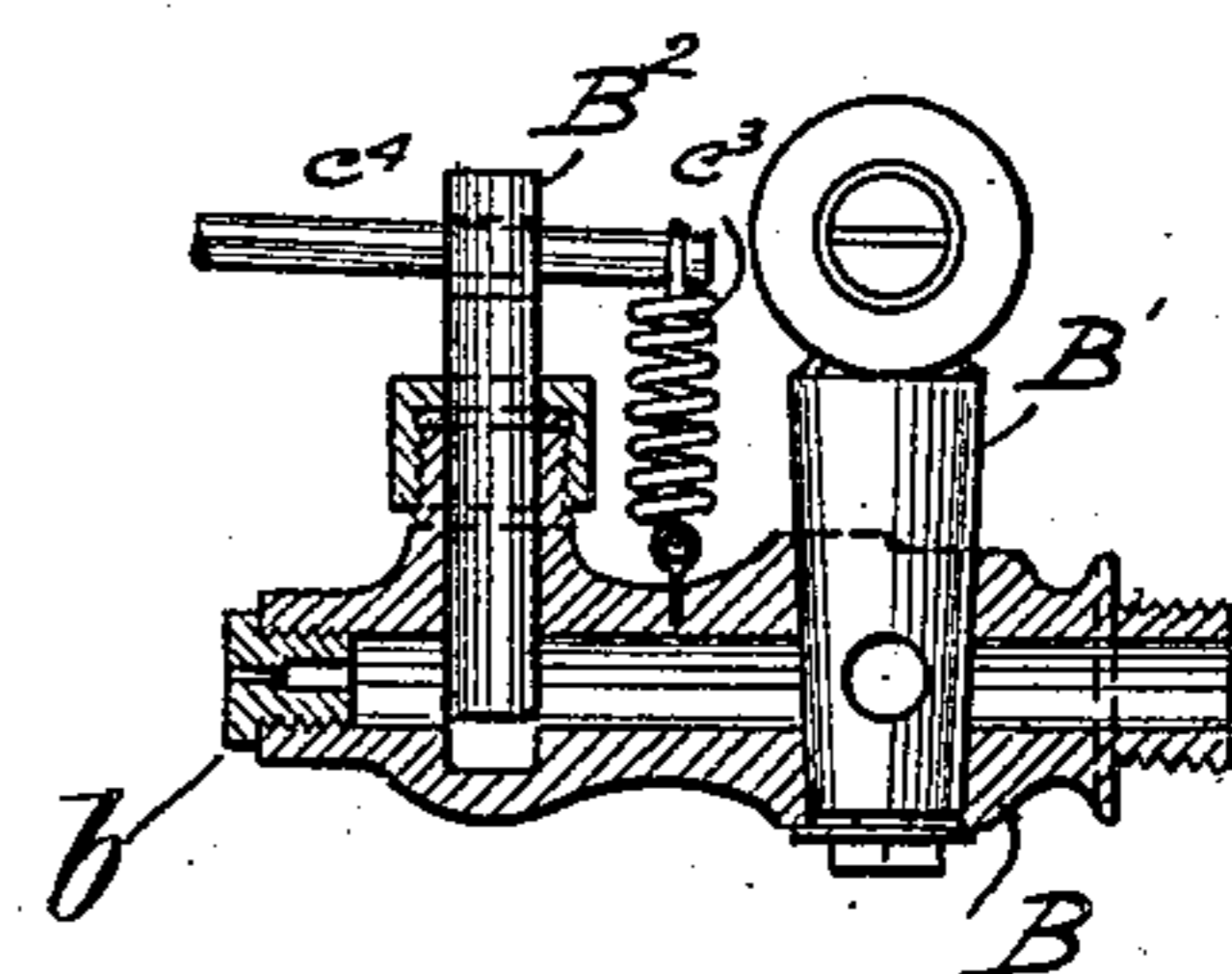
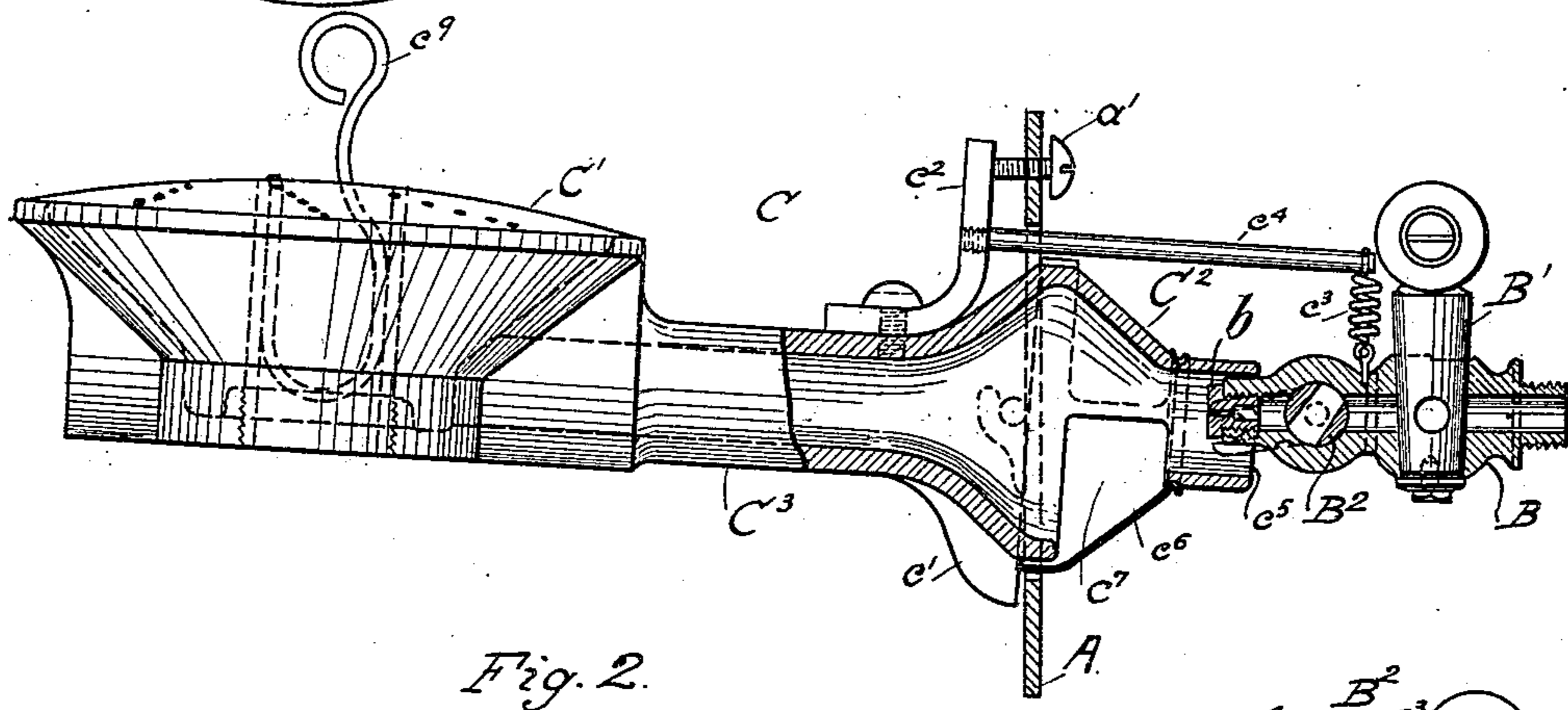
