Mar. 6, 1923. 1,447,836.

W. H. COLLIER ET AL.

DRIER.

FILED FEB. 28, 1920.

FIG. 1

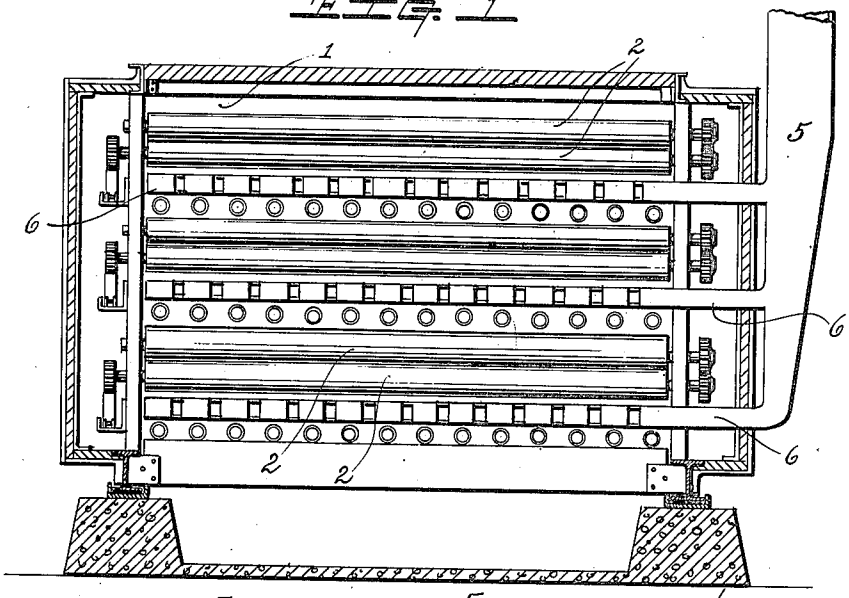


FIG. 2

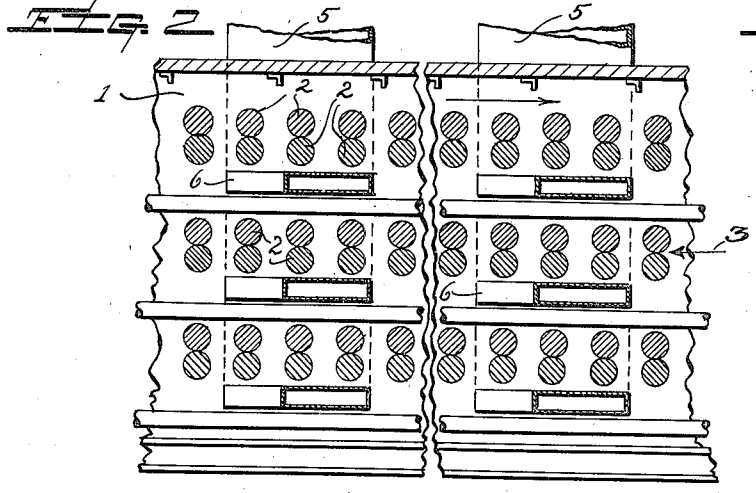


FIG. 3

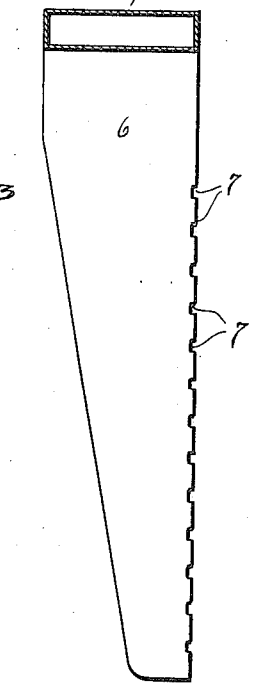
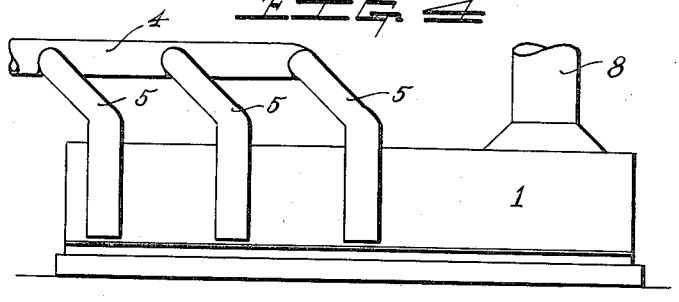


FIG. 4



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Patented Mar. 6, 1923. 1,447,836

UNITED STATES PATENT OFFICE.

WILLIAM H. COLLIER AND ARTHUR J. VANCE, OF PAINESVILLE, OHIO, ASSIGNORS TO THE COE MANUFACTURING COMPANY, OF PAINESVILLE, OHIO, A CORPORATION OF OHIO.

DRIER.

Application filed February 28, 1920. Serial No. 362,155.

To all whom it may concern:

Be it known that we, WILLIAM H. COLLIER and ARTHUR J. VANCE, citizens of the United States of America, and both residents of Painesville, Lake County, Ohio, have invented certain new and useful Improvements in Driers, of which the following is a specification.

