

No. 607,756.

Patented July 19, 1898.

W. LUDLOW.

GAS BURNER.

(Application filed Jan. 14, 1898.)

(No Model.)

Fig. 1.

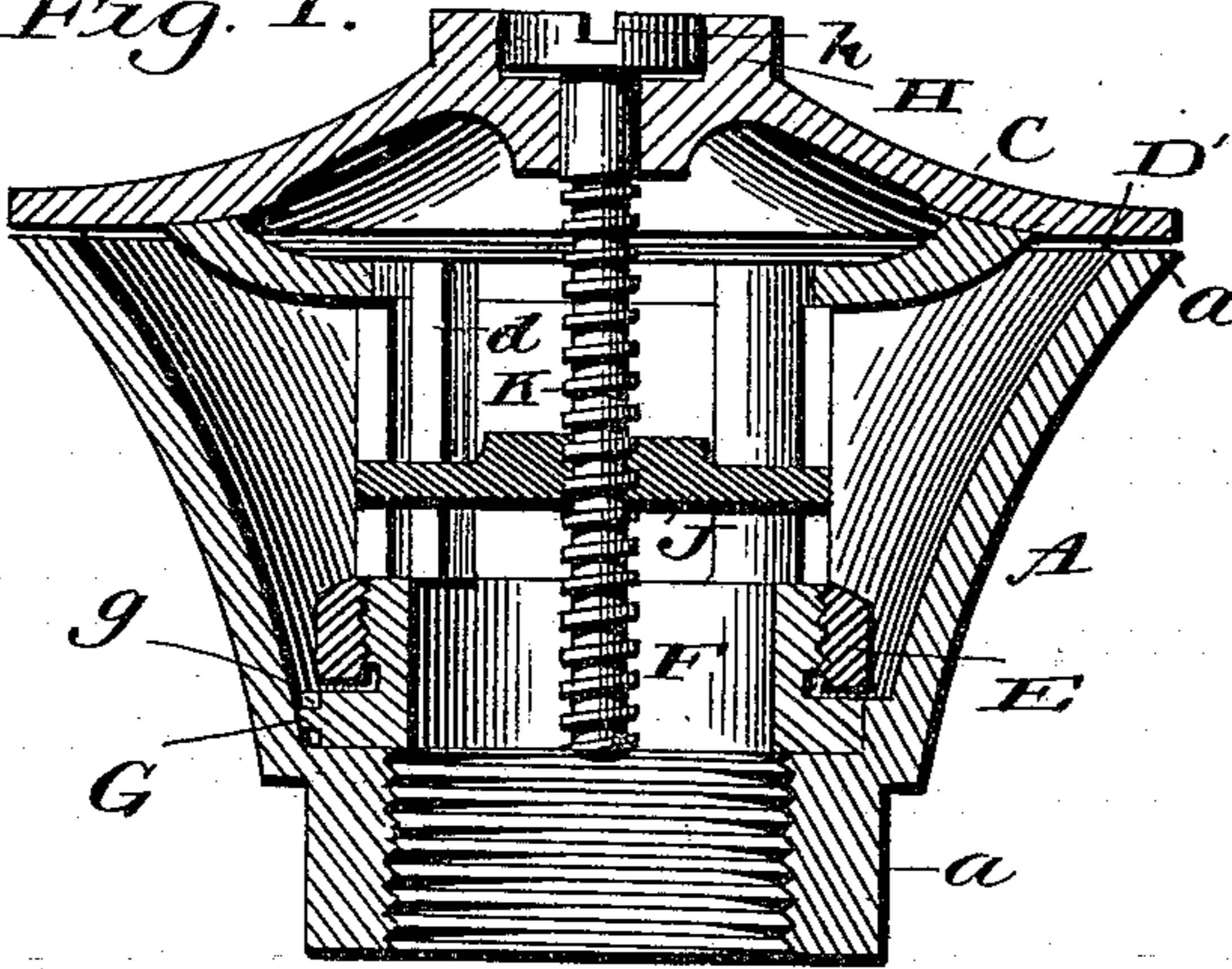


Fig. 2.

