No. 655,513. Patented Aug. 7, 1900.

J. K. PROCTOR.

MACHINE FOR SOFTENING TOBACCO.

(Application filed July 2, 1897.)

(No Model.)

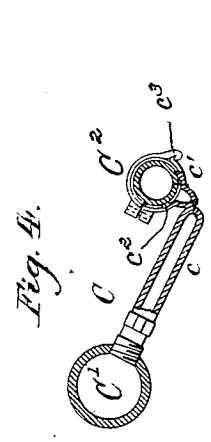


Fig. 4.

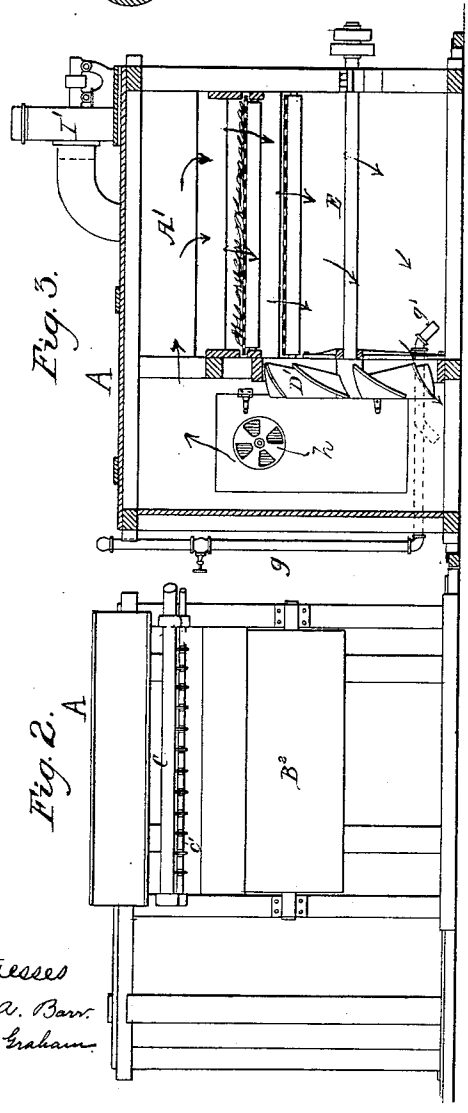


Fig. 3.

Fig. 2.

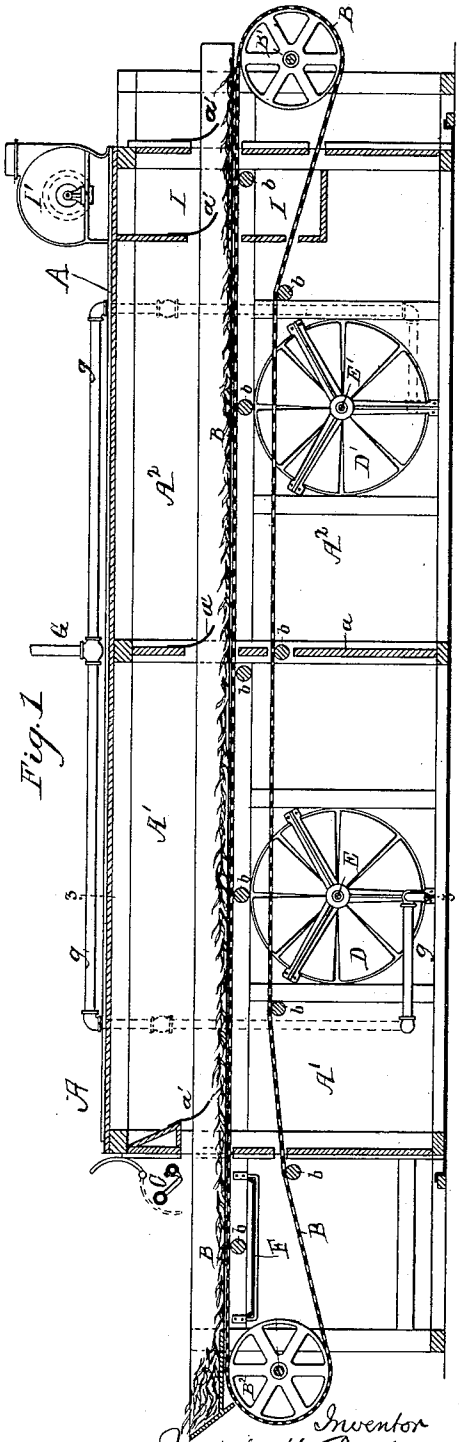


Fig. 1.

