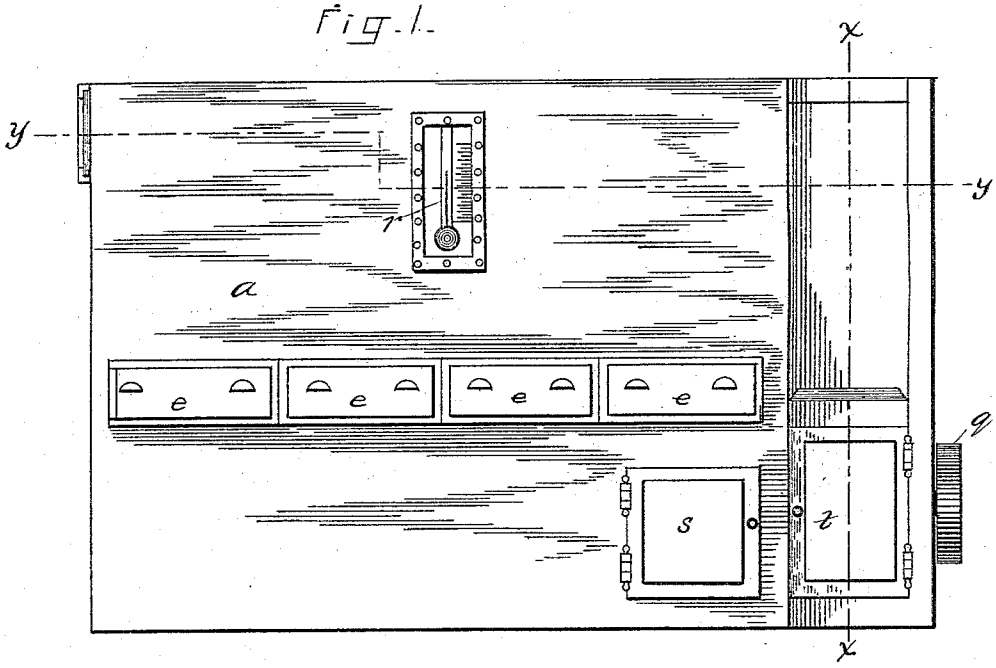
(No Model.) 2 Sheets—Sheet 1.

C. SCHREBLER.

APPARATUS FOR CARBONIZING THE VEGETABLE MATTER IN WOOL.

No. 380,598. Patented Apr. 3, 1888.

Fig. 1.



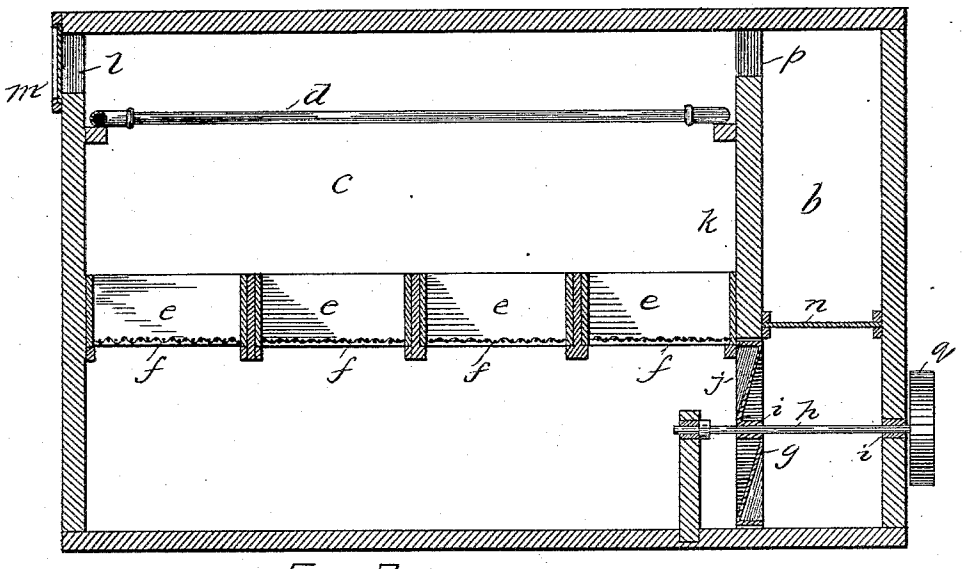


Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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APPARATUS FOR CARBONIZING THE VEGETABLE MATTER IN WOOL.

No. 380,598. Patented Apr. 3, 1888.

Fig. 3.

