

J. T. Sheldon,

2, Sheets, Sheet 1.

Feather Renewer.

No. 111,576.

Patented Feb. 7, 1871.

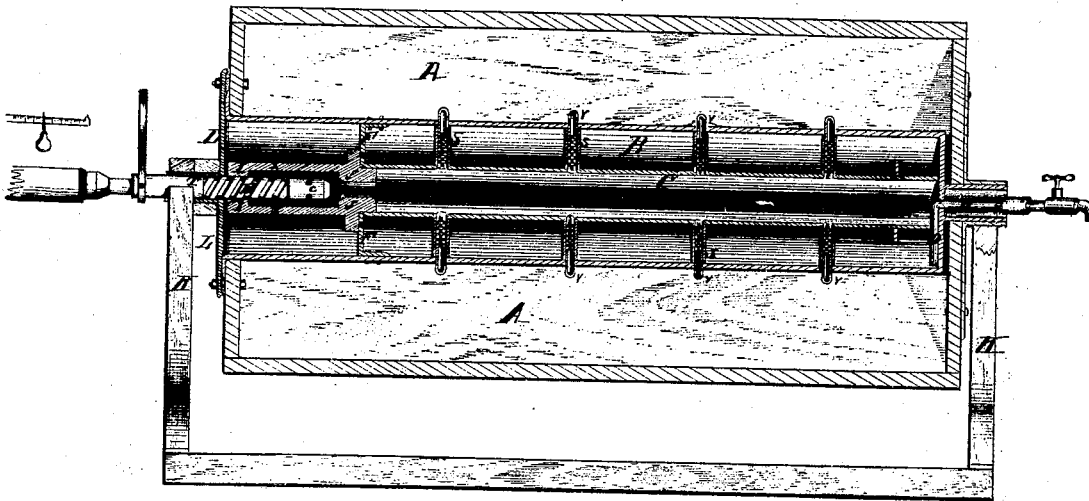


Fig 1.

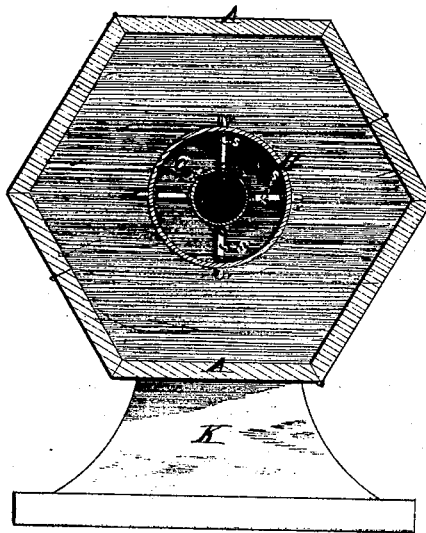


Fig 2.

Witnesses,

O. Dudley Chapin,

J. H. Clifford

Inventor

James T. Sheldon  
by his attorneys  
Gardner & Co.

J. T. Sheldon,

2. Sheets. Sheet 2.

Feather Renovator.

No. 111,576.

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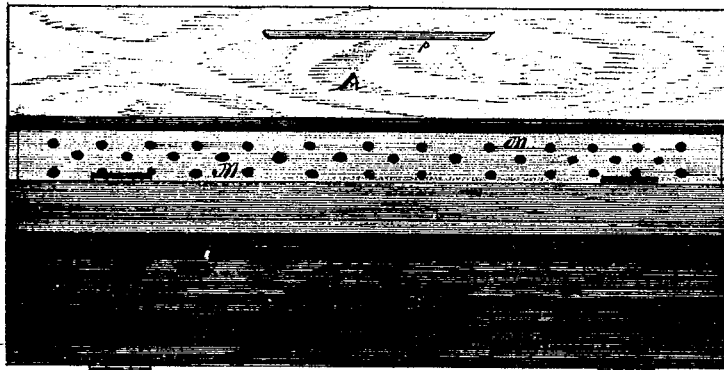


Fig. III.

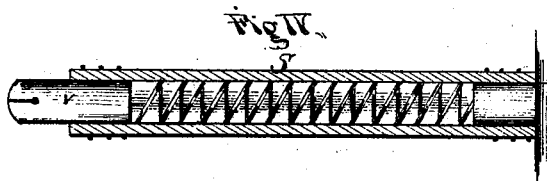


Fig. IV.

Witnesses.

O. Dudley Chapin  
J. H. Mifflin

Inventor.

James T. Sheldon  
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# UNITED STATES PATENT OFFICE.

JAMES T. SHELDON, OF CHICOPEE, MASSACHUSETTS.

## IMPROVEMENT IN FEATHER-RENOVATORS.

Specification forming part of Letters Patent No. **111,576**, dated February 7, 1871.

I, JAMES T. SHELDON, of Chicopee, Hampden county, State of Massachusetts, have invented certain Improvements in Feather-Renovators, of which the following is a specification:

### *Nature and Objects of the Invention.*

My invention consists in improvements in that class of renovators for feathers in which steam is used as an agent for cleansing the feathers; and consists, more especially, of improvements upon the machine patented by Amos Bond, September 15, 1868, of which I am sole assignee, said improvements relating principally to the form and arrangement of the valve communicating with the steam and drying cylinders, the tubes conveying the steam from the steam-cylinders to the feathers, the provision for ventilating and allowing any disagreeable odor to pass off from the feathers while being dried, and the combination with the machine of other parts and appliances, hereinafter mentioned, for the purpose of perfecting the same.

