A. McCONNELL.
Feather Renovators.

No. 197,154. Patented Nov. 13, 1877.

Fig. 1.

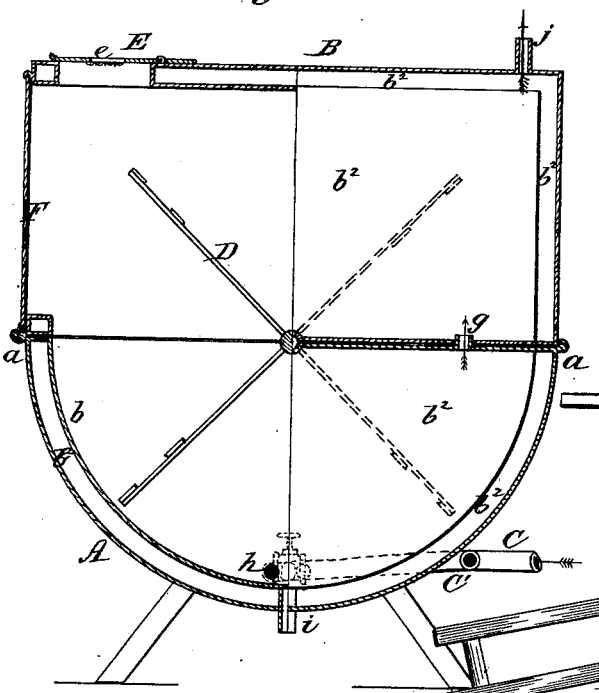


Fig. 2.

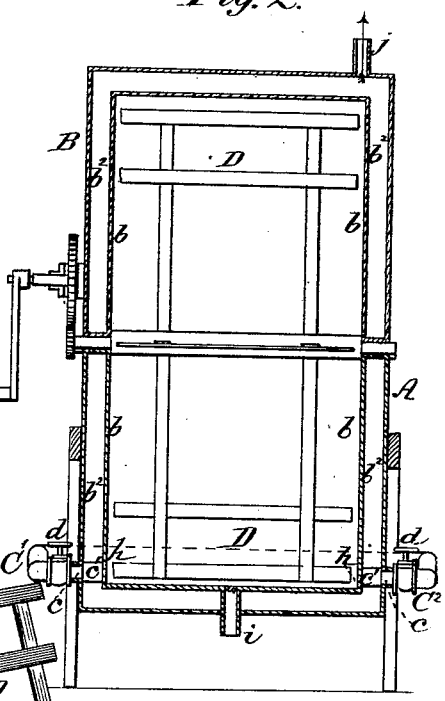
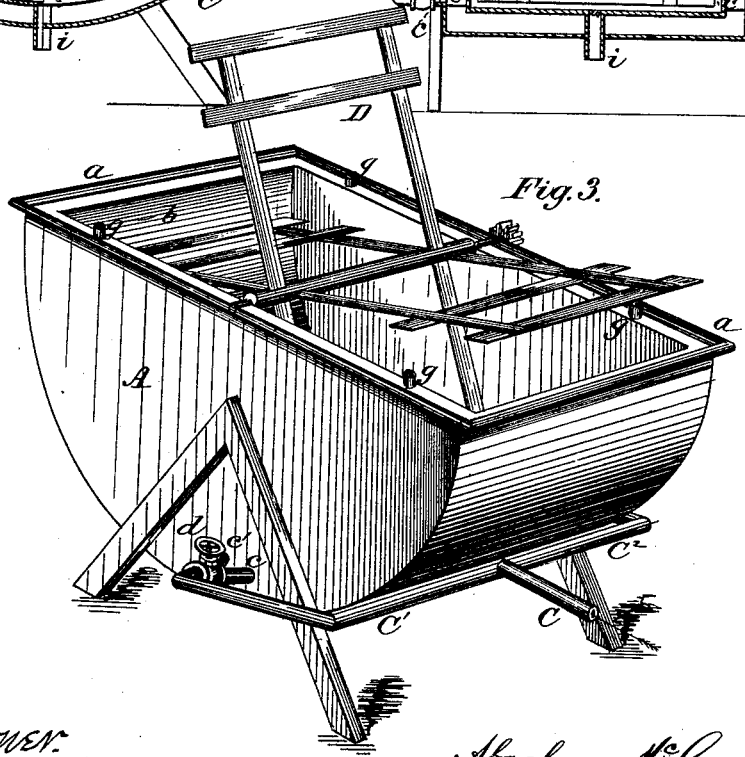
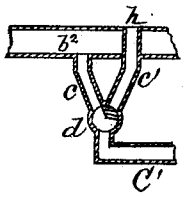


Fig. 3.





Witnesses:
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UNITED STATES PATENT OFFICE.

ABRAHAM McCONNELL, OF OXFORD, OHIO.

IMPROVEMENT IN FEATHER-RENOVATORS.

Specification forming part of Letters Patent No. **197,154**, dated November 13, 1877; application filed May 19, 1877.

