

J. B. CHRISTOFFEL.
Boiler Tube Scrapers.

No. 137,826.

Patented April 15, 1873.

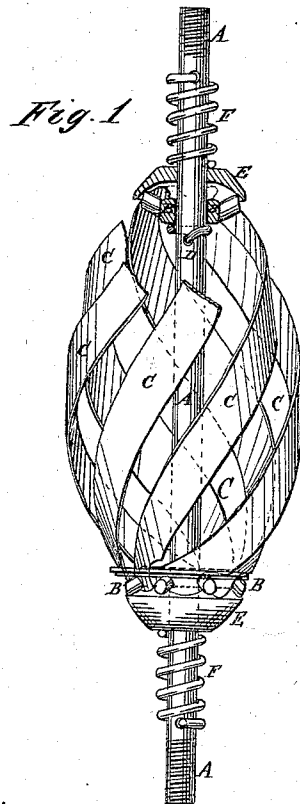
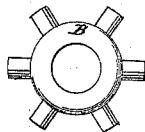


Fig. 2



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN B. CHRISTOFFEL, OF WILLIAMSBURG, NEW YORK.

IMPROVEMENT IN BOILER-TUBE SCRAPERS.

Specification forming part of Letters Patent No. **137,826**, dated April 15, 1873; application filed February 15, 1873.

To all whom it may concern:

Be it known that I, JOHN B. CHRISTOFFEL, of Williamsburg, in the county of Kings and State of New York, have invented a new and useful Improvement in Boiler-Tube Scraper, of which the following is a specification:

Figure 1 is a side view of my improved scraper, part being broken away to show the construction. Fig. 2 is a detail view of the collar and pins for holding the ends of the steel blades.

Similar letters of reference indicate corresponding parts.

My invention has for its object to improve the construction of my boiler-tube scraper for which Letters Patent No. 62,816 were granted to me March 12, 1867, so as to make it more convenient in use, more effective in operation, and less expensive in manufacture. The invention consists in the loose collars provided with radial pins, in combination with the rod, the spiral blades, and the coiled springs, and in the combination of stops with the rod and inner sides of the loose collars, as hereinafter fully described.

A is a rod, upon which are placed two movable collars, B, at suitable distances apart. Upon the collars B are formed or to them are attached as many radial pins as there are designed to be blades C in the scraper. The blades C are made of light spring-steel, are arranged spirally, and have holes in their ends to receive the pins of the collars B. The side edges of the blades C may be notched to prevent them from coming in contact with the adjacent pins. The ends of the blades C may be further secured in place upon the pins of

the collars B by small wires passed around said ends, as shown in Fig. 1. To the rod A, at the inner sides of the collars B, are secured stops D, to prevent said collars from moving toward each other while allowing them to move outward freely. The stops D may be wires passed through the rod A, as shown in Fig. 1, or they may be collars attached to or shoulders formed upon said rod. Upon the rod A, at the outer sides of the collars B, are placed washers E, against which rest the inner ends of the springs F, which are coiled around said rod, as shown in Fig. 1. The outer ends of the coiled springs F are supported by being passed through the said rod A, or by nuts screwed upon it.

This construction enables the scraper to adjust itself to the size of the tube to be operated upon, and adapts it to be used either end forward, as may be desired.

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

1. The springs C, notched and combined with the radial pins and movable collars, as described, to hold said springs firmly to rod A, but allow them to readily contract and expand thereon.

2. The combination, with springs C secured as set forth, of the inner stops D, the outside washers E, and the springs F, arranged and applied as set forth.

JOHN B. CHRISTOFFEL.

Witnesses:

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