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E. B. AYRES

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DRIER

Filed March 29, 1923

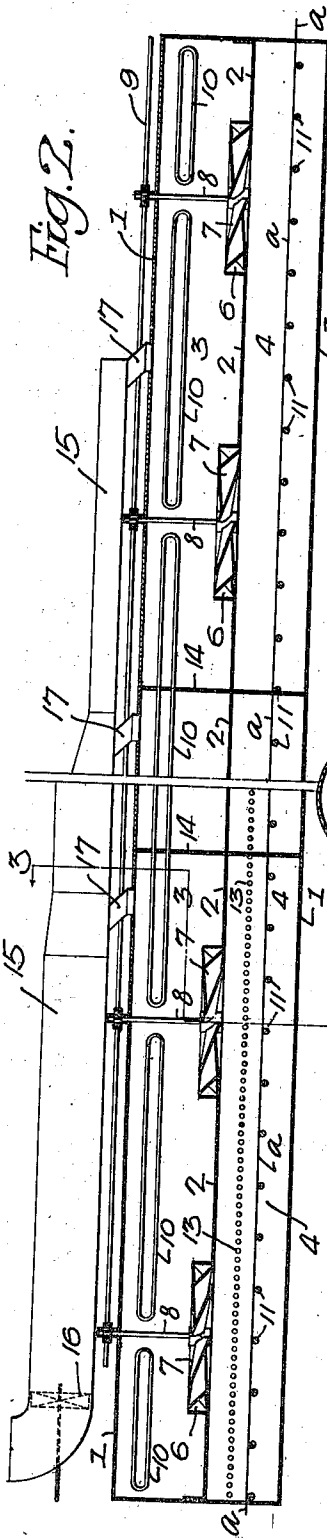


Fig. 2.

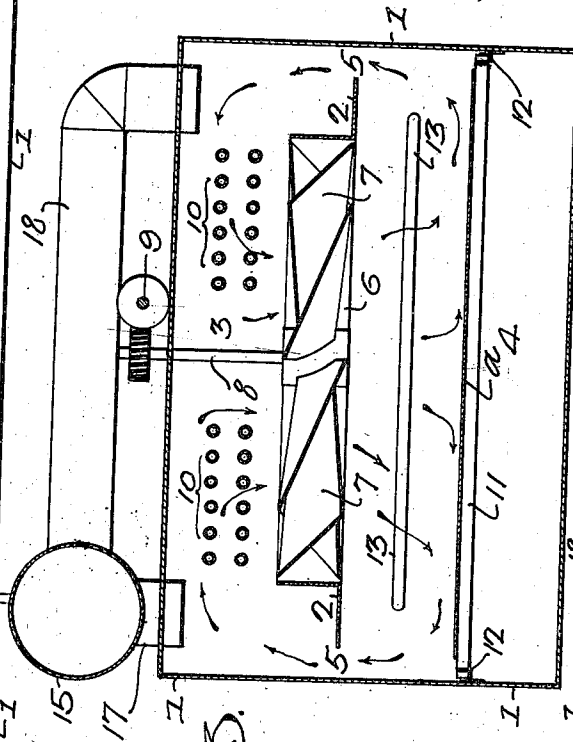


Fig. 3.

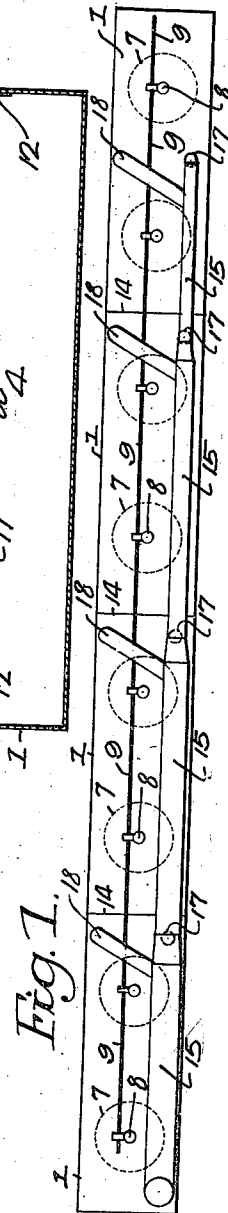


Fig. 1.

