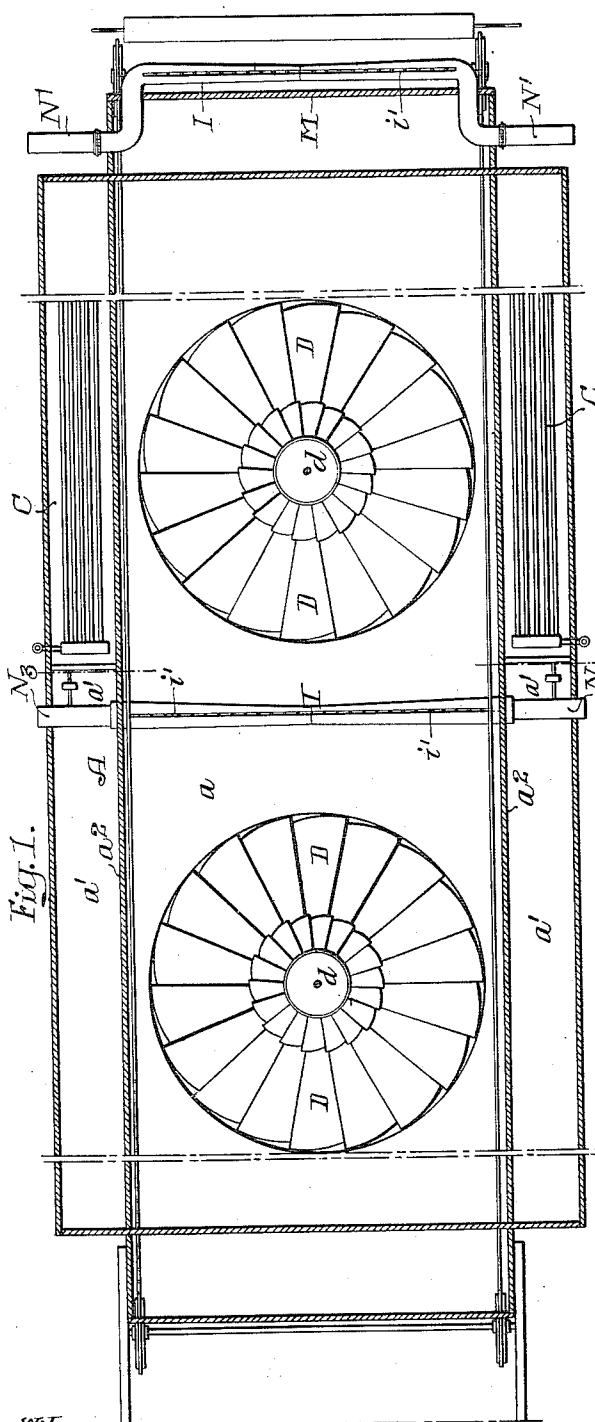


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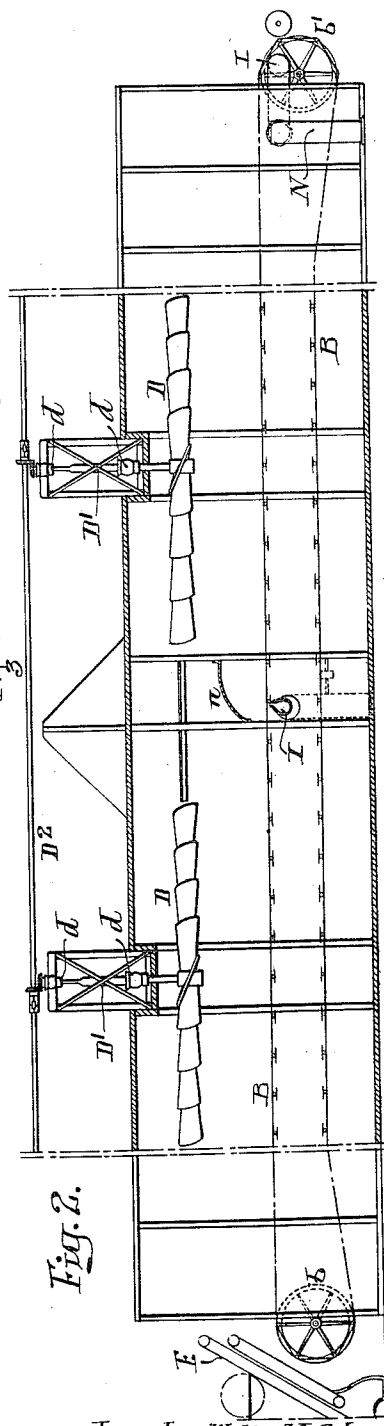
W. M. SCHWARTZ.
 DRYING APPARATUS.
 APPLICATION FILED APR. 30, 1910.

