

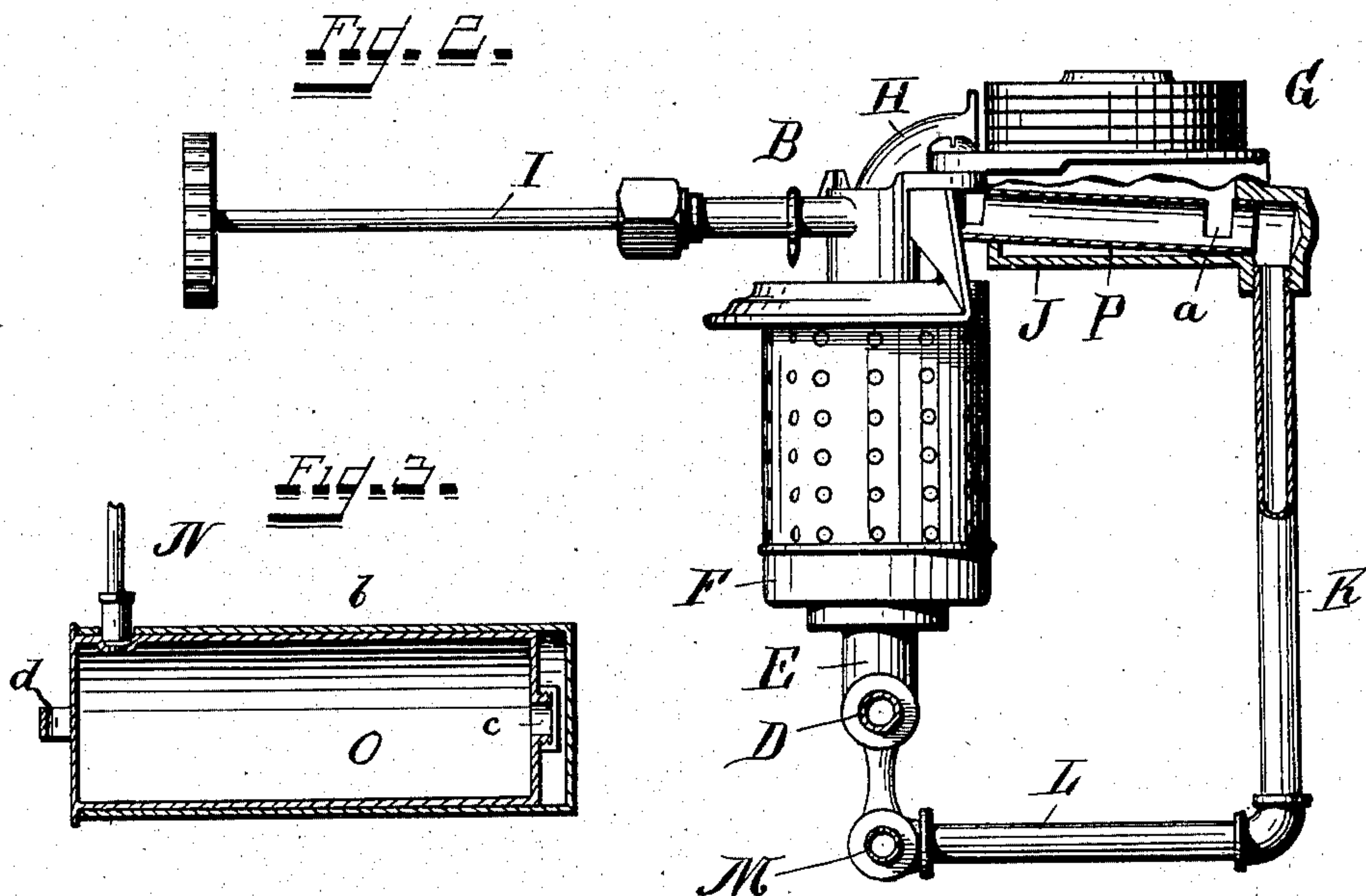
