L. & W. H. TROWBRIDGE.

Gas Stove.

No. 91,496. Patented June 15, 1869.

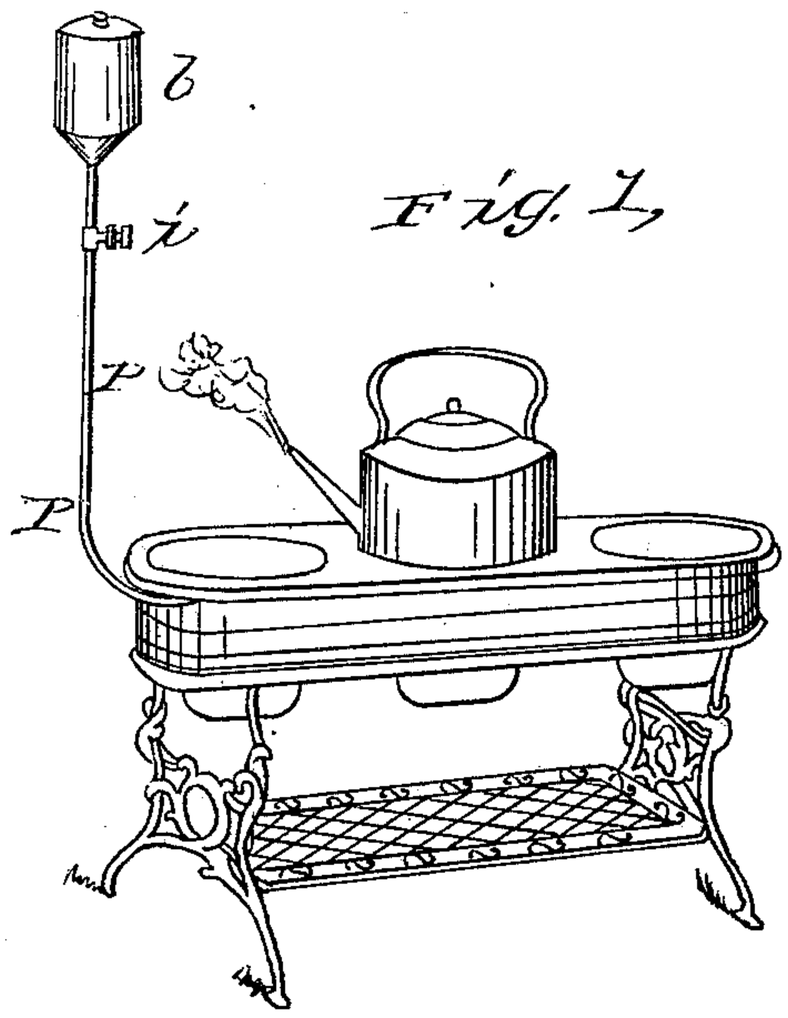

Fig. 1,

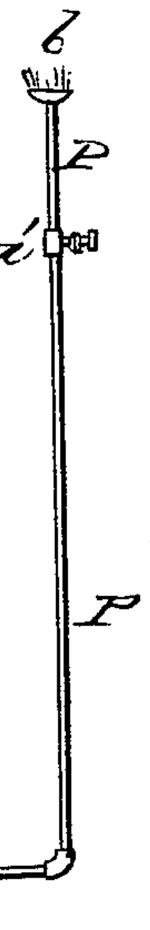

Fig. 2,

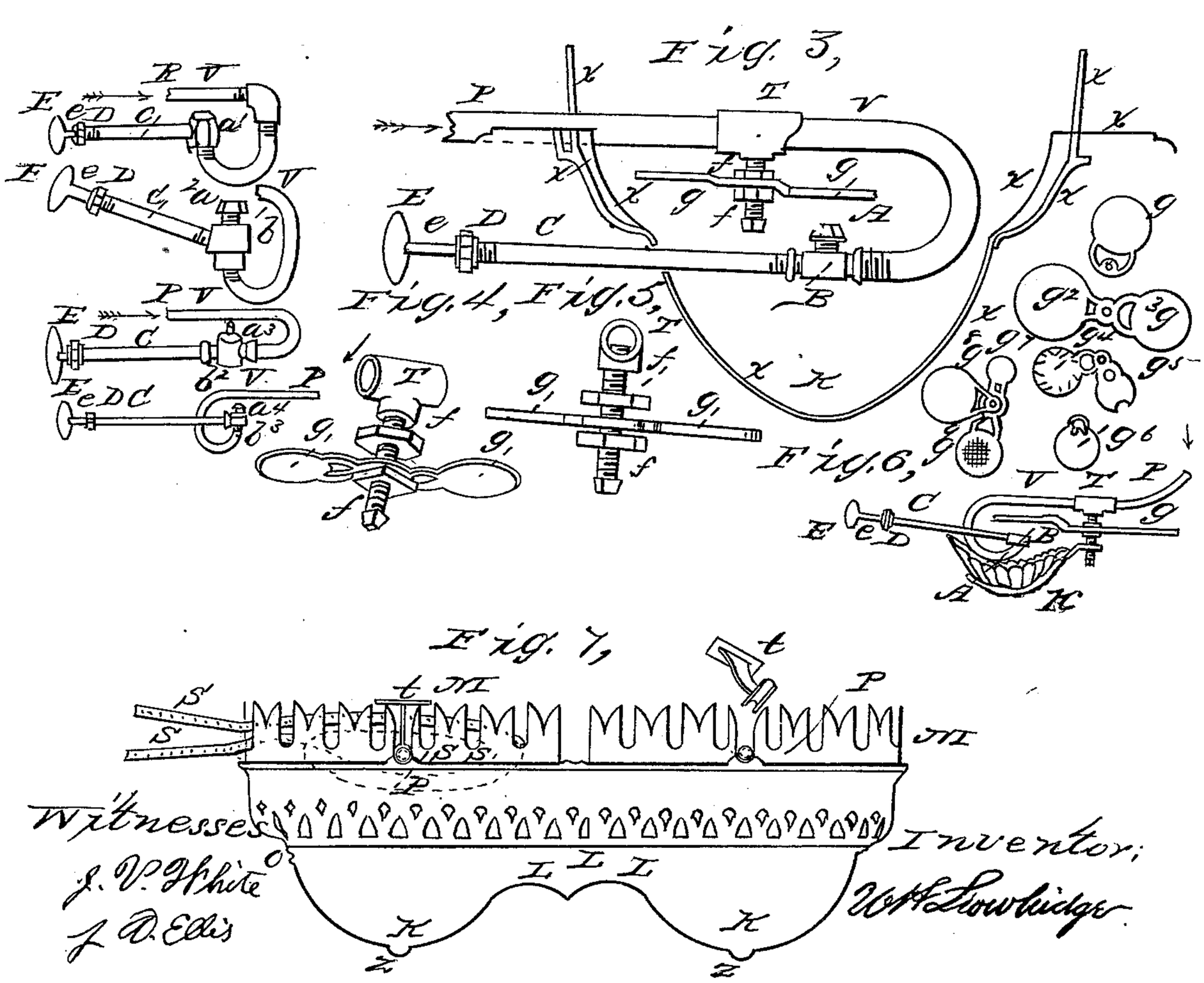

Fig. 7,

United States Patent Office.

L. TROWBRIDGE AND W. H. TROWBRIDGE, OF NEW YORK, N. Y.

Letters Patent No. 91,496, *dated June* 15, 1869.

IMPROVEMENT IN GAS-STOVES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, L. TROWBRIDGE and W. H. TROWBRIDGE, of New York city, in the county and State of New York, have invented certain new and useful Improvements in Vapor or Petroleum-Gas Stoves and Lights; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, in which—

Figures 1 and 2 represent, in perspective, views of two petroleum-gas or vapor stoves, the latter only showing a portion of our improvements.

