O. W. Bayley,

Steam-Boiler Furnace.

No. 19,277. Patented Feb. 2, 1858.

Fig. 4.

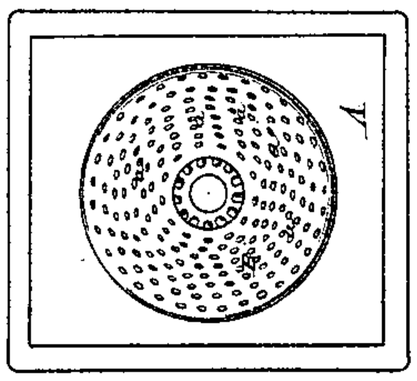


Fig 3

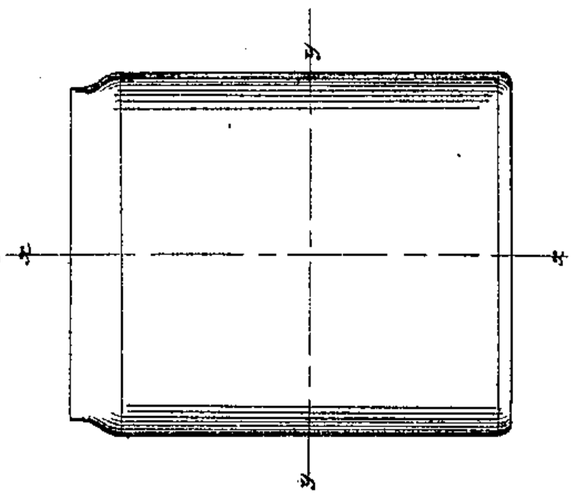


Fig. 1.

