H. L. Pratt,

Steam-Boiler Cleaner.

No. 89,941. Patented May 11, 1869.

Fig. 1.

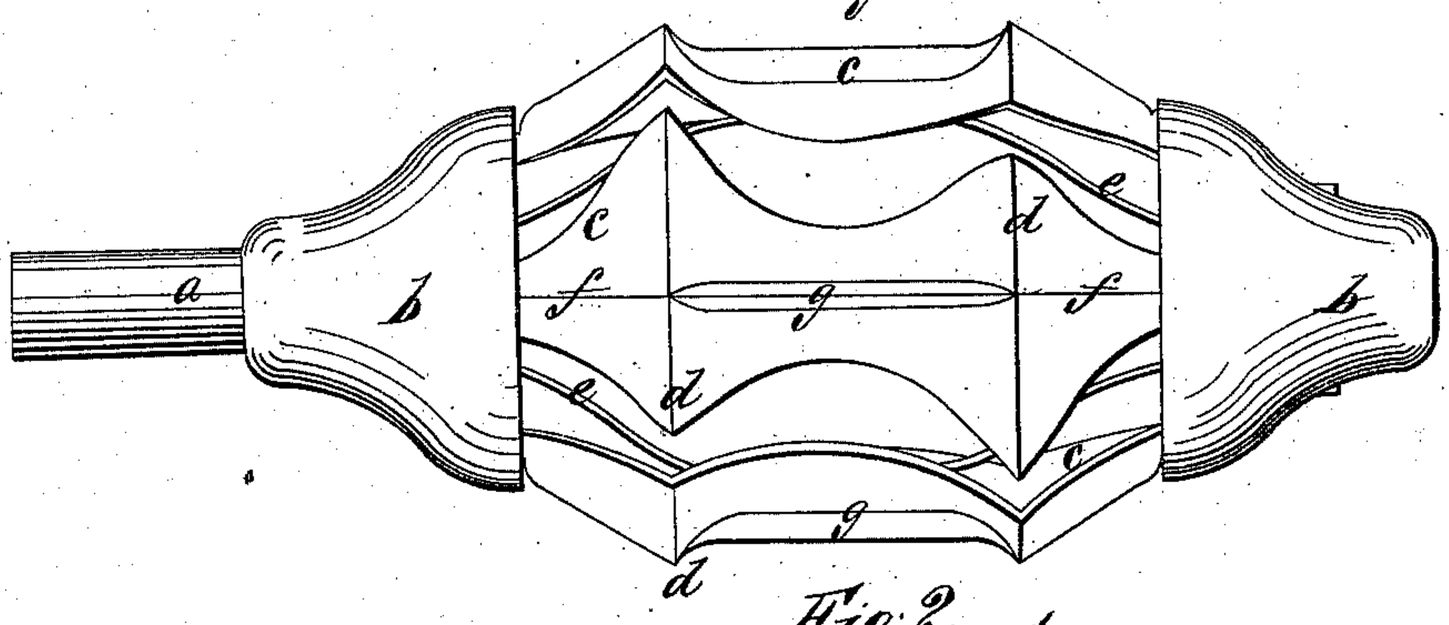


Fig. 2.