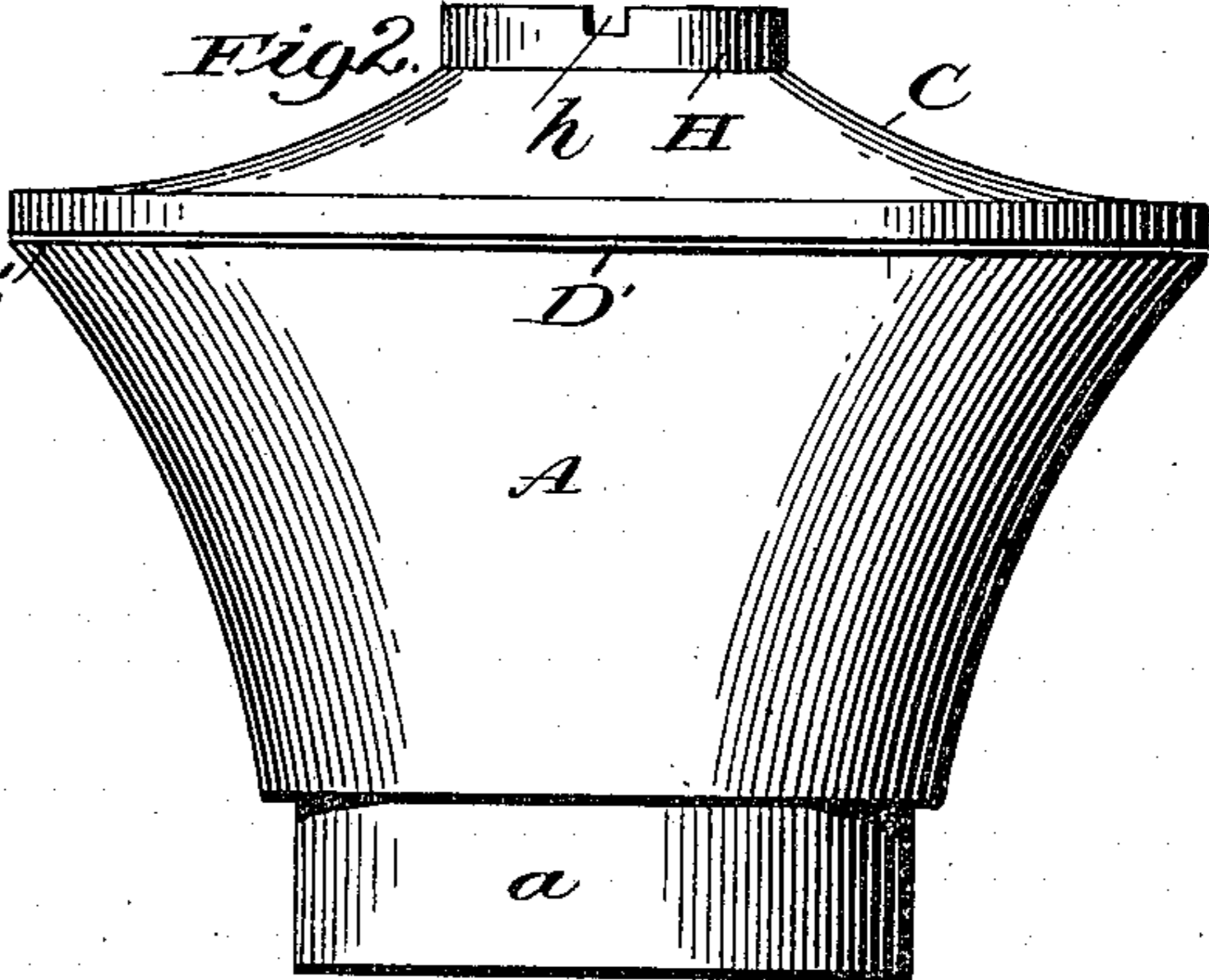


Fig. 5.

