

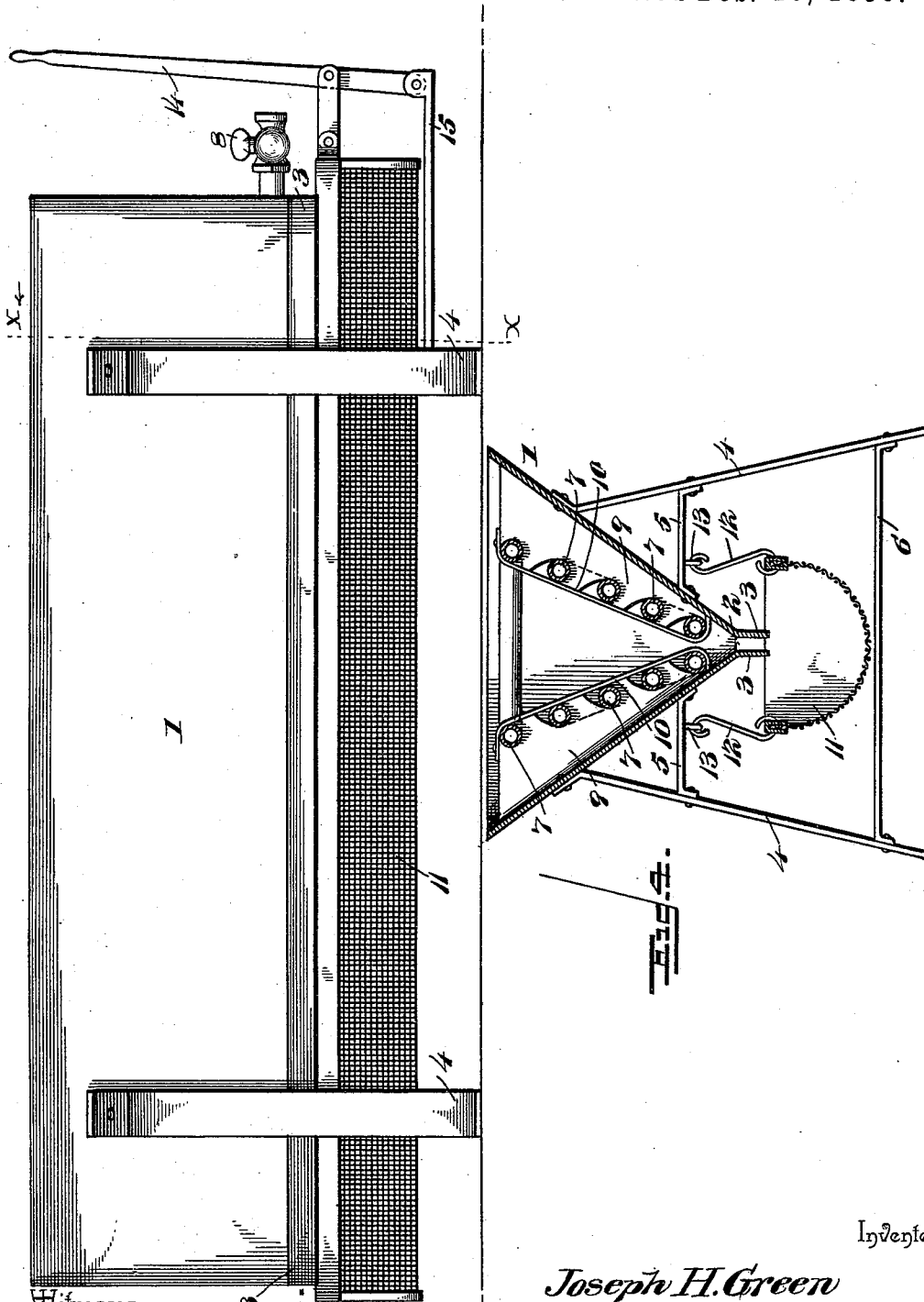
(No Model.)

2 Sheets—Sheet 1.

J. H. GREEN. SAND DRIER.

No. 555,001.

Patented Feb. 18, 1896.



