No. 672,806. Patented Apr. 23, 1901.

# J. K. PROCTOR.

## APPARATUS FOR TREATING TOBACCO.

(Application filed June 28, 1899.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

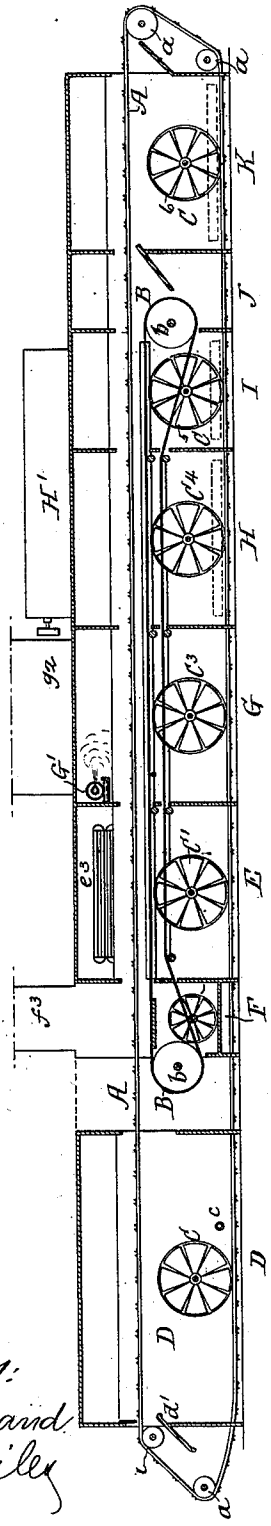


Fig. 10.

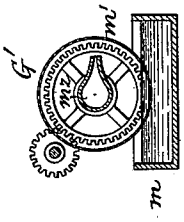


Fig. 12.

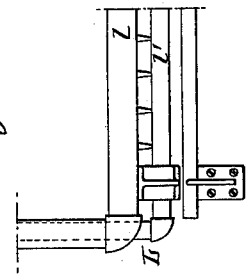
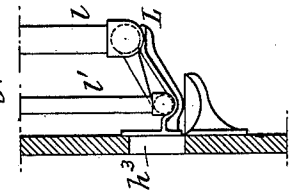


Fig. 11.



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No. 672,806. Patented Apr. 23, 1901.

# J. K. PROCTOR.

## APPARATUS FOR TREATING TOBACCO.

(Application filed June 28, 1899.)

(No Model.) 3 Sheets—Sheet 2.

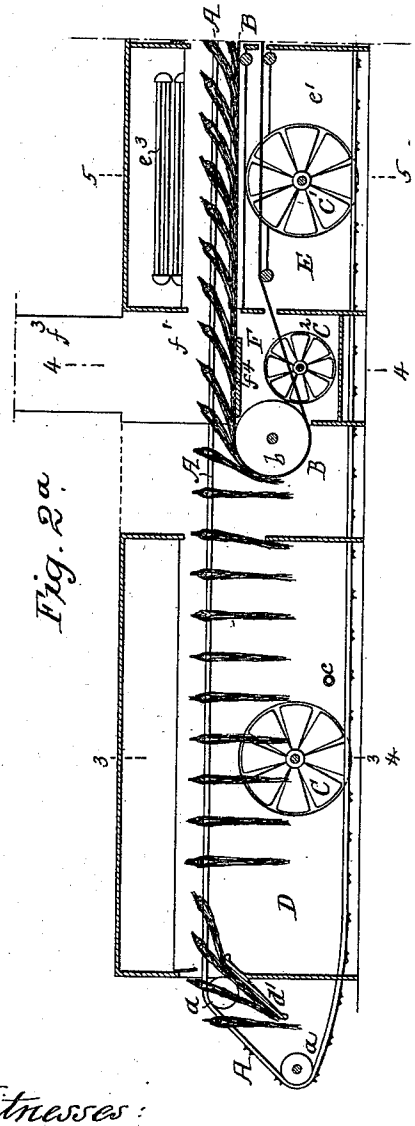


Fig. 2a.