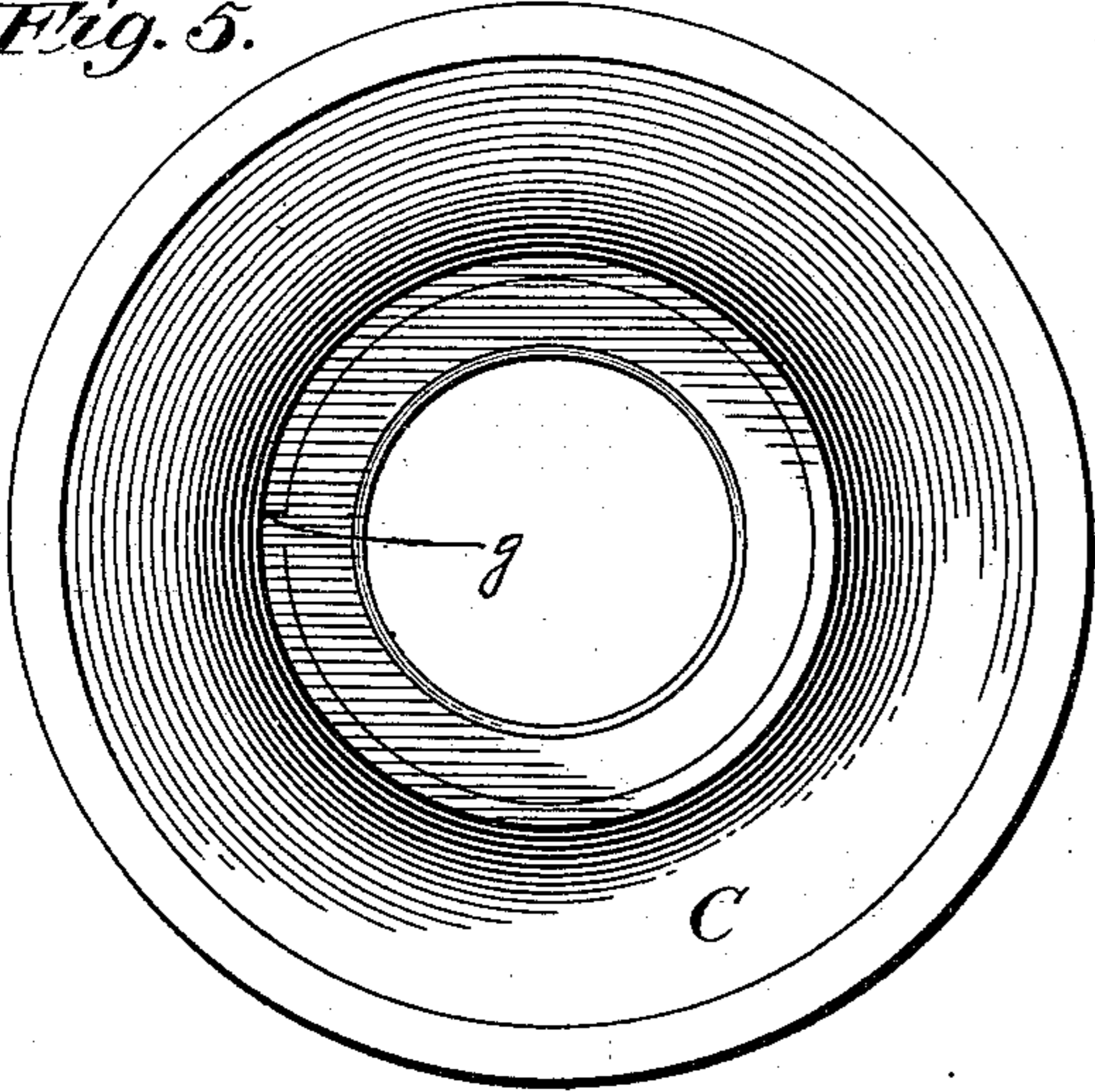


Fig. 3.

