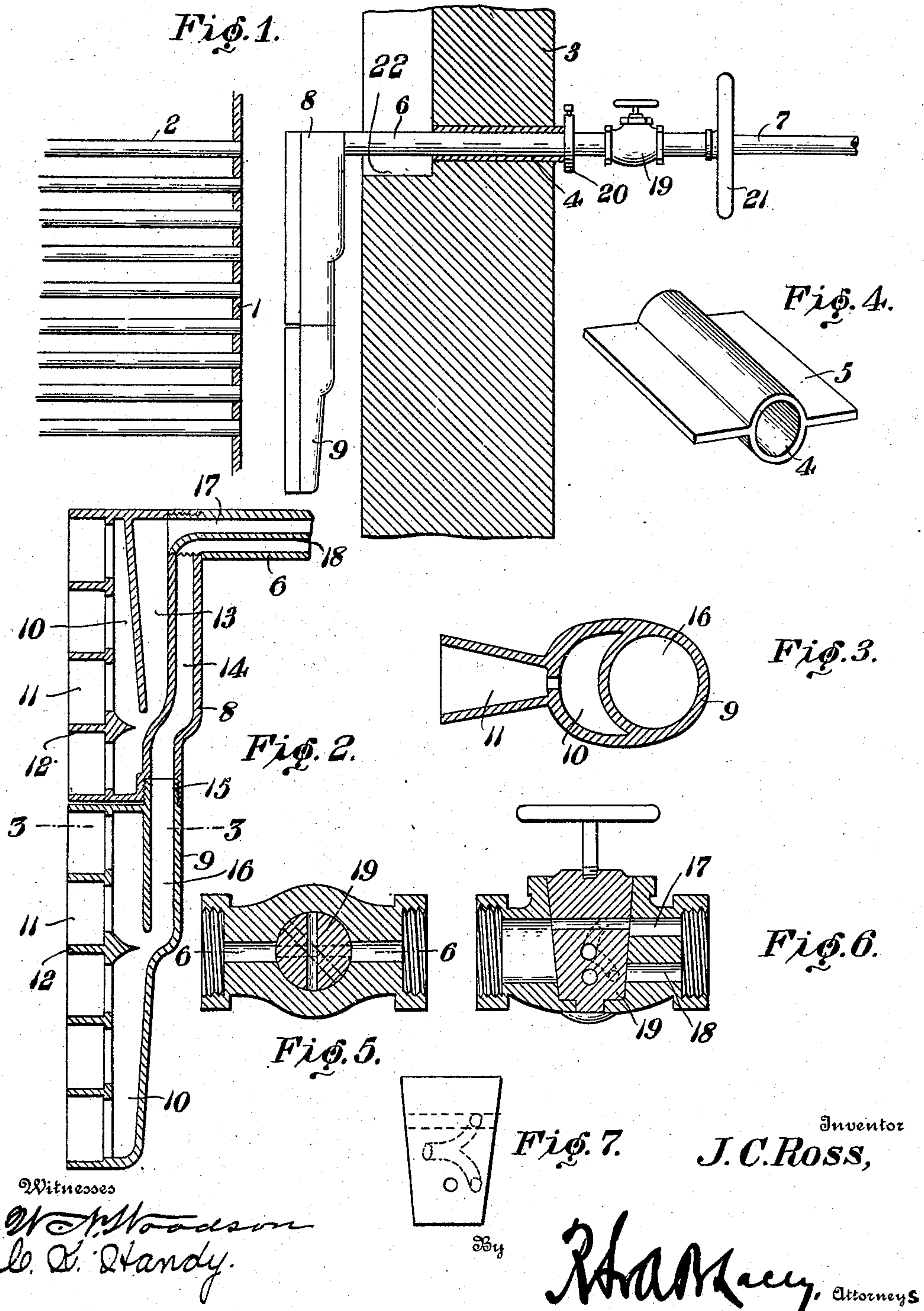


J. C. ROSS.
BOILER FLUE CLEANER.
APPLICATION FILED MAY 7, 1908.

911,333.

Patented Feb. 2, 1909.



UNITED STATES PATENT OFFICE.

JOHN C. ROSS, OF EAST LIVERPOOL, OHIO.

BOILER-FLUE CLEANER.

No. 911,333.

Specification of Letters Patent.

Patented Feb. 2, 1909.

Application filed May 7, 1908. Serial No. 431,407.

To all whom it may concern:

Be it known that I, JOHN C. ROSS, citizen of the United States, residing at East Liverpool, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Boiler-Flue Cleaners, of which the following is a specification.

The present invention relates to an improved cleaning device for removing soot and like accumulations from the flues of a boiler, and the object of the invention is the provision of a cleaner of this character which embodies a novel construction whereby certain groups of the flues can be cleaned independently of the remaining flues as may be required in the operation of the boiler.

The invention further contemplates a flue cleaning device which can be readily moved into an operative position when desired, but which when not in use is held out of direct contact with the intense heat of the boiler furnace and is prevented from being injured thereby.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a sectional view showing the improved flue cleaner as applied to a boiler. Fig. 2 is a longitudinal sectional view through the nozzle of the flue cleaner. Fig. 3 is an enlarged transverse sectional view on the line 3—3 of Fig. 2. Fig. 4 is a detail perspective view of the bushing which is embedded in the wall. Fig. 5 is a longitudinal sectional view through the two-way cock. Fig. 6 is a sectional view on the line 6—6 of Fig. 5. Fig. 7 is a detail view of the valve plug.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

For the purpose of illustration the improved flue cleaner is shown as applied to a boiler 1 which is of the horizontal type and is provided in the usual manner with the longitudinal flues 2. A wall 3 is located opposite one end of the boiler and the products of combustion enter the chamber between the wall and the boiler previous to passing through the flues. A bushing 4 is embedded in the wall 3 at a point approximately opposite to the middle portion of the

upper row of boiler flues. If found desirable this bushing 4 may be formed with the lateral wings 5 which are received between the courses of masonry of which the wall is formed and serve to prevent rotation of the bushing and hold the same securely in position. Extending loosely through the bushing 4 so as to freely rotate and slide longitudinally therein is a sleeve 6, the inner end of the sleeve carrying the nozzle while the outer end is threaded for engagement with a supply pipe 7 by means of which steam or other soot cleaning medium is conveyed to the device.