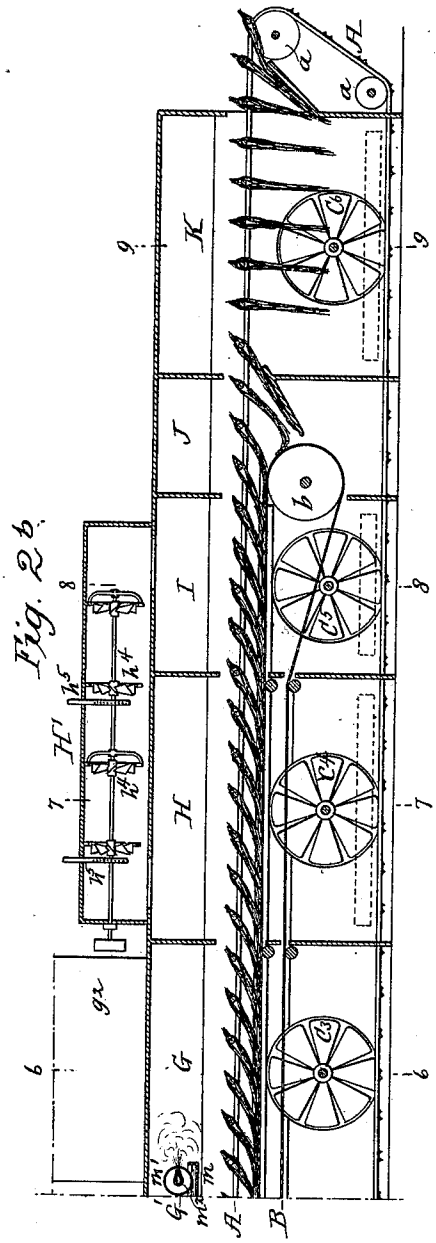


Fig. 2b.

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J. K. PROCTOR.

APPARATUS FOR TREATING TOBACCO.

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(No Model.) 3 Sheets—Sheet 3.

Fig. 3.

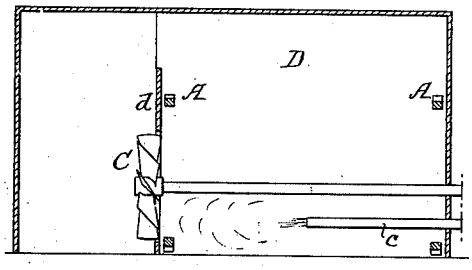



Fig. 4.

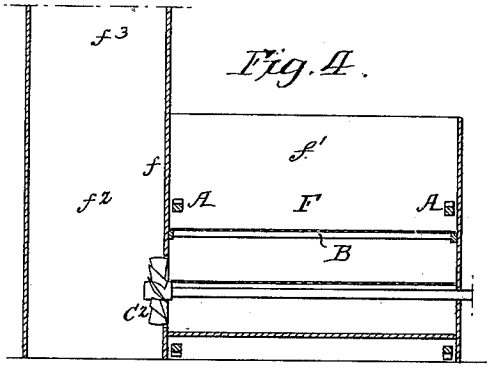



Fig. 5.

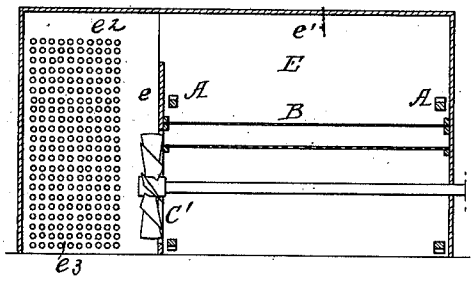



Fig. 6.

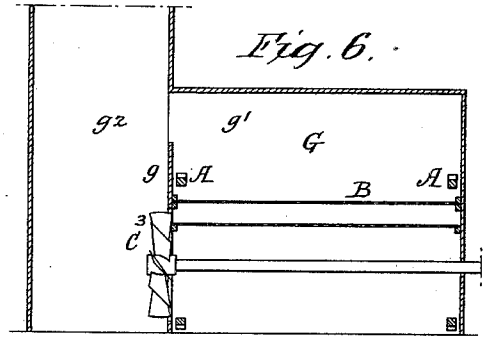



Fig. 7.

