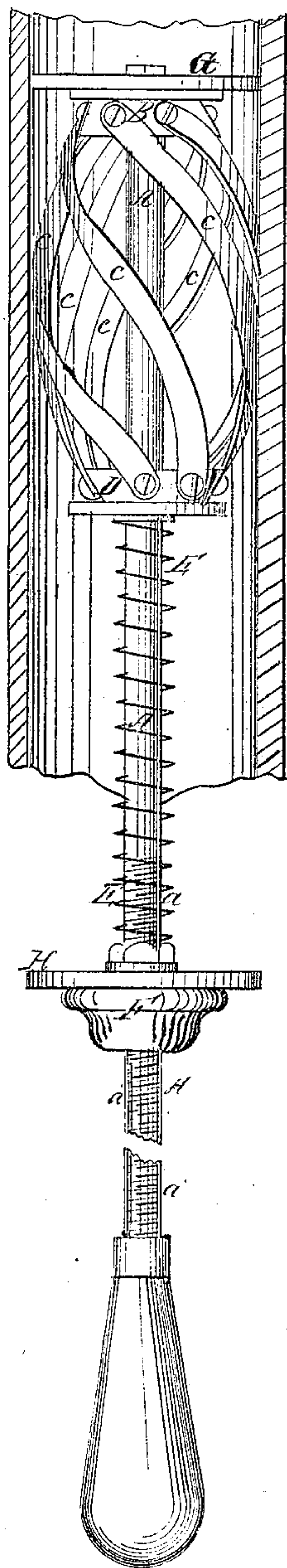


J. B. Christoffel,
Steam-Boiler Cleaner.
N^o 62,816. Patented Mar. 12, 1867.



Witnesses:
Theo. Tusch
J. A. Service.

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United States Patent Office.

JOHN B. CHRISTOFFEL, OF NEW YORK, N. Y.

Letters Patent No. 62,816, dated March 12, 1867.

IMPROVEMENT IN BOILER-TUBE CLEANERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN B. CHRISTOFFEL, of the city, county, and State of New York, have invented a new and improved "Apparatus for Cleaning Boiler and other Tubes;" and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

The figure is a side view of my improved boiler-tube cleaner, and showing in red lines a section of tube.

My invention has for its object to furnish an improved instrument for cleaning and removing the scale from the interior surface of boiler and other tubes which shall be simple in construction, easily and conveniently operated, and effectual in its operation; and it consists in the combination of a series of spiral scrapers, with the movable and stationary heads, and with a guide and draught-rod; in the combination of one or more elastic or flexible scrapers with the said rod; and in the combination of a coiled spring, or equivalent, and adjusting nut with the rod and movable head, the whole being constructed and arranged as hereinafter more fully described.

A is the rod to which the other parts of the apparatus are attached, and which may be of any desired length. In situations in which it is convenient to use such a rod it may be made long enough to reach through the tube; or it may be made shorter, and drawn through the tube by a cord or rope attached to its end. B is a stationary head, secured to the rod A, at or near its rear end, and to which the rear ends of the spiral scrapers C are secured. D is a head, moving freely in any direction upon the rod A, and to which the forward ends of the scrapers C are secured. The scrapers C, are set spirally, and are secured to the heads B and D by screws, or by bolts and nuts, so that, should they or any of them become worn or broken, they may readily be removed and replaced with new ones. The scrapers C I prefer to make of soft or unhardened steel or iron, as wearing the tubes less; or they may be made of any other suitable metal. By this construction the scrapers are enabled to adjust themselves to tubes of any size, so as always to press against their interior surfaces. E is a coiled spring placed around the rod A in front of the movable head D, the rear end of which rests against or may be attached to the said movable head, and its forward end rests against the nut F, which can be moved back and forth upon a screw-thread, *a'*, cut upon the rod A, so that the pressure of the spring E upon the movable head D may be adjusted at pleasure, and through it the pressure of the scrapers C against the interior surface of the tube being cleaned. G is an elastic or flexible scraper, made of leather, rubber, or some similar material, and attached to the rear end of the rod A, for the purpose of removing from the tube the scale and dust loosened by the action of the scrapers C. If desired, a similar elastic or flexible scraper, H, may be attached to the forward part of the rod A, to remove the loose dirt in front of the scrapers C, so as to leave them free to act upon the scale and dirt adhering to the tube.

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

1. An improved tube cleaner, formed by the combination of the series of spiral scrapers C, the stationary head B, and the movable head D, with each other, and with the rod A, substantially as herein shown and described.

2. The combination of one or more elastic or flexible scrapers G with the rod A, substantially as herein shown and described, and for the purpose set forth.

3. The combination of the coiled spring E, or equivalent, and adjusting nut F with the rod A and movable head D, substantially as herein shown and described, and for the purpose set forth.

J. B. CHRISTOFFEL.

Witnesses:

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