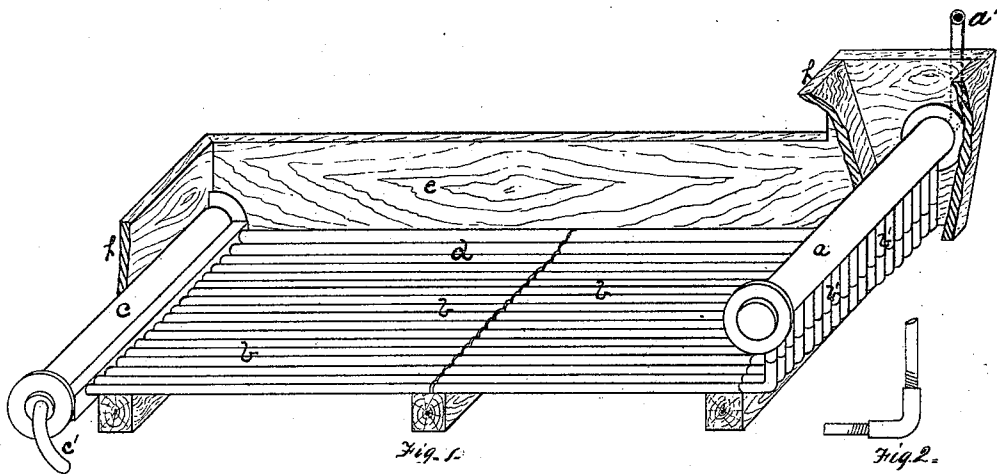


C. P. DULL.
SAND-DRIER.

No. 177,384.

Patented May 16, 1876.



WITNESSES.

R. C. Washburn

L. C. Fittler

INVENTOR

Casper P. Dull

Bakewell & Kerr

Attorneys

UNITED STATES PATENT OFFICE.

CASPER P. DULL, OF McVEYTOWN, PENNSYLVANIA.

IMPROVEMENT IN SAND-DRIERS.

Specification forming part of Letters Patent No. **177,384**, dated May 16, 1876; application filed September 4, 1875.

To all whom it may concern:

Be it known that I, CASPER P. DULL, of McVeytown, in the county of Mifflin and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Drying Sand; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a top view of my improved sand-drier, the sides being in section to show the arrangement of the pipes. Fig. 2 is a sectional view of right and left hand threaded quarter-turn.

Like letters of reference indicate like parts.

My invention relates to apparatus for drying sand for asphalt pavements, roofing, and other purposes; and it consists, first, in combining with a series of steam-pipes which form the bottom of a sand-drying chamber, a distributing drum or manifold for disseminating the steam, and a similar manifold for collecting and discharging the water of condensation, and in forming the connections between the pipes forming the bottom of the drying-chamber and the vertical pipes connecting with the manifold by means of quarter-turns cut with right and left hand screw-threads, whereby the connections are effectually and cheaply made.

To enable others skilled in the art to make and use my invention I will describe its construction and operation.

In the drawing, *a* represents the upper steam drum or manifold, and *b b* pipes passing from the drum *a* to the steam-drum *c*, which pipes form the bottom or grating of the chamber *d* for receiving the sand. These pipes I arrange parallel to each other, leaving a small space between them, through which the sand when dried will fall, and preferably connect said pipes to the drum *a* by vertical pipes *b' b'*, as shown. To the drum *a* I connect the steam-inlet pipe *a'*, and to the drum *c* the pipe *c'* for carrying off the waste steam and water of condensation. *ee* form the sides, and *ff* the ends, of the chamber *d*. The steam-drum *a* may be inclosed, as shown in the drawing, to form a hopper for feeding in the sand, whereby the sand is caused to come

first in contact with the hottest part of the pipes.

The operation of my improved apparatus is as follows: I place the sand-drier at a slight angle, or incline the pipes forming the bottom thereof, so that the water of condensation may run down the pipes *b b* into the drum *c* and be removed in the usual manner. Steam is admitted through the pipe *a'* into the drum or manifold *a* and passes through the series of pipes *b b* into the drum *c*, and thence escapes through the pipes *c'*. The wet sand is placed upon the pipes *b b*, and the heat of the steam in the pipes gradually dries the sand, which, when it is dry, falls through the spaces between the pipes and allows the wet sand to come in direct contact with the pipes before it also passes through. It may at times be desirable to arrange the drier so that it may be rocked or agitated to facilitate the discharging of the sand.

The advantages of my apparatus are: The sand is dried by a continuous process, the sand, as it dries, falling through and making room for the wet sand above. It allows the water of condensation to drain off from the steam-pipes, and thus enables me to utilize the full heating-power of the steam, and as the steam is delivered by the manifold to each separate pipe of the series there is no liability of the pipes becoming filled by the accumulated water of condensation.

As the water of condensation is drained by the manifold there is no liability of the pipes bursting by freezing in winter when the apparatus is not in use.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

The combination of the pipes *b b*, vertical pipes *b' b'*, and the manifolds *a c*, the pipes *b b* being connected by the right and left hand threaded quarter-turns, substantially as and for the purpose specified.

In testimony whereof I, the said CASPER P. DULL, have hereunto set my hand.

C. P. DULL.

Witnesses:

AND. REED,
JOHN HAMILTON.