

No. 730,032.

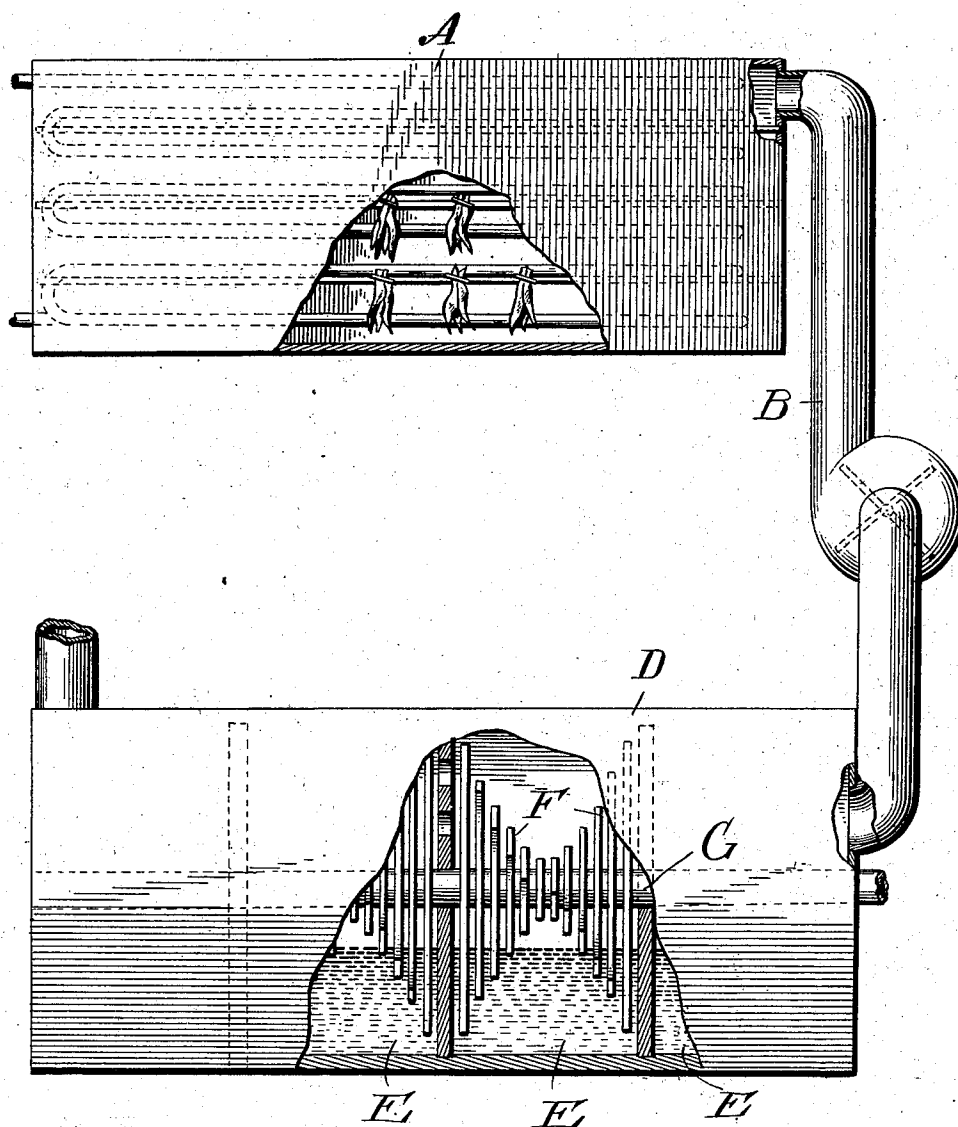
PATENTED JUNE 2, 1903.

G. H. LINDENBERGER.

PROCESS OF OBTAINING NICOTIN OR OTHER VOLATILE CONSTITUENTS
FROM TOBACCO VAPORS.

APPLICATION FILED JULY 27, 1901.

NO MODEL.



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PROCESS OF OBTAINING NICOTIN OR OTHER VOLATILE CONSTITUENTS FROM TOBACCO VAPORS.

SPECIFICATION forming part of Letters Patent No. 730,032, dated June 2, 1903.

Application filed July 27, 1901. Serial No. 69,948. (No specimens.)

To all whom it may concern:

Be it known that I, GEORGE H. LINDENBERGER, of Louisville, in the county of Jefferson and State of Kentucky, have invented
5 certain new and useful Improvements in Processes of Obtaining Nicotin or other Volatile Constituents from Tobacco-Vapors; and I hereby declare that the following is a full, clear, and exact description thereof, reference
10 being had to the accompanying drawing, which forms part of this specification.

The object of this invention is to recover the valuable volatile constituents of tobacco which are carried in the vapors or gases
15 evolved in the ordinary processes of artificially drying, redrying, or reordering tobacco or tobacco stems or stalks, and which vapors have heretofore been considered worthless and permitted to waste; and it consists in the novel
20 method of treating these vapors to recover these valuable volatile products, as herein-after described and claimed.