To all whom it may concern:

Be it known that I, ABRAHAM McCONNELL, of Oxford, in the county of Butler and State of Ohio, have invented certain new and useful Improvements in Feather-Renovators, of which the following is a specification:

The object of my invention is, mainly, to obtain a direct uninterrupted force of steam upon the feathers in the cylinder, and, at the proper time, in the drying-chamber; and also to produce a continuous drying-chamber around a cylinder of divisible sections through the agency of connecting-tubes.

The construction of feather-renovators is also much simplified by my invention, and their cost cheapened. The work is also done in half the time usually required by such apparatus.

The means for effecting these results are hereinafter set forth, and the improvements constituting my invention specifically pointed out in the claims.

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of a feather-renovator embracing my invention; Fig. 2, a vertical cross-section; and Fig. 3, a perspective view of the lower section, the top section being removed.

The cylinder or receptacle is made in two sections, a lower one, A, of semi-cylindrical form, and an upper one, B, of rectangular shape, and is preferably made of wood. A bead, *a*, caps the lower section, and, in connection with the top of the inner hollow wall *b*, forms a seat and steam-tight joint for the sections when joined. The inner hollow walls *b* are common to both sections, A and B, and are made of tin or suitable material.

The steam-supply pipe C passes direct from the boiler, and is three inches in diameter. It passes to the back part of the receptacle, but does not enter it, but divides in two two-inch pipes, C^1 C^2, which traverse the receptacle as far as the center bottom part of each side of the receptacle, and each at its termination divides into V-ways *c c'*, the steam being confined to either of said ways by a cut-off valve or cock, *d*, for a purpose to be presently described.

A fan, beater, or agitator, D, of any approved make, has its bearings in the top ridge of the lower section.

The top section B is provided with a top door, E, to receive the feathers to be cleaned, which door has reticulated air-holes *e*, or ventilators.

An end door, F, opens into a cooling-room, where there is a hatchway provided with hooks to hold the bed-tick while it receives the feathers.

As before stated, the walls of both sections, A and B, are hollow, to form a continuous drying-chamber, b^2, the continuity of which through upper and lower sections is obtained by pipes *g* or tubes, which rise from the hollow wall of the lower section, and enter into that of the upper. This is important to obtain quick and proper drying and inflating, and the construction described forms an unbroken drying-chamber all around the receptacle except where interrupted by the doors.

The ways *c'* of the V-ways heretofore mentioned pass directly through and across the drying-chamber b^2, and enter into the feather-receptacle at *h h*, on either inner side, and throw the steam with unimpaired force directly upon the feathers. Now, the well-understood washing process being completed, the cut-offs *d d* are operated to throw the steam in the same manner into the drying-chamber b^2 through the ways *c*, which terminate in the outer wall. Thus, a uniform heat is obtained by injecting the steam at both sides of the drying-chamber. In the meantime the condensed steam and dirty water have passed out of the receptacle through a trap, *i*, in the bottom. The steam in the drying-chamber escapes through a vent-pipe, *j*, in the top section. The drying and inflating of the feathers being completed, the door in the upper section leading into the cooling-room is opened, and the feathers blown out by the fan. This fan is operated either by hand-crank or by belt to its shaft from the engine.

The apparatus is supported upon suitable legs.

The rectangular or square upper section is highly advantageous in permitting of a free drying-space for the feathers.

It is a matter of importance in renovating

feathers by steam that the operation should be completed as rapidly as possible, because if the feathers remain too long under treatment it is detrimental, requiring a longer time to dry them. Nor should they remain under the drying action too long a time. I therefore submit them to the action of steam entering at two opposite points near the bottom of the feather-receptacle, so that it can rise in two separate volumes upward in the chamber, and be thus diffused with greater power through the body of the feathers as they are lifted by the beaters, and obtain a quick and effective action. So, in like manner, the drying-chamber is arranged to envelop the bottom, sides, ends, and top of the feather-receptacle, the steam entering by pipes at the opposite sides of said drying-chamber, and rising to the top, heating every portion quickly and effectively, so as to complete the drying operation as soon as possible. In this operation the upper rectangular portion of the feather-receptacle gives a much better effect by giving greater interior area in which to throw up and spread out the feathers in the elongated portion of said chamber, because the hot steam passing up and over said chamber heats the crown uniformly with the base.

I claim—

1. The closed drying-chamber b^2, surrounding the sides, bottom, ends, and top of a feather-renovator of two sections, in combination with the opposite bottom-inlets $c\ c\ c'\ c'$ of the V-ways, the connecting-tubes g, and the vent-pipe j, all constructed as and for the purpose described.

2. In a feather-renovator, the V-way pipes, one, c, entering the drying-chamber b^2, and the other, c', the feather-receptacle, near the bottom and at opposite sides of said chambers, and provided at their junction with the two-way cock or valve d, in combination with the steam-supply pipes and the connecting-tubes g, all substantially as and for the purpose described.

3. The inner holes $h\ h$, forming the exits of the ways $e'\ c'$, at opposite sides and near the bottom of the feather-receptacle, in combination with branch steam-supply pipes $C^1\ C^2$, the two-way valves or cocks d, V-ways $c\ c'$, and drying-chamber b^2, as described.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

ABRAHAM McCONNELL.

Witnesses:
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