Witnesses
Will. a. Barr.
Frank La. Graham.

Inventor
Josiah K. Proctor
by his Attorneys
Howson & Howson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

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

MACHINE FOR SOFTENING TOBACCO.

SPECIFICATION forming part of Letters Patent No. 655,513, dated August 7, 1900.

Application filed July 2, 1897. Serial No. 643,239. (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 Machines for Softening Tobacco, of which the following is a specification.

The object of my invention is to construct a machine for softening tobacco. This object I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of my improved tobacco-softening machine. Fig. 2 is a view of the feed end of the machine. Fig. 3 is a sectional view on the line 3 3, Fig. 1; and Fig. 4 is a view of the atomizer.

My improved machine is especially adapted for treating tobacco which is shipped in bulk in the compressed form. The tobacco is removed from the package in lumps in which a number of the leaves adhere, and these leaves must be softened and separated, so as to be in condition to be utilized in the further manufacture of the finished product. The tobacco enters my improved machine in the crude condition and discharged therefrom with the leaves softened and in proper condition to be further manipulated. I may state that the tobacco when inserted in the machine is fragile and without being previously softened would crumble to pieces in the manipulation.

Referring now to the drawings, A is a moistening-chamber divided into two sections A' A^2 by a vertical partition a, having a valved passage h, and passing entirely through the moistening-chamber is an endless perforated belt B, adapted to drums B' and B^2, one drum being at the feed end of the machine and the other drum being at the delivery end. The belt is supported at intervals by rolls b. The belt in the present instance is made of wire-gauze of about one-quarter inch mesh, so as to allow for the moist air to circulate through the belt and the tobacco carried thereby.

In the section A' is a fan D, mounted on a driven shaft E. This fan is so driven as to circulate the air in the manner indicated by the arrows, Fig. 3—that is to say, to force or draw the air through the tobacco from the top—and in the compartment A^2 is a fan D', mounted on a driven shaft E'; but this fan is so driven that the direction of the current of air is reversed—that is, the air is forced or drawn up through the tobacco—so that the tobacco as it passes through the moistening-chamber is first acted upon by a current of air from the top and then by a current of air from the bottom, so as to thoroughly moisten and soften all the tobacco carried by the belt.

Directly in front of the chamber at the feed end of the machine is an atomizer or a series of atomizers C, the atomizers being arranged close together across the machine, as clearly shown in Fig. 2. C' is a steam-pipe, and C^2 is a water-pipe, arranged side by side. The atomizers each consist of a body having a steam-nozzle c, screwed into the steam-pipe C', and a water-nozzle c', clamped to the water-pipe C^2. The pipe is perforated in line with each nozzle, and there is a washer c^2 between the water-nozzle and the pipe C^2. The atomizer has a lip with which engages a hook on the cap c^3, which clamps the atomizer to the pipe by means of a screw or other fastening, as shown in Fig. 4. The atomizers are so set in respect to the belt that the water will be forced by the steam into the mass of tobacco carried by the belt, so that the water will penetrate the layers of tobacco and give it its initial moistening, and I arrange at the feed end of the machine a pan F, which is mounted directly under the carrying-run of the belt, so that when the tobacco is placed upon the belt the small particles will pass through the mesh of the wire and will be collected by the pan.

The above-described atomizer forms the subject of a separate application for patent filed July 3, 1900, Serial No. 22,429.

In order that the air which circulates in each of the compartments of the chamber will be kept in a moist condition, I spray steam into the compartment through pipes g, having their outlet at g', and each of these pipes g, having its outlet at g', is connected to the steam-supply pipe G.