Witnesses
E. H. Stewart
V. B. Hillyard

Inventor
Joseph H. Green

By *his* Attorneys,

C. A. Snow & Co.

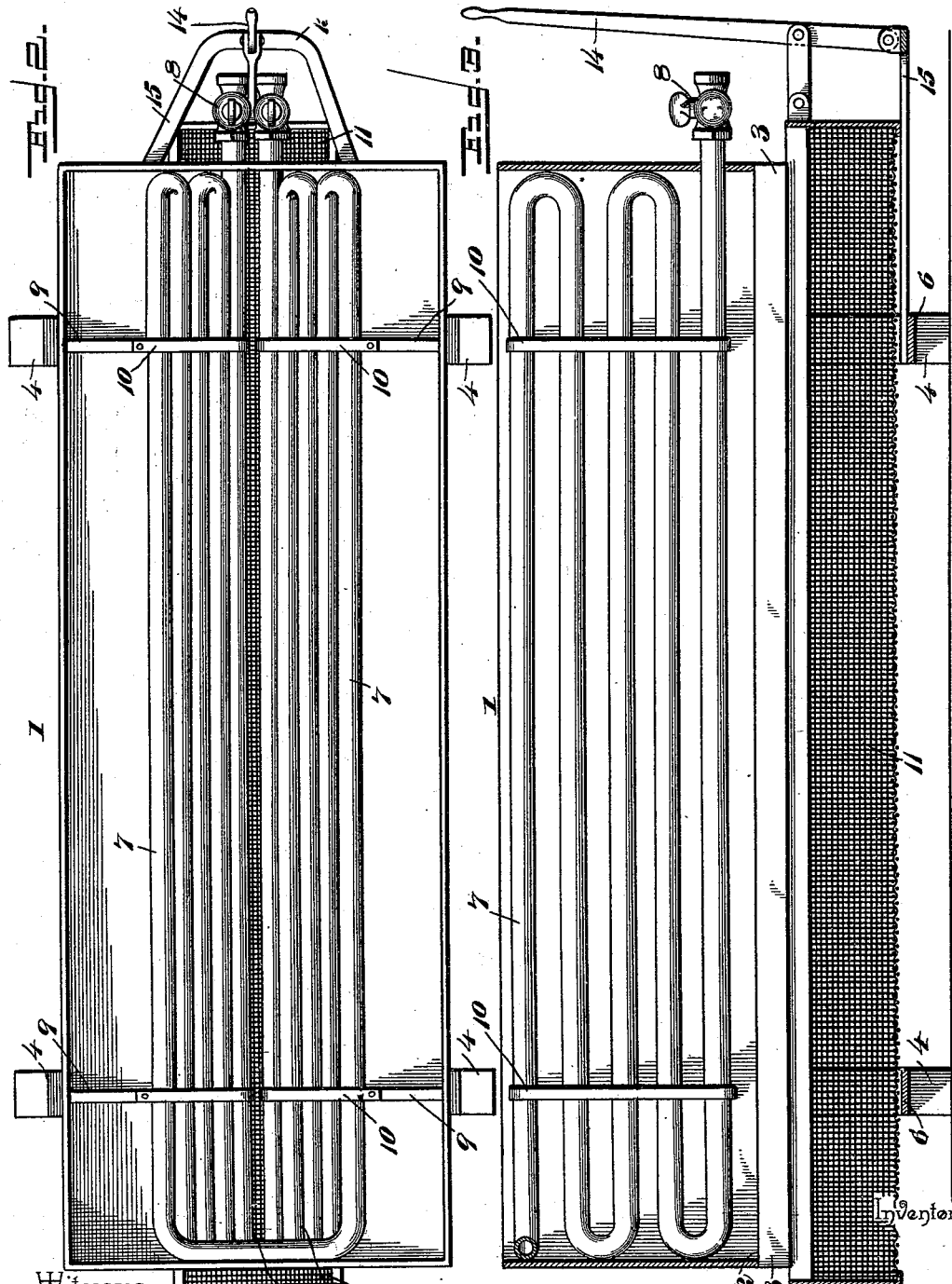
(No Model.)

2 Sheets—Sheet 2.

J. H. GREEN.
SAND DRIER.

No. 555,001.

Patented Feb. 18, 1896.



Witnesses

E. S. Stewart
V. B. Hillyard

By *his* Attorneys, *Joseph H Green*

Chas. Snow & Co.

UNITED STATES PATENT OFFICE.

JOSEPH H. GREEN, OF COLUMBIA, SOUTH CAROLINA.

SAND-DRIER.

SPECIFICATION forming part of Letters Patent No. 555,001, dated February 18, 1896.

Application filed August 21, 1895. Serial No. 560,026. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. GREEN, a citizen of the United States, residing at Columbia, in the county of Richland and State of South Carolina, have invented a new and useful Locomotive Sand-Drying Attachment, of which the following is a specification.

This invention relates to apparatus for drying sand, and aims to secure a thorough expulsion of all moisture and to obviate the formation of a crust during the drying process, and to secure an automatic feed of the sand after the latter has been supplied to the body or storage-chamber to be dried.

The principal object is the utilization of exhaust or other steam which usually is wasted and to apply the same in such manner as to attain the best possible result and to secure a gradual heating of the sand from the receiving end of the body to the lower or discharge end thereof.

Various other objects and advantages are contemplated and will be apparent from the subjoined description and the appended claims, and the nature of the improvement will be fully understood from the following description and the drawings hereto attached, in which—

Figure 1 is a side elevation of an apparatus constructed in accordance with this invention. Fig. 2 is a top plan view thereof. Fig. 3 is a vertical central longitudinal section of the same. Fig. 4 is a transverse section on the line X X of Fig. 1, looking in the direction of the arrow.

