

(No Model.)

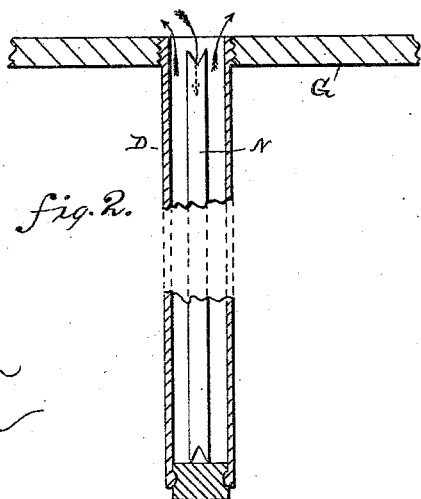
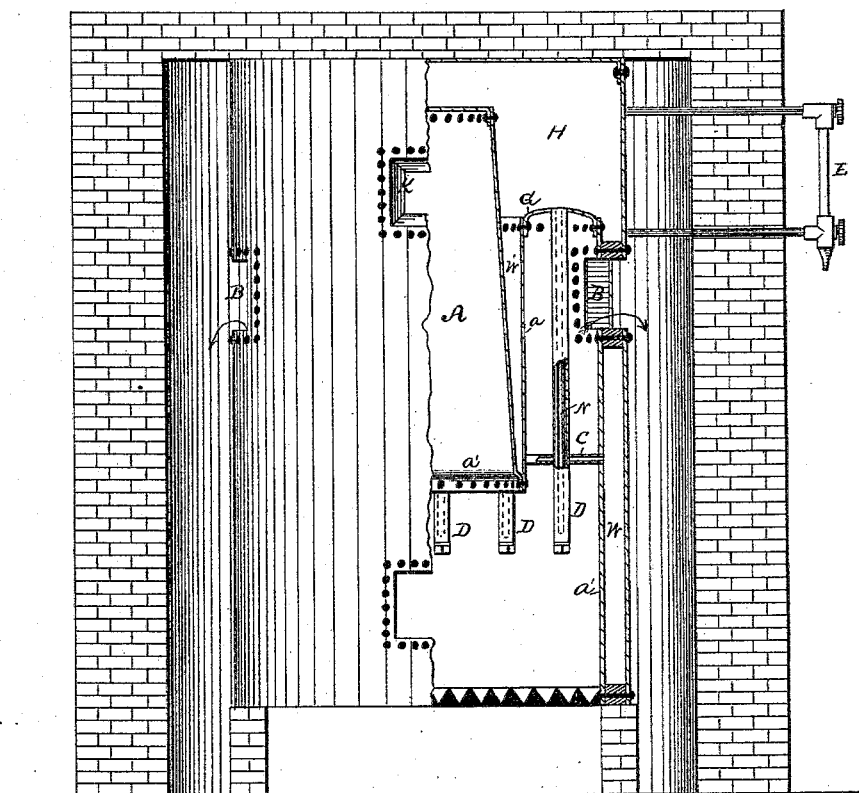
W. F. HATCHER.

STEAM BOILER.

No. 303,156.

Patented Aug. 5, 1884.

*fig. 1.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM F. HATCHER, OF CHARITON, IOWA.

## STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 303,156, dated August 5, 1884.

Application filed May 7, 1884. (No model.)

### *To all whom it may concern:*

Be it known that I, WILLIAM F. HATCHER, of Chariton, in the county of Lucas and State of Iowa, have made certain new and useful

Improvements in Steam-Boilers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings and letters of reference marked thereon, in which—

Figure 1 shows a sectional view of my improved steam-boiler set in masonry, and Fig. 2 is a sectional detail of one of the pendent pipes.

Similar letters indicate like parts in the figures.

My invention relates to improvements in that class of steam-boilers designed to heat dwellings and public buildings; and it consists in the peculiar construction and arrangement of the parts, as hereinafter more fully set forth, and pointed out in the claim.

In the accompanying drawings, H represents a steam-boiler of cylindrical form, provided with an inner concentric shell, *a'*, extending from the bottom of the cylinder to the crown-sheet G, and extending across the shell *a'* at its upper end, thus forming a continuous cylindrical water-space, W, closed at its bottom and opening at its upper end into the steam and water space between the crown-sheet G and the top of the cylinder H. The boiler H at its lower end rests or is supported upon a circular wall of masonry, as shown in the drawings.

A represents the coal-magazine of a tapering form, being smaller at the top than at its bottom, so as to insure a continuous feed of the coal to the fire without choking. The coal-magazine A extends from a few inches from the top of the boiler H through the crown-sheet G to within about a foot from the bottom of the boiler H or the grate, hereinafter described.

On the outside of the magazine A, from the crown-sheet G, and opening through it and extending down to the bottom of the magazine A, is a shell, *a*, surrounding the magazine and forming a water-space, W', closed at its bottom, and opening at its top into the space between the crown-sheet G and the top of the cylinder. The lower end of the coal-magazine A is beveled outwardly, so that the heads of the rivets which secure the lower end of the magazine A to the shell *a* will not

come in contact with the coal passing down the magazine.

K represents a passage extending through the cylinder H and opening into the magazine A. The passage K has its top, bottom, and sides closed, and through this passage K the coal is fed to the magazine near its upper end.

Into threaded holes in the crown-sheet G are screwed several depending tubes, D, preferably made of wrought-iron, with square plugs welded in the bottom of each, and into each of the tubes D is inserted a smaller concentric circulating-tube, N, open at both ends. By the means of these double tubes D a constant circulation of water is produced, the water entering at the top of tube N, passing down and out of the bottom of the same into the lower end of the tube D, and thence up the same into the space between the crown-sheet G and the top of the cylinder.

At the bottom of the water-space W', surrounding the magazine A, is a cross-pipe, C, connecting the water-spaces W W'. The function of the connecting-pipe is to promote the circulation between said water-spaces and removing sediment.

F represents the grate, the fire and products of combustion passing up between the tapering magazine A and the water-spaces W W', and around the tubes D; thence through the smoke-flues B B; thence down around the outside of the boiler H, through the flue between the outside masonry and the boiler, and thence around the boiler H to a chimney of the building.

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

The steam-boiler herein described, consisting of the combination of an inner shell, *a'*, an outer shell, H, forming outer water-leg, W, the tapering coal-magazine A, forming inner water-leg, W', the crown-sheet G, pendent pipes D, arranged in the crown-sheet between the water-legs, and having internal pipes, as described, and the cross-pipes c, connecting the water-legs through the fire-space, as and for the purpose described.

WILLIAM F. HATCHER.

Witnesses:

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