

(No Model.)

M. G. COOK.
FLUE CLEANER.

No. 560,084.

Patented May 12, 1896.

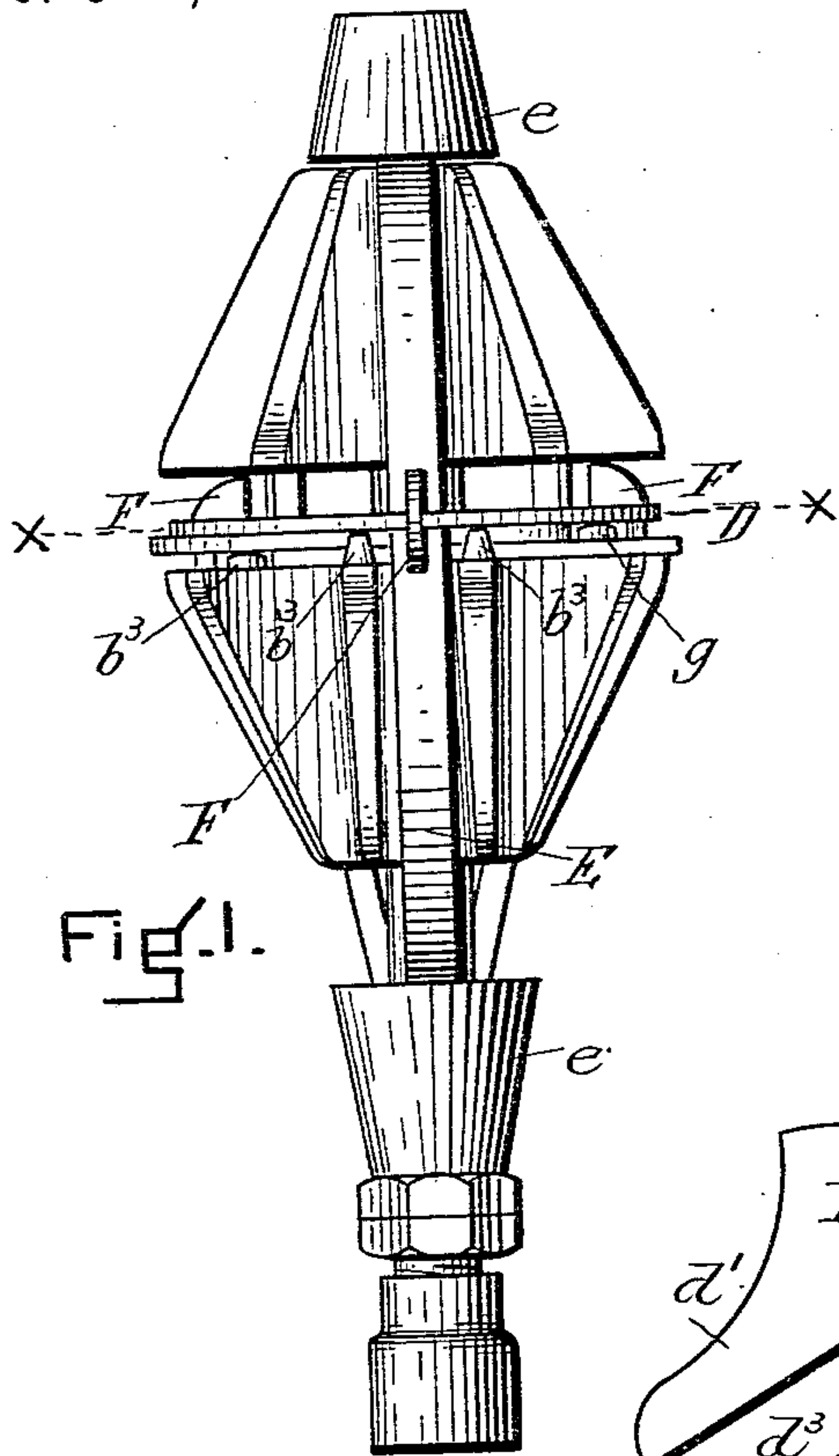


Fig. 1.

