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F. CAIS.
CONTROLLING MECHANISM FOR GAS RANGES.

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Fig. 1.

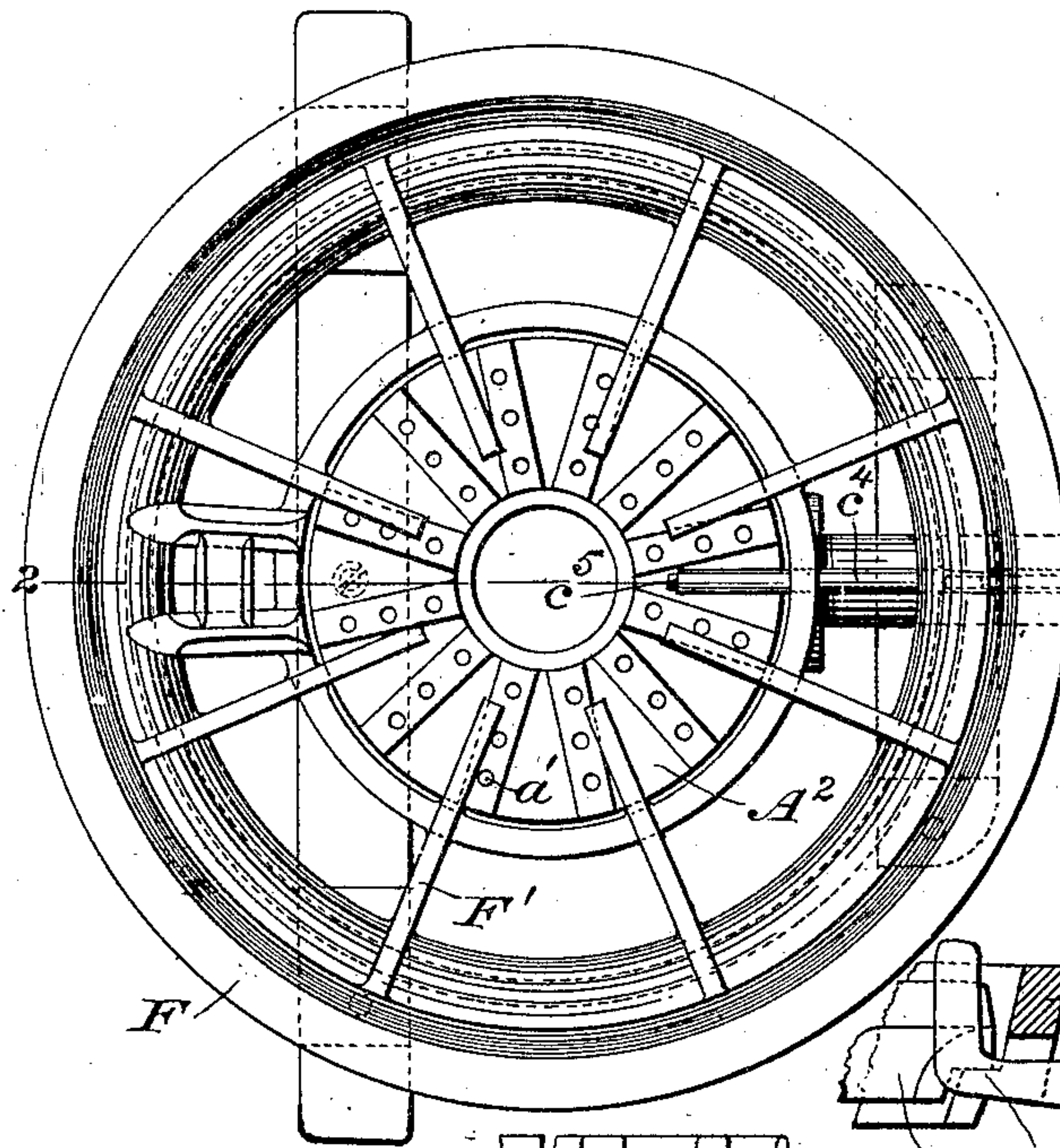


Fig. 3.