Our invention relates to driers of the type wherein material to be dried passes progressively through a long drying chamber. Veneers driers are an instance, though a single instance only, of machines of this type. In such machines a particularly even drying of the product is desired; and, naturally, even drying involves and requires approximately even distribution of drying air.

The drying of veneer involves, not merely the abstraction of moisture from the wood, but the proper extraction of such moisture. Too rapidly drying may result in "case-hardening" and various other defects. The present invention comprises an improved arrangement of air ducts for the admission of air to the drying chamber, whereby a more uniform distribution of the drying air is effected than by previous known constructions for the purpose.

Our invention consists in the novel means hereinafter described for the supply of, and distribution of, drying air through a drying compartment of the driers of the type referred to.

The object of our invention is to obtain more uniform distribution of drying air throughout a drying compartment.

We will now proceed to describe our invention with reference to the accompanying drawings and will then point out the novel features in claims.

In said drawings:

Figure 1 shows a transverse section looking toward the front, of a veneer drier which, except as to features of invention hereinafter pointed out, is of a type well known.

Figure 2 shows a fragmentary longitudinal section of said drier.

Figure 3 shows a top view and partial horizontal section of one of the air introduction nozzles hereinafter described.

Figure 4 shows, more or less diagrammatically, a side elevation of a drier such as referred to.

In mechanical construction, the drier hereinafter described corresponds generally to the drier shown in the patent to H. P. Coe No. 1,000,376 dated August 15, 1911. Reference is made, therefore, to that patent, for details of construction not fully illustrated and described herein. However, since the present invention relates primarily to means for the introduction and distribution of drying air, it will be understood that the present invention is not confined to mechanical details of means for feeding through a drying chamber the material to be dried, or to the treatment of any particular material to be dried, or to other features not directly relating to the distribution of drying air.

In the drawings, 1 designates a drying chamber, preferably of considerable length, and preferably completely closed except as openings may be provided at one end for the reception of material to be dried, and at the other end for the discharge of the dried material. 2—2 designate series of conveyor rolls for the carrying through the drying chamber 1 of the material to be dried. For details of support of these rolls, and for their drive, reference is made to the said Coe patent. Such reference is made without the intention of limiting the apparatus to that or any other particular means for driving the conveyor rolls; but to the contrary, the present invention is independent of any such limitation. It will be understood, however, that, in general, there will be within chamber 1 means for conveying progressively, through drying chamber 1, material to be dried, and that the general direction of progress of such material through the machine will be in the direction of the arrow 3, Figure 2.

4, Figure 4, designates a main air supply conduit from which there are branches 5; and from these branches 5 there are other branches 6 constituting air distribution nozzles. As shown particularly in Figure 3, these nozzles 6 are provided, at their rear sides with air distribution orifices 7, through which air conducted by conduits 4 and 5 to nozzles 6, may escape into the interior of chamber 1. 8 designates a stack through

which the air, previously introduced into chamber 1, and laden with moisture which has been taken up in said chamber, may escape. The escape orifices 7 of nozzles 6 are on the rear side of said nozzles with respect to general direction of flow of air through chamber 1. This method of introducing air into chamber 1, and the tapering of the rear sides of the nozzle 6, as indicated in Figure 3, both tend to produce a particularly uniform distribution of air through the chamber 1.

In the foregoing description we have particularly referred to air as the drying medium introduced through nozzles 6; but we wish it understood that our invention is not limited to any particular gaseous medium to be introduced through the nozzles 6, but, to the contrary, the drying medium so introduced may be any suitable medium including air or other gases laden with moisture or other suitable substance.

What we claim is:

1. The combination with a drying chamber, of means for causing the flow therethrough of a suitable drying medium, and means for projecting into said drying chamber a current of drying medium in the direction of flow of drying medium through the chamber.

2. The combination with a drying chamber, of means for causing the substantially horizontal flow therethrough of a suitable drying medium, and drying medium supply means comprising one or more nozzles projecting transversely across said chamber and provided with escape orifices on their sides facing toward the normal direction of flow of drying medium through the chamber.

3. The combination with a drying chamber adapted for the substantially horizontal flow therethrough of a suitable drying medium, of drying medium supply means comprising one or more nozzles projecting transversely across said chamber and of progressively decreasing cross-section, and provided with escape orifices on their sides facing toward the normal direction of flow of drying medium through the chamber.

4. The combination with a drying chamber adapted for the substantially horizontal flow therethrough of a suitable drying medium, and provided with a plurality of tiers of conveying means adapted for the transport through said chamber of material to be dried, and drying medium supply means comprising one or more nozzles projecting transversely across said chamber between said tiers and provided with openings for the flow of drying medium into said chamber.

5. The combination with a drying chamber adapted for the substantially horizontal flow therethrough of a suitable drying medium, and provided with a plurality of tiers of conveying means adapted for the transport through said chamber of material to be dried, of drying medium supply means comprising a longitudinal air supply conduit, down-take branches therefrom, and nozzles projecting from said down-take branches transversely across said chamber between the tiers of conveying means and provided with orifices for the discharge of drying medium into said chamber.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

WILLIAM H. COLLIER.
ARTHUR J. VANCE.

Witnesses:
D. D. SMEAD, Jr.,
ETHEL REED.