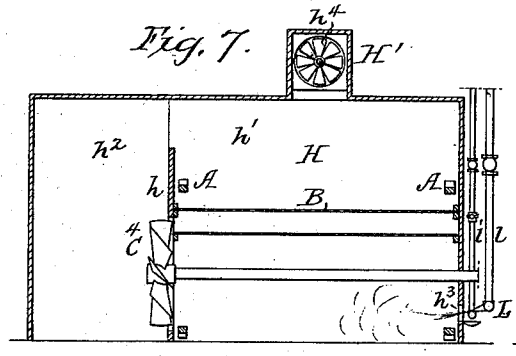



Fig. 8.

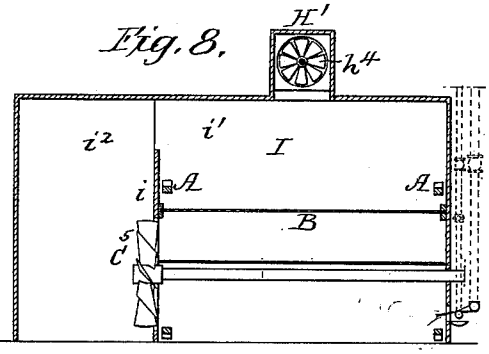
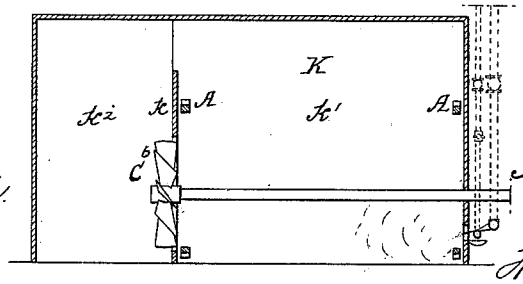



Fig. 9.




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# UNITED STATES PATENT OFFICE.

JOSIAH K. PROCTOR, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE PHILADELPHIA TEXTILE MACHINERY COMPANY, OF SAME PLACE.

## APPARATUS FOR TREATING TOBACCO.

SPECIFICATION forming part of Letters Patent No. 672,806, dated April 23, 1901.

Application filed June 28, 1899. Serial No. 722,161. (No model.)

*To all whom it may concern:*

Be it known that I, JOSIAH K. PROCTOR, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Apparatus for Treating Tobacco, of which the following is a specification.

The object of my invention is to treat tobacco that is in bundles by sweating or softening the tobacco while it is suspended on sticks, then thoroughly drying it while it is laid out on a belt, then ordering it while it is in the same condition, and preferably passing it through the final ordering process while suspended.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of my improved machine for treating tobacco. Figs. $2^a$ and $2^b$ are longitudinal sectional views, drawn to a larger scale, showing the tobacco on the carriers or belts. Fig. 3 is a sectional view on the line 3 3, Fig. $2^a$. Fig. 4 is a sectional view on the line 4 4, Fig. $2^a$. Fig. 5 is a sectional view on the line 5 5, Fig. $2^a$. Fig. 6 is a sectional view on the line 6 6, Fig. $2^b$. Fig. 7 is a sectional view on the line 7 7, Fig. $2^b$. Fig. 8 is a sectional view on the line 8 8, Fig. $2^b$. Fig. 9 is a sectional view on the line 9 9, Fig. $2^b$. Fig. 10 is a view of the spraying device used in the cooling-compartment. Figs. 11 and 12 are views of the spraying device used in the ordering compartment or compartments.

In describing my apparatus I have shown a single structure having the several compartments. The present structure is formed of a wooden framework inclosed with wooden tops and sides; but it will be understood that this construction may be varied according to the type of machine used.

Referring now to Fig. 1, A A are two endless chains which extend entirely through the case in the present instance and pass around sprocket-wheels *a* at each end of the machine, and these chains have sockets for the reception of the sticks on which the tobacco is suspended.

B is an endless perforated belt adapted to drums *b b*, and this belt in the present instance extends only through a portion of the machine. The endless perforated belt and the endless chains are driven, preferably, at the same speed, so that during a portion of the time that the tobacco is in the apparatus it is suspended from the sticks hanging loose, while at other times it is carried by the endless perforated belt and the chains, as fully illustrated in the drawings.

I will now describe the construction of each of the compartments through which the tobacco passes during the treatment.