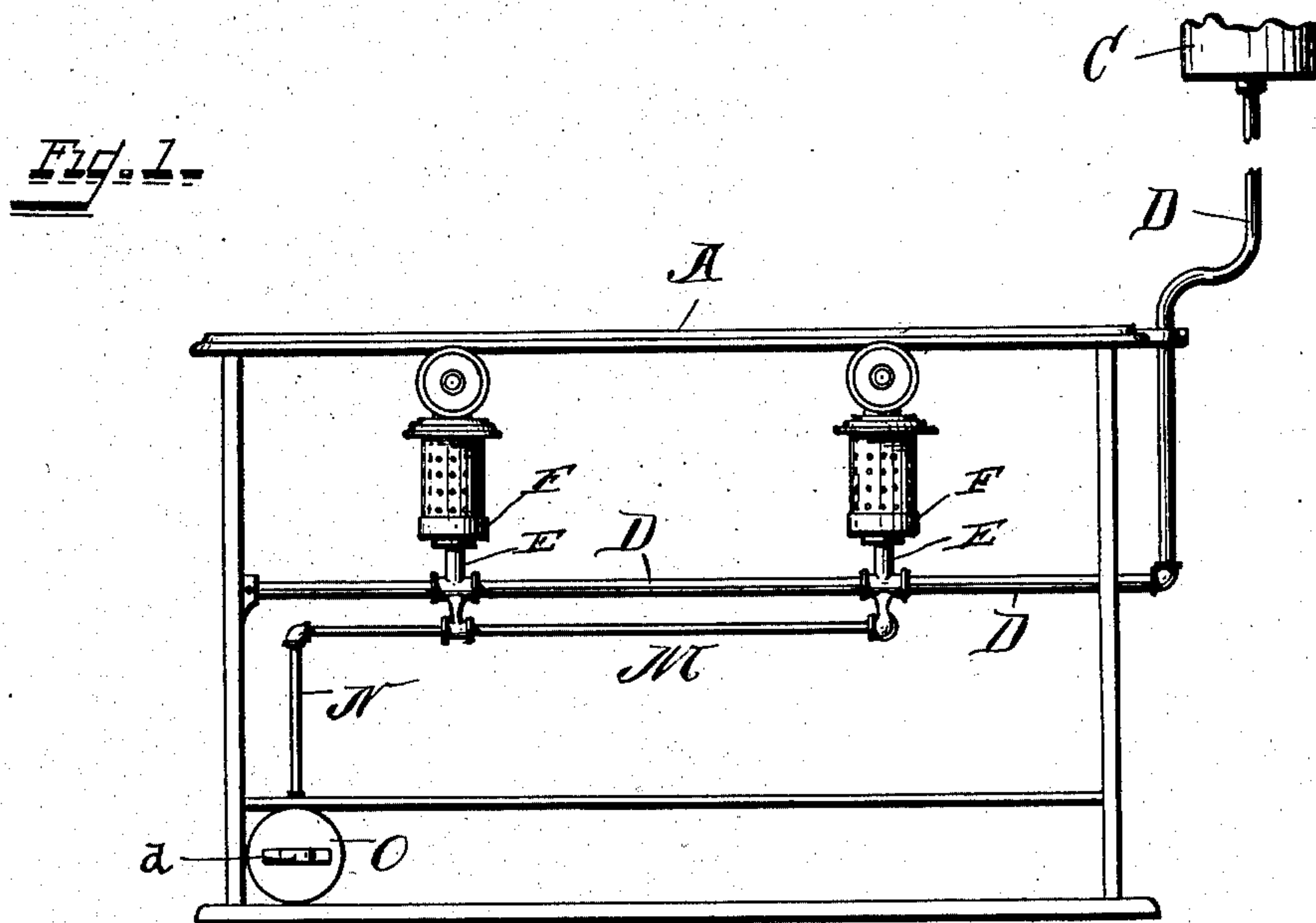
No. 741,913.