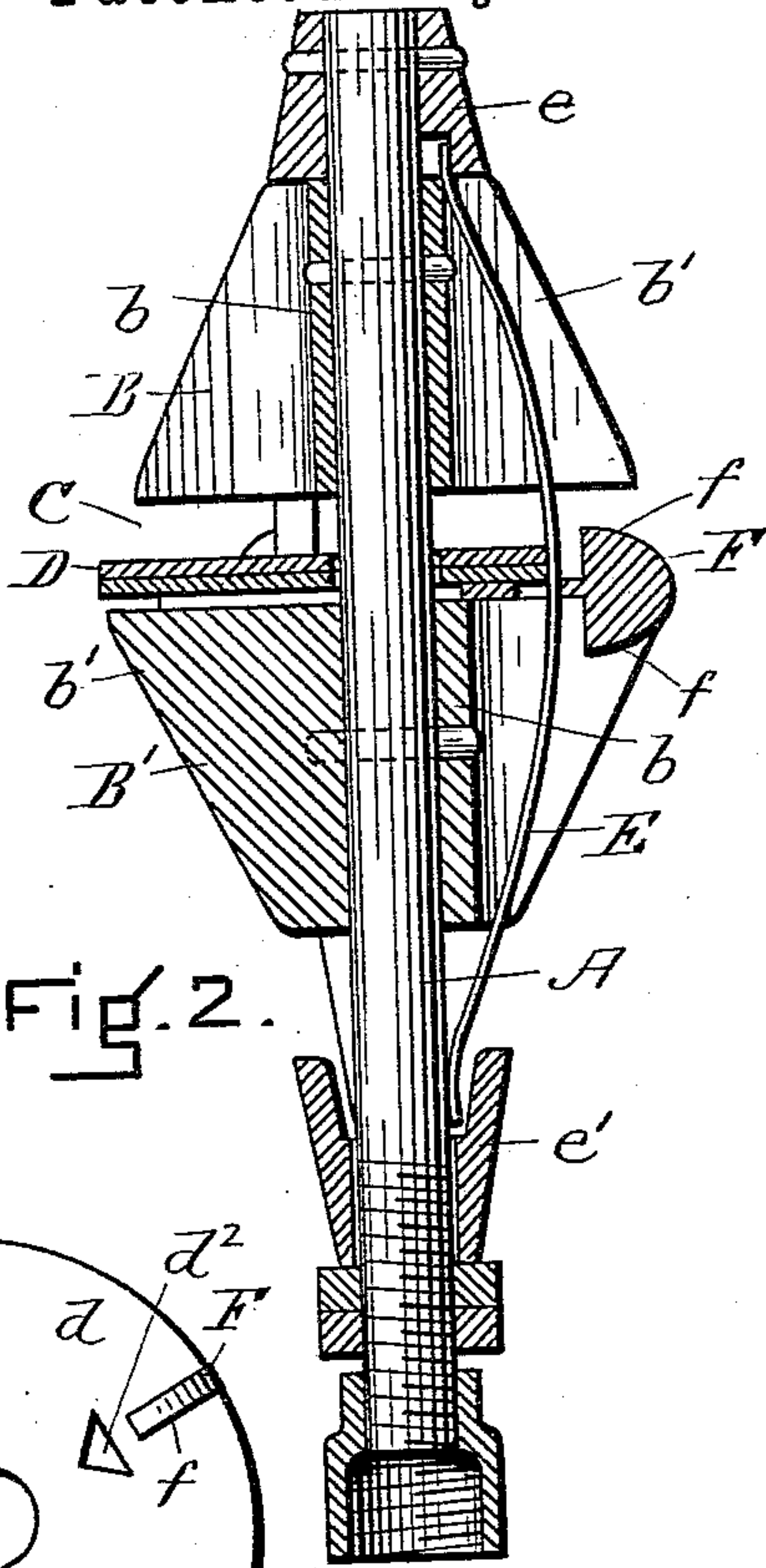


Fig. 2.

