W. McARTHUR.

Feather Renovator.

No. 48,702. Patented July 11, 1865.

Fig. 1

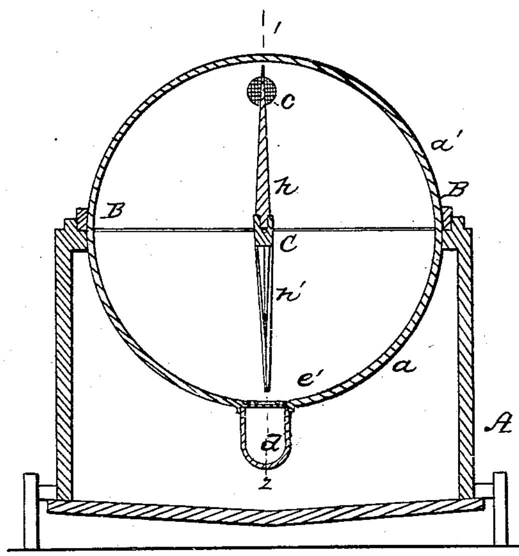


Fig. 2

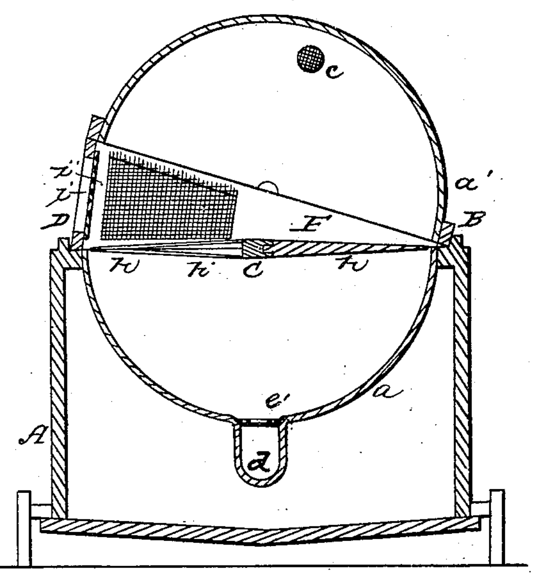
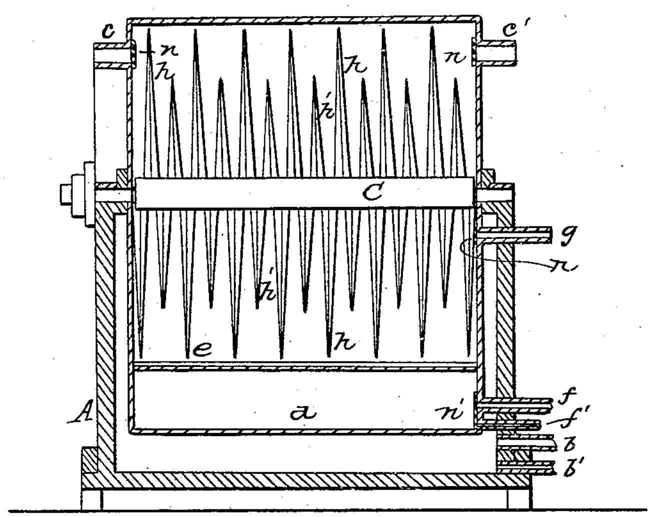


Fig. 3



WITNESSES

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UNITED STATES PATENT OFFICE.

WM. MCARTHUR, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVED FEATHER-RENOVATOR.

Specification forming part of Letters Patent No. **48,702**, dated July 11, 1865.

To all whom it may concern:

Be it known that I, WM. MCARTHUR, of Philadelphia, Pennsylvania, have invented certain Apparatus for Renovating Feathers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists of apparatus, fully described hereinafter, for rapidly and effectually renovating feathers which have become dirty and matted together.

In order to enable others to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figures 1 and 2 are sectional elevations of my improved apparatus, and Fig. 3 a vertical section on the line 1 2, Fig. 2.

