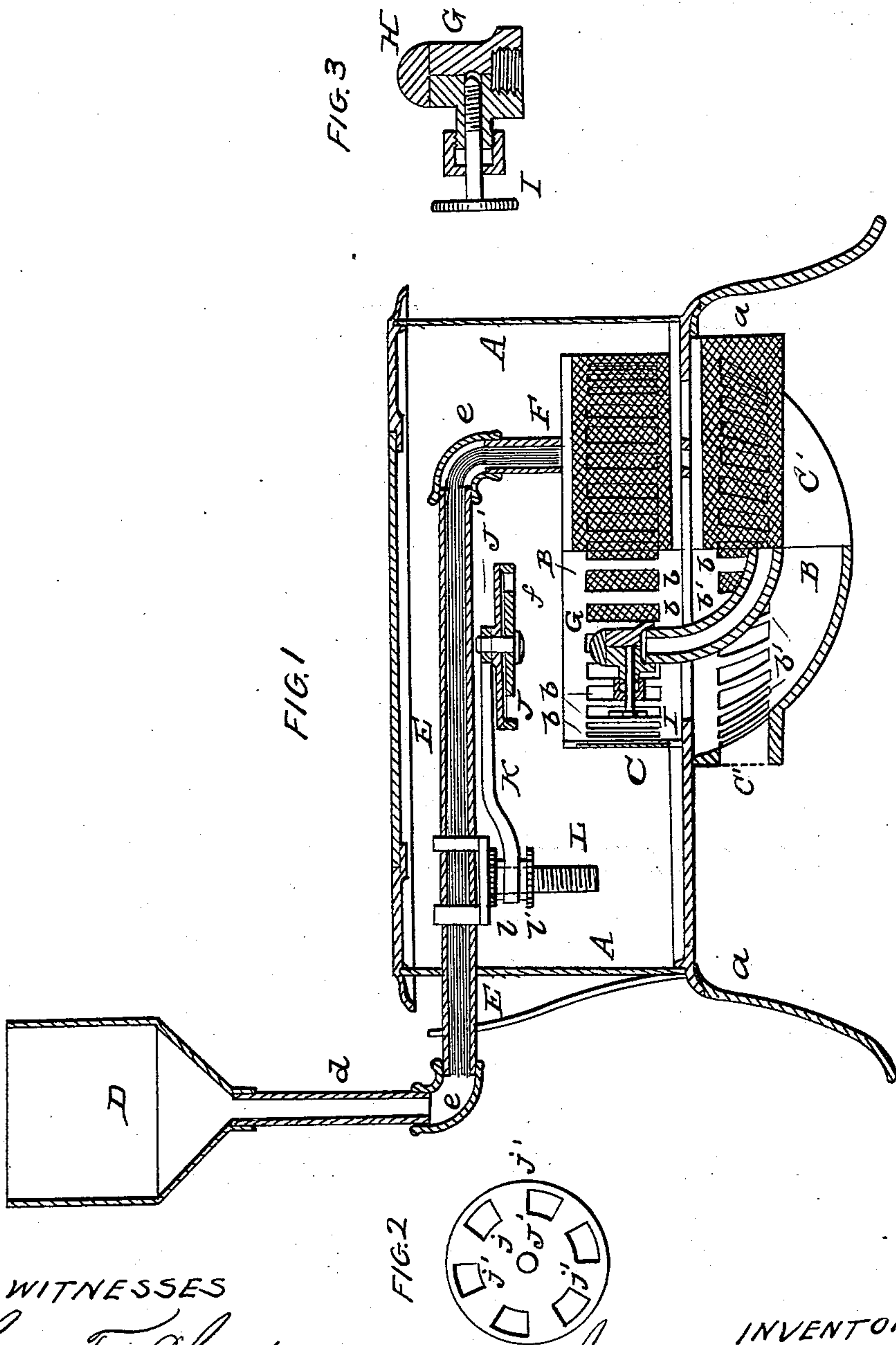


I. N. ELWELL.

Gas Stove.

No. 94,192.

Patented Aug. 31, 1869.



WITNESSES

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ISAAC N. ELWELL, OF FLINT, MICHIGAN.

IMPROVEMENT IN GAS-STOVES.

