

BURNER.

999,615.

Patented Aug. 1, 1911.

2 SHEETS—SHEET 2.

Fig. 3.

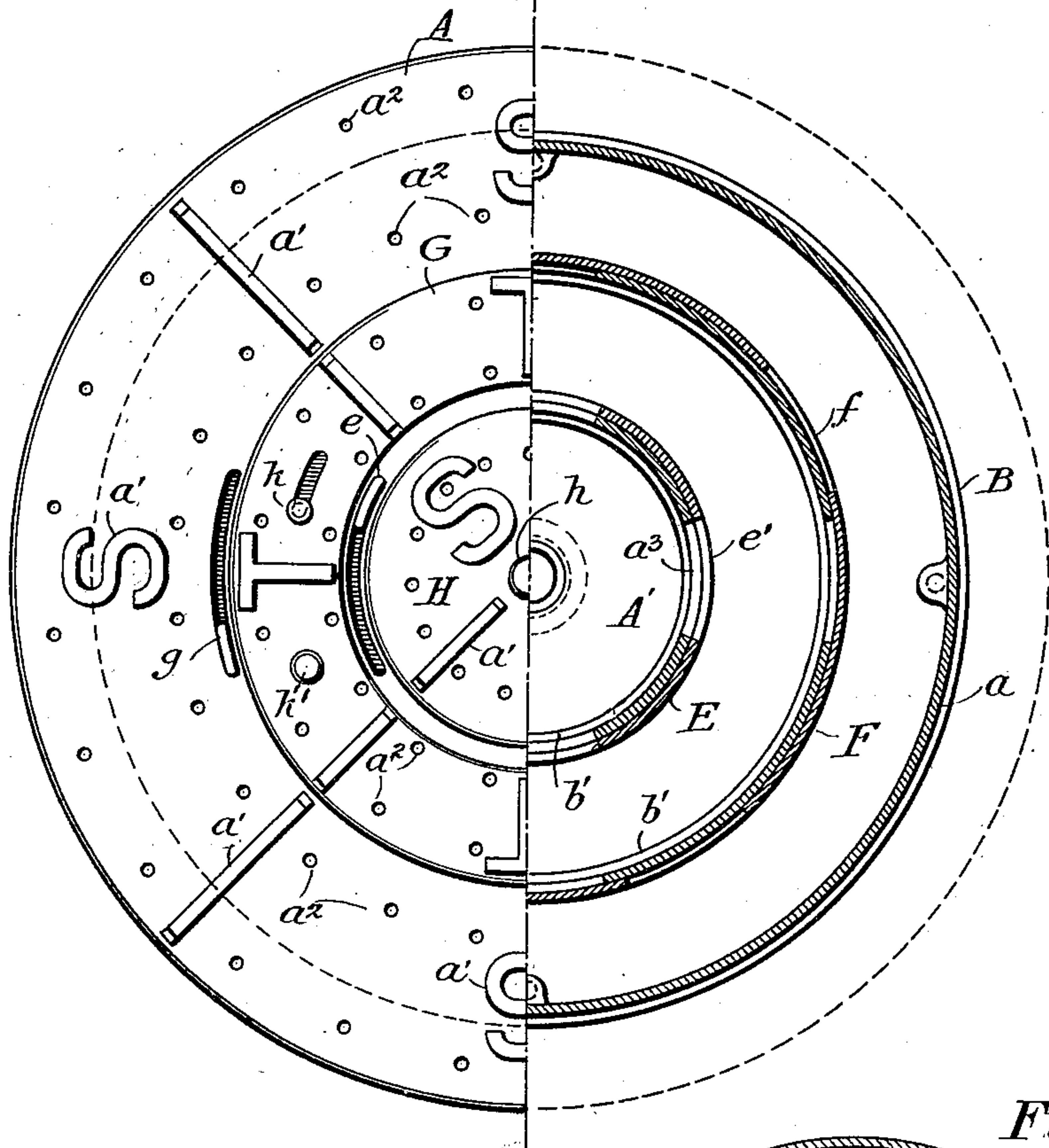


Fig. 5.

