March 17, 1925. 1,529,750

J. PLATE

APPARATUS FOR DRYING FINELY DIVIDED MATERIAL SUCH AS PEAT, ETC

Filed April 15, 1918 3 Sheets-Sheet 1

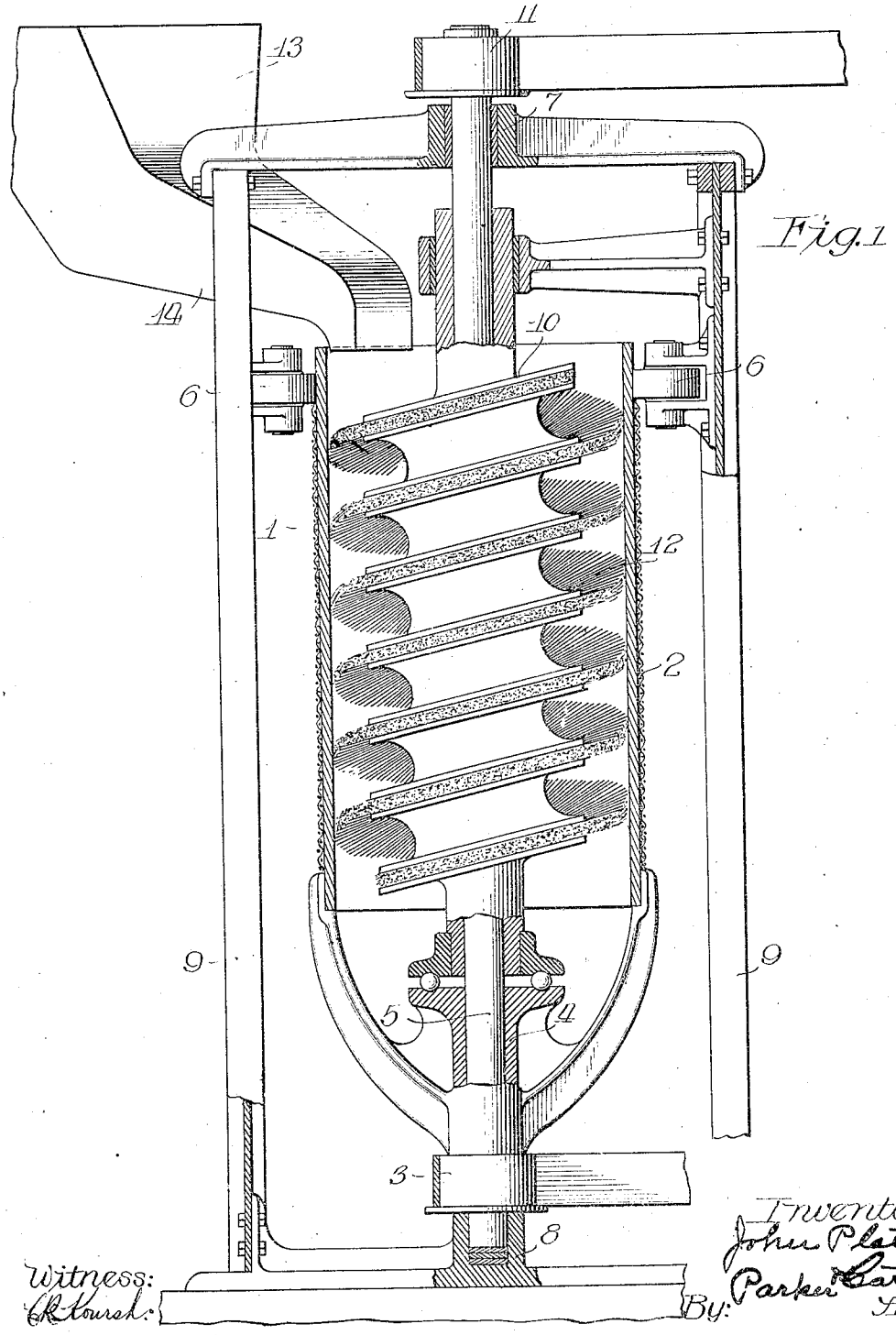


Fig. 1

Witness:
R. Louis.

Inventor
John Plate
By: Parker & Carter
Attys.

