

(No Model.)

W. T. COGGESHALL.
BOILER FLUE SCRAPER.

No. 411,324.

Patented Sept. 17, 1889.

Fig 1

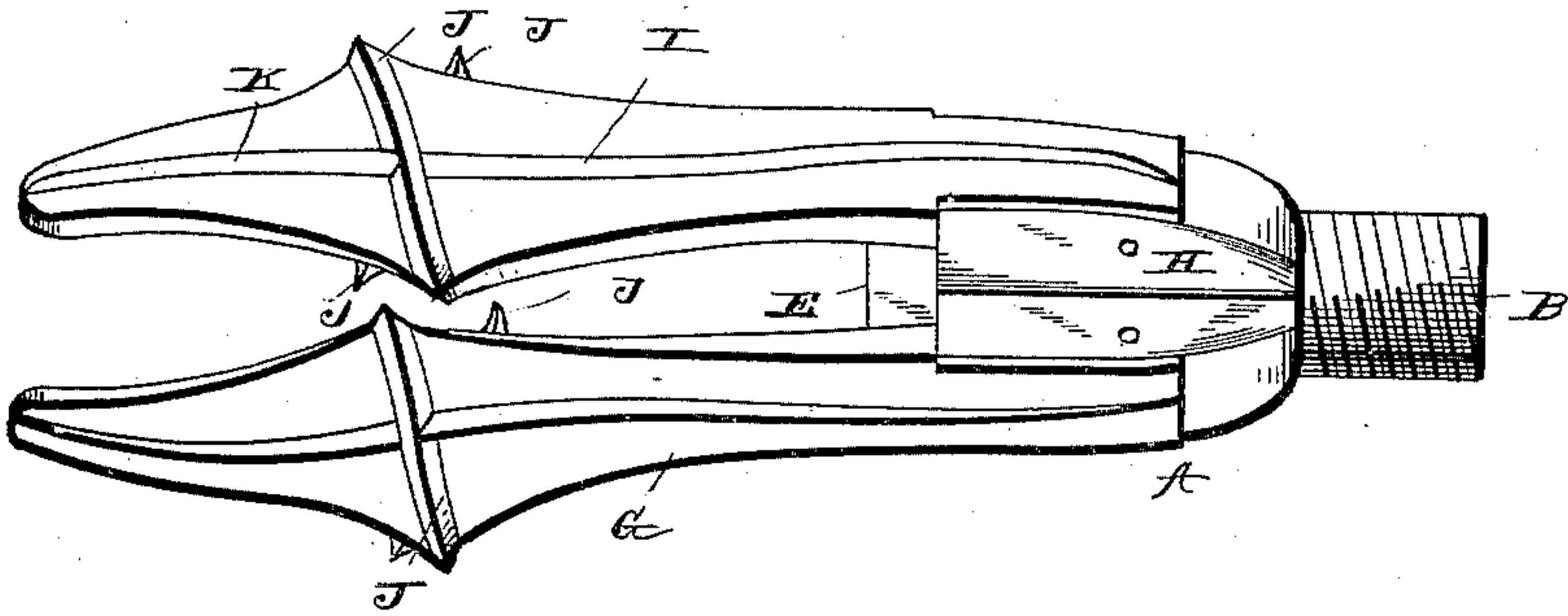


Fig 2

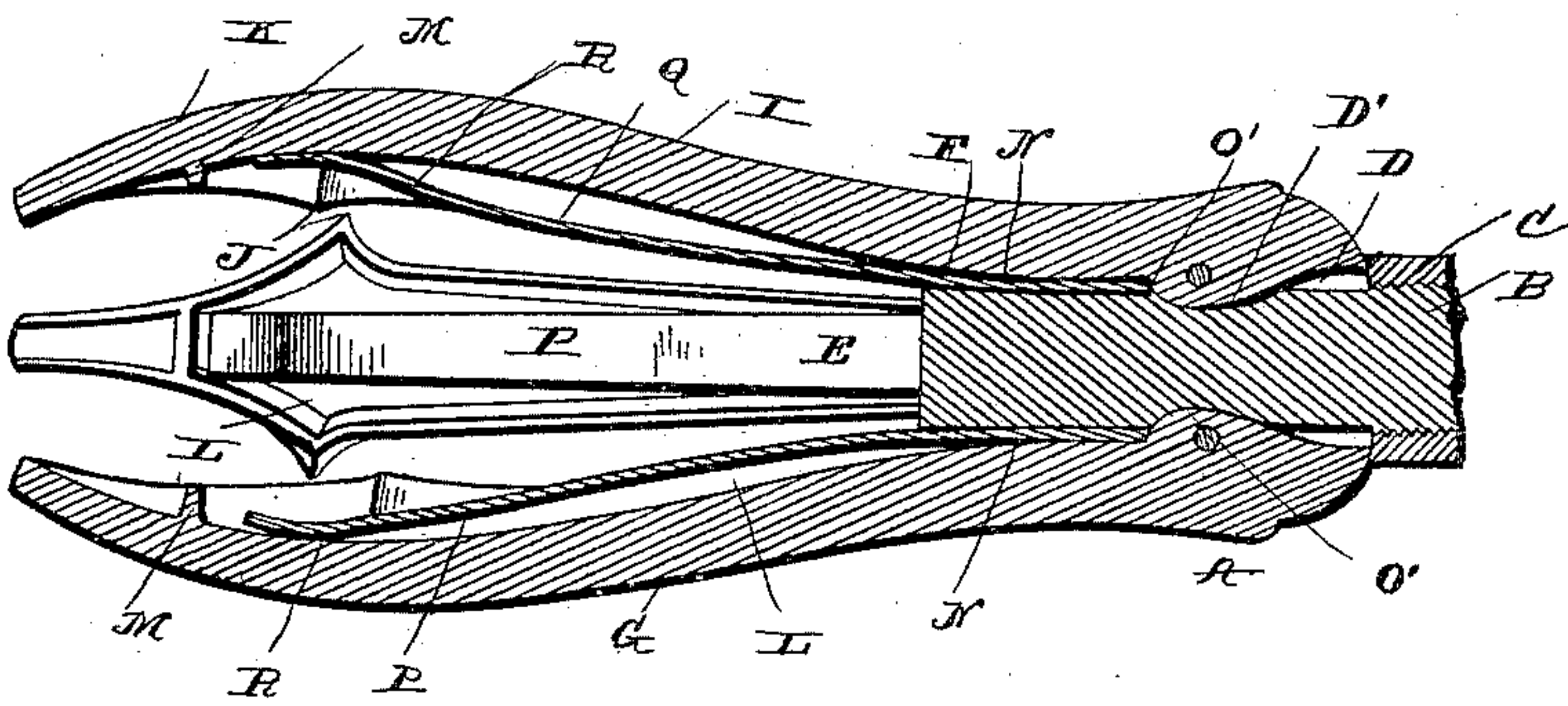


Fig 3

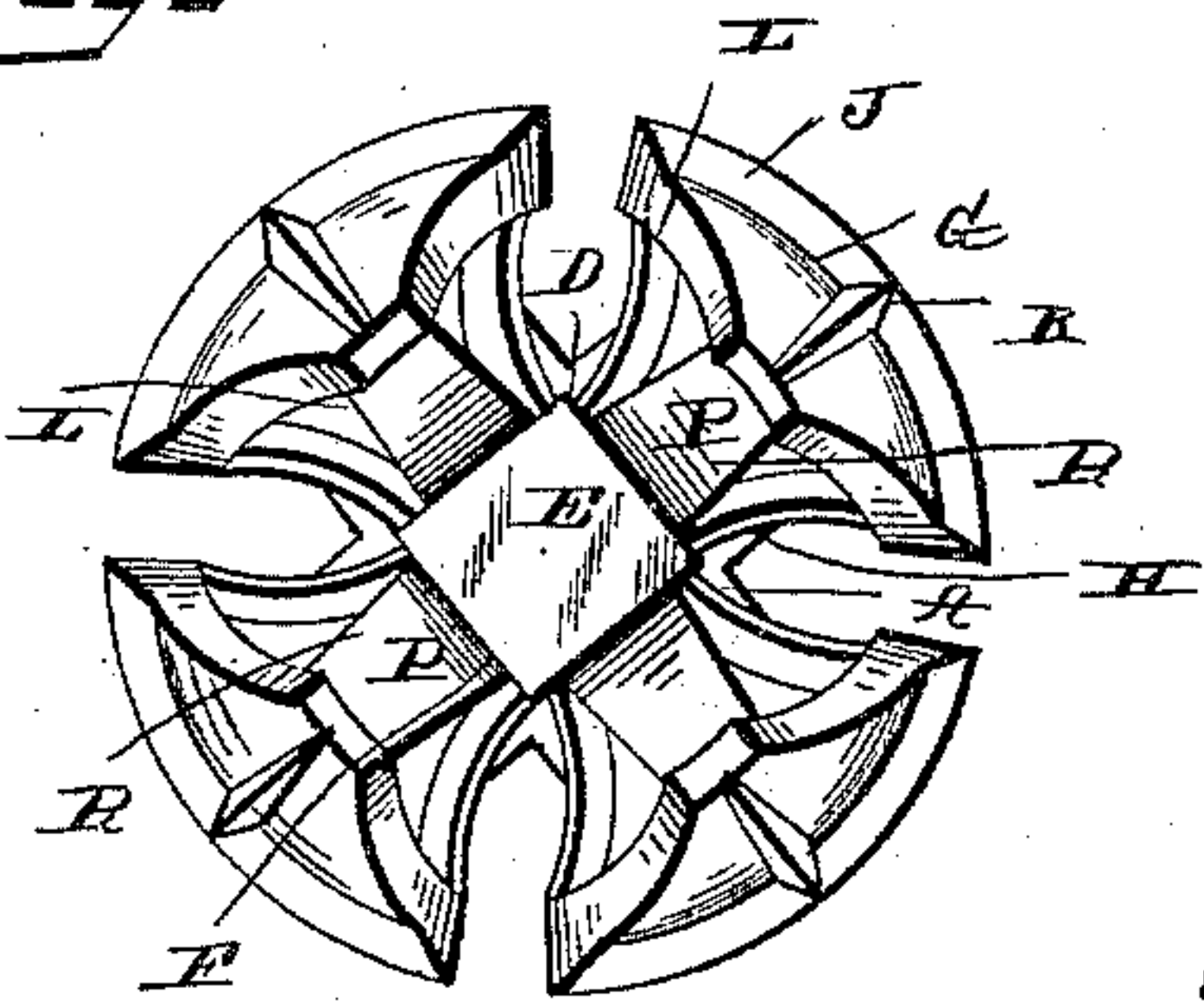


Fig 4

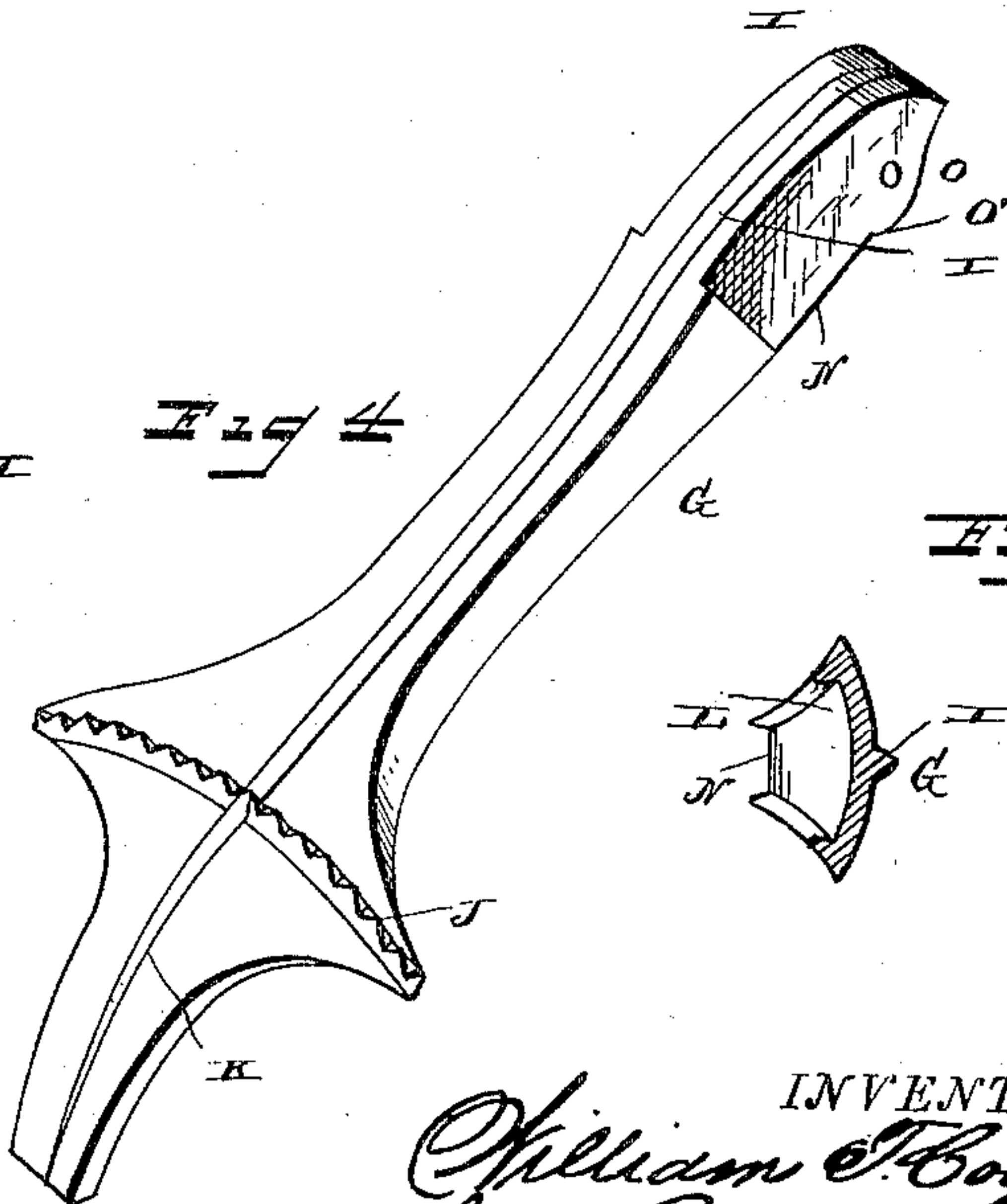
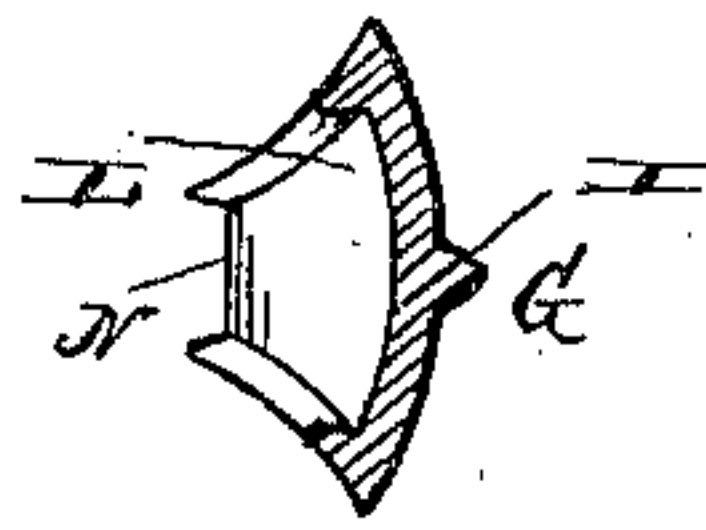


Fig 5



WITNESSES

F. L. Ourand
Benj. G. Cowl.

INVENTOR

William T. Coggeshall,
by Lewis C. Rogers
Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM THOMAS COGGESHALL, OF MELROSE, MASSACHUSETTS.

BOILER-FLUE SCRAPER.

SPECIFICATION forming part of Letters Patent No. 411,324, dated September 17, 1889.

Application filed March 16, 1888. Renewed February 23, 1889. Serial No. 300,994. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM THOMAS COGGESHALL, a citizen of the United States, and a resident of Melrose, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Boiler-Flue Scrapers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side elevation of my improved flue-cleaner. Fig. 2 is a longitudinal sectional view. Fig. 3 is an end view looking toward the head and showing the scraper-arms expanded. Fig. 4 is a detail view of a scraper-arm, showing the oblique cutting-rib serrated; and Fig. 5 is a cross-section taken through one of the scraper-arms.

Similar letters of reference denote corresponding parts in the several figures.

My invention has relation to that class of devices known as flue-cleaners; and it has for its object to construct a so-called "flue-cleaner" in such a manner, and provide the scraper-arms of the same with curved springs, whereby the said arms are rendered expandible.

It has further for its object to secure the springs removably and in such a manner that bolts, rivets, and similar fastening devices are dispensed with, which tend to weaken the spring and make the device so constructed more expensive.

