S. A. BOYETT.

Feather Renovators.

No. 135,516. Patented Feb. 4, 1873.

Fig. 1.

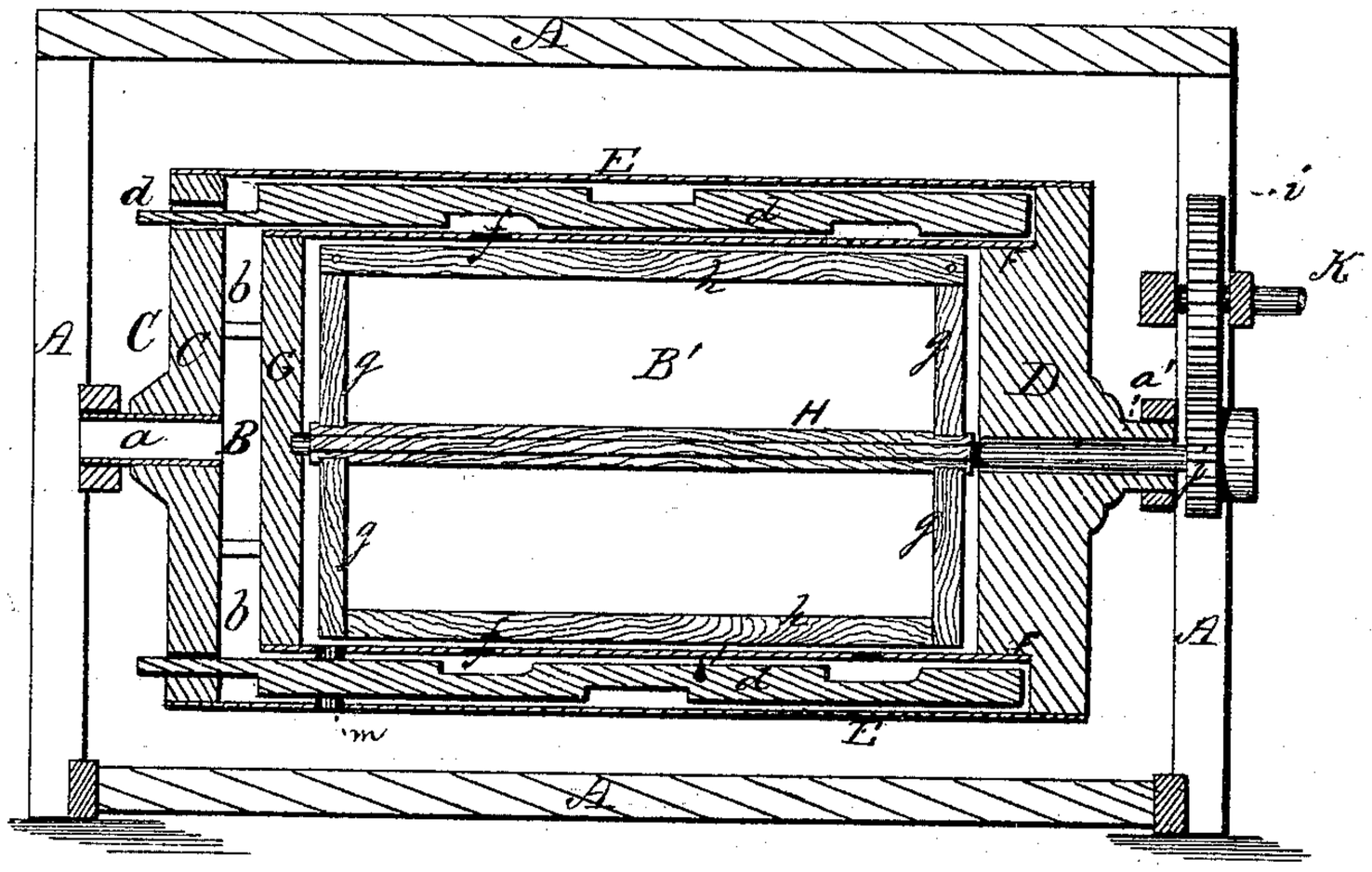


Fig. 2.

