be provided. For encoding, different markings are affixed or created in a specific marking range, which should be characteristic for the respective products.

The radiation device preferably comprises a laser, in particular a CO₂ laser, a YAG laser or an excimer laser. Markings with the desired quality can be produced by controlling and/or selecting the intensity and/or the output density and/or energy density of the radiation.

The radiation device of one exemplary embodiment comprises an element that predetermines the form of the marking. This embodiment of the invention results in a device that is particularly easy to realize. The element preferably comprises a diaphragm and/or a focusing element. Another embodiment according to the invention comprises a diffractive optical element, such as is disclosed, for example, in German Patent No. 195 11 393. The diffractive optical element is used as an optical element that creates a focus through diffraction. With the aid of a corresponding diffractive optical element (DOE), it is possible to create different types of geometric forms as markings. FIGS. 3 and 5 of German Patent No. 195 11 393 show different focal points resulting in different perforations along the periphery.

A cigarette-ropes production machine, a filter-attachment machine, a cigarette-packaging machine and/or a foil-wrapping machine may be provided with the radiation device according to the invention.

According to yet another aspect of the invention, an authenticating arrangement for a tobacco product is provided, which comprises: an enveloping material for the tobacco product; and a marking in at least one section of the enveloping material, wherein the marking has a geometric form with an outline having at least one of (a) a discontinuous slope in some sections and (b) concave or convex regions. A marking of this type makes it possible to distinguish counterfeit products from real products, wherein the individual manufacturers, for example, can select corresponding geometric forms for specific batches of the products.

Several edges of geometric forms can be provided with discontinuous slopes. The edges of one preferred embodiment alternate between acute and obtuse angles. The largest diameter for the geometric form of one exemplary embodiment is in the range of less than or equal to 50 μm. This geometric form can be further reduced, for example, so that the largest diameter is in the range of approximately 10 μm. If the marking edges have a structure or sharpness in the range of 150 to 350 nm, it becomes extremely difficult and involved for counterfeiters to produce such markings. Structure and sharpness in particular refers to the degree of discontinuity along the edge.

In practice, a preferred approximate discontinuity in the range of 150 to 350 nm can be achieved. The edge region or the inexactness of the edge extends over a distance of 150 nm to 350 nm, wherein the marking preferably is a weakened section in the material. If the marking takes the form or a perforation of the enveloping material, it is possible in the case of cigarette paper to provide only a few or no additional perforations, so that the marking can replace the normally provided perforations. As a result, no additional time for creating the marking or perforation is required during the cigarette production.

The marking is particularly easy to detect if its color differs from that of the enveloping material surrounding the marking.

A weakened line in the enveloping material used in the tobacco-processing industry preferably comprises several of the aforementioned markings according to the invention. With respect to the term weakened line, attention is directed to the assignee's German Patent Application No. 100 41 020.0, the complete content of which is hereby incorporated by reference. The weakened line preferably consists exclusively of markings according to the invention.

A rod-shaped tobacco product, in particular a cigarette, is advantageously provided with a marking according to the invention, wherein at least one marking is provided on the product packaging.

The marking according to the invention is advantageously used to check the authenticity of products in the tobacco-processing industry.

According to a further aspect of the invention, there is provided a method for verifying the authenticity of a product in the tobacco-processing industry, comprising the steps: visually inspecting a marking affixed to an enveloping material for the product; and comparing the marking to a marking predetermined for the product.

For example, with a correspondingly large marking, the end user can look at the enveloping material and determine whether or not a marking of a sufficient quality is present. The end user thus can determine whether the visually inspected cigarette or package is an authentic product or a counterfeit product. For the purpose of this invention, visual inspection can include image recording and photographing, especially with a digital camera.

The marking can be visually inspected with an enlarging device, such as a reading lens, a magnifying glass or a microscope.