D is what I term the "sweating" or "softening" compartment. In this compartment the tobacco as it is suspended from the sticks is thoroughly softened and the leaves are elongated and smoothed out. The compartment is divided into two sections by a partition *d*, Fig. 3, and in this partition is a fan C, which is driven in any suitable manner. The partition *d* does not extend to the top of the casing, and a passage is thus formed between the two sections of the compartment at the top, so that the air as it circulates by the action of the fan passes down through the tobacco in one section and up the other section and over the partition. In order to moisten and soften the tobacco in this compartment, I provide a steam-pipe *c*, through which steam escapes into the compartment, preferably at a point under the tobacco.

At the front opening in the case is an inclined plane *d'*, on which the tobacco rests as it passes into the compartment, so that the opening for the entrance of the tobacco can be reduced, thus preventing the escape of moisture from the compartment at the entrance.

E is the drying-compartment, having a partition *e*, so as to divide the compartment into two sections $e'$ $e^2$, as shown in Fig. 5, and in the section $e^2$ are heating-pipes $e^3$, and in the partition *e* is a fan C', which will create a current of air down through the tobacco, up through the steam-pipes, and over the partition *e* into the upper portion of the section $e'$.

Between the sweating-compartment D and the drying-compartment E is an outlet or waste compartment F, which receives waste air from the chambers D and E. The partition *f* in this compartment F extends to the full height of the compartment, forming two sections $f'$ $f^2$, Fig. 4, and the section $f^2$ communicates with a stack $f^3$. A table $f^4$ ex-

tends a certain distance under the belt B in this compartment, so that the current of air may be drawn more readily from the compartment E. In the partition is a fan $C^2$, which tends to draw the air from the under side of the belt B into the section $f^2$, so that it will escape to the stack. The fan is of such a size and so driven that it will collect the waste moist air from both the drying-compartment E and the sweating-compartment D when the said compartment D is adjacent to the outlet-compartment F.

It will be noticed in referring to the drawings that the drum $b$ for the belt B is mounted at the end of the sweating-compartment and extends through the sweating-compartment, drying-compartment, cooling-compartment, and two of the ordering-compartments in the present instance, and this belt is situated slightly below the upper run of the chains, so that the tobacco as it passes from the sweating-compartment is carried onto the perforated belt and the main body of tobacco is supported by this belt, so that the currents of air circulating through the several compartments will pass more readily through the tobacco than when suspended, as in the sweating-compartment.

Referring again to the drying-compartment, the air circulates down through the tobacco into the heating-section, then over the tobacco, thoroughly drying it before the tobacco enters the cooling-compartment, which is the next compartment in succession.

The cooling-compartment G is divided by a partition $g$ into two sections $g'$ $g^2$, and in the section $g'$ is a spraying device G', Fig. 10, for introducing water into the air in a fine spray. This spraying device consists in the present instance of a trough $m$, in which revolves a perforated cylinder $m'$, and in the center of the cylinder is a perforated air-pipe $m^2$, from which air is directed through the screen, and as the screen revolves it will take up a certain amount of water. This will be thrown off from the screen by the blast of air into a fine spray, which will readily combine with the air and thoroughly saturate the tobacco, cooling it and giving it sufficient dampness so that it will be in proper condition to enter the first ordering-compartment. In the partition $g$ is a circulating-fan $C^3$.

H is the first ordering-compartment, which is divided by a partition $h$ into two sections $h'$ $h^2$, and in the partition is a fan $C^4$ for creating a current of air through the compartment. In the side of the ordering-compartment is a slot $h^3$, and on the outside of the compartment is an atomizer L, to which are connected a steam-pipe $l$ and a water-pipe $l'$, as clearly shown in Figs. 11 and 12. The atomizer is so arranged in front of the slot in the side of the casing that the suction created by the jets will cause air to be drawn in from the outside and to pass in with the spray to cool the tobacco.