Specification forming part of Letters Patent No. 94,192, dated August 31, 1869.

To all whom it may concern:

Be it known that I, ISAAC N. ELWELL, of Flint, in the county of Genesee and State of Michigan, have invented a new and useful Improvement in Vapor-Stoves; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1 is a vertical section of my stove. Fig. 2 is a plan view of one of the combustion-plates; and Fig. 3 is a vertical section of the burner, showing the operation of the regulator-valve.

The nature of this invention relates to an improvement in that class of stoves which consume the vapor of volatile hydrocarbons generated therein; and it consists in surrounding the burner and combustion-chamber with a wire-cloth guard to prevent explosion should a flame be brought near the stove when the burner is not in operation; in providing the burner with a valve for regulating the flow of vapor through it; in an adjustable combustion-plate for radiating and deflecting the flame and heat, and in filling the supply-pipe with wires, which diminish the volume of the hydrocarbon flowing through it, and consequently presents a greater surface to the action of the heat from the burner below it, for the purpose of more rapidly vaporizing the fluid flowing through it.

In the drawings, A represents the shell of my improved stove, supported by proper legs, *a*.

B is a cup-shaped combustion-chamber, its lower half projecting below the bed-plate of the stove, while its upper part is inclosed within the shell A.

b and *b'* are openings in the walls of the combustion-chamber for the admission of air to supply the necessary oxygen to support combustion. These openings are surrounded by finely-meshed wire-cloths C and C', which, when the combustion-chamber is filled with an inflammable vapor, as when the fluid is first turned on, prevent the same from igniting and exploding should a light be brought near the stove. The wire-cloth guard C' also prevents a draft of air from causing the flame to flicker when the stove is in an exposed position.

D is the reservoir, for containing gasoline or other volatile hydrocarbon from which an in-

flammable vapor is generated. From this reservoir a pipe, *d*, conducts the fluid to the horizontal generating-pipe E within the stove. The pipe *d* may be provided with a stop-cock, if deemed advisable.

The generating or retort pipe E is filled with wires *e*, which may extend into the inverted siphon burner-pipe F, if necessary. The purpose I have in filling the pipe with wires is to increase the area of heating-surface presented to a diminished volume of fluid flowing through it, and thus rapidly generate the inflammable vapor, which, as it issues from the burner G, combines with the oxygen of the atmosphere, and burns with an intense heat. The top of the burner is inclosed in a wire-cloth guard, H, for removing the flame from its orifice, and to prevent any tendency of the vapor to turn back into the tube.

To regulate the flow of the vapor through the burner, I provide the same with a valve, I, whose construction and operation are clearly shown in Fig. 3 of the drawings.

To promote the combustion of the vapor by spreading the flame so as to present a greater surface to the atmosphere, and to radiate its heat from a point directly over the burner, I employ the combustion-pipes J J', which are disks of cast metal, perforated near their peripheries by apertures *j j'*, whose areas are equal to the spaces between them. The lower one, J, is rigidly secured to the depending end of the arm K, directly over the burner, while the upper plate revolves loosely on it.

To increase or diminish the area of the surface of the radiating-plate and adjust it to the size of the flame, the upper plate may be so turned as to cover the apertures in the lower one, or to leave them open, as may be necessary, to prevent smoke.

The arm K is pivoted to a vertical screw, L, between the nuts *l l'*, so that the combustion-plate may be swung away from the burner in lighting it. By means of the nuts *l l'* the combustion-plates may be adjusted to the proper height above the burner to insure perfect combustion.

To operate this stove, the valve I is opened to allow a little of the fluid to pass out of the burner into the cup, which fluid is then ignited. The radiator-plates are turned aside to allow the flame to heat the generating-pipe E, which

soon vaporizes the fluid within it. The vapor thus generated ignites at the orifice of the burner when the combustion-plates are swung back to their proper position, the flow of the vapor being regulated as described, and the combustion-plates adjusted to properly consume the vapor without smoke.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination and arrangement of the parts A, B, C C', D, E, F, G, H, I, J, K, L, a, b b', e, j j', and l l', when constructed and operating substantially as and for the purposes herein set forth, shown, and described.

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Witnesses:

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