By my improved process the nicotin, ammonia, pyridin, and other volatile constituents of tobacco and their salts, derivatives,
25 and compounds contained in the vapors or gases evolved from tobacco or tobacco-stems or tobacco-stalks in the artificial drying thereof are removed therefrom, and to do
30 this these vapors are conducted from the drying apparatus to a suitable chamber, wherein they are subjected to the action of a retaining agent or medium, which will act as a precipitant or absorbent of the valuable products in
35 the vapors or gases, and thereafter said retaining agent or medium may be treated in any well-known way to separate the nicotin, ammonia, pyridin, &c., therefrom.

The accompanying drawing illustrates diagrammatically an apparatus which may be
40 used in carrying out the process; but I do not confine myself to any particular form or construction thereof, as that may and will be varied to suit the plants of the parties who desire
45 to use the process.

In the drawing, A designates a drier of any suitable kind in which the tobacco stems or stalks may be artificially dried, or redried,
50 or reordered. In the process of drying the vapors or gases evolved from the tobacco are

enriched by the volatile constituents of the tobacco or tobacco stems or stalks, such as nicotin, pyridin, ammonia, &c. These vapors, however, have heretofore been permitted to waste; but in my invention these rich vapors
55 are withdrawn from the drier A through pipe B into a chamber D, which may be of any suitable construction (the ordinary apparatus known as a "gas-scrubber," if made of suitable material, can be usefully employed) and
60 in which the vapors are subjected to the action of the solvent or medium. Preferably this chamber D is divided into compartments E, in each of which is placed a suitable retaining agent or medium having an affinity for the
65 volatile constituents of tobacco contained or carried in the vapors. This medium may be in powdered, granular, or liquid form. I have found a sulfuric-acid solution to act efficiently; but other solutions can be used, according to
70 the richness of the vapors and the particular element or elements it is most desired to recover therefrom. The chamber D may be provided with wings or blades F on a rotary shaft G, by which a thorough and intimate contact
75 of the vapors and the medium is insured, it being desirable to bring all the vapor thoroughly in contact with the solvent in the chamber D, and these blades as they revolve dip into the medium and after becoming wet
80 therewith continue to revolve and come into contact with the vapors, causing the medium to rapidly take up and retain the nicotin, ammonia, and pyridin, &c., in the vapors,
85 while the purified watery portions of the vapor may be permitted to escape into the atmosphere or may be condensed, as preferred.

If desired, different retaining agents or mediums may be placed in the different compartments E—for example, a medium having
90 an affinity for nicotin in one compartment, a medium having an affinity for some other volatile constituent of tobacco in another, and so on. In this way it may be possible to measurably separate different volatile elements of
95 tobacco in the process of precipitating or removing same from the vapor.

In some cases the vapors might be subjected to the action of chemicals or gases prior to being admitted into chamber D to reduce the
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temperature of the vapors or increase their density or facilitate the subsequent cleansing of the vapors and the precipitation of the volatile constituents of tobacco carried off
 5 with the vapors when the latter are introduced into chamber D, and such step I consider as included within my invention.

By the use of the words "retaining agent" I intend to cover any form or kind of medium
 10 or material which can be usefully employed to recover the volatile constituents of tobacco from the vapors.

By this method of treating the heretofore waste vapors or gases evolved during or obtained as a result of any of the artificial processes of drying or curing or redrying or reordering tobacco, tobacco stems or stalks, &c., I obtain from such vapors nicotin, ammonia, pyridin, &c., and salts and derivatives or compounds thereof, whereas heretofore such vapors have been valueless and have been wasted for want of some economical and efficient process of recovering the nicotin, ammonia, and other valuable volatile constituents of tobacco therefrom.
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Having thus described my invention, what I therefore claim as new, and desire to secure by Letters Patent thereon, is—

1. The herein-described process of treating
 30 the heretofore waste vapors evolved in the ordinary processes of artificially drying, redrying or reordering tobacco, tobacco-stems, or tobacco-stalks, consisting in subjecting such waste vapors to the action of a suitable retaining agent having an affinity for nicotin, pyridin, ammonia, or other valuable volatilized constituents of tobacco, contained in such vapors, by which such valuable constituents are withdrawn and separated from the vapors.
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2. The herein-described process of treating heretofore waste vapors evolved in the ordi-

nary processes of artificially drying, redrying or reordering tobacco, tobacco-stems, or tobacco-stalks, consisting in passing such vapors through a chamber wherein the vapors are brought into intimate contact with a suitable retaining agent by which the nicotin, pyridin, ammonia and other valuable volatilized constituents of tobacco contained in or carried by such vapors, are taken up or separated from the watery portions of the vapors, allowing the watery portions of the vapors to escape from the chamber, and subsequently separating the recovered valuable constituents from the retaining agent, substantially as described.
 45 50 55

3. The herein-described process of treating heretofore waste vapors derived in the processes of artificially drying tobacco, tobacco-stems, or tobacco-stalks, consisting in subjecting the vapors after they leave the drier to the action of a suitable chemical which will facilitate the subsequent separation of the valuable constituents of tobacco carried in the vapors from the watery portion thereof, subsequently passing the vapors through a chamber containing a retaining agent, and bringing such vapors into intimate contact with such retaining agent by which the valuable constituents of tobacco in such vapors, such as nicotin, pyridin and ammonia, for which the retaining agent has a chemical affinity are separated from the watery portions of the vapors, and conducting the watery portions of the vapors from said chamber, substantially as described.
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In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GEORGE H. LINDENBERGER.

In presence of—

ARTHUR E. DOWELL,
 JAMES R. MANSFIELD.