Patented Mar. 7, 1911.

2 SHEETS-SHEET 1.



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Inventor: Walter M. Schwartz
 by his Attorneys:
 Howen & Howen

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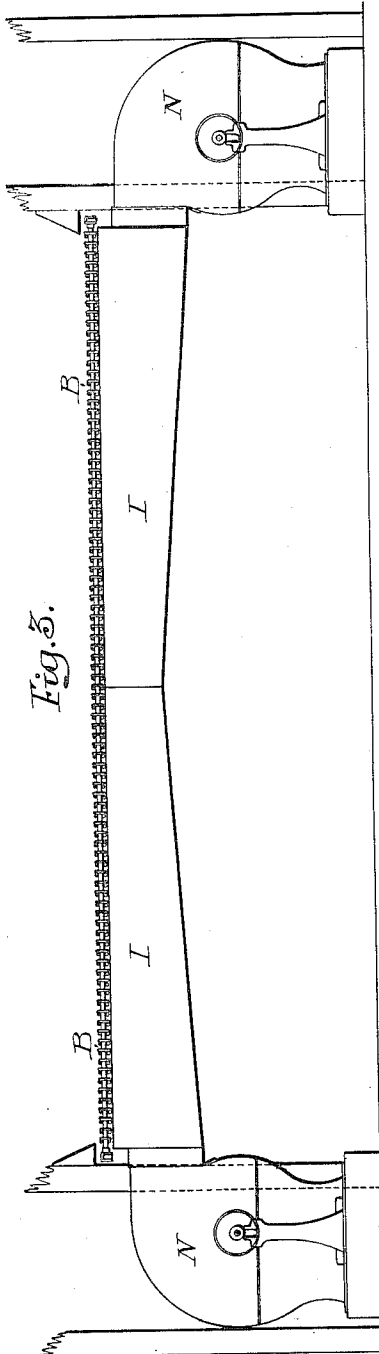


Fig. 5.

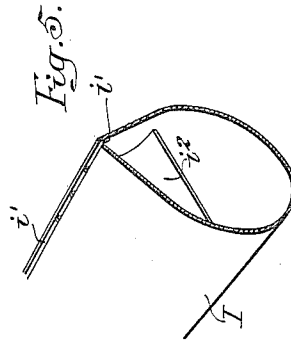


Fig. 5.

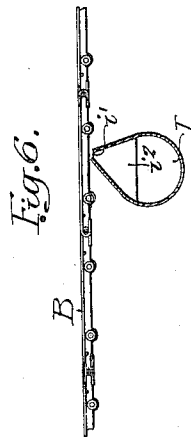


Fig. 6.

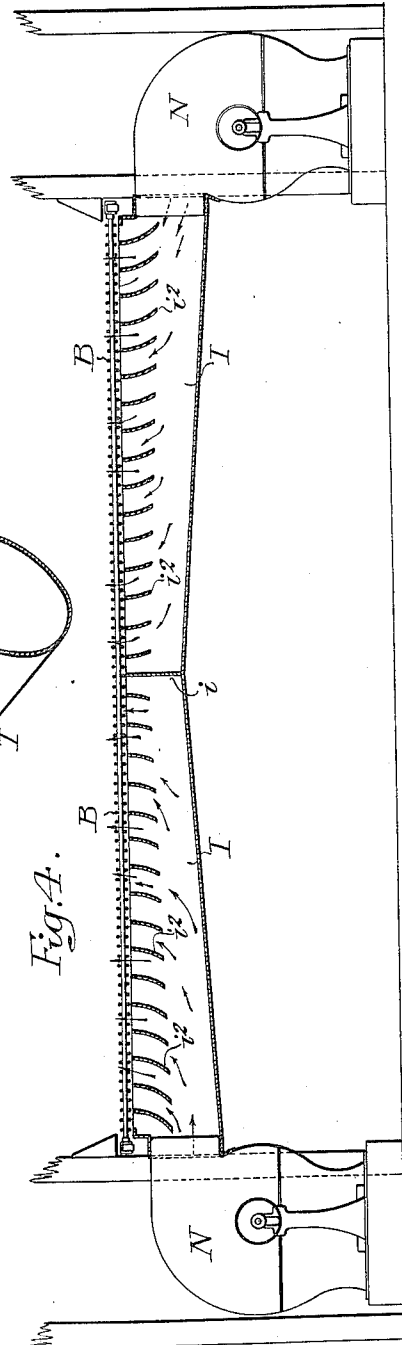


Fig. 4.

