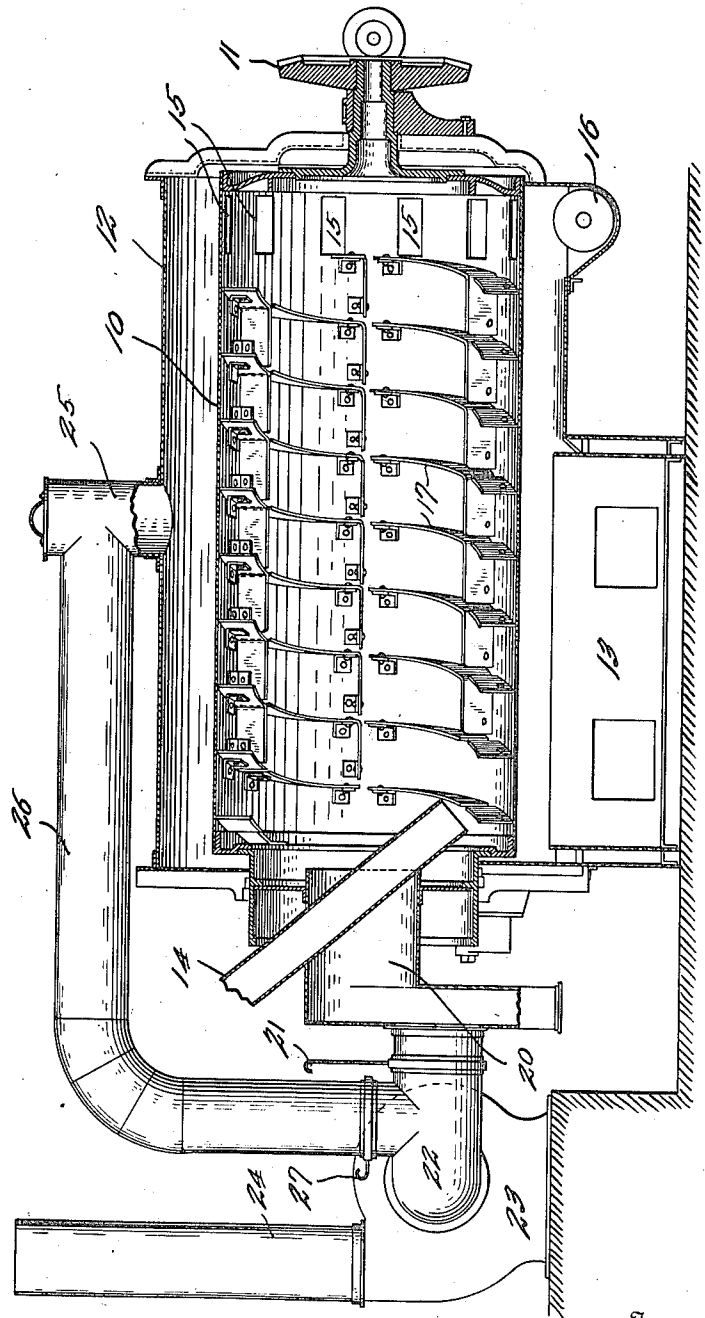
F. A. HETHERINGTON.

DRIER.

APPLICATION FILED APR. 28, 1915.

1,173,188.

Patented Feb. 29, 1916.



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UNITED STATES PATENT OFFICE.

FREDERICK A. HETHERINGTON, OF INDIANAPOLIS, INDIANA.

DRIER.

1,173,188. Specification of Letters Patent. Patented Feb. 29, 1916.

Application filed April 28, 1915. Serial No. 24,408.

To all whom it may concern:

Be it known that I, FREDERICK A. HETHERINGTON, a citizen of the United States, residing at Indinapolis, in the county of Marion and State of Indiana, have invented a new and useful Drier, of which the following is a specification.

My invention relates to driers for paving materials.

Pavements are made of various materials, in some cases these materials being highly refractory and practically incombustible, such as sand, gravel, and crushed stone, and in other cases being readily combustible, such as wood. In the first case, the materials can be dried by the direct action of the flames thereon, but in the second case such direct action of the flames would destroy the materials and therefore cannot be used.

It is the object of my present invention to provide a drier which can be used as desired for either class of paving materials, giving the direct or indirect action of the flames as required.

In carrying out my invention, I provide a drier-drum and a furnace, and two draft passages from the furnace, one of these draft passages being through the drier-drum and the other being around the drier-drum without passing through it, and means for controlling the draft so as to carry it through either of these passages as desired.

The accompanying drawing illustrates my invention, its single figure being a vertical sectional view through a drier embodying my invention.

