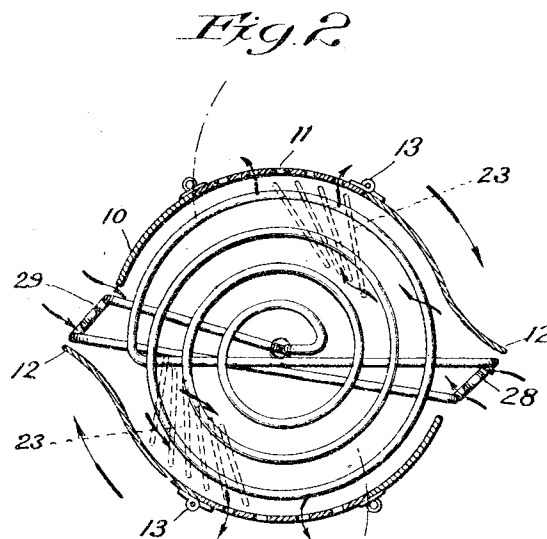
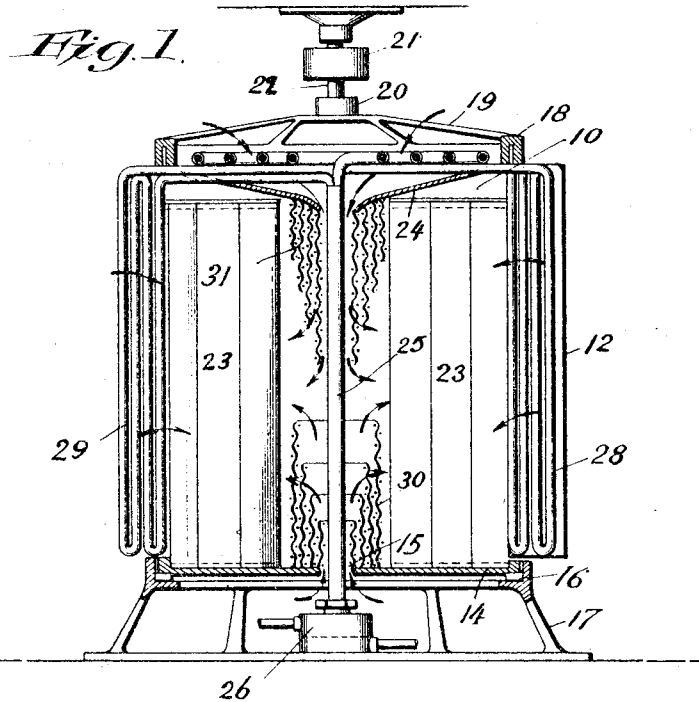


S. W. BONSALE.
 ROTARY DRIER.
 APPLICATION FILED JAN. 2, 1912.

1,047,905.

Patented Dec. 17, 1912.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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ROTARY DRIER.

1,047,905.

Specification of Letters Patent.

Patented Dec. 17, 1912.

Original application filed November 17, 1911, Serial No. 660,819. Divided and this application filed January 2, 1912. Serial No. 669,139.

To all whom it may concern:

Be it known that I, SEYMOUR W. BONSALL, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Rotary Driers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This application is a division of an application filed by me November 17th, 1911, Serial No. 660819.

My present invention has relation to means whereby lumber may be quickly and conveniently dried, and the principal object of the invention is the provision of means whereby a powerful draft of heated air may be produced in a suitably disposed group of boards, planks, veneer or other sawed lumber, whereby the moisture held within the fibers thereof may be quickly and uniformly carried off.

My improved apparatus comprises broadly a revolving container provided with suitable supports for the wood to be treated and with means whereby air entering near the center of the container is preheated and driven outward around and past the properly disposed boards or planks.

In the preferred form of the invention herein claimed, the centrifugal draft is combined with an auxiliary circumferential draft produced by a scoop shaped conformation of the external wall of the container.

My invention also covers certain preferred means for equalizing the air distribution as well as to a means whereby the heat of steam is made available for increasing the absorptive power of the air currents produced.

