

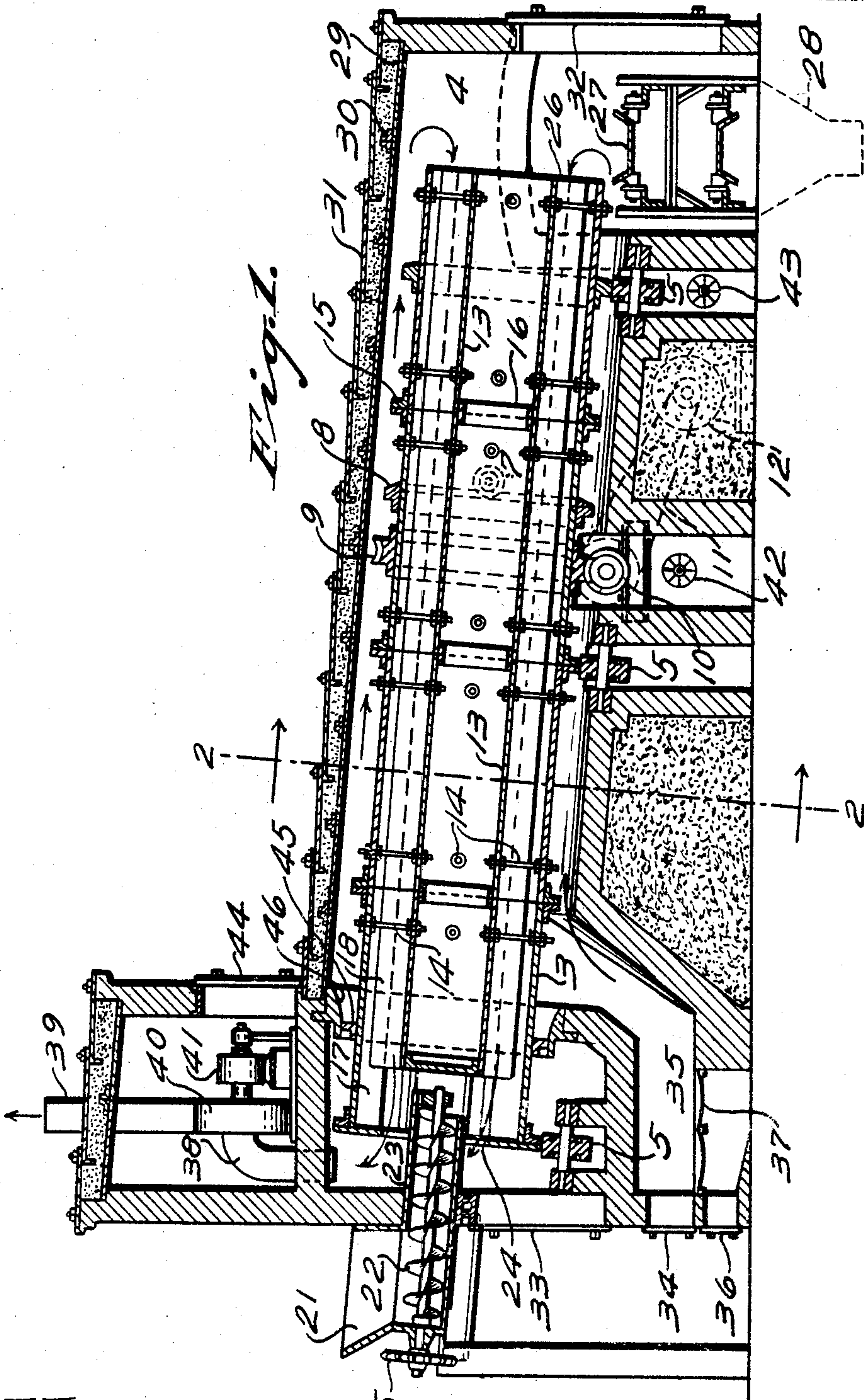
No. 771,994.

PATENTED OCT. 11, 1904.

