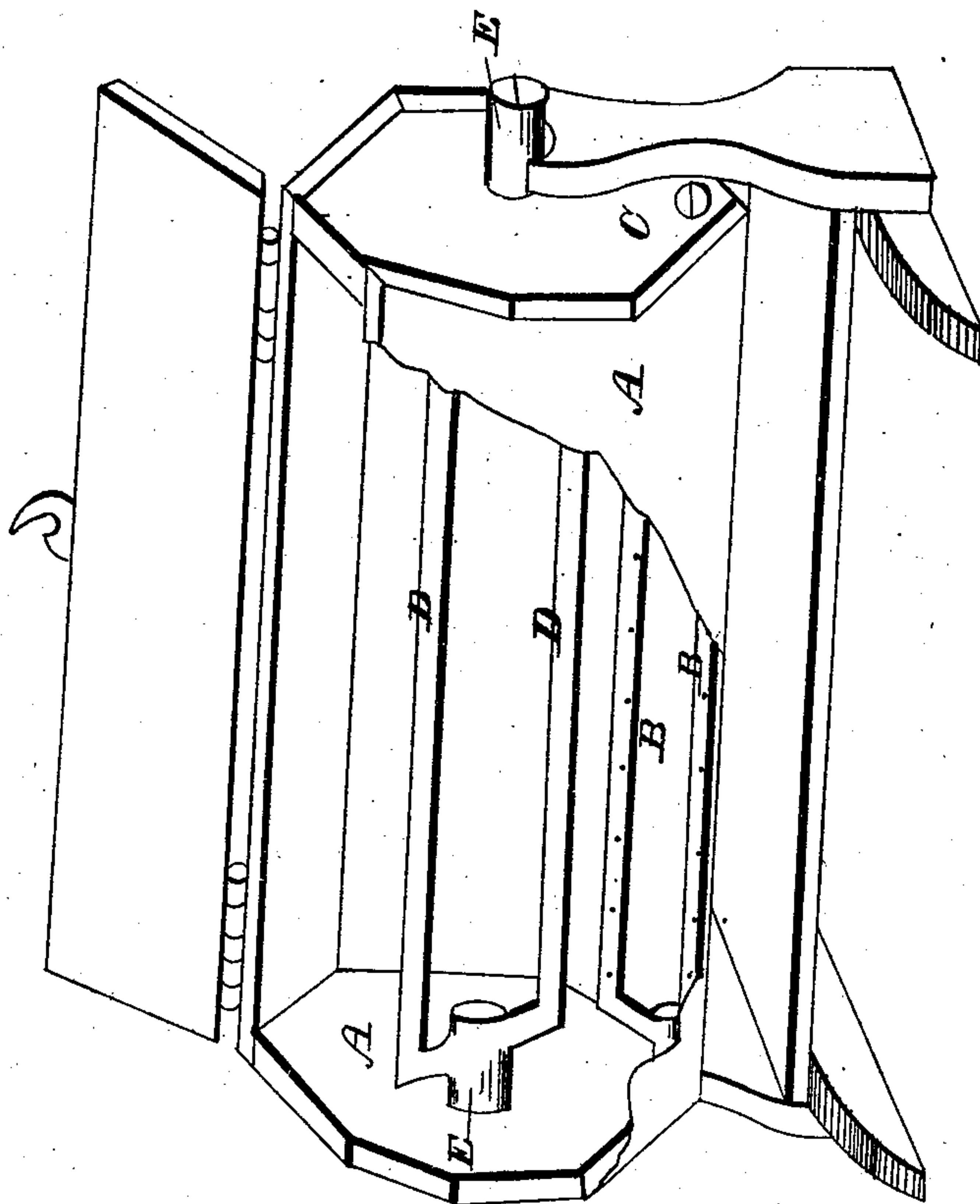


GRAVES & CRANDALL.

Feather Renovator.

No. 85,654.

Patented Jan. 5, 1869.



Witnesses;  
G. W. Carr  
J. S. Samson

Inventors;  
R. H. Graves  
H. S. Crandall.

# United States Patent Office.

RUFUS H. GRAVES AND HARVEY L. CRANDALL, OF MCGRAWVILLE,  
NEW YORK.

*Letters Patent No. 85,654, dated January 5, 1869.*

## IMPROVEMENT IN FEATHER-RENOVATOR.

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

### *To all whom it may concern :*

Be it known that we, RUFUS H. GRAVES, and HARVEY L. CRANDALL, of McGrawville, in the county of Cortland, and State of New York, have invented a new and useful Improvement in Machines for Cleansing and Renovating Feathers; and we do hereby declare that the following is a true and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

A is a hollow cylinder, either round or octagonal, revolving on the gudgeons E E.

These gudgeons are hollow, and are connected by the pipes D D.

When at rest, the cylinder stands as represented in the drawing.

In its lower part are the horizontal pipes B B, perforated for the emission of steam.

These pipes are brought into connection at the ends in a single pipe, and the single pipe carried through the heads of the cylinder at C C.

The feathers are placed in the cylinder, which is then closed up. A steam-pipe is then coupled on to the perforated pipes at C, and the steam is emitted among the feathers as long as desired. The steam-pipe is then changed from the perforated pipe to the central pipe D D through the hollow gudgeon E, and the cylinder is then revolved by any proper machinery, until the feathers are dried by the heat given out from the central pipe.

What we claim, and desire to secure by Letters Patent, is—

The cylinder A, having within itself the perforated pipes B B, arranged as described, and central pipes D D, arranged as described, the latter being connected with the hollow shaft E, and the whole being constructed and arranged in the manner described, for the purpose set forth.

R. H. GRAVES.  
H. L. CRANDALL.

Witnesses:

C. M. CARR,  
J. S. SAMSON.