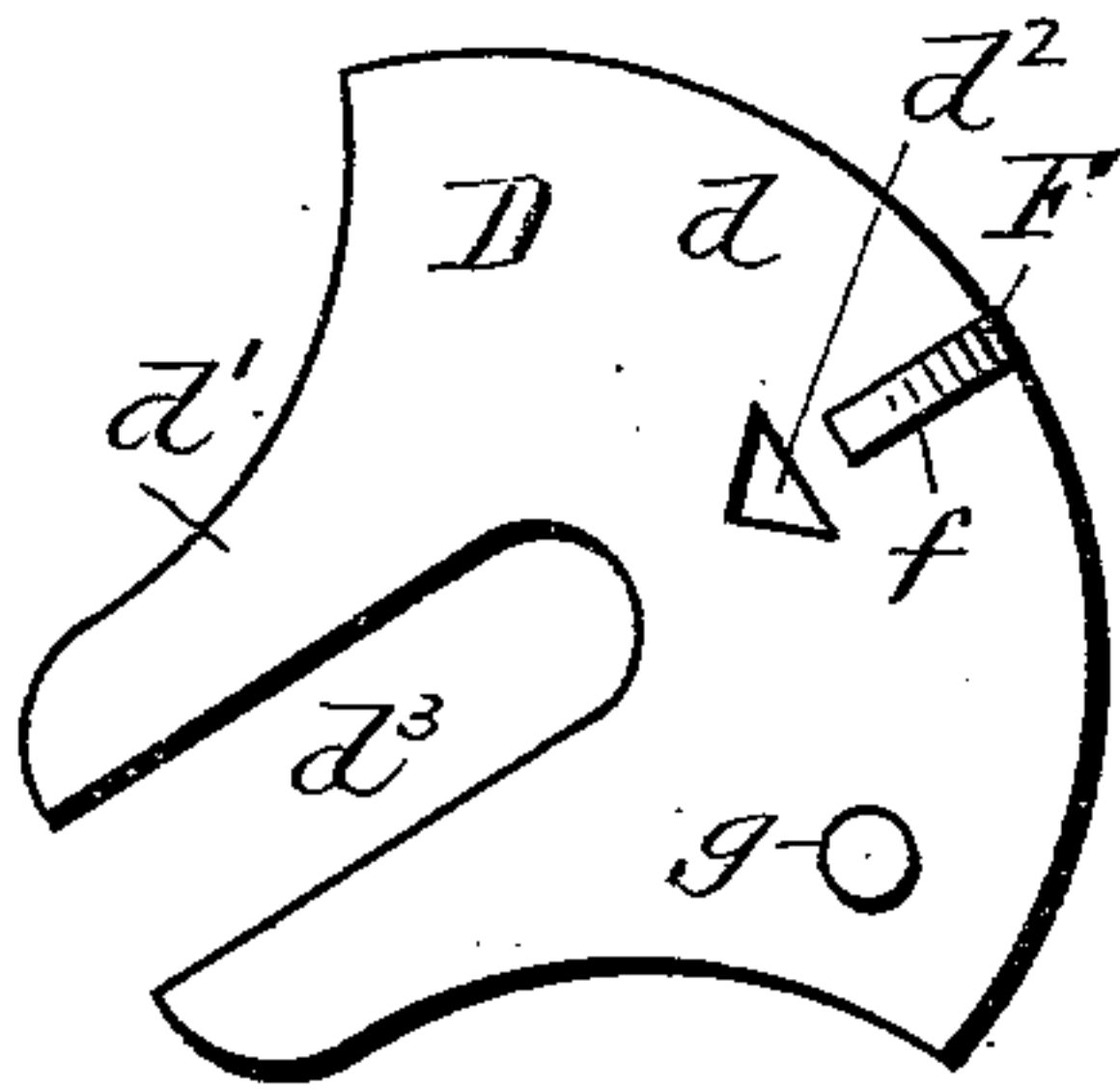


Fig. 5.

