

— S. B. SHOEMAKER —

— FEATHER RENOVATOR —

No. 121,257.

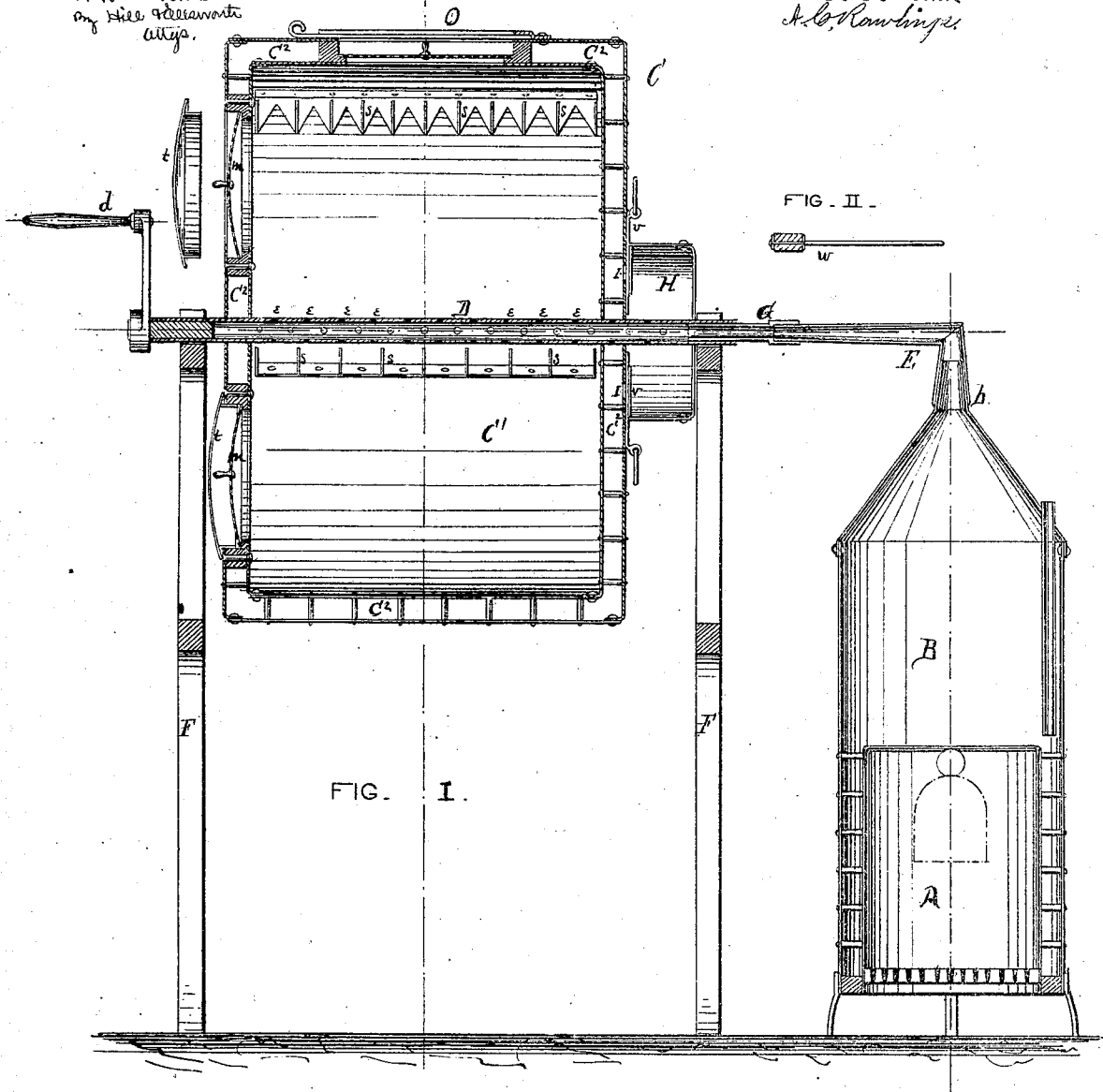
Patented Nov. 28, 1871.

INVENTOR.

S. B. Shoemaker.
By Hill & Greenworth
Attys.

WITNESSES.

Dr. J. C. Allenworth
A. C. Rowlings.



