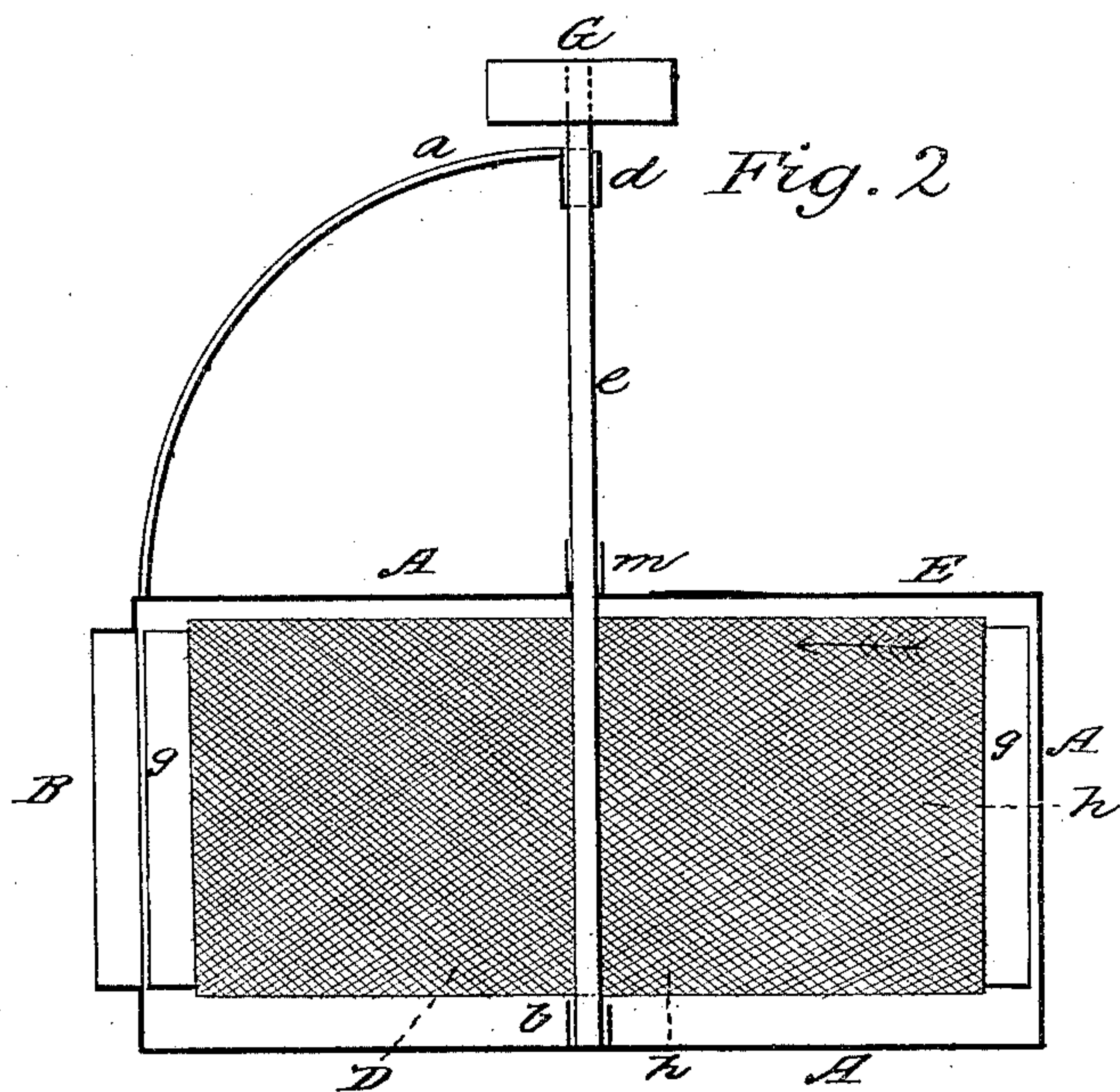