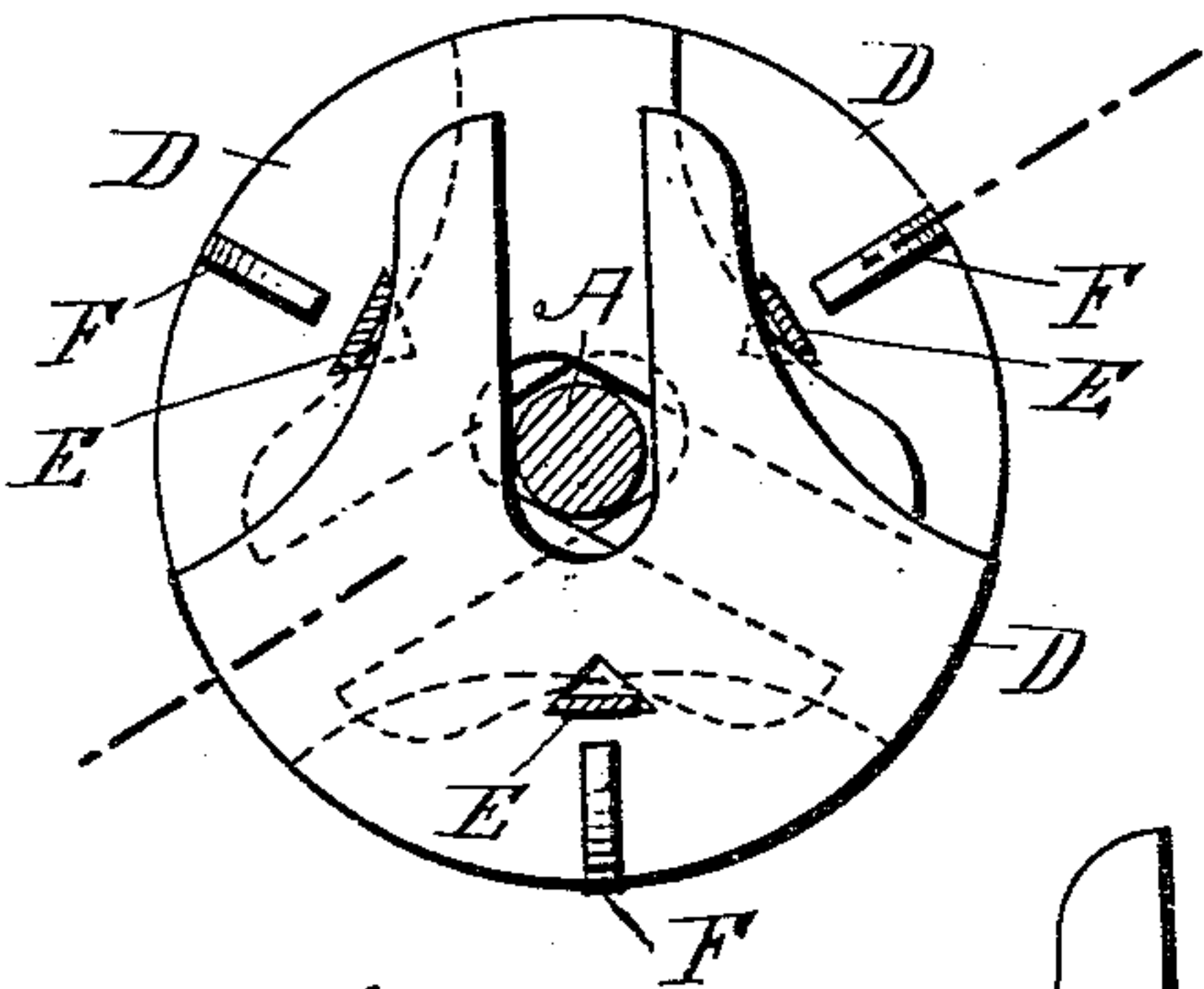


Fig. 3.

