J. P. HAYES.

Improvement in Gas-Stoves.

No. 131,951. Patented Oct. 8, 1872.

Fig. 1.

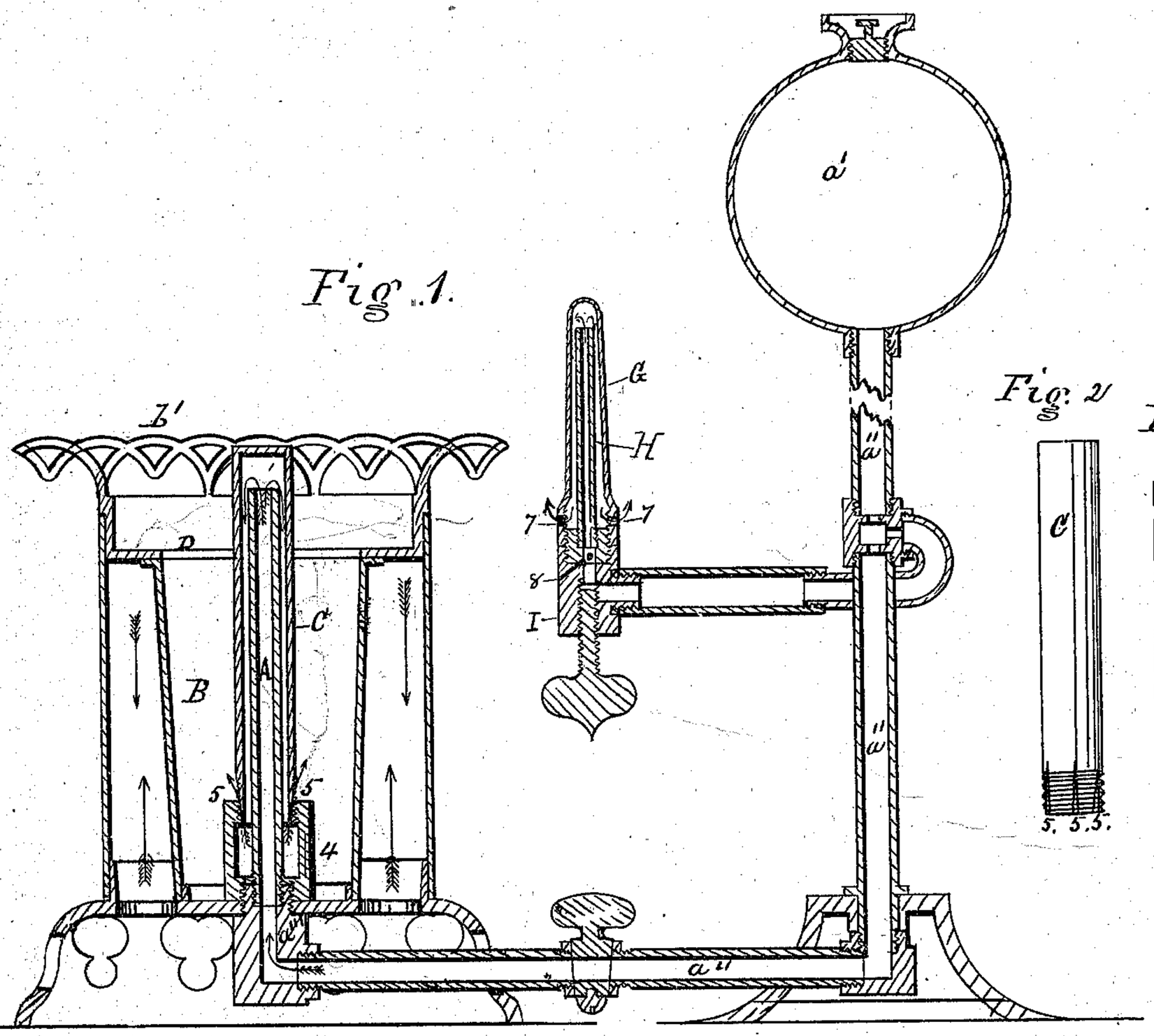


Fig. 2

Fig. 3

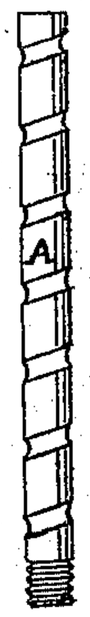


Fig. 4.