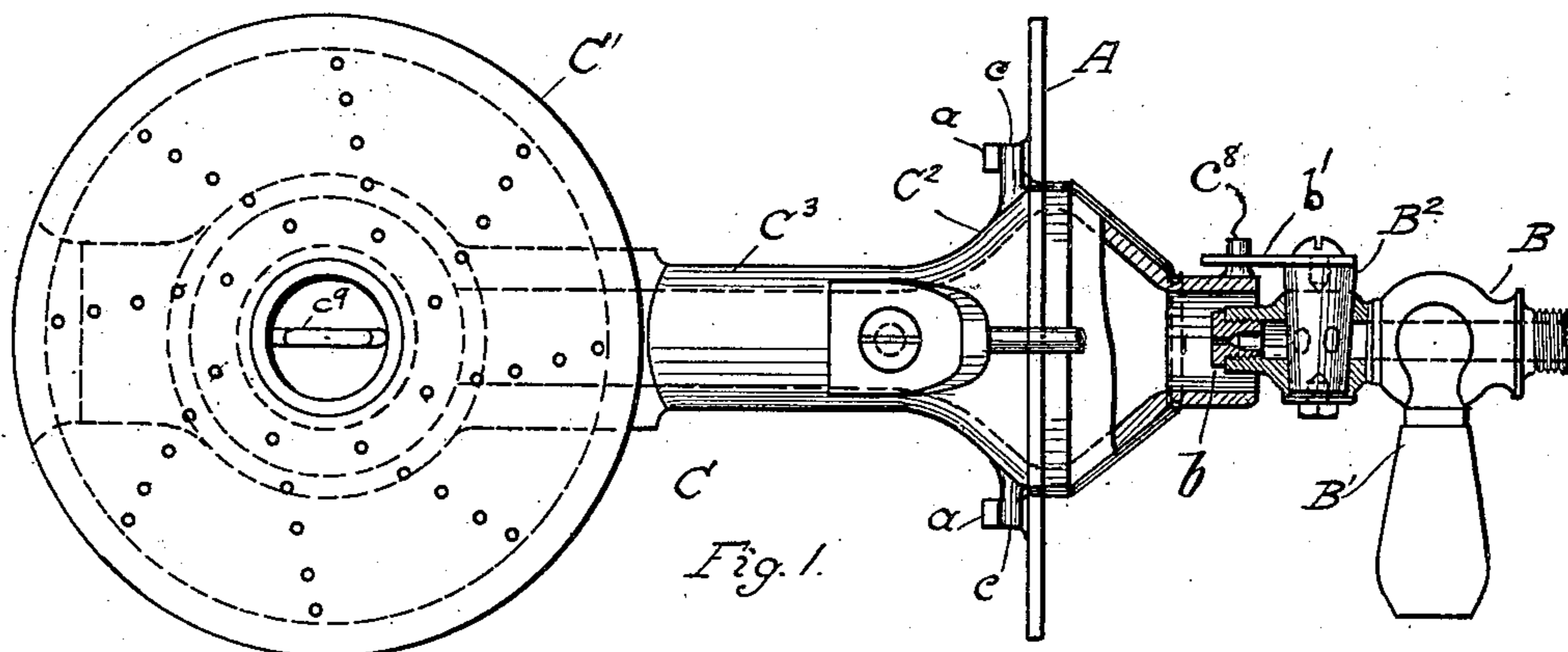