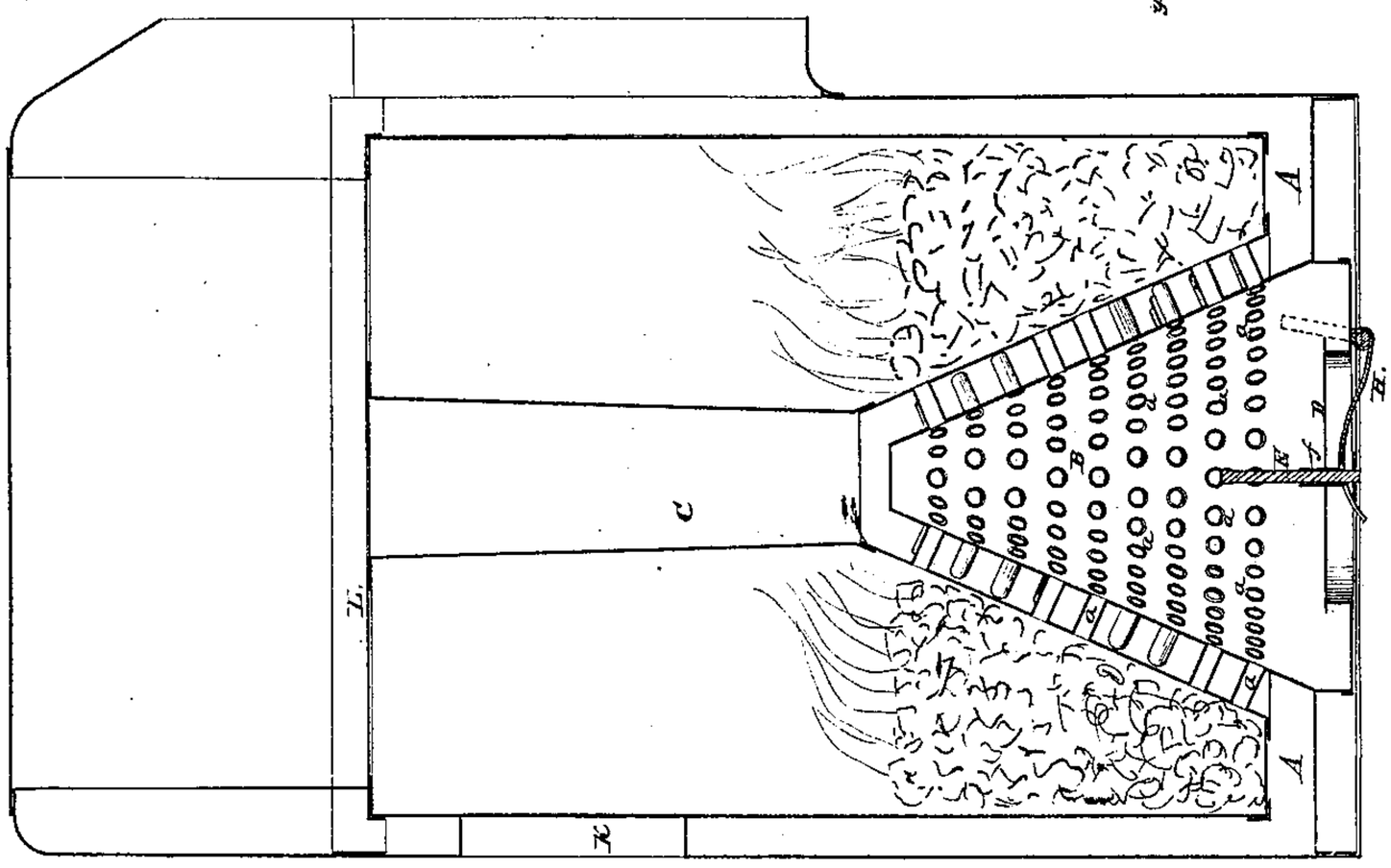
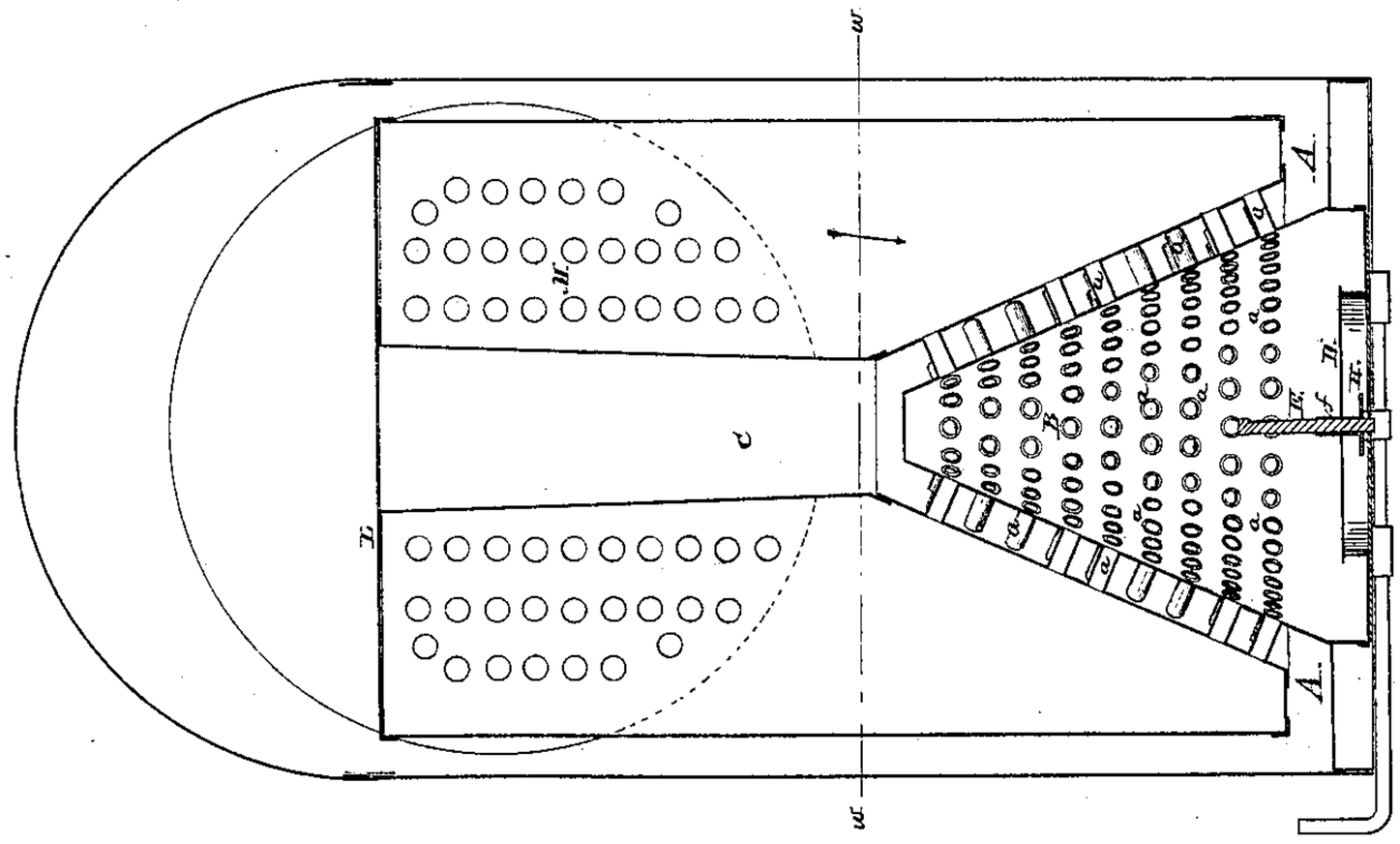