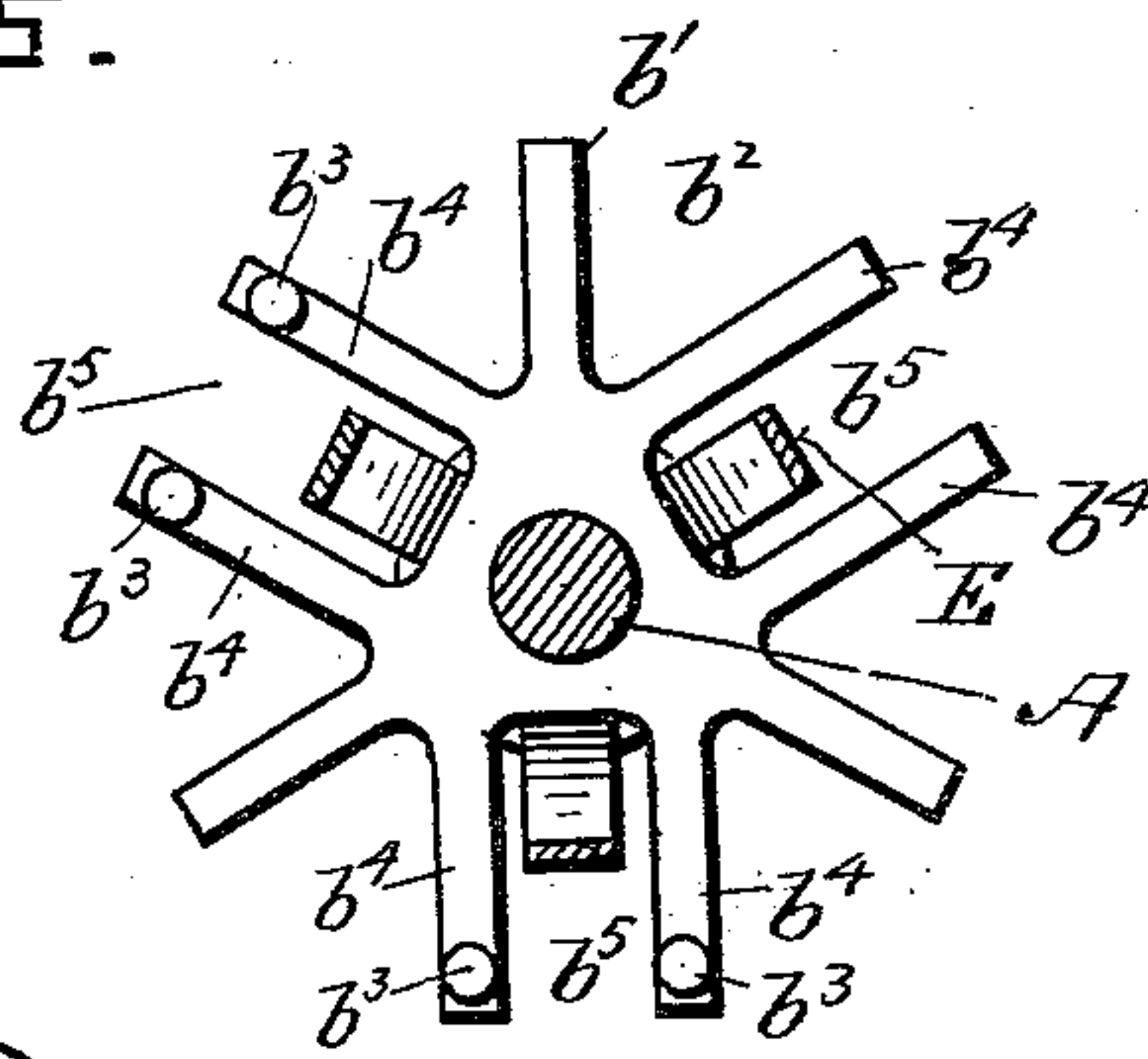


Fig. 4.

