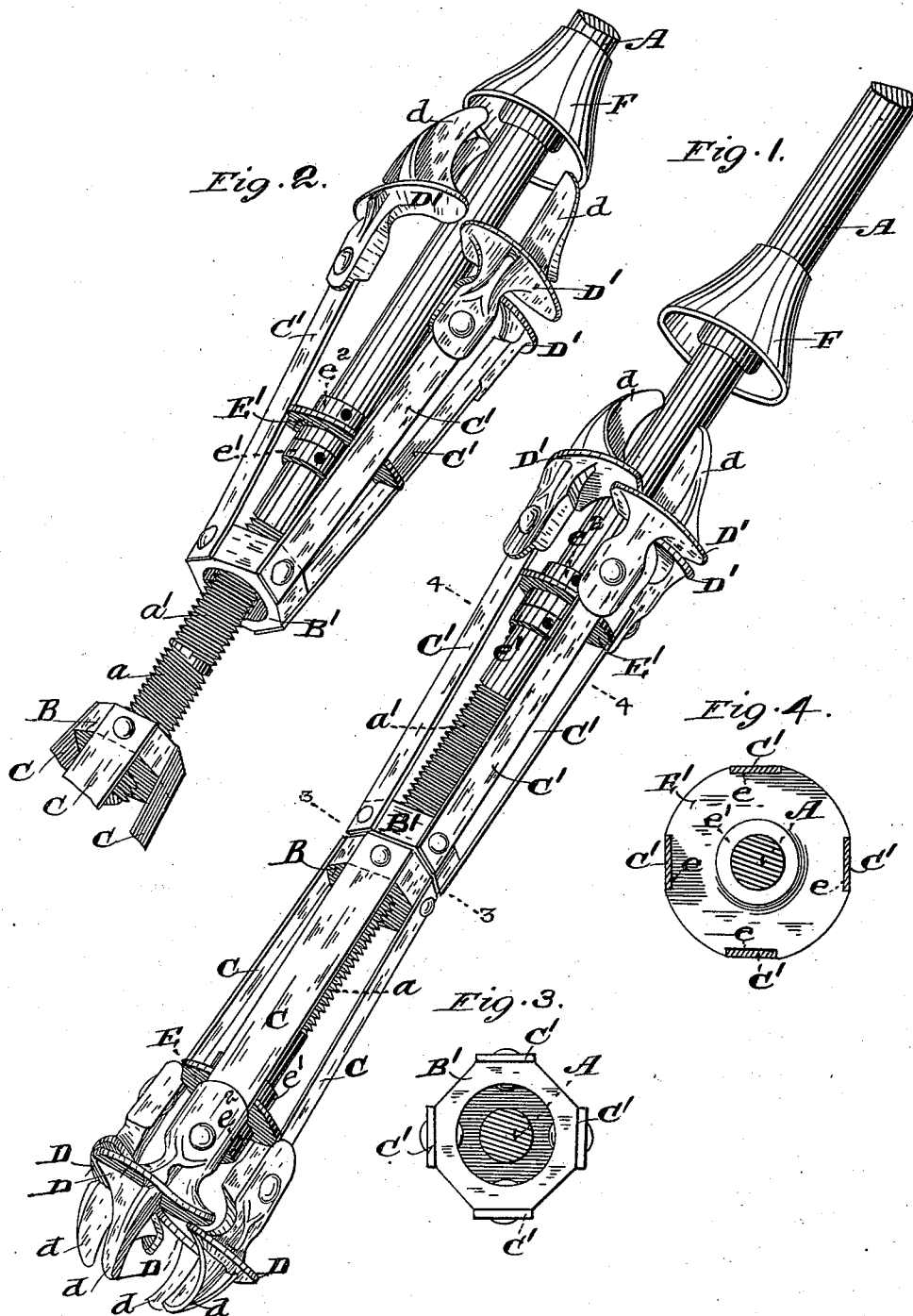


(No Model.)

L. B. SHULTZ.
BOILER FLUE CLEANER.

No. 488,842.

Patented Dec. 27, 1892.



WITNESSES
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LLEWELLYN B. SHULTZ, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE ST. LOUIS STEEL WIRE BRUSH COMPANY, OF SAME PLACE.

BOILER-FLUE CLEANER.

SPECIFICATION forming part of Letters Patent No. 488,842, dated December 27, 1892.

Application filed April 19, 1892. Serial No. 429,808. (No model.)

To all whom it may concern:

Be it known that I, LLEWELLYN B. SHULTZ, of St. Louis, Missouri, have made a new and useful Improvement in Boiler-Flue Cleaners, of which the following is a full, clear, and exact description.

