

J. C. F. LAFEUILLE.
 DRYING APPARATUS FOR BAGASSE.
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Patented Apr. 16, 1912.

Fig. 1

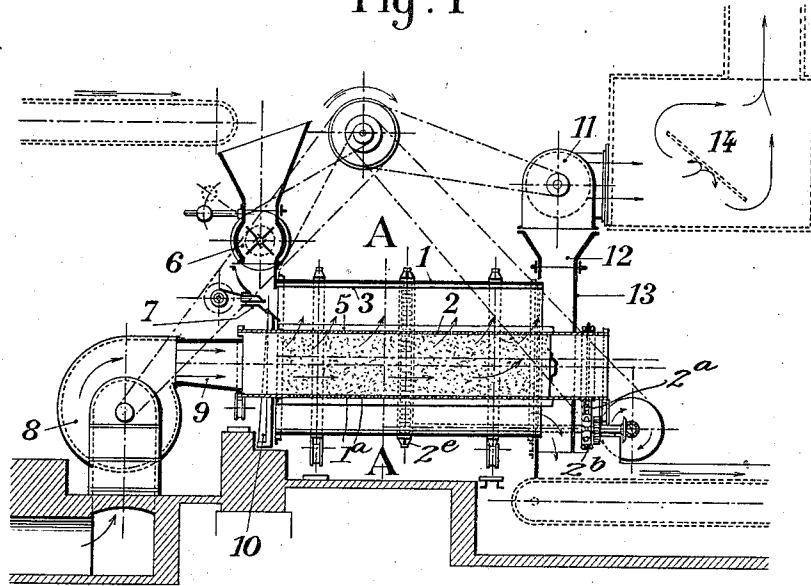
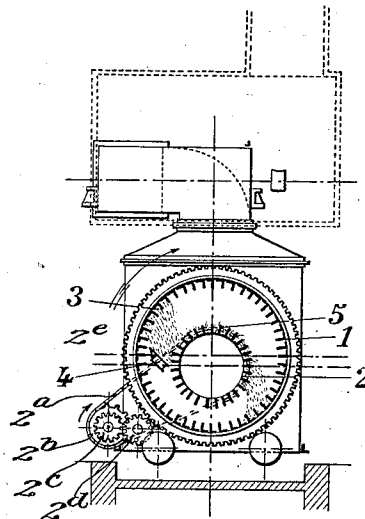


Fig. 2



Witnesses:

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UNITED STATES PATENT OFFICE.

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DRYING APPARATUS FOR BAGASSE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JULES CHARLES FERNAND LAFEUILLE, a citizen of the Republic of France, residing at Charmes, near La Fère, Aisne, France, have invented new and useful Improvements in Drying Apparatus for Bagasse, of which the following is a specification.

This invention relates to a new or improved process for the mechanical drying of cane bagasse or trash and other aqueous substances and to apparatus therefor.

According to the new or improved process the materials to be treated are subjected to a current of hot air or gas while they are caused to move so that all their parts shall be exposed to the action of the hot air or gas. While being moved the materials to be dried are carried upon a movable metallic cloth through which passes a current of hot air; the materials never remain in the same place and in all the positions which they may take up they are traversed by the current of hot air.

The apparatus for carrying out this process is essentially constituted by the combination of (1) a drum in the interior of which is arranged a cylinder, both drum and cylinder being provided with blades, which latter are on the inside of the drum and on the outside of the cylinder and the function of which is to produce the movement of the material to be dried, the drum and the cylinder being given rotary movements in the same direction. (2) A distributor with blades or on any other system for conveying the material into the apparatus. (3) A fan which forces the hot gases into the internal cylinder. (4) An exhaust-ter which draws off the cooled gases.

The accompanying drawings illustrate a construction of suitable apparatus:

Figure 1 of said drawings is a longitudinal section through the axis. Fig. 2 is a transverse section corresponding to the line A—A of Fig. 1.

As the drawings show, the apparatus for carrying out the process of drying comprises a revoluble drum 1 driven by any suitable means such as by a rack 2^a meshing with a gear 2^a driven from a geared shaft 2^a more clearly appearing in Fig. 2. Within drum 1 is an eccentrically located revoluble cylinder 2 covered over the whole of its surface with a close-meshed metallic cloth and having perforations 1^a. Cylinder 2 is driven

in the same direction as the outer drum preferably by means of a sprocket chain 2^a passing over a sprocket wheel 2^b.