I is the second ordering-compartment, constructed in a manner similar to the compartment H and having a partition $i$, forming sections $i'$ $i^2$, and in this partition is a circulating-fan $C^5$. Connecting the first and second ordering-compartments is an agitating-chamber H', in which is a series of agitating-fans $h^4$. Some of these fans are right-hand fans and some left, so as to thoroughly mix the air as it passes through the chamber. The chamber H' communicates with the discharge end of the first ordering-compartment H and with the suction end of the second ordering-compartment I, so that the damp heated air from the first ordering-compartment will be carried to the second ordering-compartment. The temperature of the first compartment will thereby be reduced and the saturation of the air in the same will be increased. The damp heated air passing from the compartment H will pass through the chamber H' and there will be subjected to the action of the fans, as well as to one or more spraying devices $h^5$, so that it will be highly saturated and cooled as it enters the second ordering-compartment to maintain the circulation of cool and highly-saturated air in said compartment.

J is another waste-compartment, which may be constructed similar to the waste-compartment F, taking off the surplus air from the compartment I as well as the compartment K, which adjoins it. This compartment K is the third ordering-compartment and has a partition $k$, dividing it into two sections $k'$ $k^2$, and in the partition is a circulating-fan $C^6$.

The perforated belt terminates at the end of the second ordering-compartment; but the endless chains extend through the third ordering-compartment and beyond the end thereof, so that the tobacco as it leaves the second ordering-compartment and enters the third ordering-compartment passes from the endless belt and is again suspended from the sticks. While it is in this condition, the final ordering takes place, and the tobacco can then be readily removed from the chains by collecting the sticks as they are carried to the final ordering-compartment.

Each of the compartments may have the spraying devices described in connection with the first ordering-compartment, as shown by dotted lines, Figs. 8 and 9, or pans or saturated cloths may be used without departing from the main features of the invention. It will also be understood that the third ordering-compartment may be dispensed with in some instances and that the endless belt B may extend through the third ordering-compartment, if desired.

I claim as my invention—

1. The combination in a machine for treating tobacco, of a casing, a sweating-compartment and a drying-compartment, an endless perforated belt passing through the drying-compartment, an endless conveyer passing through both the sweating and drying com-

partments and adapted to support sticks on which the tobacco is suspended during its passage through the sweating-compartment, and arranged so that the tobacco will also be supported by the belt in passing through the drying-compartment, substantially as described.

2. The combination in a machine for treating tobacco, of the casing, a sweating-compartment, a drying-compartment, a cooling-compartment and one or more ordering-compartments in the order named, an endless perforated carrying-belt passing through the drying, cooling and ordering compartments, an endless conveyer passing through the entire machine and adapted to support sticks on which the tobacco is suspended, so that the tobacco as it passes through the sweating-compartment will be suspended from the sticks but will be supported by the belt in passing through the drying, cooling and ordering compartments, substantially as described.

3. The combination in a machine for treating tobacco, of a casing, a sweating-compartment, a drying-compartment, a cooling-compartment, and two ordering-compartments arranged in the order named, an endless perforated carrying-belt passing through the drying, cooling and one of the ordering compartments, an endless belt passing through the entire machine and adapted to support sticks on which the tobacco is suspended, so that the tobacco as it passes through the sweating-compartment and final ordering-compartment will be suspended from the sticks but will be supported by the belt in passing through the drying, cooling and first ordering compartments, substantially as described.

4. The combination in a machine having an ordering-compartment, of means for supporting material to be ordered, means for circulating air in said compartment, an opening in one of the walls of the compartment other than that at which material for treatment is introduced, an atomizer exterior to the compartment opposite the opening, said opening being so situated relatively to the material under treatment that the vapor from the atomizer will not be sprayed directly upon said material, substantially as described.

5. The combination of a moistening-chamber, means for traversing material through the chamber, a fan within the chamber for circulating air therein, a slot in one side of the casing, an atomizer exterior of the casing and in front of the slot, said atomizer having a series of nozzles, and pipes coupled to the atomizer whereby vapor will be sprayed through the slot and air will enter with the vapor by suction created by the jets and by the circulating-fan, substantially as described.

6. The combination in an ordering-chamber, of means for traversing material through the chamber, a fan for circulating air in such chamber, an atomizer exterior thereto, said atomizer having a series of nozzles outside of and arranged to discharge into the chamber, and a pipe coupled to the atomizer, whereby the fluid may be sprayed through the nozzles directly into the chamber, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSIAH K. PROCTOR.

Witnesses:
WILL. A. BARR,
JOS. H. KLEIN.