

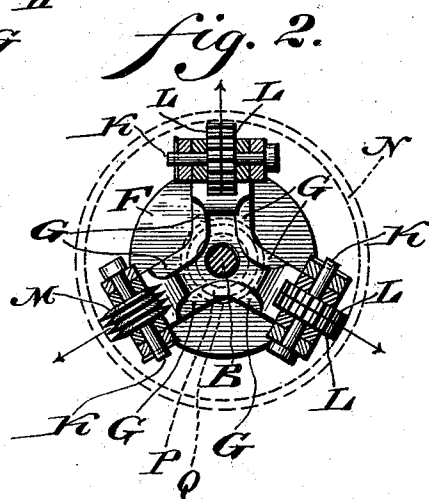
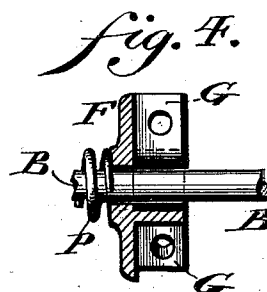
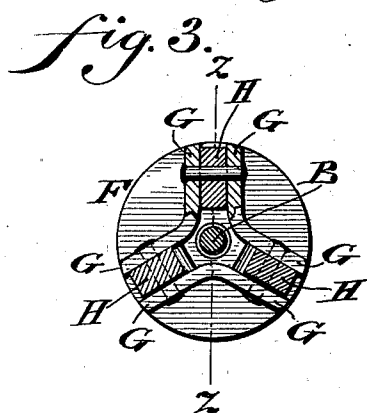
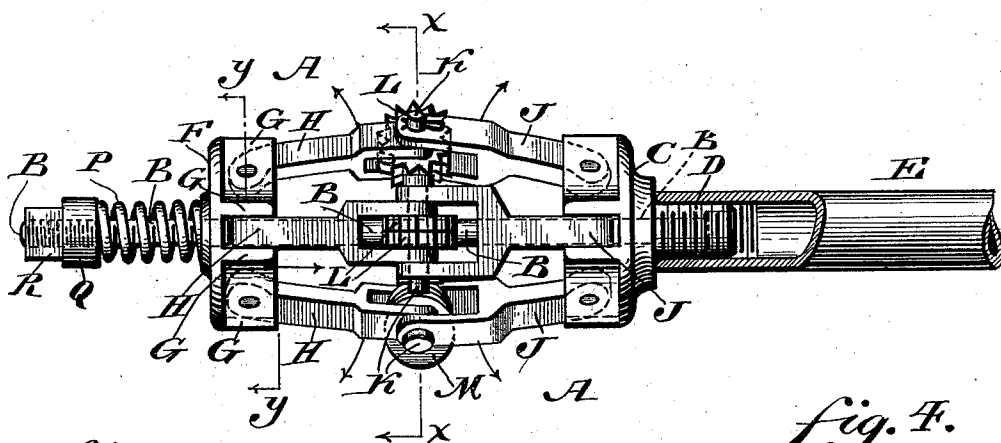
(No Model.)

E. A. BALZ.
FLUE CLEANER.

No. 560,830.

Patented May 26, 1896.

fig. 1.



Witnesses

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UNITED STATES PATENT OFFICE.

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FLUE-CLEANER.

SPECIFICATION forming part of Letters Patent No. 560,830, dated May 26, 1896.

Application filed May 11, 1895. Serial No. 548,916. (No model.)

To all whom it may concern:

Be it known that I, EMIL A. BALZ, a citizen of the United States, residing in the city, county, and State of New York, have invented a new and useful Improvement in Flue-Cleaners, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of a novel construction of flue-cleaner which can be readily adapted to fit flues or tubes of varying sizes, provision being made for quickly adjusting the operative parts of the device according to requirements and for cutting the scale in the tubes or flues in transverse and longitudinal directions therein or in directions at or about at right angles to each other.

It further consists of novel details of construction, all as will be hereinafter set forth.

