A. CARBONOW

FEATHER-RENOVATOR.

No. 175,418. Patented March 28, 1876.

Fig. 1.

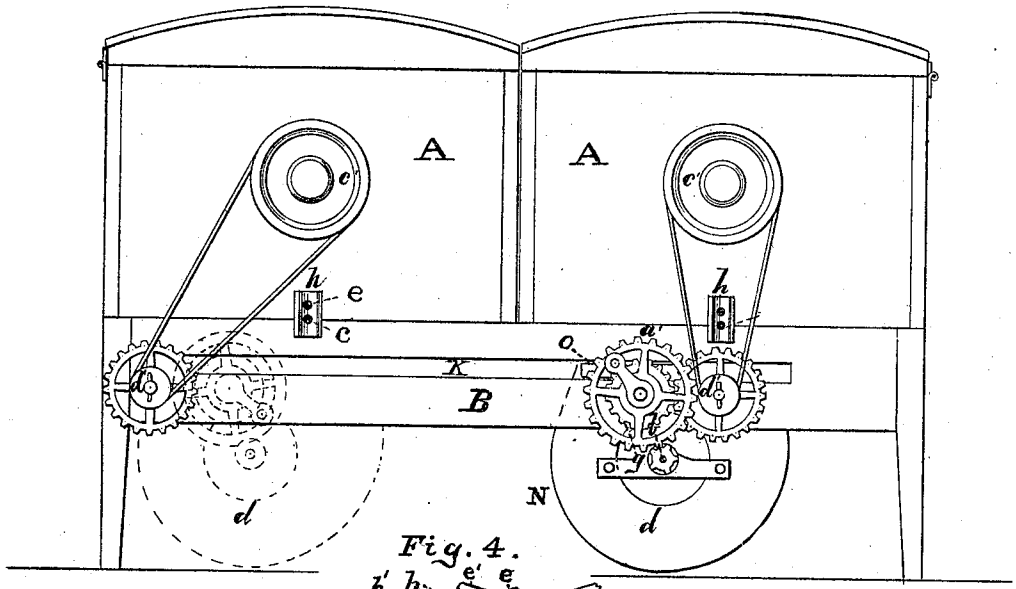


Fig. 4.

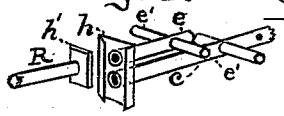


Fig. 2.

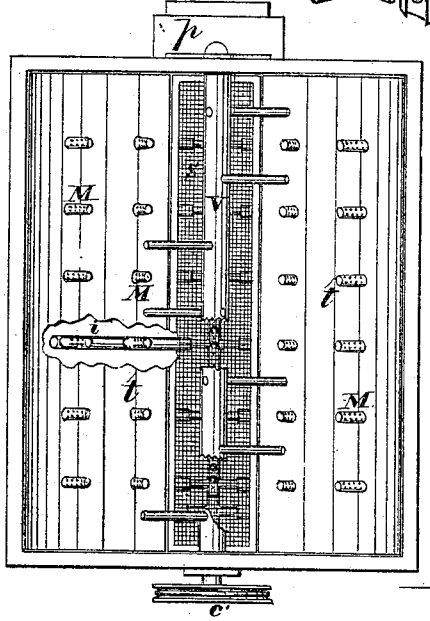
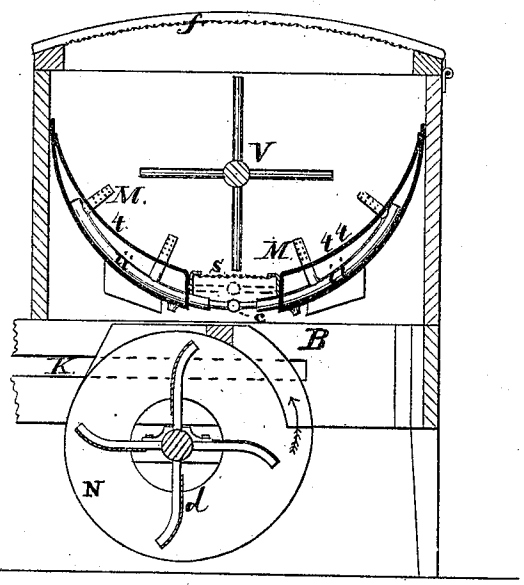


Fig. 3.



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ALEXANDER CARBONOW, OF POTSDAM, NEW YORK.

IMPROVEMENT IN FEATHER-RENOVATORS.

Specification forming part of Letters Patent No. **175,418**, dated March 28, 1876; application filed December 6, 1875.

To all whom it may concern:

Be it known that I, ALEXANDER CARBONOW, of the town of Potsdam, county of St. Lawrence and State of New York, have invented a certain new and Improved Feather-Renovator; and I hereby declare the following to be an exact and clear description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings which form a part of this specification.

