No. 846,574. PATENTED MAR. 12, 1907.

B. F. LAMBERT.

PEAT DRIER.

APPLICATION FILED JULY 16, 1906.

3 SHEETS—SHEET 1.

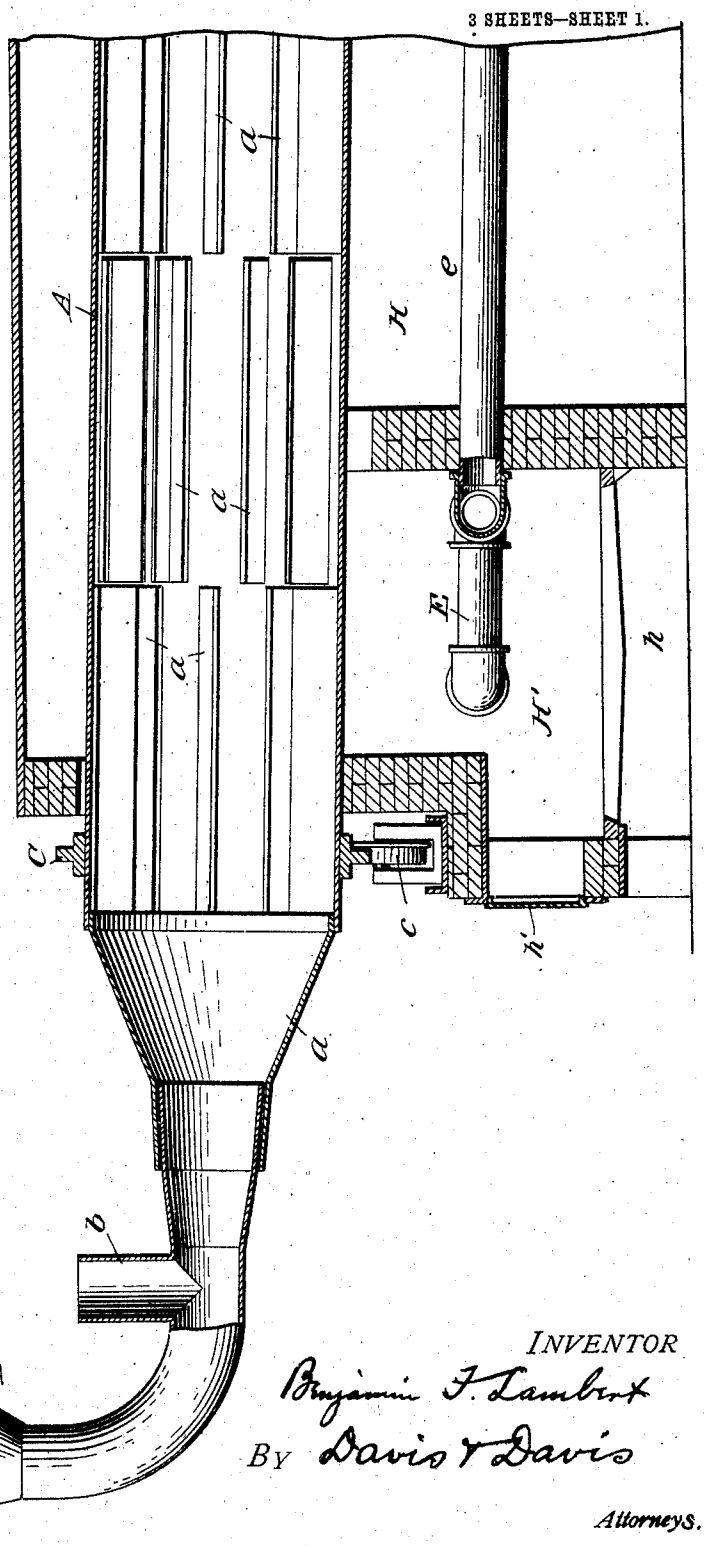


Fig. 1.