The method according to the invention can be automated if the visual inspection involves an image-recording device for storing the visually inspected image. If, during a subsequent image processing, the marking stored as
an image is standardized to a normal size, it can be compared easily to the specified marking. The comparison advantageously involves visually inspecting the marking on the stored image and the standardized image and comparing it to a specified, additionally stored image, thus ensuring a safe option of determining whether the product is authentic or counterfeit. By having the additional image stored in a computer system removed from the visually inspected location, for example a computer system of the manufacturer, an extremely secure method for ensuring or determining the authenticity of products in the tobacco-processing industry can be provided. The counterfeit options are further limited if the additional image is selected with additional data, since the individuals producing counterfeit products typically do not know which additional data are relevant in connection with the respective marking. The additional data can either be a trade name or an imprint on the packaging material, for example, which can be entered into a computer system and sent to a different computer system in which the additional image is selected. The method preferably results in the issuing of a signal either for an authentic product or a counterfeit product.

[0030] Finally, according to another aspect of the invention, there is provided a system for verifying the authenticity of products in the tobacco-processing industry comprising: an image-recording device; a storage device in which images are stored in the form of predetermined storage data; a data link for coupling the image-recording device to the storage device; a comparator for comparing an image recorded by the image-recording device to the data in the storage device; and an output device coupled to the comparator for displaying the comparison.

[0031] For the purpose of this invention, comparison data in particular can be a signal that indicates whether the product is authentic or counterfeit. However, comparison data can also be differential values, such as error squares, or superimposed images as added images or differential images, by means of which a person, e.g., a customs agent or wholesaler, can immediately detect whether the product is counterfeit or authentic. The image-recording device preferably comprises an enlarging element, e.g. a microscope or a magnifying lens. If an image-processing device is provided for digitizing the recorded images, the authenticity testing of products in the tobacco-processing industry can be automated without problems. The storage device preferably comprises a data bank. The comparator for one embodiment of the invention is a computer.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0032] In the following, the invention is described without limiting the general inventive idea with the aid of exemplary embodiments and the drawings, to which express reference is made for all details not further explained in the text.

[0033] FIG. 1 is a front view of a filter-attachment machine including a device according to the invention.

[0034] FIG. 2 is a perspective, schematic representation showing a device according to the invention for perforating a coating paper strip.

[0035] FIGS. 3a-3c illustrate respective markings with correspondingly different shapes.

[0036] FIG. 4 is a three-dimensional, schematic representation of a cigarette packaging machine including a device according to the invention.

[0037] FIG. 5 is a schematic representation of a foiling-feeding device with a device according to the invention for creating markings.

[0038] FIG. 6 is a schematic representation of a system according to the invention for ensuring the authenticity of cigarettes.

**DETAILED DESCRIPTION OF INVENTION**

[0039] The same or corresponding features in the figures are given the same reference numbers, so that these features will not be explained again.

[0040] The machine shown in FIG. 1 is a filter-attachment machine of the type MAX by Hanni Maschinenbau AG, which is provided with a separating device operating with a laser, as well as a laser perforation device. A machine of this type is known, for example from U.S. Pat. No. 4,281,670 or German Patent No. 198 24 849 and comprises the following components.

[0041] The intake drum 1 transfers the cigarettes produced in a cigarette-production machine to two staggering drums 2, which de-stagger the cigarettes that are supplied staggered and transfer these in rows of respectively two cigarettes, with a space between the cigarettes, to an assembly drum 3. The filter rods travel from a magazine 4 to a cutting drum 6 where they are cut with two circular blades 7 into double-length filter plugs. Subsequently, they are staggered on a staggering drum 8, are aligned with a pusher drum 9 to form a row of sequentially positioned plugs and are deposited with an acceleration drum 11 in the intermediate spaces between the cigarette rows on the assembly drum 3.

[0042] The cigarette-filter-cigarette groups are pushed together, so that they are positioned axially right next to each other. Subsequently they are taken over by a takeover drum 12. A coating paper strip 13 is pulled off a bobbin 14 with the aid of withdrawal rollers 16. The strip 13 is guided around a pre-breaker 17 with a sharp edge, is then coated with glue by a glue-application device 18 and is cut on a cutting drum 19. The cut off coating papers (connecting papers) are attached to the cigarette-filter-groups on the transfer drum 12 and are rolled on a roller drum 22 with a roller hand 23 around the cigarette-filter-groups. The finished groups with double-filter cigarettes are supplied by a drying drum 24 to a cutting drum 26 and are finished there as individual filter cigarettes by cutting through the filter plugs, wherein defective filter cigarettes are simultaneously discarded.

