

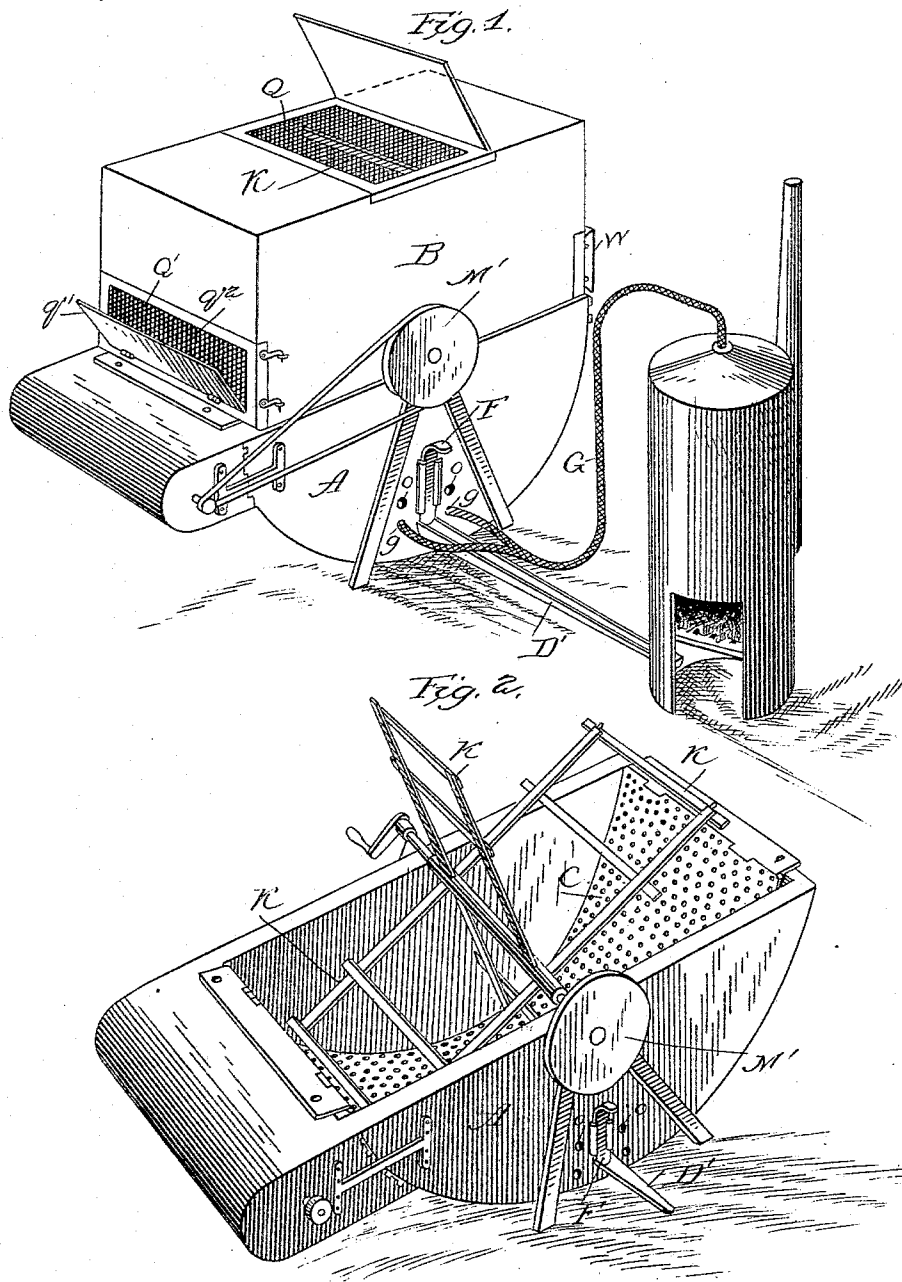
(No Model.)

2 Sheets—Sheet 1.

C. MORITZ.
FEATHER RENOVATOR.

No. 339,315.

Patented Apr. 6, 1886.



Attest:
Hallam Donaldson
F. L. Middleton

Inventor
Carl Moritz
by *Joyce & Spear*
Attys.

UNITED STATES PATENT OFFICE.

CARL MORITZ, OF DUBUQUE, IOWA.