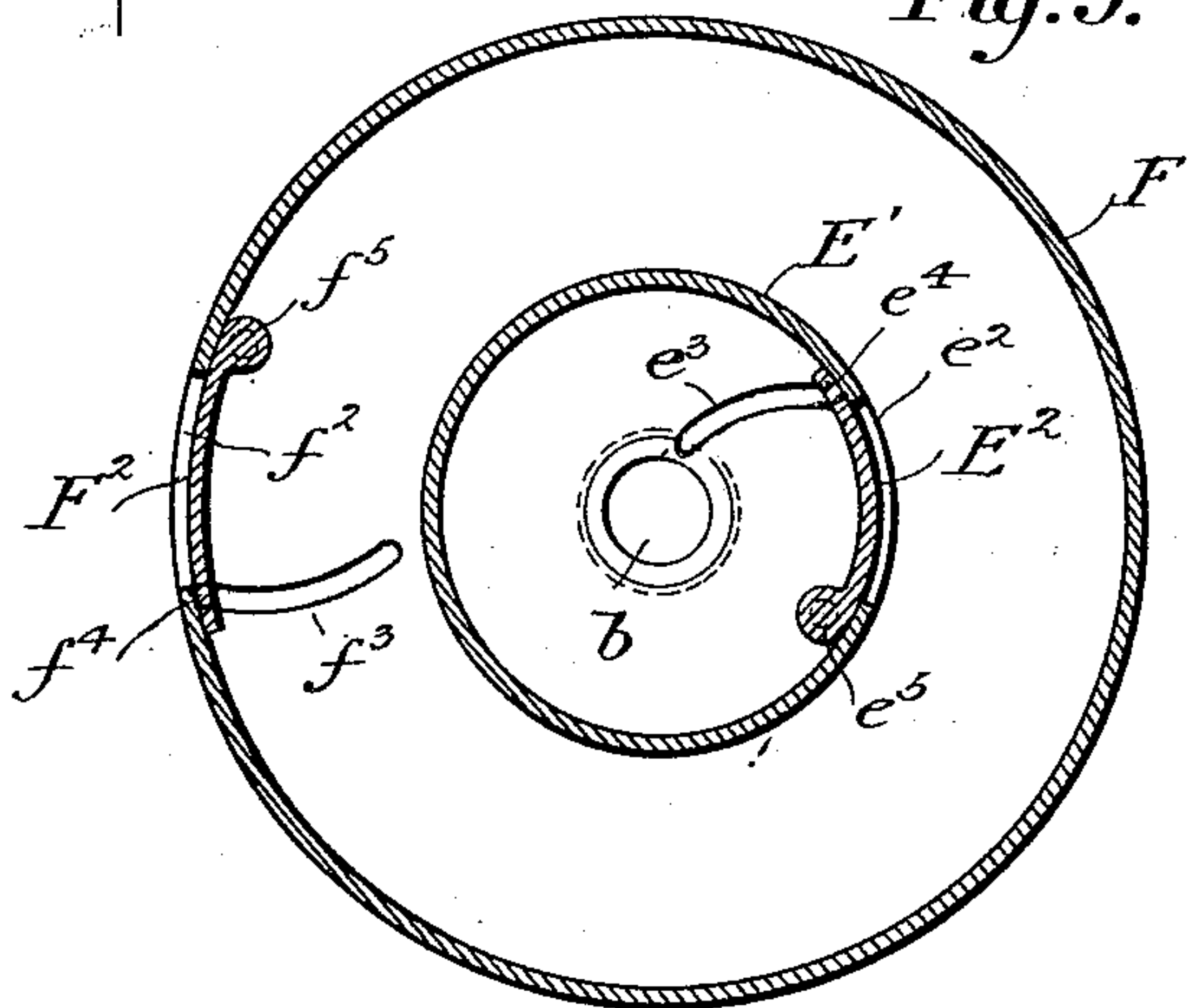