The nozzle is in the nature of a lateral arm and is designed to be swung across the ends of the boiler flues by rotating the sleeve 6. It will also be observed that the nozzle comprises an inner section 8 which is detachably connected to the extremity of the sleeve 6, and an outer section 9 which is detachably connected to one end of the inner section 8 and is disposed in alinement therewith. Each of these nozzle sections is formed with a tubular body portion 10 having an expansion chamber 11 extending longitudinally along one side thereof, the said tubular body portions communicating with these expansion chambers and the chambers of the two sections being in alinement with each other and facing the end of the boiler when in operative position. Partitions 12 may be utilized for subdividing the expansion chambers into a plurality of spaces and serve to confine and direct the steam or other soot cleaning medium as it expands. The inner nozzle section is also formed with a pair of passages 13 and 14, the former communicating with the central portion of the tubular body portion 10 while the latter has the end thereof internally threaded to receive a coupling end 15 upon the outer nozzle section 9 and communicates with a passage 16 in the said outer nozzle section. This passage 16 in turn leads to the central portion of the tubular body portion 10 of the outer nozzle section. One end of the inner nozzle section 8 is threaded upon the extremity of the sleeve 6 and the inner portion of this sleeve is subdivided by a longitudinal partition into the channels 17 and 18, the channel 17 communicating with the passage 13 of the inner nozzle section, while the channel 18 communicates with the passage 14. A two-way cock 19 which in the present instance is in the nature of a rotary plug valve is mounted upon the sleeve 6 and by

suitably manipulating this two-way cock the steam or other cleaning medium may be admitted to either of the sections 8 or 9 of the nozzle independently of each other or simultaneously to the two sections as may be desired. A stop collar 20 is adjustably clamped upon that portion of the sleeve 6 projecting outwardly beyond the wall 3 and this collar serves to engage the bushing 4 to limit the inward sliding movement of the sleeve therethrough and to prevent the nozzle being moved either into direct contact with or into a too close proximity to the boiler. It will also be observed that a wheel 21 is rigidly mounted upon the sleeve 6 and constitutes a handle for rotating the sleeve to swing the nozzle across the ends of the boiler flues and also for moving the sleeve longitudinally within the bushing for throwing the nozzle into and out of operative position. A horizontal ledge or shelf 22 is formed upon the inner face of the wall 3 immediately below the bushing 4 and when the cleaner is not in use the nozzle is drawn against the wall and swung upon the shelf, in which position it is shielded from direct contact with the intense heat of the boiler furnace and is prevented from being injured thereby.

When in use, it will be obvious that the steam when admitted only to the inner nozzle section 8 will only clean the inner group of flues over which this nozzle section is swung and in a similar manner when the steam is admitted to the outer nozzle section 9 independently of the inner section only those flues over the ends of which the outer nozzle section moves will be cleaned. If desired however, steam may be simultaneously admitted to both of the nozzle sections and all of the flues cleaned as is the case with the common form of boiler flue cleaner.

Having thus described the invention, what is claimed as new is:

1. A boiler flue cleaner comprising a nozzle, means for moving the nozzle across the ends of the boiler flues, and means for supplying a soot cleaning medium to different parts of the nozzle independently of each other.

2. A boiler flue cleaner comprising a swinging nozzle formed in independent sections, means for swinging the nozzle across the ends of the boiler flues, and means for supplying a soot cleaning medium to the dif-

ferent sections of the nozzle independently of each other.

3. A boiler flue cleaner comprising a swinging nozzle formed in independent sections, each of the sections comprising a tubular body portion and an expansion chamber in connection with the tubular body portion, means for swinging the nozzle across the ends of the boiler flues, and means for supplying a soot cleaning medium to the various sections of the nozzle independently of each other.

4. In a boiler flue cleaner, the combination of a boiler, a sleeve rotatably mounted in the wall opposite one end of the boiler, the said sleeve being subdivided into a plurality of channels, a cock mounted upon the sleeve for admitting a soot cleaning medium to any selected one of the channels, and a nozzle carried by the sleeve and adapted to be moved across the ends of the boiler flues, the said nozzle being formed in sections communicating independently with the channels in the sleeve.

5. In a boiler flue cleaner, the combination of a boiler, a sleeve rotatably mounted in the wall opposite one end of the boiler and formed with a plurality of independent channels, a cock mounted upon the sleeve for admitting a soot cleaning medium to any one of the channels, and a nozzle carried by the sleeve and adapted to be moved across the ends of the boiler flues, the said nozzle being formed in independent and detachable sections each of which communicates independently with one of the channels in the sleeve.

6. In a boiler flue cleaner, the combination of a boiler, a sleeve mounted in the wall opposite one end of the boiler so as to rotate and move longitudinally therein, a stop collar adjustably mounted upon the sleeve for limiting the sliding movement thereof, a handle upon the sleeve for rotating the same or moving it longitudinally, means for supplying a soot cleaning medium to the sleeve, and a nozzle carried by the sleeve and adapted to be moved across the ends of the boiler flues.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN C. ROSS. [L. s.]

Witnesses:

C. C. HILL,

Mrs. JOHN STODDARD.