

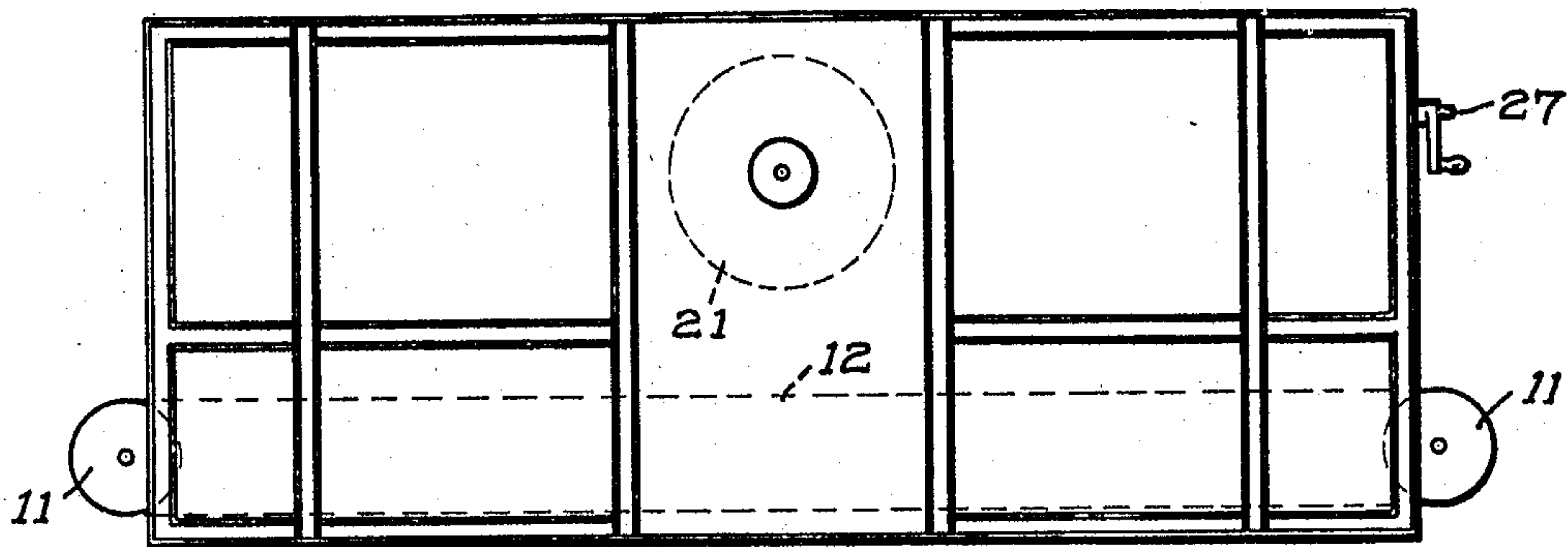
Nov. 18, 1924.