Inventor.
Elwood B. Ayres
by his Attorneys.
Hosmer Johnson

UNITED STATES PATENT OFFICE.

ELWOOD B. AYRES, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO PROCTOR & SCHWARTZ, INC., OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

DRIER.

Application filed March 29, 1923. Serial No. 628,839.

To all whom it may concern:

Be it known that I, ELWOOD B. AYRES, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Driers, of which the following is a specification.

One object of my invention is to construct a drier for drying sheet material, such as pantasote, having a coating on one face.

A further object of the invention is to construct the drier so that the air in the compartment in which the material travels will be under pressure so that it will be in contact with the full width of the material.

In the accompanying drawings:

Fig. 1 is a diagrammatic plan view of my improved drying apparatus;

Fig. 2 is a longitudinal sectional view, with the central sections removed; and

Fig. 3 is a transverse sectional view on the line 3—3, Fig. 2.

Referring to the drawings, 1 is the casing of the drier. 2 is a partition extending the full length of the drier and forming an upper heating compartment 3 and a lower drying compartment 4. In the partition are side passages 5 and openings 6 for the circulating fans 7. These fans are mounted on vertical shafts 8, geared to a longitudinal driven shaft 9, Fig. 3.

The passages 5 at the sides of the partition 2 are less in area than the fan openings 6 so that the air in the drying compartment 4 will be under pressure.

10 designates heating pipes connected in the usual manner with a suitable steam supply. In the drying compartment is a series of rollers 11 supported on angle bars 12 at each side of the casing. These rollers are spaced at such a distance apart as to support the material *a* properly as it passes through the drier.

At the feed end of the drier is a series of steam pipes 13. These pipes are located in the drying compartment between the partition 2 and the rollers 11 for the material *a*.

The drier is divided by partitions 14 into four chambers, in the present instance, so that the heat and moisture in the several

chambers can be controlled to condition the material being dried.

15 designates a longitudinal exhaust flue having an exhaust fan 16 at one end. The flue is in communication with the several chambers of the drier by short pipes 17 and 18, which enter the upper part of the drier near the sides as shown in Fig. 3.

When material, such as pantasote, is being dried, the fumes of naphtha, glycerine, &c., are carried by the flue 15 to a reclaiming condenser.

As the material travels through the drier, the air is circulated in the direction of the arrow, Fig. 3, coming in contact with the coated surface of the material, and, as the air in the drying compartment is more or less under pressure, all portions of the material are subjected to the action of heated air.

I claim:

1. The combination in a drier, of a casing; a horizontal partition in the casing forming a drying compartment and a circulating compartment, said partition having a fan opening; a circulating fan therein, the partition also having side passages less in area than the fan opening so that the air in the drying compartment will be under pressure; and means, in the drying compartment, for supporting the material being dried.

2. The combination in a drier, of a casing; a horizontal partition in the casing forming a drying compartment and a circulating compartment, the casing having a series of fan openings at the center and passages at each side, the area of the passages being less than the area of the fan openings; circulating fans in the fan openings; means for supporting the material to be dried in the drying compartment; and a series of steam pipes located between the partition and the supports for the material.

3. The combination in a drier, of a casing; a horizontal partition extending the full length of the casing and forming an upper circulating compartment and a lower drying compartment, the partition having a

series of central fan openings spaced apart and passages at each side, the area of the passages being less than that of the fan openings; fans in the fan openings; a series of heating pipes in the upper circulating compartment; a series of rollers in the lower drying compartment for supporting the material to be dried; a series of transverse partitions dividing the compartments into chambers; and steam pipes at the feed end of the heating compartment located between the partition and the rollers for supporting the material. 10

ELWOOD B. AYRES.