

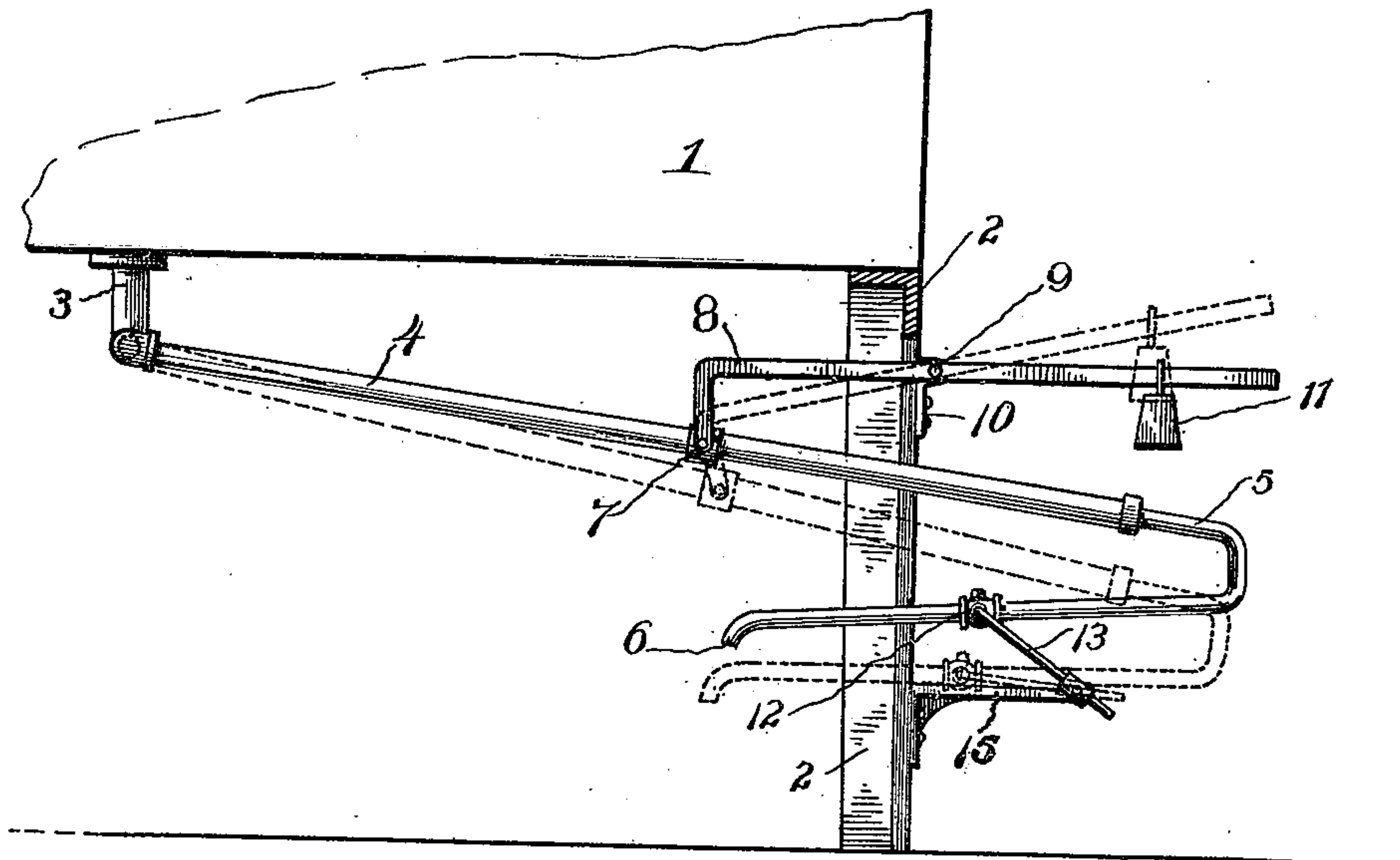
No. 667,032.

Patented Jan. 29, 1901.

W. D. O'CONNOR.
STEAM TRAP FOR DRAINING KILNS.

(Application filed June 1, 1900.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM D. O'CONNOR, OF ARLINGTON, WASHINGTON.

STEAM-TRAP FOR DRAINING KILNS.

SPECIFICATION forming part of Letters Patent No. 667,032, dated January 29, 1901.

Application filed June 1, 1900. Serial No. 18,751. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. O'CONNOR, a citizen of the United States, residing at Arlington, in the county of Snohomish and State of Washington, have invented certain new and useful Improvements in Steam-Traps for Draining Kilns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to means for draining water of condensation from drying-kilns, and has for its object to provide a trap for this purpose whereby the kiln will be kept entirely free from water, and at the same time wastage of steam will be prevented, the whole apparatus being automatically operated by the weight of the water.