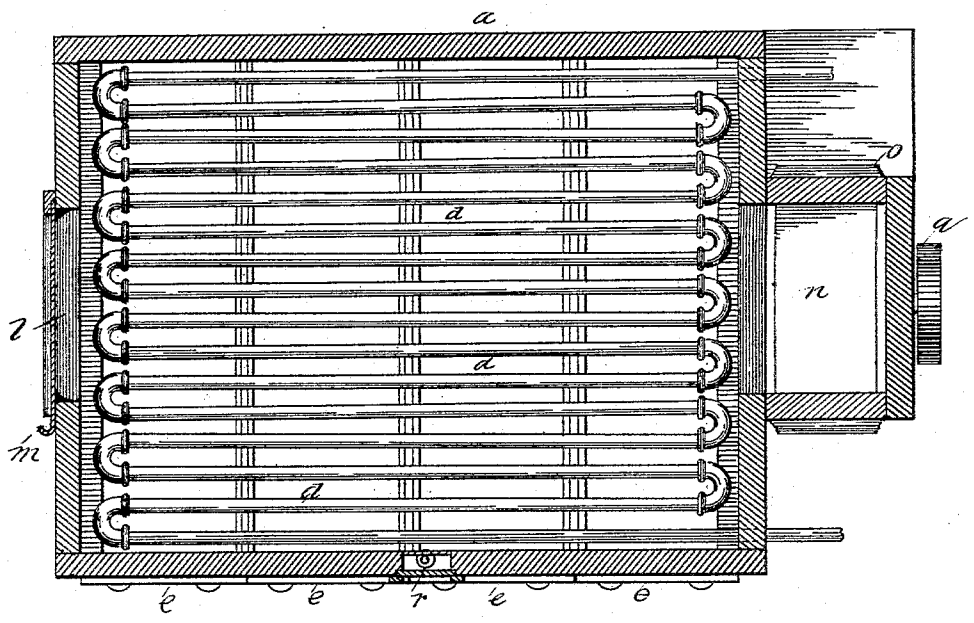
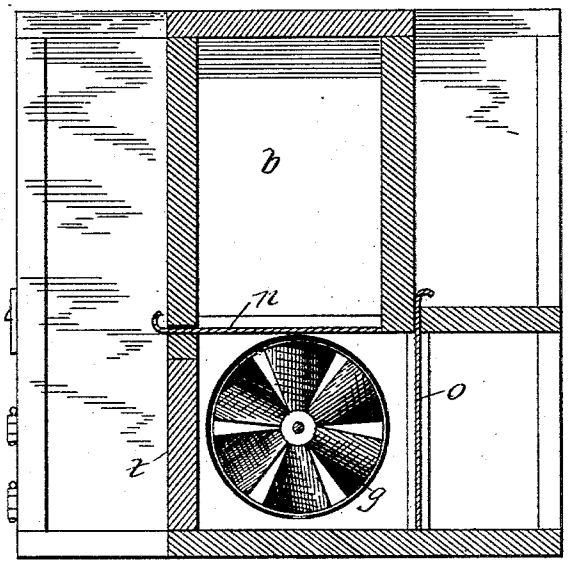


Fig. 4.



WITNESSES:
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UNITED STATES PATENT OFFICE.

CHARLES SCHREBLER, OF METHUEN, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE OWASCO COMPANY, OF PORTLAND, MAINE.

APPARATUS FOR CARBONIZING THE VEGETABLE MATTER IN WOOL.

SPECIFICATION forming part of Letters Patent No. 380,598, dated April 3, 1888.

Application filed July 18, 1887. Serial No. 244,570. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SCHREBLER, of Methuen, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Drying and Carbonizing Wool, of which the following is a specification.

My invention relates to those modes or processes of and means for treating wool for the removal of burrs and other vegetable substances, involving the use of chemicals, and in which the foreign vegetable matter is carbonized and subsequently granulated or pulverized and blown out of the wool.

It is the general purpose of my invention to provide improved means whereby the art of carbonizing vegetable matter in wool may be practiced, and particularly to provide means whereby the mode of procedure set forth in an application filed by me October 31, 1887, may be carried out.

My present invention comprises a machine adapted to effect first the thorough drying of the wool and subsequently the carbonization of the vegetable matter in the wool without disturbing the latter after it is placed in the machine, the two acts being successively practiced under different degrees of temperature.

I will first describe my improvements in connection with the drawings and the letters of reference marked thereon, forming a part of this specification, particularly pointing out the invention in the claims hereto appended.

Of the drawings, Figure 1 represents a front elevation of my improved drying and carbonizing machine. Fig. 2 represents a longitudinal sectional view thereof. Fig. 3 represents a horizontal section on the line *y y* of Fig. 1. Fig. 4 represents a vertical section on the line *x x* of Fig. 1.

Similar letters of reference designate similar parts wherever they occur.