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UNITED STATES PATENT OFFICE.

WALTER M. SCHWARTZ, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE PHILADELPHIA TEXTILE MACHINERY COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

DRYING APPARATUS.

986,226.

Specification of Letters Patent.

Patented Mar. 7, 1911.

Application filed April 30, 1910. Serial No. 558,665.

To all whom it may concern:

Be it known that I, WALTER M. SCHWARTZ, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Drying Apparatus, of which the following is a specification.

One object of this invention is to provide means for agitating material being conveyed through a drying apparatus.

A further object of the invention is to provide means for discharging material from a conveyer.

These objects I attain in the following manner, reference being had to the accompanying drawings, in which:—

Figure 1, is a sectional plan view of a drying apparatus illustrating my invention; Fig. 2, is a sectional elevation of the apparatus; Fig. 3, is an enlarged transverse sectional view on the line 3—3, Fig. 1, illustrating the air blast apparatus; Fig. 4, is a longitudinal sectional view through the tube; Fig. 5, is a sectional perspective view of a portion of the tube; and Fig. 6, is an enlarged view of a portion of Fig. 2.

A is the frame of a drying apparatus, having main chambers *a* through which the conveyer B travels, and side chambers *a'* separated from the main chambers by longitudinal partitions *a''*. Some of these side chambers are provided with steam coils C, so as to heat the air to the proper temperature as it circulates. The conveyer B passes around wheels *b*, *b'* at the ends of the apparatus, and the material is fed onto the conveyer either by hand or by feed mechanism, as illustrated at E, Fig. 2.

D, D are circulating fans secured, in the present instance, to vertical shafts D' carried by bearings *d* mounted on frames supported by the main structure of the apparatus. These shafts can be driven in any suitable manner. In the present instance I have shown the said shafts geared to a main driving shaft D².

The structure can be of any length desired and there may be any number of heating chambers throughout the length of the apparatus. In Figs. 1 and 2, I have shown the

center of the apparatus and the two ends, omitting the intervening chambers.

In drying some classes of material it is essential that it be agitated or turned during its travel through the apparatus, and means have been provided for positively engaging the material and allowing it to fall back in a different position, but the appliances are usually in the form of blades or forks and the material becomes tangled on the blades, or the blades injure the material as they engage it. By my invention I provide means for lifting material off of the conveyer by air pressure, allowing it to settle on the belt again in a different position, and without being injured, as the pressure of air can be regulated.

In the present instance I is a tube extending transversely from one side of the main chamber *a* of the apparatus to the other, and this tube is connected in the present instance at each end with a blower N. These blowers are driven in any suitable manner and are of such a size as to supply a body of air to the tube I. The tube, in the present instance, has a central partition *i* and is tapered from each end toward the center; being of greater diameter at the ends than at the center.

In the upper edge of the tube is a narrow slot *i'* for the escape of air, and in order to direct the air from the tube in a vertical direction, I provide curved deflectors *i''* and I arrange these deflectors at intervals, so that as the air flows from the fan it will strike the deflectors and will escape through the slot in the tube in a vertical direction, and as the tube is directly under the carrying run of the conveyer B it lifts the loose material being carried by the conveyer, allowing it to fall on a different spot and in a different position.

Mounted in the casing above the conveyer and directly in line with the blast from the tube is a curved deflector *n* which deflects the material and causes it to move forward, in the present instance, and assume a new position on the conveyer.

It will be understood that there may be as

many air blast tubes as desired throughout the length of the apparatus, but in many instances one tube is sufficient.

