

R. LAPHAM.
BOILER TUBE SCRAPER.

Patented April 11, 1876.

No. 175,836.

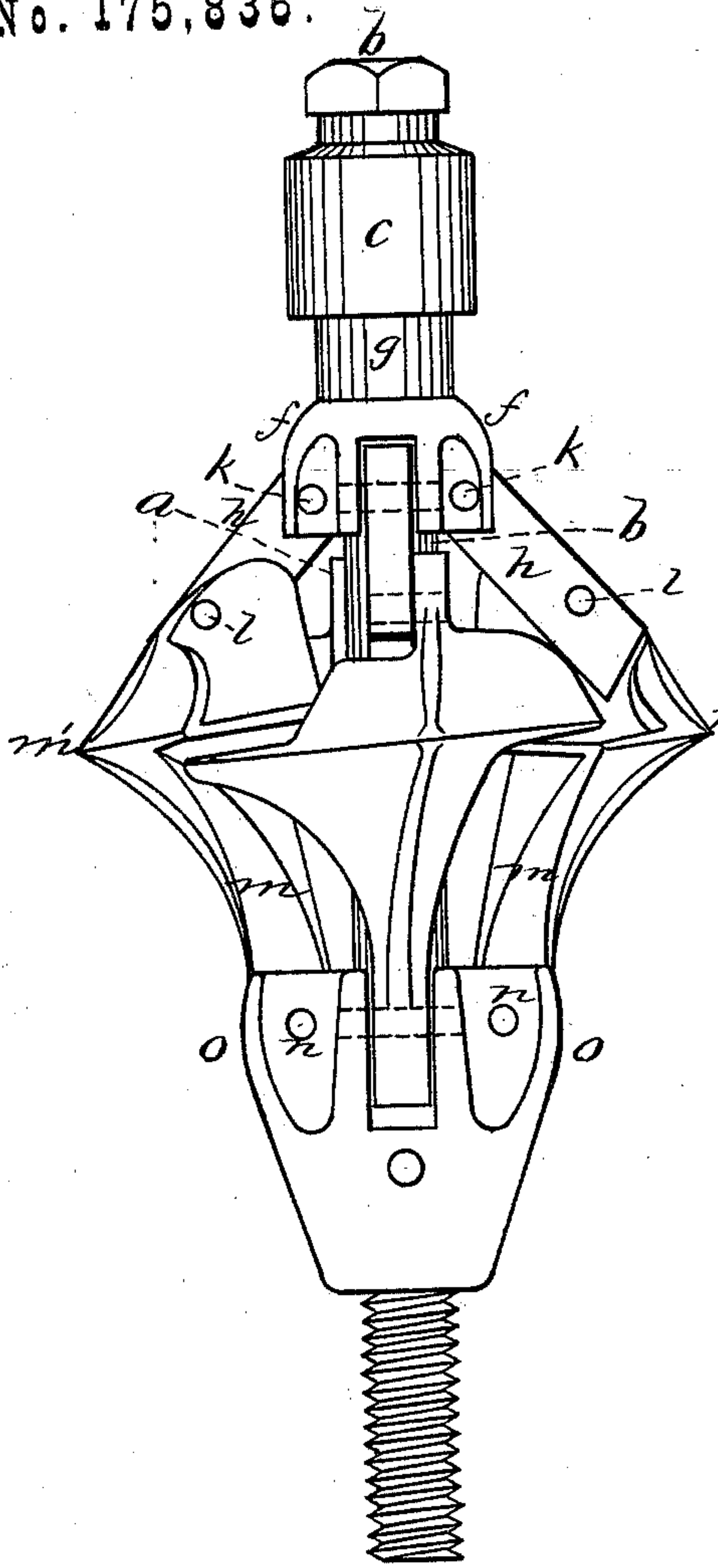


Fig 1.

