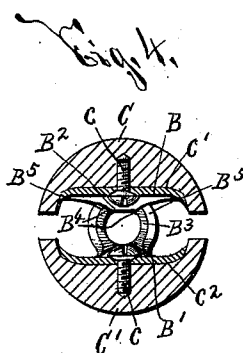
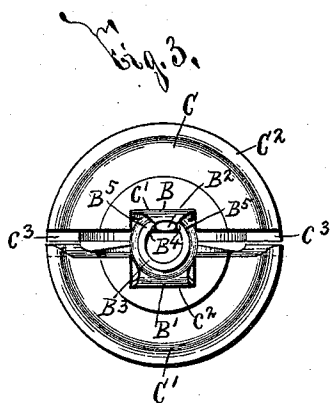
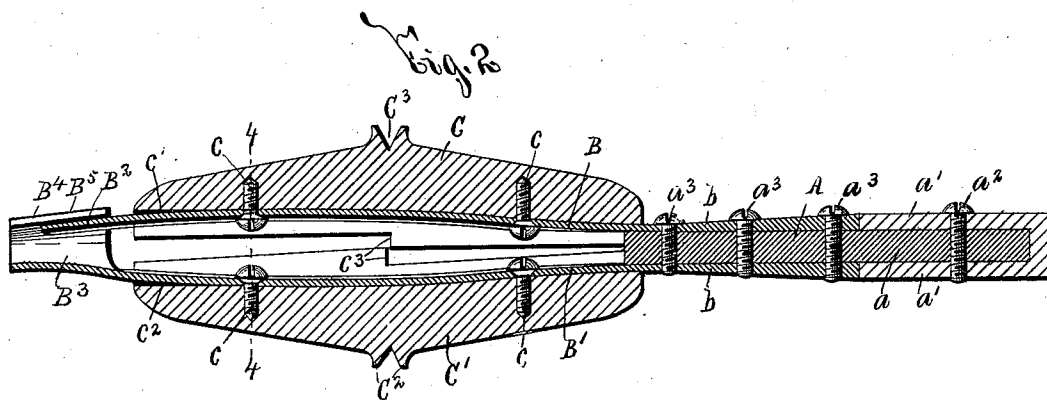
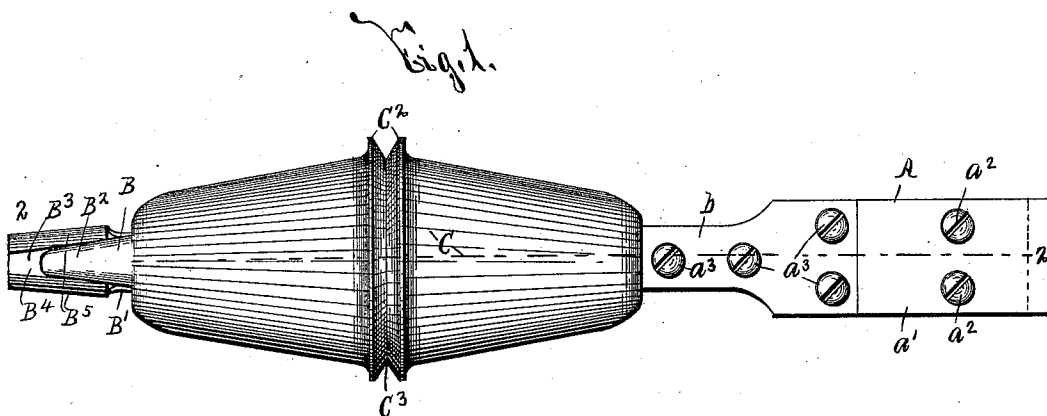


(No Model.)

P. FITZGIBBONS.
FLUE CLEANER.

No. 530,890.

Patented Dec. 11, 1894.



WITNESSES:

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UNITED STATES PATENT OFFICE.

PATRICK FITZGIBBONS, OF OSWEGO, NEW YORK, ASSIGNOR TO THE FITZGIBBONS BOILER COMPANY, OF SAME PLACE.

