

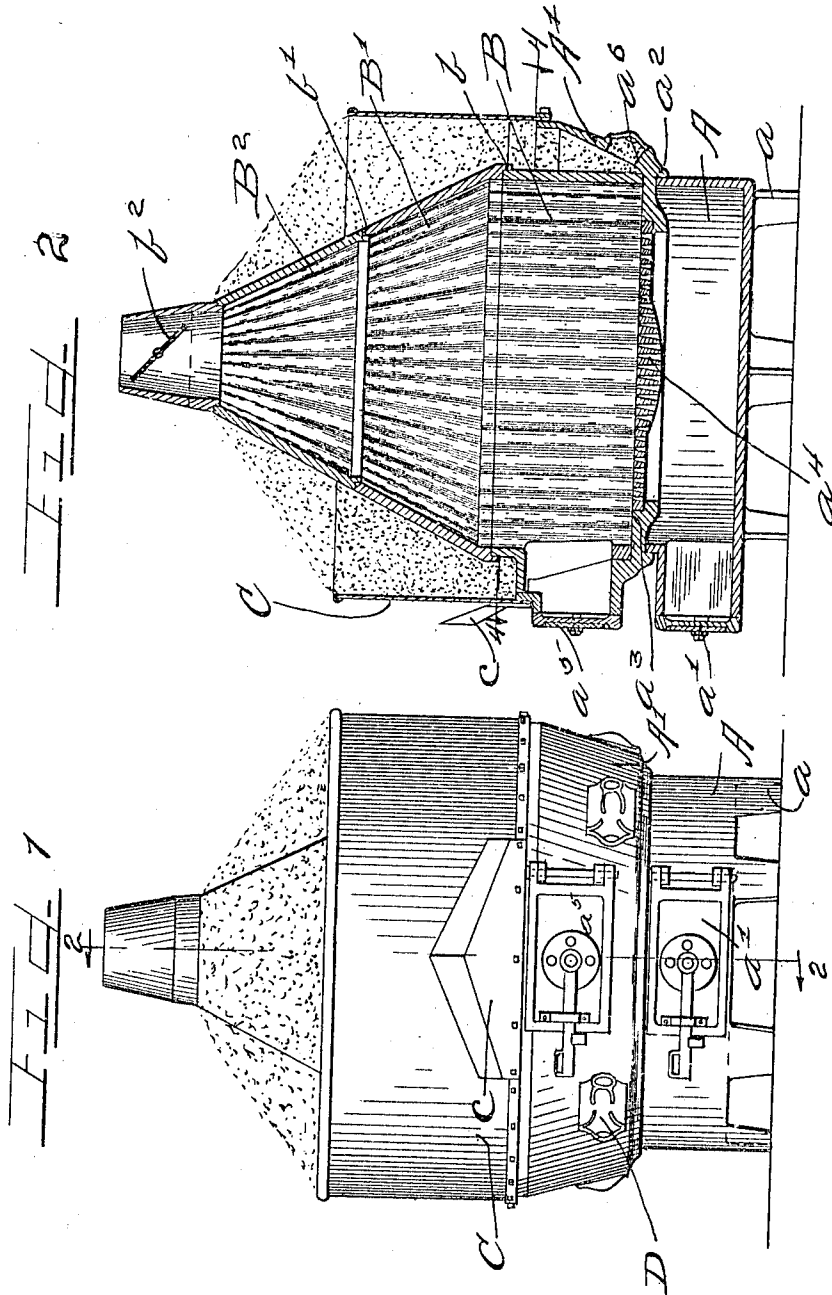
W. ROBERTSON.
DRIER.

APPLICATION FILED JULY 1, 1907. RENEWED JULY 19, 1909.

950,603.

Patented Mar. 1, 1910.

2 SHEETS—SHEET 1.



WITNESSES
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2 SHEETS—SHEET 2.

