

C.H. STEBBINS

Assignor to self and
P.G. BOSTWICK.

Flue-Cleaner.

117008

PATENTED JUL 11 1871

Fig. 1.

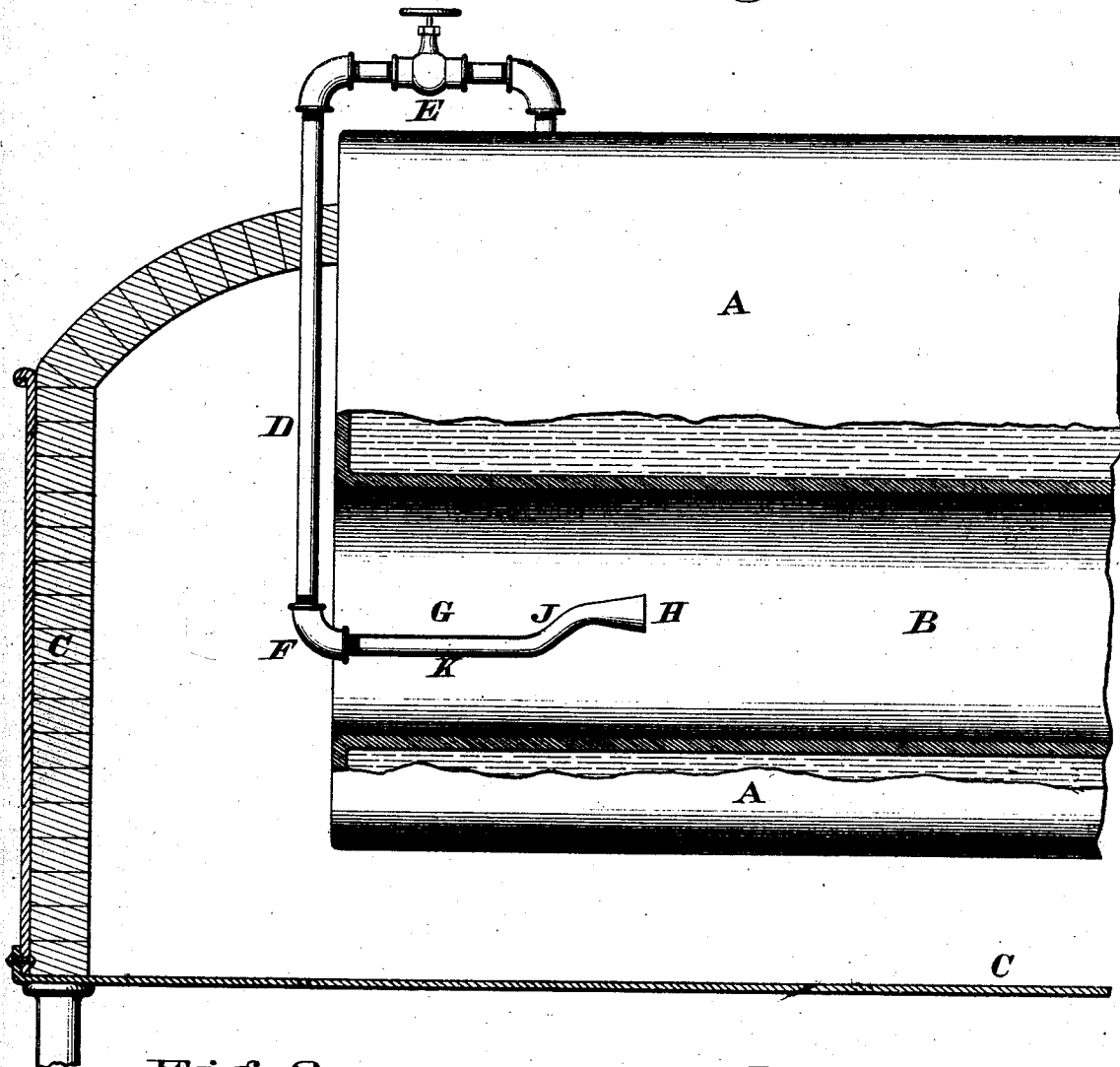
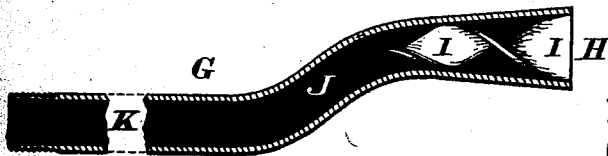


Fig. 2.

Fig. 3.



ATTEST.
Jas. H. Layman,
Notary Public.

