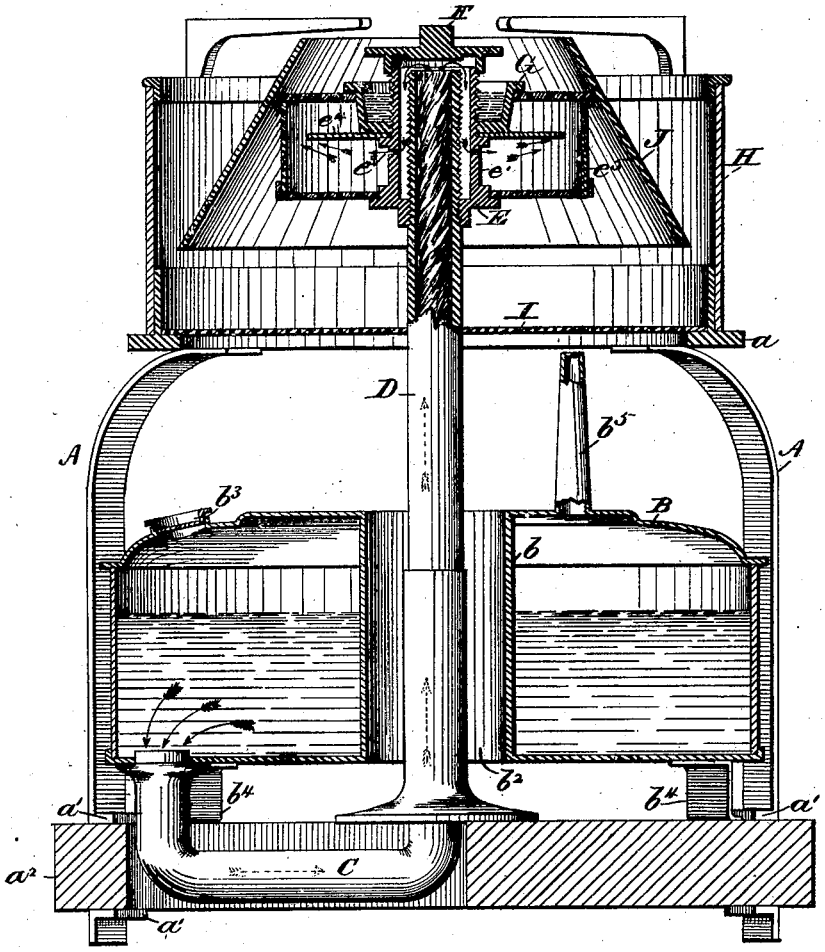
2 Sheets—Sheet 1.

J. H. BEAN.

VAPOR STOVE.

No. 185,065. Patented Dec. 5, 1876.

Fig 1.



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2 Sheets—Sheet 2.

J. H. BEAN.

VAPOR STOVE.

No. 185,065. Patented Dec. 5, 1876.

Fig. 2.

