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(54) **Method for the qualitative improvement of the products of the tobacco plant.**

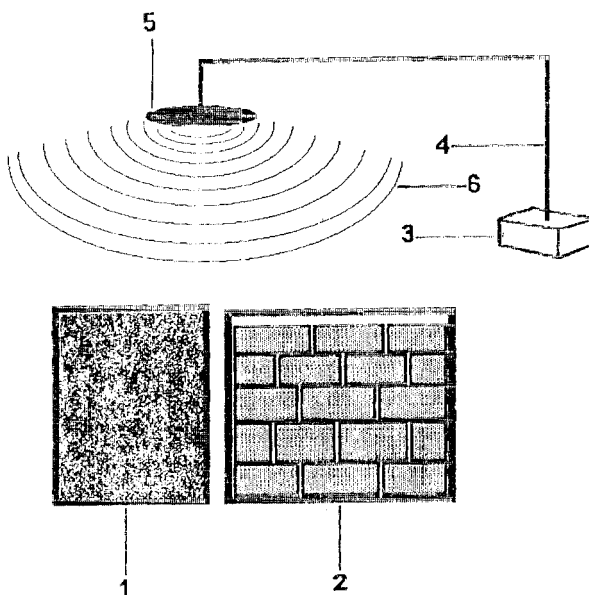
(57) The method belongs to the field of electronic science and is applied to the field of the manufacture of products deriving from the tobacco plant, such as cigarettes, cigars, pipe tobacco, tobacco in general, and achieves their qualitative improvement.

The qualitative improvement is achieved with the pulsatory emission of electromagnetic waves (6) towards the tobacco products, which are produced by electromechanical or electronic devices (3), are pre-programmed, cover wide ranges of wavelengths from 1 mm to 11,000 Km, together with their harmonic frequencies,

which are produced by the device and which are emitted either at all wavelengths from 1 mm to 11,000 Km, or at one or more parts of particular areas, with controlled potency, controlled application time and controlled application result.

It is applied in industries, manufacturing and commercial enterprises of final or not tobacco products, which are either at the processing stage, or after the completion of their manufacture, or during their storage, regardless of the way or the materials they are packaged with.

Drawing 1



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## Description

**[0001]** The invention belongs in the field of electronic science and applies in the field of the industrially manufactured products deriving from the tobacco plant, such as cigarettes, cigars, pipe tobacco, tobacco in general and its types. More specifically, the invention concerns the qualitative improvement of the products derived from the tobacco plant and can be applied during the processing of the tobacco and/or during the production of its products.

**[0002]** With the mass production of cigarettes following World War II, there was a large increase in the cases of lung cancer, mouth and pharyngeal cancer, cardiovascular diseases and, generally, serious and fatal diseases for the human organism. Soon, this fact was linked to the consumption of tobacco products and especially of cigarettes, which contain a large number of toxic chemical substances, both in the solid stage of tobacco and in its gaseous one. In the former, solid, stage, before its burning (use), tobacco contains substances which are directly toxic, like, for example, tar and nicotine. In the latter, gaseous stage, during its burning (use) more toxic substances are produced which are harmful to the human organism.

**[0003]** To counter this problem of the toxic substances which are contained in and produced during the use of these products, there have been used in the last years various industrial products, like the tar- and nicotine-collecting filters of one or multiple uses, the common conventional cigarette filters, as well as, recently, the biological cigarette filters, which, to-date, provide the maximum possible protection from the toxic substances of the solid and gaseous stages of tobacco. This is the state of the art of today's technology. However, all these products attempt to limit the toxic action of the tobacco substances, by intervening during the smoking stage. To-date there exists no method or product to act on the toxic substances themselves of solid tobacco, limiting their toxic action, before the use of the product, that is, before the product reaches the final consumer.

**[0004]** The present invention aims at providing a solution to the above mentioned problem of the reduction of the harmful effects of smoking, qualitatively upgrading the tobacco products.