At the rear end of the machine is a box I, through which the belt passes, and this box communicates with an exhaust-fan I', driven in any suitable manner. The purpose of this box is to prevent the escape of steam and

moisture into the room in which the machine is placed. The steam will collect in the box and will be removed therefrom by the exhaust-fan, which also takes a certain quantity of air from the outside through the space left for the passage of the belt and the tobacco, so that the room is kept perfectly free from moisture.

The side walls and the partitions are provided with flexible extensions a', so as to prevent the inrush of air to the several compartments.

I place in the partition between the two compartments of the chamber a valve h, which can be so regulated as to allow the excess of moist air in the first chamber to pass into the second chamber, which will prevent the exhaust of air from the first chamber out into the room through the feed end of the chamber. The fan-box at the discharge end of the machine will take up the excess of air in the second chamber.

In some instances air may be used instead of steam in the atomizer, and the steam-valves may be so regulated that steam will escape only from the pipe in the first compartment, and water may be sprayed into the compartments to dampen the air, depending altogether upon the character of the tobacco acted upon.

The operation of the machine is as follows: The tobacco in the condition stated above is placed on the endless belt at the feed end of the machine, the small particles of tobacco passing through the meshes of the belt onto the pan. The tobacco as it passes into the chamber receives the initial moistening by the spraying of the water and steam from the atomizer. Then as the tobacco continues its passage through the first compartment A' it is subjected to a current of moist air in one direction, which continually circulates in the compartment, and then as it passes through the second compartment it is subjected to a current of moist air traveling in the opposite direction, so that both the upper and lower layers of tobacco are thoroughly moistened and softened. The tobacco then passes through the steam-collecting box and out through the end of the machine, where it is collected by any suitable means, the tobacco as it passes from the machine being completely softened and in such a condition that the leaves can be readily separated without crumbling.

I claim as my invention—

1. The combination, in a tobacco-softening machine, of a closed chamber in which the tobacco is subjected to moisture, an endless carrying-belt extending through the chamber and forming at the feed end a table on which the tobacco is placed, and an atomizer located at the feed end of the machine above the table, and adapted to spray the tobacco immediately before it enters the closed moistening-chamber, substantially as described.

2. The combination in a machine for softening tobacco, of an endless belt on which the tobacco is placed, a moistening-chamber through which the belt passes, with one or more fans in the moistening-chamber, means for moistening the air in said chamber or chambers, and steam or water pipes located outside of said chamber and adapted to spray steam or water onto the tobacco before it enters the chamber, so that the tobacco as it travels through the chamber will be subjected to a current of moist air, substantially as described.

3. The combination of an endless perforated belt, a moistening-chamber through which the belt passes, with a collecting-pan underneath the carrying-run of the belt at the feed end of the machine by which the small particles that pass through the perforated belt are collected, and a spraying device located above the belt outside of the chamber, adapted to spray water upon the tobacco before it enters the chamber, substantially as described.

4. The combination in a tobacco-softening machine, of a closed moistening-chamber in which the tobacco is subjected to moisture, a collecting-box located at the rear of the machine, an exhaust-fan connected to the said box, and an endless carrying-belt for the tobacco passing through both the moistening-chamber and the collecting-box, whereby the steam, as it escapes from the moistening-chamber through the opening for the belt, will pass into the collecting-box and will be carried away and prevented from escaping into the room in which the machine is located, substantially as described.

5. The combination in a tobacco-softening machine, of the moistening-chamber, an endless belt, a series of atomizers located at the feed end, and outside, of the chamber, adapted to spray water onto the tobacco, before it enters the chamber, substantially as described.

6. In a tobacco-softening machine, the combination of an endless perforated belt, a moistening-chamber having two compartments therein, fans in each compartment driven in opposite directions, so as to create in one chamber a downcurrent, and in the other chamber an upcurrent, through the tobacco, a steam-pipe in one or both chambers, so that the circulating air will be moistened, a series of atomizers at the feed end of the machine adapted to moisten the tobacco as it enters the chamber, a valved passage between the two compartments, a collecting-box at the rear of the machine communicating with the last compartment, an exhaust-fan communicating with the box, the whole arranged substantially as and for the purpose set forth.

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.