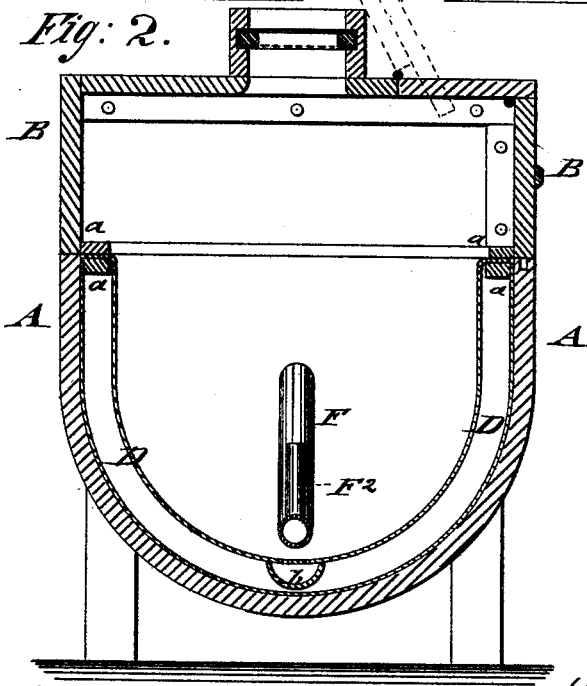
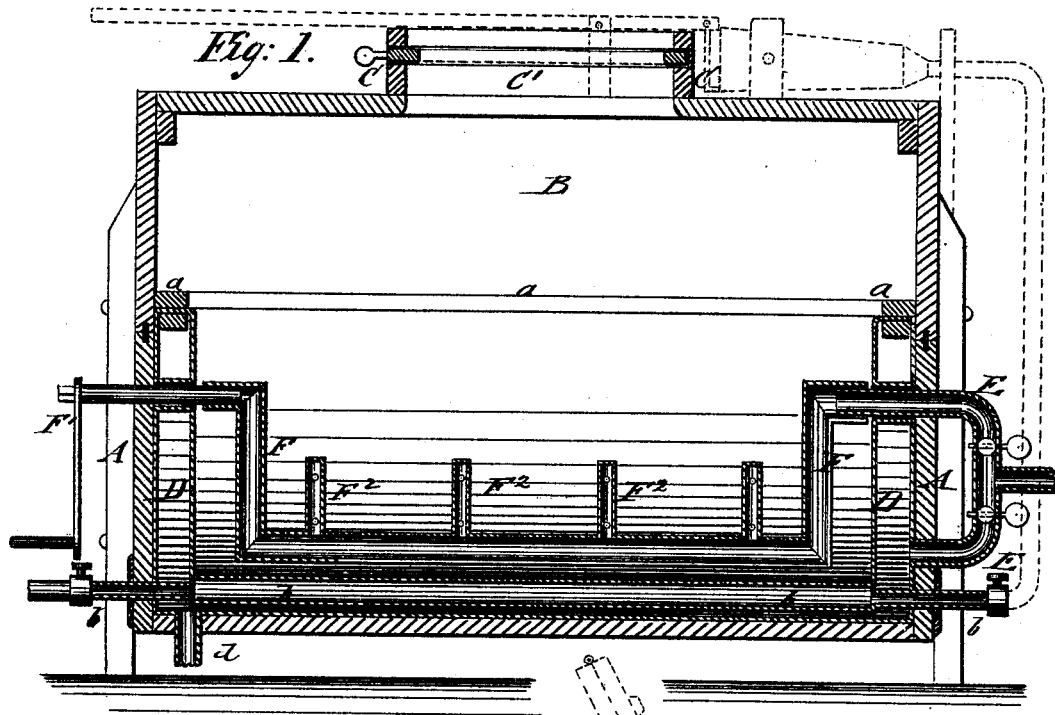


H. N. RAWSON.  
Feather-Renovator.

No. 214,191.

Patented April 8, 1879.



WITNESSES:

*A. Schehl.*  
*C. Sedgwick*

INVENTOR:

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ATTORNEYS.

# UNITED STATES PATENT OFFICE.

HENRY N. RAWSON, OF BRATTLEBOROUGH, VERMONT.

## IMPROVEMENT IN FEATHER-RENOVATORS.

Specification forming part of Letters Patent No. **214,191**, dated April 8, 1879; application filed September 23, 1878.

*To all whom it may concern:*

Be it known that I, HENRY N. RAWSON, of Brattleborough, in the county of Windham and State of Vermont, have invented a new and Improved Feather-Renovator, of which the following is a specification.

In the accompanying drawings, Figure 1 represents a vertical longitudinal section of my improved feather-renovator, and Fig. 2 is a vertical transverse section of the same.

Similar letters of reference indicate corresponding parts.