[0043] A turning device 29 that operates jointly with a transfer drum 27 and an assembly drum 28 turns a filter cigarette row and simultaneously transfers it to the non-turned filter cigarette row, which passes through via the transfer drum 27 and the assembly drum 28. The filter cigarettes are moved by a testing drum 31 to an ejection drum 32 where the heads of the filter cigarettes are scanned prior to the ejection. A depositing drum 34 that operates jointly with the braking drum 33 deposits the filter cigarettes on a depositing belt 36.

[0044] A device 38 according to the invention is shown in FIG. 1. FIG. 2 provides a clearer picture of the inventive perforation device 38 from FIG. 1 as an exemplary embodiment and in a schematic, perspective view. Glue is applied to the coating paper strip 13. The perforation device 38
comprises a laser 42 that emits a pulsed laser beam 43 and is controlled by a control unit 41. The laser beam 43 is deflected by a deflection mirror 44 and is split into two equal partial beams 43a and 43b with the aid of a partially permeable mirror 46. Partial beam 43a is transmitted by the partially permeable mirror 46 while partial beam 43b is at the same time deflected by the partially permeable mirror 46 toward the coating paper strip 13. An additional mirror 47 furthermore deflects the partial beam 43a, which passes through partially permeable mirror 46, toward the coating paper strip 13.

[0045] The partial beams 43a and 43b are focused with the aid of optical devices 48, only one of which is shown in FIG. 2, into two perforation tracks 49 and 49a on the coating paper strip 13 where they create perforations 51 or 51a. In FIG. 2, the perforations 51 or 51a are shown as circles or holes. Within the framework of the invention, perforations or markings with geometric shapes are created, as shown in FIGS. 3a to 3c.

[0046] Diffractive lenses are provided as optical devices 48, for which an intensity profile can be specified. The intensity profile is such that an essentially uniform intensity exists in the area where the marking is to be created, whereas there should be no intensity in the area outside of this marking. Diffractive optical elements are basically disclosed in references German Patent Nos. 198 24 849 and 195 11 393. These diffractive optical elements can be designed, computed and produced without problems so that the shape of the focal points for the laser radiation is adjusted on the enveloping material. The content disclosed in the two aforementioned applications is herewith incorporated fully into the present application.

[0047] FIGS. 3a to 3c show corresponding markings according to the invention, which can be produced, for example, on a coating paper strip 13 in rows 49 and 49a, as shown in FIG. 2. These markings can also be created on cigarette packs or enveloping material for cigarette packs or on the cigarette paper. The respective markings according to the invention have different shapes. In the case of FIG. 3a, the marking is a type of cross, for example resembling the cross on the Swiss flag. The region within the outline 58 is designed differently from the region outside of the outline 58. For example, some material can be removed in the region within the outline 58, so that the enveloping material is thinner in the marking 55. The outline 58 of the marking 55 or the geometric form of the marking 55 according to FIG. 3a contains several sections with a discontinuous slope 59, as well as relatively sharp edges 54. The largest diameter D shown in the marking 55, for example, is between 10 μm and 50 μm, depending on the laser used. However, it should not be possible to mechanically copy a marking of this type with a sharp edge, e.g. by punching it out. The marking can also be created such that no enveloping material exists in the region within the outline 58, meaning a type of perforation exists.

[0048] FIG. 3b shows a different geometric form of the marking 55. The marking in this case simultaneously contains convex regions 56 and concave regions 57. FIG. 3c shows a marking in the shape of a star, which is even harder to copy because of its relatively fine structures.