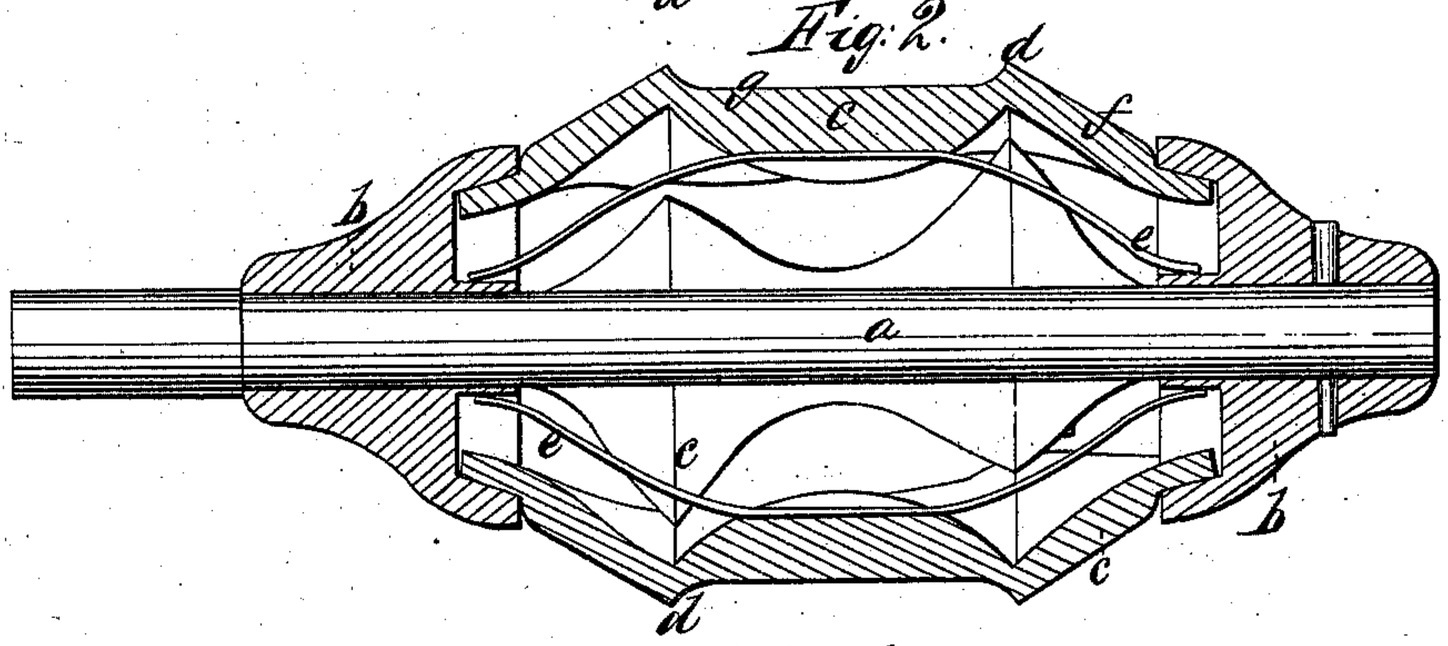
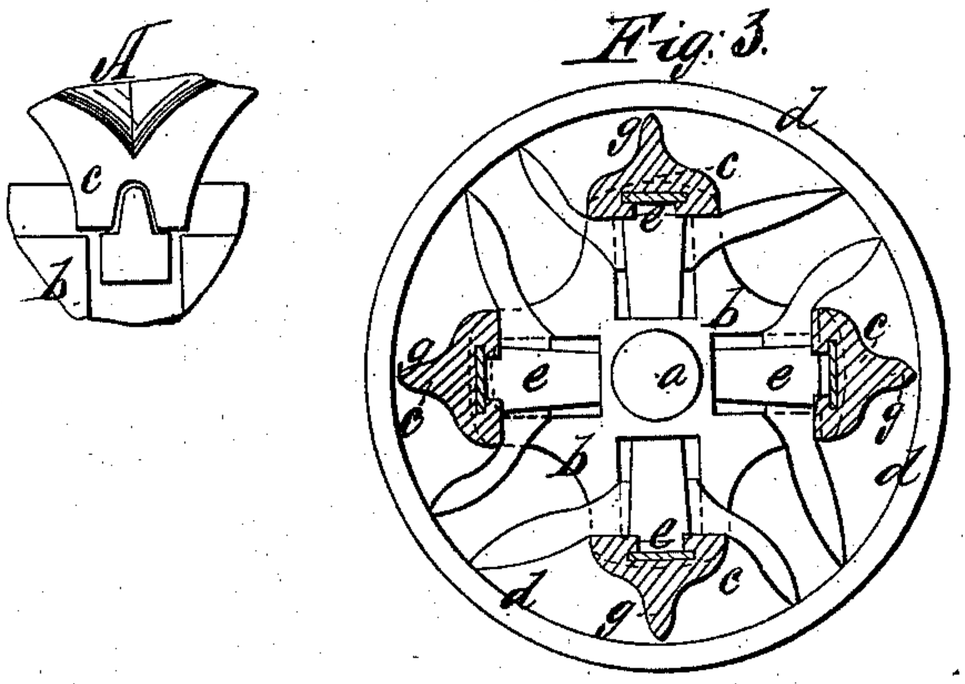


Fig. 3.



Witnesses:

P. B. Crosby

Francis Gould

Inventor:

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UNITED STATES PATENT OFFICE.

H. L. PRATT, OF BEVERLY, MASSACHUSETTS, ADMINISTRATOR OF THE ESTATE OF E. L. PRATT, DECEASED.

IMPROVEMENT IN BOILER-SCRAPERS.