The body 1 of the apparatus is oblong in plan and side elevation, and its longitudinal sides converge from the upper to the lower edges, giving to the body the appearance of a V form in cross-section. The body will be constructed of sheet metal of proper gage, so as to provide a substantial structure, and its lower end will be open, so as to provide a longitudinal passage 2 for the escape of the sand after the latter has become thoroughly dried. Longitudinal lips 3 extend in parallelism along the opposite sides of the longitudinal passage 2, and these lips stand apart a proper distance and prolong the said passage 2, so as to give proper direction to the sand as the latter escapes from the body. The body will be supported in any suitable manner, and, as

shown, it is mounted upon oppositely-inclined legs 4, which latter are strengthened by transverse braces 5 and 6, the lower brace, 6, connecting the lower portions of the legs 4, and the upper braces, 5, connecting the legs with the opposite side of the body, as shown most clearly in Fig. 4.

A bank of pipes 7 are located within the body 1, and through them is caused to circulate a current of steam, whereby the heat radiated from the said pipes will expel the moisture from the sand contained in the body and dry the same. These pipes will be provided in two series and will extend the full length of the body, and the pipes of each series will lie in the same plane and be alternately connected at their ends, so as to compel the steam to pass in a zigzag or tortuous path in its travel therethrough.

The two sets or series of heating-pipes will be oppositely inclined to conform to the converging sides of the body, thereby concentrating the heat at the lower end of the body, which will result in a thorough and effective drying of the sand without baking or forming a crust thereon. The opposite ends of the heating-pipes project through the same end of the body and are provided with valves for regulating or shutting off the flow of steam or other heating medium which may be employed for drying purposes. The heating-pipes will be supported within the body in any convenient manner, and, as shown, side racks are secured to the converging sides of the body, and their inner edges are notched to correspond with and receive the respective pipes of the series, and straps 10 extend over the open sides of the notches and retain the pipes therein against accidental displacement.

A shaking screen 11 is located beneath the lower end of the body and is suspended by links or hangers 12 from inwardly-extending pins or brackets 13 attached at their outer ends to the legs 4, and this screen is semi-circular in cross-section and may be reciprocated in any desired manner. A lever 14 is fulcrumed at its lower end to a bracket projecting from one of the leg-supports and has connection with the adjacent end of the screen and extends vertically, so as to be readily grasped when it is required to recip-

rocate the screen to prevent the lodgment of the sand therein.

The steam for heating the pipes may be derived from any suitable source, and it is not
5 necessary to have a separate boiler to furnish the steam, as any engine that has a lay-over either during the day or night may be coupled to the pipes, and while the steam is blowing out of boiler it can be utilized in the manner
10 set forth for drying the sand. The provision of the screen immediately below the body obviates the necessity of a second handling of the sand for the purpose of sifting after it has been dried.

15 This apparatus can be attached to any ordinary water-station boiler without any perceptible increase in the amount of fuel used or waste of steam.

Any suitable receptacle or pit will be provided beneath the screen to receive the prepared sand, and it will be seen that the sand treated by the apparatus herein described will not alone be thoroughly dried, but will be sifted or screened, thereby adapting it to
20 be placed in the sand-box of the engine or locomotive without fear of the said box becoming clogged or choked by reason of gravel or other large particles being contained in the sand.

30 The sand to be dried is placed within the body in any desired manner, and the heat radiated from the pipes therein will expel the moisture, and as soon as the sand becomes thoroughly dried it will pass automatically from the body through the discharge-opening and enter the screen and pass from thence into the receptacle placed for its reception.

40 It is contemplated to use the apparatus for general purposes and for drying sand in particular for any required purpose. Hence in the adapting of the invention for any particular requirement it is to be understood that various changes in the form, proportion,
45 and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

What is claimed is—

50 1. In a drying apparatus of the character set forth, the combination with an oblong body to receive the commodity or substance

to be dried, having converging sides leading to a longitudinal discharge-opening formed between the lower ends of the said sides, of
55 two sets of heating-pipes arranged at opposite angles and inclosing an unobstructed V-space, and having spaces between them and the sides of the body, substantially as shown for the purpose set forth. 60

2. A drier for the purposes set forth, comprising an oblong body having converging sides leading to a longitudinal discharge-opening, and having parallel lips at the lower ends of the converging sides and between
65 which the longitudinal passage extends, racks applied to the inner faces of the converging sides and notched at intervals in their opposing edges, heating-pipes supported in the notches of the racks and arranged at opposite
70 site angles, and inclosing an unobstructed V-space and having spaces between them and the converging sides, and straps extending over the notched edges of the racks to secure the heating-pipes in place, substantially as
75 set forth.

3. In combination an oblong body having converging sides and a longitudinal discharge-opening formed between the lower ends of the said sides, two sets of heating-
80 pipes arranged at opposite angles, and a screen located below the lower end of the said body, substantially as set forth for the purpose described.

4. The herein shown and described apparatus for the purpose described comprising
85 an oblong body substantially V-shaped in cross-section and having a longitudinal discharge-opening at its lower end, two sets of heating-pipes placed within the body and arranged at opposite angles, and having their
90 end portions projecting and provided with valves, a screen suspended beneath the body and means for reciprocating or shaking the said screen, substantially as set forth for the
95 purpose specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOSEPH H. GREEN.

Witnesses:

J. W. MORGAN,
J. P. DARBY.