In the said drawing, Figure 1 is a side view of my invention. Fig. 2 is a plan view of one of the boxes A, described herein, the cover being removed. Fig. 3 is a vertical transverse section of box and connections. Fig. 4 illustrates in perspective the cut-off or register valve and connections herein described.

The said improved feather-renovator is constructed with two or more boxes, designated by A, arranged laterally upon a frame, B, to which they may be hinged or removably secured. Each of said boxes A has a cover of wire-gauze, *f*, and a spout, *p*, the purpose of the latter being for discharging the feathers after renovation is effected. The said boxes are left open at the bottom, the feathers put in them resting on the steam-receivers *t* and the screen or wire cloth S, shown in Figs. 2 and 3, and forming together a receptacle for the feathers, conforming in shape to the movement of the stirrer V, as shown.

Within each box A are placed two steam-receivers *t* extending longitudinally from end to end, a suitable distance apart at the lower central line of the box and curving upward laterally to the sides thereof, as seen in Fig. 3. These receivers, when filled with steam, serve to radiate the heat in drying the feathers.

A perforated steam-pipe, *c*, passes into box A extending longitudinally along its center line at the bottom of the box, said pipe *c* having the branch conduits *i*, extending laterally therefrom and passing into the steam-receiver *t*, and partially through the same. The pipes M branching from the conduits *i*, pass up through the upper surfaces of the steam-receivers, and having their upward extremities perforated for the purpose as shown, discharge the steam into the feathers.

Below the screen S and near the pipe *c*, another pipe, *e*, passes into the box A and communicates with the receivers *t* by means of branch pipes e^1, the two pipes *c* and *e* being relatively arranged so as to have the passage of steam shifted from one to the other by means of the cut-off or register valve *h h'* through which the steam passes from the steam-conductor R.

The space between the receivers *t* is covered by the screen or wire cloth S which admits the steam from pipe *c*, or air from the fan *d*, to the feathers.

The adjustable scroll-fan *d* is suspended under the boxes A, and has a cleat, *o*, attached to its casing N at each end thereof, said cleats fitting loosely in slots K in the frame B, so that the fan and its casing may be moved along the frame and adjusted under either of the boxes A, as indicated in the drawing. Fixed to one of the cleats *o* is a shaft upon which revolves the driving-gear wheel *a'*, connecting with the pinion *b* on the shaft of the fan *d*, said wheel *a'* also imparting motion to the stirrer V by means of gears *g* and *l*, and pulleys *c'* and *d'*.

The fan *d* when revolved throws a strong current of air through the screen S upon the feathers, driving them upward and around within the box A, drying and cooling them, and preventing their packing down and making them light and lively. Said fan also prevents the steam from overheating the quill and oily particles of the feathers, leaving the same as flexible and perfect as when new.

The steam-receivers being curved in shape so as to partially surround the feathers, are well adapted to radiate heat to them in the process of drying.

The stirrer V, in each box A, aids in stirring the feathers, and is revolved by the pulley-wheels *c'* and *d'*, communicating by gearing with the driving-wheel *a'*, as shown.

The valve or cut-off *h h'* is used to change the passage of steam from the conductor R into the steam pipe *c*, or into the receivers *t* through the pipe *e*, the change being effected by raising or depressing the pipe R.

The screen S is arranged to allow the current of air from fan *d* to pass to the feathers, and also to prevent the escape of the feathers. The cover *f* of wire cloth prevents the escape of feathers and allows the dust and foul gases from them to pass out.

In operation, the steam-conductor R being coupled at valve *h h'* to perforated pipe *c*, the steam passes through said pipe and conduits *i* and branches M into the feather receptacle, the steam also escaping from the perforated pipe passes up through screen S to the feathers, the stirrer V being operated meantime. To stop the passage of steam to the feathers and fill the receivers for purpose of heating, the conductor R is raised so as to send the steam through the pipe *e* to the receivers, the scroll-fan *d* sending a current of air through the feathers.

I claim as my invention—

1. The curved steam-receivers *t*, in box A, in combination with pipe *e*, and valve *h h'*, as and for the purposes described.

2. The perforated pipe *c*, with its connecting branches in combination with pipe *e*, communicating with steam-receivers, valve *h h'*, and steam-conductor R, as shown, for the purposes set forth.

3. In combination with the slotted frame B, the adjustable scroll fan *d*, and its casing provided with cleats, as set forth.

4. The combination of fan *d*, and its casing, driving-wheel *a'* secured thereto, and pinion *b*, all being adjustable together as shown, with the feather-chambers A, as set forth.

5. The box A, with wire-cover *f*, and provided with the curved steam-receivers and screen S, forming a receptacle, and the stirrer V, in combination with pipes *c* and *e*, and their branches, as and for the purposes set forth.

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