[0049] FIG. 4 contains a schematic three-dimensional picture of a cigarette-packaging machine 60 provided with the device according to the invention. Cigarettes are supplied in a mass flow 61 to the cigarette-packaging machine 60. These cigarettes drop through the feed chute 62 into block-forming chutes 63. The cigarettes are transferred in the known manner from the block-forming chutes 63 into pockets 65 of a pocket-type conveyor 64. A drive element 69b that moves an insertion rod 70 is provided for transferring the cigarettes 66 from the block-forming chute into the respective pockets 65. The pocket conveyor 64 is operated with the aid of a drive roller 68, driven in a clocked motion by a drive element 69a, for example with double spacing steps. A corresponding method and device for the formation of cigarette blocks and for transferring the cigarette blocks into the respective pockets 65 of pocket conveyor 64 is disclosed, for example, in the applicant’s German Patent Application 101 11 989.1, which corresponds to the U.S. Pat. No. 6,385,947, both owned by the present assignee. The content disclosed in these patent publications is herewith incorporated fully into the present application.

[0050] A finished cigarette block 67 is then moved with a block pusher 71 into the operative range of an internal wrapping material strip 76, wherein the internal wrapping material strip 76 is provided in a preceding step with the respective markings above the area of interaction with cigarette blocks 67. The markings are created with the removal device 75, which can comprise a laser and the respective optical elements. While transporting the cigarette blocks 67 through the area of intervention with the internal wrapping material strip 76, this strip is folded around the cigarette blocks. Additional folding steps are realized during the further transport with the block conveyor 72. The respective folding elements as well as additional elements for a corresponding cigarette-packaging machine are omitted from FIG. 4 for reasons of simplicity and clarity.

[0051] Cigarette blocks wrapped with the internal wrapping material strip 76 are then moved to the operative range of a first folding tray where they are brought into fitted with a collar 80. After attaching a collar 80 to the block wrapped with the internal wrapping material and folding the collar 80 in the first folding tray, a packet consisting of the collar 80 arranged on a cigarette block with internal wrapping material is moved to a transfer station 82 where the above-mentioned packet is joined with blank 85. During the transfer from the first folding tray to a second folding tray 83, the first folding steps are realized on the respective blank 85. The blanks 85 are supplied to the transfer station 82 by a blank conveyor 86. Additional steps for folding the blanks 85 are realized in the second folding tray 83. A corresponding packaging machine is known, for example, from German Patent Document 199 47 709.4, which corresponds to U.S. patent application Ser. 09/678,671, both owned by the present assignee.

[0052] Following the second folding tray 83, the cigarette blocks provided with the nearly completely folded blanks 85 are subsequently conveyed by a pack conveyor 87 to a drying drum 88. On the way to the drying drum 88, the side flaps that are still open are provided with glue and folded onto the internal side flaps. The glue is dried in the drying drum 88. Following the drying drum 88, the finished cigarette packs 115 are transferred with a delivery conveyor 90 to the delivery chutes 89.

[0053] The marking or markings for this exemplary embodiment is (are) created on an internal wrapping cover.
However, they can also be created on the blanks in the blank conveyor region or, at a later date, on an additional wrapping material with which the finished cigarette packs 115 are wrapped.

[0054] FIG. 5 shows a schematic representation of a foil feeder having a device according to the invention for creating the respective markings. A strip of enveloping material, meaning a foil strip 122, is wound around a bobbin 120 and, via a deflection roller 123, is supplied in conveying direction 121 to the area of intervention for the cigarette packs to be wrapped with the foil. On the way to the cigarette packs 115, the foil enters the operating range of a laser beam 126, emitted by a laser 124 and focused by an optical element 125. The optical element 125, for example, can be provided with a diaphragm designed in accordance with a desired marking. This laser can be used to create respective markings on this foil during the conveying, wherein the laser preferably operates in the pulsed mode.

[0055] Following the creation of the markings, the foil reaches the area of a foil crosscutter 127, which cuts the foil crosswise at a predetermined location, so that respective foil sections are created. The cigarette packs 115, conveyed in conveying direction 128 of the cigarette packs 115, are inserted into these foil sections, initially in the form of a U. Following this, the partially wrapped cigarette packs 115 are transferred to folding pockets of the folding revolving table 129, in which the additionally required folding operations occur.

