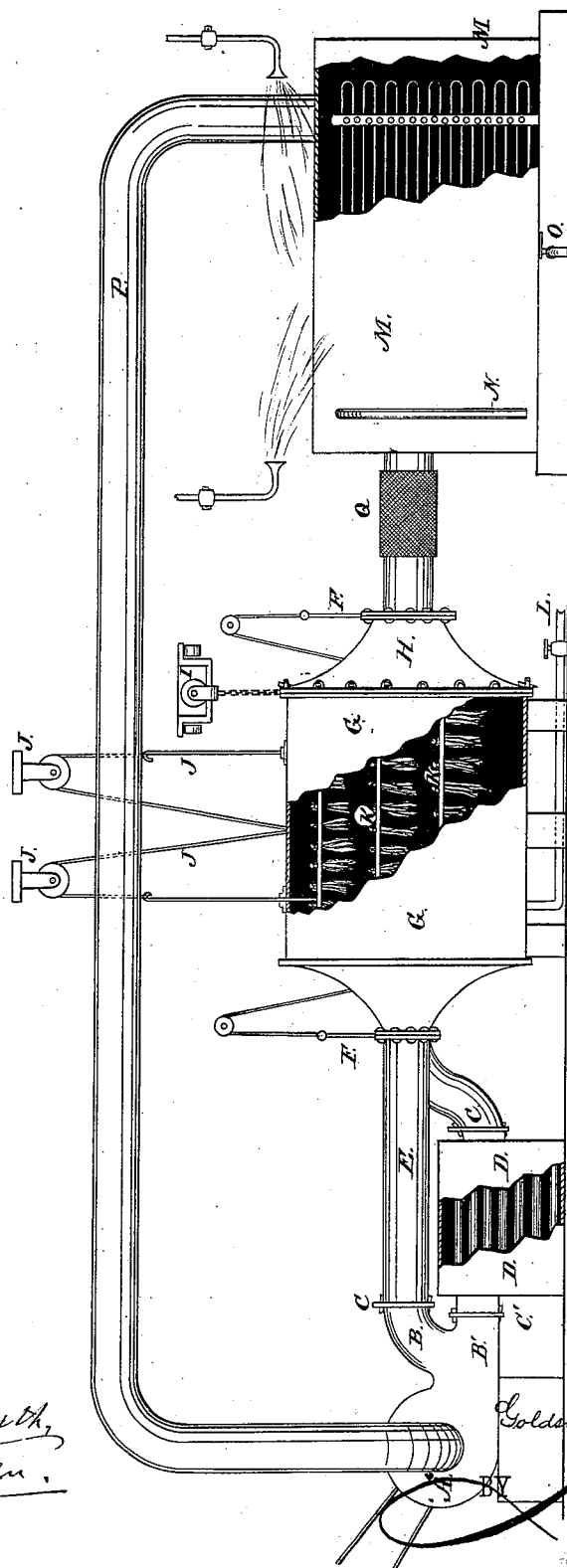


G. ROBINSON.  
Process and Apparatus for Treating Tobacco.  
No. 230,061.                      Patented July 13, 1880.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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LOUISVILLE LEAF TOBACCO COMPANY, OF SAME PLACE.

## PROCESS AND APPARATUS FOR TREATING TOBACCO.

SPECIFICATION forming part of Letters Patent No. 230,061, dated July 13, 1880.

Application filed February 24, 1880.

*To all whom it may concern:*

Be it known that I, GOLDSBOROUGH ROBINSON, of Louisville, in the county of Jefferson and State of Kentucky, have invented an Improvement in Processes and Apparatus for Treating Tobacco; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which the figure is a side elevation with parts of the several receptacles broken away.

My invention relates to a novel process and apparatus designed especially for drying leaf-tobacco after saturation with alcohol for improving its color and quality, but applicable generally to the recovery of any volatile liquid which has been used in the treatment of another substance to which it adheres.

In order that the details of this invention may be better understood, I will describe the process as applied in connection with my process for improving the color and quality of leaf-tobacco, patented March 9, 1880, No. 225,422.

In this process I saturate the tobacco with alcohol at an elevated temperature, and then dry it by a blast of air, whereby the color of the dark leaf is raised to a bright hue and its market value and quality enhanced. In using this process, however, the volatile character of alcohol, augmented by the elevation in temperature, requires some special process to save or recover the alcohol and render the process economical.

