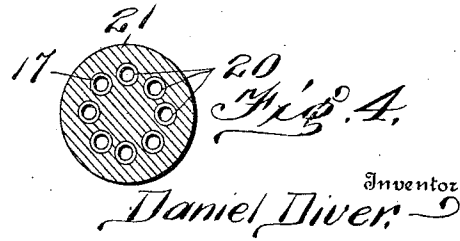
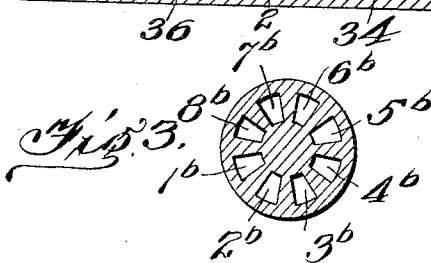
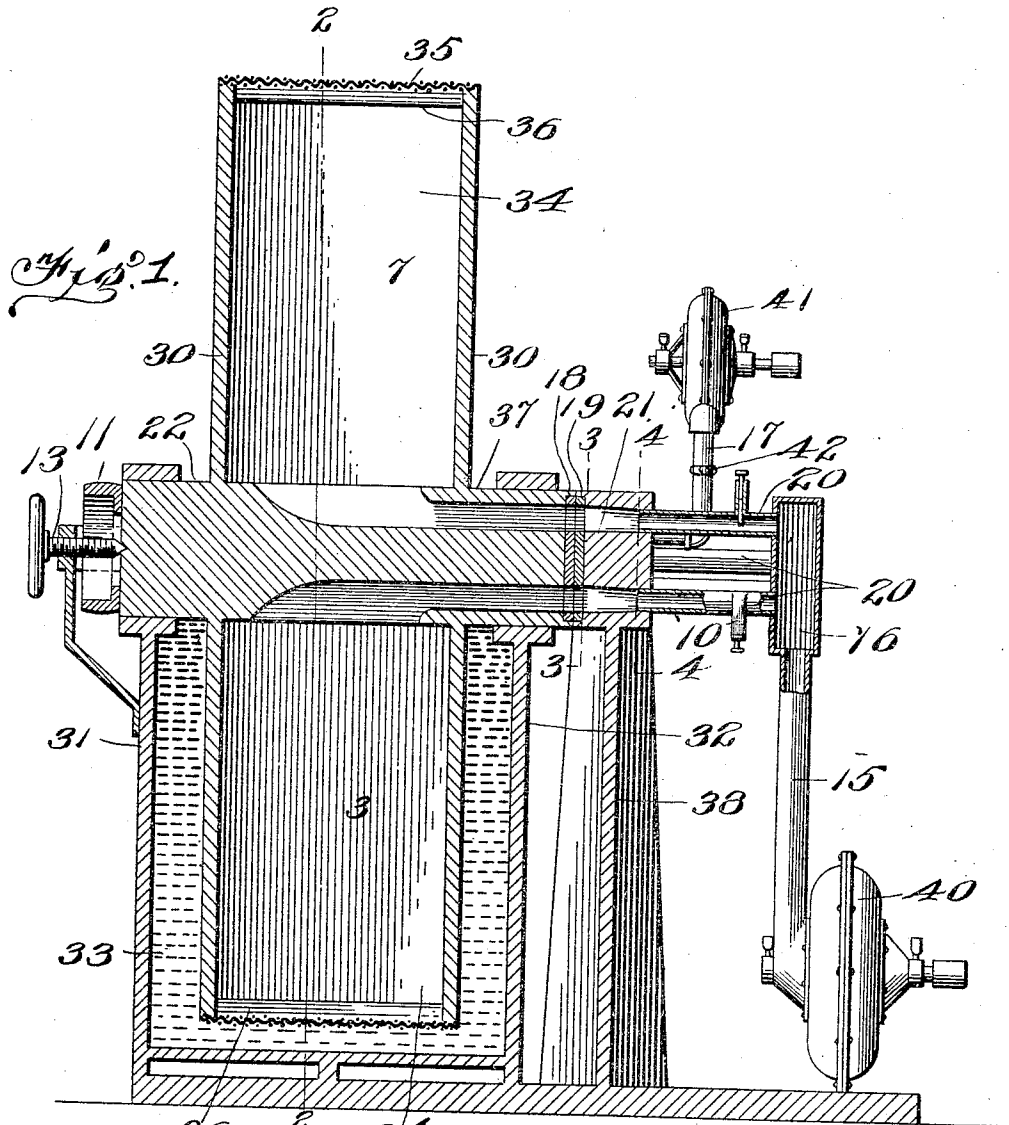


D. DIVER.
 APPARATUS FOR DRYING WET MATERIALS.
 APPLICATION FILED MAY 4, 1909.

948,477.

Patented Feb. 8, 1910.