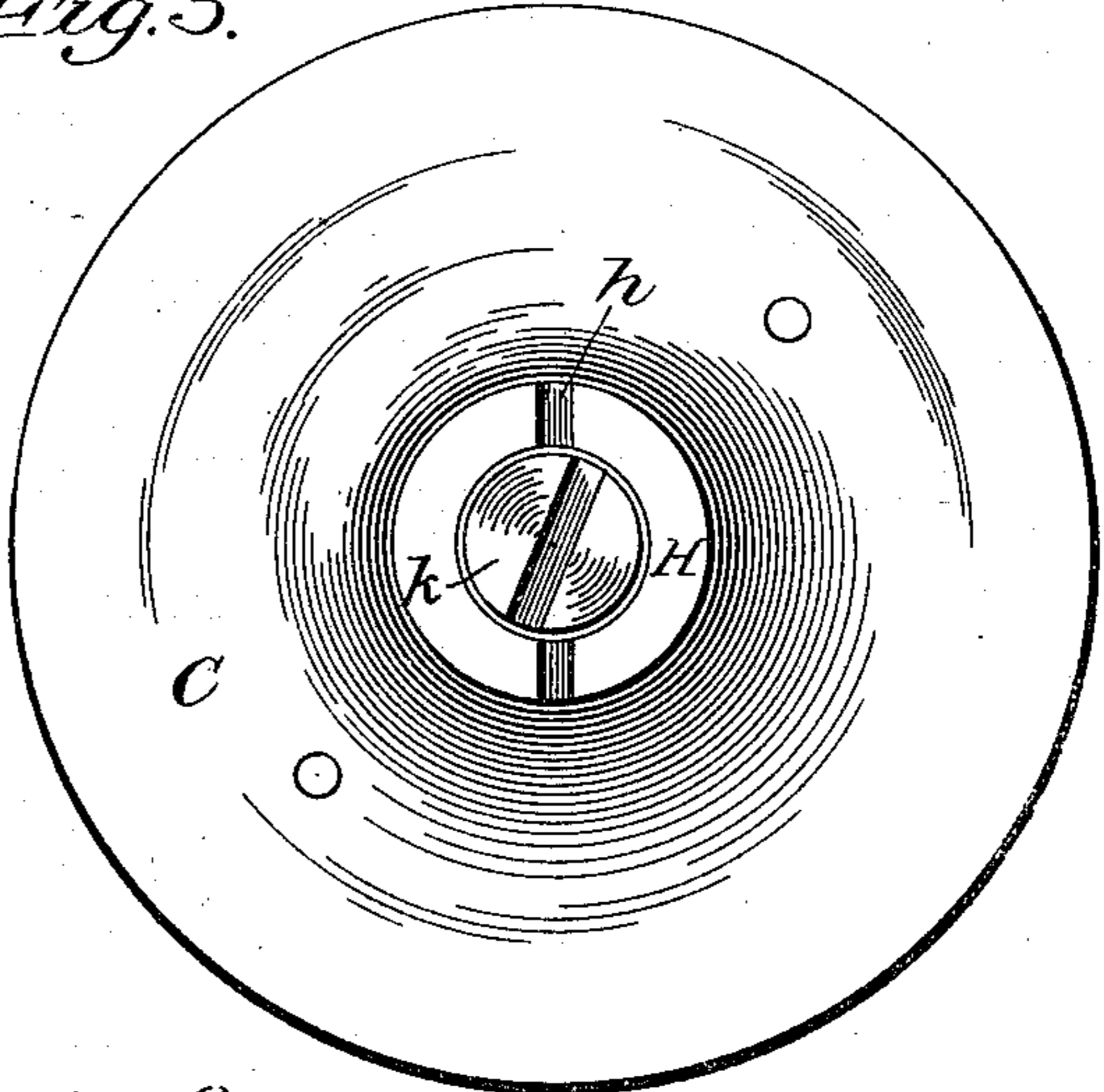


Fig. 4.

