(No Model.)

H. STANTON.

STEAM BOILER.

No. 363,017. Patented May 17, 1887.

Fig. 1.

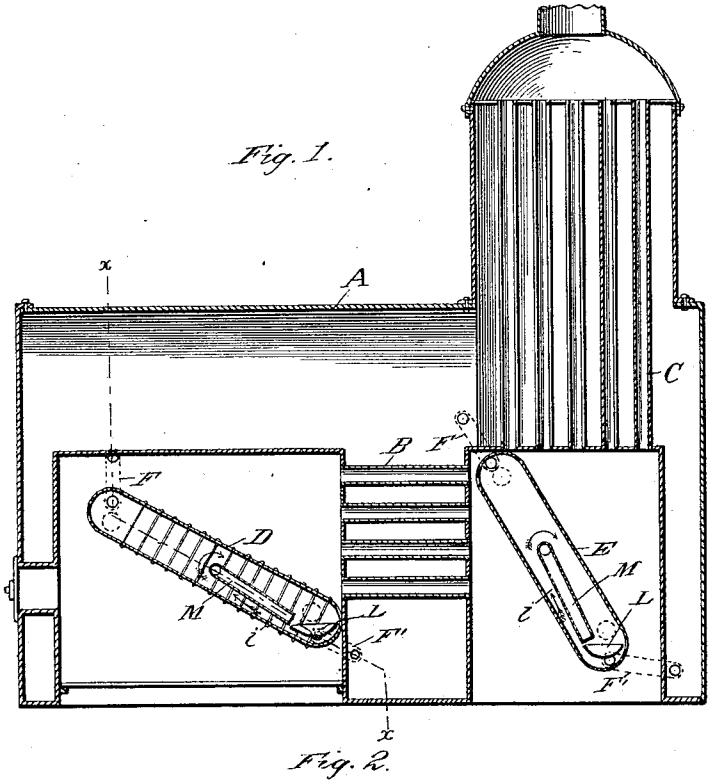
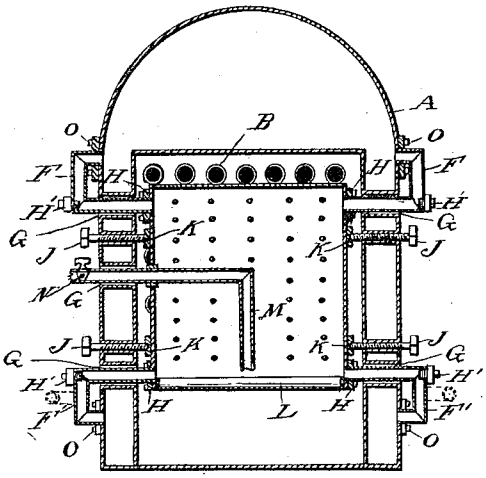


Fig. 2.



Witnesses
C. F. Raeder.
Thomas James

Inventor
Henry Stanton
By his Attorney
T. J. W. Robertson

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

HENRY STANTON, OF FLUSHING, OHIO.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 363,017, dated May 17, 1887.

Application filed September 25, 1886. Serial No. 214,527. (No model.)

To all whom it may concern:

Be it known that I, HENRY STANTON, a citizen of the United States, residing at Flushing, in the county of Belmont and State of Ohio, have invented a certain new and useful Improvement in Steam-Boilers, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 represents a vertical central longitudinal section of a boiler, showing my improvement; and Fig. 2 is a section on the line *x x* of Fig. 1.

This improvement relates to that class of boilers which are provided with inclined water-boxes set in the fire and smoke boxes; and the invention consists in the peculiar combinations and the construction and arrangement of parts, hereinafter more particularly described, and then definitely pointed out in the claims.

Referring to the details of the drawings, which show the preferable form of my improvement, A represents the boiler, which may be of any suitable form, but preferably with two sets of tubes, one set, B, being horizontal, as in the ordinary locomotive type, and the other vertical, as shown at C.

In the fire-box, and preferably in the smoke-box, I set my water-boxes, generally in an inclined position, as shown at D E. These water-boxes I prefer to connect at top and bottom by pipes F F', which pass through thimbles G, set in the sides of the boiler, as shown, and have their opposite ends connected to the water-boxes and the boiler. These pipes may be attached in any suitable manner; but I prefer to attach small plates K to the sides of the water-boxes and screw the pipes into them, and attach the other ends of the pipes to the boiler by bolts passing through flanges formed on or attached to the pipes. At I, in each connecting-pipe, is shown a screw-plug, H, which may be taken out to examine the pipes, or for any other purpose.

Under ordinary circumstances in stationary boilers, and if great care is taken, the pipes F will be sufficient to hold the water-boxes in place; but to guard against breakage I use a series of bolts or set-screws, J, which pass through threaded studs set in the walls of the fire-box, and pressing against recessed plates K, attached to the water-box, hold the latter securely, and this prevents the breakage of the pipes under rough usage, as when subjected to the shaking due to the motion of a locomotive. As many of these bolts or set-screws as may be found necessary may be employed; but I believe that two on each side will be found sufficient.

At the bottom of each water-box I set a pan, as shown at L, to catch the sediment which usually forms in steam-boilers. One edge of each of these pans is preferably set farther from the lower inclined side of the water-box, as shown at *l*, than its opposite edge is from the other side of said water-box, so that the current of water as it enters from the pipes F' will sweep up through the passage *l* and up the lower inclined side of the water-box, and this keeps the same clear from the sediment, which will pass up in the direction of the arrows into the comparatively still water over the pan L, and there settle in its bottom, from which it may be readily removed by the blow-off pipe M, which is provided with valve N. At O O O are shown stay-bolts, any number of which may be used that will be found to give sufficient strength.

It will be seen that by this construction a boiler will be made in which the water-box is free of the difficulties heretofore found inherent in its construction, for in my improvement there is no danger of the breaking away of the pipes from the water-box or boiler, and the sediment is kept from forming on the lower inclined surface, and is thus easily removed.

What I claim as new is—

1. The combination, with a boiler and the water-box thereof, of a sediment-pan arranged at its lower extremity, and a blow-off pipe to remove the sediment therefrom, substantially as described.

2. The combination, with a boiler and the water-box thereof, of a pipe connecting the lower portion of said box with the boiler, and a sediment-pan set at its lower extremity with a greater space between one edge of the pan and the lower inclined side of the water-box than between the opposite edge of said pan and the opposite wall of said water-box, substantially as and for the purpose specified.

3. The combination, with a boiler having a set of tubes leading from the fire-box to the smoke-box and a set of tubes leading from the smoke-box to the smoke-stack, of two water-boxes, one of which is set in the fire box and the other in the smoke-box, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 18th day of September, 1886.

HENRY STANTON.

Witnesses:
W. H. HOLLOWAY,
J. W. HOLLINGSWORTH.