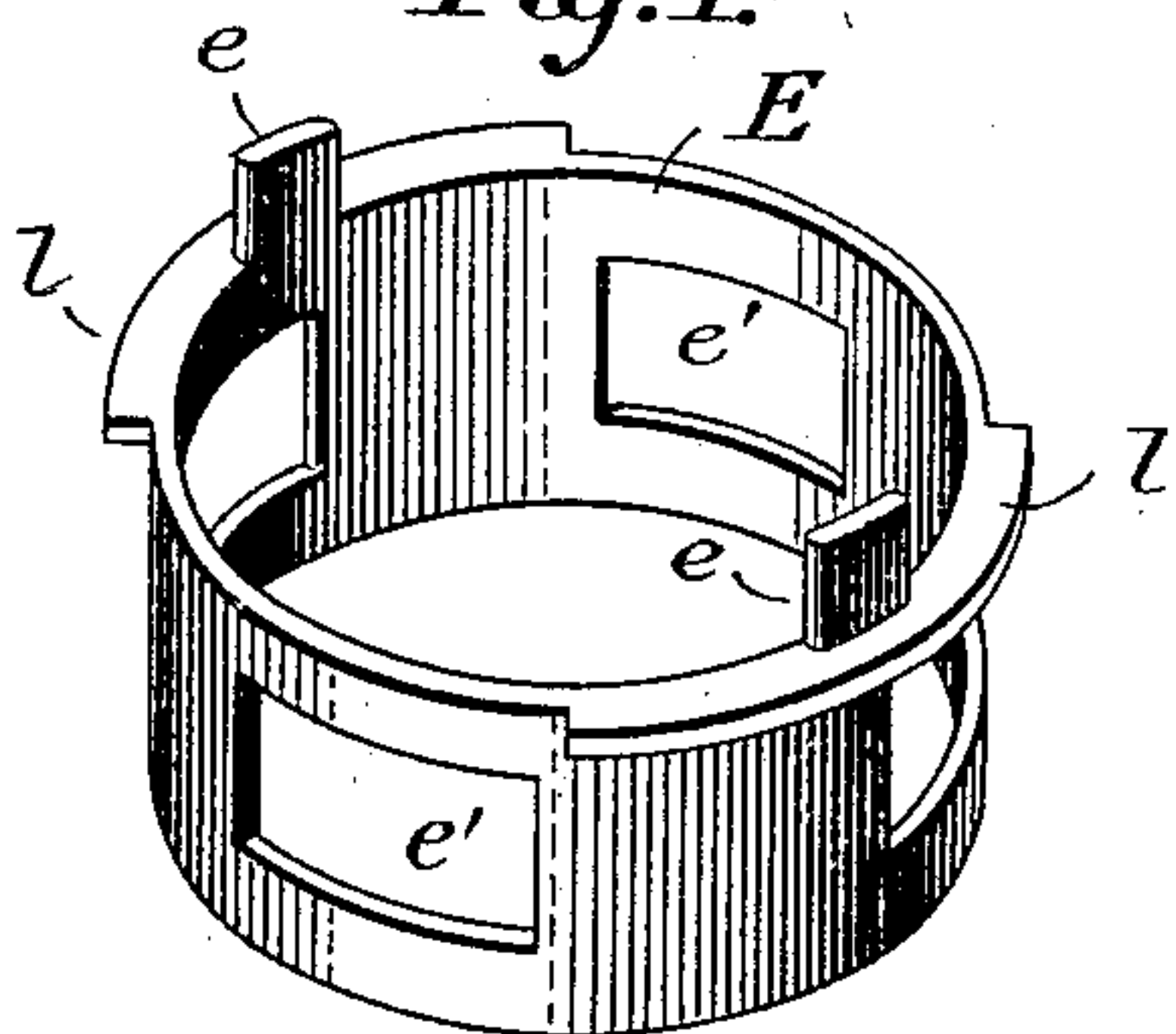