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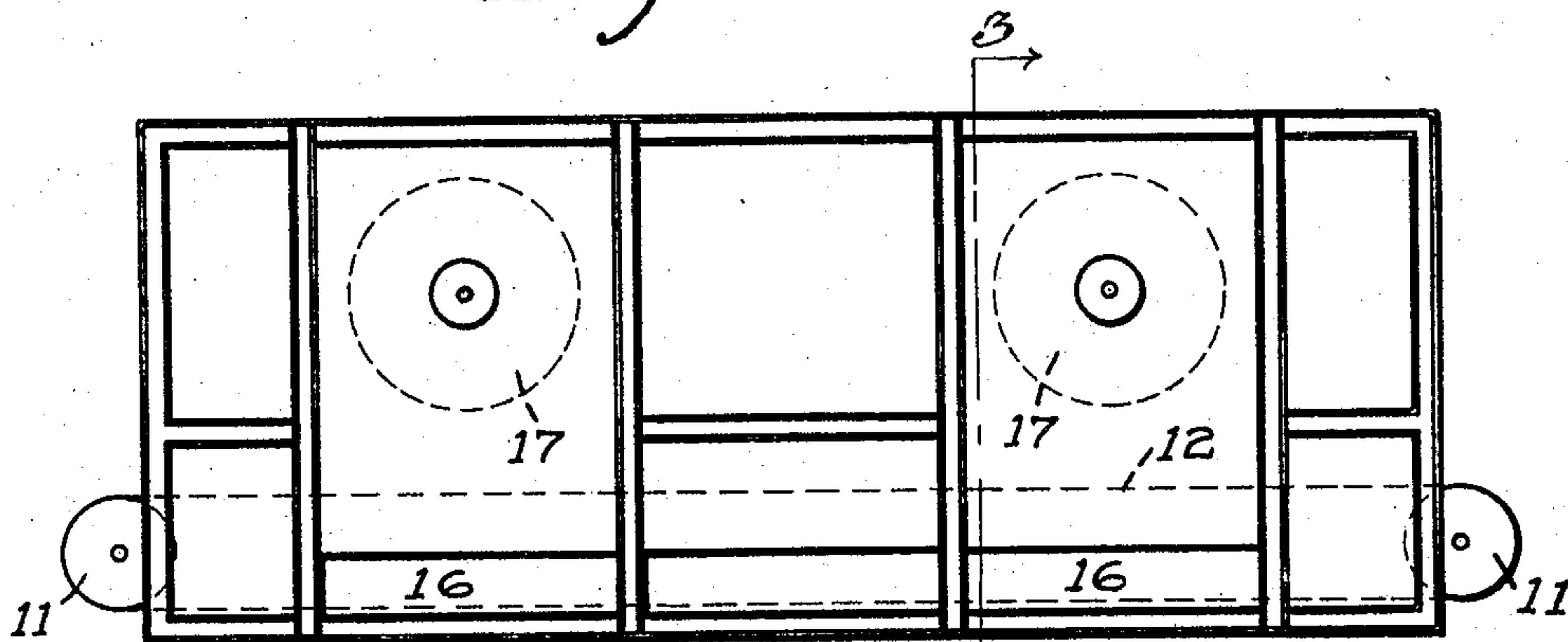
F. L. FURBUSH

DRYING MACHINE

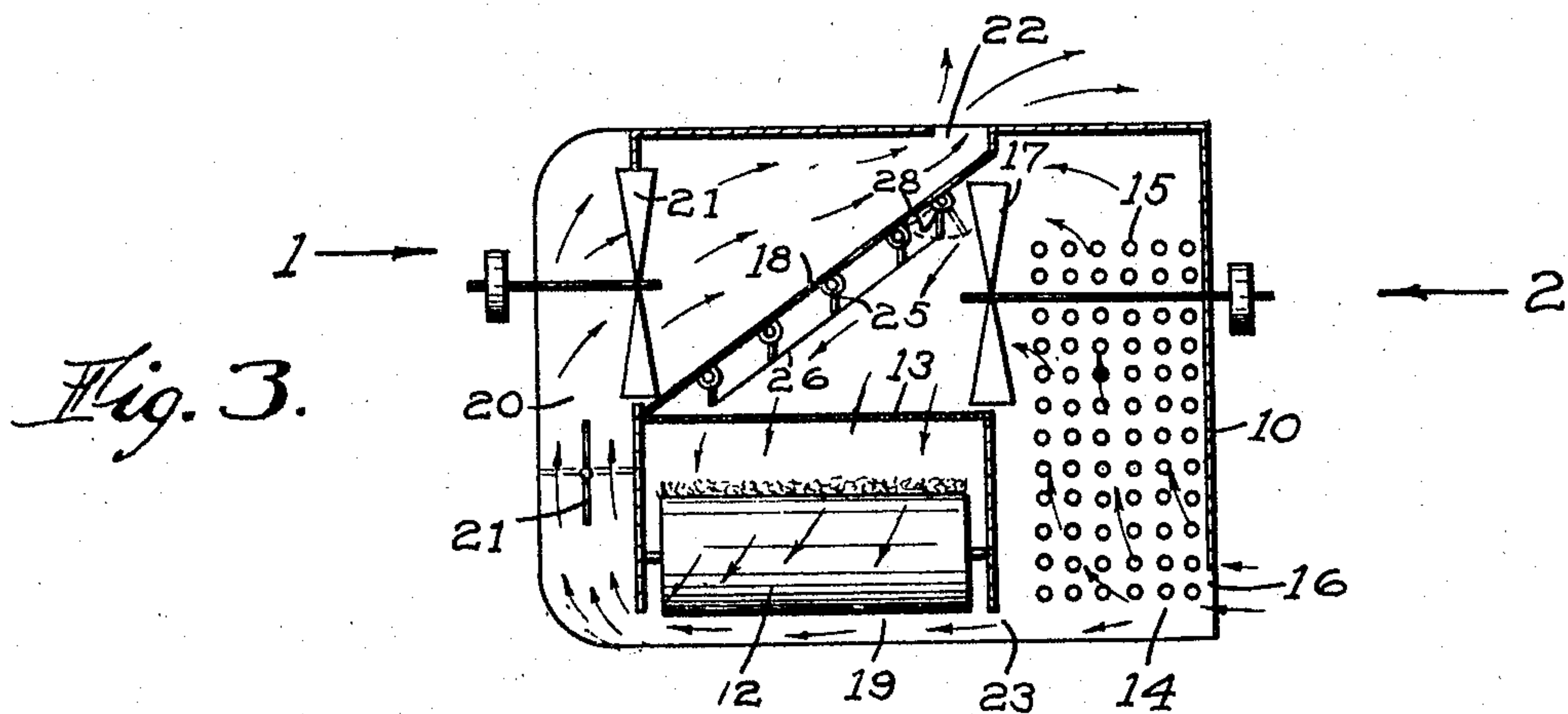
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*Fig. 1*



