W. G. WILLIAMS.
Flue-Cleaner.

No. 227,398. Patented May 11, 1880.

FIG. 1.

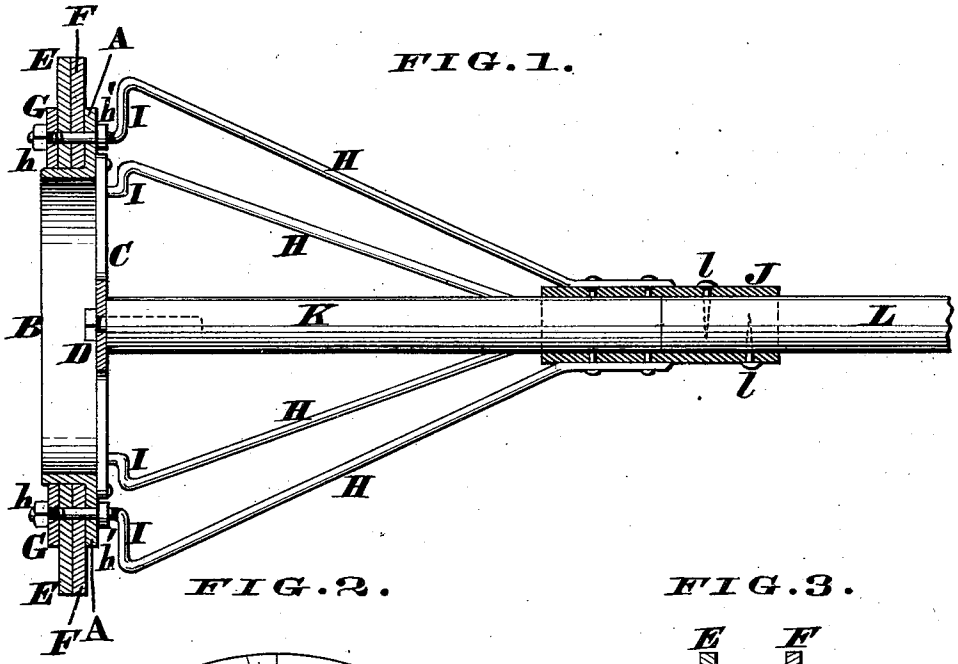


FIG. 2.

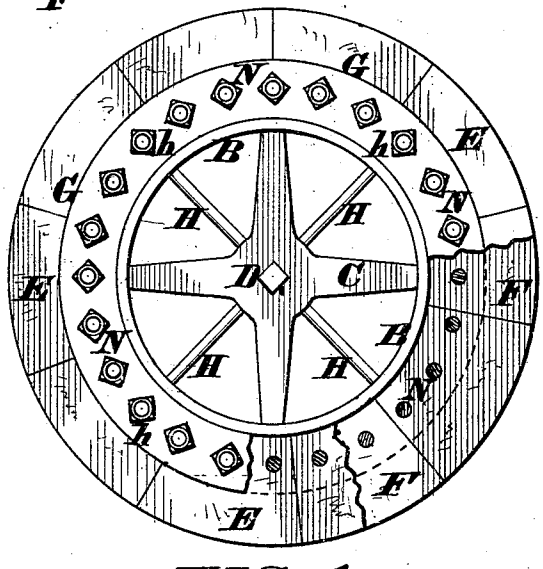


FIG. 3.

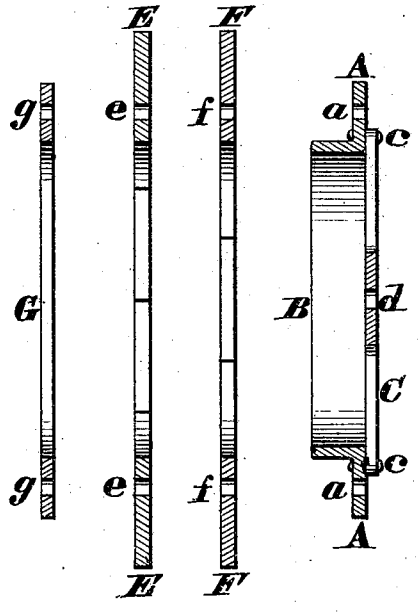
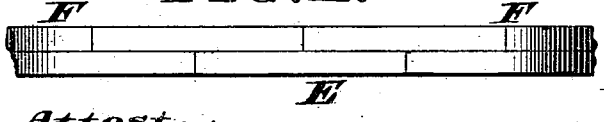


FIG. 4.



Attest:
John W. Layman
James Powell

Inventor.
William G. Williams
by James H. Layman
his Attorney.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM G. WILLIAMS, OF CINCINNATI, OHIO.

FLUE-CLEANER.

SPECIFICATION forming part of Letters Patent No. 227,398, dated May 11, 1880.