### *Description of the Accompanying Drawing.*

Figure I is a vertical section of a machine with my improvements through its center and whole length. Fig. II is a cross-section. Fig. III is a plan view, exposing the ventilator; and Fig. IV is a detail view of one of the tubes conveying steam from the steam-cylinder, shown in section.

### *General Description.*

A is the case of the renovator, within which the feathers are introduced, and which I prefer to make hexagonal in form. Running through the length of the case A and its center is the drying-cylinder B, which is sleeved at one of its ends within the bearings upon which the case A revolves, and has its other end closed by a removable head, L, bolted to the case A, so that when the head L is removed the drying-cylinder B can be withdrawn with the steam-cylinder C from the case A to be cleaned or repaired. Within this drying-cylinder B is the steam-cylinder C, made fast at one end to the one B, and supported and held in place at the other by a stay, F. At this end of the cylinder C the valve-seat *f* of the

valve H is let in. This valve-seat has shoulders coming against the stay L, from which project pins through the stay L at two or more points, so that it is held rigidly in place when the screw-rod T of the valve is revolved in its nut I. The nut I is connected directly to the valve-seat *f* by side pieces *x*, the shoulder coming against the stay L, the seat *f* and nut I forming one casting. The seat of the valve is held in the end of the steam-cylinder C by the head L coming against the end of nut I, so that when the head is removed the pins proceeding from the valve-seat permit the valve to be withdrawn entirely from the renovator.

The head L of the drying-cylinder B has a sleeve, in which works, steam-tight, the stem of the valve. This stem turns in a journal on the supporting-frame K. Upon this stem T is the winch for turning same, and by means of a quick screw upon the stem a partial turn of the winch closes or opens the valve, thereby admitting steam to or cutting it off from the cylinder C.

The stem T is hollow, and receives the end, outside the renovator, of the pipe connecting with the boiler, and revolves with the case A of the renovator in a smoothly-finished joint. The stem T has its end within the cylinder B provided with two or more ports, *e*, for the passage of the steam to the cylinder B.

Radiating from the cylinder C are the tubes S, conveying steam through the cylinder B to the feathers in the compartment A, each tube being capped with the slotted nozzles *r*. These tubes radiate in groups of four, at uniform distances between the groups upon the cylinder C. I form these tubes of rubber, stiffened internally by coil-springs running their length. The rubber is securely wired to the nozzles V, the ends coming against the inside of the cylinder B as a shoulder where the nozzle goes through the cylinder. The other ends of the tubes S are wired over short stems projecting from the cylinder C. The coil-springs have their ends resting against the end of these stems and the nozzle.

When metal tubes are used to convey the steam, the sudden contraction and expansion, sudden heating and cooling frequently wrenches them from their fastenings at either

end, causing a leakage that might temporarily disable the machine, while by my contrivance all such danger is obviated. The coil-springs prevent the tubes from collapsing when steam has been shut off from the internal cylinder.

Upon two of the sides of the hexagonal case A are sheet-metal plates, perforated with fine holes, so that when the hinged doors are opened above them ample ventilation is supplied to carry off all disagreeable odors that the action of the steam upon the feathers evolves, and as soon as the steam is shut off from the jets communicating directly with the feathers, and only the drying-cylinder B contains steam, I open the ventilators and permit the ventilation to go on through the perforated plate M. This ventilator is shown in Fig. III.

At the opposite end from the one in which the steam enters the cylinder B is the angle-valve O, to allow the steam to blow off any water contained in cylinder B, when in the position shown in Fig. I, by opening the cock.

In the head L, I generally place a vacuum-valve, so that when the steam is cut-off from the boiler the cylinder B cannot collapse.

There is always a pressure of steam in the cylinder B equal to that in the boiler, and when the valve H is open there is the same pressure in the one, C, that throws jets into and among the feathers, and when the operation of steaming is completed it is only necessary to close the valve, and the drying-cylinder and ventilator complete the renovation.

I place between the machine and the boiler a safety-valve gaged to blow off at a suitable pressure, so no danger is incurred of too much pressure.

Cleats *p* are placed upon the outside of the case A, so that the renovator can be revolved by hand.

By my arrangement of single valve-stem with quick-screw and seat of valve let into the cylinder C, and kept from turning by pins and from coming out by head L, I much simplify the machine, and obviate the chances of its getting out of repair, while at the same time, if anything within the machine should need attention, by removing head L all the parts can be withdrawn.

#### *Claims.*

Now, having described my invention, what I claim is—

1. In combination with the cylinders B and C and head L, the valve H, arranged and constructed in the manner and for the purpose shown and described.

2. In combination with the steam and drying cylinders, the tubes S, constructed of rubber and stiffened by coil-springs, in the manner and for the purpose shown.

JAMES T. SHELDON.

Witnesses:

R. F. HYDE,  
EDWARD MORRIS.