The improvement relates more especially to that class of flue-cleaners whose leading feature is a set of arms carrying scrapers, and arranged around the handle of the tool, and adapted, as a set, to be expanded and contracted to bring the scrapers closer together or farther apart from each other to suit the size of flue being cleaned, and the improvement under consideration consists mainly in the mode of attaching the scraper-arms to the handle and operating them, substantially as is hereinafter described and claimed, aided by the annexed drawings, making part of this specification, in which—

Figure 1 is a view in perspective of the improved flue-cleaner, the scraper arms being closed toward the handle to adapt the tool to a smaller flue: Fig. 2 a view in perspective of the flue-cleaner enlarged to fit a larger flue: Fig. 3 a cross section of the tool midway in its length, namely on the line 3—3 of Fig. 1: and Fig. 4 a cross section on the line 4—4, Fig. 1. The last two named figures are upon a larger scale.

The same letters of reference denote the same parts.

A represents the handle of the tool. It has two threaded portions, *a, a'*, respectively right and left handed. Two nuts, *B, B'*, are applied to said portions, *a, a'*, respectively.

C, C, represent a set of arms, secured to the nut *B*, and projecting thence toward the end of the handle, and provided respectively with scrapers *D, D*, and *C' C'* represent another and similar set of arms attached to the other nut, *B'*, and extending thence in the opposite direction to that of the arms *C C*, and similarly provided with scrapers *D' D'*. Each set of arms and scrapers may consist of any suitable number. The arms *C C* at the free end thereof are adapted to bear upon a disk *E*, or analogous part, of larger diameter than the nut *B*, and which is applied to the handle at or toward the outer end thereof, and

so as to be fixed longitudinally thereon, but preferably so as to turn thereon. The other set of arms, *C', C'*, similarly bear upon a similar disk or part, *E'*, similarly attached to the handle toward the opposite end of the cleaner. The disks are preferably notched at *e, e, e, e*, to receive the scraper arms and thereby confine them laterally. The arms *C, C*, are respectively preferably arranged to come opposite the spaces between the arms *C', C'*, substantially as shown, for the purpose of causing the scrapers *D D* to respectively come opposite the spaces between the scrapers *D' D'*. The scrapers in themselves are of the customary form, and are preferably furnished with the guide projections, *d, d*, of the customary shape.

F represents the customary deflector or guide attached to the handle at the inner end of the scraping mechanism.

The operation of the improved tool is as follows: When it is desired to reduce the diameter of the scraping-mechanism the handle and nuts are respectively turned upon each other to cause the nuts, *B B'*, to approach each other, and, if necessary, to come quite close together, substantially as shown in Fig. 1. During the movements the disks *E, E'*, have retained their positions longitudinally upon the handle, but have turned around thereon. For while the improvement in a measure is carried out by having the disks fixed upon the handle not only in a longitudinal direction thereon but also so that they cannot rotate upon the handle, and allowing the scraper arms to slip upon the periphery of the disk, I prefer, as stated, to notch the disks to receive the scraper arms, and in such case the disks must be loose to turn on the shaft to enable the disks, scraper arms, and the nut to which the scraper arms are attached, to rotate upon the handle. A convenient way of attaching the disks for this purpose is indicated; a collar, *e'*, is fixed upon the handle, the disk is then slipped onto the handle against the collar *e'*, and then another collar *e''*, is fixed upon the shaft against the outer side of the disk, thus leaving the disk free to turn on the handle, but fixed longitudinally thereon. As the nuts are drawn together the angle at which

the scraper-arms are held with relation to the handle changes, the arms becoming more and more parallel with the handle, and the scraper in consequence drawn toward the handle.
5 The scraper arms are of suitable springy material to enable them to readily close toward the handle in the described movement of the nut. On the other hand, when it is desired to enlarge the diameter of the scraping mechanism, the handle and nuts are turned upon each other in the opposite direction, whereupon the parts assume the position indicated in Fig 2: that is, the nuts are forced apart from each other and have approached the
10 disks, and in consequence the scrapers are forced readily apart from each other, to form, as a set, a scraping mechanism of the desired larger diameter. It will be seen that each nut, together with the scraper arms and disk
15 therewith associated, can be adjusted upon the handle independently of the other nut, and set of scraper arms and disk, and the

scrapers at one end of the cleaner arranged respectively opposite the spaces between the scrapers at the other end of the cleaner, or
25 one set of scrapers expanded more than the opposite set. Or, both nuts and their respective associated parts can be adjusted simultaneously, and both sets of scrapers thereby enlarged or contracted uniformly.
30

I claim:—

The hereindescribed flue-scrapers combining in its construction the handle threaded as described, the nuts, the disks, the two sets of
35 scraper arms, and scrapers, said nuts movable toward and from each other, upon said handle, and said disks fixed longitudinally upon the handle, substantially as described.

Witness my hand this 8th day of April, 1892.

LLEWELLYN B. SHULTZ.

Witnesses:

C. D. MOODY,
A. BONVILLE.