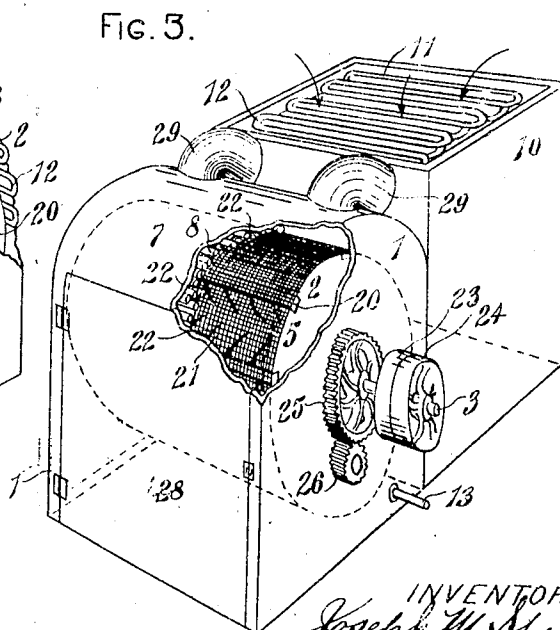
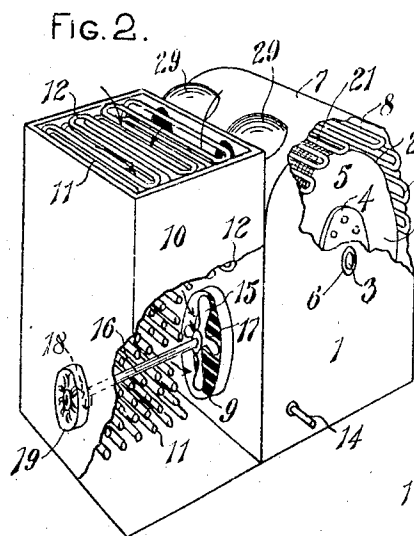
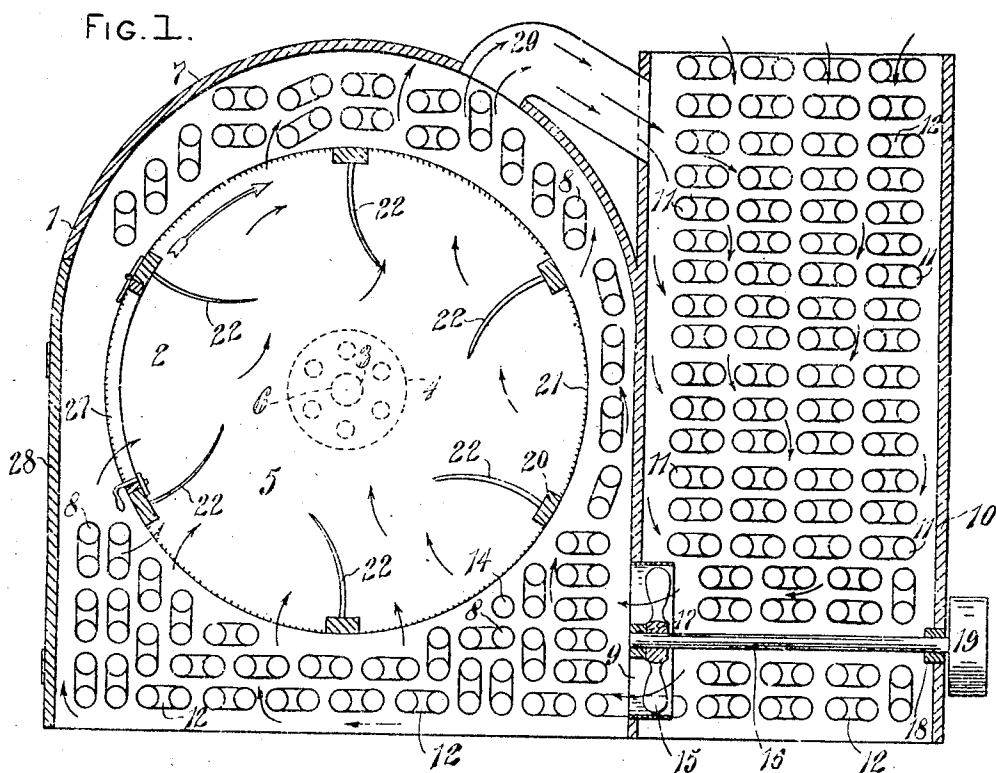


No. 849,581.

PATENTED APR. 9, 1907.

J. M. SPENCER.  
 DRYING MACHINE.  
 APPLICATION FILED DEC. 4, 1905.



WITNESSES:  
 Clarence L. Pordaw  
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INVENTOR  
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# UNITED STATES PATENT OFFICE.

