No. 783,136. PATENTED FEB. 21, 1905.

T. B. RICE, Jr.

GAS STOVE OR RANGE.

APPLICATION FILED SEPT. 6. 1904.

fig. 1.

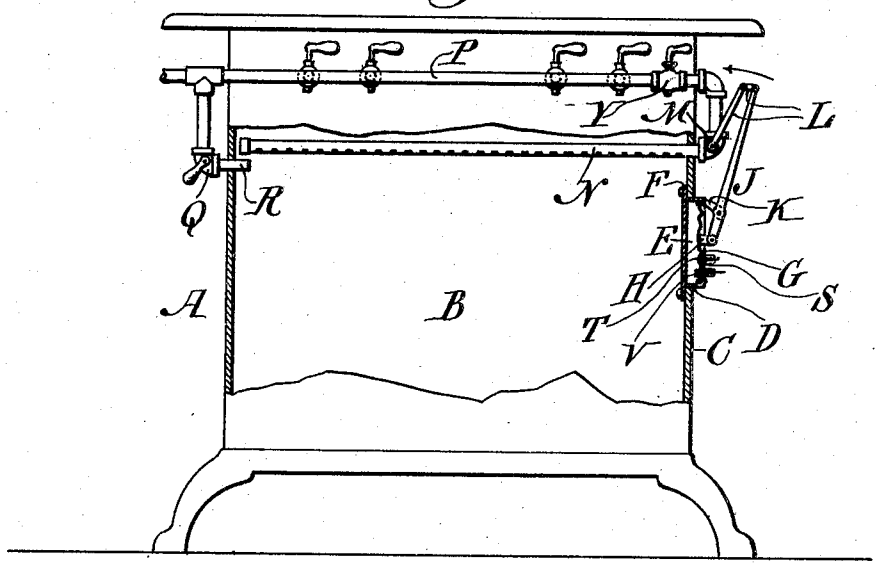


fig. 2.

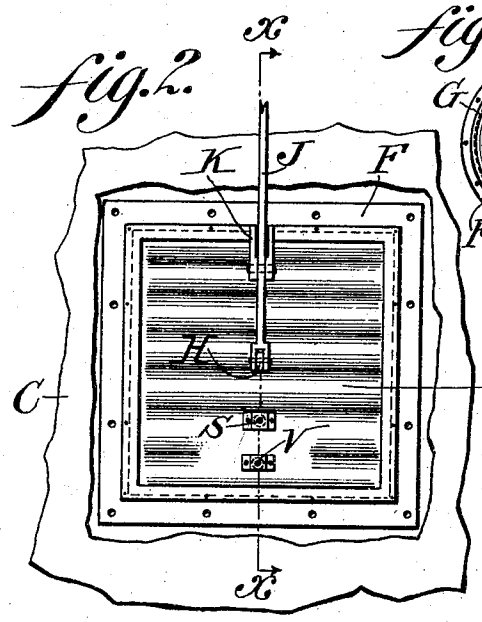


fig. 5.

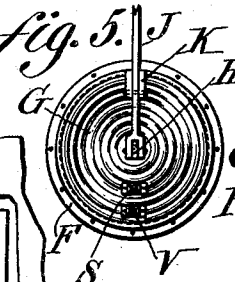


fig. 3.

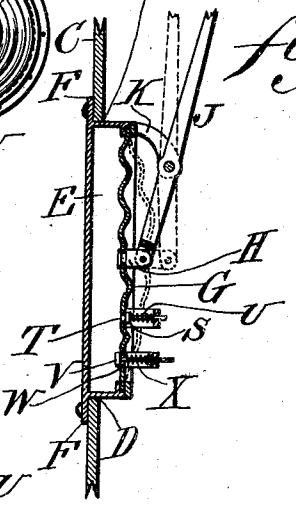
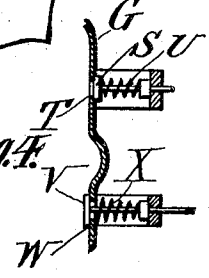


fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS B. RICE, JR., OF PHILADELPHIA, PENNSYLVANIA.

GAS STOVE OR RANGE.

SPECIFICATION forming part of Letters Patent No. 783,136, dated February 21, 1905.

Application filed September 6, 1904. Serial No. 223,361.

To all whom it may concern:

Be it known that I, THOMAS B. RICE, Jr., a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Gas Stove or Range, of which the following is a specification.

My invention consists of a gas stove or range having means for preventing premature entrance of gas into the oven thereof, whereby explosion of gas and loss of the same are obviated, as will be hereinafter described, the novel features being pointed out in the claims.