No. 886,677.

PATENTED MAY 5, 1908.

F. CAIS.
CONTROLLING MECHANISM FOR GAS BURNERS.
APPLICATION FILED JAN. 31, 1906.



WITNESSES:

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CONTROLLING MECHANISM FOR GAS-BURNERS.

No. 886,677.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed January 31, 1906. Serial No. 298,735.

To all whom it may concern:

Be it known that I, FRANK CAIS, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have
5 invented a new and useful Improvement in Controlling Mechanisms for Gas-Burners, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have
10 contemplated applying that principle so as to distinguish it from other inventions.

My invention relates to means for automatically controlling the supply of fuel to gas
15 burners, and particularly to the gas burners of a stove or range. Its object is to provide a device of this sort that will be readily adaptable to types of stoves and ranges such as are at present in use, and one that will involve as little mechanism as possible. This
20 element of simplicity in construction is quite important, inasmuch as regulating devices of this character have always heretofore been more or less complicated with consequent initial expense, and attendant trials in ad-
25 justing and keeping them clean.

The said invention consists of means hereinafter fully described and particularly set forth in the claims.

The annexed drawing and the following
30 description set forth in detail certain mechanism embodying the invention, such disclosed means, however, constituting but one of various mechanical forms in which the principle of the invention may be used.

35 In said annexed drawing: Figure 1 represents a plan view of a gas burner involving my improved construction, a portion of the same being shown in cross-section; Fig. 2 is a side elevation of such burner, a portion being
40 again shown in cross-section; and Fig. 3 shows in longitudinal vertical cross-section a slightly modified form of construction adapted to be embodied in my device.

In such figures, A represents a fixed sup-
45 port which, in the case of a stove or range, would of course be a part of the stove or range-frame. Mounted in such frame, or at least fixed relatively to the same, is a gas-supply pipe B. Gas-supply pipe B is pro-
50 vided with the usual cock B' whereby the gas may be turned either fully on or entirely off. The burner C comprises the burner proper, or combustion chamber, C', and a mixing chamber C² connected with combustion
55 chamber C' by a short tubular passage C³. Burner C, as a whole, is detachably mounted

in support, or frame, A, so as to bring combustion chamber C' properly in position below the corresponding spider, not shown, designed to receive the utensil to be heated by
60 such particular burner. To retain the burner in place I provide it with laterally extending lugs or pins c disposed so as to engage recessed lugs a formed on the inner side of frame A. It follows from this manner of
65 mounting burner C, that such burner is not only readily detachable from its support but is free to rock on pins c which form in effect a pivotal axis therefor. A downwardly extending lug c' on the under side of mixing
70 chamber C², is adapted by engagement with support A to limit the downward swing of the burner. It is adapted to be similarly limited in its upward movement by a set screw a'
75 mounted in the portion of support A directly above chamber C² and disposed so as to engage the end of an arm c² secured on the top of such chamber. It is evident that by adjustment of this set screw a', the upper limit
80 of movement of burner C may be varied..

The burner is designed to be normally retained in its upper position, in which arm c² rests against set screw a', by means of a spring c² attached at one end to a fixed point, for
85 instance gas-supply pipe B as shown, and at the other to the outer end of an arm c⁴ attached to the burner and extending forwardly therefrom. Other means than such arm and
90 spring might obviously be employed to thus counterpoise the burner, and the manner of attaching the spring to effect the desired purpose might be changed without departing
95 from the spirit of my invention. The manner shown, however, is preferred because by having the arm c⁴ further detachably connected with the spring, the whole burner may be readily removed from the frame and just as readily replaced.