Similar letters refer to similar parts throughout the several views.

A is a box, of wood or other suitable material, in which is suspended the lower half, *a*, of a cylindrical metal casing, B, the upper half, *a'*, of the said casing resting on the lower half, as shown in Fig. 1. This box A is made steam-tight, and with the lower portion of the same communicates a steam-pipe, *b*, and a water-pipe, *b'*, and with the upper portion, *a'*, of the casing communicate two escape-pipes, *c c'*. At the under side of the lower portion, *a*, of the cylinder is a chamber, *d*, which is covered by a strip, *e*, of wire-gauze, or by a perforated plate, the steam-pipe *f* and the water-pipe *f'* communicating with the said chamber. A steam-pipe, *g*, also communicates with the lower half, *a*, of the cylindrical casing at or near the point shown in Fig. 3, and in the interior of the said casing, where the pipes *c*, *c'*, *g*, *f*, and *f'* communicate with the same, are strips *n*, of wire-gauze or perforated plates, for a purpose described hereinafter. In the opposite ends of the box turns a shaft, C, to which are secured the long and short arms *h* and *h'*, the former extending nearly to the casing. I prefer to make all the arms of square bar-iron tapering from the shaft toward the point.

The feathers to be renovated are placed in the lower portion, *a*, of the casing, which is then covered by the upper half, *a'*, as shown in Fig. 1. Steam is then admitted through the pipes *f* and *g* into the casing, and a rotary motion in the direction of its arrow is imparted to the shaft C. As the feathers are carried round by the arms *h* and *h'* they are separated and agitated and exposed to the action of the steam, which in a short time thoroughly saturates the same and removes all impurities, the condensed steam escaping through the pipe *f'*. The steam, which passes into the casing through the pipe *f*, is thoroughly distributed among the feathers as it passes through the perforated or gauze plate *e*, while the gauze plates *n* also distribute the steam and prevent the pipes from being clogged by dust. After the feathers have been thus treated for about twenty minutes, the upper portion of the casing B is raised, as shown in Fig. 2, and a frame, D, across which wire-gauze *i* is stretched, is placed between the front edges of the two halves of the casing, angular side frames, F, with perforated or gauze plates *i'*, being introduced between the edges of the casing at the opposite sides of the same. The steam is then cut off from the pipes *f* and *g*, and is admitted through the pipe *b* into the space between the lower half of the casing and the box A, the casing being thus heated, so that in a little time the moisture is expelled from the feathers, the motion of the arms *h h* driving off the impure air and the moisture through the gauze *i*, fresh air being admitted through the gauze *i'*. After the feathers are perfectly dried they are thoroughly separated by the arms *h*, and the dust beaten from the same is expelled through the gauze in the frame D or drops to the bottom of the casing and falls through the perforated plate *e* into the chamber *d*.

I have found by numerous practical tests that the feathers are not only quickly and thoroughly cleansed by this treatment, but that they are restored nearly to their original size and condition. I have also found that by the use of alternately long and short arms *h h'*, of the form shown in the drawings, the operation can be performed in a much shorter time than by arms of any other form or arrangement.

When the operation has been completed the

frame D is removed and the feathers are rapidly thrown out into any suitable receptacle by the motion of the arms *h h'*.

I claim as my invention and desire to secure by Letters Patent—

1. The casing B, its shaft C, and arms *h* and *h'*, in combination with the case A and the pipes *b*, *c*, *f*, and *g*, or their equivalents, the whole being arranged and operating substantially as and for the purpose described.

2. The combination of the casing B, chamber *d*, and perforated or gauze plate *e*.

3. The frames D and F, with their gauze or perforated plates, adapted to the two halves of the casing B, substantially as and for the purpose herein set forth.

4. The long and short tapering arms *h* and *h'*, arranged on the shaft C, as set forth.

5. The combination of the steam-tight box A and its pipes *b* and *b*, or their equivalents, with the casing B.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM McARTHUR.

Witnesses:

CHARLES E. FOSTER,

W. J. R. DELANY.