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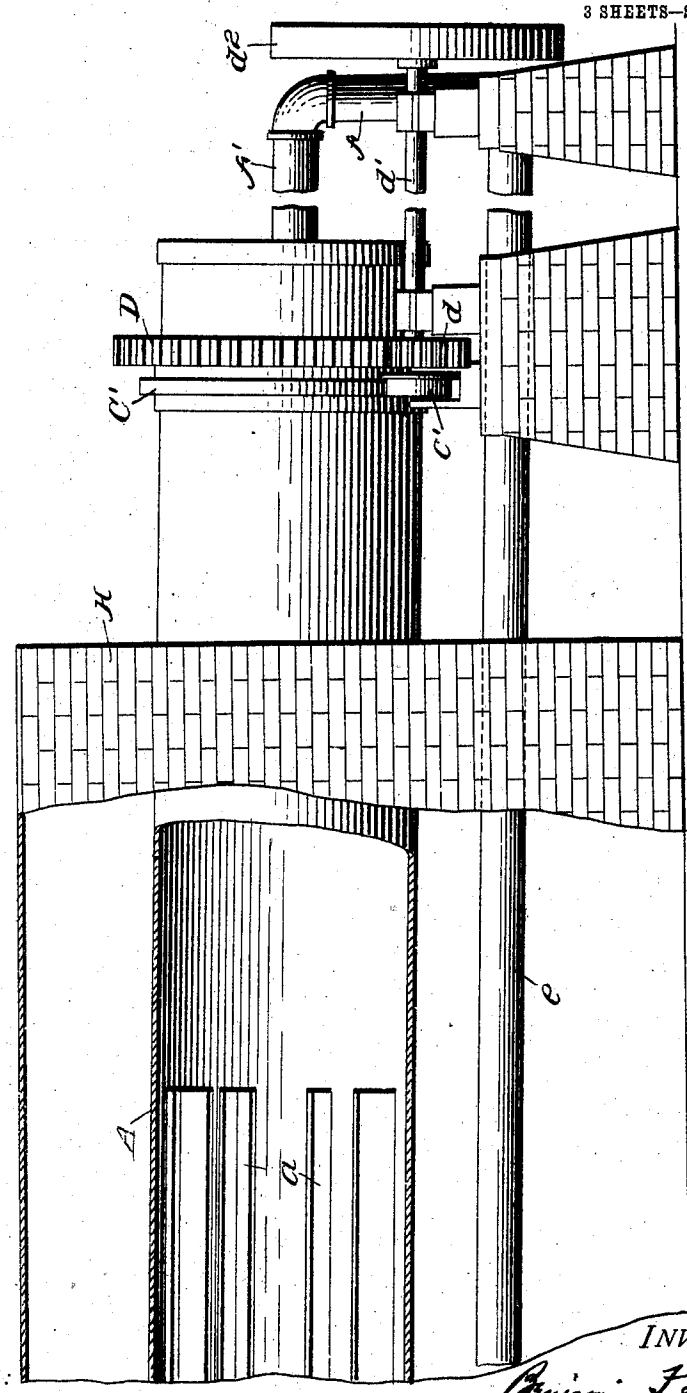


Fig. 1, A.

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3 SHEETS—SHEET 3.

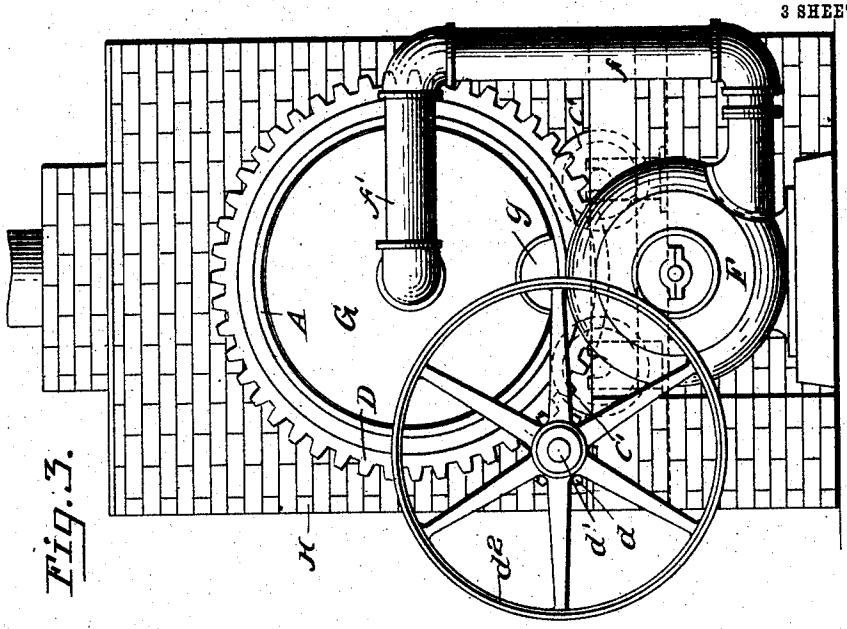


Fig. 3.

