

W. M. SCHWARTZ & A. M. SCHREUDER.
DRIER.

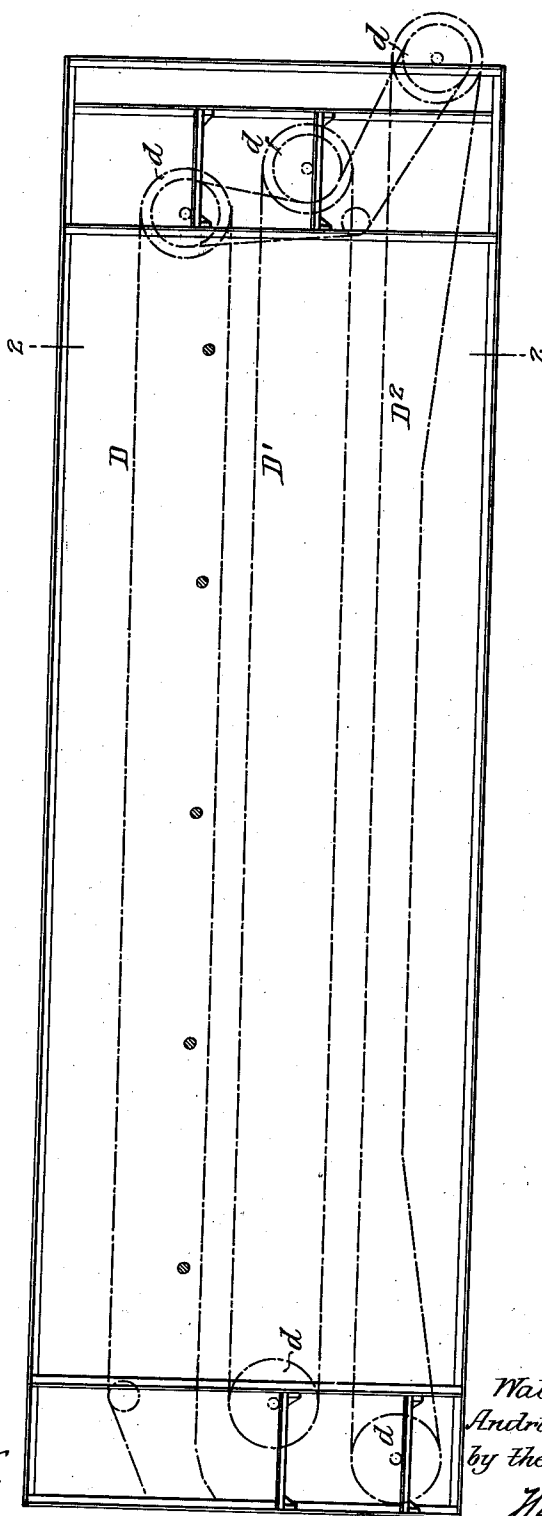
APPLICATION FILED AUG. 31, 1911.

1,010,322.

Patented Nov. 28, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses.—
Wills A. Burrows,
Halter & Pullinger

Inventors,—
Walter M. Schwartz
Andrew M. Schreuder
by their Attorneys—
Harmon Simon