With this object in view my invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described and afterward specifically claimed.

The accompanying drawing illustrates my invention, only so much of the kiln being shown as is necessary to show the connection of the draining apparatus therewith.

The various parts of the mechanism are indicated by numerals of reference, of which 1 indicates any ordinary steam-tight kiln in which lumber or other merchandise is placed to be dried by means of steam introduced therein by any suitable means. (Not shown.) The kiln 1 is supported above the ground upon any suitable framework, as 2, and a drain-pipe 3 projects downwardly from the bottom of the kiln. Pivoted or swiveled at the bottom of the drain-pipe 3 is a pipe 4, which normally rests in an inclined position, being slightly lower at its outer end than at the end which is connected to the drain-pipe. A smaller siphon-shaped pipe 5 is fitted in the outer end of the pipe 4, said pipe 5 extending a short distance in the line of pipe 4, thence downward, and finally in an inclined position, its inclination being opposite to that of pipe 4 and its discharge end 6 being bent downward slightly, as shown. To a sliding sleeve 7 on the pipe 4 an arm 8 is pivotally connected, said arm being pivoted at 9 upon a bracket 10, secured to the framework 2, and

being further provided with an adjustable weight 11. 12 indicates a valve in the pipe 5, the lever 13 of which is pivotally and slidably connected at 14 with a bracket 15, projecting laterally from the frame 2.

As is well known to persons skilled in the art, a considerable quantity of water is formed by condensation in drying-kilns, especially in lumber-kilns, where the drying is attained by injecting steam into the kiln. The accumulation of such water of condensation in the kiln would seriously interfere with the seasoning of the lumber, and as a consequence the kiln must be kept drained of such water. If an opening were left in the bottom of the kiln to drain it, the steam would escape therefrom and go to waste, involving very serious loss to the operator. In my invention I have provided means whereby all of the water of condensation is drained from the kiln into the pipes 4 and 5, the pivotal joint between the pipes 3 and 4 and the weight 11 being so arranged and regulated that when the pipes 4 and 5 empty the weight 11 will be sufficient to maintain them in their upper position, as indicated in full lines in the drawing, in which position the valve 12 will be closed. When, however, the pipes 4 and 5 are filled with the water drained from the kiln, the additional weight of the water in the pipes will overcome the lifting tendency of the weight 11 and the pipes 4 and 5 will drop to the position shown in dotted lines in the drawing, carrying the weight 11 up, as also shown in dotted lines. In view of the fact that the valve-lever 13 is connected with the stationary bracket 15 the valve 12 will be opened when the pipes 4 and 5 fall to the dotted-line position, permitting the water to be discharged at 6, thus again emptying the pipes 4 and 5. When the pipes are emptied, the weight 11 will be sufficient to return them to their normal full-line position and again close the valve 12, which will remain closed, preventing the escape of steam from the kiln until the water again fills the pipes and causes them to be emptied in the manner hereinbefore described.

By means of this mechanism all water will be drained from the kiln into the pipes and periodically emptied therefrom without any attention whatever on the part of the opera-

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tor and without permitting the drain-opening to remain open and the steam to be wasted.

In practical operation an immense saving of fuel is effected by this mechanism, and while I have specifically described the construction and operation of the various parts I desire it to be understood that many slight changes may be made therein without departing from the spirit and scope of my invention. Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A steam-trap, comprising a pivoted drain-pipe, a lever pivoted to a fixed support and pivotally connected at one end to the drain-pipe, an adjustable weight on the opposite end of the lever, a valve in the drain-pipe, a fixed bracket, and a valve-lever slidably pivoted to said fixed bracket, substantially as described.

2. A steam-trap, comprising a pivoted drain-

pipe, a counterbalance-weight connected to said pipe to maintain it in its upper position, a valve in the drain-pipe, a valve-lever thereon, a stationary bracket, and a sliding connection between the valve-lever and said stationary bracket, whereby when the drain-pipe is depressed the valve will be open, substantially as described.

3. A steam-trap, comprising a pivoted drain-pipe, a weighted lever pivoted to a stationary support, a sliding sleeve on the drain-pipe pivotally connected to the lever, a fixed bracket, a valve in the drain-pipe, and a valve-lever thereon, slidably attached to the fixed bracket, substantially as described.

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

WILLIAM D. O'CONNOR.

Witnesses:

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