Figure 1 represents a partial side elevation and partial vertical section of a gas stove or range embodying my invention. Fig. 2 represents a side elevation of a detached portion thereof on an enlarged scale. Fig. 3 represents a vertical section on line *x x*, Fig. 2. Fig. 4 represents a view of a portion of Fig. 3 on an enlarged scale. Fig. 5 represents a side elevation of a portion of a modification.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a gas stove or range, and B the oven thereof. In a wall C of said oven is an opening D, which is occupied and closed by the air-containing chamber E, serving as a thermostat whose body is formed of sheet metal having a flange F, by which it is riveted or otherwise secured to said wall C. The exterior wall of said chamber E constitutes the diaphragm G, connected with which is an ear H, to which is pivotally attached the lever J, whose bearing is on the bracket K or other fixed member attached to the chamber E. The end of the lever opposite to the ear H is connected by the links L with the valve M of the gas-pipe N, the latter being within the oven B and provided with jet-openings for evident purposes.

P designates a gas-pipe at the top of the stove, and Q designates a valve which is connected with the end of said pipe and has the pilot-burner R, which enters the oven B preferably opposite to the chamber E.

S designates a valve which is connected with the exterior of the diaphragm G and has its seat T on said diaphragm, it being held in closed position by means of the spring U, the pressure of which is predeterminedly adjusted. V designates a valve on the interior of said diaphragm G, whose seat at W is on said diaphragm, said valve having bearing against it the spring X, whose pressure is predeterminedly adjusted, it being noticed that chamber E is adapted to receive a volume of air through the valve V, so that when the same is heated it will cause expansion of the diaphragm G, as hereinafter fully described. The diaphragm G is corrugated, whereby it may be made of light metal or material, while also increasing the surface subjected to the action of heat, thereby rendering the same highly sensitive to said action.

The operation is as follows: The gas is turned on at the valve Q and ignited and lighted at the burner R, thus heating the oven B, it being noticed that the gas does not enter said oven, as the valve M is closed. As the oven becomes heated by the flame of the burner R the heat is communicated to the chamber E, whereby the air in the latter has its temperature increased, thus expanding the diaphragm G, as shown by the dotted lines in Fig. 3. The ear H is carried by said diaphragm, thus imparting motion to the lever J, whereby, owing to the links L, the valve M is operated, and accordingly opened, thus admitting gas into the pipe N, the same now being ignited by the flame from the burner R, after which the operation of the stove may be as usual, it being evident that the gas has not been permitted to escape from the oven before ignition, and thus explosion and the escape of the gas and the objectionable odor thereof are prevented. Should there be an excess of hot air in the chamber E, the pressure on the same opens the valve S and permits the escape of the air until the predetermined volume of the same is restored; but as the existence of the air in said chamber is necessary for sensitive action of the diaphragm G should there be insufficient quantity of air in the chamber the valve V is subjected to the pressure of the atmosphere, whereby it opens inwardly and admits atmospheric air into the chamber to the requisite extent, when said valve closes. The gas may be entirely

cut off, as usual, by the valve Y or other suitable means.

The diaphragm G may be of any desired shape, it being shown angular, as in Fig. 4, and circular, as in Fig. 5, without producing different results.

Various changes may be made in the details of construction shown without departing from the general spirit of my invention, and I do not, therefore, desire to be limited in each case to the same.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A gas-stove having an oven, a primary gas-supply therefor, a thermostat having a flexible diaphragm on the oven adapted to be heated by said primary gas-supply, means suitably mounted on a member fixed to the stove, an attachment on the flexible diaphragm of said thermostat with which said means is suitably connected, a gas-supply proper for the oven, a valve therefor and a connection between said valve and means.

2. In a gas-stove, an oven provided with a primary gas-supply, a thermostat on said oven adapted to be primarily heated by said primary gas-supply and composed of a casing and a flexible diaphragm, an ear secured to said diaphragm, and movable therewith, a lever mounted on said casing and pivotally connected with said ear, a gas-supply proper for the oven and a valve on the latter with which said lever is pivotally connected.

3. In a gas-stove, an oven, a thermostatic air-receiving chamber adapted to be heated from the oven, a valve-operating connection extending from said chamber to the valve of the gas-supply for the oven and means for relieving said chamber of an excess of air.

4. In a gas-stove, an oven, a thermostatic air-receiving chamber adapted to be heated from the oven, a valve-operating connection extending from said chamber to the valve of the gas-supply of the oven, and means for supplying said chamber with a proper volume of air.

5. In a gas-stove, an oven, a thermostatic air-receiving chamber adapted to be heated from the oven, a valve-operating connection extending from said chamber to the valve of the gas-supply of the oven, and means for relieving said chamber of an excess of air and supplying it with a proper volume of air.

THOMAS B. RICE, JR.

Witnesses:
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CHAS. DYER.