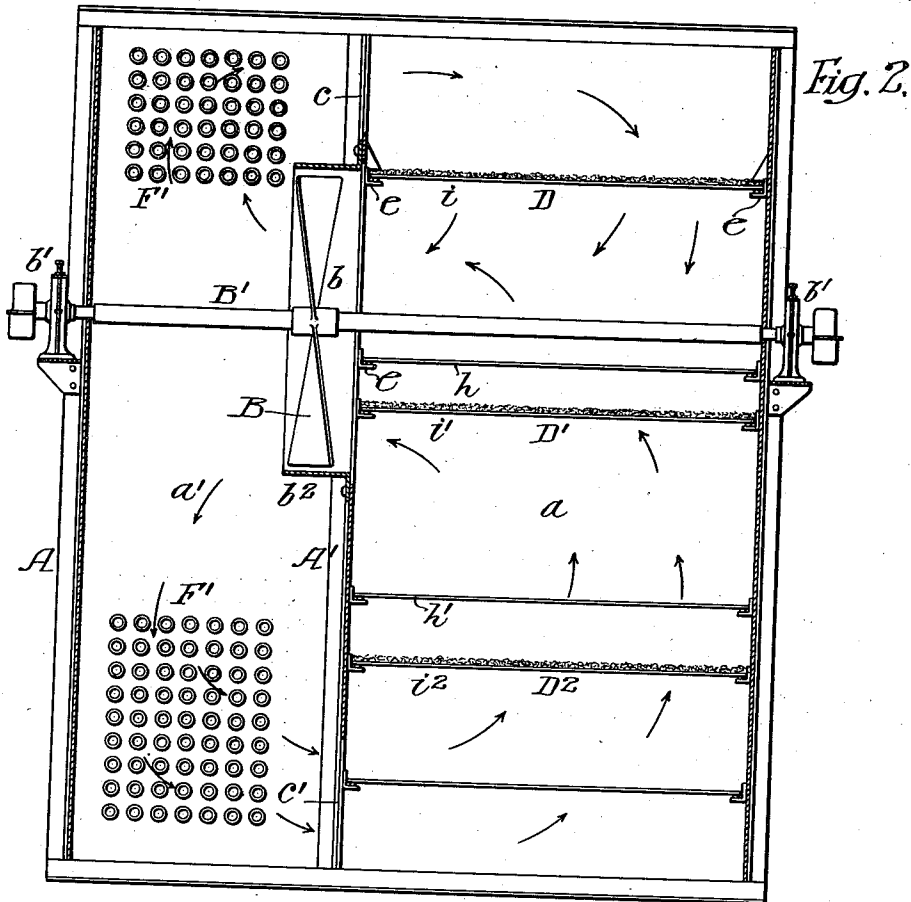
W. M. SCHWARTZ & A. M. SCHREUDER.
DRIER.

APPLICATION FILED AUG. 31, 1911.

1,010,322.

Patented Nov. 28, 1911.

2 SHEETS—SHEET 2.



Witnesses—

Wills A. Burrows
John F. Pullinger

Inventors—
Walter M. Schwartz.
Andrew M. Schreuder.
by their Attorneys—
Herman Brown

UNITED STATES PATENT OFFICE.

WALTER M. SCHWARTZ AND ANDREW M. SCHREUDER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO THE PHILADELPHIA TEXTILE MACHINERY COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

DRIER.

1,010,322.

Specification of Letters Patent.

Patented Nov. 28, 1911.

Application filed August 31, 1911. Serial No. 647,049.

To all whom it may concern:

Be it known that we, WALTER M. SCHWARTZ and ANDREW M. SCHREUDER, citizens of the United States, residing in Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain Improvements in Driers, of which the following is a specification.

Our invention relates to certain improvements in apparatus for drying cotton and similar material, which is conveyed through a chamber, or a series of chambers, by endless belts; the material dropping from one belt to the other, until it is in proper condition to be removed from the apparatus.

One object of our invention is to construct a drier having three distinct conveying belts, so that the air will circulate through the material in a more perfect manner than heretofore.

A still further object is to arrange the return runs of one belt in close proximity to the carrying run of another belt, so that the return run will tend to keep the material from being carried away from the conveying belt.

In apparatus of this type, it has been the usual practice to allow the air to circulate from the top down through the material carried by the three belts; consequently, the material on the lower belt was subjected, more or less, to the action of moist air and as this was the last belt of the series, the material was not in the best possible condition. By our invention the upper and lower layers of material are subjected to air as it comes directly from the heating compartment and the middle section is subjected to a current of air from above, as well as from below.

In the accompanying drawings:—Figure 1, is a longitudinal, sectional, diagrammatic view, illustrating a drier made in accordance with our invention; and, Fig. 2, is a transverse sectional view on the line 2—2, Fig. 1.

A is the casing, quadrangular in cross section, and made of any material desired. This casing is divided into two longitudinal compartments a and a' . The compartment a contains the conveying mechanism and the compartment a' is the heating chamber. These compartments may be divided into as many sections, as desired, by transverse partitions.