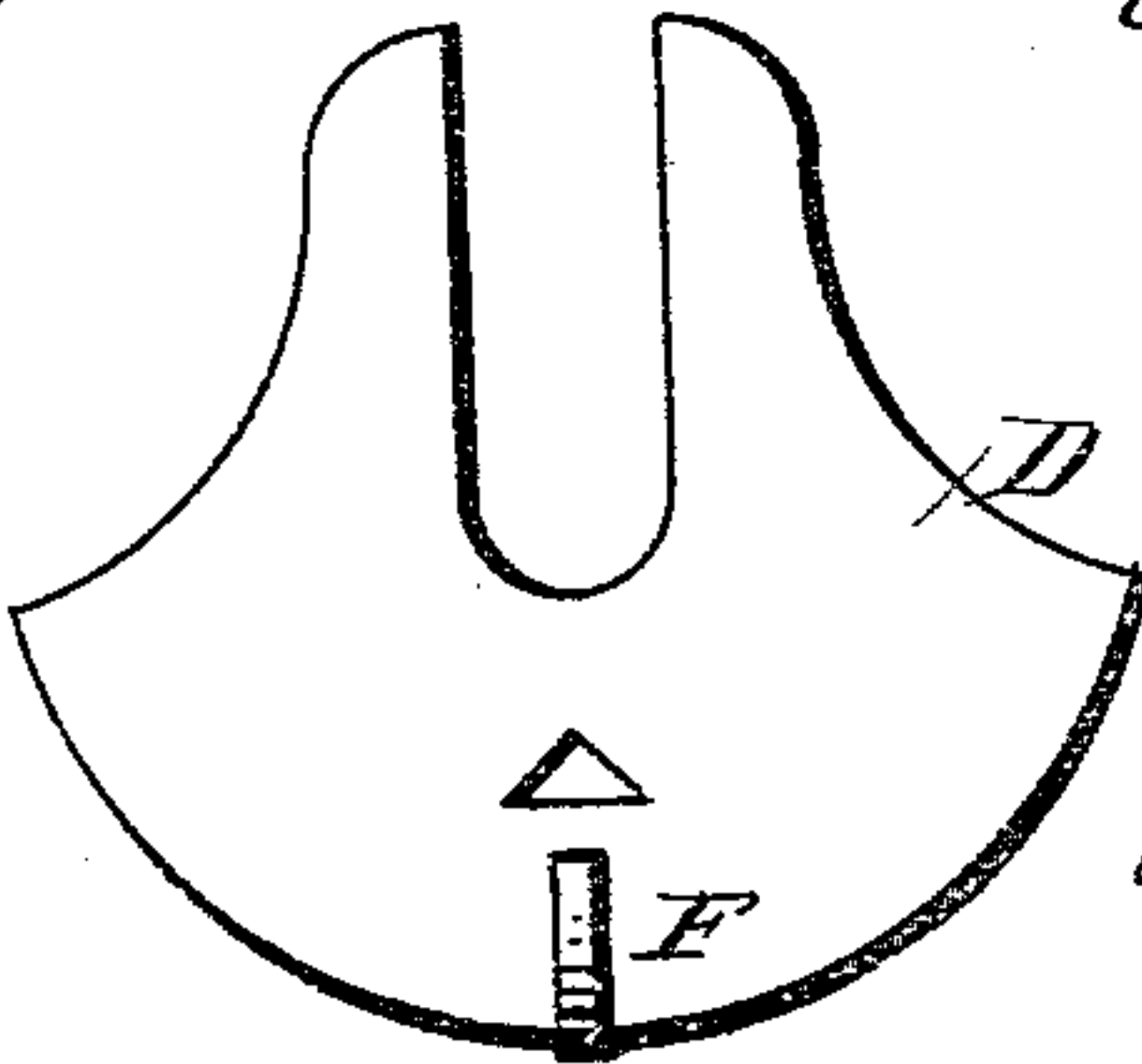


Fig. 6.

WITNESSES

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FLUE-CLEANER.

SPECIFICATION forming part of Letters Patent No. 560,084, dated May 12, 1896.

Application filed January 15, 1895. Serial No. 534,960. (No model.)

To all whom it may concern:

Be it known that I, MOSES G. COOK, a citizen of the United States, residing at Ashfield, in the county of Franklin and State of Massachusetts, have invented a new and useful Improvement in Flue-Cleaners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention is an improvement upon that described in my application for Letters Patent of the United States, filed July 30, 1884, Serial No. 518,933; and it relates to various features of construction whereby clearance is provided the scraping-plates, whereby they are properly supported in action, whereby they are made easily removable, and whereby also they are caused to readily enter the flues. The flue-cleaner of said application has two heads, each conical in form or having conical ribs extending from two end plates, between which the scraping-plates are arranged, the end plates of the heads and scraping-plates being placed so closely together that there is no provision for a self-clearance of the plates and heads in use. My said cleaner also had cleaner-plates which could not be removed from the cleaner without detaching one of the heads.

By my present construction I form between the heads a space of sufficient width to permit the scraping-plates held between them to have longitudinal movement or freedom, whereby they may be separated from each other, and whereby also the escape of the soot, scale, &c., can readily take place, so that they move or respond to the action of the springs more readily and are not clogged or gummed up. This clearance effect is increased by the removal of the end plates of the head, thus providing longitudinal escape-passages from the plates and the space between them in both directions.

To support the plates, I have shown one of the heads as provided with short teats or lugs of a sufficient length to act as abutments upon which the plates near their outer edges may rest as they are being pushed through a flue or tube, and to provide for the removal of the scraping-plates without removing

either of the heads I have formed in each a long recess, through the inner end of which the cleaner-rod extends, and which extending to the end of the plate permits it to be drawn laterally from the rod by an outward movement, which also removes its holding-spring from its holders at each end. I have also shown the plates as provided with guides upon their outer edges, whereby they may enter more readily into a flue, the guides being inclined from the plate edge inwardly upon one or both sides of the plate. I have also shown one of the heads as having ribs arranged parallel with each other to provide side supports for the flat springs, whatever the position of each spring may be in the recess between them.

In the drawings, Figure 1 is a view in elevation of a flue-cleaner having the features of my invention. Fig. 2 is a view in longitudinal section thereof upon the dotted line of Fig. 3. Fig. 3 is a view in transverse section upon the dotted line $x x$ of Fig. 1. Fig. 4 is a view in transverse section upon the dotted line $y y$ of Fig. 1. Fig. 5 is a view in perspective, and Fig. 6 is a view in plan, of one of the scraping-plates removed or detached.