In carrying out my invention I construct a closed casing, *a*, forming at one end thereof a chamber, *b*, extending from the top to the bottom. In the main chamber *c*, near the top thereof, I arrange a series or bed of pipes, *d*, adapted to have steam or hot air passed therethrough or circulated therein, which pipes are placed quite closely together, though not so that air may not pass between any two of them.

e e indicate drawers provided with foraminous bottoms *f*, which drawers are arranged below the pipes *d*, and are adapted to be drawn out in front of the casing to receive the wool to be treated and then slid into place in the machine.

g indicates a suction-fan supported on a rotary shaft, *h*, provided with suitable bearings, *i*, said fan being arranged in an aperture, *j*, made in the partition *k*, separating chamber *b* from main chamber *c* at a point below the drawers *e*.

l indicates a port or aperture made in the casing *a*, above pipes *d*, and adapted to be closed or opened by a slide or valve, *m*.

n is a slide or valve in chamber *b*, above fan *g*, adapted to be closed to cut off circulation of air in said chamber between the upper and lower portions thereof, or to be closed, and so permit free circulation of air therein.

o indicates a slide or valve in chamber *b*, preferably on the same horizontal plane as fan *g*, and below slide *m*, permitting the air in said chamber to be forced out therefrom, or by the closing of the slide to prevent such operation.

p represents a port or aperture in partition *k*, above pipes *d* and opposite port or aperture *l*, for a purpose to be presently explained.

Shaft *h* and its attached fan *g* may be rotated by any suitable means, a pulley, *q*, being in the present instance shown as employed for that purpose.

The wool to be treated, after being subjected to a chemical solution for the purpose of assisting to destroy the vegetable matter therein, is placed evenly in the withdrawn drawers *e*, which drawers are afterward slid into place in the machine. Steam or hot air being now admitted to pipes *d*, I close slide-valve *n*, open slide-valves *m* and *o*, and rotate suction-fan *g*, with the result of drawing the fresh cool air into the machine through port or aperture *l* and through the bed of heated pipes *d*, by which the air is heated to a temperature of, say, from 75° to 80° Fahrenheit, whence it is sucked or drawn through the wool by fan *g* and discharged through the port or aperture made by the raising of slide-valve *o*. This operation is kept up for, say, one hour and a half, to effect

a thorough drying of the wool, and to avoid the possibility of the sweating or "yellowing" of the material being treated. After the wool has been completely dried, as aforesaid, I close slide-valve *o*, open slide-valve *n*, and close valve *m* about three-quarters of the way, when suction-fan *g* is rotated with the effect of drawing the air in chamber *c* down through the bed of heated pipes *d* and through the wool and sending it up through chamber *b* and out and through port or aperture *p* into chamber *c*, to be again reheated on its passage through the bed of pipes *d*. In this way I can quickly run the air thus revolved in the machine up to a temperature of, say, from 175° to 180° Fahrenheit, which is sufficient to effect a thorough and complete carbonization of all vegetable matter in the wool, after it has been preliminarily treated, as aforesaid, in about one-half hour. It will be understood that this operation of revolving or circulating the heated air in the machine is kept up until the wool is discharged from the drawers *e*.

r indicates a thermometer placed within the casing behind a glass, to enable me to watch the temperature to which the air in the machine is heated in the carbonizing process, the degree of such heating being regulated by the position of slide-valve *m* in aperture *l*, which governs the amount of cool air let into the chamber *c*.

The wire-gauze or foraminous bottoms in drawers *e* and the uniform amount of material placed in the drawers, together with the fact that air is drawn through the entire body of wool, insures a uniform treatment of the mass and renders it unnecessary to stir or otherwise disturb the wool from the time it is placed in the machine until the vegetable matter therein is completely carbonized and it is ready to be removed and subjected to any process for crushing the burrs, &c., and blowing or otherwise "dusting" them out of the mass.

s represents a door by which access may be gained to the chamber *c*, and *t* a door for a like purpose in chamber *b*.

Although I have been particular to describe the form and arrangement of the several parts or elements of the invention as here shown, it is obvious that these may be varied without departing from the nature or spirit of the invention, and that some of the parts may be used without the presence of others.

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

1. In a wool drying and carbonizing machine, the combination, with the inclosing-casing and a support or supports for the wool, of a fan for creating a circulation of air in the casing, having its inlet and exhaust on different sides of the wool, a heater located on the side from which the air passes through the wool, an air-port and a valve for closing it between the fan and heater opposite the wool, an air-port and a valve for closing it on the side of the wool opposite the heater, and a valve for cutting off communication between the fan and heater, substantially as described.

2. A wool drying and carbonizing machine having air inlet and outlet ports, slides for opening and closing said ports, chambers *b c*, the partition between said chambers, port *p*, fan *g*, valve *n* in chamber *b*, a bed of pipes, *d*, and a series of drawers, *e*, having foraminous bottoms, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 14th day of July, A. D. 1887.

CHARLES SCHREBLER.

Witnesses:
ARTHUR W. CROSSLEY,
A. F. SMITH.