**[0005]** The present invention constitutes a method which acts on solid tobacco before its use by the consumer and can be applied either during the industrial processing of tobacco and the production of its final products, or to the final products themselves (cigarette packs, cigars and tobacco pouches). The present invention acts on the existing toxic substances, improving the quality of tobacco, so that the final product used by the consumer has fewer harmful effects on his health. It constitutes a new original method for the qualitative improvement of the industrial products of the tobacco plant. The qualitative improvement is achieved with the emission towards the industrial products of the tobacco

plant of electromagnetic waves covering wide wavelengths, which are produced by electromechanical or electronic devices, the emission of which is preprogrammed, has controlled power, control application time and control quality result.

**[0006]** The advantages of the present method is that it acts on the toxic substances themselves of solid tobacco and limits their toxic action, thus achieving a significant qualitative improvement of the industrial products of tobacco. Moreover, an extremely serious advantage of this method is that the beginning of the improvement is achieved with the beginning of the application of the method, while its required application time for the achievement of substantial improvement is short, not more than a few hours. Another advantage of this method is that it admits wide industrial application and, moreover, it does not require changes in the working specifications of the existing industrial or manufacturing facilities, either during the stage of the processing of the tobacco or during the stage of the production of the final product (cigarette packs, cigars and tobacco pouches). Another advantage of this method is that it is not applied only during the processing stage of the tobacco and the industrial manufacture of its final products, but it is all applied directly to the final product even after its packaging or while it is in storage areas, and it can also admit household use. Another advantage of the method is that for its application it is not necessary for the tobacco products to be stationary, and neither the device. Thus, the method can be applied on ships or transportation containers, so that their qualitative improvement will have been achieved by the time they reach their destination. Another advantage of this method is that its application is financially expedient, as it requires very low operational costs.

**[0007]** The invention is described below, with the aid of non-restrictive examples and with reference to the attached drawing, which illustrates one application form of the method which constitutes the object of the present invention.

**[0008]** The drawing illustrates one application way of the invention, on final industrial tobacco products and final packaged ones.

**[0009]** One application way of the invention is described with reference to the drawing. The final industrial tobacco products (1) are placed packaged in the storage areas or packaged in boxes (2), at the customary storage temperature. Near them is placed an electromechanical or electronic device (3) of programmed operation, which emits electromagnetic waves (6) and from which extends a tube (4) which ends in their emitting antenna (5). The electromagnetic waves (6) are emitted towards the final industrial tobacco products (1) or towards the packaged ones in the boxes (2). The emitting antenna (5) may constitute an integral part of the emitting device (3) or be connected to it with a tube (4).

**[0010]** The electromechanical or electronic device (3) produces electromagnetic waves (6) which cover wide

wavelength ranges, from 1mm to 11,000km, together with their harmonic frequencies, which are produced by the device and which are emitted either in all the wavelengths from 1mm to 11,000km or in one or more parts of particular areas, so as to achieve a resonance of all the elements of tobacco. The areas of the frequencies to which these electromagnetic waves belong are characterized by the international names EHL (extremely high frequencies), SHF (super high frequencies), UHF (ultra high frequencies), VHF (very high frequencies), HF (high frequencies), MF (medium frequencies), LF (low frequencies), VLF (very low frequencies). The emission of the electromagnetic waves (6) is programmed with the electromechanical or electronic circuit of the device (3) so as not to be continuous but pulsatory. The length between the emitted pulses may be of constant or variable time. The length between the pauses of the emitted pulses may be of constant or variable time.

**[0011]** The emission of the electromagnetic waves (6) may be modulated in any way, or it may not be modulated at all.

**[0012]** The emission potency of the electromagnetic waves (6) increases with each augmentative alteration of the distance between the source of the emission (5) of the electromagnetic waves (6) and the industrial tobacco products (1), or even with each augmentative alteration of the volume of the industrial tobacco products (1), to which the method is applied, in order to achieve the same qualitative improvement at the same time, as well as the reverse. Also, with each augmentative alteration of the distance between the source of the emission (5) of the electromagnetic waves (6) and the industrial tobacco products (1), or even with each augmentative alteration of the volume of the industrial tobacco products (1), to which the method is applied, the application duration time of the method must be increased in order to achieve the same qualitative improvement with the same potency, as well as the reverse.