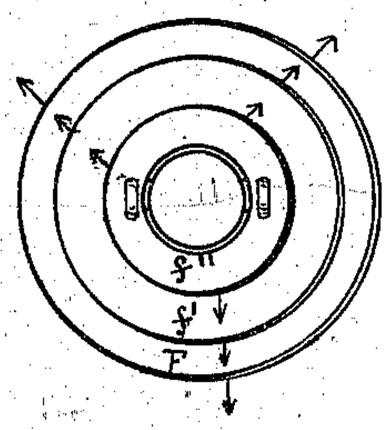


Fig. 5.

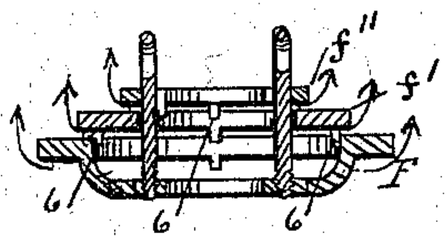


Fig. 6.

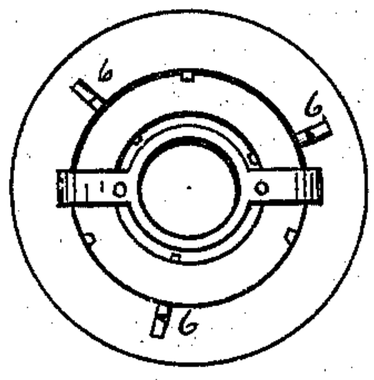
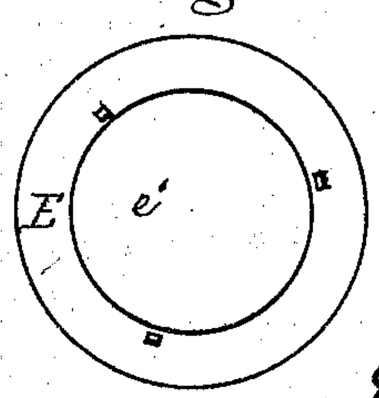


Fig. 7.



WITNESSES:

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AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

JOHN P. HAYES, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN GAS-STOVES.

Specification forming part of Letters Patent No. **131,951**, dated October 8, 1872.

To all whom it may concern:

Be it known that I, JOHN P. HAYES, of the city of Philadelphia, in the State of Pennsylvania, have invented certain Improvements in Hydrocarbon Oil or Gas-Burning Stoves, of which the following is a specification:

The first part of my invention relates to the combination, with the vaporizing or rarefying tube and case, of a concentric receiving-chamber, having closed sides and bottom, and an open top provided with detachable covering-plates, having a central opening in each; the object of this part of my invention being twofold: First, to enable the attendant to remove the covering-plates and ignite or burn the vapor or gas at the jet-holes, near the bottom of a hollow concentric cylinder, until the said vaporizing-case has become sufficiently heated thereby; and second, to enable the attendant to transfer the combustion of the vapor or gas from near the bottom to near the top of the concentric receiving-cylinder, or to the top of the covering-plates, as the suppression of the blowing or roaring noise and the requirements in cooking and heating may render desirable. The second part of my invention relates to a series of connected detachable plates of cast or thick plate metal, arranged in relation to each other in such a manner that the vapor will be discharged in thin broad currents between the said plates, whether the said plates be circular or rectangular, or arranged to discharge the gas or vapor either vertically or horizontally; the object of this part of my invention being to produce a series of concentric or parallel sheets of burning vapor or gas for heating or illuminating, or both.

Figure 1 is a vertical central section of the stove, in connection with a hydrocarbon fountain, embodying my invention. Fig. 2 is a side view of the vaporizing or rarefying case, which incloses the supply-tube, detached. Fig. 3 is a side view of the vertical portion of the supply-tube detached. Fig. 4 is a plan view of the upper side of a connected series of the detachable plates, for contracting the circular opening in the top of the vapor-receiving chamber. Fig. 5 is a vertical central section of Fig. 4. Fig. 6 is a plan view of the under side of Figs. 4 and 5. Fig. 7 is a plan view of the under side of a single detachable plate for contracting the opening in the top of the vapor-receiving cylinder.