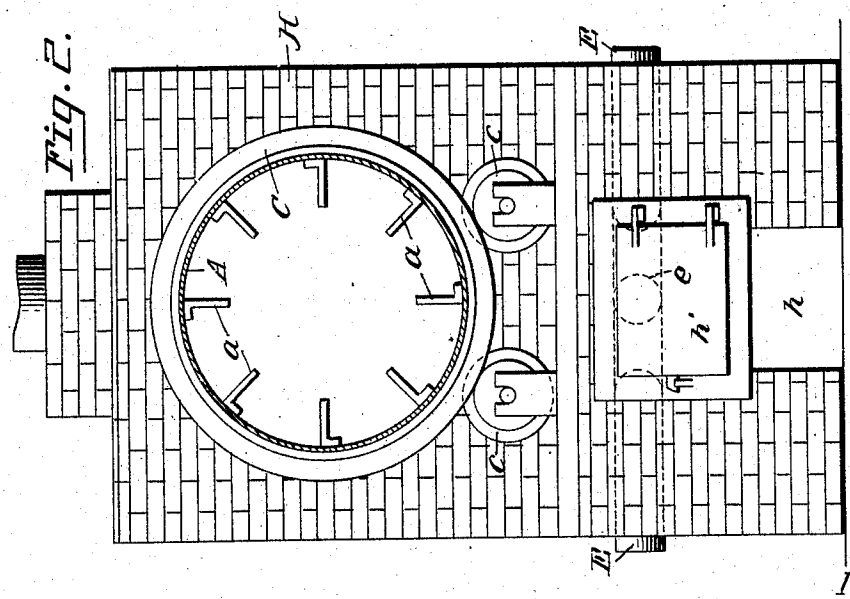


Fig. 2.

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UNITED STATES PATENT OFFICE.

BENJAMAN F. LAMBERT, OF ANDERSON, INDIANA.

PEAT-DRIER.

No. 846,574. Specification of Letters Patent. Patented March 12, 1907.

Application filed July 16, 1906. Serial No. 326,470.

To all whom it may concern:

Be it known that I, BENJAMAN F. LAMBERT, a citizen of the United States of America, and a resident of Anderson, county of Madison, State of Indiana, have invented certain new and useful Improvements in Peat-Driers, of which the following is a full and clear specification, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of the front portion of the apparatus. Fig. 1ᴬ is a similar view of the rear portion of the apparatus, some of the parts being in side elevation. Fig. 2 is a vertical section taken through the front end of the cylinder, showing the front end of the masonry structure in elevation; and Fig. 3, a rear elevation of the apparatus.

The object of this invention is to provide a simple apparatus of large capacity for continuously drying such materials as peat with a minimum expenditure of fuel, as more fully hereinafter set forth.

To the accomplishment of this object and such others as may hereinafter appear the invention consists of the parts and combination of parts hereinafter fully described, and particularly pointed out in the appended claims, reference being had to the accompanying drawings, forming a part of this specification, in which the same reference characters designate like parts throughout the several views.

Referring to the drawings by reference characters, A designates a long cylinder inclining downwardly toward its rear end and mounted to rotate on bearing-rings C C′, which are supported on pairs of rollers *c* and *c′*. The front end of the cylinder tapers forwardly, and its reduced end embraces the outlet-pipe of a feed-chute B, an exhaust-pipe *b* being connected to said tube between the inlet end of the feed-chute and its outlet end. Along the interior of the cylinder are several series of longitudinal ribs *a*, the ribs of one series being staggered with reference to the adjacent series.

Inclosing the cylinder between its two bearing-rings C C′ is a masonry structure H, having a chimney at its rear end and a furnace H′ at its forward end, the fuel-door of this furnace being designated as *h′*. It will be observed that the products of combustion will pass from the furnace up around the cylinder, completely enveloping it as the products pass to the smoke-outlet.

The rear end of the cylinder is closed by a stationary disk G, which is provided at its lower edge with an opening *g* for the discharge of the dried product. Leading into the center of the rear end of the cylinder through the disk G is a pipe *f′*, and connected to this pipe is a down-pipe *f*, which is connected to the outlet of a fan-blower F. The inlet of this blower is connected to a pipe *e*, which extends forwardly through the combustion-chamber of the apparatus and into the fire-box of the furnace H′. Connected to the forward end of this air-pipe *e* are a pair of branch pipes E, which extend laterally from the pipe *e* out through the side walls of the furnace, the outer ends of these branches being open to the atmosphere.