PATENTED OCT. 20, 1903.

I. KINSEY.
VAPOR STOVE.

APPLICATION FILED OCT. 28, 1901.

NO MODEL.



Witnesses.

Wm. J. Beck.
Edward Beck

Inventor.
Isaac Kinsey
by Chas. Beck
his Attorney.

UNITED STATES PATENT OFFICE.

ISAAC KINSEY, OF DAYTON, OHIO, ASSIGNOR TO THE STODDARD MANUFACTURING COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO.

VAPOR-STOVE.

SPECIFICATION forming part of Letters Patent No. 741,913, dated October 20, 1903.

Application filed October 28, 1901. Serial No. 80,377. (No model.)

To all whom it may concern:

Be it known that I, ISAAC KINSEY, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Stoves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to all classes of stoves or furnaces which employ liquid hydrocarbon as fuel, though it is more particularly designed for use in stoves for culinary purposes, such as gasolene-stoves; and it has for its object the provision of means for taking care of escaping vapor or partially-vaporized oil, thereby preventing the possibility of fires or explosions, which so often occur where no provision is made for taking care of escaping vapor from burners which have been accidentally blown out or which might thoughtlessly be opened while the burners and parts were sufficiently hot to convert the liquid into vapor. It also prevents the escaping of vapor and partially-vaporized liquid from burners which have not been sufficiently generated. My invention remedies all this and removes the danger by the provision of vapor-conduits connected with or in suitable proximity to the mixing-bowls, burner-caps, or other parts of the burner in such manner as to carry off the vapor or partially-vaporized oil to a reservoir or other suitable receptacle for taking care of the escaped vapor or partially-vaporized oil. The preferable plan, however, is to carry the escaping vapor or partially-vaporized oil into a receptacle as large or larger than the supply tank or receptacle. On coming in contact with the cool conduits and reservoir or receptacle the vapor is condensed into oil and when confined within the reservoir or receptacle is perfectly harmless.

A large percentage of accidents are caused by the ignition of escaping vapor and partially-vaporized liquid. This vapor is heavy and very inflammable, and a sufficient quantity of it will accumulate from a single burner while cooling off to cause an explosion or serious fire. Assume that two burners have been burning on the stove for a considerable time (an hour or more) and that one of them

is then turned down very low to furnish just enough heat to keep the article cooked over it warm. In event the burner which had been turned down low should be extinguished by a sudden draft of air that burner immediately begins to cool off, and the liquid in a very few moments ceases to be converted into gas, but on passing out of the needle-orifice strikes the hot parts of the burner and is converted into vapor. This vapor passes out through the slots or holes in the burner-cap and through any other openings in the burner parts in large and dangerous quantities, and in a very few moments a large quantity accumulates under and around the burner and very soon comes in contact with the flame of the adjacent lighted burner, and an explosion or fire results.

My invention comprises as its essential features a burner-cap of ordinary or desired construction, beneath which is a mixing-bowl, which is in communication with the burner-cap mentioned, but which is otherwise closed, except for an inlet for the fuel, which inlet is controlled by a needle-valve and serves to deliver vapor and air entrained therewith to the mixing-bowl, and an outlet for the heavy vapors and vaporized liquid, which outlet connects with a waste-pipe, the latter delivering in turn to a suitable storage tank or receptacle. The said inlet and outlet to the mixing-bowl are preferably connected by means of a conduit which forms a direct passage across the bowl and gives a direct circulation of the heavy vapors and unvaporized liquid past the burner from supply-inlet to waste-outlet, provision being made for the ready escape of the lighter vapor, which feeds the burner from such conduit, and its ascent to the burner proper.

The novelty of my invention will be hereinafter more fully set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of an ordinary two-burner gasolene-stove, illustrating the application of my invention thereto. Fig. 2 is an enlarged sectional side elevation of a burner equipped with my improved system. Fig. 3 is a central sectional side elevation of one form of receptacle-tank for the overflow.

The same letters of reference are used to indicate identical parts in all the figures.

In Fig. 1 I have represented an ordinary gasolene-stove with two burners, and A represents the frame of the stove; B, the burner mechanism; C, the elevated supply-tank, and D the supply-pipe leading from said tank to the burners.

As seen in Fig. 2, the burner mechanism consists of the usual stand-pipe E, communicating at its lower end with the supply-pipe D and carrying the lighting and gas-generating cup F. On the top of the stand-pipe E is the burner-head H, provided with a needle-valve I, by which the flow of gas into the mixing-bowl J is regulated and from which it escapes through the usual perforated or slotted cap G at the top of the stove. All of these parts may be of the ordinary well-known form of construction or of any other suitable construction and need no further description.