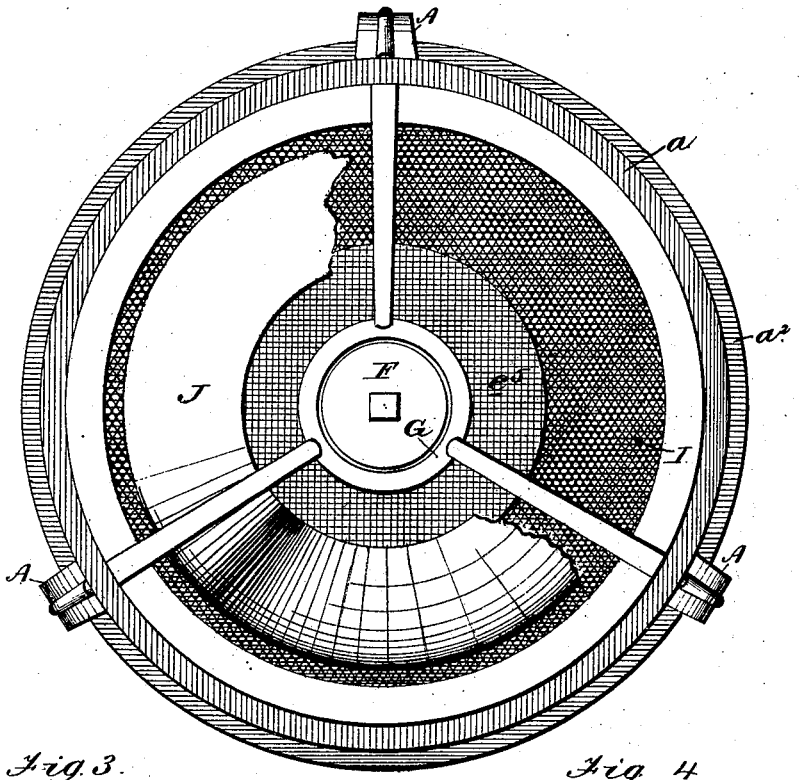


Fig 3.

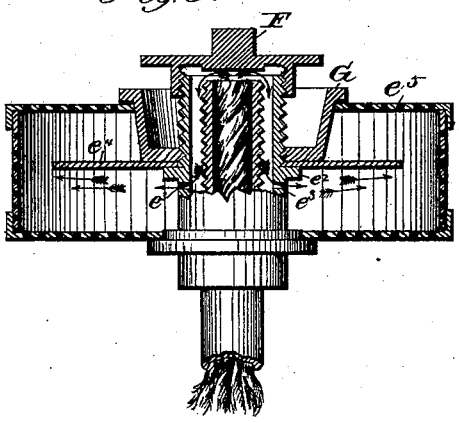
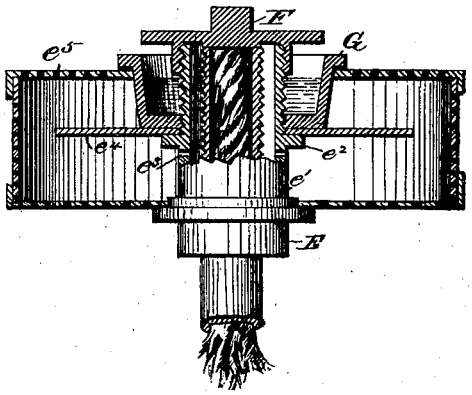


Fig 4



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UNITED STATES PATENT OFFICE.

JOSEPH H. BEAN, OF CINCINNATI, OHIO.

IMPROVEMENT IN VAPOR-STOVES.

Specification forming part of Letters Patent No. **185,065**, dated December 5, 1876; application filed October 20, 1876.

To all whom it may concern:

Be it known that I, JOSEPH H. BEAN, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Gas-Stoves; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention consists, mainly, first, in insulating from the heating-burner the tank or reservoir which holds the gasoline or other substance from which the vapor is formed, so that it is in no way exposed to its action; second, in the special construction of the burner; third, in the employment of a hood or hollow cone surrounding the burner, for the purpose of more effectually mixing the air and gas in the burner, and also increasing the draft in the same.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and manner of operation.

A A represent legs of any proper construction and material, which are secured at their upper ends, in any proper manner, to the ring *a*, for the purpose of supporting the same, and provided near their lower ends with lugs or projections a^1 a^1, Figure 1, adapted to support the platform a^2, as shown. This platform a^2 is made of wood or other non-conducting material, in order that heat conducted from the burner may not be communicated through it to the tank, which rests upon it. B represents the tank or reservoir, constructed generally of any proper size, shape, and suitable material, which is preferably provided with a central cylindrical wall, *b*, by means of which a vertical opening, b^2, extending through it, is formed. b^3 represents a removable cap, closing the filling-opening; and b^4 b^4, supporting-feet of non-conducting material, by means of which the tank is raised from the non-conducting platform below. b^5 represents a vent-tube, having a very small opening in its top, which is adapted to permit any gas which may accumulate in the tank to escape to the burner, and also to permit the entrance of air when a vacuum is formed in the tank, as will be hereinafter described. C represents a tube, constructed of lead or other material which does not readily conduct heat, which, communicating at one end with the tank, is properly extended and bent until its other end unites with the wick-tube proper, D, as shown. This tube, it will be observed, is centrally held in the vertical opening of the tank, so that air is permitted to circulate about it on all sides for the purpose of keeping it cool. D represents the wick-tube proper, extending upward a proper distance, and provided at its upper end with a threaded portion adapted to hold the burner, as shown. Its interior is provided with wick, as indicated in the drawings. E represents the burner, consisting of the tube *e*, having the enlarged portion e^1, flange e^2, and discharge-opening e^3 for the gas, as shown. e^4 represents a disk or plate projecting from the burner above the gas-discharge openings, by means of which the gas is thrown out equally upon all sides. e^5 represents an inclosing shell or chamber, formed of wire-gauze or perforated metal, closed on all sides, by means of which the distribution of the gas is more uniformly and perfectly effected.

