

UNITED STATES PATENT OFFICE

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PROCESS OF TREATING TOBACCO

No Drawing.

Application filed April 5, 1930. Serial No. 442,040.

This invention relates to a process of treating tobacco and an object of the invention in its broadest aspect provides for the removal of injurious and obnoxious effects, and at the same time mellowing the tobacco to a condition of smoking perfection heretofore not practiced by the art.

Another important advantage of the process is to remove the excess of obnoxious matters called glycerides, that when heated to a boiling temperature when salts are present, decomposes into acrolein, which is recognized as a violent poison, doing away with this acrid matter which stultifies the functioning organs of the body when found in small quantities.

Another important advantage of the process is to brighten dark tobacco that heretofore could not be used in cigarette manufacturing, thereby effecting a considerable saving in the cost of raw tobacco, but yet mellowing the darker and imperfect uncured and cured grades of the tobacco to the better grade qualities.

Further objects of the invention are to provide a process of the character referred to that is extremely simple in operation, requiring the minimum of technical observation, that is thoroughly reliable in its results and comparatively inexpensive to carry out.

With the foregoing and other objects in view the invention consists of a novel sequence of operation that will be hereinafter more specifically described and illustrated in the accompanying specification, wherein is disclosed an embodiment of the invention, but it is to be understood that changes, variations, and modifications may be resorted to without departing from the spirit of the claims hereto appended.

Tobacco is composed of two groups of substances, the organic substance which appears in the form of gases on combustion, and the mineral substance which remains after combustion forming the ash.

The tobacco leaves when first cut taking an average from a series of analysis run as follows:—

	Per cent
Organic matter-----	11
Mineral matter-----	1
Water-----	88

The dried tobacco leaves (when properly dried), on an average, (by calcination) give 22% of ash, which is apparently formed by the mineral acids, nitric, sulphuric, phosphoric, hydrochloric, combined with alkaline bases; potash, magnesia, ammonia, lime, and iron. Silica is always present and manganese and soda are frequently found.

The principal organic compounds are gums, cellulose and lignin, together with a small amount of glycerine. These vegetable acids, pectic, citric, malic, and oxalic, are combined with the mineral bases outlined above and the organic bases, and also the specific alkaloid of tobacco, nicotine. The larger portion of these compounds, such as lignin, cellulose, and organic acids are found in all tobacco, in almost invariable proportion. Others such as mineral bases are extremely variable.

Nicotine is contained in tiny pear-shaped bulbs or knobbed hairs, which cover the surface of the tobacco leaf and it has been found that large quantities of the nicotine evaporate when brought in contact with vapor and heat employed in the process of extraction.

I base my broad claims on the removal of the harmful effects of such ingredients as albuminoids, glycerides, carbons, since as stated above, the nicotine passes off as a gas in this process.

After careful study and extensive experimentation covering a period of almost nine years, and considering and experimenting with each annual crop of almost all types of tobaccos, I find that the process of the present invention, which removes all organic and mineral matter readily soluble in steam and water in its particular structure, and at the particular temperature, that I remove the life of the tobacco leaves, which includes all of the good qualities, as well as the obnoxious, harmful and disagreeable qualities.

By treating the entire fluid extracted from the tobacco leaves, with certain tempered steam and heat that the excess albuminoids, glycerides, potash, acrids, pungent irritants, salts, silica, soda, manganese and other like substances which on combustion gives the smoker undesirable and harmful effects can be removed from the original extract by the method of my present invention.

The harmful effects produced by the above mentioned ingredients of tobacco are smoker's sore throat, smoker's hacking cough, bronchi in the lungs, chronic bronchitis, hyper-acidity in the stomach, dyspepsia and gastritis, nervous effects, effects on the heart and circulating system generally, and effects of the liver.

It is further found that by using the process of the present invention, that the original fluid extracted from the tobacco less the above-mentioned ingredients, and by subsequent treatment of the leaves, impart those excellent qualities back into the body of the tobacco leaves, thereby giving the smoker tobacco leaves that will cause no appreciable harmful effects when consumed in cigarette, chewing tobacco, or in cigars.

Another advantage of the present invention is that it is possible to apply whatever artificial flavoring or casing to the tobacco that is desired.

It will furthermore be apparent as the description proceeds, that an important advantage of the present invention is that while the original fluid is being extracted from the tobacco leaves, that all bacteroids are removed and the leaves are thoroughly aired, thereby aging the leaves as desired.

Another important advantage of my process is that after removing the residue from the original fluid taken from the tobacco leaves, and then forcing the tobacco leaves to accept the fluid that is most beneficial, and that the smoker get the full value of good tobacco qualities, less the harmful effects; that I cause a more equal distribution of the tobacco aroma and good qualities, thereby insuring a more perfect and even blend, that is ordinarily given to the present-day methods of bulking and blending.

In carrying out the process in accordance with this invention, the tobacco leaves are taken from the hogheads before or after blending, or directly from the ordering machine and placed in a centrifugal machine having a foraminous rotatable bowl therein.

There is a closed jacket or casing about the bowl. During the rotation of the bowl, a moist steam is directed from suitable jets or nozzles into the tobacco, preferably from a position above the bowl. The temperature in the jacket runs from 140° F. to 215° F., and the pressure of the incoming steam should be such as to thoroughly penetrate

the mass of tobacco considering, of course, the texture body and color of the tobacco.

The centrifugal bowl is revolved so as to throw off from the tobacco, the excess condensed liquid that, due to the centrifugal force, has penetrated deeply into the structure of the leaves and removed the excess albuminoids, glycerides, fatty bodies, potash, acrids, pungent irritants, salts, silica, soda, manganese, magnesia and other like substances, which on combustion gives the harmful effects.

