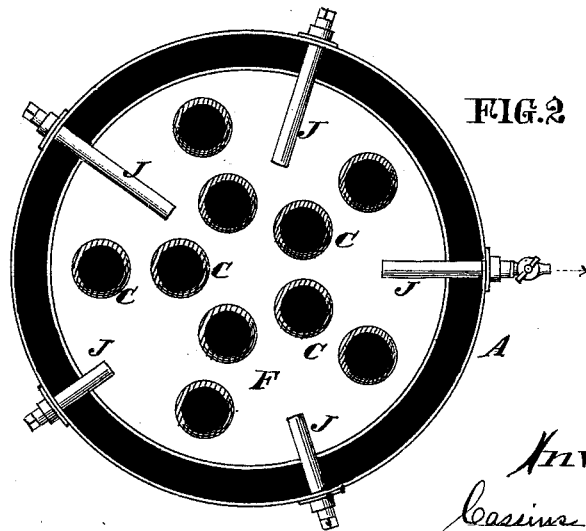
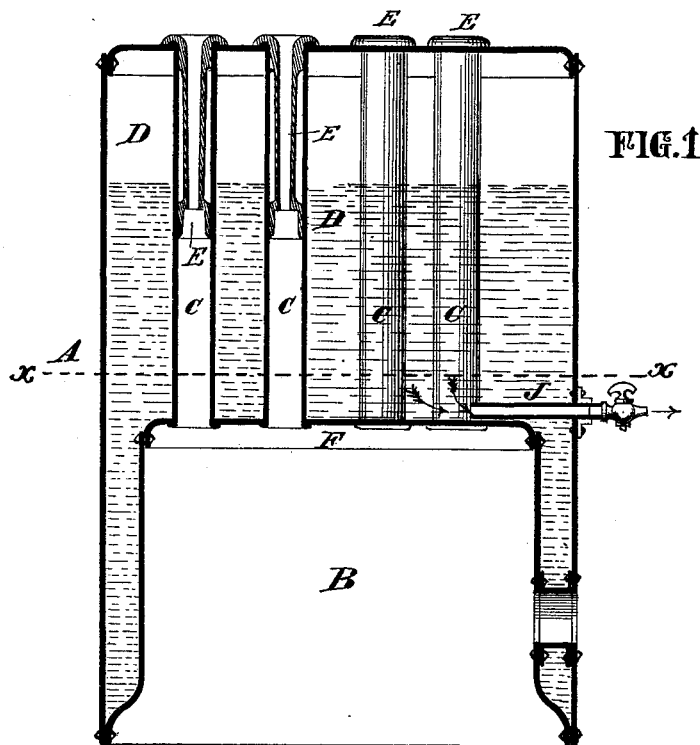


C. M. MILLER.  
Cleaners for Vertical-Flue Boiler.

No. 218,392.

Patented Aug 12, 1879.



Attest  
Edgar J. Cross  
J. M. Grant

Inventor  
Cassius W. Miller  
By Horea C. Alsworth  
His Atty.

# UNITED STATES PATENT OFFICE.

CASSIUS M. MILLER, OF CANTON, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT  
TO C. AULTMAN & CO., OF SAME PLACE.

## IMPROVEMENT IN CLEANERS FOR VERTICAL-FLUE BOILERS.

Specification forming part of Letters Patent No. **218,392**, dated August 12, 1879; application filed  
May 31, 1879.

*To all whom it may concern:*

Be it known that I, CASSIUS M. MILLER, of Canton, in the county of Stark and State of Ohio, have invented a new and useful Improvement in Cleaners for Vertical-Flue Boilers; and I do hereby declare the following to be a full, clear, and exact description of the same, which will enable others skilled in the art to which it relates to make and use it, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of the boiler; and Fig. 2 is a transverse section of the same, taken in a plane above the crown-sheet.

Similar letters of reference denote the same parts in the several figures of the drawings.

My invention has for its object to provide simple and efficient means for cleaning the crown-sheet of vertical-flue boilers; and to this end it consists in one or more permanent or removable blow-off pipes to be inserted radially through the sides of the boiler, and terminating at their inner ends at different points directly over the crown-sheet, so as to blow off the whole surface thereof.

In the accompanying drawings, A is a vertical-flue boiler of the usual pattern, having a fire-box, B, vertical flues C, and thimbles E within the upper ends of the flues. These thimbles, however, I do not claim herein, as they form the subject of a separate application for Letters Patent filed by me.

F is the crown-sheet, and the means for cleaning it off consist in one or more pipes, J, having suitable cocks, and inserted radially through the sides of the boiler directly over the crown-sheet, so as to terminate between the flues at different distances from the center. When the cocks in the pipes are opened

the steam from the boiler blows through them, and as their inner ends lie over the crown-sheet at different points, they clean it thoroughly, each pipe doing its proportion of the work, and acting upon the surface of the crown-sheet to the extent of a foot or more. Several pipes may be permanently secured in the boiler for this purpose, or only one may be used. In the latter case a series of holes covered with caps is made through the sides of the boiler at suitable intervals, through which the pipe may be inserted to reach any desired point on the crown-sheet before the boiler is heated up.

It will be observed that the flues are arranged in radial groups, so as to leave a space between every two groups extending toward the center of the crown-sheet. These spaces permit the ready insertion of the blow-off pipes; but while this arrangement of the flues is a very convenient one for the purpose, I do not limit myself to it, as it is evident that the blow-off pipes can be introduced over the crown-sheet irrespective of the position of the flues.

Having thus described my invention, what I claim is—

The combination, with the crown-sheet, of a vertical-flue boiler, of one or more horizontal blow-off pipes, J, adapted to be inserted radially through the sides of the boiler to different points and at different distances from the center of the crown-sheet, substantially as described, for the purpose specified.

CASSIUS M. MILLER.

Witnesses:

ORLANDO RANK,  
M. B. Cox.