The vertical portion A of the supply-tube a'' communicates with the elevated fountain a' through the said connecting-tube a'', the two tubes being screwed into an elbow, a''', which is screwed gas-tight in the center of the bottom of the vapor-receiving cylinder B, by means of a short hollow cylinder, 4, which serves as a screw-nut, and is also screw-cut in the inner side of its upper end, which extends upward about three-quarters of an inch, more or less, above the bottom of the vapor-receiving cylinder B. In the open upper end of the short cylinder 4, the lower end of the vaporizing or rarefying-case C is adapted to be easily screwed up and down—say a quarter of an inch more or less—for the purpose of increasing or diminishing the transverse area of four, more or less, tapering jet-grooves, 5 5, in the outside of the lower end of said case. The vapor-receiving chamber B is an inverted hollow conical frustum, which is left entirely open at its flanged top or mouth D, when the jets at 5 5 are to be ignited and adjusted, after which it is to be partially closed or contracted by the single detachable plate E, which has a central opening, e', of less diameter than the mouth of the chamber B, which, being thus contracted, the vapor or gas will pass up and burn around in the upper part of the case C at a short distance below the opening in the plate E and without producing any noise. The case C extends upward above the upper end of the inclosed tube A, and nearly to the top of the usual skeleton top rim b' of the stove, and is closed gas-tight at its upper end. The lower end of C has four of the tapering grooves 5 5 cut lengthwise in its outside, the lower end of said grooves communicating with the interior of the short cylinder 4, and their upper ends tapering upward until they run out at about a half-inch, more or less, above the said lower end of the case, (see Figs. 1 and 2,) so that, as the said case is screwed downward and upward alternately in the short cylinder 4 the transverse areas of the said jet-grooves 5 5 will be diminished and increased accordingly, as the attendant may require. The detachable connected series of plates (see Figs. 4, 5, 6) are circular flat disks of cast or plate iron,

each about an eighth of an inch thick, and provided with a central opening of a different diameter from the others, through which the projecting upper end of the vaporizing-case C will freely pass and allow the said series of disks to be placed concentrically over the mouth of the vapor or gas receiving chamber B, the largest disk, F, being the bottom one, and the smallest, *f''*, the top one, and the diameter of the opening in the latter being very little larger than the diameter of the rarefying-case C which passes through it. The under side of each of the three plates F *f' f''* has three shallow projections, 6 6 6, on its under side, which keep them slightly separated, so that the vapor or gas will pass horizontally out between them, and burn uniformly around the edges, as indicated by the arrows in Figs. 4 and 5. The illuminating burner (see Fig. 1) consists of a vaporizing-case, G, inclosing, concentrically, a vertical supply-tube, H, which opens within the upper end of G, and also communicates with the fountain *a'* through the usual stop-cock boss I and tube *a''*. The case G is closed at its upper end, and near its lower end its sides are perforated with four (more or less) jet-holes, 7 7, through which the vapor produced within the burner, when heated, escapes. In the boss I of the cock there are two like upward and inward inclined holes, one of which is shown at 8, Fig. 1, through which atmospheric air is drawn upward into the supply-tube H, when the latter becomes heated by the surrounding case and flame, and the said air, intimately mingling with the hot vapor in the said tube and case, escape together through the jet-holes 7 7, and thus produce the strong light desired at night while cooking and baking.

I claim as my invention—

1. The case C and its inclosed tube A, as constructed and attached to the supply-tube *a''*, in combination with the concentric vapor-receiving chamber B, provided with closed bottom and sides and open top, as described, the said part being arranged to operate together, substantially as and for the purpose hereinbefore set forth.

2. The detachable series of connected plates F *f' f''*, when constructed and secured together so as to afford thin spaces between them for the escape of the vapor or gas, substantially as and for the purpose hereinbefore set forth.

JOHN P. HAYES.

Witnesses:
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