**[0013]** Furthermore, there exists the possibility of electromagnetic waves (6) being emitted from more than one device, simultaneously, in the same place. The total simultaneous emission potency provided must always be low, in order to achieve the desired result, but without causing any substantial increase in the temperature of the industrial tobacco products to which the present method is applied, without the potency descending below 0.0001 mWatt, whether one device is used or more than one devices.

**[0014]** The user of the method is able to decrease the time required for the achievement of the selected level of qualitative improvement by increasing the total simultaneous emission potency provided by the electromagnetic waves (6), which must be maintained in low levels, so as not to cause a substantial increase in the temperature of the industrial tobacco products, as well as the reverse, but without the emission potency descending below 0.0001 mWatt.

**[0015]** The initiation of the qualitative improvement of the industrial tobacco products occurs with the initiation of the application of the method, while the required application time for the occurrence of a substantial improvement is short, not more than a few hours.

**[0016]** The duration period of the application of the method is dependent on the type of the industrial tobacco products to which the method is applied and is proportional to the desirable qualitative result. Thus, the longer the duration period of the application of the method the greater the qualitative improvement of the industrial tobacco products to which the method is applied.

**[0017]** Also, the method may be applied even if between the source of the pulsatory emission of electromagnetic waves and the industrial tobacco products there exist materials such as cardboard, wooden boxes, concrete and metals, with the exception of conductible materials which are grounded.

**[0018]** The present method can be widely used by industries, manufacturing and commercial enterprises of tobacco products, and applied either during the processing of the tobacco, or during the manufacture of the products, or even to the final tobacco products after their packaging in the storage areas or they are packaged in boxes.

**[0019]** The method results in a substantial qualitative improvement of the industrial tobacco products, as it counters the toxic substances of solid tobacco contains their toxic action, thus achieving a significant qualitative improvement of the industrial tobacco products, so that the final product used by the consumer has fewer harmful effects on his health.

## Claims

1. A method of qualitative improvement of the products of the tobacco plant (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted towards the tobacco products (1), which method is characterised by the fact that the emission of the electromagnetic waves (6) towards the tobacco products (1) is programmed through an electromechanical or electronic device circuit (3), so that it is not continuous but pulsatory.
2. A method for the qualitative improvement of the products of the tobacco plant (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and

a controlled qualitative result, which are emitted pulsatorily towards the tobacco products (1), according to claim 1, which is characterized by the fact that the programmed pulsatory emission of the electromagnetic waves (6), towards the tobacco products (1), has small time pauses of variable length or not of their emission signal and by the fact that both the duration time between the emitted pulses and the duration time between their pauses may be of constant or variable time.

3. A method for the qualitative improvement of the products of the tobacco plant (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the tobacco products (1), according to claims 1 and 2, which is characterized by the fact that the electromagnetic waves (6), which are emitted pulsatorily towards the tobacco products (1), cover wide ranges of wavelengths from 1mm to 11,000 km, together with their harmonic frequencies, which are produced by the device and emitted either at all the wavelengths from 1 mm to 11,000 km or at one or more parts of particular areas, so as to achieve a resonance of all the elements of the tobacco.
4. A method for the qualitative improvement of the products of the tobacco plant (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the tobacco products (1), according to claims 1, 2 and 3, which is characterized by the fact that the frequency ranges to which these electromagnetic waves belong are by the international names EHL (extremely high frequencies), SHF (super high frequencies), UHF (ultra high frequencies), VHF (very high frequencies), HF (high frequencies), MF (medium frequencies), LF (low frequencies), VLF (very low frequencies).
5. A method for the qualitative improvement of the products of the tobacco plant (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the tobacco products (1), according

to claims 1, 2, 3 and 4, which is characterized by the fact that the pulsatory emission of the electromagnetic waves (6) may be modulated in any way, or it may not be modulated at all.