To this end my process consists in evaporating the alcohol or other volatile liquid from the tobacco (or other substances treated) by a blast of air, condensing the volatile vapors by a reduced temperature, and returning the same body of air through the evaporating-chamber again, whereby the same body of air is made to carry off the alcohol from the tobacco, and after depositing its burden of the volatile liquid is used over and over again without allowing any appreciable amount of alcohol to escape into the open air.

In carrying out my process I employ an apparatus similar to that shown in the drawing, in which A represents the fan or blower which propels the air-current.

B B' are outlet-pipes from the fan, through either of which the blast may be directed at will by means of the blast-gates C C'.

E is a continuation of one of the discharge-pipes from the blower, which is used when a cold blast is desired, and D is a steam-coil heater, through which the air-blast is directed when a hot blast is required.

F F' are other blast-gates with cords and pulleys for raising the same.

G is the dipping and drying chamber, in the bottom of which is placed the alcohol.

H is a hanging door to the dipping-chamber, fastened by keys and staples.

I is the rigging for suspending the door, consisting of a set of pulleys and a track for pulling the door out and running it to one side.

K K are the hanging racks carrying the bunches of tobacco, and flexibly connected by chains or otherwise, so that they can be lowered into the alcohol.

J are rods passing through stuffing-boxes in the case of the dipping-chamber, and connecting to the racks inside the chamber and to cords passing over pulleys outside said chamber, whereby the racks may be raised or lowered.

L is a supply or waste pipe for the dipping-chamber, for admitting alcohol to or drawing it off from the dipping-chamber.

M is the condensing-chamber, containing a coil of pipes through which cold water is circulated, and upon the outside of which chamber cold water is also sprayed.

Q is a flexible connection between the dipping-chamber and condenser, which permits the door of the dipping-chamber to be removed without breaking connection with the condenser.

N is the discharge or overflow for the water from the condensing-coil.

O is the pipe for drawing off the condensed alcohol from the interior of the case M.

P is a return-pipe, through which the air, after being relieved of its alcoholic vapors, is returned to the blower and again sent through the dipping and drying chamber.

In the manipulation of tobacco the leaf is placed on the racks in the bottom of the steam-tight chamber G, and the heated dilute alcohol is then run into this chamber through pipe

L until the leaf to be acted on is covered. The alcohol is then drawn off and the racks on which the leaf is hung are raised. The chamber now being full of hanging tobacco  
5 dripping wet with alcohol, a blast-gate at each end is opened and a strong draft of air is forced through the chamber by means of a fan or blower. On leaving the chamber this draft of air, bearing with it the vapor or evaporation of  
10 the alcohol, is carried by pipes to the condenser, which I preferably have constructed of galvanized iron. This chamber is large enough to allow the draft to pass through it at a moderate speed, and as soon as the warm draft of  
15 air strikes the cooler temperature it begins to deposit its load of alcohol, which drips from the top, sides, and pipes to the bottom of the chamber, where it is carried off by suitable drainage to a pipe running to a suitable receptacle prepared for it. At the farther end  
20 of the chamber the air, having lost most of its contained alcohol, passes out and is carried through the return-pipe to the fan, whence it is again forced through the dipping-chamber.  
25 This circulation is kept up until the alcohol is all evaporated and condensed. Some portion of the alcohol will, however, remain in the air of the chambers and pipes, and at the close of each day's work a jet of steam should be  
30 injected into the circulation, which will force the deposit of the remaining alcohol in a very dilute form. The alcohol drawn off from the dipping-chamber after repeated use becomes foul, and is then recovered by the ordinary  
35 process of distillation.

I have described the form of condenser which I have found most useful, but do not wish to confine myself to this specific construction, as I have obtained good results by passing the air-current through large pipes  
40 immersed in cold water with suitable traps to convey away the condensation.

Theoretically, the pipes and chambers being steam-tight, there should be no loss whatever in using alcohol by this process, but practically there is some slight waste owing to the impossibility of making any apparatus absolutely air-tight.

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

1. The process of economically drying tobacco or other substance after saturation with alcohol or other volatile liquid, which consists in evaporating the alcohol or volatile liquid  
55 by a blast of air, condensing the volatile vapors by a reduced temperature, and returning the same body of air through the evaporating or drying chamber again, substantially as described, and for the purpose set forth.

2. The apparatus herein described, consisting of a blower, a dipping and drying chamber, a condenser, and a return-pipe connecting the condenser with the blower for the return of the same body of air, all combined and arranged substantially as and for the purpose  
65 described.

GOLDSBOROUGH ROBINSON.

Witnesses:

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