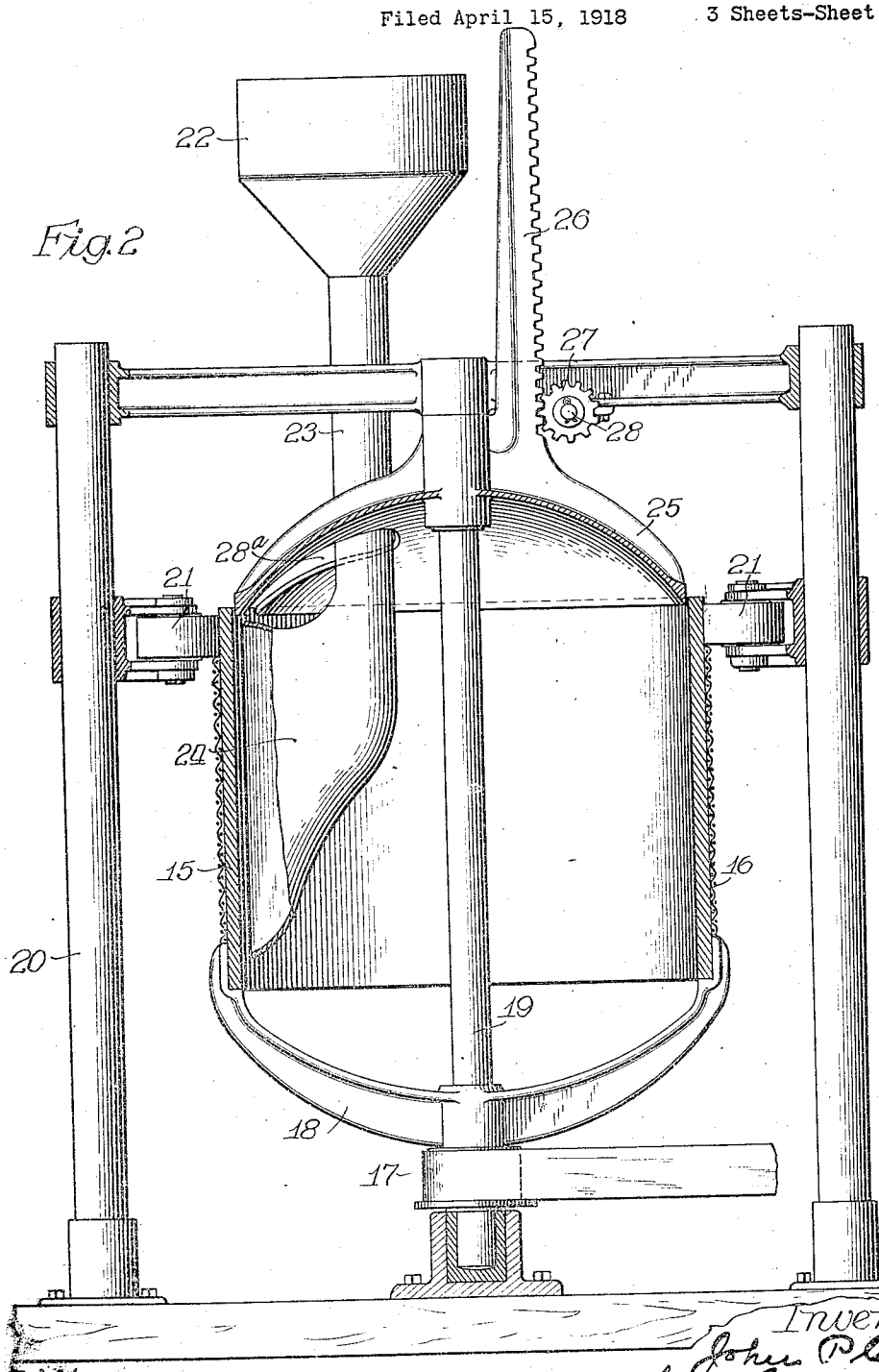
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Fig. 2



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APPARATUS FOR DRYING FINELY DIVIDED MATERIAL SUCH AS PEAT, ETC

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Fig. 3

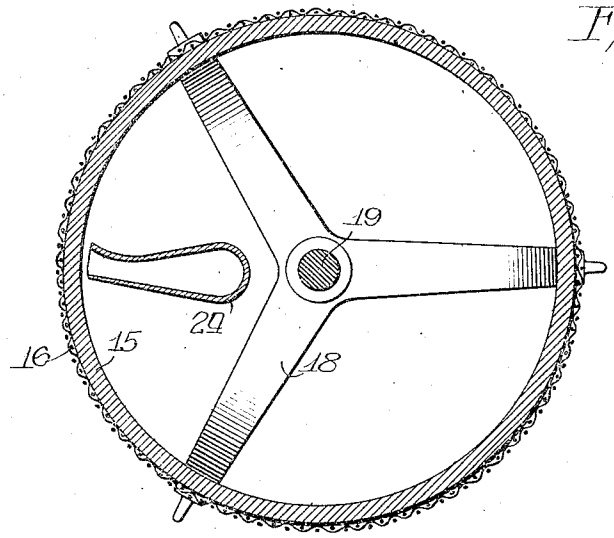
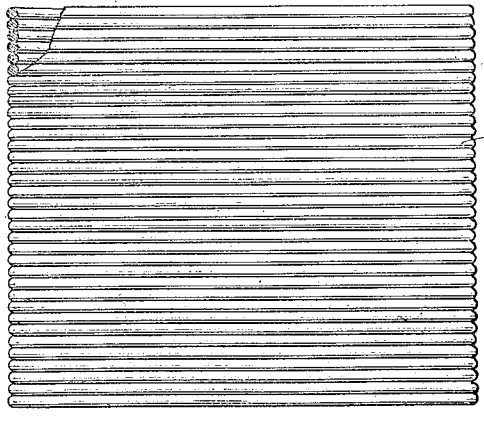