FEATHER-RENOVATOR.

SPECIFICATION forming part of Letters Patent No. 339,315, dated April 6, 1886.

Application filed December 26, 1885. Serial No. 186,774. (No model.)

To all whom it may concern:

Be it known that I, CARL MORITZ, of Dubuque, in the county of Dubuque and State of Iowa, have invented a new and useful Improvement in Feather-Renovators; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improvement in feather-renovators in that class in which the feathers are agitated in a receptacle which is adapted to admit steam, and is provided with a steam-jacket. Some of the improvements are also adapted to be used without the steam appliances.

The object sought to be attained in my invention is the thorough and more rapid renovation of the feathers.

The invention consists, first, of improved devices for the introduction and escape of the steam and for directing it into the renovator-chamber or into the heating-jacket, whereby the feathers may be either moistened or dried.

It consists, secondly, in the combining of the blower with the agitating mechanism and chamber of the feather-duster.

It consists, thirdly, in an improved form of air passages and valves for regulating the movement of the air.

In the accompanying drawings, Figure 1 gives a perspective view of the feather-renovator, together with the boiler, furnace, and the connections. Fig. 2 is a perspective view of the renovator-body with the top removed. Fig. 3 is a section made across the shaft of the machine. Fig. 4 is a similar view showing the position of the perforated bottom when partially removed for cleaning. Fig. 5 shows a drawer for receiving the refuse and dirt.

In these drawings, A represents the lower part, and B the upper part, of the main renovator-chamber in which the feathers are placed during the treatment. The upper part is removable, and when removed leaves the apparatus, as shown in Fig. 2. In this chamber are agitator-arms K, fixed to the shaft having its bearings in the sides of the lower part of the chamber, and provided with a crank or suitable means whereby it may be

turned. The upper part of the chamber may be rectangular, as shown, and the lower part is made with a semicircular bottom and with plain double sides, continuous with the sides of the upper part. The bottom of the renovator-chamber is formed of woven wire or of punctured sheet metal, (marked C.) This is made removable, as hereinafter explained. Below this is another chamber or passage semi-annular in shape and corresponding to the curve of the bottom C. It is marked c, and is formed by the bottom C and a second bottom, t. This forms a steam or air chamber coterminous with the perforated bottom of the renovator-chamber, and connected on each side with chambers formed by double side walls. Steam is admitted into this chamber through holes o o, in which are inserted the branches g g of the steam-pipe G, leading from the boiler H. The steam so admitted may extend throughout the whole chamber, and, passing through every part of the bottom, is uniformly diffused through the renovator-chambers B A. Below this steam-chamber is another semi-annular closed chamber, T, formed by the third bottom, (marked 3.) This chamber is adapted to receive steam and to act as a heating-chamber to heat the air, which in a certain part of the process is driven into the renovator-chamber.

Below the chamber T is a third chamber, V, which is formed by the fourth or outer chamber, (marked 4.) This may be of metal, with the wood or other suitable covering for retaining the heat. The chamber V is open to the air at one end, as shown at 5, and at the other end it opens to the fan-chamber M. By this air may be drawn from the external atmosphere into the fan-chamber through an opening, R', and air so drawn in may be expelled from the fan-chamber through an opening, R², into the chamber c, and thence into the renovator-chamber through the perforated bottom C. The openings R' R² are provided with valves adapted to slide in grooves shown in Fig. 3, the valves themselves being shown in Fig. 4. Similar openings and valves are shown at i in the fan-chamber, whereby air may be drawn in directly to the fan-chamber without passing

through the chamber B. Holes S S are made in the steam-chamber T, so that the pipe may be shifted at will from the chamber c to T, or the reverse. A pipe, U, leads from the steam-chamber, carrying off the water of condensation. The fan is driven by a small pulley on its shaft, which is connected to the larger wheel, M', on the shaft of the agitating-arms. The renovator-chamber is provided with an opening, Q' with a closed cover, q', and a perforated or wire cover, q'', both removable. On the other side is another opening, Q'', provided with a closed cover and with perforated flanges W, to which the tick may be attached to receive the cleansed feathers from the chamber A B. There is another opening through which the feathers are introduced to the chamber marked Q, and provided with a closed cover, and it may also have a wire perforated cover. In the bottom is formed a trough, D, opening into the chamber c, and running transversely from the outside, into which a semicircular-shaped pan, D', may be inserted to receive the dust falling from the renovator-chamber. This may be closed by a sliding gate, F.