Figure 3 is a section showing relation of our faucet, burner, and disk-combination with such stove.

Similar figures and letters denote corresponding parts, and will be explained hereinafter.

Our invention consists mainly in an improved apparatus for burning vaporized fluids, or gas from light oils or spirits, comprising petroleum, or any of its products.

The letter P denotes the pipe conveying the fluid from a reservoir, *b b*, into the vaporizing-chamber V, which is above, and heated by the burning fluid, or vapor from the burner A, and which said fluid in the vaporizing-chamber V is there vaporized or gasified by heat, and thence conveyed, by means of a pipe, or any combination of pipes, elbows, T's, or other couplings, into B, the burner-supporter, or A, the burner.

A represents a burner of any known form; a^1 a^2 a^2 a^4 show a few of the different forms.

B, a burner-supporter of any known form; b^1 b^2 b^3, a few of the different forms.

C, a pipe, tube, or cylinder, connected by screw, or cast with B or A.

D, a packing-cap of any known kind, containing any known packing, to be screwed into or upon the extended tube C, thereby preventing the leakage of the contents of C at D.

E, a thumb-piece, or stem, of any known form.

e, a section of stem, or rod, prolonged, and running through D and C into B, as represented, or into A, (per a^1,) at which point the flow of the fluid or vapor is stopped or regulated, in the manner of an ordinary globe or other valve.

The line *x* represents a form for a stove-bottom, the lower part of which constitutes a cup, or basin, *k*, referred to hereinafter.

One of our improvements consists in removing the stem, or thumb-piece E, and packing-cap D to any desired point outside of the stove *x x x x*, or beyond the reach of the heat, and another, in cutting off or regulating the flow of the contents of C, after the point of vaporization by heat, as before described, instead of before; in other words, in regulating the flow of the vapor or gas, instead of the fluid, by means of such improved combination

A great defect in regulation, hitherto, has been in regulating only the supply of the fluid before vaporization. If a remedy has ever been attempted, it must have been imperfect, as a faucet with no packing has proved utterly inefficient for such purposes, and as a faucet with packing and stem, in proximity to the heat, would be worthless.

The combination A C D E *e*, or A B C D E *e*, as above described, is applicable in all cases where an immediate and perfect regulation of vapor is desired, and is especially adapted to vapor-stoves, vapor-lights, steam-boilers, furnaces, evaporators, heaters, and various other chemical, dental, scientific, and mechanical operations, in which heat from similar fluids is of avail.

At the left of fig. 3 are views of a few of the modifications permissible in our combination, as above described.

Figures 4 and 5 represent in perspective and profile, respectively, an adjusting-combination for a disk, or disks, for said stoves, consisting, in part, of a vertical shaft, *f f*, around which revolves horizontally one or disks, *g g g g*, allowing said disks to be lowered or raised, by means of nuts or screws, in connection with the shaft *f f*, moved forward or backward along the pipe P and V, and revolved or swung laterally over or away from the burner A, thus admitting of six movements to any of said disks.

Marked g^1 to g^9, to the right of fig. 3, are surface views of nine of our disks, suitable for said combination, which may be made of cast-iron, or other material, in the centre of one of which may be inserted wire gauze, for mollifying the noise, or producing a light, per g^9, thus allowing the operator a choice in style and size of disk.

Said shaft *f f* may be suspended by a T-connection T, from the chamber V, and secured thereto at any given point, by screwing up of shaft *f f* against V, or by additional screws through T, and against V.

From said vertical shaft *f f*, or a substitute, may also be suspended a revolving cup, or basin, such as K', in Figure 6, or a cup of any known style, for the purpose of receiving the fluid used in ignition, and such as may escape, rendering the whole suitable for special uses.

Surrounding the foregoing, mainly represented by fig. 3, may be any suitable frame-work, or stove, supported by legs or otherwise, two styles of which, now in use, are shown by figs. 1 and 2.

Hitherto, those commonly used have been constructed of several different pieces, with imperfect brackets, and either with no connection of the caps *k* with each other, or with connection too intimate.