In the drawings, A is the rod which supports the heads and which is attachable to the operating-rod in any usual way. B B' are the heads carried by this rod. They are in the shape of sleeves b , having radiating inclined ribs b' , and they are arranged upon the rod to oppose each other and provide between them a wide recess C. The ribs form passages b^2 to this recess.

The scraping-plates D are between the two heads in the space C. There are preferably three plates, and they are arranged so that their side edges overlap and their outer edges form a continuous scraper. They each have the wide scraping edge or section d , the narrower or tail section d' , the spring-hole d^2 , and the recess d^3 . Bow-springs E extend through the holes d^2 , one for each scraping-plate, and their ends are held by the end cup e and the inner cup e' , which is adjustable on the rod A by means of an adjusting-nut, so that the bow, and consequently the tension of the bow-springs, may be varied at will. By

making the tail of each plate with the recess d^3 it is made removable from the cleaner by being drawn horizontally from it, the bow-spring yielding readily to permit it to be thus disengaged. This insures the quick and ready removal and restoral of one or all the plates without removing or disturbing the heads, a very considerable advantage.

The head B' has teats or supports b^3 , which support two of the plates, it being understood that the plates are out of line with each other and that only one is supported directly upon the ends of the ribs, the other two being supported, respectively, by the plate below and by these teats or projections, the teats for the intermediate plate of course being shorter than those for the outer one. Each plate also has the entering-guide F , which is in the shape of a cross-arm or extension at the outer end of each scraping-plate and having inclined or tapering edges f . It may extend upon one or both sides of the plate, and being inclined inwardly it comes in contact with the corner of the flue in advance of the plate and serves to close the plate automatically and the sides of the flue as it is entering. The ribs b^4 of the head B' are arranged in pairs and parallel with each other to provide a spring-holding space b^5 of the same width throughout and of the width of the bow-springs, so that they act to provide a lateral support for the springs close to the plates.

In Fig. 5 I have represented the inner of the three plates as having the pin g extending from its surface, which acts in conjunction with the teats of the ribs in supporting the outermost of the three plates.

It will be seen that the scraping plates or blades are held in position only by the rod A and springs E , and that they are free to move back and forth between the heads, and that the space between the heads provides a clearance recess which opens laterally outwardly and also into passages between the ribs, and that this construction allows the scraping plates or blades to have free and loose action, preventing them from becoming clogged in action by the deposits of the tube and enables such deposits to be readily shaken, rapped out, or easily removed by any suitable implement.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The flue-cleaner having the scraping-blades D , each of which has a backward-ex-

tending tongue or tail provided with the open-ended recess d^3 , whereby the plate may be supported by the rod when in position and may be withdrawn laterally from the rod, as and for the purposes described.

2. In a flue-cleaner in combination with the heads B, B' and the rod to which they are secured, the independent scraper-plates D , arranged between the heads and adapted to be withdrawn laterally therefrom springs bearing against said scraper-plates to normally force the same outward from between the heads and a centering extension F carried at the outer edge of each plate, as and for the purpose described.

3. A flue-cleaner having the heads B, B' conical in shape and fastened to a rod in opposed relation to each other to provide a relatively wide recess or clearance-space between them, and adapted to alternately act as the support for a number of independent, loosely held, overlapping scraper-plates E contained in said recess, the springs for actuating the plates, as specified, and plate-supporting teats or pins carried by the inner head and adapted to sustain overlying sections of the said plates near their outer edge during the forward thrust of the cleaner, as and for the purpose described.

4. A flue-cleaner having the ribbed conical heads B, B' arranged in opposite relation to each other and fastened to a central rod in a manner to provide a relatively wide recess, the loose scraper-plates arranged within said recess between the heads, and each provided with a backward-extending tongue or tail provided with an open-ended recess d^3 whereby the plates may be supported by the rod when in position, and withdrawn laterally from the rod when desired, substantially as described.

5. A flue-cleaner having conical heads B, B' fastened to a rod in opposed relation to each other to provide a relatively wide recess or clearance-space between them, and a number of independent, loosely held, overlapping scraper-plates E contained in said recess and movable longitudinally therein from one head to the other for the purposes indicated, and one of which plates bears a pin or support for sustaining an overlying section of another of said plates when opposed to a thrusting action, as and for the purposes specified.

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Witnesses:

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