C. EMMERICH & W. HAMERMILLER.

Feather-Renovator.

No. 205,178. Patented June 25, 1878.

Fig. 1.

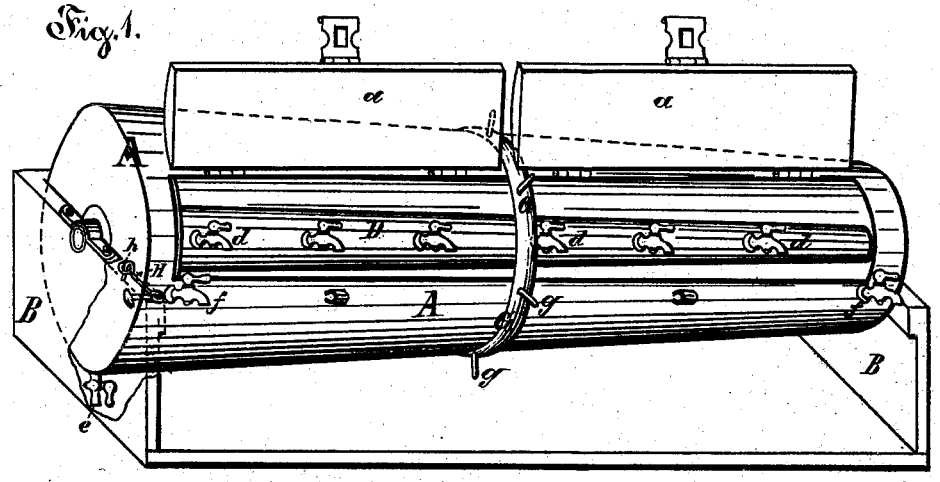


Fig. 2.

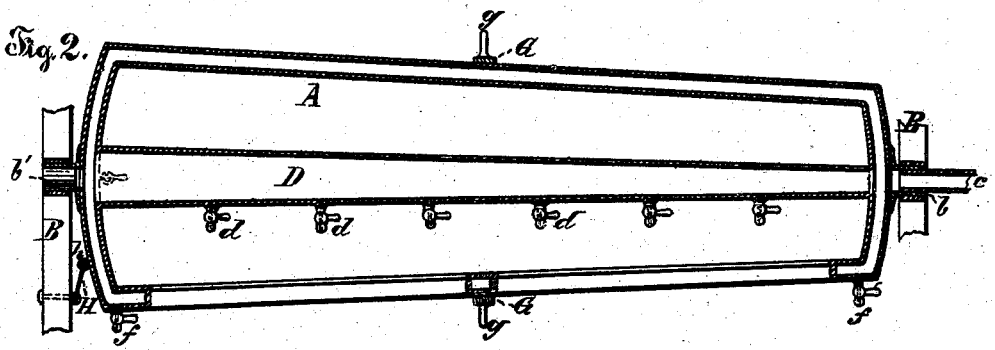
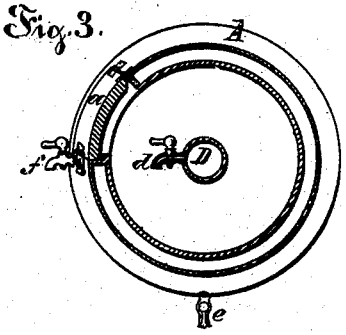


Fig. 3.



Witnesses:

Jacob Richter

Emil H. Drommann

Inventors

Charles Emmerich

William Hamermiller

By Wm H Lotz

their Attorney

UNITED STATES PATENT OFFICE.

CHARLES EMMERICH AND WILLIAM HAMERMILLER, OF CHICAGO, ILL.

IMPROVEMENT IN FEATHER-RENOVATORS.

Specification forming part of Letters Patent No. **205,178**, dated June 25, 1878; application filed May 7, 1878.

To all whom it may concern:

Be it known that we, CHARLES EMMERICH and WILLIAM HAMERMILLER, both of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Feather-Renovating Apparatus, which improvements are fully described in the following specification.

The nature of our invention relates to an apparatus in which feathers may be scalded, purified, and dried, so as to kill the vermin therein, to remove the effete matter from them, and to loosen and curl the same; and it consists of a jacketed conical drum, supported upon hollow journals, through one of which steam is admitted, while the other one is closed by a stopper, which will act as a safety-valve, to be forced out whenever the pressure of steam in the jacket of said drum increases beyond a certain limit; and, further, in the construction and arrangement of such drum, and the parts composing the same, as fully hereinafter explained.