*Fig. 2.*



*Fig. 3.*

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By Attorneys

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# UNITED STATES PATENT OFFICE.

FRANK L. FURBUSH, OF WESTFORD, MASSACHUSETTS, ASSIGNOR TO C. G. SARGENT'S SONS CORPORATION, A CORPORATION OF MASSACHUSETTS.

## DRYING MACHINE.

Application filed June 14, 1923. Serial No. 645,478.

*To all whom it may concern:*

Be it known that I, FRANK L. FURBUSH, a citizen of the United States, residing at Westford, in the county of Middlesex and State of Massachusetts, have invented a new and useful Drying Machine, of which the following is a specification.

This invention relates to a machine for drying wool, or other fibrous material.

The principal objects of the invention are to provide for improved circulation of air through the drier in co-operation with means for controlling the air currents so that a portion of the heated air can be returned to the coil box to be reheated and used over again or all of the air allowed to go straight out after it has been used once; and to provide for regulating the amount deflected back so that the proportion between the two currents can be changed at the will of the operator and also to provide means adapted to be adjusted to control the direction of the currents of heated air into the chamber against the material for drying. More specifically, the latter arrangement preferably consists of a series of adjustably hinged baffle plates for diverting the currents of heated air from the coils toward the material to be dried and adjusting them in such a way that this can be accomplished in a greater or less degree, as desired, to get an even distribution of air through the stock.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which—

Fig. 1 is an elevation of the drying chamber side of a drier constructed in accordance with this invention;

Fig. 2 is an elevation of the opposite, that is the coil box, side of the drier; and

Fig. 3 is a transverse sectional view of the same through the centers of one inlet fan and the exhaust fan.

I have shown the invention as applied to a drying machine having a general well known form and comprising a casing 10 at the ends of which are located a pair of drums 11 for supporting and driving an endless wire cloth conveyor 12 for supporting the stock to be dried. In this type of drier the stock is applied to the conveyor at one end and passes through the drying machine to be dried and is discharged at the

other end. But the invention can be applied to other types of driers. The conveyor is located in an inner chamber preferably separated from the rest of the drier by a perforated horizontal screen 13 above it. This screen when used is employed to retain the stock in the compartment in which the conveyor is located and it runs along the drier above the conveyor.

As usual, there is means for heating the air on one side of the drying chamber and in this case I have shown two such coil boxes 14 having steam pipes 15 for heating the incoming air which enters through an inlet opening 16 at the bottom. This air passes up through the coils and is drawn through them by a pair of fans 17 although any other convenient number of fans can be employed. This heated air is then blown along under an inclined partition 18 down through the screen 13 and through the material on the travelling wire 12 for the purpose of removing the moisture from the material.