F. MEYER.
DRYING APPARATUS.
APPLICATION FILED FEB. 8, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
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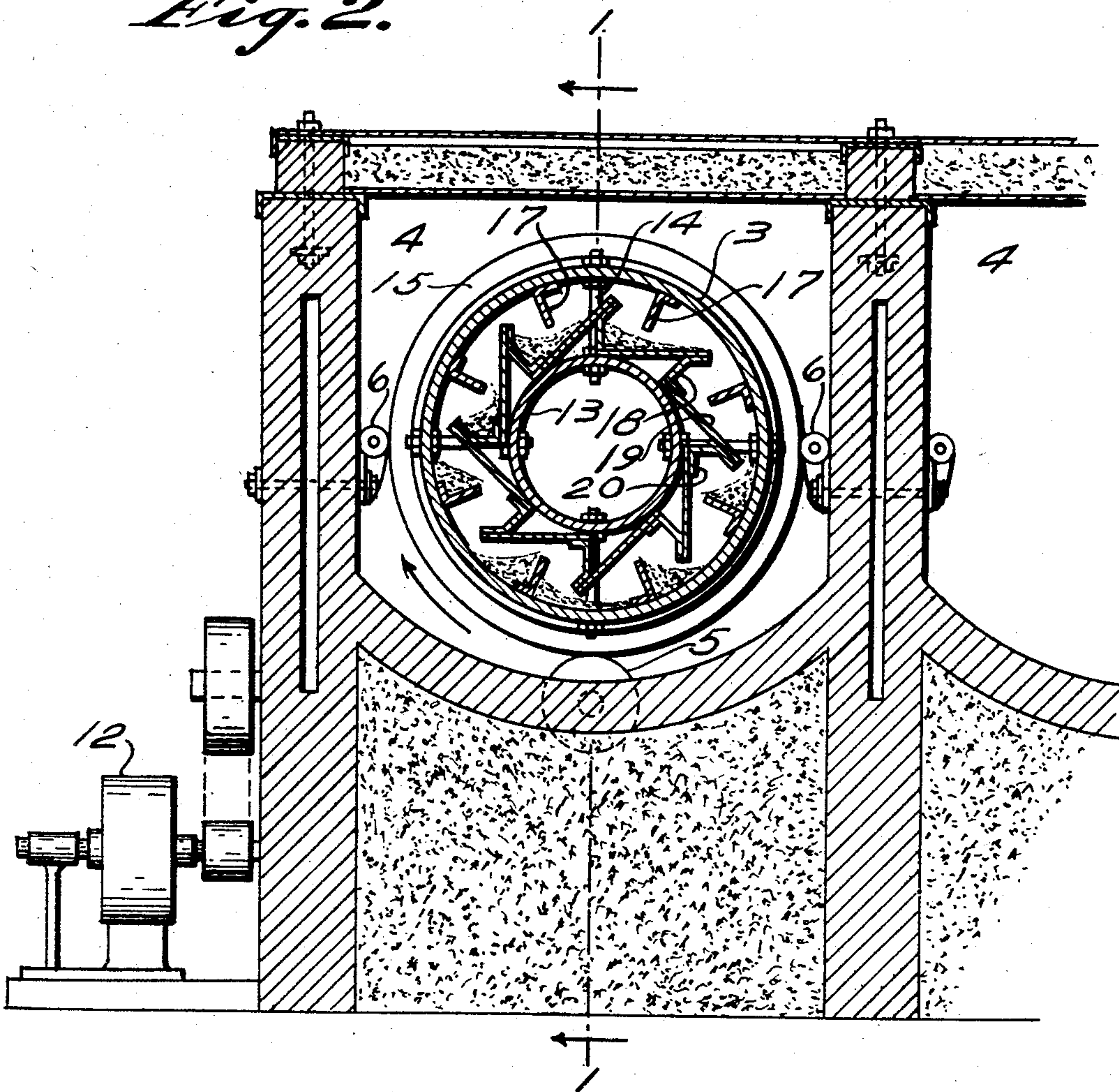
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

FREDERICK MEYER, OF CHICAGO, ILLINOIS.

DRYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 771,994, dated October 11, 1904.

Application filed February 8, 1904. Serial No. 192,595. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK MEYER, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Drying Apparatus, of which the following is a specification.

My invention is particularly applicable to apparatus for drying peat to prepare it for being pressed into the form of briquets, but may also be applied to driers for other materials.

The main objects of my invention are to provide a drying apparatus in which the material to be dried is passed through a revolving drum provided with an improved interior structure for thoroughly turning the material during its passage through the drum, to provide an improved arrangement of supporting and driving mechanism for the drum, and to provide an improved arrangement of the feeding, air-circulating, and temperature-regulating devices. I accomplish these objects by the structure shown in the accompanying drawings, in which—

Figure 1 is a longitudinal section taken on the line 1 1 of Fig. 2 of a drier constructed according to my invention. Fig. 2 is an enlarged transverse section taken on the line 2 2 of Fig. 1.