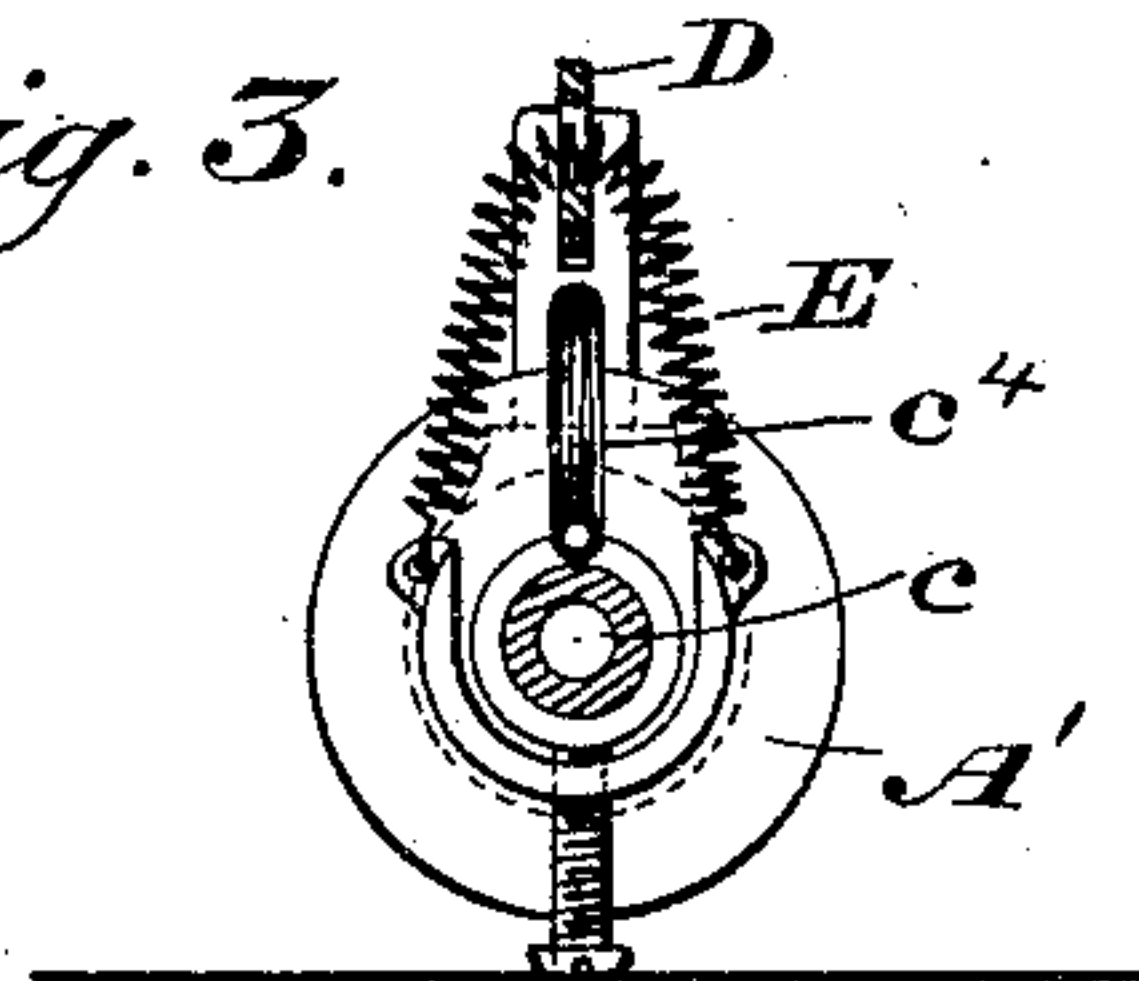