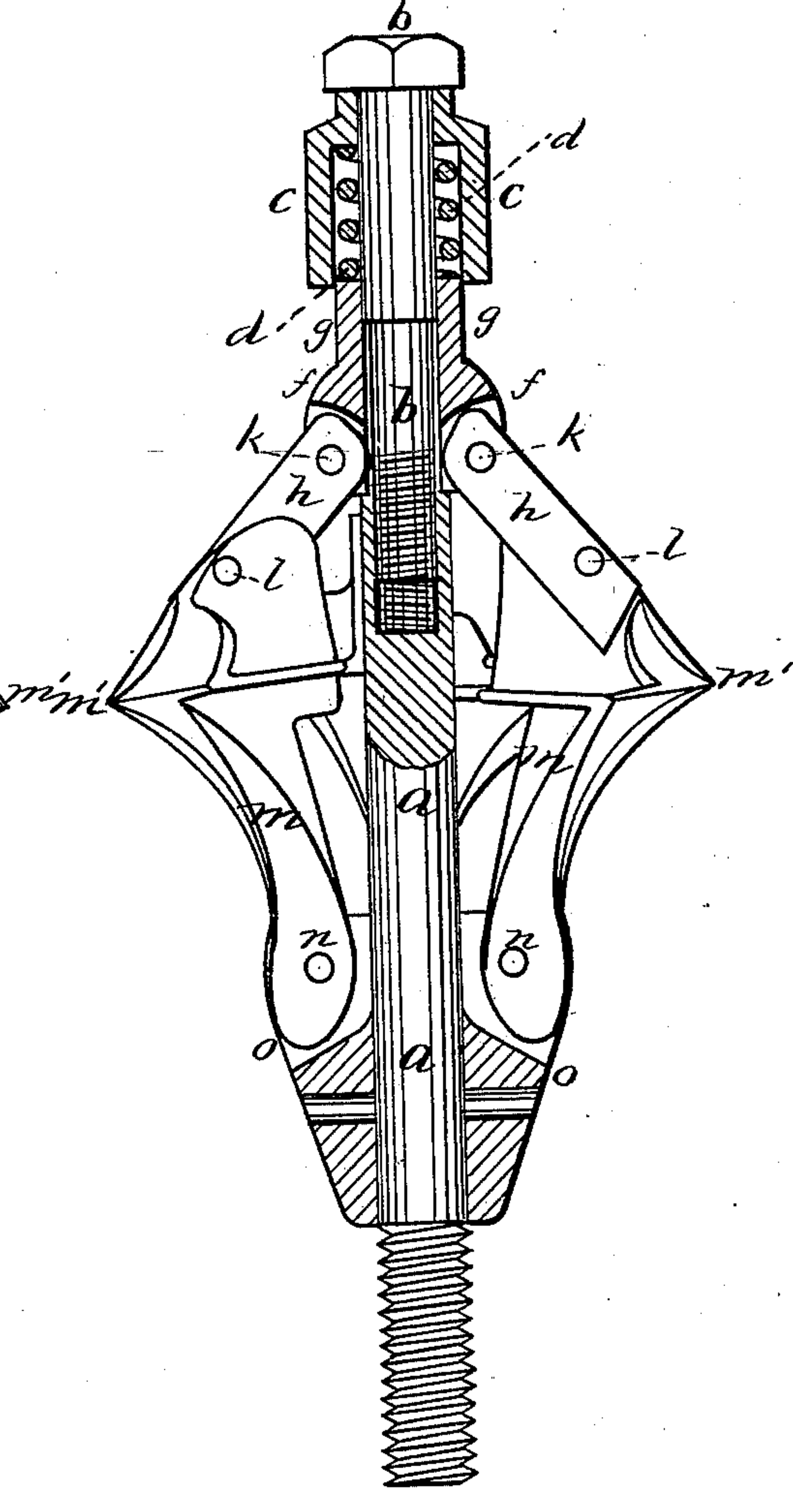


Fig 2.