F represents a plate or cover, secured in place upon the upper end of the burner, as shown, by means of screw-threads, which is adapted, when screwed downward, to bear upon the open end of the wick-tube, as shown in Fig. 4, and cut off the flow of gas therefrom, and when screwed upward to permit the flow of gas from the wick-tube through the discharge-openings, as shown in Fig. 3. G represents a cup, secured to the burner in any proper manner, which is designed to hold a small quantity of gasoline. H represents a rim rising from the plate *a*, which is adapted to inclose the burner and concentrate the heat upon the desired point. I represents a plate of perforated metal or wire-gauze, which serves as a safety-shield to prevent the flame from reaching the tank, but which permits also the proper amount of air and draft to be supplied to the burner. J represents a hood of conical form, open above and below, which surrounds the burner, for the purpose of more effectually mixing the gas and air, and also increasing the draft.

From the foregoing description the operation of my invention will be readily under-

stood. The small cup G having been filled with gasoline and lighted, the heat resulting therefrom will necessarily be communicated, through the burner, to the wick-tube. By means of this heat vapor is formed from the gasoline, and this passes from the wick-tube, down through the burner, out of the discharge-openings, into the shell e^5. In this shell the gas is deflected by the plate e^4, and thoroughly mixed with air drawn in from below, the new mixture finally rising through the shell to the flame above, where it is consumed. Through the vent-tube, also, any gas that may accumulate in the tank is conveyed away to the burner. When it is desired to discontinue the use of the stove the cap F is screwed tightly down upon the open end of the wick-tube, and hence no gas or vapor can possibly escape.

Some of the advantages of the described construction are as follows: The tank is so separated from the heating-burner, although located in comparatively close proximity to it, as not to be subject to its action, by means of which conditions of safety are obtained with economy of space. By means of the vent-tube the tank is relieved of any gas that may accumulate, and also the pressure of the atmosphere is utilized to cause the gasoline to flow to the wick-tube.

By the peculiar construction of the burner the gas and air are uniformly mixed and equally distributed upon all sides.

By means of the plate F, for shutting off the gas, the escape of smoke or vapor, after the extinguishment of the flame, is absolutely prevented, and consequently no unpleasant smells result from this action.

By means of the lighting-cup the wick-tube may be heated and the gas formed without the production of smoke, as usually occurs in lighting this class of burners.

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

1. In combination with the burner having the disk e^4, the inclosing-cage, perforated upon all sides, as shown.

2. In combination with the burner, constructed substantially as described, the inclosing-hood J, substantially as described, adapted to more effectually mix the air and gas and increase the draft.

3. In combination with the burner and the tank, an intermediate connecting-pipe composed of non-conducting material, substantially as described.

4. In combination with the tank and the metal connections A, supporting the upper parts of the stove, the intermediate non-conducting platform a^2, substantially as described.

5. The combination of the non-conducting supporting-legs, the non-conducting platform, and the tank, substantially as described.

6. The combination of the tank, the non-conducting platform, and the non-conducting tube, as described.

7. In combination with the tank, having a central opening, the tube extending through the opening and the burner, the construction being such that air can rise through the tank to the burner, as described.

8. The stove having the insulated tank, heating-burner, adjustable plate, and lighting-cup, substantially as described.

9. In combination with the insulated tank, heating-burner, adjustable plate, and lighting-cup, the hood or hollow cone, when used in the manner and for the purpose set forth.

This specification signed and witnessed this 16th day of October, 1876.

J. H. BEAN.

Witnesses:
L. C. BLACK,
J. B. FORAKER.