(No Model.)

R. FARIES.

BOILER FLUE CLEANER.

No. 539,046. Patented May 14, 1895.

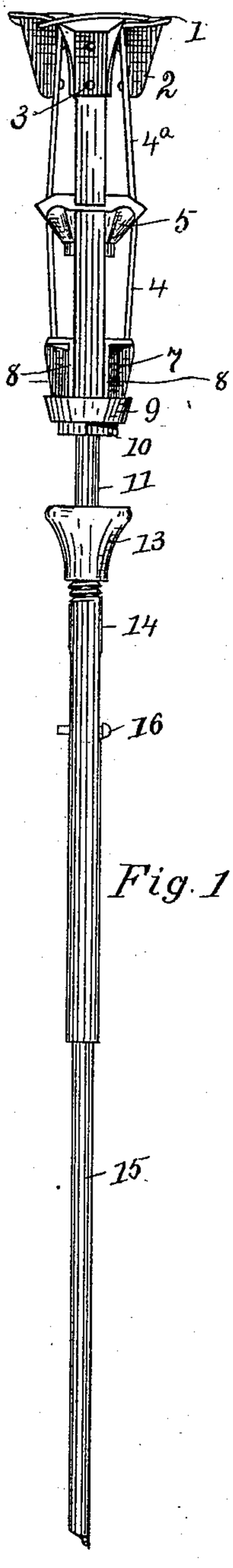
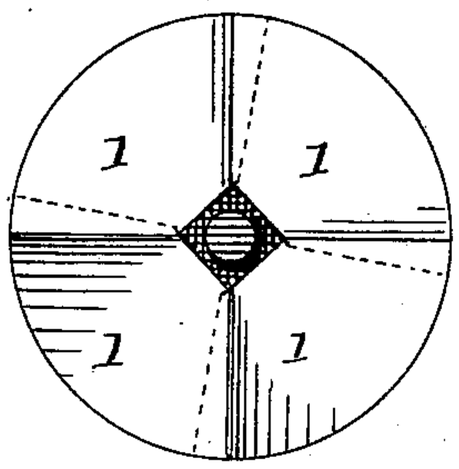


Fig. 1.

Fig. 3.



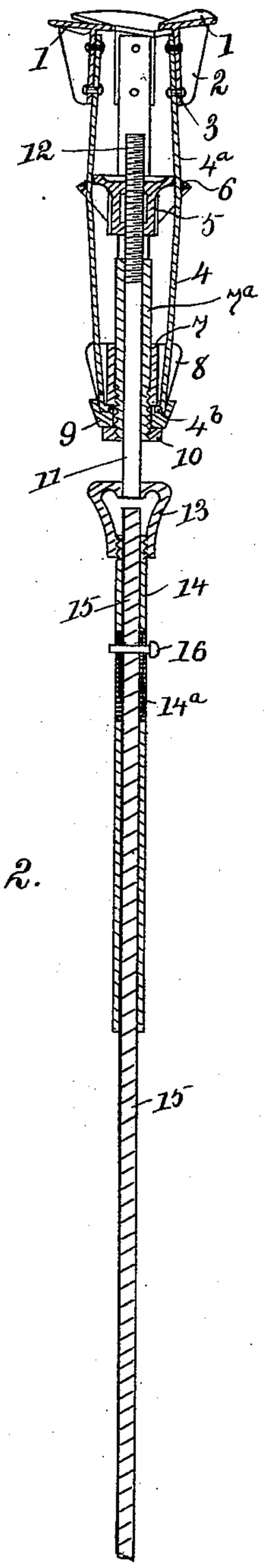


Fig. 2.

WITNESSES

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ROBERT FARIES, OF DECATUR, ILLINOIS.

BOILER-FLUE CLEANER.

SPECIFICATION forming part of Letters Patent No. 539,046, dated May 14, 1895.

Application filed September 26, 1894. Serial No. 524,131. (No model.)

To all whom it may concern:

Be it known that I, ROBERT FARIES, of Decatur, in the county of Macon and State of Illinois, have invented certain new and useful Improvements in Boiler-Flue Cleaners, of which the following is a specification.

This invention is designed to provide improved means for cleaning flues by scraping. It is exemplified in the structure hereinafter described and it is defined in the appended claims.

In the drawings forming part of this specification, Figure 1 is a representation of a cleaner embodying my improvements. Fig. 2 is a central section lengthwise of the device. Fig. 3 is an end view of the scraping end.

The scrapers 1 are, in this case, four in number. The operative edge of each is the arc of a circle and their relative arrangement is such that their combined arcs form a practically continuous circle, approximately equal in diameter to the flue in which the device is to operate. Each scraper has a lug, or securing block, as 2, which provides for attaching the scrapers to the scraper-bars 4, and such lugs are preferably cast integral with the scrapers. Rivets 3 may be used to make the connection between the bars and the scrapers, or other known fastenings may be substituted therefor. The scraper bars are inclined convergingly from about their longitudinal centers to the ends bearing the scrapers, and their inner ends, or ends opposite the scrapers, are hooked inwardly. The first named peculiarity of the scraper-bars is indicated at 4^a in the drawings, and it provides, together with other details to be hereinafter described, for varying the diameter of the scraping edge. The second peculiarity is an element for providing simple and easily disconnected connections between the bars and the stock, and it is especially designated by reference numeral 4^b, in Fig. 2.