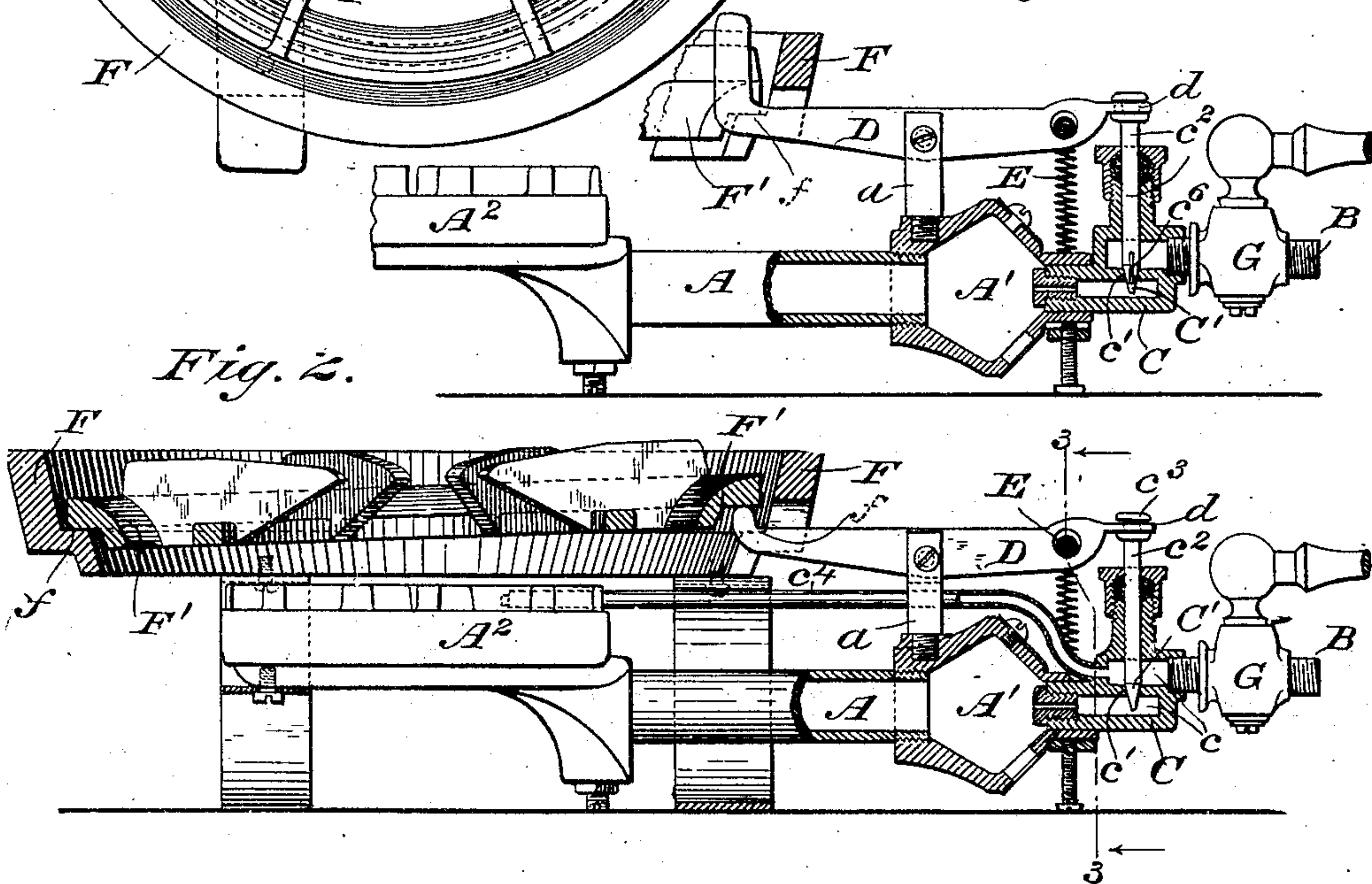


