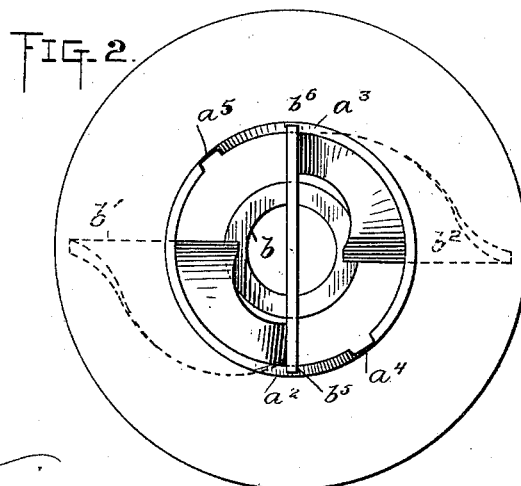
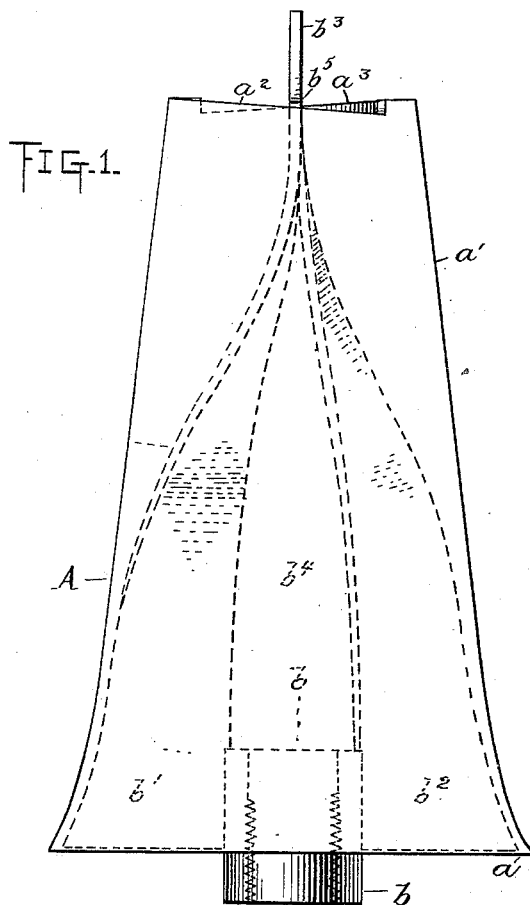


(Model.)

P. SMITH.
FLUE CLEANER.

No. 419,976.

Patented Jan. 21, 1890.



Witnesses
E. L. Galloway
Jno. Fowler

Inventor
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UNITED STATES PATENT OFFICE.

PETER SMITH, OF NEW YORK, N. Y.

FLUE-CLEANER.

SPECIFICATION forming part of Letters Patent No. 419,976, dated January 21, 1890.

Application filed May 18, 1889. Serial No. 311,331. (Model.)

To all whom it may concern:

Be it known that I, PETER SMITH, a citizen of the United States, and a resident of New York city, county and State of New York, certify that I have invented a certain new and useful Improvement in Flue-Cleaners, of which the following is a specification.

My invention relates to that class of devices designated as portable flue-cleaners, used for blowing out the soot and cleaning the flues of boilers, and has for its object the provision of a device that is cheap in manufacture, and that is also durable and efficient in practical use.

To attain the desired end my invention consists in the construction and arrangement of parts hereinafter fully described, and pointed out in the claims.

In the drawings which form a part of this specification, Figure 1 represents a side and Fig. 2 an end view of my flue-cleaner.

Similar letters refer to similar parts throughout the several views.

Referring again to the drawings, A represents a shell provided with a flaring or bell-shaped mouth *a*, the inner portion *a'* of the body of the same being made smaller in diameter so as to form a compression-chamber for the purpose hereinafter set forth. Upon the inner edge of the shell are formed two steps or cams *a²* and *a³*, between which are placed the longitudinal slots *a⁴* and *a⁵*, as is clearly shown in the drawings and accompanying model.

Within the shell A is placed an independent web *b' b²*, at the outer extremity of which is formed a pipe or hollow neck *b*, provided with a screw-thread for the purpose of connecting the same with a steam-pipe. From the neck *b* the two portions of the web *b' b²* diverge first outwardly in a side direction and are then extended in a longitudinal direction, each being spirally twisted or inclined to the axis of the shell until a quarter-turn is made, after which they are united again, as at *b³*, an empty space or slot *b⁴* thus being formed which serves to allow the steam entering the neck *b* to rapidly and freely escape. On each side of the web *b' b²* and near the inner end of the same are placed two shoulders *b⁵ b⁶*, passing through the slots *a⁴ a⁵*, after which the web *b' b²* is partially turned

around, the shoulders *b⁵ b⁶* engaging with and being gradually raised on the inclined steps or cams *a² a³* until the shell and web are rigidly clamped or locked together.

In practical use the operation of parts is as follows. The smaller end of the shell is inserted in the flue to be cleaned and a steam-pipe connected with the neck *b*. The jet of steam which is suddenly and forcibly discharged is caused by means of the inclined web *b' b²* to have a rotary or whirling motion imparted to the same, and it, together with the air drawn in by reason of the movement of the steam and the condensation of the same, is directed at a sharp angle against and along the interior walls of the flue, so that soot or other foreign substances on the inner side of the flue are easily, quickly, and thoroughly removed from the same, the compression-chamber *a'* serving to impart more force to the current.

My flue-cleaner is formed in two independent parts, in order that it may be rapidly and economically repaired in case of any accident occurring to the same; and although designed primarily for the purpose set forth, it may also be used for blowing fires to create a draft in steam-boiler or other furnaces, or for any other purpose for which it may be applicable.

As it is evident that many slight changes in the construction and relative arrangement of parts might be resorted to without departing from the spirit and scope of my invention, I would have it understood that I do not restrict myself to the particular construction and arrangement of parts shown and described, but that I reserve the right to make such changes; and that—

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a flue-cleaner, with the shell A, of the independent spirally-twisted web *b' b²*, and of locking devices whereby the shell and web are rigidly clamped together, as and for the uses and purposes set forth.

2. The combination, with the shell A, provided with flaring mouth *a* and compression-chamber *a'*, of a spirally-twisted web *b' b²*, as and for the uses and purposes set forth.

3. The combination, with the shell A, of the spirally-twisted web *b' b²*, provided with

a screw-threaded neck b and slot b^4 , as and for the uses and purposes set forth.

4. The combination, with the shell A, provided with a flaring mouth a , steps or cams
5 $a^2 a^3$, and slots $a^4 a^5$, of a web $b' b^2$, provided with a slot b^4 and shoulders $b^5 b^6$, as and for the uses and purposes set forth.

In testimony of the foregoing specification

I do hereby sign the same in the city of New York, county and State of New York, this 10 13th day of May, A. D. 1889.

PETER SMITH.

Witnesses:

JNO. FOWLER,

W. C. ADAMS.