[0056] Lasers of the type IMPACT 3000 by the company Lumonics GmbH, Junkerstrasse 5, D-82178 Puchheim, Germany, can be used for implementing the invention. These lasers are CO2 lasers, which can emit pulsed laser radiation of very short duration and very high energy content. Diffractive lenses for use according to the invention are sold, for example, by the company Coherent, Inc., 2301 Lindberghstrasse, Auburn, Calif. 95602, United States and by Laser Components, Werner-von-Siemens-Straße 15, D-82140 Oelching, Germany.

[0057] There are different ways to check for the markings. For example, the end user can inexpensively determine with a magnifying glass whether a corresponding marking exists.

[0058] With more expensive auxiliary means such as a microscope, wholesalers can test random samples to determine whether a marking was poorly copied with mechanical means or whether the marking was applied with more expensive means, for example with laser beams and corresponding diffractive optical elements or diaphragms.

[0059] Wholesalers or customs agents, for example, can further determine with certainty whether a product is copied or not by using an image-processing system, such as the one shown in FIG. 6, which schematically shows a system according to the invention for ensuring the authenticity of products in the tobacco-processing industry.

[0060] Referring to FIG. 6, there is shown an image-processing system that comprises a test chamber 100 connected with a microscope 101. Cigarette packs 115, for example, can be moved into this test chamber 100. The markings affixed to the cigarette packs 115 can be enlarged with the microscope 101 and recorded with a digital camera 102. The digital image recorded with the digital camera is fed by a connecting cable 103 to a computer 105. The recorded image can then be displayed on a display device 106. Through the input of additional information via a keyboard 107, for example by entering the cigarette trademark name and a possibly embossed number sequence, a marking that may be stored in the computer 105 can then be compared to the recorded image and should match this additional information.

[0061] It is furthermore possible to digitize the recorded image or the pattern and transmit this image to a host computer 108 via a data line or data cable 104, if necessary with the additional information. The computer 108, which may be at the manufacturer's location, comprises a hard drive 109 on which additional information for specific batches of cigarette packs, such as the number sequence embossed on each pack, can be stored. The markings or combinations thereof, valid for the respective trademark names, can also be allocated with the data stored on the hard drive. The host computer can then be programmed to perform a correlation comparison, meaning to determine whether the respectively stored embossed marking or markings for the respective package, e.g. in the form of an identification, coincide with those affixed to the pack 115. The marking should correspond to one or several pattern or patterns stored in a data bank of the hard drive 109. It is sufficient if the computer 108 responds with a signal representative of whether this is an original or a counterfeit product. No confidential information is released in this way.

[0062] While the invention has been described with reference to several particular embodiments thereof, those skilled in the art will be able to make the various modifications to the described embodiments of the invention without departing from the true spirit and scope of the invention.

What is claimed is:

1. A method for processing an enveloping material for a tobacco product, comprising:
   supplying the enveloping material to an operative range of at least one radiation source; and
   creating a marking in at least one section of the enveloping material by subjecting the enveloping material to radiation emitted by the at least one radiation source, wherein the marking has a geometric form with an outline having at least one of (a) a discontinuous slope in some sections and (b) convex or concave regions.

2. A method according to claim 1, wherein the creating step includes removing the material in the at least one section.

3. A method according to claim 2, wherein the creating step creates a perforation in the enveloping material.

4. A method according to claim 1, wherein the creating step includes chemically changing the at least one section.

5. A method according to claim 1, wherein the creating step includes melting the at least one section.

6. A method according to claim 1, wherein the creating step transports the enveloping material over a predetermined distance during the time between two separate instances of creating at least one marking.