The longitudinal partition A' , which divides the casing into two compartments, extends from the floor to the roof of the structure, and at intervals, in this partition are circular openings b . In each opening is mounted a fan B , carried by a shaft B' , adapted to bearings b' located, in the present instance, on the exterior of the casing. The fan shafts B' are driven in any suitable manner. There is a flange b^2 of the ordinary construction, which surrounds the fan, as indicated in Fig. 2.

In the partition above the fan is an opening c and in the lower end of the partition is an opening c' , forming communication between the heating chamber and the conveying chamber.

In the conveying chamber A are three endless conveying belts D , D' , D^2 , which pass around drums d at each end of the apparatus, as clearly shown in Fig. 1. These conveyer belts are supported on rails e formed, in the present instance, of channel bars secured to the walls of the casing. The belts may be made of wire gauze, slats, or other perforated material, so as to provide for the free circulation of air therethrough.

It will be noticed that the carrying run i of the upper belt D is located between the upper opening c in the partition and the fan opening b and the carrying run i^2 of the lower belt D^2 is between the opening c' , at the bottom of the partition, and the fan opening b , so that the air, as it circulates, is drawn into the heating chamber by the action of the fan, as indicated by arrows, and returns through the openings c , c' ; being drawn through the carrying runs i and i^2 of the belts D , D^2 respectively.

The air is drawn down through the carrying run of the belt D and drawn up through the carrying run of the belt D^2 so that the material, on the carrying runs of both belts, is subjected to the air as it comes directly from the heating chamber. The carrying run i' of the belt D' is located at a point directly under the fan shaft and the air as it circulates through the material on the upper belt and through the material on the lower belt, passes over the surface of the material on the carrying run i' of the belt D' , while the air as it circulates through the material on the lower belt, contacts with the under side of the carrying run of the

belt D', as said air is drawn by the fan into the heating chamber to be dried and reheated. Thus the material on the upper and lower belts is subjected to the direct action of the heated air as it comes from the heating chamber, while the material on the intermediate belt is subjected to air, which is not overcharged with moisture, so that the material is more readily dried than where the air circulates in one direction only.

It will be noticed on referring to Fig. 2, that the return run *h* of the belt D is in close proximity to the carrying run *i'* of the belt D', and the return run *h'* of the belt D' is in close proximity to the carrying run *i* of the belt D². If the material should be lifted off the carrying run it will be held from passing away from the belt by the return run of the belt directly above, and consequently a more rapid circulation of air can be maintained.

In the heating compartment A' are the steam pipes F, F', arranged in any manner desired, so that the air will be thoroughly heated as it passes through the pipes in the circulation through the apparatus.

In some instances the direction of the currents of air may be reversed, the air first passing the material on the belt D' and then through the material on the belts D, D², but we prefer to direct the currents of air as indicated in Fig. 2.

We claim:—

1. The combination in a drying apparatus, of a casing, a longitudinal partition dividing the casing into two sections, heating means in one section and three endless conveying belts in the other section, said partition having an opening at its upper end and at its lower end and having an intermediate driven fan opening, a fan there-

in, to circulate the air in the heating chamber as well as in the conveying chamber, the carrying run of the upper belt being located between the upper opening of the partition and the fan, and the carrying run of the lower belt being located between the lower opening and the fan opening, the carrying run of the intermediate belt being located between said upper and lower belts.

2. The combination in a drying apparatus, of a casing, a longitudinal partition in the casing separating the casing into two compartments, heating mechanism in one compartment, three endless belt conveyers in the other compartment, said partition having an opening at its upper end and at its lower end and having an intermediate driven fan opening, a fan therein, to circulate air through the heating compartment and through the conveying compartment, the return run of the upper conveyer being in close proximity to the carrying run of the intermediate conveyer, and the return run of the intermediate conveyer being in close proximity to the carrying run of the lower conveyer, so that the air, as it passes down through the upper conveyer and up through the lower conveyer, will travel on each side of the intermediate conveyer, and the return runs will prevent the displacement of the material carried on the two lower conveyers.

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

WALTER M. SCHWARTZ.
ANDREW M. SCHREUDER.

Witnesses:

WM. E. SHUPE,
WM. A. BARR.