In the device shown the revolving drum 3 is inclosed in a suitable kiln or drying-compartment 4. Said drum is supported on rollers 5, which are journaled in the framework or walls of the kiln and is guided and held in suitable position by means of the rollers 6 bearing against the sides of the drum and by the conical rollers 7, which bear against the flange 8 on the drum and prevent same from sliding toward the right of the kiln, as shown in Fig. 1. The drum is revolved by means of the worm-gear 9, meshing with the worm 10, which is driven by means of the belt 11. The belt 11 connects with suitable operating mechanism, part of which is indicated by the dotted lines at 12 in Fig. 1. An inner support or cylinder 13 is secured within the drum 3 by means of the stay-bolts 14. Both the

drum and the inner cylinder 13 are preferably made in sections. The sections of the drum are connected together by means of the flanges 15, and the sections of the cylinder 13 are connected together by means of the inner sleeves 16. A plurality of wall-shelves 17 are rigidly secured to the inner face of the drum. The inner shelves 18 and 19 are rigidly secured to the outer surface of the inner cylinder 13. The shelves 18 are preferably formed of channel-iron and overlap the shelves 19 at 20, as shown in Fig. 2. The main part of each of the shelves 18 extends radially of the drum, while the shelves 19 are disposed tangentially or at an angle to the shelves 18.

The material to be dried is fed from the hopper 21 by means of the screw 22, operating in the cylindrical casing 23, which extends into the drum 3 through the aperture 24. The screw 22 is driven by means of the sprocket-wheel 25 through suitable operating mechanism, which is not shown. The incline of the drum toward the right of Fig. 1 causes the material to be passed gradually to the end 26 of the drum which is open to permit the material when dried to fall upon the endless conveyer 27, which deposits the material into a hopper or chute, of which the upper part is indicated by the dotted lines at 28 in Fig. 1.

The upper wall of the roof of the drying-compartment is preferably made of slabs 29, which are connected by the flanges 30 and the overlapping slabs 31, which are spaced from the slabs 29. The space is suitably filled to retain the heat in the interior 4 of the kiln.

Access to the interior of the kiln may be had through the plates or doors 32, 33, and 34. The door 34 leads to the fire-box 35. The door 36 leads to the ash-pit under the fire-grate 37. While the device is in operation the door 36 will be open to permit of a draft of air in the direction of the arrows along the outside of the drum 3 to the end at the right of Fig. 1, thence through the drum, and out of the aperture 24 to the suction-pipe 38. The air is driven upward and forced out of the pipe 39 by means of a fan in the casing 40. Said fan is driven by a motor or suitable power mechanism, (indicated at 41.)

The temperature in the kiln 4 is regulated by means of dampers 42 and 43, as well as by the door 34, leading to the fire-box, and the door 36, leading to the ash-pit. The door 44 permits of access to the fan and motor.

The driers are preferably arranged in series side by side, as indicated in Fig. 2.

The operation of the device is as follows: The material to be dried is fed into the hopper 21 and thence into the drum, as before described. The drum is slowly revolved while the material is transferred from the shelves 17 upon the shelves 18 and 19, as indicated in Fig. 2. The material first falls out of the cylinder 23 to the bottom of the drum and is carried by the shelves 17 toward the upper part of the drum and then drops from said shelves 17 upon the shelves 18. It is then gradually turned upon the shelves 19, as indicated at the upper part of Fig. 2, and afterward falls upon the back of the shelves 17, as indicated at the lower right-hand part of the drum in Fig. 2. The inclination of the drum toward the right of Fig. 1 causes the material in passing to the different shelves to be gradually conveyed toward the right open end of the drum. The material is then deposited upon the conveyer and removed, as before described. The drum is provided near the feeding end with an annular flange 45, which turns with the drum within the ring or collar 46 and forms a connection which prevents the draft of air from passing directly from the fire-box around the feeding end of the drum and causes said draft to pass in the direction of the arrows through the drum. The tube 23 will be kept full of the material being fed by the screw 22, and thus will prevent a large amount of air being drawn through said tube with the material.

It will be understood that some of the details of the device shown may be altered without departing from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A drier comprising a rotary drum having two annular rows of shelves secured within same, one of said rows being disposed nearer to the center of the drum than the other, the inner row having two alternating sets of shelves, the shelves in one of said sets being disposed radially of the drum, and the shelves of the other set being disposed tangentially, the shelves in the outer row being spaced from the shelves in the inner row to permit the contents of the drum to be dropped from the outer shelves to the inner shelves and to be returned to the outer shelves through the revolution of the drum, substantially as described.

2. A drier comprising a heating-chamber, an inclined rotary drum mounted therein, said drum being open at both ends and having a tube extending into one end of the drum and a spiral propelling-screw journaled in said tube and fitting the same and being adapted to keep the passage through the tube filled while feeding the material to the drum, said heating-chamber being divided into two compartments, one of which is located at the feeding end of the drum and is substantially shut off from communication with the other compartment except through the drum, the compartment at the feeding end of the drum being provided with a suction device adapted to draw the heated air through the drum, and the other compartment being provided with air-inlets for regulating the temperature, substantially as described.

Signed at Chicago this 6th day of February, 1904.

FREDERICK MEYER.

Witnesses:

WM. R. RUMMLER,
RUDOW RUMMLER.