The stock of the device comprises the head 7, which is fastened on, or formed integral with, the sleeve 7^a, the cap 9, which fits over the end of the head and the ends of the bars, and the nut 10, which screws onto the end of the sleeve and holds the cap in position. The head has the ribs, or ledges, 8, which form lateral guides for the bars. The ends of the bars hook against the end of the head, and, when the cap is secured in position, the bars are held securely in the stock in a manner permitting the scrapers to move to and from the axial line of the device and preventing motion in other directions. Rod 11 extends through sleeve 7^a, and its inner end, or end extending between the bars, is threaded and provided with the correspondingly threaded nut 5. The nut is slotted, as seen at 6, in Fig. 2, and the scraper-bars extend, somewhat loosely, through the slots. The rod carrying the nut has motion longitudinally in the stock and as it is moved back and forth the bearings of the slots of the nut act against the converging portions of the bars to forcibly expand and contract the diameter of the scraper. When the nut is moved toward the scrapers the inner bearings of the slots press the bars apart, and, by separating the scrapers, increase the diameter of the scraping edge; and when the nut is moved in the reverse direction the outer bearings of the slots act forcibly to produce a contrary result. The boss, or enlargement, 13 is a casting secured to the end of rod 11 outside the scraper stock, and its function, in connection with the rod and the stock, is to limit the inward motion of the rod and to increase the facility with which the device may be withdrawn from a flue. In addition to this it forms a union between rod 11 and the section of pipe, or elongated sleeve, 14, through which, and into the boss, the handle rod 15 extends. The pipe 14 is slotted at 14^a. Pin 16 extends through rod 15 and the slot of the pipe, and the play of the pin in the slot is such that the end of rod 15 may strike the end of rod 11 after being moved some distance, longitudinally, therefrom.

The scraper stock turns freely on rod 11, and this peculiarity is utilized in screwing nut 5 farther on or off the threaded end of said rod, and thereby varying the extent of motion of the rod in the stock and consequent variation of the expansion of the circumference of the scraper. With each stock a number of sets of scraper bars of different aggregate diameter may be provided, and such sets may be used interchangeably to suit different flues.

In operation, the nut, or block, 5 is adjusted to give just enough play to rod 11 to produce the desired expansion in the scrapers, the

diameter of the scraping edge is contracted to permit the insertion of the cleaner into the flue, such contraction being effected by moving rod 11 in the direction that will cause the nut, or block, 5 to approach the stock, the device is inserted and expanded by a reverse motion of rod 11, and the scraping is effected by forcing the cleaner through the flue by pushing on rod 11 in the customary manner, or by using the rod as a ram. The latter method is usually preferable as it greatly facilitates the cleaning process at all times, and particularly when there is an unusual impediment to the motion of the cleaner. After the scraper has been forced through the flue the act of pulling backward on the handle draws back rod 11 and head 5, which collapses the scraper and permits easy withdrawal thereof.

While the different features of the invention are well adapted to conjoint use, there are some, notably the ramming feature, which may be applied to cleaners having different structure either wholly or in part, and I do not limit myself to the peculiarities described, except as specifically set forth in the appended claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a flue cleaner the combination of a scraper-stock and a scraper-rod carrying a nut longitudinally adjustable thereon, a sleeve fastened to the scraper-rod and having slots lengthwise thereof, and a handle-rod loose in the sleeve and having a pin engaging the slots thereof, said handle rod being adapted to strike the scraper rod substantially as set forth.

2. The combination in a flue cleaner of scrapers consisting of wings substantially at right angles with the longitudinal axis of the cleaner, bars carrying said scrapers on their forward ends and having their opposite ends hooked inwardly, a stock having rib-guides for the scraper bars, a cap fitting against the end of the stock and embracing the hooked ends of the bars, a nut holding the cap in place, a rod passing loosely through the stock, and upon said rod, the nut having slots in its periphery receiving the scraper bars substantially as set forth.

3. The combination in a flue cleaner of a reciprocating handle-rod having a pin projecting from its side, a sleeve longitudinally slotted and carrying the scraper-rod, a stock mounted loosely on said scraper-rod, bars secured in the stock and carrying scrapers and a nut having its periphery slotted to receive the bars and adjustable on the scraper-rod between the stock and the end scraper blades, whereby the scraper may be expanded by a push or blow of the handle rod upon the end of the scraper-rod substantially as described.

4. The combination, in a flue cleaner, of a stock having swinging bars provided with scrapers, a rod adapted to be reciprocated lengthwise in the stock, a bar-controlling block adjustable on the end of the rod between the bars, and a stop on the rod on the opposite side of the stock, substantially as set forth.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

ROBT. FARIES.

Attest:

JNO. W. SANNER,

FRANK S. DODD.