Remedying these defects, and presenting further

advantages, we have devised an improved bottom, or body, represented by Figure 7, containing our application of water-back to these stoves, shown by letters S S S S.

The unclaimed parts of said stove-bottom will require no explanation.

Our improvements in said bottom consist in having the whole cast in one piece; in having at the bottom of those portions, under each burner representing cups, or basins K K, a cavity, conforming to the shape of, and directly below the vaporizing-chamber V, for receiving the fluid in ignition, and concentrating the flame upon said vaporizing-chamber to be heated; in having said cups or basins K K connected with each other by a narrow duct, L L, just below the level of the air-apertures, so that one may be completely filled before discharging into another, in case the fluid should ever be allowed to escape, thus presenting very little surface to the blaze, in the contingency of ignition, when so accidentally full, and allowing of the entire discharge of the contents of the reservoir without reaching the floor; also, in having a new pipe-fastening, an escape-duct, and dispensing with a separate rim, all to be more particularly mentioned.

The upper portion M M, which corresponds to the sheet-iron or cast-iron rim in other stoves, fits and supports the top, and is provided with ornamental spaces, for the escape of the surplus heat.

Legs may be screwed to the top, or to projections from said bottom.

Said upper part is also provided with openings, to admit the insertion of the pipes P P, which are supported by the projections at the bottoms of these openings, each having two elevations, with creases, to fit the pipe P, which is bound to this point by a stanchion, *t t*, held down by the top, which is screwed to said projection beneath.

Said stanchion *t* may be a projection from and cast with the top, (alone, or as a part of the rim, which may be cast with the top, in lieu of the bottom, as here shown,) or it may be independent, with its upper surface coinciding with the top, and its base nicely fitting and extending along the pipe P.

The bottom has also openings for the insertion of C.

Below the level of the lowest opening, and above the level of the connecting-duct L L, is an escape-opening, *o*, through which the fluid escaped may be drawn off. That portion of the fluid which may be lower than the said escape-opening, can be floated to its level with cold water. The advantage of this is apparent.

Another advantage of the peculiar form of our bottom is, that the fluid, in igniting, is concentrated in the cavity described, under the vaporizing-chamber, thereby heating it sooner and with less fluid, and preventing a small quantity of fluid from spreading over the entire surface of a level bottom, when lit, an unprofitably large surface of the flame, which has a startling effect upon those unfamiliar with the working of such stove.

The pipe S S S S, in fig. 7, represents our application, to stoves using petroleum or its products, of a water-back, consisting of a coil, or coils of pipe, or a chamber of cast-iron, encircling or in proximity to one or more burners, receiving heat from the flame, and connecting with a tank containing water, or other fluid, to be heated, on the principle of an ordinary water-back.

To start the fire, the faucet at *i* being open, the faucet-stem E is turned, allowing sufficient fluid to issue from the burner A, and to fall into the cup or basin K below, to heat (when said fluid is ignited) the vaporizing-chamber V, when the fluid therein contained will be vaporized; then, with the faucets open, the vapor or gas burns at A, and is distributed by the disk.

We claim as new, and desire to secure by Letters Patent—

1. The combination of the tube or section C and rod *e*, between the point B, or the point A and the point D, at the outside of the frame-work, for the purpose of removing the packing-cap D and thumb-piece E beyond the reach of the heat, substantially as and for the purpose described.

2. The combination and arrangement of burner A, pipe C, packing-cap D, and thumb-piece E, substantially in the manner and for the purpose set forth.

3. The ducts L L, the convexity for ignition *z z*, and escape-opening *o*, in combination with the rim M, substantially in the manner and for the purpose described.

In testimony that we claim the foregoing as our own, we affix our signatures, in presence of two witnesses.

L. TROWBRIDGE.
W. H. TROWBRIDGE.

Witnesses:
B. T. PRENTIS,
HOYT POST,
GEO. W. GIBBONS,
J. F. LA MALFA.