Specification forming part of Letters Patent No. **89,941**, dated May 11, 1869.

To all whom it may concern:

Be it known that E. L. PRATT, of Beverly, in the county of Essex and State of Massachusetts, invented certain new and useful Improvements in Tube-Scrapers; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of his invention, sufficient to enable those skilled in the art to practice it.

This invention relates to improvements in the construction of scrapers designed to scrape and clean the internal surface of boiler and other tubes; and it consists in a scraper (and in the detail of its construction) made up of two stationary heads mounted on a rod, by which the scraper is pushed and pulled through tubes, there being located between the heads, and guided and measurably confined thereby, a series of pieces which have scraping-edges, said pieces being pivoted on springs, so that they can yield toward or from the center, and can tip or incline as well as move parallelly toward the axial line of the scraper.

The drawings are illustrations of an embodiment of the invention, Figure 1 showing the improved scraper in side elevation; Fig. 2 being a longitudinal sectional elevation, and Fig. 3 being a cross-sectional elevation.

a is the shaft on which the parts of the scraper are arranged. It may be of any desired length, but is preferably made short, and provided at one end with screw-threads, by which it may be coupled to a pipe or rod to be used for a handle to thrust and pull the scraper through the tubes.

On the shaft *a* are fixed, at some distance apart, two similar heads, *b*, of a tapering form, as shown, the broad flat ends of said pieces being presented toward each other, said ends having mortise-like recesses, which receive, guide, and retain by their ends the pieces *c*, which, at *d*, have scraping edges or projections.

The pieces *c*, as shown, have each two scraping-projections, which are deemed preferable to any other number. Said pieces are mounted at the center of their length on springs *e*, the ends of which rest in and bear on one boundary of the mortises in the head *b*, the springs being united to the pieces *c* at the center of their length.

In the drawings the springs are shown as located in grooves cut in the material of the pieces *c*, the springs being pushed endwise through the grooves.

It will be readily seen how any or all of the pieces *c* can yield toward the axis of the scraper, either in an inclined direction from either end or parallel to the axis; and it will also be seen that the springs constantly press outward the pieces *c*, so as to keep the scraping-edges *d* in contact with the interior of any tube suited in size for the action of the scraper.

The ribs *f* on the ends of pieces *c* are intended to act as guides in entering the scraper into a tube, which act depresses the pieces *c* at their entering ends, and the ribs *g*, between the scraping-edges *d*, guide the scraper in its farther entrance, and prevent the other scraping-edges *d* from disagreeable abuttal against the tube ends, the ribs *f* and *g* acting as inclines, on which the whole scraper slides easily into and out of the tube without jamming.

The pieces *c* are so made that when in the size of tube for which they are designed the corners or angles at the scraping-edges *d* shall come nearly but not quite into contact; and it will be seen in Figs. 1 and 2 that the two scraping-edges *d* on each piece *c* are so arranged that the spaces left by the edges operating in advance are traversed by the following edges.

While the scraping-edges occupy nearly the entire circumference of the tube into which the scraper may be inserted, it will be seen that the pieces *c* are so shaped as to leave passages or spaces between their adjacent edges, even when most compressed, so that the soot and deposit removed will fall into the interior of the scraper and out of it at either end.

The scrapers are so cheaply made that it is designed to furnish them for every diameter of tube, and in such case the curves of the scraping-edges *d* should be fractions of the circumference of a tube of the diameter to which the scraper is adapted.

This scraper is intended for use where wire brushes are now employed, it being more enduring, effective, and cheaper than such brushes.

It is an improvement upon the scraper patented by E. L. PRATT, July 2, 1867, in that no hollow handle is required, through which a rod

working an inclined plug passes, to expand the scraping-edges.

The present scraper is cheaper in its construction and simpler in its mode of operation than said patented scraper, and can be used effectively by any stoker without injury to the implement or the tubes operated upon.

The detail marked A shows merely that the ends of the pieces *c* may be notched, so as to be guided by projections entering such notches instead of having the ends of the pices *c* made as tongues fitting in mortises in the heads *b*.

I claim—

The construction and arrangement of the heads *b*, pieces *c*, with scraping-edges *d* and ribs *f* and *g*, and springs *e*, all operating together substantially as described.

H. L. PRATT,
Administrator of estate of E. L. Pratt.

Witnesses:
J. B. CROSBY,
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