Fig. 4



Inventor
John Plate

Witness:
Chas. P. Kourse

By: Parker & Coates Attys.

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Patented Mar. 17, 1925.

1,529,750

UNITED STATES PATENT OFFICE.

JOHN PLATE, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-FOURTH TO PEHR G. SIEURIN, OF WORCESTER, MASSACHUSETTS, AND ONE-FOURTH TO HJALMAR GRONBECK AND ONE-FOURTH TO THORVALD LUNDBOHM, BOTH OF CHICAGO, ILLINOIS.

APPARATUS FOR DRYING FINELY-DIVIDED MATERIAL SUCH AS PEAT, ETC.

Application filed April 15, 1918. Serial No. 228,582.

To all whom it may concern:

Be it known that I, JOHN PLATE, a subject of the King of Sweden, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Apparatus for Drying Finely-Divided Material Such as Peat, Etc., of which the following is a specification.

This invention relates to an apparatus for drying finely divided material such as peat, gravel, sawdust and the like, and has for its object to provide a new and improved device of this description. Material like peat, for example, is widely distributed, but it is difficult to properly, quickly and cheaply dry it so as to put it in condition for use as a fuel. One of the objects of my present invention is to provide an apparatus by means of which such material as peat may be easily, quickly and cheaply dried. The invention is illustrated in the accompanying drawings wherein

Figure 1 is a sectional view through one form of device embodying the invention;

Figure 2 is a sectional view showing a modified construction;

Fig. 3 is a cross sectional view of the receptacle shown in Fig. 2.

Fig. 4 is a view showing a further modified construction.

Like numerals refer to like parts throughout the several figures.

Referring now to Figure 1 I have illustrated a receptacle 1 into which the material to be dried is received. This receptacle must be arranged so that water or moisture may pass through the walls thereof, but the peat or other material cannot pass through such walls. In the construction shown this receptacle is provided with walls made of porous material. The receptacle, for example, may be made of concrete, stone, earthenware or the like. When the walls are made of such material I provide a retaining or protecting device 2 which may consist of a wire net preferably of steel or other strong wire so as to take the strain when the receptacle is rotated, thereby preventing injury to such receptacle due to centrifugal force. Some suitable means is provided for rotating this receptacle. In the construction shown there is a pulley 3 connected with the sleeve 4 on the shaft 5, said sleeve being suitably connected with the receptacle so that when the pulley is rotated the receptacle will be rotated. The receptacle 1 is preferably open at the top and the bottom, and I may provide rollers 6 located at suitable intervals which engage the receptacle as shown so as to hold it in proper position while being rotated. The shaft 5 is mounted in suitable bearings 7 and 8 connected with the frame 9. Located within the receptacle is a device for removing the material to be acted upon from the walls of the receptacle. In Figure 1 I have illustrated a screw 10 which is rotatably mounted upon the shaft 5. This shaft is provided with a pulley 11 by means of which it may be rotated so as to rotate the screw 10. The material is distributed over the inner surface of the wall of the receptacle through the agency of this screw. The screw 10 is preferably provided at its periphery with some flexible material which engages the material on the walls of the receptacle. As illustrated I provide brushes 12 on the periphery of this screw. The peat or other material is fed into the hopper 13 and then passes through the pipe 14 into the receptacle 1. In Figure 2 I have shown a modified construction wherein the receptacle 15 which may be of any suitable porous material is provided with the steel net 16 and is rotated by means of the pulley 17 connected with the rotating part 18 which in turn is connected with the receptacle and which is mounted upon and rotates with the shaft 19, said shaft being mounted in bearings on the frame 20, there being suitable rollers 21 to keep the receptacle in proper alignment. The peat or other material to be dried is placed in the hopper 22 and passes down through the pipe 23 which has an enlarged end 24 preferably having a narrow discharge opening so that the material will be discharged over the inner face of the receptacle. This hopper and part 24 do not revolve. Some suitable means is provided for removing the material when dried from the inner wall of the receptacle. As shown in Figure 2 I provide a removing device 25 which is moved down along the inner face of the wall of the re-

ceptacle so as to scrape the material from such wall. This removing device just fits the inside of the receptacle and may be moved in any desired manner as by means of the rack 26 and the pinion 27, the pinion being rotated by means of a shaft 28. The removing device 25 is loosely mounted on the shaft 19 but does not rotate with it and is provided with an opening 28ª for the pipe 23.