The drier-drum 10 is shown as being rotatably mounted, with a driving gear 11 at one end, and is located within but spaced from a casing 12 which at one end at the bottom is provided with a furnace 13. A feed chute 14 projects into the drum 10 from one end, for supplying materials thereto, and at the other end the drum is provided with a series of peripheral holes 15, from which the dried material is discharged on to any suitable conveyer 16 for conveying it away. The drum 10 is provided with internal flights 17, for conveying the material from the feed chute 14 to the discharge openings 15, and preferably these flights are of proper shape to produce a mixing of the materials.

A draft outlet tube 20 projects into the drum 10 from the same end as does the feed chute 14, this draft outlet tube being provided with a damper 21 and leading to the supply tube 22 of a centrifugal fan 23. The discharge of the centrifugal fan is into a stack 24. At the top of the casing 12 there is a draft outlet 25, which is connected by a pipe 26 to the same supply tube 22 for the fan 23, and in the pipe 26 there is a second damper 27.

In operation, the draft from the furnace 13 has two alternative paths to the centrifugal fan 23. If the damper 21 is open and the damper 27 closed, as indicated in the drawing, the draft from the furnace 13 is first longitudinal of the drums (with some circumferential movement also, of course) to the openings 15, through which openings the draft enters the drum and then travels longitudinally therethrough to the draft outlet tube 20, whence it passes through the damper 21 and supply tube 22 to the fan 23, which discharges it through the stack 24. The flames within the furnace are carried with the draft and play directly on the material within the drum 10, so that this draft passage is used when the materials in the drum are incombustible. However, when the materials are combustible, the damper 21 is closed and the damper 27 is opened, whereupon the draft and flames from the furnace 13 are carried around the exterior of the drum 10 but within the casing 12, and are discharged at the top of the casing 12 by way of the draft outlet 25, whence they travel through the pipe 26 and damper 27 to the inlet tube 22 for the fan 23, which discharges them through the stack 24.

I claim as my invention:

1. A drier, comprising the combination of a rotatable drum having an opening at one end for the discharge of material from it and a feed chute discharging into its other end, a draft outlet from said drum at the opposite end from such opening, a casing surrounding the drum, a furnace discharging its products of combustion into such casing, a draft outlet from such casing, a centrifugal fan to the inlet side of which both of said draft outlets are connected, and a separate damper in the connection between each of said draft outlets and said fan.

2. A drier, comprising the combination of a rotatable drum having an opening at one end for the discharge of material from

it and a feed chute discharging into its other end, a draft outlet from said drum at the opposite end from such opening, a casing surrounding the drum, a furnace discharging its products of combustion into such casing, a draft outlet from such casing, and means for closing each of said draft outlets.

3. A drier, comprising the combination of a drum having an opening at one end, a draft outlet from said drum at the opposite end from such opening, a casing surrounding the drum, a furnace discharging its products of combustion into such casing, a draft outlet from such casing, a centrifugal fan to the inlet side of which both of said draft outlets are connected, and a separate damper in the connection between each of said draft outlets and said fan.

4. A drier, comprising the combination of a drum having an opening at one end, a draft outlet from said drum at the opposite end from such opening, a casing surrounding the drum, a furnace discharging its products of combustion into such casing, a draft outlet from such casing, and means for closing each of said draft outlets.

5. A drier, comprising the combination of a drum, a furnace, and means for directing the draft from the furnace either through such drum or around such drum without passing through it as desired and in each case closing the other of such passages for such draft.

6. A drier, comprising the combination of a drum, a furnace, means for producing a forced draft from such furnace, and means for directing such forced draft from the furnace in its entirety either through the drum or around the drum without passing through it as desired.

7. A drier, comprising the combination of a drum, a furnace, a blower for producing a draft from the furnace, and connections between the furnace, the drum, and the blower providing two alternative draft-paths from the furnace to the blower, one of such draft-paths being through the drum and the other being around the drum without passing through it, and a damper in each of said draft-paths.

8. A drier, comprising the combination of a drum having a draft inlet opening and a draft outlet opening, a casing surrounding the drum and having a draft outlet opening, a furnace the draft from which leads to said casing and to said draft inlet opening, and means for closing either of said draft outlet openings.

9. A drier, comprising the combination of a drum having a draft inlet opening and a draft outlet opening, a casing surrounding the drum and having a draft outlet opening, a furnace the draft from which leads to said casing and to said draft inlet opening, and means for closing either the draft path from the furnace through the drum or that from the furnace through the casing around the drum.

In witness whereof, I have hereunto set my hand at Indianapolis, Indiana, this 16th day of April, A. D. one thousand nine hundred and fifteen.

FREDERICK A. HETHERINGTON.

Witnesses:
FRANK A. FAHLE,
MAY LAYDEN.