6. A method for the qualitative improvement of the products of the tobacco plant (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the tobacco products (1), according to claims 1, 2, 3, 4 and 5, which is characterized by the fact that the emitting antenna (5) may constitute an integral part of the emitting device (3), or be connected to it with a tube (4), as well as by the fact that during the application of the method it is possible to move the tobacco products (1) or even the device used for its application (3).
7. A method for the qualitative improvement of the products of the tobacco plant (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the tobacco products (1), according to claims 1, 2, 3, 4, 5 and 6, which is characterized by the fact that the emission potency of the electromagnetic waves (6) must be increased with each augmentative alteration of the distance between the source of the emission (5) of the electromagnetic waves (6) and the tobacco products (1), or even with each augmentative alteration of the volume of the industrial tobacco products (1), to which the method is applied, in order to achieve the same qualitative improvement at the same time, as well as the reverse.
8. A method for the qualitative improvement of the products of the tobacco plant (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the tobacco products (1), according to claims 1, 2, 3, 4, 5, and 7, which is characterized by the fact that with each augmentative alteration of the distance between the source of the emission (5) of the electromagnetic waves (6) and the tobacco products (1), or even with each augmentative alteration of the volume of the tobacco products (1),

to which the method is applied, the application duration time of the method must be increased in order to achieve the same qualitative improvement with the same potency, as well as the reverse.

9. A method for the qualitative improvement of the products of the tobacco plant (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the tobacco products (1), according to claims 1, 2, 3, 4, 5, 7 and 8, which is characterized by the fact that the application of the method can also be achieved with the pulsatory emission of electromagnetic waves (6) from more than one device, simultaneously, in the same place, which have been programmed to emit electromagnetic waves of the same or different potency, and by the fact that the total simultaneous emission potency provided must always be low, in order to achieve the desired result, without causing any substantial increase in the temperature of the tobacco products to which the present method is applied, without the potency descending below 0.0001 mWatt, whether one device is used or more than one devices.

10. A method for the qualitative improvement of the products of the tobacco plant (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the tobacco products (1), according to claims 1, 2, 3, 4, 5, 7, 8 and 9, which is characterized by the fact that the user of the method is able to decrease the time required for the achievement of the selected level of qualitative improvement by increasing the total simultaneous emission potency provided by the electromagnetic waves (6), which must be maintained in low levels, so as not to cause a substantial increase in the temperature of the tobacco products, as well as the reverse, but without the emission potency descending below 0.0001 mWatt.

11. A method for the qualitative improvement of the products of the tobacco plant (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pul-

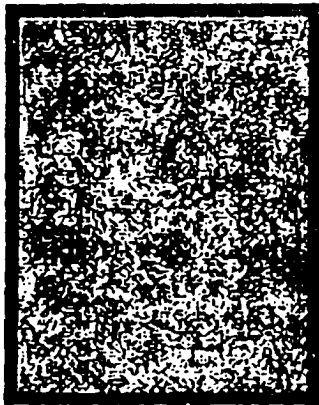
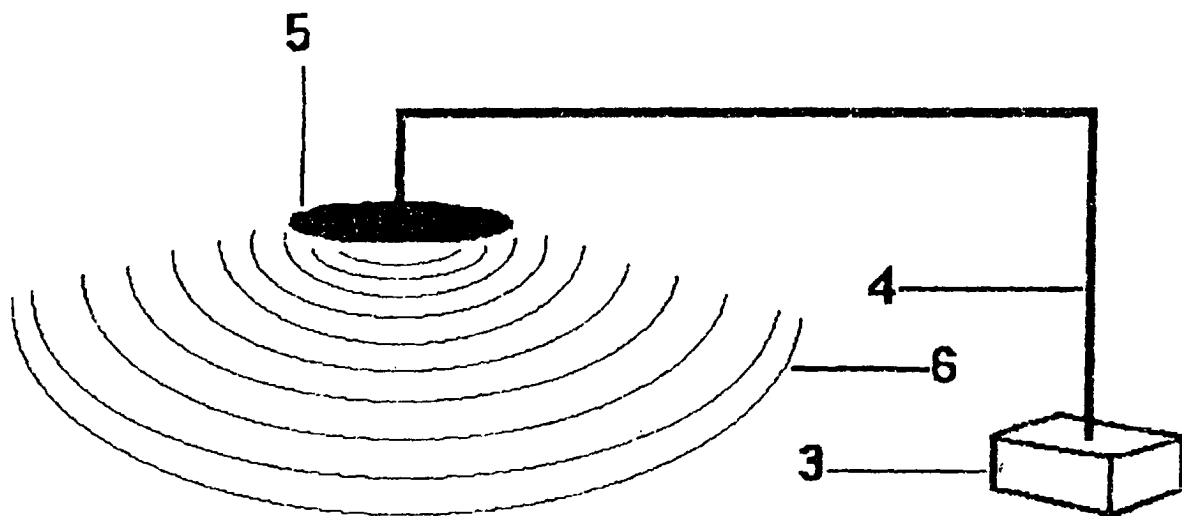
satorily towards the tobacco products (1), according to claims 1, 2, 3, 4, 5, 7, 8, 9 and 10, which is characterized by the fact that the initiation of the qualitative improvement of the tobacco products occurs with the initiation of the application of the method and is short, a few hours only, and by the fact that the duration period of the application of the method is dependent on the type of the tobacco products to which the method is applied, as well as by the fact that the duration time of the application of the method is proportional to the desirable qualitative result, so that the longer the duration period of the application of the method the greater the qualitative improvement of the tobacco products to which the method is applied.