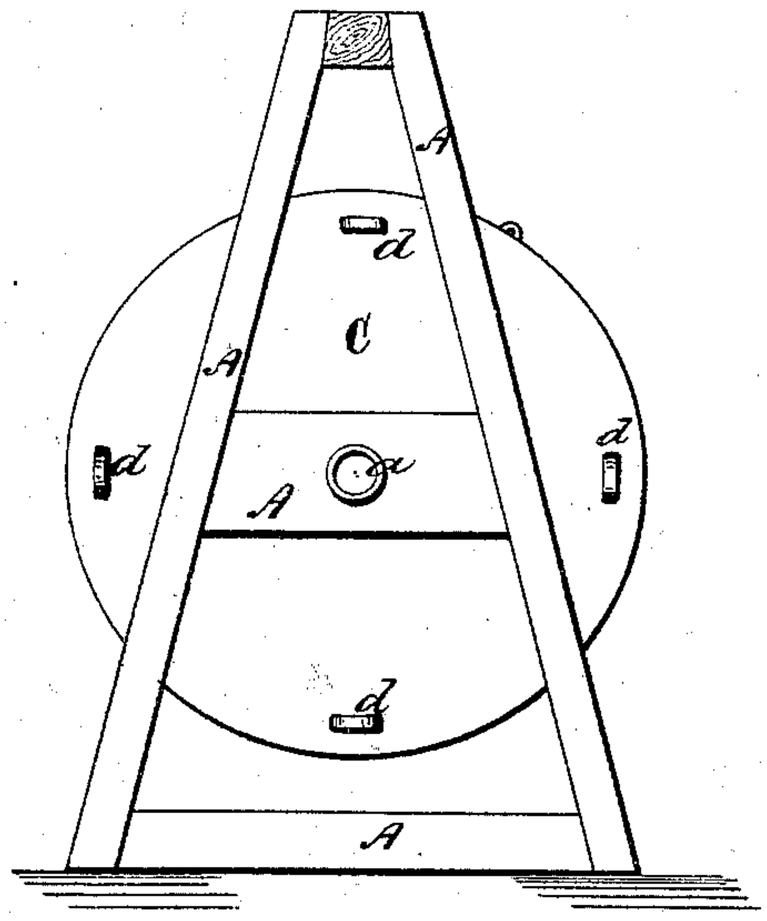
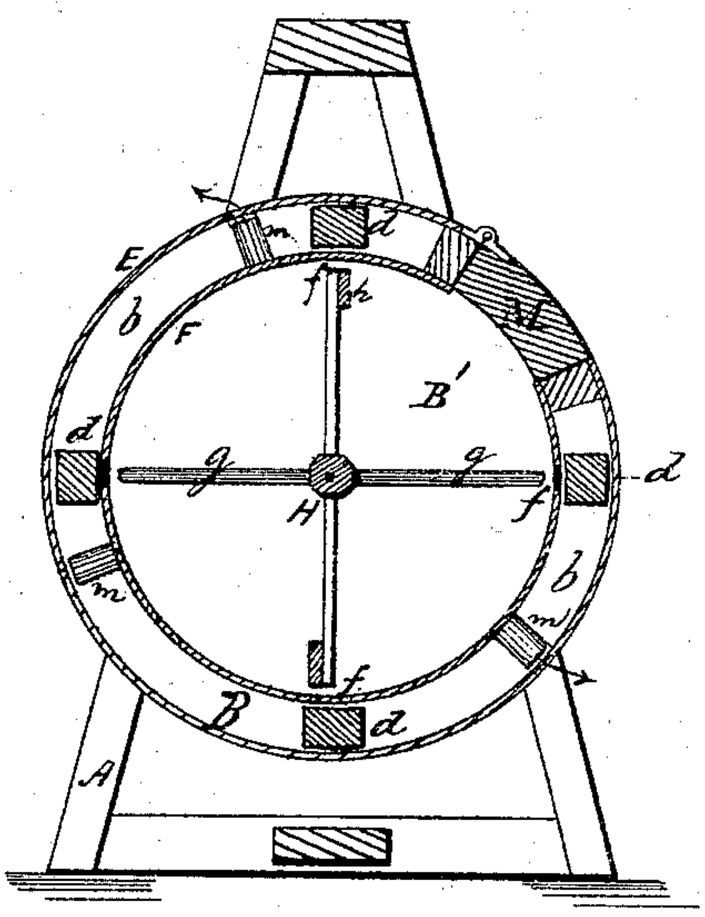


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

STEPHEN A. BOYETT, OF GRENADA, MISSISSIPPI.

IMPROVEMENT IN FEATHER-RENOVATORS.