7. A method according to claim 1, wherein the creating step focuses the radiation.

8. A method according to claim 1, wherein the creating step creates the geometric form to reach dimensions of up to 50 µm.
9. A device for processing enveloping material in the tobacco-processing industry, comprising:
   at least one radiation device for directing radiation onto
   the enveloping material, the at least one radiation
   device including means for creating a marking, in at
   least one section of the enveloping material, which
   marking has a geometric form with an outline having at
   least one of (a) a discontinuous slope in some sections
   and (b) convex or concave regions.
10. A device according to claim 9, further comprising a
    conveying device for transporting the enveloping material.
11. A device according to claim 9, wherein the radiation
    device comprises at least one of a CO2 laser, a YAG laser
    and an excimer laser.
12. A device according to claim 9, further including
    means for controlling at least one of the intensity, output
    density and energy density of the radiation.
13. A device according to claim 9, wherein the creating
    means comprises an element that predetermines the form of
    the marking.
14. A device according to claim 13, wherein the element
    comprises at least one of a diaphragm and a focusing
    element.
15. A device according to claim 13, wherein the element
    comprises a diffractive optical element.
16. A device according to claim 9, wherein the device is
    one of a cigarette rope-production machine, a filter-attach-
    ment machine, a cigarette-packaging machine and a foil-
    wrapping machine.
17. An arrangement for authenticating a tobacco product,
    comprising:
    an enveloping material for the tobacco product; and
    a marking in at least one section of the enveloping material,
    wherein the marking has a geometric form with an
    outline having at least one of (a) a discontinuous slope
    in some sections and (b) concave or convex regions.
18. An arrangement according to claim 17, wherein said
    outline has several corners with a discontinuous slope.
19. An arrangement according to claim 17, wherein the
    geometric form has dimensions of up to 50 μm.
20. An arrangement according to claim 17, wherein the
    geometric form has edges with a structure or sharpness in the
    range of 150 nm to 350 nm.
21. An arrangement according to claim 17, wherein the
    marking differs from the enveloping material by removal of
    the material.
22. An arrangement according to claim 17, wherein the
    marking is a perforation in the enveloping material.
23. An arrangement according to claim 17, wherein a
    color of the marking differs from a color of the enveloping
    material surrounding the marking.
24. An arrangement according to claim 17, wherein the
    enveloping material comprises several markings.
25. A method for producing a cigarette, utilizing an
    arrangement for authenticating a tobacco product according
to claim 17.
26. A method for generating a packaging material for
    tobacco products utilizing an arrangement for authenticating
    a tobacco product according to claim 17.
27. A method for checking authenticity of tobacco prod-
    ucts utilizing an arrangement for authenticating a tobacco
    product according to claim 17.
28. A method for verifying the authenticity of a product
    in the tobacco-processing industry, comprising the steps of:
    visually inspecting a marking affixed to an enveloping
    material for the product; and
    comparing the marking to a marking predetermined for
    the product.
29. A method according to claim 28, wherein the com-
   paring step includes use of a magnifying device to create a
    visual image for the visual inspection.
30. A method according to claim 28, wherein the step of
    visually inspecting includes using an image-recording device
    and storing an image of the marking for subsequent
    inspection.
31. A method according to claim 30, wherein the step of
    visually inspecting includes standardizing the stored image
    of the marking to a standard size during a subsequent image
    processing.
32. A method according to claim 31, wherein the com-
    parison step compares at least one of the visual image, the
    stored image and the standardized image to a predetermined
    additional image.
33. A method according to claim 32, further comprising a
    step of storing the additional image in a computer system
    that is removed from a location of the visual inspection.
34. A method according to claim 32, wherein the com-
    parison step comprises selecting the additional image with
    the aid of additional data.
35. A method according to claim 28, wherein the com-
    parison step includes outputting a signal as a result of the
    comparison, the signal indicating whether a product is
    authentic or a counterfeit product.
36. A system for verifying the authenticity of products in
    the tobacco-processing industry, comprising:
    an image-recording device;
    a storage device in which images are stored in the form of
    predetermined storage data;
    a data link for coupling the image-recording device to the
    storage device;
    a comparator for comparing an image recorded by the
    image-recording device to the data in the storage
    device; and
    an output device coupled to the comparator for displaying
    the comparison.
37. A system according to claim 36, wherein the image-
    recording device comprises an enlarging element.
38. A system according to claim 36, wherein the storage
    device comprises means for digitizing the recorded image.
39. A system according to claim 36, wherein the storage
    device comprises a data bank.
40. A system according to claim 36, wherein the compara-
    tor is a computer or a computer component.