JOSEPH M. SPENCER, OF CINCINNATI, OHIO, ASSIGNOR TO CLEMENT L. HILLS,  
OF CINCINNATI, OHIO.

## DRYING-MACHINE.

No. 849,581.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed December 4, 1905. Serial No. 290,079.

*To all whom it may concern:*

Be it known that I, JOSEPH M. SPENCER, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Drying-Machines, of which the following is a specification.

My invention relates to means for drying fibrous substances; and the object is to facilitate the drying of such substances thoroughly and evenly, and thereby improve the quality of the finished product, while at the same time economizing in the use of heat.

My invention consists of an open cylindrical receptacle provided with inwardly-extending teeth and adapted to be revolved, in combination with an outer casing having means therein for heating air and circulating said air through said receptacle.

My invention also consists in the parts and in the combination and arrangement of those parts, as will hereinafter be more fully described, and pointed out in the claims.

In the drawings, Figure 1 is a cross-section of my improved drying-machine. Fig. 2 is a perspective view from the rear, and Fig. 3 is a similar view from the front, in both of which figures part of the casing and tubes are represented as broken away to better illustrate the interior construction of the machine.

My improved drying-machine is constructed substantially as follows: The casing 1 has the cylindrical receptacle 2 journaled in its ends, this being accomplished by bolting a stud or shaft 3, having the concentric base 4, to the solid end 5 of the receptacle and providing a suitable bearing 6 therefor in the end of the casing. Preferably the casing has its top 7 of semicylindrical shape, as shown. Considerable space is left within the casing 1 around the receptacle 2, and within this space are disposed the steam-tubes 8.

Adjoining the casing 1 and communicating therewith through the fan-casing 9 I provide the tower 10, open at the top and having the steam-tubes 11 disposed therein.

The steam-tubes 8 and 11 are made continuous by means of return-bends, as at 12, from the inlet 13 to the outlet 14, so that a continuous circulation of steam may be maintained through the tubes.

Within the fan-casing 9 is mounted the fan

15 on the shaft 16, which is journaled at 17 and 18 and has means for rotating it, as at 19. When the fan 15 is rotated, air will be circulated downward through the tower 10 around the steam-tubes 11 and heated thereby. Said air will likewise be forced upward around the tubes 8 and further heated.

The receptacle 2 is composed of a cylindrical framework 20, upon which is supported a network 21, adapted to allow the air to circulate through the receptacle and at the same time retain the substance to be dried therein. Inwardly-extending tines or teeth 22 are mounted in the framework 20. One of the studs or shafts 3 has a tight and a loose pulley 23 and 24, and I also prefer to mount rigidly thereon a gear-wheel 25 in mesh with a pinion 26, rotatively mounted on the casing 1 for the purpose of causing the receptacle 2 to rotate more steadily.

The receptacle 2 is provided with an outwardly-opening door or lid 27 for the purpose of inserting and removing the substance to be dried, and the casing 1 has the outwardly-opening door 28 to permit access to the door or lid 27 and to the inside of the machine in general. Leading from the top of the casing 1 into the tower 10 are the ducts or flues 29 for the purpose of conducting the air from the casing back into the tower after having been superheated by steam-tubes within the casing, and especially those above the receptacle, as shown.

The fibrous substance to be dried, such as wool, is placed in the receptacle 2 and the receptacle revolved in the direction of the large white arrow, while at the same time steam is allowed to circulate through the steam-tubes 8 and 11 and air is circulated around said tubes and through said receptacle by means of the fan 15. The air being thus heated and coming into contact with the substance absorbs the moisture therefrom whether said moisture be present as a result of washing, dyeing, or other treatment of the substance, and being superheated, and thus made capable of absorbing still more of the moisture, is led back, by means of the ducts 29, into the tower to be used again. The tines or teeth 22 are curved in the direction of rotation of the receptacle 2 and are adapted to hold the fibrous substance, continually carrying it up and letting it fall,

thus separating the fibers, facilitating the drying, and improving the quality of the substance.

5 While I have shown and described a peculiar construction herein, I do not wish to be understood as limiting myself to it; but

What I desire to secure by Letters Patent is—

10 In a drying-machine, an inclosing casing, an open cylindrical receptacle, means for rotating said receptacle, inwardly-extending teeth in said receptacle, steam-heating coils arranged within said casing around said receptacle, a heating-tower provided with

steam-heating coils communicating with the heating-coils in the inclosing casing, a fan 15 between said tower and inclosing casing adapted to force heated air from the heating-tower into the inclosing casing and a return-duct near the top of said inclosing casing and 20 heating-tower whereby the air is forced to return from the inclosing casing to the heating-tower to be superheated for the purpose of being used repeatedly.

JOSEPH M. SPENCER

Witnesses:

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