FIG. 3

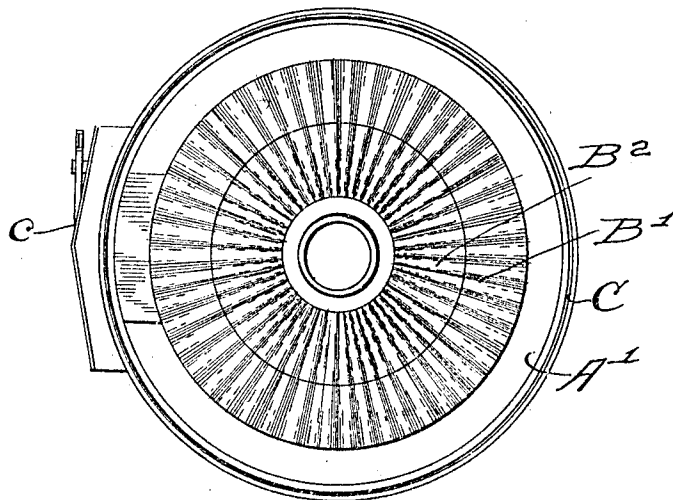
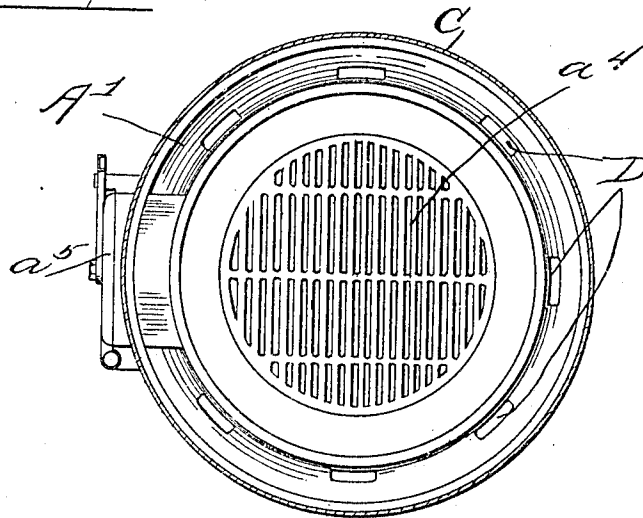


FIG. 4



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DRIER.

950,603.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed July 1, 1907, Serial No. 381,596. Renewed July 19, 1909. Serial No. 508,474.

To all whom it may concern:

Be it known that I, WILLIAM ROBERTSON, a subject of the King of Great Britain, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Driers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in driers and particularly to a heater or drier capable of aerating and drying granular material.

In railway operation and maintenance it is necessary to keep on hand at convenient centers a quantity of dry sand to supply to the locomotives for the purpose of sanding the tracks.

It is an object of this invention to provide a device adapted to thoroughly and rapidly dry the sand or other material in large quantities prior to storage for the above or other purposes.

It is also an important object of the invention to provide a drier constructed of a plurality of sections any of which may be quickly removed for repairs or replaced without destroying or injuring any other part.

It is a further object of this invention to provide a drier which though compact in form is capable of containing a maximum quantity of material and to expose a large area of the heater to act upon the material and in which the dried material may be removed by gravity permitting that partly dried to take its place thus affording a heater capable of continuous operation and in which stopping for the purpose of removing the material and refilling is not necessary.

The invention consists in the matters hereinafter described and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is a front elevation of a heater embodying my invention showing the same filled with sand. Fig. 2 is a section taken on line 2—2 of Fig. 1. Fig. 3 is a top plan view of the drier. Fig. 4 is a transverse section taken above the fire door.

As shown in the drawings: The drier is cylindrical in form and comprises a base A

open at the top and having a tight bottom and affording the ash pit, and is provided with supporting legs *a* and an offset ash door *a'*. Seated on said base A is a fire pot section A' in form resembling an inverted frustum of a cone and having a fire door *a''* above and in alinement with the ash door *a'*. Said section is provided with a downwardly extending flange *a''* which engages around the top of the base and an inwardly directed integral flange *a'''* which is recessed to receive the fire grate *a''''* therein.

The heater wall comprises a plurality of corrugated sections of which the section B is cylindrical in form and is seated within the flange *a''* of the fire pot section A forming the fire pot. The section B' is supported thereon and is conical in shape and provided with a bottom flange *b* to fit around the top of said section B. The section B² also conical in form is provided with a corresponding flange *b'* which fits within the top of the section B'. The upper end of the section B² or a short section B² may be shaped for connection with a stack or chimney.