From the rear side of each of the mixing-bowls J, directly opposite the inlet-opening of the needle-valve, a down-pipe K extends and communicates by a branch pipe L with a pipe M, in this instance supported directly below the pipe D and leading by a down-pipe N to a storage-tank O at the bottom of the stove. Each mixing-bowl is preferably provided with a conduit-pipe P, extending across its bottom from the opening of the needle-valve to the opening in the pipe K and is provided on its upper side with a slot or opening *a*, Fig. 2, near its rear end for the escape of generated gas or vapor into the body of the bowl J, from which it passes to and through the perforations in the burner-cap G for ignition. It will be seen that conduit-pipe P forms a direct passage across the bowl J, so that the heavy vapors and liquid pass from the inlet to the outlet with no opportunity to escape and collect about the ports of the stove. The fuel, with the exception of the light inflammable gas, which is conducted to the burner G through the gas-outlet opening *a* in the conduit P, is thus effectually trapped, and its egress from the mixing-bowl except through the waste-outlet provided is absolutely prevented. In this simple manner any overflow or leakage from the burners is prevented from escaping to the floor and is caught in the pipes K, L, and M and conveyed away to the storage-tank or receptacle O, which when filled or at any other time can be taken out and emptied in the supply-tank C to prevent waste of the fuel. For convenience in thus emptying the storage-tank into the supply-tank I have made the former in the form of an elongated vented can, as seen in Fig. 3, which is connected with a jacket *b*, fixed to the frame of the stove, and has at one end a screw-cap covered nipple *c* for the discharge of its contents and at its outer end a handle *d*. The overflow-pipe N passes through the jacket *b* and registers with an orifice in the can O near its end farthest from the discharge-nipple, as will be readily understood.

To produce the best results from the construction as shown in the drawings, the mixing-bowls J are provided with pocket extensions directly opposite the needle-orifice in the burner-heads. The pipes or conduits K are connected with the lower rear part of the pockets in the mixing-bowls J and lead to the storage-tank O, located in suitable position below the level of the burners. Where two or more burners are used, I prefer to place the pipe or conduit M directly under the supply-pipe D, said pipe or conduit being suitably attached to the supply-pipe. I then connect each of the mixing-bowls J by means of the conduits K and suitable fittings with the single pipe or conduit M, which conveys the condensed vapor or overflow to the storage-tank O. The condensed vapor in the storage-tank O is not wasted, and it can be emptied back into the supply-tank C and used over again, as before described. Again, while I prefer to carry the pipe M to a storage-tank for saving the condensed vapor or liquid, yet said pipe M might be carried to any point to discharge its contents either on the ground or in a hole in the ground at a point beyond danger from fire or explosion.

Constructed in the manner above described the results desired would be obtained in the following manner: After generating the burner in the regular way suppose that it is accidentally blown out, leaving the needle-valve I open. For a few moments gas will continue to be generated and pass through the needle-orifice and burner-head H into the mixing-bowl J and escape through the slots or openings in the burner-cap G. This gas being light will arise and do no harm. As the stand-pipe E and lower burner parts begin to cool off the oil ceases to be converted into gas and escapes through the needle-orifice in a partially-generated condition for a few moments and then in liquid form. This partially-generated oil and liquid oil, having pressure back of it, is carried out of the needle-orifice through the tube P in the mixing-bowl with great velocity. On coming in contact with the hot metal it is converted into vapor the dangerous percentage of which is carried on through the conduit or pipe K and pipes L M N to the vapor-tank O. In a few minutes the liquid which comes in contact with the metal will cool off the burner parts and then continue to blow down through the pipes L, M, and N into the storage-tank, and all accumulated vapor will be condensed and reconverted into liquid, so that no overflow or leakage can occur and no danger of explosion will be presented, as will be readily understood.

Having thus fully described my invention, I claim—

1. In vapor generating and burning apparatus and in combination, a closed mixing-bowl having a vapor-inlet in its side, a burner surmounting said bowl, means for discharging a jet of vapor into said bowl-inlet and en-

training air therewith; said mixing-bowl having also an outlet for the heavy vapors and unvaporized liquid entering the bowl, so that they are carried past the burner, and a pipe 5 leading from said outlet to a waste-receptacle.

2. In a vapor generating and burning apparatus and in combination, a closed mixing-bowl having a vapor-inlet in its side, a burner 10 surmounting said bowl, means for discharging a jet of vapor into said bowl-inlet and entraining air therewith; said mixing-bowl having also an outlet for the heavy vapors and unvaporized liquid entering the bowl, 15 so that they are carried past the burner, a conduit traversing the lower part of said bowl and forming a direct passage from said inlet

to said outlet, and a pipe leading from said outlet to a waste-receptacle.

3. In a vapor generating and burning apparatus, the combination with a burner, of a 20 closed mixing-bowl beneath said burner and in open communication therewith, a supply-inlet for said bowl, a waste-outlet therefor, and a conduit-pipe traversing said bowl and 25 connecting said inlet and outlet, said pipe having an opening in its upper side to permit the escape of the lighter gases to the burner.

ISAAC KINSEY.

Witnesses:

ALLEN C. McDONALD,
CHARLES MORGAN WOOD.