Fig. 2.



UNITED STATES PATENT OFFICE.

O. W. BAYLEY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE BOSTON LOCOMOTIVE WORKS, OF SAME PLACE.

FURNACE FOR LOCOMOTIVES.

Specification of Letters Patent No. 19,277, dated February 2, 1858.

To all whom it may concern:

Be it known that I, O. W. BAYLEY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Furnaces for Locomotives, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a longitudinal section through the center of the furnace. Fig. 2 a transverse section showing the tube sheet in elevation. Fig. 3 a plan.

Locomotives having the ordinary open or grate bottom fire box are liable to drop burning coals by which bridges and railroad sleepers are often burned. If these coals are intercepted and caught in a pan beneath, they accumulate under the grate bars, where they are burned and cause the rapid destruction of the grate bars which require frequently to be renewed.

My invention has for its object to remedy this inconvenience and consists in the employment of a perforated water space cone so connected with the water in the upper portion of the boiler as to produce a circulation through the same, the bottom of the furnace being otherwise closed.

To enable others skilled in the art to understand my invention I will proceed to describe the manner in which I have carried it out.

I construct my boiler with a tight water space bottom A, in the center of which is inserted a water space cone B, through which pass a number of tubular passages *a*, for the admission of the draft to the fire box. That there may be a circulation through the cone B, to prevent the accumulation of steam therein and its consequent destruction, its apex is continued up to the crown sheet by means of the tube C, which is secured to the crown sheet L and opens at the bottom into the interior of the cone and at the top into the upper part of the boiler. The damper D which commands the circular opening for the entrance of the air beneath the cone is attached to a sleeve *f* that slides freely upon the post E and is raised or lowered by the arm H, which is operated by a lever within reach of the engineer. The damper is shown in the drawings as down upon its seat closing the draft passage.

K is the fire door; M, the tube sheet.

The fuel is thrown as seen in the drawings upon the cone B, and between it and the sides of the furnace and it is evident that the coals and cinders will all be consumed within the furnace, the lighter particles of ashes being carried forward with the draft into the smoke stack. And as all that portion of the furnace at any time in contact with the fire is water space, the parts are equally durable one with the other. Even the smaller particles of cinder and coal that may pass through the openings *a*, will be consumed on top of the damper and will not fall upon the bridges and sleepers.

What I claim as my invention and desire to secure by Letters Patent, is—

The water space perforated cone, as connected with the crown sheet and in connection with a tight furnace bottom operating in the manner substantially as set forth.

O. W. BAYLEY.

Witnesses:

JOHN WALL,

EDMUND A. MCDONALD.