This invention has reference to an improved apparatus for cleaning or renovating feathers, horse-hair, and similar material, by exposing it to the action of steam, and afterward drying it by heat, and removing the bad odors and impurities by a current of air forced through the apparatus; and the invention consists of a casing having semi-cylindrical steam-jacket at the lower part, and an interior rotating and perforated steam-pipe, with perforated stirrer-arms.

Steam is supplied to the jacket and through the rotating pipe to the interior of the casing. The inner wall of the steam-jacket is perforated at the lowermost point, and provided with a gutter-shaped pipe below the holes, for drawing off the water of condensation, and for admitting air to be forced to the interior of the casing for drying the contents of the same and removing dust, odors, &c.

Referring to the drawings, A represents a casing, of wood, which is arranged with a hinged cover, B, and with a raised top or dome, C, that is closed either by a sliding solid cover or by a sliding screen, C', according to the pressure desired to be obtained at the inside of the apparatus.

The lower part of the casing is made semi-cylindrical, and arranged with a steam-jacket, D, of corresponding shape, whose outer and inner sheet-metal walls are attached by means of cleats *a* to the side walls of the casing.

The casing is supported on standards or legs, to which the upper or covering section is screwed fast and tightly jointed. By removing the fastening-screws the upper section may be detached from the standard, and thereby the lower steam-jacket and the interior part conveniently repaired. The steam-jacket, as

well as the interior of the apparatus, is supplied with steam from any suitable boiler by a T-shaped pipe, E, of which one branch passes through a sleeve of the jacket to the interior of the casing, while the other branch opens into the jacket. Both branch pipes are provided with steam-cocks, so as to shut off the supply of steam.

On the projecting end of the upper branch pipe, and on the inner projecting end of a crank-shaft, F<sup>1</sup>, are supported the ends of an angular steam-pipe, F, which extends, by two pipe-elbows, to some distance from the crank-shaft, so as to sweep close to the inner wall of the jacket.

The longitudinal main portion of the rotating pipe is perforated, and provided with perforated branch pipes F<sup>2</sup>, that extend at right angles toward the center supports of the steam-pipe.

The branch pipes F<sup>2</sup> serve, in connection with the revolving main pipe F, to conduct steam to the feathers, hair, or other contents of the casing, and also to stir up the same, as long as the rotating pipe is set in motion by the outer hand-crank.

The crank closes that end of the rotating pipe opposite to the inner end of the branch pipe E, so that no steam can escape at that end.

The feathers, hair, or other articles are cleaned by the action of the steam thereon, the raised top or dome being either closed entirely when steam-pressure is desired or kept open in part by using the screen, so that the steam may escape while the feathers are retained.

The water of condensation passes off through holes at the lowest part of the inner wall of the jacket, and is conducted off to the outside by a gutter-shaped pipe, *b*, that extends along the under side of the inner wall, and through both end walls of the casing to the outside. One of the end pipes is plugged up, the plug being removed when it is desired to clean the drain-pipe by a current of steam or air.

The condensed steam of the jacket is drained off through a short pipe, *d*, passing through the bottom of the casing.

The bottom drain-pipe, *b*, of the apparatus serves also, in connection with bellows, air-pump, or other air-forcing apparatus, operated

by a lever-connection with the hand-crank of the inner rotating pipe, or by means of weights or otherwise, to force a supply of air through the bottom holes to the interior of the apparatus; then through the feathers to be cleaned; and, finally, to the outside through the screen of the dome. This current of air may be forced through the apparatus before the contents are steamed, so as to remove dust and other impurities—as, for instance, when cleaning mattresses; or it may be forced through after cleaning, for removing the bad odors in feathers and other adhering impurities.

The mingling of steam and air currents produces the thorough cleaning or renovating of the contents in a superior manner. The contents are finally dried, after shutting off the steam from the rotating pipe, by the heat of the steam-jacket and by the current of air forced through the interior of the apparatus.

The feathers are thus cleaned and dried rapidly and effectively by this apparatus, which is equally well adapted for cleaning a larger or smaller quantity of feathers, &c., as the rotating steam-pipe and branch pipe exert a stir-

ring action on the feathers, and throw them continually from the circumference to the center.

I am aware that it is not new to use a T-shaped pipe or pipes set off from the center; but

What I claim as new is—

1. In a feather-renovator, the exterior casing having a semicircular steam-jacket and top with raised portion or dome, in combination with a rotating steam-pipe, being by elbows set off from the center and arranged with perforated branch pipes, substantially as and for the purposes set forth.

2. The combination of the outer casing having semicircular steam-jacket, and of a rotating steam-distributing pipe, set off by elbows from the center, with a valved T-shaped pipe that supplies the steam to the jacket and the rotating pipe, substantially as set forth.

HENRY NEWTON RAWSON.

Witnesses:

HENRY F. SMITH,

FRED. W. KNECH.