To this end my invention consists in the improved construction and combination of parts of the same, as will be hereinafter more fully set forth.

In the accompanying drawings, the letter A denotes the head of the cleaner, which is formed at one end with a screw-threaded extension B, by means of which it is attached to the handle C, while its body portion is formed with longitudinal recesses D at equal distances apart, the rear of which is formed with curved depressions D'. The end E of the head opposite to that to which the handle is secured is formed with square bearings F on a line with the scraper-arms.

G indicates the scraper-arms, pivoted at

their rear ends between the walls H, formed by the longitudinal recesses of the head. The outer portion of each of these arms is formed with a strengthening-rib I, an oblique cutting-rib J, and a short longitudinal rib K in front of the oblique rib, permitting an easy entrance of the oblique rib and preventing the otherwise irremediable resistance in entering the boiler-tubes of this last, which is thereby enabled to enter the flue and accomplish the scraping of the sediment from the entire surface of the interior portion of the boiler-flue, while the under side of each arm is formed with a longitudinal groove or recess L, a stop M in said groove near the point of the same, a flat bearing portion N near its opposite end coinciding with the flat bearing of the head, and further formed with a curved enlargement O, the forward end of which forms a shoulder or stop O' for the rear end of a spring to bear against, while the curved portion of this enlargement, which is provided with a transverse aperture through which the pivot-pin passes, plays vertically in the curved depression of the longitudinal recesses of the head and greatly strengthens the end of the arm through which the pivot-pin passes.

P denotes the spring hereinbefore mentioned, which consists of a tapering strip of steel of stiff tension formed with a long curve Q, and the short curve R, which curves in a different direction to that of the long-curved portion. One of each of these springs is interposed in each of the longitudinal recesses D between the walls thereof and the flat bearing F of the head and of the flat bearing N of the scraper-arm and fits in the longitudinal groove of the scraper-arm and extends forward nearly to the stop M when the arms are expanded and impinges with its end upon this stop when the arms are contracted or brought together, thus preventing the spring from slipping out of the longitudinal groove.

It will be seen that when the scraper-arms are compressed by inserting them in the flues of a boiler the construction of the bearings hereinbefore described and the tapering construction of the springs will cause the tension of the springs to be equally distributed throughout their entire length, which is at all times desired, inasmuch as the flue-cleaners

formed without these bearings and these springs are objectionable in that the springs employed are liable to snap or break or loose their tension at that end or place where the
5 tension is exerted.

As far as I am aware the tension of the springs employed in this class of devices has never been equally distributed throughout the entire body of the spring in consequence
10 of such gradually-tapering shape, nor has the spring been removably secured in this manner; hence the object of my invention will be readily seen.

In operation the pointed end of the cleaner
15 is inserted into the end of the flue to be cleaned. The cleaner is slid back and forth or twisted around until the sediment or incrustation has been entirely removed from the flue.

20 A further description of the operation of this device is not deemed necessary, as it is operated in the same manner as the ordinary flue-cleaners now in general use.

If desired, the oblique cutting-ribs may be
25 serrated in the manner shown in Fig. 4 of the drawings, which construction I may prefer to adopt. The ribs when thus formed will cut deeper into the incrustation and more thoroughly clean the flues from solid incrustation
30 or scales formed therein.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, with the head formed

with longitudinal recesses and flat bearings, 35
with scraper-arms pivoted to said head and formed with similar flat bearings, of springs bent to form a short and a long curve, the shorter curve of which is secured between
40 the bearings of the head and the bearings of the scraper-arms, while the longer curve bears against the under side of the said scraper-arms.

2. The combination, with the head formed with the longitudinal recesses, which form 45
walls, and with the flat bearings between said walls, of the scraper-arms pivoted between said walls and formed on their sides near their pivoted ends with similar bearings, and along
50 their under sides with longitudinal grooves and stops, and the tapering springs formed with a long and a short curve and secured with their short curved ends between the walls and the flat bearings of the head and the flat bearings of the scraper-arms and ex- 55
tending with its longer curved ends in the longitudinal grooves of the scraper-arms, substantially as and for the purpose herein set forth.

In testimony that I claim the foregoing as 60
my own I have hereunto affixed my signature in presence of two witnesses.

WILLIAM THOMAS COGGESHALL.

Witnesses:

A. C. STEARNS,
RALPH F. COGGESHALL.