Specification forming part of Letters Patent No. **135,516,** dated February 4, 1873.

To all whom it may concern:

Be it known that I, STEPHEN A. BOYETT, of Grenada, in the county of Grenada and State of Mississippi, have invented a certain new and Improved Apparatus for Restoring and Renovating Feathers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawing which makes part of this specification, and in which—

Figure 1 represents a longitudinal vertical section through the apparatus embracing my improvements. Fig. 2 represents an end view thereof, and Fig. 3 represents a central transverse section of the same.

My improved steam renovator for restoring feathers to their original utility and beauty consists in an outer steam-tight cylindrical case suspended on a suitable frame, and furnished centrally on either outer end with hollow projections, which, fitting within journal-boxes on the main frame, constitute the axis for rotating the cylinders, and serve as a means for admitting the steam to the interior of said cylinder, and for one of the bearing-surfaces of the inner fan-shaft. Within the main cylinder is arranged an auxiliary steam-tight cylinder, so secured within said cylinder as that there may be an annular space along the entire length of the inner surface of the outer cylinder, and also space at the inner end thereof, communicating with the opening in the hollow journal for the admission of steam. The interior of the center or auxiliary chamber is closed at both ends, and furnished with a suitable hinged door or orifice for supplying it with the required feathers for renovation. The interior cylinder or feather-chamber is provided with a shaft having two sets of radial arms, one set provided with longitudinal wings to serve as a fan, and the other set simply radial rods to act as agitators for properly diffusing the feathers and bringing them within the action of the air from the fan and the steam within the chamber. The fan-shaft within the inner case has its bearings in one end of said case, and in the hollow journal secured on the outer end of the exterior cylinder. It will thus be seen that the exterior and interior cylinders rotate together independent of the fan-shaft, and consequently they may be revolved in opposite directions from said shaft, if desired. Suitable orifices on the periphery of the cylinders, which are opened and shut at will by longitudinal slide-valves worked from the outside of one end of the exterior cylinder, serve as passages for the ingress and egress of the steam to and from said cylinders, and the interior cylinder is further furnished with pipes for carrying off any surplus moisture which may collect within the feather-case, as will be hereinafter more fully described.

The main frame A for supporting the cylinders may be in form as shown in the drawing, or of a rectangular or other shape, as desired. The outer cylindrical case B is shown as having two heads or ends, C D, and covered on its exterior with a metallic sheet, E, thus forming an air-tight chamber, the end D serving as one end of an auxiliary interior chamber, B′, which also is shown covered with a sheet-metal surface, F, and its other end closed by the head-piece G. I contemplate, however, casting these two cylinders, as shown, with one or both ends open, as desired. The journal *a* is hollow, and connects with the space *b* around the interior cylinder; thus, by admitting steam through the orifice *a*, it passes around the space *b*, consequently surrounding the inner cylinder B′, to which it may be admitted by operating the slide-valves *d*, so as to open the orifices *f*, and thereby bring the steam in direct contact with the feathers, as shown in Fig. 1 of the drawing. The other journal *a′* is also hollow for the bearing of one end of the fan-shaft H, the other end thereof having its bearing in the end G of the inner cylinder; said shaft is provided with radial arms *g*, which serve as agitators for distributing the feathers, and also with arms for supporting fan-wings *h*. These fans give the required blast within the cylinder for cooling and drying the feathers. The fan-shaft H is operated by means of a cog-wheel, *i*, on the driving-shaft K, which meshes into a pinion, *j*, secured on the end of said fan-shaft. The machine may be operated by means of a crank-arm attached to the shaft K, or driven by a pulley in lieu of said crank-arm. The pipes *m* connect with the interior of the cyl-

inder B′, and when opened serve to carry off the water which may have collected in said cylinder from the condensation of steam. The door M connects with the interior cylinder, and the space in which it works makes the division between the two cylinders, as shown in Fig. 3, by forming the termini of the annular space *b*.

Having described my invention, I claim—

The combination of the exterior chamber B and interior chamber B′, revolving independent of each other, with the slide-valves *d*, hollow journals *a a′*, steam-space *b*, valve-openings *f*, discharge-pipes *m*, and rotary fan-shaft H, when constructed and arranged substantially in the manner and for the purpose herein set forth.

In testimony whereof I have hereunto signed my name.

STEPHEN A. BOYETT.

Witnesses:

J. W. HEATH,

JOHN B. WILLIAMS.