

R. LAPHAM.
BOILER TUBE SCRAPER.

No. 175,836.

Patented April 11, 1876.

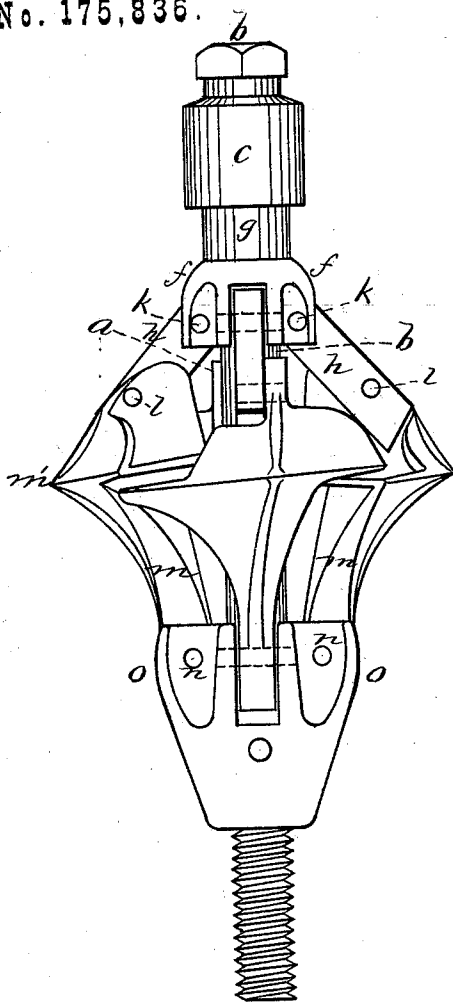


Fig. 1.

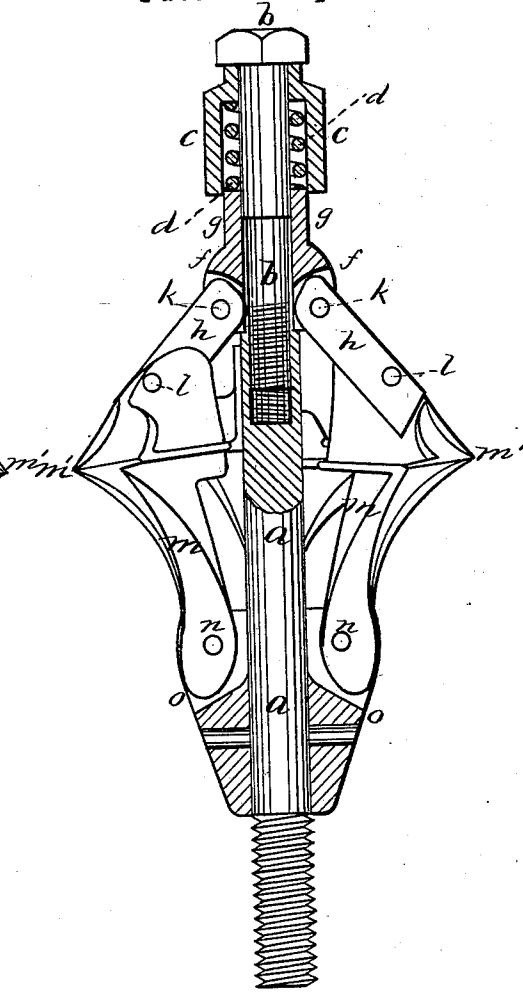


Fig. 2.

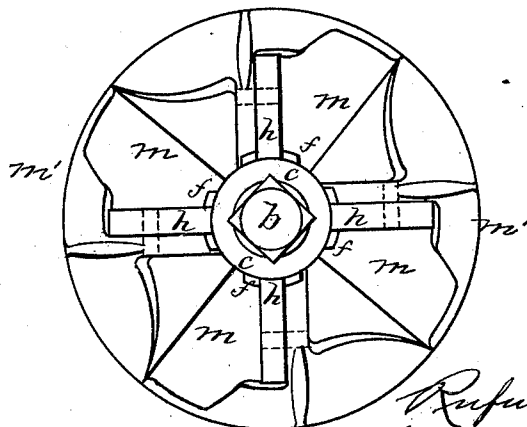


Fig. 3.

Witnesses.

R. A. Gentry
J. H. Gately.

Inventor

Rufus Lapham

by his attys.
Jenny W. Williams & Co.

UNITED STATES PATENT OFFICE.

RUFUS LAPHAM, OF NEW YORK, N. Y.

IMPROVEMENT IN BOILER-TUBE SCRAPERS.

Specification forming part of Letters Patent No. **175,836**, dated April 11, 1876; application filed September 7, 1875.

To all whom it may concern:

Be it known that I, RUFUS LAPHAM, of New York, in the county and State of New York, have invented certain new and valuable Improvements in Boiler-Tube Scrapers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

The object of the invention is to provide a better and more thorough device for cleaning boiler-tubes than has before been produced; and the nature of the invention is described in detail below.

In the accompanying illustration, Figure 1 is an elevation of a boiler-tube scraper embodying my invention. Fig. 2 is a longitudinal section of the same, and Fig. 3 is a plan or top view.

Similar letters of reference indicate corresponding parts.

a is the rod upon which the tube-cleaner is placed. *b* is a bolt screwing into the end of the rod *a*. *c* is a shell inclosing a spiral spring, *d*, and protecting it from the flames and heat. *f* is a hub, and, made in the same piece, is a tube, *g*, which runs on the bolt *b*. The shell *c* fits over and upon the tube *g* and makes a tight joint, and the spring *d* rests against the end of the tube *g* and against the shell *c*. *h h* are arms hinged to the hub *f* by means of pins *k*. By means of pins *l* the arms *h* are hinged to the arms *m*, which are hinged at

their opposite ends to the hub *o* by means of the pins *n*. *m'* is the scraping-edge upon each arm *m*.

In practical operation the scraper works as follows: When the scraper is forced into the tube to be cleaned, by means of the rod *a*, in contracting, as it necessarily must, to the size of the inside of the tube, the arms *h* and *m* force the tube *g* against the spiral spring *d*, which is inside the shell *c*; and the pressure of the spring keeps the scraping-edges *m'* firmly and evenly against the inside of the tube, cleaning it thoroughly.

The scraper may be easily made more or less "stiff" by turning the bolt *b*, which screws into the rod *a*, thus contracting the spring and pressing it hard against the tube *g*, or allowing it to expand.

It will thus be seen that the tube-scraper herein described is perfectly and easily adjustable, while the spring is well protected and inclosed from flames and heat.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

The combination of the spring *d*, tube *g*, and shell *c*, for the purpose of providing a tight chamber and protected spring, as and for the purpose hereinbefore set forth.

RUFUS LAPHAM.

Witnesses:

HENRY W. WILLIAMS,
R. A. GEORGE.