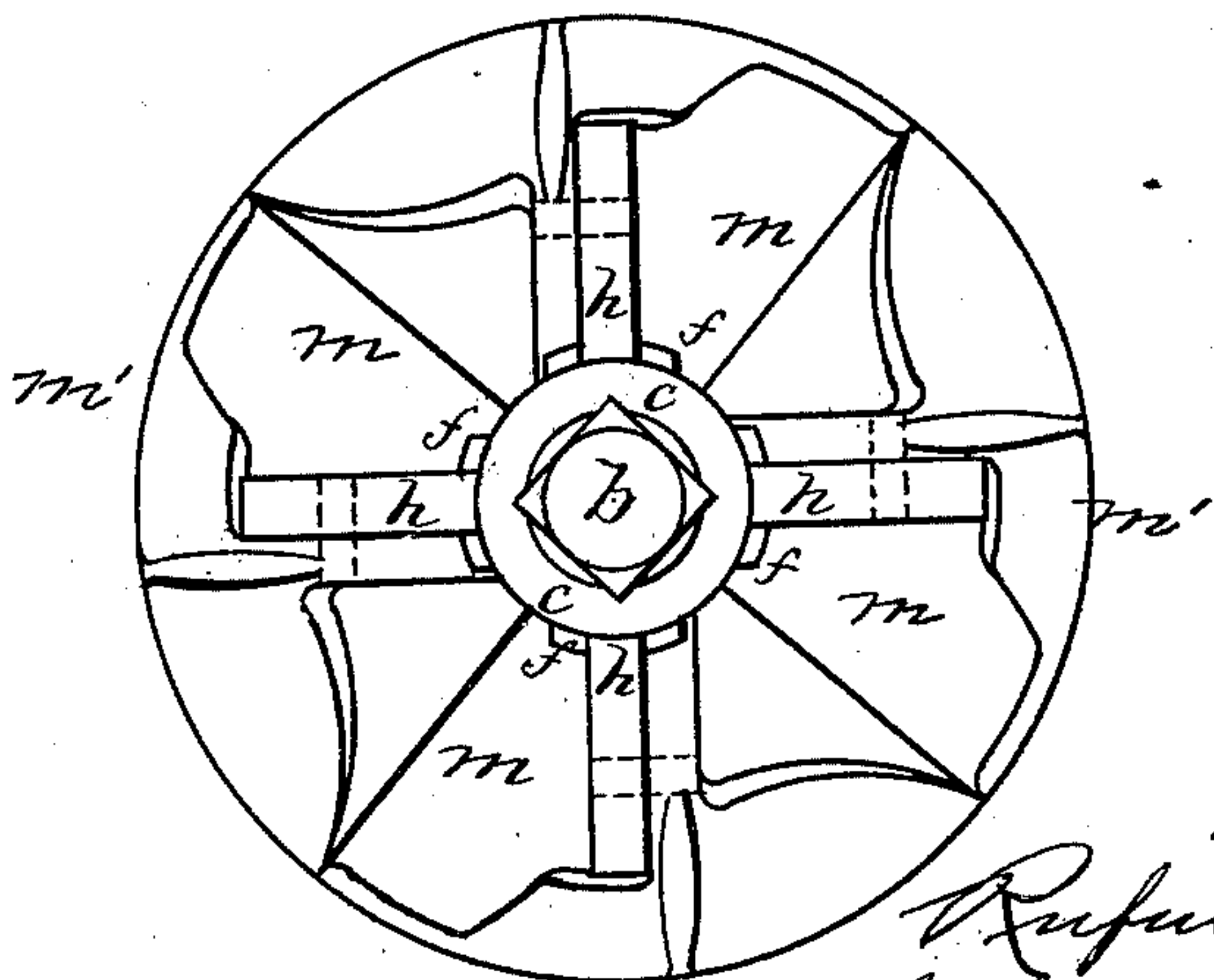


Fig 3.

Witnesses.

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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:

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