Figure 1 represents a side elevation of a flue-cleaner embodying my invention. Fig. 2 represents a section on line *x x*, Fig. 1. Fig. 3 represents a section on line *y y*, Fig. 1. Fig. 4 represents a section on line *z z*, Fig. 3. Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a flue-cleaner, the same consisting of a central rod or stem B, to which is immovably attached the head C, the same having projecting therefrom a threaded stud D, to which a suitable handle E is adapted to be screwed or otherwise secured.

F designates a collar which is normally mounted upon said rod or stem B and provided with ears G, on which are pivoted one end of the toggle-arms H and J, whose ends are pivoted to the head C. On the axes or pins K of said levers are mounted the rollers L L and M, which in the present instance are three in number, it being noted that the rollers L L are serrated or grooved transversely while the roller M is serrated or grooved longitudinally, it being, of course, apparent that the number of said rollers may be increased or diminished according to requirements.

N designates a boiler tube or flue to which the cleaner is applicable, the same being shown in dotted lines in Fig. 2.

P designates a spring which is mounted

upon the forwardly-extending end of the stem B, having one end X abutting against the collar F while the other end is in contact with the nut or collar Q, which is fitted on the threaded end of the stem P, and is provided with a square portion R, whereby said nut can be readily screwed toward or away from the collar F, so as to vary the tension of the spring P, according to requirements.

The operation is as follows: When it is desired to loosen or remove the scale, sediment, &c., from a flue or tube, as N, the cleaner is placed therein, as shown in Fig. 2, and it may be reciprocated within said flue, or it may be rotated, the function of the rollers L and M being apparent, said rollers L serving to cut up the scale transversely while the roller M serves to cut it longitudinally, as is evident.

In order to adjust the rollers to the flue N or to adjust them to flues of different diameters, the nut Q is properly turned, whereby the tension of the spring P is varied, and the collar moves so that the toggle-arms will open or close, the effect of which is evident.

Should the cleaner encounter any obstacle or obstruction of unusual size within the flue or tube the spring P will yield and permit the collar to move on the stem, whereby the toggle-arms will also yield and thus relieve the rollers, whereby injury to the cleaner is prevented, as is evident.

I am aware that it has been heretofore proposed to construct a flue-cleaner of adjustable toggle-arms carrying rotatable scrapers thereupon and having a spring or other adjusting device interposed between the body of the scraper and its point of attachment to the handle. The above construction is, however, open to grave objections in practice, since the handle is unnecessarily lengthened and weakened by the interposition of the spring between it and the scraper and the parts rendered less effective than in my construction, in which the handle is rigidly attached to the stationary head, from which latter extends the stem which passes through the collar at the forward extremity of the cleaner, the forward projection of said stem having a nut engaging therewith and a spring interposed between said nut and the movable

collar, whereby a device of great rigidity is attained and one which is effective under all conditions, and the length of the apparatus is also enabled to be shorter than if the adjusting device for the spring were on the same end thereof as the handle.

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

10 1. A flue-cleaner consisting of a stationary head C, a handle rigidly attached thereto, a central stem B, projecting forwardly from said head, a sliding collar F movable on the front end of said stem, the latter having an extension forward of said sliding collar, the adjusting-nut Q on said extension, the toggle-arms H and J mounted upon said head and collar, and pivotally attached to each other, cutting-rollers journaled on the axes of said toggle-levers, and the spring P, interposed between said adjusting-nut and sliding collar, said extension and handle being on opposite ends of the device, substantially as described.

25 2. In a flue-cleaner, a head, a handle attached directly thereto, a stem projecting forwardly from said head, a sliding collar

mounted on an extension of said stem opposite to said handle, an adjusting-nut, and a spring interposed between said nut and collar, in combination with toggle-arms mounted on said head and collar, and pivotally attached to each other, and cutting-rollers having longitudinal and transverse grooves therein journaled on the axes of said toggle-arms, substantially as described.

35 3. In a flue-cleaner, a head, a handle attached to the latter, a stem projecting forwardly from said head, a sliding collar mounted on said stem, and means for adjusting the position of said collar relative to said head, in combination with toggle-arms mounted on said head and collar, and pivotally attached to each other, and having cutting-rollers provided with longitudinal and transverse grooves therein journaled on the axes of said arms, the above parts being combined substantially as described.

EMIL A. BALZ.

Witnesses:

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WILLIAM NELLINGER.