The cylinder is rotated by a large spur-gear D, attached to its rear end beyond the rear flange C′. Meshing with this spur-gear is a pinion *d*, carried by a shaft *d′*, on the rear end of which is fixed a belt-pulley d^2. The pulley on the blower-shaft may be driven from this belt-pulley d^2. The relative sizes of the pulleys and the gears are such that a rapid rotation will be given to the fan, while a slow motion will be given to the cylinder.

It will be observed that when the cylinder is continuously rotated the peat, which is fed into the forward end of the cylinder, is constantly agitated and carried downward toward the rear discharge end of the cylinder. The agitation is accomplished by the lifting-flanges *a*, which are constantly lifting material to a point above the center of the cylinder and dropping it. As the material travels toward the discharge end it is thoroughly dried by the hot air which is caused to pass upward through the cylinder by the blower and the conduit system. As the material thus travels toward the discharge end and is relieved of its moisture it becomes more and more friable, and consequently is broken up into comparatively small pieces by the constant agitation. This breaking up of the peat enables the current of hot air to evaporate and carry off a large percentage of the moisture originally contained in the peat. I have discovered in practice that by properly timing the rotation of the cylinder with regard to its length and the capacity of the air-flues that the material is discharged in a sufficiently dry state to prevent it lumping into large masses.

It will be observed that the long travel of the air through the fire-box and the combus-

tion-chamber of the apparatus provides for thoroughly heating it and that the drying capacity of the apparatus is greatly increased by mounting the cylinder directly in the path of the products of combustion. It will be observed that the air is taken from the atmosphere directly through the furnace without being mixed with the products of combustion, so that it passes through the fan and into the cylinder in a clean state, thereby avoiding smutting up the pipes and the fan.

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

1. In a drying apparatus, the combination of an inclosing structure having a furnace built in its forward end, a cylinder extending longitudinally through the structure above the furnace and inclining downwardly toward its rear end and provided with interior lifting-flanges, means outside of the furnace structure for rotatably supporting the cylinder, means outside of the furnace structure for rotating the cylinder, a stationary chute or hopper emptying into the forward end of the cylinder and having an exhaust-opening between its filling end and its emptying end, and means for forcing a current of hot air upward through the cylinder, said means consisting of a stationary disk closing the rear lower end of the cylinder, an air-conduit connected to this disk and extending forward through the furnace structure and having its inlet open to the atmosphere direct, and an air-forcing device interposed at a suitable point in this air-conduit, substantially as set forth.

2. In combination, a furnace structure, an upwardly and forwardly inclined rotatable cylinder mounted therein, a stationary tube at the upper end of the cylinder and means connected to said tube for permitting exhaust and for feeding material into the cylinder, a stationary disk closing the lower end of the cylinder and provided with a discharge-opening, a blast-pipe communicating with the interior of the cylinder through said disk and means for creating a blast through said pipe, and means for heating the air conducted to said pipe.

3. In combination with a furnace structure, a rotatable inclined cylinder extending therethrough, means for charging material into the upper end of the cylinder and discharging it from the lower end, means on the interior of the cylinder for agitating the material during its travel, and means for forcing a current of hot air up through the cylinder, said means consisting of a conduit connected to the lower end of the cylinder and extending forwardly through the combustion-chamber and into the fire-box of the furnace, the portion lying in the fire-box being branched off laterally in opposite directions and extending through the side walls of the furnace to the outside atmosphere, and a fan-blower located between the furnace and the lower end of the cylinder.

4. In combination, a furnace structure, an upwardly and forwardly inclined rotatable cylinder mounted therein and having its upper end contracted, a stationary tube entering the center of the contracted upper end of the cylinder and means connected to said tube for permitting exhaust and for feeding material into the cylinder, a stationary disk closing the lower end of the cylinder and provided with a discharge-opening, a blast-pipe communicating with the interior of the cylinder through said disk and means for creating a blast through said pipe, and means for heating the air conducted to said pipe.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 14th day of February, 1906.

BENJAMAN F. LAMBERT.

Witnesses:
GUS. A. EITELMANN,
ALICE MAY ROBERTS.