C. H. Stebbins
INVENTOR.
By Wright Wood
Att'y.

UNITED STATES PATENT OFFICE.

CHARLES H. STEBBINS, OF CIRCLEVILLE, OHIO.

IMPROVEMENT IN STEAM-BOILER-FLUE CLEANERS.

Specification forming part of Letters Patent No. 117,008, dated July 11, 1871.

To all whom it may concern:

Be it known that I, CHARLES H. STEBBINS, of Circleville, in the county of Pickaway and State of Ohio, have invented an Improved Flue-Cleaner, of which the following is a specification:

This invention relates to that class of devices which is permanently attached to a boiler for the purpose of cleaning the flues of soot and ashes by means of a steam-jet; and my improvement consists in a novel manner of constructing the nozzle, which is arranged as follows: The discharging-pipe or nozzle terminates in a flaring or bell-mouth ventage, which occupies an axial position within the flue, and has fitted within it a twisted plate or tongue, which serves to impart to the jet of steam a whirling or spiral motion, whereby the flue is effectually and uniformly cleaned of any accumulated soot, dust, or other obstructions. The said nozzle, a short distance in rear of its ventage, has a downward bend or elbow, which serves as a water-trap to prevent the water of condensation, after the fire has been extinguished, dripping into the flue of the boiler so as to rust the same.

Figure 1 is a vertical section of the rear portion of an ordinary return-flue boiler provided with my improved cleaner. Fig. 2 is a longitudinal section of the nozzle on an enlarged scale, and Fig. 3 is a section of a modified form of the nozzle.

A represents a steam-boiler, having the customary return-flue B and a jacket or shell, C. Located near the rear end of the boiler is a pipe, D, through which steam is discharged whenever the cock or valve E is opened, and said pipe, after passing through the jacket C, terminates in a coupling, F, to which the nozzle is secured. This nozzle consists of a piece of gas-pipe or other suitable tube, G, which terminates in a bell-mouth, H, that is located so as to occupy an axial position within the flue B; and said bell-mouth has fitted athwart it a twisted or spiral plate or tongue, I, which is of any proper length, say from three to six inches. A short distance in rear of its ventage H the nozzle curves downwardly and rearwardly, so as to form a bend or elbow, J, which causes that portion of the nozzle between said elbow and the coupling F to act as a water-trap, K, in which is collected all the water of condensation that may accumulate in

the apparatus as the boiler becomes cold, and hold said water until its reconversion into steam on the heating of the boiler.

The operation of the apparatus is as follows: Whenever the attendant desires to clean the flues of the boiler he has only to open the valve E, when a volume of live steam will flow from the boiler through the pipes D G, and as soon as the steam comes in contact with the tongue I a whirling or spiral motion is imparted to it. The steam being thus discharged from the nozzle in a spiral manner is brought in contact with every portion of the interior of the flue, and the latter is thereby speedily, effectively, and uniformly cleaned of soot, ashes, and other obstructions, which, besides being non-conductors of heat, are also impediments to the draught. The soot and ashes which are discharged from the flues are carried up and escape out through the smoke-stack. The pipe D is arranged in such a manner that only a portion of it shall be exposed to the atmosphere, the greater part of it being situated between the rear end of the boiler and the jacket C, in order that it may be enveloped with the products of combustion, by which means there is no condensation of the steam while in operation, and it is therefore discharged into the flue at as high a temperature as it has in the boiler. After the valve E has been closed and the fire in the furnace allowed to go out, any steam which might escape through said valve and condense while the boiler is cooling down is collected in the trap K at the rear of mouth H, and thereby prevented dripping from the end of the nozzle and injuring the flue B. As soon as fire is again started in the furnace the water contained in the trap K will be evaporated in much less time than it will take to generate steam in the boiler, so that whenever it is desired to use the apparatus the nozzle is always free of water.

The apparatus may also be employed as a blower for getting up steam rapidly.

A separate nozzle may be provided for each flue in a boiler; but each of said nozzles may communicate with a single steam-pipe, in order that the entire apparatus may be controlled by a single cock or valve.

In Figs. 1 and 2 the trap is shown as being formed by the elbow J; but it is evident that it may be produced by a swell, or by an upward

bend, as at *J'* in Fig. 3, or by any other method which will insure the same results.

I claim as my invention—

1. The bend *J J'* forming the water-trap *K* in a flue-cleaning steam-jet tube, substantially as and for the purpose specified.

2. The flaring mouth *H* and spiral tongue *I*, in combination, substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

CHARLES H. STEBBINS.

Witnesses:

GEO. H. KNIGHT,
JAMES H. LAYMAN.