Rigidly secured on the outwardly flaring top of the section A' and surrounding the furnace walls, is a casing or inclosure C as shown cylindrical in form and which extends as shown to nearly the top of the furnace and between which and the walls of the sections B—B'—B² is space for the material to be dried. A deflector *c* is provided above the fire and ash doors which acts to guide the sand to the sides of the doors. For the purpose of removing the dried sand the section A' is provided with outwardly opening apertures in the lower part thereof, of any desired number and each of which is closed by a hinged or other door D.

The operation is as follows: The sections are made of any suitable material by casting or otherwise and inasmuch as bolts need not be employed in assembling the various sections of the drier, it is exceedingly cheap to manufacture and easily assembled. The sand is placed within the casing or wall of the drier and is piled on the conical corrugated wall of the furnace as shown in Figs. 1 and 2, thus utilizing a great area which is subject to the direct heating effect of the furnace. As the space between the section A' and the corrugated section B is comparatively narrow and as the greatest intensity of the heat is exerted at this point it is obvious that the sand confined therein will be

dried with greater rapidity than that above the same and when dried by opening the doors the dried sand is permitted to run out onto the floor or into any suitable hopper as shown in my prior application for sand drier and elevator, Serial No. 343,142, filed on the twelfth day of November, 1906, or may be conducted by a chute to a storage tank. These, inasmuch as they form no part of this present application for patent are not shown. When the dried sand has been removed the partly dried sand settles down to fill this space. The device is thus continuous in operation and delays for emptying and refilling the drier are thus avoided.

By employing a deflector above the fire and ash doors any falling material is conducted to one side thereof so as not to interfere with operation of the doors and furthermore the material is prevented from falling into the fire and ash box and lodging on the doors. By corrugating the walls a much greater surface is obtained than otherwise possible.

Inasmuch as the sections are each removable without destroying or injuring any other, the parts may be ordered from stock when desired thus repairs are easily and quickly made and by removing the conical sections and inverting the same the drier may be knocked down and packed in small compass for shipment. Of course the sections may, if preferred, be bolted or positively connected.

Many details of construction may be varied without departing from the principles of my invention and I therefore do not purpose limiting this application otherwise than necessitated by the prior art.

I claim as my invention:

1. A drier having a corrugated conical wall upon which the material lies, a casing between which and the wall the material is contained, said corrugated wall extending above the top of the casing, and a short section secured at the top of the conical wall adapted for connection with the pipe or stack.

2. In a device of the class described the combination with a fire box and ash pit, of a conical sectional wall exposed to the heat of the furnace, a casing surrounding the wall affording a space for the sand and said conical wall adapted to support the material above the top of the casing, and a deflector secured at the front of the casing above the fire box.

3. A drier embracing an ash section, an apertured fire pot section having an inwardly directed recessed flange provided

with a plurality of recesses, said flange supporting said section on the ash section, a downwardly directed flange integral with the fire pot section engaging around the upper edge of said ash section, a grate seated in one of the recesses in said inwardly directed flange, a cylindric corrugated section seated in the other recess, doors pivoted to close the apertures in the fire pot section adapted to admit dried material therethrough, a sectional conical wall secured to the cylindric section and a casing rigidly secured to the fire pot section and surrounding only a part of the conical wall.

4. In a device of the class described the combination with an ash pot section of a tapered fire pot section supported thereon having discharge apertures in the lower part of the same, doors adapted to control the discharge through said apertures, a sectional wall supported at its lower end on the fire pot section, and a casing rigidly secured to the fire pot section between which and the wall the material to be dried is confined, and said casing surrounding only a part of the sectional wall.

5. A sand drier having a large area exposed to heat upon and around which the sand is placed, a casing confining the sand to the heated wall having discharge openings at the point of greatest heat intensity, and deflecting means for the sand.

6. In a device of the class described the combination with an ash pit and fire grate, of a corrugated wall extending from the grate upwardly and tapering toward the top, a cylindrical casing concentric with the wall and between which the material to be dried is confined, said tapered wall extending above the casing and supporting the material above the casing and means permitting removal of the material when dried.

7. In a device of the class described the combination with an ash pan of a fire box above the same, offset doors for said ash pan and fire box, a corrugated tapering wall extending from the fire box upwardly, a casing surrounding part of said wall between which and upon the wall above the casing the material to be dried is confined and supported and a deflector above said doors.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

WILLIAM ROBERTSON.

Witnesses:

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