In its normal course, the air, when it leaves the material, is full of moisture and is drawn out through an opening 19 into the discharge passage 20. If a damper 21 therein is open, as shown, it will be drawn up through this passage by the exhaust fan 21 and out of the machine along the upper side of the inclined partition 18 through the exhaust outlet 22.

If it is desired to use the air over again or part of it the damper 21 can be closed in the former case or partly closed in the latter. Then the air, or part of it, is forced through the material on the wire and will back out underneath and go through two openings back into the bottom of the coil box. This air will be reheated and used over again.

On the bottom of the inclined wall 18 are a series of pivoted baffle plates 25. These are hinged individually on their own pivots which are horizontal. They are connected together by a rod 26 and a shaft 27 on which one of them is pivoted extends out at the rear and is provided with a handle movable through a curved path as indicated at 28. These baffle plates therefore can be swung simultaneously down or up to direct more or less of the air coming in from the coil boxes downwardly toward the right hand side of the conveyor as indicated in Fig. 3. The adjustment of these baffle plates is for the purpose of getting an even distribution of air



through the stock and preventing all of it from coming through on one side. Being located on an inclined surface, they are very effective for this purpose.

5 With a machine constructed in this way an even distribution of the heated air can be obtained along the stock from side to side and the air can be circulated in the manner described so that any desired portion of it  
10 can be returned to the coil box to be reheated and used over again. This provides for efficiency and economy of operation to a high degree.

Although I have illustrated and described  
15 only a single form of the invention I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited to all the details of construction herein shown and described but what I do claim is:—

1. In a drier of the class described, the combination with means for supporting the  
25 material to be dried, and a heating device at one side thereof, the device having an outlet at the other, of an inclined partition extending over the supporting means located at a distance from it at one side and close to it at  
30 the other, means above the conveyor for blowing the air from the top of said heating device and in under said partition and toward the conveyor, and means for drawing the air out at the bottom of the drier  
35 below both strands of the conveyor.

2. In a drier, the combination with an endless apron for supporting the material to be dried, and a chamber in which it is located, of a coil box located at one side thereof  
40 of for heating air, a blower for introducing the air so heated from the top of the coil box above both strands of the apron and through them, the chamber having means by which the air can escape at either side of the conveyor below the lower strand, one of said  
45 means being connected with the coil box, a blower for exhausting the air from the other side, and a damper in the conduit to the last named blower adapted to be adjusted to control the amount of air that can  
50 go to the blower, whereby the remainder of the air will be forced to go back into the bottom of the steam coils and be reheated.

3. In a drier of the class described, the  
55 combination with an endless conveyor for supporting the material to be dried, a coil

box at one side thereof, and an outlet at the other, of an inclined partition extending over the conveyor located at a distance from it at the coil box side and close to it at the  
60 other, a blower for forcing the air in under said partition and toward the conveyor, a second blower on the other side of the conveyor for drawing the air out at the bottom of the drier below the conveyor, and a horizontal  
65 screen over the conveyor and under said partition for preventing the stock from being blown out of the compartment in which the conveyor is located.

4. In a drier, the combination with an  
70 endless apron for supporting the material to be dried, a coil box at one side of the apron for heating the air, a blower for forcing the air from the coil box toward the apron, and an inclined wall over the apron  
75 extending from a point near the apron on one side to a point materially above it on the other, of a series of baffle plates located on the under side of said partition and adjustable to different angles for the purpose  
80 of controlling the direction of the air currents toward the apron.

5. In a drier, the combination with a support for the material to be dried, a heating  
85 device at one side of the support for heating the air, and a blower for forcing the air from the heating device toward the support, of an inclined wall over the support extending from a point near the support on one  
90 side to a point above the blower on the other, whereby the air is delivered downwardly from the blower toward the material, a series of pivoted baffle plates on the lower side of said partition extending toward said support, and means for simultaneously adjusting  
95 said baffle plates about their pivots, whereby the direction in which the air from the blower strikes the material will be controlled for the purpose of distributing the air evenly on the conveyor. 100

6. In a drier, the combination with a support for the material to be dried, means for blowing a current of heated air over it, a series of baffle plates located over the support, and means for adjusting the angular position  
105 of the baffle plates to control the distribution of air currents through the material to be dried.

In testimony whereof I have hereunto affixed my signature.

FRANK L. FURBUSH.