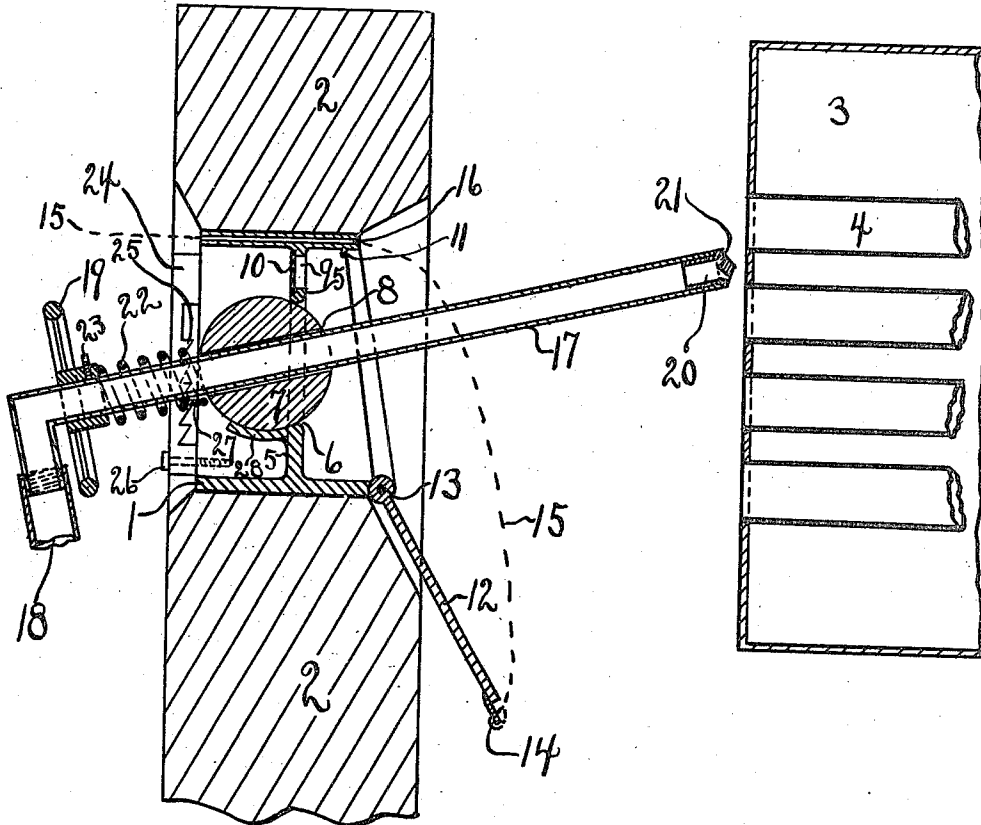


C. H. DAVIES.
FLUE CLEANER.
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1,010,028.

Patented Nov. 28, 1911.



WITNESSES:

HA Oesterle
Nettie J. Neuenhofer

INVENTOR

Charles H. Davies.

BY

Andrew H. Neuenhofer
ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES H. DAVIES, OF AURORA, ILLINOIS.

FLUE-CLEANER.

1,010,028.

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To all whom it may concern.

Be it known that I, CHARLES H. DAVIES, a citizen of the United States, residing in the city of Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Flue-Cleaners, of which the following is a specification.

My invention relates to improvements in flue cleaners, particularly to those blown with steam or air, and has for its object the production of a flue cleaner of this type which is very simple and inexpensive, and in which the tube or blowing part can be removed and used on other boilers, while the aperture through which it operates can be closed. Its further object consists in producing such novel means as will be claimed, and shown in the accompanying drawings in which the figure is a cross sectional view of my invention showing how it is applied in a boiler setting wall.

In the drawings, 1 is a metal frame set in the brick wall 2 forming the rear wall of the setting of a boiler 3 having the flues 4 as shown. Frame 1 has a web 5 which has a circular aperture 6 into which fits a ball 7, which ball has an aperture 8. Web 5 has other apertures 9 which are covered with mica 10 and which are so arranged that the operator can see what he is doing and if the flues are properly cleaned. Through said aperture 8 in ball 7 passes a tube 17 which has a nozzle 20 having apertures 21 arranged to blow several flues at the same time. While I have here shown two such apertures, said nozzle can have one or more of these apertures. On the opposite end of said tube 17 is a connection for a hose 18 which supplies the steam or air that is used. Adjacent to said connection is a hand wheel 19 which is adjustably fastened to tube 17 by means of a set screw 23. Between hand wheel 19 and ball 7 on tube 17 is a spring 22 which retains ball 7 in the aperture 6 in web 5.