Fig.4.



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BURNER.

999,615.

Specification of Letters Patent.

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Application filed September 15, 1910. Serial No. 582,278.

To all whom it may concern:

Be it known that I, MARGARET ELIZABETH BEEDLE WILLIAMS, a citizen of the United States, residing at Westernport, in the county of Allegany and State of Maryland, have invented new and useful Improvements in Burners, of which the following is a specification.

My invention relates to a burner designed for use with a jet pipe or similar means for furnishing and distributing gas or other ignitable fluid or agent, and adapted for heating, cooking, laundry or other purposes.

While specifically designed as a burner to be used either singly or in series and with one source of gas supply and with a suitable range, the invention may be mounted and utilized as a small and convenient stove for the above mentioned purposes.

In the accompanying drawing, Figure 1 is a perspective view of my invention. Fig. 2 is a view thereof, mainly in vertical section. Fig. 3 is a top view or plan the right hand side being in section, and the left side showing a modification hereinafter described. Fig. 4 is a perspective view of a detail. Fig. 5 is a sectional plan illustrating a further modification.

A represents the upper or main heating plate preferably disk-like in form having inwardly slanting sides a . To this plate is bolted or otherwise secured a bottom plate B centrally perforated as at b . The central perforation is surrounded by a boss into which is screwed one member of a pipe C. This member is connected by an elbow c to a horizontal pipe C' which unites with a gas burner. A gas and air mixer D of any approved character may be placed as shown. The upper surface of the plate A is provided with raised portions in the form of ribs or letters a' which serve as rests for the vessel to be placed upon the burner, and to raise said vessel above the upwardly projecting elements hereinafter to be described. An annular series of outwardly flaring perforations a^2 lead from under the plate A.

Centrally of the plate A is a disk H pivoted at h so as to be capable of rotation. The disk H is provided with inclined apertures h' which may be made to register with the inner series of perforations a^2 in the plate A. The disk H is also furnished with raised portions, in the form of ribs or letters, similar to those provided for the plate

A and for the same purpose. They may also be used in lieu of a knob or lug for rotating the disk. At the underside of the plate A, and integral therewith, is an open-bottomed circular partition or cylinder A', having radial openings a^3 , and which cylinder rests upon the bottom plate B. An upwardly turned flange b' fits against and makes a joint with the cylinder A' so that the plate A, bottom plate B and cylinder form practically one member.

Outside of the cylinder A', and surrounding the same, is a cylindrical and rotary slide or gate E, shown particularly in Fig. 4, which revolves around the circular partition or cylinder A' and is provided with a lug or lugs e which project through segmental slots in the plate A so that the slide E may be rotated by the use of any suitable instrument, as a stove lifter or the like. The rotary slide E is provided with radial openings e' which at the proper time register with those a^3 of the cylinder A'. Concentric with the inner rotary slide or gate E, thus described, is a similar one F which, except as to size, may be also represented by Fig. 4, and which revolves around a circular partition or cylinder F' forming a part of the upper section or plate A, and also resting upon the bottom plate B. The cylinder F' acts with a cylindrical and rotary slide F the latter being provided with openings f similar to those already described, and which at the proper time are made to register with the corresponding openings in the cylinder F'. The second rotary slide F is furnished with a lug or lugs g extending through segmental slots in the plate A, as shown particularly in Fig. 1. These slots are covered by flanges to prevent the escape of gas, such flanges being shown by l in Fig. 4. The arrangement of these rotary slides is clearly indicated in Fig. 3, the left hand portion of which shows an annular slide G having a function similar to that of the disk H. A stop for this annular slide is shown by k , and a moving knob may be used as shown by k' .

The function of the disk H or of the annular slide G is an important one, viz: to stop the flames from issuing from the center under adjustments intended for certain conditions of use, the object being to prevent the employment of too much heat at the center of the device in proportion to that used at the sides, it being known that the heat

has a tendency to draw to the center. The use of too much heat at the center is therefore checked or prevented by one or the other or both of these devices as conditions may require.

It will be understood that under the construction described, and by closing the inner rotary slide or gate, gas will be admitted to the central cylinder or region only of the burner, the rotary slide being so turned or adjusted that the openings have no communication with the immediately surrounding region, and that the flame will pass through the inclosed inclined openings h' of the upper plate A, the disk H being so adjusted or turned that its perforations register with those of said plate. The projections consisting of the ribs or letters upon the said disk extending above the head of the central pivot and lugs e , a small vessel may be placed upon the disk and heated; and, as will be understood, only a limited portion or head of gas will be needed for the small amount of heat required when only this small area of the burner is utilized. Should a greater amount of heat be needed, the next and larger rotary slide or gate is turned so that its openings register with those of the corresponding cylinder, and it will be understood that in this case the still larger rotary slide or gate is so adjusted with reference to its openings and that of its cylinder that communication is shut off from the outer space or region of the burner. If the greatest amount of heating surface is required the outermost rotary slide or gate is opened, in which case there will be free communication from the center to the outermost extremity of the burner. I do not limit myself to the number of partitions and slides or gates, as the number may be made to correspond with the requirements. It will thus be seen that the consumption of gas is only needed in proportion to the amount of heating to be accomplished. Heretofore, so far as I am advised, a separate valve and air mixer has been used for each burner, whereas in accordance with my invention but one is employed.

I prefer to give a sloping shape to the sides of the plate A in order that the burner may be readily inserted within the firebox of an ordinary range, and also to make the size as small as possible. It will be seen that two or more of such burners as constitute my invention may be used in groups fed by a common gas and air mixer.