The fluid extract also contains gums, mineral and organic matter which imparts to the tobacco the flavor, the aroma, and other desirable qualities of the tobacco.

The liquid extract is then conveyed to a separate, aluminum receptacle where heat is applied, so that the temperature of the extract in the receptacle during the extraction by the centrifuge ranges from 212° F. to 350° F. At this temperature, the nicotine will pass off as a gas or vapor, and it will be found that there is a brownish green scum or froth formed on the top of the extract, in the receptacle, which contains the above enumerated harmful ingredients, and this scum is decanted or otherwise removed from the receptacle through an overflow pipe.

When the application of the wet steam terminates the heat in the aluminum receptacle is removed, whereupon when the liquid ceases boiling, there will be formed the scum on the top, a sediment on the bottom, and an intermediate strata of the extract, the latter of which is to be used again, and hereinafter will be called the intermediate extract. The sediment and scum is discarded from the receptacle and the intermediate extract is used over again in a manner to be presently described.

The moist or wet steam application in the centrifugal machine requires a period of time from one to three minutes. After all the extract has been drained from the centrifugal machine, then there is an application of dry steam to the tobacco leaves in the centrifugal bowls, the temperature of the dry steam ranging from 160° F. to 300° F., and for a period of from three to seven minutes.

The application of the dry steam has the effect to remove excess moisture, but leaves the tobacco leaves in a soft pliable condition with the pores therein open for receiving the intermediate extracts.

At the same time the drying steam application anchors the gum and color remaining in the tobacco leaves after the first extraction is complete.

The dry steam is then cut off, and while the tobacco leaves are still in the centrifugal bowl, the artificial flavoring known to the

art as casing and the intermediate extract are added to the tobacco leaves.

The application may be made while the centrifugal bowl is at rest or in motion.

5 The tobacco being dry and very porous, absorbs a maximum amount of this casing and intermediate extracts.

After sufficient impregnation, the tobacco is removed from the centrifugal machine and placed on conveyors which may be of any conventional character. The conveyors operate at any desirable speed and while this tobacco is moving on the conveyors, it is subjected first to artificial infra red rays of light and consecutively subjected to screened artificial light rays. The exposure to the light rays only consumes the time necessary for the conveyors to pass by these light rays, because the nature of the rays, penetrate the tobacco and brings about a state of mellowness heretofore unobtainable under natural conditions.

The exposure of the tobacco to the infra red rays, causes the heating of the leaves instantaneously, which in turn liberates any noxious gases and at the same time causes thorough saturation of the casing and also the intermediate extract. The application of the screened light subsequent to the infra red ray light treatment, tempers the heat of the infra red rays and counteracts any ill effects resulting therefrom.

The infra red rays may be obtained from any conventional source of artificial light produced by electricity which is well known in the art. The screened light above mentioned is produced by interposing a layer or layers of quartz glass (silicon oxide) between an electric arc light and the tobacco leaves on the conveyor. The quartz glass filters the light rays and removes the yellow rays. It is also within the contemplation of the invention to reflect the screened light all about the tobacco on the conveyors.

After treatment with the light, the leaves are then ready to pass to the cutter storage boxes, preparatory to the cutting operation. After the cutting operation the invention contemplates a second treatment with the light rays above mentioned in the same sequence as the first application thereof and produces the same effects. The tobacco is thereafter ready to pass through the conventional drying machines, which places the tobacco in condition for another storage period prior to the further fabrication into plugs, cigarettes, smoking tobacco, or cigars.

It is to be understood that by describing in detail herein any particular form, arrangement or sequence of operation, that it is not intended to limit the invention beyond the terms of the several claims or the requirements of the prior art.

Having thus described my invention, what I claim as new is:

1. A process of treating tobacco comprising subjecting tobacco leaves to the action of water vapor, extracting liquid from said tobacco leaves, boiling the extracted liquid and permitting said liquid to separate into layers, and thereafter retreating tobacco leaves with an intermediate layer of the extracted liquid. 70

2. A process of treating tobacco comprising subjecting the tobacco leaves to the action of water vapor, extracting liquid from the tobacco leaves, boiling the extract and liquid and permitting said liquid to separate into layers, thereafter retreating tobacco leaves with the intermediate layer of the extracted liquid and subjecting the leaves to dry steam. 75 80

3. A process of treating tobacco comprising subjecting the tobacco leaves to the action of water vapor, extracting the liquid from the tobacco leaves, boiling the extracted liquid and permitting said liquid to separate into layers, thereafter retreating tobacco leaves with the intermediate layer of the extracted liquid, and thereafter subjecting the tobacco leaves to consecutive exposures to electrically produced infra red light rays. 85 90

4. A process of treating tobacco comprising subjecting tobacco leaves to heated water vapor, extracting the occluded water vapor by centrifugal force from the leaves, boiling the extracted liquid and thereafter permitting the liquid to separate into layers of different densities in the quiescent state and simultaneously applying dry steam to the treated leaves and introducing the intermediate layers of the extract and artificial flavoring to the leaves. 95 100

5. A process of treating tobacco comprising subjecting tobacco leaves to heated water vapor, extracting the occluded water vapor by centrifugal force from the leaves, boiling the extracted liquid and thereafter permitting the liquid to separate into layers of different densities in the quiescent state and simultaneously applying dry steam to the treated leaves and introducing the intermediate layers of the extract and artificial flavoring to the leaves, and thereafter subjecting the tobacco leaves to consecutive exposures to electrically produced infra red light rays and also light rays that have the yellow rays filtered therefrom. 105 110 115

In testimony whereof I affix my signature. 120
CLARENCE W. ANDREWS.

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