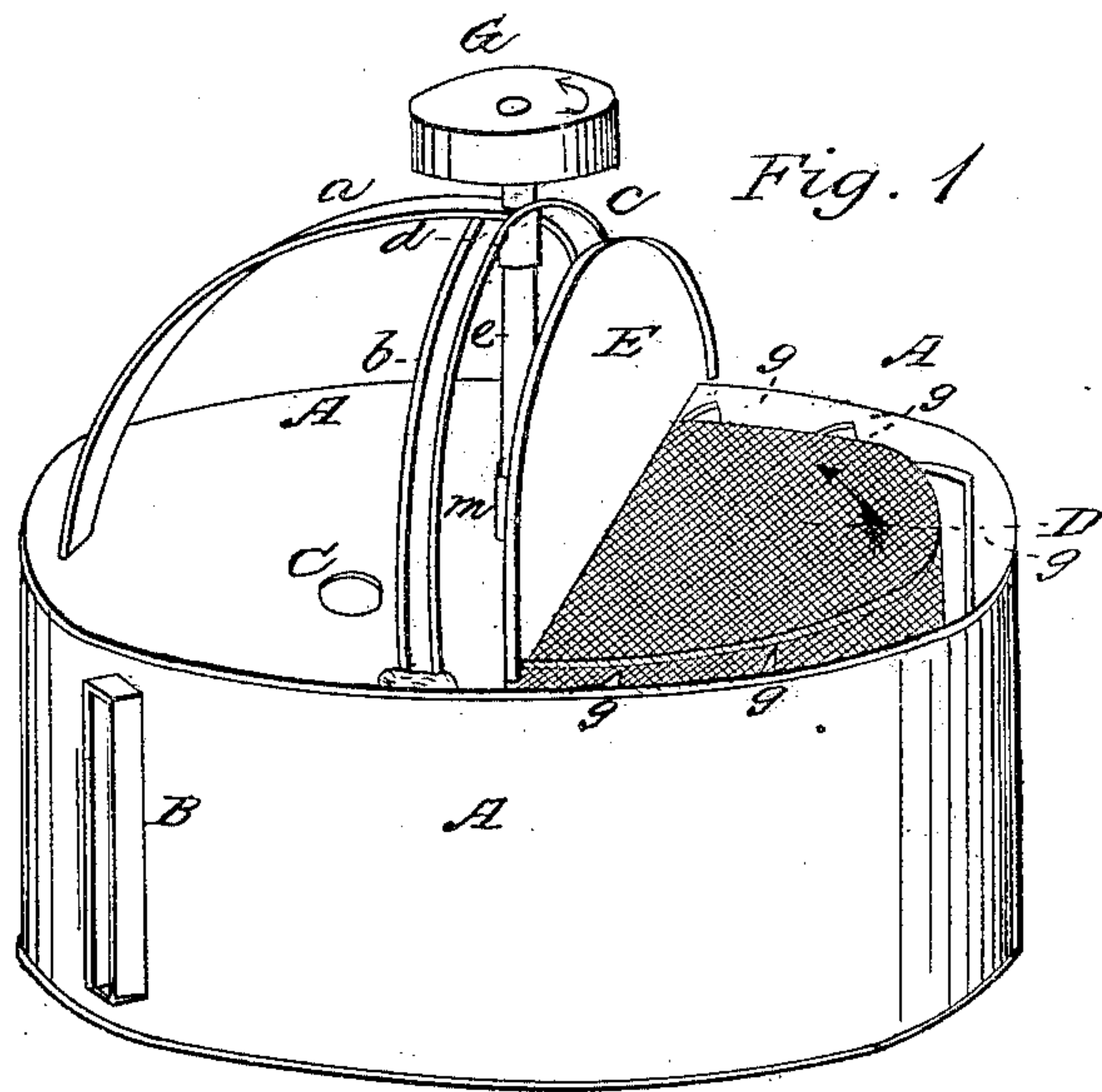


