UNITED STATES PATENT OFFICE.

GEORGE HILLARD BENJAMIN, OF NEW YORK, N. Y.

METHOD OF DEHYDRATING AND CURING TOBACCO.

1,194,351. Specification of Letters Patent. Patented Aug. 15, 1916.

No Drawing. Application filed November 12, 1914. Serial No. 871,671.

To all whom it may concern:

Be it known that I, GEORGE HILLARD BENJAMIN, a citizen of the United States, residing at New York city, in the county and State of New York, have invented a new and Improved Method of Dehydrating and Curing Tobacco, of which the following is a specification.

My improved method has for its objects: first, to remove the major portion of the normally contained moisture and second, to develop the color and aromatic properties of the tobacco.

To carry my invention into effect, I proceed in the following manner: The tobacco leaves as taken from the fields, are suspended in any suitable dehydrating or curing apparatus and therein subjected to the action of large volumes of heated air of definite temperature and humidity, until a certain proportion of the normal water contents of the tobacco has been removed, or otherwise, until the tobacco shows a change of color; then to the action of large volumes of air of relatively higher temperature and lower humidity, until a further proportion of water has been removed; then withdrawing the tobacco from the dehydrating apparatus, packing and treating it in the usual manner to set up fermentation to effect curing.

In practice I prefer to subject the tobacco to the action of moving air currents of large volume, heated to approximately 75° Fahrenheit and having a humidity of approximately 85%. The action of the air currents should be maintained for anywhere from three to five days, depending somewhat upon the nature of the tobacco treated.

Tobacco, as is well known, varies as to the character of the leaf, that is, its texture, amount of water, nicotin, essential oils, acids, etc. With leaves of coarse texture (which, to use a trade term, sweat easily) the duration of the treatment will be somewhat less than will be the case with leaves of finer texture. The treatment as above described, should be continued until the leaves have a distinctly yellow color. After the treatment as above described has been continued for the required time, the temperature is raised to approximately 100° Fahrenheit, and the humidity lowered to between 70% and 75%, and the treatment continued until all of the original water contents of the tobacco is removed with the exception of approximately 20%, which amount is found to be that necessary to coact with the enzym present to set up the fermentation required in the curing of the tobacco, or otherwise, until the stems of the tobacco become brittle. The action of the air currents should be maintained for anywhere from three to five days, depending, as before stated, upon the nature of the tobacco treated.

It will be observed from the above description, that the method, so far as described, consists essentially in first subjecting the tobacco to a comparatively low temperature with high humidity, and then to a higher temperature with lower humidity. In practice it has been demonstrated that by using a low temperature with high humidity, the original extraction of moisture is slow, whereas in the subsequent treatment, by using a higher temperature with lower humidity, the extraction of the moisture is comparatively rapid.

In the treatment of various grades of tobacco, it is sometimes necessary to repeat the steps before the final extraction is completed. That is, the tobacco is first subjected to a low temperature with high humidity, then to a high temperature with low humidity; then to a low temperature with high humidity followed by a high temperature with low humidity.

In this application I have described the time of continuation of the temperatures and humidity as approximately three days for each treatment, but with different grades of tobacco the time may be shortened or lengthened. Further, the temperatures and humidity may be somewhat varied. In every case the temperatures should be such as not to produce coagulation of albumin in the tobacco plant, or any chemical change in the structure of the plant, or destroy the enzym present.

In my prior application, Serial No. 854,598, above mentioned, I have generally described the treatment of vegetable substances with air currents of various temperatures with various percentages of moisture, and have pointed out in such application that my intention was to produce exosmotic effects upon the material treated by the action of air currents of various degrees of temperature and moisture thereby effecting the extraction of the required percentage of moisture without in any wise altering the

chemical characteristics of the body acted on or effecting its physical structure.

Having thus described my invention, I claim:

1. The method of treating tobacco which consists in subjecting it for a sufficient time primarily to the action of air currents of low temperature and high humidity, continuing the treament until the tobacco becomes yellow, and then subjecting it for a sufficient time to the action of air currents of higher temperature and lower humidity.

2. The method of treating tobacco which consists in subjecting it for a sufficient time primarily to the action of air currents heated to approximately 75° Fahrenheit and having a humidity of 85%, continuing the action of the air currents for a definite time until the tobacco becomes yellow, and secondarily to the action of air currents having a temperature of 100° and a humidity of from 70% to 75%.

3. The method of treating tobacco which consists in subjecting it for a sufficient time to the action of successively applied moving bodies of air, one body having a temperature of 75° Fahrenheit and a humidity of 85%, and the other a temperature of 100° Fahrenheit and a humidity of between 70% and 75%.

4. The method of treating tobacco, which consists in first subjecting it to the action of air currents having a temperature of 75° Fahrenheit and a humidity of 85%, continuing the action for approximately three days, or until the tobacco shows a change of color, then subjecting it to the action of air currents having a temperature of 100° Fahrenheit and a humidity of from 70% to 75%, and continuing the temperature and humidity for approximately three days, or until the required amount of the original moisture content has been removed and the stems become brittle.

5. The method of treating tobacco, which consists in first subjecting it to the action of air currents having a temperature of 75° Fahrenheit, and a humidity of 85%, continuing the action for approximately three days, or until the tobacco shows a change of color, then subjecting it to the action of air currents having a temperature of 100° Fahrenheit and a humidity of from 70% to 75% and continuing the temperature and humidity for approximately three days, or until approximately 80% of the original moisture content has been removed, then removing the tobacco out of the action of the air currents, packing it, and setting up fermentation to effect final curing.

In testimony whereof, I affix my signature, in the presence of two witnesses.

GEORGE HILLARD BENJAMIN.

Witnesses:

HELEN E. KOELSCH,

LESTER BEARDSLEY.