On the inner side of frame 1, is door 12 which is pivoted to the frame at 13 and comes against the stop 11 on same. Door 12 has a projection which has an aperture 14 into which is fastened a wire 15 which passes through an aperture 16 in frame 1 to the operator on the outside, by means of which he can close the door 12, when he removes the tube 17. On each of the sides of frame 1 opposite to the door 12 is a metal strip 24 having teeth 25, as shown, said strip being

fastened to the frame by means of bolts 26. These teeth 25 support a flat bar 27 which forms a guide for the tube 17 against which said tube 17 rests while the nozzle 20 travels across the horizontal line of the flues. These teeth are so spaced that the bar 27 is in the proper position for guiding the tube 17 for each single or double row of flues, depending on the number of apertures in the nozzle 20. The bar 27 is of the shape shown, *i. e.* very wide as compared to its thickness, and the teeth of the shape and length shown, so that bar 27 can be passed from tooth to tooth simply by turning it at right angles to the position shown in the drawing. Instead of using spring 22, the ball 7 may rest on a lip 28 on web 5 to hold it in the aperture, when the ball can be used to close the aperture, and the tube 17 used on another boiler.

In operation my cleaner is used as follows:—The door 12 is dropped down as shown, and the tube 17 with the ball 7 is inserted and the bar 27 is spaced in its lower or higher position, depending on whether the operator desires to start cleaning the flues from the top downward or from the bottom upward. Steam or air is now turned on, and the operator moves the tube 17 along the guide bar 27, which causes the nozzle 20 to move along in a horizontal plane in front of the ends of the flues. Bar 27 is then changed to another tooth and the operation is repeated until all the flues are cleaned.

It will be understood, of course, that while I have here shown one form of my device, I do not wish to limit myself to the exact form shown, but wish to have it taken in a sense diagrammatic of any such forms of my device as come within the scope of the invention.

I claim:

1. In a flue cleaner, a frame, a web across said frame, a circular aperture in said web, a ball fitting said aperture, a tube slidably mounted in an aperture in said ball, a nozzle on the end of said tube, with means for supplying steam to said tube, means for guiding said tube and means for retaining the ball in the aperture in the web.

2. In a flue cleaner, a frame, a web across said frame, a circular aperture in said web, a ball fitting said aperture, a tube slidably mounted in an aperture in said ball, means on said tube for retaining the ball in said aperture, a nozzle having one or more aper-

tures on the end of said tube, with means for guiding the tube horizontally, substantially as shown and described.

3. In a flue cleaner, a frame, a web across the frame, a circular aperture in said web, a ball fitting said aperture, a tube slidably mounted in an aperture in said ball, means on said tube for retaining the ball in said aperture, a nozzle, having one or more apertures on the end of said tube, means for supplying steam to said tube and means for guiding the tube horizontally, substantially as shown and described.

4. In a flue cleaner, a frame, a web across said frame, a circular aperture in said web, a ball fitting said aperture, a tube slidably mounted in an aperture in said ball, means for retaining the ball in said aperture, a nozzle having one or more apertures, on the end of said tube, with means for supplying steam to said tube.

5. In a flue cleaner, a frame, a door, with means for operating same, hinged to one end of said frame, a web across said frame, a circular aperture in said web, a ball fitting said circular aperture, means for retaining the ball in said aperture, a tube slidably mounted in an aperture in said ball, a nozzle having one or more apertures, on the end of said tube, means for supplying steam to said tube, a plurality of apertures adjacent to said circular apertures and isinglass inserted in said apertures.

6. In a flue cleaner, a frame, a door, with means for operating same, hinged to one end of said frame, a web across said frame, a circular aperture, a ball fitting said circular aperture, means for retaining the ball in said aperture, a tube slidably mounted in an aperture in said ball, a nozzle having one or more apertures on the end of said tube, means for guiding said tube horizontally, means for supplying steam to said tube, a plurality of apertures adjacent to

said circular aperture and isinglass inserted in said apertures, substantially as shown and described.

7. A boiler tube cleaner comprising a frame having an aperture adapted to be arranged adjacent to the ends of the boiler tubes, a delivery nozzle for the tube cleaning medium extending through said aperture and adjustable means connected to said frame for guiding and positioning said nozzle.

8. A boiler tube cleaner comprising a spherical swivel adapted to be arranged adjacent to the ends of the tubes, a stationary socket in which said swivel turns and a delivery nozzle for the cleaning medium capable of turning with said swivel and also sliding on the same.

9. A boiler tube cleaner comprising a spherical swivel, a stationary spherical socket arranged adjacent to the ends of the tubes and receiving said swivel, and a delivery nozzle for the cleaning medium supported by the swivel.

10. A boiler tube cleaner comprising a spherical swivel, a stationary spherical socket arranged adjacent to the ends of the tubes and receiving said swivel, and a delivery nozzle for the cleaning medium capable of turning with the swivel and also sliding therein.

11. A boiler tube cleaner comprising a spherical swivel having a diametrical opening, a spherical socket arranged adjacent to the ends of the tubes and receiving said swivel, and a delivery nozzle for the cleaning medium arranged in said opening of the swivel and capable of turning therewith and sliding therein.

CHARLES H. DAVIES.

Witnesses:

H. A. OESTERLE,
NETTIE J. NEURENTHIER.