The drum 1 is provided internally with a series of longitudinal blades 3 the purpose of which is to lift up the bagasse or other material to be dried and distribute it over an inclined plane 4 which in turn delivers it to the cylinder 2 which is itself provided with blades 5 fixed longitudinally above the metallic cloth which covers it.

The bagasse is fed into the drum 1 by a distributor 6 provided with blades by a small pusher 7 placed underneath which prevents all choking up of the supply hopper. The hot gases are led either from a special furnace or from the flue of the steam generators into the cylinder 2 by a fan 8 which forces them into an expansion chamber and drives them into the cylinder 2 through a nozzle 9 connected to the fixed front 10 of the apparatus. The cooled down gases are preferably drawn off by an exhauster 11 placed directly over an evacuation orifice 12 made in the fixed framing 13 of the apparatus which guides them back into the dust chamber 14.

The working of the apparatus is as follows:—The distributor 6 having been so regulated as to allow the total production of the factory during the number of working hours of the mills to pass into the drum 1 of the apparatus, the drum is set in rotation with its internal cylinder 2, the fan and exhauster are also started, the whole being driven by one arrangement of gearing, as shown in Fig. 1. The gases coming from the furnace or the flues of a chimney are forced by the fan 8 into the rotating cylinder 2 and pass through the metallic cloth which covers it into the drum 1 from which they are then drawn off, when they are cooled down, by the exhauster 11 and delivered into the dust chamber 14. As soon as the bagasse arrives in the hopper of the distributor it falls onto the blades 5 of the cylinder, which carry it along and let it fall onto the blades 3 of the drum 1. These meet the bagasse and lift it and allow it to slide over the inclined plane 4 at the end of which it is again taken up and carried on by the blades 5 of the cylinder 2 to fall back again into the blades 3 of the drum 1 which carries them up again and so on. At the end of some minutes, the bagasse, which advances only very slowly and in

proportion as it dries, becomes much lighter and the cylinder 2 becomes covered on and between its blades 5 with a layer of bagasse which is constantly renewed. This layer of bagasse is constantly traversed by the hot gases escaping through the meshes of the metallic cloth which covers the cylinder 2, the gases being unable to traverse any part without traversing the layer of bagasse which tends to block their passage. When it has reached the end of the cylinder 2 the dried bagasse falls into the lower hopper of the fixed frame 13 where it is received by a conveyer or screw while the gases now cooled down proceed to expand by the orifice 12 into the dust chamber 14 wherein is trapped the major portion of the light particles of the bagasse which are carried along with the cooled down gases.

Advantages of the improved arrangement are the following:—The apparatus is continuously acting and when once regulated it does not require any special attention; its output is considerable and only depends, when the temperature and flow of the hot gases are constant, on the speed and the length of the drum and its cylinder. There is no fouling to be feared nor the frequent stoppages which are the consequence thereof. It is easily worked and does not present any technical difficulty in its operation.

What I claim is:—

1. In a drier, the combination of a revoluble cylinder having imperforate walls, a perforated cylinder closed at one end and eccentrically mounted to revolve within the first-named cylinder, means for feeding ma-

terial to the space between the cylinders and means for forcing air into said space through the walls of the inner cylinder and in contact with the said material.

2. In a drier, the combination of a revoluble cylinder having imperforate walls, a revoluble perforated cylinder closed at one end, eccentrically mounted within the first-named cylinder and provided with peripheral longitudinally arranged blades, means for feeding material to the space between the cylinders and means for forcing air into said space through the walls of the inner cylinder and in contact with the said material.

3. In a drier, the combination of a revoluble cylinder having imperforate walls interiorly provided with lifting blades, a revoluble perforated cylinder closed at one end and eccentrically mounted within the first-named cylinder, a stationary plate located in the space between the cylinders adapted to direct the material falling thereon from said blades to the top surface of the second-named cylinder, means for feeding wet material to said space between the cylinders and means for forcing air into said annular space through the walls of the inner cylinder and in contact with said material.

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

JULES CHARLES FERNAND LAFEUILLE.

Witnesses:

DOUMÉ CASOLONGA,
MIGUEL FEROTO.