L. W. BOYNTON.

Wool Drier.

No. 63,462.

Patented April 2, 1867.



Witnesses:
E. W. Baldwin
R. J. Mergens.

Inventor:
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United States Patent Office.

LEANDER W. BOYNTON, OF HARTFORD, CONNECTICUT.

Letters Patent No. 63,462, dated April 2, 1867.

IMPROVEMENT IN DRYERS FOR WOOL, &c.

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, LEANDER W. BOYNTON, of the city and county of Hartford, in the State of Connecticut, have invented a new and useful Improvement in Apparatus or Machinery for Desiccating or Drying Wool, &c.; and I do hereby declare that the following is a full, clear, and exact description of the construction, character, and operation of the same, reference being had to the accompanying drawings, which make part of this specification, in which—

Figure 1 is a perspective view of the whole apparatus, showing a portion of the perforated vessel which is to contain the wool, &c., the wings or vanes of the exhausting fan, the induction port or passage for the steam, and the eduction port.

Figure 2 is a plan of the same cut vertically through the centre, showing the internal structure.

My improvement consists in making or using a cylindrical vessel with its sides or periphery finely perforated or made of wire cloth, or any other analogous substance, and open at the top, to the periphery of which I attach or fix wings or vanes, to serve as an exhaust fan when the cylindrical vessel is being revolved horizontally on its axis, which perforated cylindrical vessel I place vertically in a cylindrical case, in the top of which case I make a door designed to shut steam-tight, and also in the central part (so as to come within the inner or perforated vessel,) I make a port or hole to receive the steam induction pipe, and in the rear side I make an eduction port or passage, through which the steam and vapor are to be forced out by the pressure of the high steam which enters the induction port, and the action of the exhaust fan combined, so that when high steam is passed in it will percolate through the mass of wool, and, by its superabundant heat, convert the moisture which is in the wool into steam, and the whole will pass out at the eduction port in the state of steam or vapor, leaving the wool essentially dry. I make the case or external cylinder, A A A, of wood or any other suitable material, of a plain cylindrical form, except an eduction port or passage for the steam or vapor to pass out at, as shown at B, figs. 1 and 2, making the bottom and top whole (and steam-tight) except a hole, C, in the central part of the top, that is, over the perforated hollow cylinder or vessel, to serve as an induction port through which the high steam is to pass into the cylinder D, as indicated in fig. 1, (the cylinder D being indicated in fig. 2;) and in the top or lid of this case or external cylinder I make a door, as shown open at E, fig. 1, (and indicated in section as closed, at E, fig. 2,) to allow me to put the wool into the perforated cylinder D. This door E should be closed steam-tight when in use; and connected with the top of this external cylinder, when necessary, I fit proper braces, as *a b* and *c*, fig. 1, to support a suitable bearing, as *d*, for the upper journal of the shaft *e*, by means of which the internal cylinder D is to be revolved. I make the internal cylinder D (except the bottom) of perforated sheet metal, wire gauze, or any other suitable material, and of considerably less diameter than the external cylinder A A, as indicated in fig. 1, and of less length, as shown in fig. 2. Vertically upon the periphery of this perforated cylinder I fit a series of wings or vanes, nearly radiating from the centre, as shown at *g g*, &c., fig. 1, and *g* and *g*, fig. 2, so that when the internal cylinder D is revolved in the direction indicated by the darts, the wings or vanes *g g*, &c., will force first the air, and then the steam or vapor, out through the eduction port B, figs. 1 and 2. To the centre of the bottom of the cylinder D, as at *h*, fig. 2, I firmly secure an upright shaft, as *e*, figs. 1 and 2, which I revolve in bearings, as *l*, fig. 2, in the bottom of the external cylinder A A, as *m*, in the top of the cylinder A A, and as *d*, at the top or junction of the braces *a b* and *c*, as shown in figs. 1 and 2. On the top of this shaft *e* I use a pulley, (of suitable size,) as G, figs. 1 and 2, so as by the use of a belt to swiftly revolve the cylinder D, so that its wings or vanes *g g*, &c., will continually operate to exhaust the cylinder or case A A, and with such velocity as to exhaust it sufficiently to carry out all of the steam or vapor, and leave the wool essentially dry; or any other analogous means may be used to revolve the perforated cylinder D, as found most convenient. Having constructed and arranged the parts, and connected the pipe for high steam with the hole or aperture C, as before described, I open the door E, as shown in fig. 1, and place the wet wool in the perforated cylinder D, (turning it round to fill all parts with equal density.) I then close the door E, let in the high steam, and apply the power to revolve the cylinder D, when the superabundance of the heat in the high steam will convert the moisture in the wool into steam, and the force or operation of the exhaust fan will carry the whole out at the eduction port B, in the state of steam or vapor, and leave the wool essentially dry. The steam for this purpose should be raised to a temperature of from four to six atmospheres, according to the wetness and quantity of the wool, or the time allowed for drying,

as the higher the temperature, and the dryer the steam, the more rapid and thorough will be the desiccation, as the wool may be brought to a condition as dry as the steam used in one-fiftieth part of the time which would be required if any substance other than steam were used; and if it be desired to dry the wool so thoroughly as to render it fit for packing to lie for a considerable length of time, the steam pipe may be removed from the aperture C, when, by continuing the revolving motion of the cylinder D for a few minutes, the warm air (as of the room) will complete the desiccation.

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

The combination of the internal cylinder D, and its wings or vanes *g g*, &c., with the eduction port B, and the induction port C, when the whole is constructed and arranged, and the cylinder D caused to revolve, substantially as herein described and set forth.

L. W. BOYNTON.

Witnesses:

E. W. BALDWIN,

R. FITZGERALD.