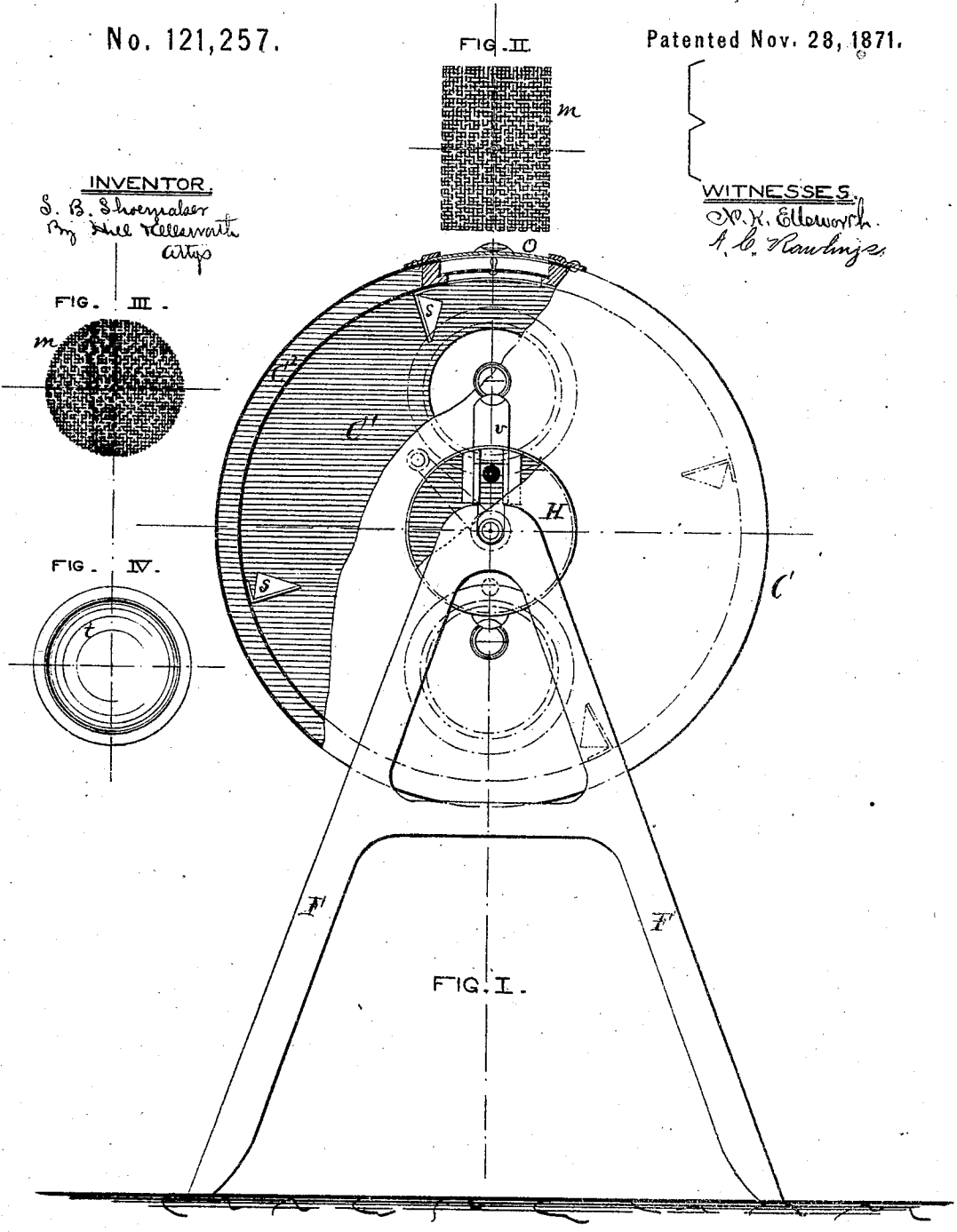
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UNITED STATES PATENT OFFICE.

SOLOMON B. SHOEMAKER, OF WILLOUGHBY, OHIO.

IMPROVEMENT IN FEATHER-RENOVATORS.

Specification forming part of Letters Patent No. 121,257, dated November 28, 1871.

To all whom it may concern:

Be it known that I, SOLOMON B. SHOEMAKER, of Willoughby, of Lake county, in the State of Ohio, have invented an Improved Feather-Renovator; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 of Sheet 2 is an end elevation, a portion of the outer wall having been broken away. Figs. 2 and 3 are views of the screen, and Fig. 4 is a plan of the cover placed over the screen. Fig. 1, Sheet 1, is a longitudinal vertical section, and Fig. 2 is a section of the plug.