In the drawing, Figure 1 represents an exterior perspective view of the apparatus with the cover open, showing the central flue and faucets. Fig. 2 represents a sectional plan, showing the interior arrangement of the drum; and Fig. 3 represents a vertical cross-section of the drum.

A is the conical drum, having a double casing and double heads, with a space between, through which steam is circulated, and having openings to be closed by doors or lids, hinged to the exterior mantle, and provided with a suitable locking device. This drum A is supported on two hollow journals, *b b'*, in suitable journal-boxes on a frame-work, B, one of which journals, *b*, on the small end of the drum is connected with the steam-boiler by a pipe, *c*, loosely entering the same, and making a steam-tight joint therewith, without interfering with the rotating motion of said drum, while the opening in trunnion *b'* is closed by a wooden stopper, which, by an overpressure of the steam in the jacket of said drum, will be driven out and will allow the steam to escape, so that no accident can occur.

D is a tapering pipe or flue, placed axially through the center of said drum, its ends forming a tight-joint connection with the internal heads of the drum, so as to form a communicating channel for the steam between the end spaces of said drum and to provide additional radiating surface. This pipe D carries a series of faucets or valves, *d*, in a position opposite to the doors *a*, so as to be in easy reach for adjustment, through which faucets steam can be admitted into the interior of the chamber. *e* is a faucet, attached exteriorly to the large end of the drum-casing, for discharging the water collecting from the condensation of the steam; and *f f*, faucets, also arranged exteriorly to the ends of the drum-casing, which are opened for discharging the air or steam out of said jacket, to be replaced by fresh steam from the boiler and facilitate the rapid heating of the drum and its contents.

G is a metallic ring or band, placed around the central portion of the drum-casing, for stiffening the same and for holding a series of radially-projecting wooden handles, by which said drum is rotated.

To one end of the frame B is pivoted a hook, H, which will lock with an eye, *h*, projecting from the periphery of the drum-head, for holding said drum from rotating while feathers are being filled in or taken out of the interior chamber.

The *modus operandi* for renovating feathers in this apparatus is as follows, to wit: A sufficient quantity of feathers being placed in the interior chamber of the drum A, the faucets *d* are opened and the lids *a* are closed, after which steam is turned on from the boiler, when at once said steam will fill the circumjacent jacket of the drum and the central pipe D, and will be ejected from the faucets *d* into the feather-holding chamber, while the water of condensation will flow to the lowest point in said jacket and will discharge through faucet *e*. After the feathers have been thoroughly saturated by the steam, so as to kill any vermin therein and to dissolve the effete matter adhering thereto or admixed therewith, the lids *a* are opened and the faucets *d* are closed again, when, by the heat radiated by the circulating steam from the internal walls of the jacket and from the pipe D, the moisture will be evaporated and the feathers will be loosened and curled, so as to swell up and increase in volume.

The faucets *f f* are opened only to expel the air from the jacket when first steam is admitted and when the heat in the jacket is to be increased.

It is not our intention to have the drum revolve constantly; but we only rotate the same at intervals, and only so much as to bring the more highly-heated portion of the drum, which is always the top side, to the bottom, and to bring other feathers into contact with the walls of the same.

It will be noticed that the conical shape of the drum will provide for a more rapid and more complete discharge of the water of condensation, which we consider of great importance for such an apparatus.

We prefer the drum to be made of copper, as that metal will not corrode by the action of steam and water, and will produce no oxide which will color the feathers, as a surface of iron would do.

What we claim as our invention is—

1. The conical jacketed drum A, supported by hollow journals *b* and *b'*, and having lids *a* and faucets *e* and *f*, substantially as and for the purpose set forth.

2. The conical jacketed drum A, supported by hollow journals *b* and *b'*, one for the admittance of steam and the other one to be closed by a wooden stopper, and having lids *a*, pipe D, with faucets *d*, and ring G, having handles *g*, all constructed and arranged to operate substantially as set forth.

CHARLES EMMERICH.
WILLIAM HAMERMILLER.

Witnesses:
EMIL H. FROMMANN,
JACOB RICHTER.