12. A method for the qualitative improvement of the products of the tobacco plant (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the tobacco products (1), according to claim 1, which is characterized by the fact that it can be applied to all final or not tobacco products, which may be either in their processing stage, or after the completion of their production, or during their storage, regardless of the way or the materials they are packaged in, even if between the emitting source of the electromagnetic waves and the tobacco products there exist materials of any kind, with the exception of conductible materials which are grounded.

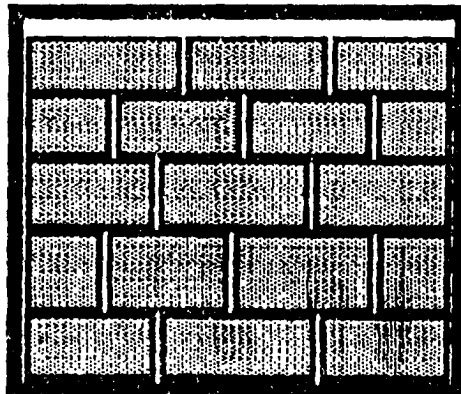
13. A method for the qualitative improvement of the products of the tobacco plant (1), through the use of electromagnetic waves (6), which cover wide ranges of wavelengths, which are produced by electromechanical or electronic devices (3), the emission of which is pre-programmed, its potency is controlled, has a controlled application time and a controlled qualitative result, which are emitted pulsatorily towards the tobacco products (1), according to claim 1, which is characterized by the fact that the method can have a wide application in industries, manufacturing and commercial enterprises of tobacco products, as well as in households.

Drawing 1

(74)



1



2



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# EUROPEAN SEARCH REPORT

Application Number  
EP 99 60 0015

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 3 699 976 A (ABE ET AL.) 24 October 1972 (1972-10-24) * column 6, line 63 - column 7, line 27; claims *	1-8, 11-13	A24B15/22
X	GB 1 276 496 A (CARRERAS LIMITED) 1 June 1972 (1972-06-01) * page 2, line 35 - line 114; claims *	1-8, 11-13	
X	US 3 785 384 A (SYLVESTER ET AL.) 15 January 1974 (1974-01-15) * column 1, line 49 - line 52 * * column 3, line 59 - column 4, line 11; claims; figures 3,4 *	1-8, 11-13	
X	US 5 803 081 A (O'DONNELL) 8 September 1998 (1998-09-08) * column 7, line 21 - column 8, line 41; claims; figures 3,4; tables 1,2 *	1-8, 11-13	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A24B
Place of search		Date of completion of the search	Examiner
THE HAGUE		10 April 2000	Lepretre, F
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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 60 0015

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10-04-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3699976 A	24-10-1972	JP 50017381 B GB 1295942 A	20-06-1975 08-11-1972
GB 1276496 A	01-06-1972	NONE	
US 3785384 A	15-01-1974	NONE	
US 5803081 A	08-09-1998	US 5845647 A AU 4048297 A CA 2262866 A CN 1231583 A EP 0967898 A WO 9805226 A	08-12-1998 25-02-1998 12-02-1998 13-10-1999 05-01-2000 12-02-1998

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