While my invention is here termed a burner, and may be used with a suitable stove or range, it may be furnished with legs or a stand, and thus become a convenient and economical table stove. However used or mounted, it is applicable for heating, cooking, laundry or other use.

One of the main advantages of my inven-

tion is that heat is only used in accordance with the special requirements, whereby gas is saved.

While I have described the slides or gates as rotary they may be hinged to the cylinders as indicated in Fig. 5. Referring to this figure, two cylinders are shown, the inner one by E' and the outer one by F' . The hinged gate for the inner cylinder is indicated by E^2 and that for the outer one by F^2 , they being hinged at e^5 and f^5 , respectively. The openings through the cylinders are shown by e^2 and f^2 , respectively. The movement of the hinged gates E^2 , F^2 is guided by means of pintles e^4 , f^4 , which run in segmental grooves or slots e^3 , f^3 .

While I have preferably shown my burner as of circular form throughout, it is obvious that it may be of other shape, the only requisites being that the top plate shall be provided substantially throughout its area with combustion apertures, that each interior section or compartment shall be in communication with certain of such apertures, that the device shall be capable of receiving gas at an initial point, and that by the manipulation of slides, plates or the like, gas shall be optionally distributed to a larger or more extended area, and such modifications of construction as will carry out this essential principle of operation are considered as within the scope of my invention.

Having thus described my invention, I claim:—

1. In a gas burner, a body comprising a top plate provided with perforations for the combustion of gas, a plurality of compartments the partitions of which have openings, said compartments each communicating with certain of the perforations in the top plate, and a series of adjustable slides or gates furnished with openings adapted to register with those of said partitions, combined with a single source of gas supply leading to one of said compartments, whereby one of the same may be used singly or with others of the plurality of compartments, substantially as set forth.

2. In a gas burner, a body comprising a top plate provided with perforations for the combustion of gas, a plurality of compartments the partitions of which have openings, said compartments each communicating with certain of the perforations in the top plate, and a series of adjustable slides or gates furnished with openings adapted to register with those of said partitions, combined with a source of gas supply leading to one of said compartments, and with an air and gas mixer in the line of gas supply, the construction being such that the compartment to which the gas is initially introduced may be used alone, or such adjustment made that it may be used in connection with others of

the plurality of compartments, substantially as set forth.

3. In a gas burner, a body comprising a top plate provided with perforations for the combustion of gas, a plurality of compartments the partitions of which have openings, said compartments each communicating with certain of the perforations in the top plate, a perforated adjustable disk or plate acting in conjunction with the top plate of the burner, and a series of adjustable slides or gates furnished with openings adapted to register with those of said partitions, combined with a source of gas supply leading to one of said compartments and with an air and gas mixer in the line of gas supply, the construction being such that the compartment to which the gas is initially introduced may be used alone, or such adjustment made that it may be used in connection with others of the plurality of compartments, substantially as set forth.

4. In a gas burner, a body comprising a top plate provided with perforations for the combustion of gas and also with raised portions or projections, a plurality of compartments the partitions of which have openings, said compartments each communicating with certain of the perforations in the top plate, a perforated adjustable plate also having raised portions or projections and acting in conjunction with the top plate of the burner, and a series of adjustable slides or gates furnished with openings adapted to register with those of said partitions, combined with a source of gas supply leading to one of

said compartments and with an air and gas mixer in the line of gas supply, the construction being such that the compartment to which the gas is initially introduced may be used alone, or such adjustment made that it may be used in connection with others of the plurality of compartments, substantially as set forth.

5. In a gas burner, a body comprising a top plate provided with perforations for the combustion of gas and also with raised portions or projections, a plurality of compartments the partitions of which have openings, said compartments each communicating with certain of the perforations in the top plate, perforated adjustable plates acting in conjunction with the top plate of the burner and also having raised portions or projections, and a series of adjustable slides or gates furnished with openings adapted to register with those of said partitions, combined with a source of ingitable fluid leading to one of said compartments, the construction being such that the compartment to which the gas is initially introduced may be used alone, or such adjustment made that it may be used in connection with others of the plurality of compartments, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

MARGARET ELIZABETH BEEDLE WILLIAMS.

Witnesses:

ANDREW DE SALES LAUGHLIN,
JOHN JOSEPH LAUGHLIN.