In Fig. 4 I have shown a construction where the receptacle 30 is made from a wire or rod formed into a coil, the spaces between the adjacent sections of the coil being sufficient to permit the discharge of liquid but not of solid matter. Any suitable removing device may be used with this construction.

If the receptacle is made from a rod or wire of sufficient strength it will properly hold its shape when rotated without the necessity of using a retaining or protecting device such as shown in Figs. 1 and 2, but it is of course evident that such retaining or protecting device may be used if desired or if the conditions require it.

It will be seen that in this construction I provide a receptacle having a wall or walls substantially impervious to solid material but through which liquid may pass when the vehicle is rotated at the desired speed.

The use and operation of my invention are as follows:—

The peat or other material to be dried may be in its wet condition, and it may contain any degree of moisture so that it may even be in the form of mud. This material is placed in the hopper 13 when the apparatus shown in Figure 1 is used and passes down into the receptacle 1 which is rotated at a suitable speed. The centrifugal force then throws the material out against the inner wall of the receptacle which prevents further movement of the solid material. The water or moisture by means of the centrifugal force is forced through the wall of the receptacle and is thus separated from the solid material. The screw 10 and the receptacle 1 are rotated at somewhat different speeds so that there will be relative motion between them and said screw removes the solid material from the inner wall of the receptacle and gradually moves it down to the discharge point where it is discharged into some suitable receiving device and is then ready to be removed and used. In Figure 2 the material to be dried is placed in the hopper 2, passes down into the enlarged end of the pipe 23 and is deposited upon the inner wall of the receptacle 15, the centrifugal force separating the water therefrom and causing it to pass out through the wall of said receptacle. When it is desired to remove the solid material from the inner wall of the receptacle the removing device 25 is moved downwardly by rotating the shaft 28 and the pinion 27, said pinion by its engagement with the rack 26 causing said removing device to move downwardly. This scrapes off the solid material from the inner wall of the receptacle and the material is then discharged into a suitable receiving device and is ready to be used. If this device, for example, is used to dry peat the peat when removed is ready to be burned. It will thus be seen that by means of this apparatus the material may be easily and quickly dried to the desired amount, and there is a substantially continuous operation so that large quantities may be treated.

I claim:—

1. An apparatus for drying finely divided material such as peat etc. comprising a rotatable receptacle having a wall free from openings but of porous material through which moisture may pass, a retaining device for said wall to relieve it of the strain due to centrifugal force comprising a wire netting, means for inserting into said receptacle the material to be dried in a wet condition, and for distributing the same over the inner face of the wall of said receptacle whereby the centrifugal force separates the moisture therefrom and causes it to pass through the porous wall, and a removing device continuously acting while in motion, for removing said material from said wall.

2. An apparatus for drying finely divided material such as peat etc. comprising a rotatable receptacle, having a wall free from openings but of porous material through which moisture may pass, a retaining device for said wall to relieve it of the strain due to centrifugal force and extending along the middle portion thereof, the upper and lower edge being free therefrom, and separate engaging parts engaging the upper and lower ends of said receptacle for relieving it from the strain due to the centrifugal force, means for inserting into said receptacle in a wet condition, the material to be dried, means for distributing said material over the inner surface of the wall of said receptacle, the centrifugal force separating moisture therefrom and driving it through the porous wall, and a removing device adapted to remove said material from said wall after the desired amount of moisture has been removed therefrom.

3. An apparatus for drying finely divided material such as peat, etc., comprising a receptacle having a wall substantially impervious to solid material, but through which liquid may pass when the receptacle is rotated, a shaft extending through said receptacle, a frame connected with said shaft and engaging one end of said receptacle

and rotating with the receptacle, engaging devices having a movable engagement with the other end of said receptacle, means for feeding material into said receptacle, and means for removing solid material from the inner face of said receptacle.

In testimony whereof, I affix my signature in the presence of two witnesses this 1st day of April 1918.

JOHN PLATE.

Witnesses:
MINNIE M. LINDENAU,
CHRISTINA DEANS.