Application filed February 16, 1880.

To all whom it may concern:

Be it known that I, WILLIAM G. WILLIAMS, of Cincinnati, Hamilton county, Ohio, have invented certain new and useful Improvements in Flue-Cleaners, of which the following is a specification.

This invention relates to those devices which employ wipers or rubbers of gum-elastic or leather or other flexible material for sweeping dust, soot, &c., from the flues of steam-boilers; and the first part of my improvements consists in making such wipers of two or more separate and distinct sets of annular segments placed in direct contact with each other, the segments of one set being arranged to "break joints" with the segments of the other set, as hereinafter more fully described.

The second part of my invention comprises a novel combination of cap, braces, nuts, bolts, and spider wherewith to clamp these segmental wipers to the annular head and to attach the latter to the handle of the implement, as hereinafter more fully described, and pointed out in the claims.

In the annexed drawings, Figure 1 is an axial section of my improved flue-cleaner. Fig. 2 is a front elevation of the same, a portion of the cap and some of the outer segments being broken away. Fig. 3 is an axial section of the component members of the head detached from each other, and Fig. 4 is an enlarged plan of a portion of the flexible segments.

A represents a ring having a circular flange, B, around which latter are disposed the elastic wipers or cleaners, as will presently appear. This ring has a series of perforations, *a*, to admit the screw-threaded ends of the braces H, and also to receive the bolts or screws N, that clamp the head together, the rear side of said ring having fastened to it at *c* a spider, C, the center of the latter being pierced at *d* for the reception of a bolt or screw, D, that unites the head to the handle or shaft K.

E represents the outer set of annular segments, which are pierced at *e* to receive the braces H and bolts N. F represents the inner set or series of annular segments, which latter have holes *f* for the same purpose as the ones *e*. These segments constitute the rubbers or wipers proper of the cleaner, and are arranged to break joints, as more clearly shown in Fig. 4. Of these flexible annular segments two or more sets may be applied to the head, according to the use the brush is intended for. The outer member of said head is a ring-cap, G, pierced at *g* to admit the braces and bolts.

H represents the brace-rods, whose horizontal treminations pass through the holes *a e f g* and have nuts *h* engaged with their screw-threaded ends, as seen in Figs. 1 and 2. Furthermore, these rods are bent outwardly at I to serve as stops and guides, washers or nuts *h'* being interposed between said stops and the back of ring A. The opposite or unthreaded ends of these braces may be secured directly to the handle K; but they are preferably united to a coupling, J, which latter receives said handle and the pole L, nails or screws *l* being employed for securing the pole in position. N are bolts that coact with nuts *h* in clamping the cap G to the ring A.

My implement is used in the customary way, the flexibility of the segments causing them to fit snugly within the boiler-flues or other passages that require cleaning, and in case a rivet-head should happen to come exactly in line with the parting of either of the wipers E it is evident said rivet would be opposed by the middle portion of the other rubber, F, or vice versa. Consequently one set of segments serves to preserve the proper flexibility of the other set or sets of segments, and therefore the wipers or rubbers will maintain their elasticity until they are worn down to the clamping-rings A G.

In forcing the cleaner through the flue the rubbers E F will naturally bend back, and to prevent them being sprung too far the stops I are provided to limit the deflection of the same. In addition to serving as stops for the rubbers, these portions I of the braces act as guides to confine the cleaner to a proper path within the flue, and such of said stops as happen to be at the bottom of the flue perform the functions of bearers, and thereby prevent the entire weight of the implement being thrown on the lower edges of the segments E F. These stops I may be located much nearer the ring A than is shown in the drawings.

Evidently the frame or head herein described may be used with any form of wiper, no mat-

ter whether the latter is made in segments or is a complete annulus.

Finally, it is preferred to make the members A, B, C, G, and J, and in some cases the braces H, of sheet metal, so as to combine strength and lightness; but I do not propose to limit the construction to any special material.

I claim as my invention—

1. The combination, in a flue-cleaner, of two or more distinct sets of segmental wipers or rubbers placed in direct contact with each other, arranged to break joints, substantially as herein described.

2. The combination, in a flue-cleaner, of head A B, elastic annular wiper E, cap G, and braces H, which latter have nuts *h* to clamp said cap and wiper to the head of the implement, substantially as described.

3. The combination, in a flue-cleaner, of head A B, elastic annular wiper E, cap G, braces H, nuts *h*, and bolts or screws N, substantially as herein described.

4. The combination, in a flue-cleaner, of head A B, elastic annular wiper E, cap G, braces H *h*, bolts N D, spider C, and handle K, substantially as herein described.

In testimony of which invention I hereunto set my hand.

WILLIAM G. WILLIAMS.

Witnesses:

JAMES H. LAYMAN,

J. F. TWOHIG.