2 SHEETS—SHEET 1.



Witnesses
Geo. L. Morton
 M. d. Morton

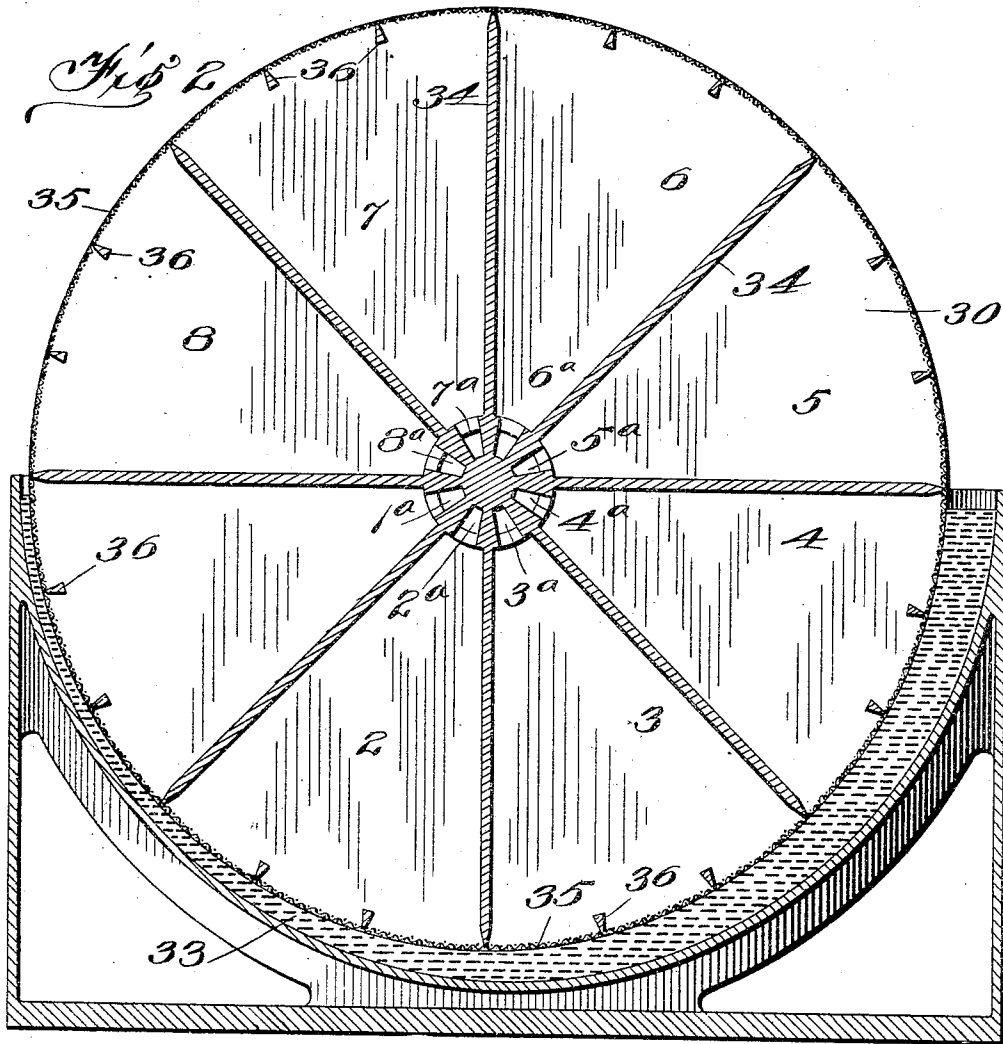
Inventor
Daniel Diver
 By *Geo. E. Jew*
 Attorney

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Witnesses
[Signature]
 M. R. Morton

Inventor
Daniel Diver

By *[Signature]*
 Attorney

UNITED STATES PATENT OFFICE.

DANIEL DIVER, OF DEERFIELD, MICHIGAN.

APPARATUS FOR DRYING WET MATERIALS.

948,477.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed May 4, 1909. Serial No. 493,952.

To all whom it may concern:

Be it known that I, DANIEL DIVER, a citizen of the United States, residing at Deerfield, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Apparatus for Drying Wet Materials, of which the following is a specification.

This invention relates to apparatus for drying wet materials such as marl, slurries, limes, clays, peat, silicas, etc., for the purpose of reducing the moisture therein to a minimum, thereby reducing the cost of the subsequent burning or treatment to the lowest possible point.

The invention is also useful in washing clays, and extracting the water therefrom, so that they will work through ordinary clay-working dies.

The apparatus will dry peat to such an extent that it will be ready for the compressors.

The apparatus may be applied generally wherever it is desired to dry any wet mass to a desired extent or consistency.

The apparatus includes a rotary screen having therein a series of compartments, the screening or filtering fabric being placed on the periphery of a wheel which rotates in a box containing the material to be treated. By means of the vacuum pump or the like suction is applied to all of the compartments of the wheel except one, and as to that, a blast is applied. The suction acts to take up the material by causing the same to cling to the screen, and also draws or extracts the water therefrom, and finally it is blown from the screen by the compressed air or blast which, as stated, is applied to one of the compartments.