Fig. 4.



WITNESSES:

C. M. Norling.
J. Savier

INVENTOR:

Frank Cais
by his attorney
J. D. Fay

UNITED STATES PATENT OFFICE.

FRANK CAIS, OF CLEVELAND, OHIO.

CONTROLLING MECHANISM FOR GAS-RANGES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK CAIS, a citizen of the United States, a resident of Cleveland, county of Cuyahoga, and State of Ohio, have
5 invented a new and useful Improvement in Controlling Mechanisms for Gas-Ranges, 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 controlling automatically the flow of gas to the burner of a gas-range. Its object is to provide means for automatically shutting off the
15 gas from such burner when a pot, kettle, or other cooking utensil is not on the range above it, and thereby prevent a useless consumption of gas.

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

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

In said annexed drawing, Figure 1 represents a plan view of a single-burner gas-stove to which my invention has been applied. Fig. 2 represents a vertical section taken upon the plane indicated by line 2 2, Fig. 1, parts cut by said plane being, however,
35 shown in elevation. Fig. 3 represents a detail section taken upon the plane indicated by line 3 3, Fig. 2. Fig. 4 represents a detail section on the plane of the section shown in Fig. 2 and illustrating a modified form of
40 my invention.

Upon the end of the gas-supply pipe B, which is usually fixedly mounted in the range structure, is mounted a valve-casing C. Such casing C is formed with a main duct *c*,
45 comprising two chambers connected by means of the valve-opening *c'*, the upper of which alone has direct connection with supply-pipe B. Opening *c'* is controlled by a vertically-movable valve *C'*, having a stem
50 *c''* projecting upwardly without said casing. The burner, comprising the burner proper, *A''*, mixing-chamber *A'*, and an intermediate pipe *A*, is detachably secured to valve-casing C by a plain friction-joint between the casing
55 and said mixing-chamber and has communication with the lower valve-controlled cham-

ber of the duct *c'* therein. Mounted in the casing and communicating with the upper of such chambers is a tube *c''*. The inner end of this pipe passes to a point in the vicinity of
60 the openings *a'* of the burner *A''* and is provided with a very small opening *c''*, Fig. 1. It will therefore be seen that the duct formed by this pipe *c''* affords means for allowing a limited supply of gas to constantly flow
65 through the casing C out of hole *c''*, which may be ignited to form a continuously-burning pilot-light. The outer end of the valve-stem *c''* is embraced by a yoke forming the
70 outer end of a lever D, which is fulcrumed upon a standard *a*, fixed to the casing of the mixing-chamber *A'*, Fig. 2. A spring E is attached to the lever and such casing and tends to depress the outer lever end and maintain the valve in a closed position.
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Formed in the fixed top F of the stove is a flange *f*, which is adapted to receive a loose spider F' above the burner. One end of this spider rests upon the inner end of the lever D, and the spring E is of a strength such as to
80 normally hold said spider end off its seat—that is, to overcome the force due to the weight of the spider alone when the latter is lifted at one end. The spring is, however, further of a strength such that its force will
85 be overcome when a weight such as that of a cooking utensil and its contents is placed upon the spider. The latter when in its normal position—that is, when raised to the maximum height by the lever and spring,
90 (the valve limiting the movement of the lever, as will be readily understood)—is caused to yieldingly project some little distance above the plane of the top of the stove, as shown in Fig. 2. A cooking utensil placed upon the
95 stove will rest either upon the fixed top or wholly upon the spider F'. In either event the spider will yield and be depressed when a utensil of any of the ordinary dimensions is placed upon the stove, and the valve *C'* will
100 therefore be caused to rise and open the valve-opening *c'*. This will allow a free flow of gas to the burner, which gas is ignited by the pilot-light and burns as required. On the removal of the utensil and contents the spider
105 and valve resume their normal positions and the gas is cut off. The pilot-light is, however, unaffected by such action and continues to burn. The usual cock G is provided in the pipe B to completely shut off the gas when
110 desired. It will therefore be seen that the valve and casing form means for controlling

the flow of the gas to the burner and that actuating means (consisting of the yielding spider, lever, and spring) are provided which embody a yielding member, (the spider,) 5 which is arranged to normally project into that space which when a utensil is placed above the burner on the stove is occupied by such utensil and that such controlling means are connected with the actuating means and 10 operated thereby.

In the form shown in Fig. 4 two modifications of the above-described device are embodied. First, the pipe c^1 and duct formed thereby are dispensed with, and as a substitute therefor a slot c^6 is cut in the valve, as 15 shown, which allows a small amount of gas to pass through opening c' when the valve is seated in its closing position. As in the first-described case, therefore, a small amount of 20 gas is allowed to constantly flow through the casing, but instead of discharging outside the burner discharges within same. This gas may hence be ignited and be kept burning constantly. When the valve is opened, as above 25 described, as a result of the placing of a utensil upon the stove, the full flow of gas is had, as will be readily understood. By means of such arrangement, as expressed in the ordinarily-used terms, the effect is that of turning the gas 30 "on full" and "down low." Second, the spider F' instead of being loose is seated directly upon the stove-top in the usual manner, and the end of lever D is caused to project upwardly above the plane of the stove-top, so 35 that when the utensil is placed upon the latter the lever is directly engaged and depressed. In this instance the actuating means consists of the lever and spring only,

the principle, of operation being in no wise affected by such change. 40

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed provided the means stated by the following claim or the 45 equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention—

In controlling mechanism for gas-ranges, the combination with a gas-supply pipe; of a 50 casing connected therewith, such casing inclosing two chambers connected by an aperture provided with a valve-seat, the first of such chambers communicating freely with said supply-pipe; a pilot-flame tube mounted 55 on said casing and communicating with such fixed chamber; a valve adapted to close said aperture and having a stem projecting upwardly without said casing; said stem being formed near its end with a groove; a burner 60 and mixing chamber therefor, the latter being secured to said casing by a plain friction-joint and communicating with the second chamber therein; a lever fulcrumed upon said mixing-chamber, said lever having one 65 end extending into proximity with said burner and the other end formed with a yoke adapted to engage the groove in said valve-stem; and a spring joining said lever to said mixing-chamber and normally actuating the 70 former to close said valve.

Signed by me this 7th day of March, 1905.

FRANK CAIS.

Attest:

E. M. NORLING,
A. E. MERKEL.