My invention is shown in a certain preferred embodiment in the accompanying drawings, wherein—

Figure 1 is a vertical section of the device and Fig. 2 is a horizontal section of the form shown in Fig. 1.

The main container, as shown in the drawings is composed of an outer cylindrical casing 10; which is solid, save where exit openings for air are provided at 11, and where the casing is opened outward at diametrically opposed points to form vertical scoops 12. The dotted lines in Fig. 2 show

the direction of outward opening of the doors hinged as at 13.

The casing 10 is carried by a floor 14, having a central aperture 15 and mounted upon roller bearings 16 or the like carried by any suitable base 17. The circular top frame 18 has spider arms 19 uniting in a hub 20, whereby the entire device may be revolved at a suitable speed by any appropriate means, for instance a pulley 21 whose armature is made fast to a shaft 22, which is fastened to the hub 20.

Access to the interior of the casing is had through the doors hinged at 13 and through the doors are introduced the boards or other material to be dried, the preferred arrangement of the boards being indicated at 23, wherein the edges are presented approximately to the current of air produced by the components hereinafter described. The top of the container is provided with a deflector 24, whereby the air which tends to enter at the top is directed toward the center. The two-part steam pipe 25 is carried in an axial position by the container, the same being arranged to carry steam upward through one half of the pipe from the drum 26 and to be returned to the drum through the other half of the pipe. This may be done by means of any appropriate construction and preferably in the manner set forth in my divisional application aforesaid. It will be understood that the steam pipe is intended to revolve with the container. At the top of the device the steam is carried outward by spiral convolutions, forming a grid in the path of the entering air at the top and thence in vertical coils up and down as shown at 28 across one of the vertical openings made by one of the scoops 12; thence back across the top and up and down by coils 29 in the opposite vertical opening and thence back to the return half of the vertical steam pipe.

It will be seen that when the container is rotated in the direction of the arrow in Fig. 2, the scoops 12 will act to cause a strong circumferential draft; which, together with the air entering at top and bottom at the central openings will make the resultant draft which will find its way between the boards 23 or other articles to be dried and finally out through the air passages 11.

In order to so regulate the air which

enters at the center, and is drawn in by centrifugal force, that the current may be equalized outwardly, I prefer to employ distributors for this purpose. These distributors are shown in the form of concentric tubes of wire mesh 30 and 31 at the bottom and top respectively and these are so disposed that there are more tubes near the opening than at points farther in and the total thickness of wall formed by the concentric tubes diminishes toward the middle of the machine. The air enters inside of the tubes and finds its way outward through the wire mesh as well as through the end of the tubes and by this means the tendency of the draft to confine itself to the neighborhood of the floor and top is counteracted.

The action of the hot steam pipe placed in the path of the entering air both at the center and near the scoop-shaped openings is, of course, to increase the capacity of the air to absorb moisture and to give it a strong drying effect upon the lumber or other material.

A variety of changes may be introduced into this device without departing from my invention and I do not limit myself to the details herein shown and described.

What I claim is—

1. A drier comprising a revoluble casing open at the side to form a scoop and having exit openings in the outer walls of said casing, substantially as described.

2. A drier comprising a revoluble casing open at the side to form a scoop at two

points diametrically opposed and having intermediate exit openings in the outer walls of the casing, substantially as described.

3. A drier comprising a revoluble casing open down the side to form a scoop, a two-part steam pipe placed axially therein and having an extension arranged in the opening near said scoop, and means for carrying out the air gathered into the casing by said scoop, substantially as described.

4. A drier comprising a revoluble casing having entrance openings down the side, steam pipes in said openings and exit openings in the wall of the casing, substantially as described.

5. A drier comprising a revoluble casing, having central openings at top and bottom and openings down the side, steam pipes at all of said openings and exit openings in the wall of the casing, substantially as described.

6. A drier comprising a revoluble casing, having openings near the center at top and bottom and down the side at opposite sides to form scoops, draft distributing means for said central openings, steam pipes at said openings and exit openings for the air between said vertical openings, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

SEYMOUR W. BONSALL.

Witnesses:

H. GREIFF,
JOHN HADCOCK.