

J. WILLIAMS.  
Tube-Cleaner.

No. 168,072.

Patented Sept. 21, 1875.

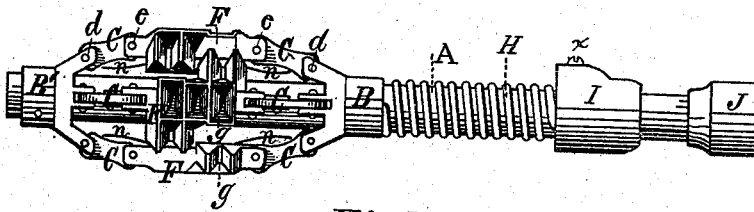


Fig. 1.

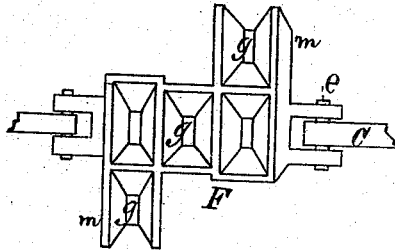


Fig. 2.

Witnesses:  
H. E. Metcalf,  
Level Sham,

Inventor:  
John Williams,  
Per C. A. Shaw,  
Atty.

# UNITED STATES PATENT OFFICE.

JOHN WILLIAMS, OF CANTON, MASSACHUSETTS.

## IMPROVEMENT IN TUBE-CLEANERS.

Specification forming part of Letters Patent No. 168,072, dated September 21, 1875; application filed May 28, 1875.

*To all whom it may concern:*

Be it known that I, JOHN WILLIAMS, of Canton, in the county of Norfolk, State of Massachusetts, have invented a certain new and useful Improvement in Tube-Cleaners, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which my invention appertains to make and use the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view, and Fig. 2 a sectional view.

Like letters of reference indicate corresponding parts in the different figures of the drawing.

My invention relates to means for automatically adapting the cleaner to tubes of different sizes, and compensating for the wear of the same; and consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a very simple, cheap, and more effective device of this character is produced than is now in ordinary use.

It is well known that in the employment of ordinary tube-cleaners much difficulty is experienced in readily adjusting them to tubes of different sizes, and also from the wear of the cleaner.

My improvement is designed to obviate these difficulties and objections; and to that end I make use of instrumentalities the nature and operation of which will be readily understood by all conversant with such matters from the following description.

In the drawing, A is the body or staff of the cleaner, which is provided at one end with the quadrifurcated head-stock B, and at the other with the handle-socket J. An adjustable collet, I, is secured to the staff A, by the set-screw *x*, near the socket J, and fitted to slide freely on said staff there is a stock, B, corresponding with the stock B', and having its arms inclined toward the same. Four cleansing-plates, F, composed of a series of cells, *g g g*, arranged as shown in Fig. 2, are disposed around the shaft A, and jointed at *e*

*d* to the stocks B B' by means of links C. Between the stock B and collet I there is a coiled spring, H, arranged around the body A, and which acts expansively to force the sliding stock B constantly in the direction of the fixed stock B'. Attached to the inner surfaces of the plates F are guard-plates *n n*, which extend slightly beyond the plates F, and are bent outwardly against the inner edges of the links C, as shown in Fig. 1. These plates prevent the spring H from forcing the plates F outwardly to an undue extent when the cleaner is not in use. The cleansing-plates are provided, as shown in Fig. 2, with the projections *m m*, so arranged that when the plates are in position in the cleaner, as shown in Fig. 1, they intersect to break up the direct channels, which would otherwise be formed between them on a line with the staff A, and which would tend to permit the passage of soot, and thus cause the cleaner to act imperfectly.

In the use of my improvement a handle is inserted in the socket J, and the head-stock B' pushed into the tube. As the cleaner advances the plates F are brought into contact with the tube and forced inwardly, thus causing the stock B to slide along the staff A toward the collet I and compress the spring H, which, by its expansive action, causes the plates to be constantly forced outward, and kept in contact with the tube, in a manner which will be readily apparent without a more detailed explanation.

Having thus explained my improvement, what I claim is—

1. The improved tube-cleaner described, consisting of the staff A, collet I, spring H, stocks B B', plates F, and links C, combined to operate substantially as and for the purpose set forth.

2. In a tube-cleaner, substantially such as described, the plate F, provided with the plate *n n*, substantially as and for the purpose set forth and specified.

JOHN WILLIAMS.

Witnesses:

H. E. METCALF,  
GEO. F. FIELD.