W. H. ELLIOT.

Feather Renovator.

No. 84,809. Patented Dec. 8, 1868.

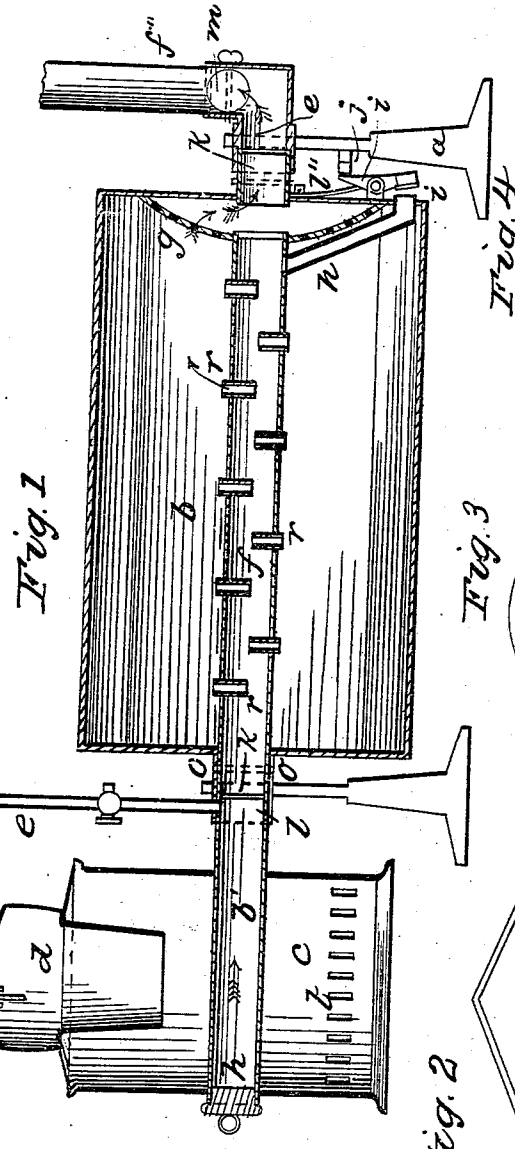

Fig. 1

Fig. 2

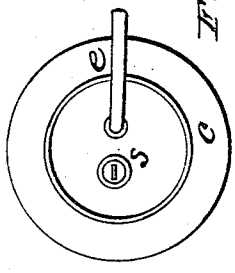

Fig. 3

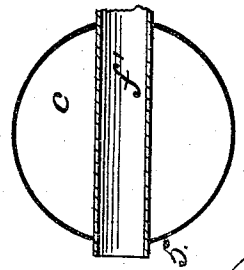

Fig. 4

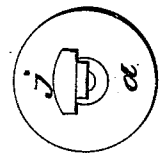

Fig. 5.

Witnesses

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WILLIAM H. ELLIOT, OF NEW YORK, N. Y.

Letters Patent No. 84,809, *dated December* 8, 1868.

IMPROVEMENT IN FEATHER-RENOVATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM H. ELLIOT, of the city, county, and State of New York, have invented a new and improved Machine for Renovating Feathers; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Similar letters of reference indicate the same devices in all the figures.

To enable others skilled in the arts to comprehend, make, and use my invention, I will proceed to describe its nature, construction, and operation.

The nature of my invention consists in employing the draught of the chimney for forcing air, warm or cold, through the conducting-passages, in such connection with the boiler and steam-pipes, that the air may be moistened, more or less, with steam, as it may be required to renovate and dry the feathers; in the employment of hollow bearings for the passage of air and steam, with a draught-pipe, which is in connection with a chimney; in the employment of a heater, for making hot air and steam, with certain devices for passing the same through the feathers, and then into the chimney; in the employment of an automatic valve, for discharging condensed steam from the apparatus; and in the method of operating said valve.

a, standards for supporting the renovating-cylinder *b*.

c, heater.

d, boiler.

e, steam-pipe.

e', steam-cock.

f, central pipe, which serves as an air-passage, and also for a steam-pipe.

f', air-passage or pipe through the heater.

f'' draught-pipe connecting the interior of the renovating-cylinder with the chimney, so that the draught of the chimney may take away the air and steam from the cylinder.

g, diaphragm or perforated plate, through which air or steam must pass before entering the draught-pipe.

h, pipe for conducting the water made from the condensation of steam to valve *i*.

i', lever for operating valve *i*.

i'', spring for keeping the valve closed.

j, cam, attached to standard *a*, for opening the valve at a certain point in the revolution of the cylinder.

k, hollow bearings for the renovating-cylinder, which serve as couplings between the central pipe *f* and pipe *f'* at one end, and pipe *f''* at the other end.

m, damper in draught-pipe *f''*.

n, damper or cover in pipe *f*.

o, shoulder on hollow bearings *k* and central pipe *f*, between which hemp or wicking may be wound to make the coupling steam-tight.

r, short tubes, serving as outlets for steam and air from the central pipe, but which prevent the escape of water therefrom.

s, safety-valve.

t, grate of the heater.

Figure 1 is a vertical section of the whole apparatus, showing all the parts.

Figure 2 is an elevation of the diaphragm and inner end of the cylinder.

Figure 3, top view of the heater and boiler.

Figure 4, horizontal section of the heater, showing the air-pipe through it.

Figure 5, horizontal section of one of the standards, showing the valve-cam.

My invention relates to the use of steam and hot or cold air, for renovating and drying feathers, and its operation is as follows:

Before the feathers are put into the cylinder, the dampers *m* and *n* are opened, and the cylinder allowed to become heated by hot air, so that steam will not condense upon its inner surface.

The feathers are then put in, the dampers *m* and *n* closed, and the steam-cock *e'* opened.

The cylinder should then be revolved till the feathers are thoroughly steamed.

Any water made by the condensation of steam on the inner surface of the central cylinder or pipe *f*, flows into pipe *h*, down to valve *i*, and when the revolution of the cylinder *b* brings the lever *i'* in contact with cam *j*, the valve is opened, the water discharged, and, as the cylinder continues its revolution, the spring *i''* closes the valve till another revolution brings it around again to the cam. In this way the water is discharged from pipe *f* at each revolution of the cylinder, while the valve is kept closed a greater part of the time, to prevent the escape of steam.

When the feathers have been sufficiently steamed, the dampers *m* and *n* are again opened, and a full draught of warm air passes through the feathers. From this time the steam should be gradually shut off until warm air alone is allowed to pass through the cylinder, and when the feathers are thoroughly dry, they may be cooled by sliding the pipe *f'* through the heater, so as to separate it at *l* from the hollow bearing *k*, when cold air will be admitted to the feathers.

The air, on entering pipe *f'* at *n*, passes, as indicated by the arrows, through hollow bearing *k*, into pipe *f*, the end of which is closed up. The air then passes through tubes *r*, through diaphragm *g*, through hollow bearing *k*, and then upward into draught-pipe *f''*, and the chimney, carrying all steam-moistened air and dust with it.

Having described my invention,

What I desire to have secured to me by Letters Patent of the United States, is—

1. The arrangement and combination of the draught-pipe *f''*, steam-pipe *e*, central perforated shaft *f*, and diaphragm *g*, as specified

2. The combination of hollow bearings *k*, diaphragm *g*, and draught-pipe *f''*, substantially as herein described.

3. The combination of heater *c*, central pipe *f* with its tubes *r*, diaphragm *g*, and draught-pipe *f''*, substantially as set forth.

WM. H. ELLIOT.

Witnesses:

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