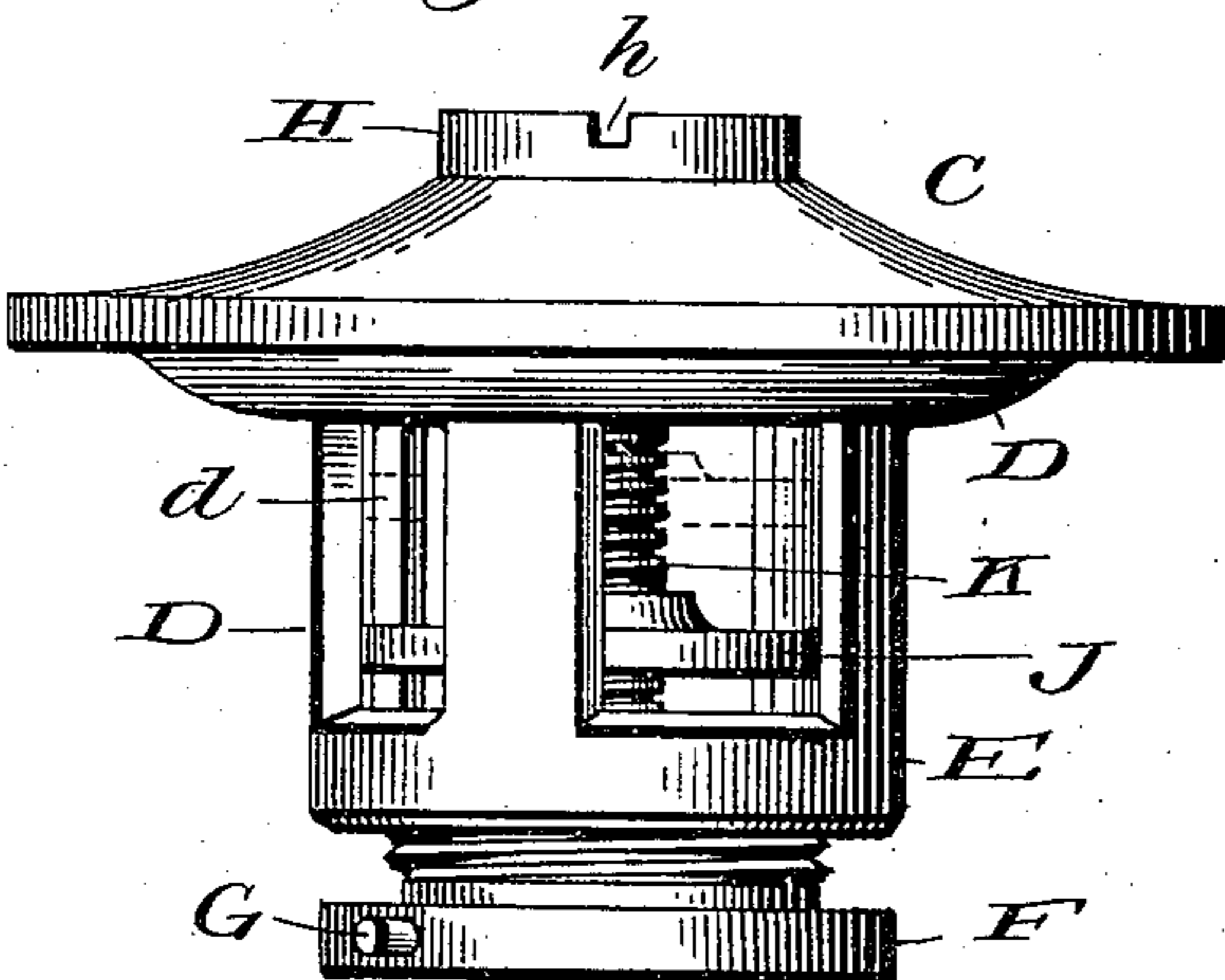