Similar letters of reference in the accompanying drawing indicate corresponding parts.

The object of this invention is to provide for public use a convenient and effective apparatus for renovating feathers by the combined action of steam, heat, and mechanical agitation; the invention being an improvement in that class of machines for a similar purpose in which a rotating drum is employed provided with steam and hot-air chambers. The improvement consists in the details of construction hereinafter set forth.

In the drawing, A represents a small portable furnace, and B a boiler surrounding and covering it, with a steam-escape pipe, *b*, at its upper extremity. C is a jacketed drum, supported on a hollow shaft, D, rotated by a pulley or by a hand-crank, *d*, the whole being mounted on a suitable frame, F, so as to bring the shaft D on a level with the top of the collar *b*—a result which may be brought about either by constructing the parts of the proper dimensions or by making them of varying dimensions and properly adjusting them to each other by any suitable means. An elbow, E, fits on the collar *b* and extends toward the shaft D, to which it may be connected by a joint, G, as shown. The steam, rising from the boiler and escaping at the opening *b*, passes through the tubes E G into the hollow shaft D, and thence through a series of small openings, *eee*, into the interior chamber C¹ of the rotary drum, where it is at first directly applied to the feathers. After they have been subjected to its action to a sufficient extent the steam is shut off from the interior of the drum and made to pass into the space C², between the inner and outer shells thereof, where it operates to heat and dry the feathers within the chamber C.

The special improvements to which I lay claim herein consist not so much in the general combination of jacketed drum, hollow shaft, and steam-boiler, above described, as in the details of construction by which provision is made for letting the steam into or shutting it off from either of the chambers C C² for ventilating the inner chamber and for agitating the feathers therein, as hereinafter set forth.

To the end of the drum nearest the steam-boiler I attach a cap, H, surrounding the hollow shaft, so that steam from the latter will discharge freely into it. Tubes I I are inserted through the outer shell or holes made in it, so that steam can pass from the chamber H into the space C² between the two shells. These tubes or openings can be closed steam-tight by means of packed slides or valves *v v*. A plug-valve, *w*, with a long stem, is employed to close the hollow shaft when necessary to prevent the steam from passing through it into the inner chamber C¹, so that by inserting the plug *w* and opening the valves *v v* all the steam passes into the space C² surrounding the inner chamber, where the feathers are, while by removing the plug and closing the valves the steam is shut off from said chamber and directed into the inner chamber among the feathers. For the purpose of enabling the feathers to be thoroughly agitated and more perfectly acted upon by the steam-jets from the hollow shaft I arrange rows of spikes *s s*, or their equivalents, along the concave walls of chamber C¹, which, as the drum revolves, will raise the feathers to a position almost vertically above the shaft D and then drop them. As they descend, falling around and upon the shaft, the minute jets of steam proceeding from it in every direction have an opportunity to come directly in contact with each individual feather, not while the latter is in the common mass, with their weight superimposed upon it to prevent it from receiving any benefit from the steam, but while it is suspended in the air and free from all adverse influences. In order to let the steam escape from or blow through the inner chamber I provide openings in the end of the drum and fit into them gauze or wire screens *m m*, provided with handles, by which they can be conveniently removed. Sheet-metal or wooden covers *t* may be employed to close the openings altogether. An opening, *o*, is provided through the convex walls of the drum for the purpose of admitting and

removing the feathers. It may be provided with a similar gauze screen and with a slide-valve or other suitable cover.

All the valves and covers may of course be furnished with buttons, spring-catches, or other suitable means for keeping them in place during the rotation of the drum.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In connection with a revolving jacketed drum, C, mounted on a hollow perforated shaft, D, and with a steam-generator, A B, the application of a cylindrical chamber or cap, H, to the end of the drum around the shaft D, as shown, the same being combined with slide-valves *v v*

and openings I I leading into the steam-space C², and with a removable plug-valve, *w*, all constructed and arranged as shown.

2. In a rotary drum, C, mounted on a hollow perforated shaft, D, and adapted to the curing and renovating of feathers by steam, the arrangement of lifting-spikes *s s* around the concave wall of the drum, substantially as and for the purposes specified.

The above specification of my invention signed by me this 17th day of April, 1871.

S. B. SHOEMAKER.

Witnesses:

J. M. TIBBETS,
FRANK JOSLIN.

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