In order that the perforated chamber may be cleaned whenever occasion requires, it is provided with hinged edges, x', which, when the bottom is in its proper place, rest upon the edges of the lower fan-chamber. This may be unhooked and hooked again upon pins set in one of the cross-bars k. The opening at Q' allows the hinged edge to project through over the top of the fan-box. On the other side a similar hinged edge, x'', on the bottom C projects through the opening at Q'', and is turned down to rest upon the end of the chamber T, and is there secured removably.

It will be observed in Fig. 1 that the drawer D is prolonged outside of the case, and extends to the fire-box of the furnace under the boiler, so that thereby refuse is conveyed to the fire-box and there consumed.

In the operation of the machine, when the feathers are to be steamed or washed, steam is admitted to the chamber by the pipe which is arranged with its branches inserted into the holes O O, whereby it enters the chamber through the perforated bottom C, while the feathers are agitated in the renovator-chamber. While this is going on the openings R R' R'' and Q Q' Q'' are all closed. Steam rapidly and uniformly extends to all parts of the mass of feathers, and the operation requires in this machine only about five minutes. Steam is then permitted to escape by opening all the apertures, and the next step is to dry the feathers. This is accomplished by shifting the steam-pipes from openings O to S, which passes the steam into the steam-chamber T. This passes steam to all parts of the chamber, extending under and throughout the round bottom, and up as far as the axles on the sides between the double walls of these sides. Steam thus admitted furnishes

the heat to dry the feathers. In this operation the apertures Q, Q', and F are opened. The drying is afterward further assisted by the introduction and the continuation of the draft of air from the opening R into the chamber or passage V. The air becomes heated in its passage by contact with the thin metallic wall of the chamber T, and being drawn into the fan-chamber is expelled through the opening R and perforated bottom into the renovator-chamber. The steam-heat is thus utilized, and the feathers purified, dried, and vigo-rated. By this construction and utilization of the heat I am able to dry and purify the feathers in about fifteen minutes.

In order to cool the feathers preparatory to placing them in the tick, the apertures R R' are closed and Q Q' are opened. I also open the slide I, underneath the fan-chamber and the slide R'', and, running the fan, drive cold air into the chamber. It will be understood that the openings Q Q' are during this operation covered by screens. When the cleansing and drying are completed, the tick may be placed in position and attached at W, at the opening Q'', and the arms being revolved the feathers are driven into the tick. After the day's work is done the perforated bottom C may be hooked onto the cross-bar of one pair of arms and drawn up to the position shown in Fig. 4 and afterward returned to its place.

I regard it as an important feature that the machine is adapted to cool the feathers before they are placed in the tick, as it leaves them in better condition and less likely to mat.

I claim as my invention—

1. The feather-renovator consisting of a suitable case having bottom t, and steam or air chamber beneath said bottom, combined with a movable perforated bottom, C, curved to conform to the shape of the bottom of the renovator, and agitating-arms, substantially as described.

2. In combination with the renovator-chamber, the fan-chamber and fan, the air-passage from the air-chamber to the renovator-chamber, the steam-chamber T, and the air passage or chamber V, substantially as described.

3. In combination, the renovator-chamber, the bottom C, the steam-chamber T, the air-passage V, valves at R', R'', and i, and the fan and fan-chamber, all substantially as described.

4. In combination, the renovator-chamber having a suitable fan and passages for the air, a perforated movable bottom, C, chambers beneath the same for air and steam, suitable pipes connecting with said chambers, openings Q Q' Q'', and removable covers and screens therefor, substantially as described.

5. In combination with the renovator-chamber, the fan and air-passages leading from the fan to the renovator-chamber, steam-chamber,

and an air-passage contiguous to the steam-chamber leading to the fan-chamber, substantially as described.

5 6. In a feather-renovator, a removable perforated bottom, C, having hinged ends adapted to attach the bottom to its seat and to connect it to the revolving arms, substantially as described.

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

CARL MORITZ.

Witnesses:

HENRY MORITZ,
CHARLES C. McLAIN.