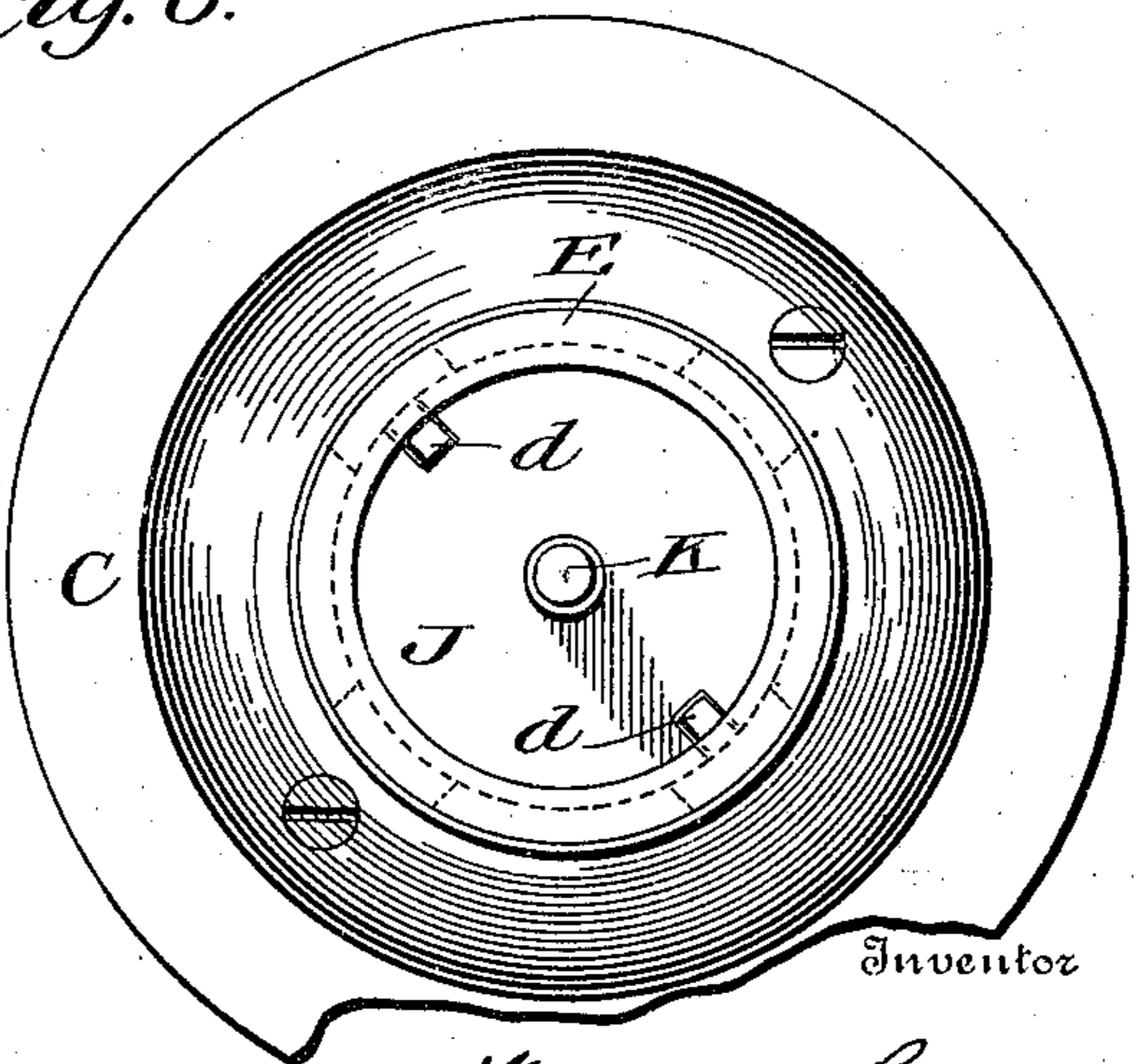