When in place in the range frame, the mixing chamber C² of the burner is designed to be
100 connected with the end of the gas-supply pipe B. To this end such chamber is formed with an opening c⁵ adapted to loosely receive the end of the gas-supply pipe, the opening c⁵ being large enough to allow for the play
105 made necessary by the rocking of the burner. The supply of air to the mixing chamber is regulated in the usual manner by a perforated sleeve c⁶ fitted to chamber C² and adapted to more or less completely close air inlet c'
110 formed in the walls of such chamber. The end of gas-supply pipe B is fitted with a per-

forated plug or discharge nozzle *b* which may be changed for another having a different size of perforation, as will be understood, to accommodate the burner to either artificial or natural gas. Intermediate of such discharge nozzle *b* and cock *B'* in pipe *B*, is provided a regulating valve *B*². Such regulating valve *B*² may be of any approved type; the one illustrated in Figs. 1 and 2 is a sort of oscillating valve, while in Fig. 3 is shown a piston valve adapted to the same situation, which involves the operation of such valve by the rocking of burner *C*.

The desired operative connection between the burner and the valve is made in the first case by means of a short arm *b'* mounted on the end of the valve and adapted to be engaged by a lug *c*⁸ on the rear end of the burner. By this construction it is evident that, as the burner rocks on pins *c*, valve *B*² will be oscillated. The adjustment is such that the valve will be slightly open when the burner occupies its normal upper position, the amount of such opening being a matter of exact adjustment by means of set screw *a'*. When the burner is depressed, arm *b'* will be oscillated to completely open the valve. In case a piston valve of the type used in Fig. 3 be employed, a convenient form of connection with burner *C* is the one there shown where the valve, being arranged to reciprocate vertically, is connected directly to arm *c*⁴. This connection must be of such a character as to permit the free up and down movement of the arm, as well as to allow such arm to be readily withdrawn from engagement with the valve when it is desired to remove the burner from the range.

The manner in which my improved burner is designed to operate has been already indicated in part. As was stated, the portion *C'* of the burner is disposed directly beneath the spider upon which the cooking utensil is placed; such portion is provided with an upwardly projecting member *c*⁹ that in the normal condition of the burner projects a short distance above the spider. A vessel, upon being placed on such spider, will accordingly depress the burner and thereby open the regulating valve *B*². In the normal condition of the burner this valve *B*² allows just enough gas to escape to maintain a very small pilot flame in the burner; and so when the valve is thus opened wide, the full flow of gas is at once ignited. Upon removing the utensil from the spider the counterpoised burner immediately assumes its normal upper position whereby the valve *B*² is actuated to again cut down the flow of gas to the mini-

mum amount required to maintain a pilot flame.

It is seen from the foregoing that not only is there no complicated structure involved in my improved burner but that its operation is correspondingly simple and easy. I would particularly call attention to the readiness with which the parts may be taken apart and assembled.

Having thus described my invention in detail, that, which I particularly point out and distinctly claim is:—

1. The combination of a gas-supply pipe provided with a discharge nozzle, a valve controlling said pipe, a support, a burner removably pivoted in said support and adapted to loosely engage said discharge nozzle, a set-screw in said support adapted to adjustably limit the movement of said burner, means operatively connecting said burner with said valve, and a spring connected with said burner and adapted to normally retain the same against said set-screw.

2. In a gas stove, the combination with the frame, such frame being provided with recessed ears, a burner formed with lugs adapted to pivotally rest in said ears, a set-screw in said frame adapted to adjustably limit the movement of said burner, a spring normally retaining said burner against said set-screw, a gas-supply pipe fixed relatively to said frame and provided with a discharge nozzle, the rear end of said burner being adapted loosely to receive said discharge nozzle, a valve in said gas-supply pipe, and means operatively connecting said burner with said valve.

3. In a gas stove, the combination with the frame, such frame being provided with recessed ears, a burner formed with lugs adapted to pivotally rest in said ears, a set-screw in said frame adapted to adjustably limit the movement of said burner, a spring normally retaining said burner against said set-screw, a gas-supply pipe fixed relatively to said frame and provided with a discharge nozzle, the rear end of said burner being adapted loosely to receive said discharge nozzle, an oscillatory valve in said gas-supply pipe, an arm mounted upon the end of said valve, and a lug on the rear end of said burner adapted detachably to engage said arm.

Signed by me, this 29th day of January, 1906.

FRANK CAIS.

Attested by:—

D. T. DAVIES,
JNO. F. OBERLIN.