The construction and operation of the apparatus will be more fully apparent from the following description and the accompanying drawings.

In the drawings,—Figure 1 is a vertical longitudinal section of the apparatus. Fig. 2 is a cross section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1. Fig. 4 is a section on the line 4—4 of Fig. 1.

Referring specifically to the drawings, 30 indicates the closed sides of a wheel mounted to rotate on a shaft 22 carried in bearings on standards 31 and 32 between which is a box or trough 33 which contains the material to be treated. This wheel is divided by radial partitions 34 into a series

of segmental compartments indicated at 1, 2, 3, 4, 5, 6, 7 and 8, and the periphery of the wheel is covered by a screen 35 supported by cross pieces 36. The hub of the wheel is provided with a series of passages 1^a, 2^a, 3^a, 4^a, 5^a, 6^a, 7^a and 8^a, corresponding and communicating with the respective segmental compartments, and these passages lead out at one end through a hub 37. These passages are arranged to communicate with corresponding passages 1^b, 2^b, 3^b, 4^b, 5^b, 6^b, 7^b and 8^b in a fixed valve block or hub 21 mounted upon a standard 38, wear plates or washers 18 and 19 being interposed between the hubs, said wear plates having openings corresponding to those in the hubs. The passages 1^b, to 7^b are rounded and tapped at their outer ends to receive a corresponding series of exhaust pipes 20 which lead to a vacuum or receiving chamber 16 connected by a pipe 15 to a vacuum pump 40. The passage 8^b connects with a pipe 17 leading from a blower or compressed air device 41. The respective pipes 20 are provided with automatic valves 10 which are set to regulate the exhaust or vacuum drawn through each pipe; and the blast pipe 17 is provided with a valve 42 to regulate the blast. A screw 13 is provided, bearing against the shaft 22 at its outer end, for the purpose of holding said shaft and its hub in close contact with the stationary hub 21, or rather with the washers therebetween. The wheel may be rotated by any suitable means, such as a belt applied to a pulley 11. By the means provided an exhaust is drawn in the compartments 1 to 7 inclusive, and the regulating valves 20 are so set that the vacuum progressively increases. It will be understood that the numbers 1 to 8 do not represent specific compartments, but rather represent the positions assumed by the respective compartments as the wheel is rotated, and as shown, the vacuum increases from 1 to 7, the compartment shown in position 8 being the blast compartment, the pipes 20 and 17 being arranged accordingly. As the wheel is rotated the slight or lowest vacuum in the compartment indicated at No. 1 will pick up a certain amount of the material in the trough; the increased vacuum in Nos. 2, 3 and 4 will pick up increased amounts of the material, and the wheel will finally carry a layer of the material to the position indicated at No. 5. The exhaust progressively increases, and while the ma-

terial is on the compartments indicated at 5, 6 and 7, water contained in the material will be drawn through the screen and pass out through the vacuum passages and pipes 5 to the receiving tank and pump and thence to discharge. The vacuum is regulated according to the wetness and other qualities of the material being treated. When the material reaches the position indicated by 10 the compartment No. 8 it is blown or dislodged from the wheel by means of the blast delivered through said compartment and will fall outside of the tank, the end of which is placed close to the wheel at that 15 point. The screen on said compartment No. 8 being thus cleared of the dry material thereon will by continued rotation of the wheel pass down into the tank to the position indicated by compartment No. 1, and 20 the compartment indicated at No. 7, containing the dry material, will reach the position No. 8 and the material will be blown therefrom in the same manner. Thus, as 25 the wheel rotates the compartments are successively brought to the collecting and discharging positions. The passages 1^a, 2^a, etc. in the hub are successively registered with the passages 1^b, 2^b, etc. in the fixed block 21, and are thereby successively connected with

the corresponding exhaust pipes and finally 30 with the blast pipe or passage at 8^b, so the operation is continuous and automatic, the passages in the hubs acting as valves as the wheel rotates.

No limitation is implied by reason of the 35 particular structure shown, since the apparatus may be modified in various ways within the scope of the invention.

I claim:

In a drier, the combination of a trough, a 40 wheel divided into compartments each of which has a screen, and arranged to rotate partly within the trough, the hub of the wheel having separate passages communi- 45 cating with said compartments respectively, a vacuum tank, valved pipes extending from the same to said hub and arranged to register with part of said passages in succession as the wheel turns, and a blast pipe extend- 50 ing to the hub and arranged to register with the remainder of said passages in succession as the wheel turns.

In testimony whereof, I affix my signature in presence of two witnesses.

DANIEL DIVER.

Witnesses:

ELIZABETH J. PRICE,
CORA E. HEMPEL.