Fig. 6.



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# UNITED STATES PATENT OFFICE.

WILLIAM LUDLOW, OF BUFFALO, NEW YORK.

## GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 607,756, dated July 19, 1898.

Application filed January 14, 1898. Serial No. 666,726. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM LUDLOW, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification.

My invention relates to gas-burners, particularly to those which are used for heating purposes and are adapted to receive a mixture of air and gas; and it has for its objects to provide improved means for regulating the flow of gas or mixed gas and air through the burner and for regulating the size or shape of the flame and also to provide for the easy cleaning of the burner.

With these ends in view the invention consists in improvements in the construction of the burner, which will be hereinafter described.

In the drawings I have illustrated the preferred embodiment of my invention.

Figure 1 is a central vertical section of the burner. Fig. 2 is an elevation of the same. Fig. 3 is a top plan view. Fig. 4 is an elevation of the cap or top of the burner and the means by which its adjustment is effected, these parts being removed from the rest of the burner. Fig. 5 is a top plan view of the main or body portion of the burner with the parts shown in Fig. 4 removed therefrom. Fig. 6 is an inverted plan view of the cap or top of the burner, the adjusting-frame connected therewith, and the adjusting device or valve by which the flow of gas into the burner-chamber may be controlled.

The main body part of the burner consists of an open-ended casing A, provided at its lower end with a boss *a*, provided with means, such as a screw-thread, by which it may be secured to a gas-pipe. A cap C fits over the upper open end of the casing and is so supported that between it and the edge *a'* of the casing there is an annular slit D', through which the gas issues and at the outer edge of which it is ignited, forming a sheet of flame around the burner.

The cap C is adjustable toward and from the edge of the casing and operates to contract or enlarge the slit and so change the size and shape of the flame, according as the cap is adjusted. To effect this adjustment, I

prefer the following construction: D designates an open frame secured to the under side of the cap or formed in one piece therewith and provided at its lower end with a screw-threaded ring or annulus E, which is adapted to engage with the screw-thread of a union or coupling F. This union or coupling is arranged within the burner-casing A, and so far as it operates as a member of the adjusting means for the cap it might be formed integral with the casing. I prefer, however, that it should be removably supported within the burner-casing and that it should constitute in effect, when in place, a continuation of the gas-passageway through the boss *a*. To prevent the rotation of the union or coupling piece F, I provide it with a pin or lateral projection G, which is adapted to engage with a recess *g*, formed therefor in the casing. I prefer to form the cap C with a centrally-disposed external boss H, in which is formed a diametrical kerf *h*, adapted to receive a screw-driver. It will be apparent that if the cap is rotated—as by means of a screw-driver engaging the kerf *h*—it will be caused, by reason of the engagement of the screw-threaded parts E and F, either to approach or recede from the edge *a'* of the casing and so to vary the size of the slit through which the gas or vapor issues to be burned. It will be observed that when in place the union F is in effect and operation a part of the burner-casing—that is to say, its relations thereto are fixed, so far as the adjustment of the cap C is concerned; but I prefer to make the union F separable and easily removable from the burner-casing, as then it is possible to remove together the cap C, the frame D, and the coupling or union piece F, as represented in Fig. 4, thus exposing the entire interior of the burner, so that it may be easily cleaned.

As before stated, the union-piece F constitutes a continuation of the conduit through which the gas enters the chamber within the burner-casing, and I prefer to combine with the upper edge of this piece or the upper end of the ring E, which engages therewith—that is to say, with the end of the gas-conduit—a valve device to control the flow of the gas or mixed air and gas into the burner-chamber. An efficient style of such valve and the one

which I prefer to use consists of a disk or plate J, movable toward and from the ring E and the union F and mounted upon the screw-threaded stem K. The disk J is held from rotation by having its edge notched and adapted to engage with the pieces *d* of the frame D, so that if the screw-stem be turned the disk will be moved toward or from the union, and the size of the orifice through which the gas escapes into the burner-chamber will be accordingly varied. The stem extends loosely through the cap C, and at its end is provided with a head *k*, in which is formed a kerf to receive the end of a screw-driver or similar tool. The head *k* preferably occupies a recess in the boss H, so that the upper faces of the boss and the head are flush with each other. It will be observed that the means for adjusting the size of the burner-slit and for controlling the flow of gas into the burner-chamber may be independently operated and that a change in the position of either one does not affect the position of the other, and, further, the cap and connecting parts may be entirely removed and replaced without disturbing the relative positions of the parts or requiring any operation of the adjusting means to effect such removal.

It will be observed that the burner consists, essentially, of two parts, which inclose the gas-chamber, and that one of these parts is provided with a seat upon which the other is supported, so that the parts can be brought together or separated without the use of screws or any other such securing means.