FLUE-CLEANER.

SPECIFICATION forming part of Letters Patent No. 530,890, dated December 11, 1894.

Application filed July 21, 1894. Serial No. 518,178. (No model.)

To all whom it may concern:

Be it known that I, PATRICK FITZGIBBONS, of Oswego, in the county of Oswego, in the State of New York, have invented new and
5 useful Improvements in Flue-Cleaners, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in
10 flue cleaners, and has for its object the production of a simple, practical, and effective device for accomplishing the desired result, which consists of a minimum number of parts; and to this end it consists, essentially, in a
15 shank, a pair of spring sections having corresponding extremities secured to the shank and their opposite extremities independently movable, and provided with interlocking ends, and engaging cleaning sections secured
20 to the opposite extremities of the spring sections and having their outer faces formed with rounding shoulders.

It furthermore consists in the detail construction and arrangement of the component
25 parts.

In describing this invention, reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

30 Figure 1 is a top plan of my improved flue cleaner. Fig. 2 is a longitudinal vertical sectional view taken on line 2—2, Fig. 1. Fig. 3 is an end elevation of the flue cleaner; and Fig. 4 is a transverse sectional view taken on
35 line 4—4, Fig. 2.

A represents the shank herein illustrated as composed of two divisions a a' removably secured together by screws a^2 . It is evident, however, that the shank A may be of any desired form, size, and construction.
40

BB' are normally divergent spring sections of the flue cleaner having corresponding extremities b removably secured by screws a^3 to the shank A, and as clearly seen at Figs. 1 and
45 2, the ends of the extremities b bear against the corresponding faces of the shank division a . If desired the spring sections BB' may be riveted or otherwise secured to the shank A. The opposite extremities of the spring sections BB' are free and independently mov-
50

able, and are provided with ends or projections B² B³ detachably engaging each other. The projection or end B² preferably consists of a tapering spur having rounding outer edges, and the projection B³ of a socket preferably having a tapering cutout or slot B⁴ therein, and formed with yielding walls B⁵ having rounding edges. The projection B² is readily forced through the opening or slot B⁴ into the socket B³ and is free to move therein
55 as said socket is of greater width than the thickness of the projection B². When desired to remove the projection or spur B² it is readily forced outward through the opening or slot B⁴ in the socket B³ as the adjacent walls of said
60 socket are yielding and free to move. It is evident, however, that the socket B³ may be unprovided with a cutout or slot B⁴ and that the projection or spur B² may be engaged therewith longitudinally when assembling the
65 parts of the flue cleaner.

C C' are engaging sections of the flue cleaner secured, respectively, to the spring sections B B' thereof, and as clearly seen at
70 Figs. 1 and 2, these sections C C' are secured at one side of the ends B² B³, which virtually form longitudinal projections from the sections C C', although formed directly upon the parts B B'. The engaging sections C C' may be removably secured to the spring sections
75 BB' by screws c as illustrated, or they may be rigidly secured thereto, if desired. The engaging sections C C' and the spring sections B B', owing to their peculiar arrangement, are readily replaced when injured or unduly worn.
80

The adjacent faces of the engaging sections C C' of the flue cleaner are formed with recesses or grooves c' c^3 extending throughout the length of the section for receiving the springs B B' and the adjacent edges of said
85 sections are formed with shoulders c^2 detachably engaging each other. The engaging sections C C' are preferably formed of greater thickness at their central or intermediate portions and their opposite extremities are
90 more or less tapered, and, as clearly seen at Figs. 1 and 2, the central or intermediate portions of said sections are each provided exteriorly with rounding transversely extending shoulders C² separated by a groove C³.
95 100

When the flue cleaner is inserted within a flue the shoulders C^2 engage and detach any accumulation therein, and the groove C^3 receives more or less of said accumulation, and this groove also permits sharpening of the shoulders when desired. Moreover, by using two shoulders, one behind the other, the succeeding shoulder removes any portion of the accumulation not disengaged from the flue by the preceding shoulder. The spring sections $B\ B'$ operate to force the shoulders C^2 outwardly against the interior of the flue with sufficient force to remove any accumulation of ordinary hardness and thickness, and also permit the shoulders to yield inwardly when an undue accumulation is encountered. The interlocking projections $B^2\ B^3$ at the outer ends of the springs prevent the undue separation of the scraping sections $C\ C'$; and the engaging shoulders c^3 at the edges of the scraping sections assist in resisting the strain which occurs when one section strikes a scale in the longitudinal movement of the device.

