(No Model.)

C. B. CALDER.

BOILER FLUE CLEANER.

No. 563,707. Patented July 7, 1896.

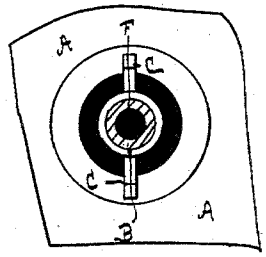

fig. 2

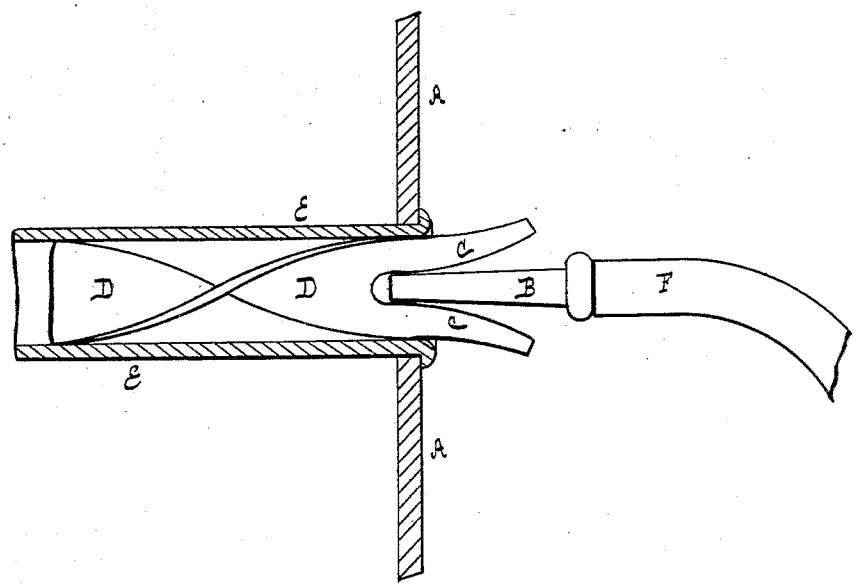

fig. 1.

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CHARLES B. CALDER, OF DETROIT, MICHIGAN.

BOILER-FLUE CLEANER.

SPECIFICATION forming part of Letters Patent No. 563,707, dated July 7, 1896.

Application filed April 11, 1896. Serial No. 587,144. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. CALDER, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Cleaning Boiler-Flues, of which the following is a specification.

My invention consists in an improvement in cleaning boiler-flues, hereinafter fully described and claimed.

Figure 1 is a vertical section through a portion of the head of a boiler and a flue with the flue-cleaning apparatus in place, and Fig. 2 is a front elevation of the parts shown in Fig. 1.

A represents the head of a flue-boiler, and E represents one of the flues.

D represents a strip of sheet metal twisted in spiral form and with a long pitch, set into flue E and reaching practically to the rear end of said flue, both flue and spiral being broken in Fig. 1. The front end of spiral D is cut out usually, so as to form two tongues C C, which are bent outward slightly to render the diameter of strip D greater than of flue E, so that the strip cannot be pushed through or too far into said flue.

F represents a hose leading from any convenient steam-pipe, and B indicates a steam-nozzle on the end of hose F, the nozzle B being so proportioned that it will enter the cut end of said strip D, preferably as shown in Fig. 1, though it is not necessary that it enter quite so far, it only being necessary to bring the end of nozzle B to such a point that a jet of steam issuing therefrom will enter into and pass through flue E.

The operation of my invention is as follows: When a flue is to be cleaned, the nozzle B is inserted in the cut in strip D and steam turned through said nozzle. This steam rushes violently through flue E, sets the spiral strip D into rotation, thus acting as a scraper on the flue, while the blast of steam picks up and carries out of the flue all the particles of soot and dirt contained therein, leaving the flue brighter and cleaner than either steam or scraper alone would do.

The spiral D is no disadvantage to a boiler unless it have a very weak draft, and may be continuously left in place.

If a boiler has too strong a draft, the spiral D in the flue acts as a retarder and economizes fuel, and in such cases it is better to have a spiral strip D in every flue of the boiler, while if the draft is too weak the strip D may be inserted into the tubes as they are to be cleaned in succession.

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

1. In combination with a boiler-flue, a sheet-metal spiral lying therein, held against actual motion but free to rotate, and a steam-jet directed into said flue, substantially as and for the purposes set forth.

2. In combination with flue E, spiral D, cut at its end into the tongues C C, steam-pipe F and nozzle B, substantially as shown and described.

CHARLES B. CALDER.

Witnesses:
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