In the use of gas-burners for heating and cooking purposes much difficulty is experienced by reason of the burners becoming foul and clogged with dust, soot, and other foreign substances which collect within the burner-casings and seriously interfere with the flow of the gas through the flame orifices or slits. This is especially true with burners employed in cooking stoves or ranges where grease is liable to drop upon and clog the burners and where temporary fires of wood or coal have to be resorted to owing to a lack of or a deficiency in the gas-supply. As most gas-burners are constructed it is a matter of serious difficulty and inconvenience to clean the burners when they become foul, especially when they are arranged in a range or furnace and are for that reason difficult to get at. In no burner prior to mine of which I am aware is it possible to open or expose the interior of the burner-casing for the purposes of cleaning without disturbing the adjustment of the parts which regulate the flame opening or slit. In my burner, however, this is possible, as the cap C may be entirely removed and the interior of the casing exposed without interfering with or changing the adjustment of either the parts which regulate or control the flame-slit or the flow of gas to the burner-casing. This is a feature of great convenience and importance.

Various modifications or changes in my in-

vention might be made without departing from certain of its features of novelty. Thus, as was hereinbefore suggested, the union or coupling piece, which is a part of the adjusting devices for the cap, might be integral with the burner-casing, and the construction of the valve which controls the flow of gas into the burner-chamber might be different from that shown, as well as the means for adjusting it; but I do not deem it necessary to describe in detail every embodiment of my invention which may be devised, as the burner which I have illustrated and described contains the principle of my invention and is the best mode in which I have contemplated applying such principle.

The pipe B is usually arranged to deliver to the burner a mixture of air and gas in order that the gas as it issues from the flame-slit may burn with a blue smokeless flame; but as my invention does not pertain to the means for effecting the mixture of the air and gas I have not illustrated such means, as they may be of any usual or preferred character and may be arranged near to or at a considerable distance from the burner, as found most desirable.

What I claim is—

1. A gas-burner consisting essentially of two parts inclosing a chamber into which the gas is delivered, and formed with a flame-orifice leading from the said chamber, one of the parts of the burner provided with a seat upon which the other is loosely supported, and means for adjusting the parts of the burner whereby the size and shape of the flame-orifice may be regulated, the parts of the burner being easily separable without disturbing the adjustment of the said means which regulate the flame-orifice, substantially as set forth.

2. A gas-burner having an open-top casing, a cap for covering the same, the casing being provided with a seat, means loosely supported upon said seat for sustaining the cap above the top of the casing whereby there is formed a flame-orifice between them, and means for adjusting the cap to change the size of such slit, the cap and said adjusting means being easily removable from the casing without necessitating a change of their relative positions, substantially as set forth.

3. A gas-burner comprising an open-top casing, a cap for covering the same, and screw-threaded adjusting means for the cap, comprising two parts, one supported by the casing but free to be removed therefrom, and the other part carried by the cap and engaging with the first-mentioned part, the cap and adjusting means being together removable from the casing, substantially as set forth.

4. A gas-burner comprising a casing, a cap therefor, a screw-threaded ring connected with the cap, and a screw-threaded coupling or union piece with which the said ring engages, loosely mounted within the casing, but held from rotation therein, substantially as set forth.

5. A gas-burner comprising a casing with an open top, and shaped to have within it a chamber for the gas, a cap C arranged above the open end of the casing, so that there is  
5 formed between it and the upper edge of the casing a flame-slit, a union or coupling piece F loosely mounted within the casing, whereby it may be easily inserted into or removed from the casing, and the screw-threaded ring  
10 E connected with the cap, and engaging with the coupling or union F, substantially as set forth.

6. A gas-burner comprising a casing having a chamber into which gas is delivered through  
15 a pipe or passage a, a cap or cover for the casing, a screw-threaded stem K mounted in said cap or cover, a valve J mounted upon and adjustable by such screw-stem, and arranged to control the flow of gas into the  
20 chamber in the casing, and means for prevent-

ing the rotation of the valve, substantially as set forth.

7. The combination of the casing A, having an open top, and a gas-supply opening into the casing, a screw-threaded coupling or union  
25 F loosely mounted therein, a cap C arranged over the open end of the casing, a screw-threaded ring E connected with the cap and adapted to engage with the coupling or union F; a screw-threaded stem K, mounted in the  
30 cap, and a valve J mounted upon the said stem and adjustable toward and from the gas-supply opening, the cap being formed with a boss in which is seated the head of the screw-threaded stem K, substantially as set forth. 35

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