A flue cleaner of this peculiar construction and arrangement is particularly practical, effective, and durable, and, as is evident, consists of a small number of parts, and is extremely compact and simple in construction.

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

1. In a flue cleaner, the combination of a shank, spring sections having corresponding extremities fixed to the shank and their opposite extremities separated and independently movable, engaging sections fixed to the spring sections and having their adjacent edges provided with lateral interlocking shoulders arranged one in advance of the other and their outer faces provided with transverse rounding engaging shoulders, a projecting socket secured to the free end of one of the engaging sections, and a projection or spur secured to the free end of the other engaging section and movable within the socket, substantially as described.

2. In a flue cleaner, the combination of a shank, spring sections having corresponding extremities removably attached to the shank, and their opposite extremities independently movable, and engaging sections fixed to the spring sections and having their outer faces provided with rounding engaging shoulders and their inner faces provided with grooves extending from end to end for receiving the adjacent portions of the spring sections and formed of substantially the same width as said portions, a projecting socket secured to the free end of one of the engaging sections, and a projection or spur secured to the free end of the other engaging section and movable within the socket, substantially as set forth.

3. In a flue cleaner, the combination of a shank, spring sections having corresponding

extremities fixed to the shank and their opposite extremities separated and independently movable, and engaging sections removably attached to the outer faces of the spring sections and extending laterally beyond the same, said engaging sections having their adjacent edges at either side of the springs provided with lateral interlocking shoulders arranged one in advance of the other and their outer faces provided with transverse rounding engaging shoulders, substantially as described.

4. In a flue cleaner, the combination of a shank, spring sections having corresponding extremities removably attached to the shank, and their opposite extremities independently movable, engaging sections fixed to the spring sections and having their adjacent edges provided with lateral interlocking shoulders arranged one in advance of the other, their outer faces provided with rounding engaging shoulders and their inner faces provided with grooves extending from end to end for receiving the adjacent portions of the spring sections and formed of substantially the same width as said portions, a projecting socket secured to the free end of one of the engaging sections, and a projection or spur secured to the free end of the other engaging section and movable within the socket, substantially as set forth.

5. In a flue cleaner, the combination of a shank, spring sections having corresponding extremities fixed to the shank and their opposite extremities separated and independently movable, and engaging sections secured to the spring sections and having their central portions formed of greater thickness than their extremities, said sections having their inner faces formed with recesses or grooves for receiving the spring sections, their adjacent edges provided with interlocking shoulders and their outer faces provided with rounding shoulders, substantially as and for the purpose set forth.

6. In a flue cleaner, the combination of a shank, spring sections having corresponding extremities removably attached to the shank and their opposite extremities independently movable, engaging sections fixed to the spring sections and having their outer faces provided with rounding engaging shoulders, a projecting socket secured to the free end of one of the engaging sections, and a projection or spur secured to the free end of the other engaging section and movable within the socket, substantially as set forth.

7. In a flue cleaner, the combination of a shank, spring sections having corresponding extremities fixed to the shank and their opposite extremities separated and independently movable, engaging sections secured to the spring sections and having their outer faces provided with rounding shoulders, a projecting split socket secured to one of the sections and formed with a yielding wall, and

a projection or spur secured to the other section and movable into and out of said socket and into and out of engagement with the yielding wall thereof, substantially as and
5 for the purpose specified.

In testimony whereof I have hereunto signed my name, in the presence of two attest-

ing witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 8th day of November, 1893.

PATRICK FITZGIBBONS.

Witnesses:

CLARK H. NORTON,
K. H. THEOBALD.