In narrow machines it may only be necessary to utilize a single fan, but in very wide machines I prefer to use two fans, as shown, one at each end of the tube. It will be understood that the fans receive air from the warm air chambers *a'* and the air blast is consequently about the same temperature as the air in the main chamber, so that the material is not chilled by the air escaping from the tube.

At the discharge end of the drier I place an air blast pipe M slotted throughout its length, as illustrated in the plan view, Fig. 1; the slot being so located as to direct a current of air through the meshes of the conveyer B, and with such force as to lift the material from the conveyer and discharge it onto the floor or into a suitable receptacle, doing away with the doffing rolls heretofore employed. This is especially essential in the type of conveyer illustrated, where the conveyer sections do not bend to conform to circular wheels around which the chains pass, but pass around angular forms, so that it would be impossible to properly doff the material from the cylinder by the ordinary rotating doffer, but by the use of a blast of air, material can be readily removed from the conveyer.

I have shown two fans *N'*, *N'* connected to the pipe M, but it will be understood that the said pipe M can be connected with any suitable blower.

It will be seen by the above description that, by the use of the air blast I can agitate the material being conveyed, without the use of forks, or revolving blades, and that the air blast can be regulated to any degree desired.

The conveyer I prefer to use is a perforated or open slat conveyer, but while the bars are sufficiently close to properly carry the material, the openings are such as to allow the air to freely pass through the conveyer and lift the material.

While I have shown a slotted tube, it will be understood that a tube having a series of perforations, or nozzles, may be used if desired.

I claim:—

1. The combination in a drying apparatus of a casing, a conveyer in said casing, a tube arranged transversely beneath the conveyer and having a slotted opening at the top throughout its length, a central partition in said tube, said tube tapering from each end toward the middle and having deflectors therein disposed at opposite angles on opposite sides of the central partition, and means at each end of the tube for forcing air up through the slot.

2. The combination in a drier, of an end-

less conveyer arranged to travel through the drier, a slotted tube extending transversely in respect to the line of travel of the conveyer and tapering from each end toward the middle, and means for blowing air into the tube so that the air will escape from the slot in the tube, whereby the material being carried is raised from the conveyer.

3. The combination in a drier, of an endless conveyer arranged to travel through the drier, a slotted tube extending transversely in respect to the line of travel of the conveyer, means for blowing air into the tube so that the air will escape from the slot in the tube, whereby the material being carried is raised from the conveyer, and a deflector above the conveyer to deflect the air after it has escaped from the tube.

4. The combination of a traveling conveyer, an air blast device under the carrying run of the conveyer, means for forcing air through the device to lift the material being conveyed off of the conveyer, and a curved deflector arranged above the conveyer to direct the material forward.

5. The combination in a drier, of a casing, an endless conveyer arranged to travel in said casing, a transversely arranged slotted tube, a heating chamber for heating the air circulated in the drier, and a blower connected to the tube, the intake of the blower communicating with the hot air chamber of the conveyer.

6. The combination in a drier of a casing, an endless conveyer arranged to travel in said casing, a transverse tube slotted at the top and having a partition substantially equidistant from each end, said tube tapering from each end toward the middle, a blower for causing a blast of air to be projected through each end of the tube, and deflectors arranged at intervals within the tube to cause the air to be projected in a vertical path through the conveyer.

7. The combination in a drier, of a casing, a hot air chamber, a conveying chamber, a conveyer in said latter chamber, said conveyer being perforated, a transversely arranged slotted tube mounted under the carrying run of the conveyer, a blower communicating at one end with the tube, the intake of the blower communicating with the hot air chamber, and deflectors in the tube for directing the air in an upward path as it leaves the tube.

8. The combination in a drier, of a central drying chamber, a heating chamber at each side, a conveyer in the drying chamber, said conveyer being perforated, a transverse tube extending from one side of the casing to the other, a blower at each end of the tube, and a series of deflectors in the tube, the intake of each blower communicating with the hot air chamber.

9. The combination in a drier, of a cen-

tral drying chamber, an endless belt conveyer arranged to travel in said chamber, a transversely arranged air blast device within the chamber, and an air blast device
5 at the discharge end of the conveyer, said air blast devices being mounted under the carrying run of the conveyer and arranged to project air through the conveyer.

In testimony whereof, I have signed my name to this specification, in the presence of 10 two subscribing witnesses.

WALTER M. SCHWARTZ.

Witnesses:

WM. E. SHUPE,

WM. A. BARR.