

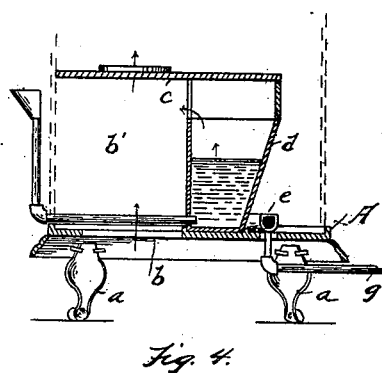
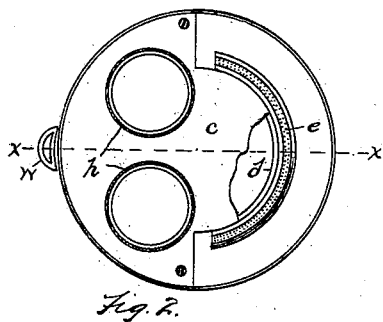
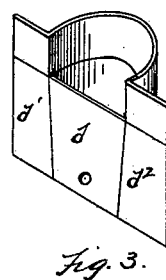
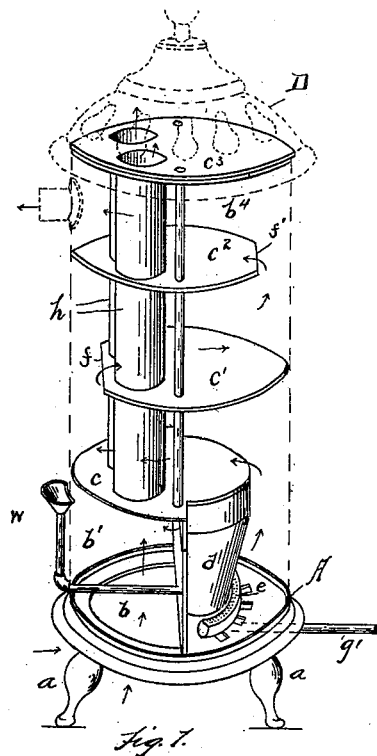
No. 646,684.

Patented Apr. 3, 1900.

J. A. DAILEY.  
GAS STOVE.

(Application filed Aug. 6, 1898.)

(No Model.)



WITNESSES  
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# UNITED STATES PATENT OFFICE.

JOHN ARTHUR DAILEY, OF DETROIT, MICHIGAN.

## GAS-STOVE.

SPECIFICATION forming part of Letters Patent No. 646,684, dated April 3, 1900.

Application filed August 6, 1898. Serial No. 687,887. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN ARTHUR DAILEY, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Gas-Stoves; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to gas-stoves, and has for its object an improved form of stove of hygienic principles in which the gas-flame is burned in close proximity to a water-tank, in which the water-vapor is thoroughly dried and mingled with a large body of air before being allowed to pass into the open air of the room, and in which the products of combustion escape from the room.

My invention further consists in combination of parts by which compactness, efficiency, and simplicity are secured.

In the drawings, Figure 1 is a perspective showing the interior parts of the stove. Fig. 2 is a horizontal section through the stove at the bottom of the air-flues. Fig. 3 is a perspective showing a back view of the water-tank. Fig. 4 is a vertical section showing the air-chamber, water-tank, and burner.

A indicates the stove-base, supported from the floor on legs *a* and having what may be termed the "rear" half of it open for the free entrance of air through the hole *b* into a chamber *b'*, that occupies the rear half of the space inclosed by the casing (which is indicated by the dotted lines) and below the first diaphragm *c*. The front half of the space inclosed within the same casing above the base A and below the plane of the diaphragm *c* is the first combustion-chamber, and in it are located a water-tank *d* and the gas-burner *e*. The water-tank is made as a vessel that is entirely closed on those sides which are next adjacent to the fire.

The water-tank may be made in any suitable shape. As shown in the drawings, it is made in the shape of the half of a frustum of a cone, with the small end downward, the large end upward and closed, and the flat wall at the rear of the frustum extended to the stove-

walls by the wings *d'* *d''*, and across the walls of the water-tank, near the top, is an opening that allows vapor to escape into the chamber *b'*.

The first diaphragm *c* covers the chamber *b'* and the water-tank having one or more openings to be connected with tubes for the passage of air, leaving the half-annular opening at the front between the edges of the diaphragm and the outer walls of the stove. Through this half-annular opening the products of combustion pass upward from the burner *e* to the second diaphragm *c'*.

The second diaphragm *c'* lies across the stove from wall to wall, with one or more openings to correspond with openings in the first diaphragm for the passage of air through the tubes before mentioned, and leaves an opening at the rear between its rear edge *f* and the stove-walls, through which the products of combustion may pass upward around the diaphragm *c'*.

A third diaphragm *c''*, similar in shape to the second diaphragm *c'*, having one or more openings to correspond with the first and second diaphragms, lies spaced from the second diaphragm above it, closing the upward passage at the rear, but opening it at the front between the edge *f'* and the walls of the stove, so that the products of combustion may pass upward beyond this diaphragm on the way to the pipe *p*.

Above the exit-pipe *p* is a fourth diaphragm *c'''*, with openings to correspond with the first, second, and third diaphragms, which entirely closes in the upper side of the last chamber *b''*, except the air-flues, which pass from the lower diaphragm to this one. Above the last diaphragm *c'''* is the ornamental stove cover or dome, provided with perforations to permit the escape of rising air which comes through the flues *h*.

Flues, one or several in number, rise through the several diaphragms leading from the first or air chamber *b'* to the chamber immediately beneath the dome D. While only three diaphragms are shown intermediate the fire and the exit-pipe any number of such diaphragms, may be used sufficient to retain the heated gases in the stove until they have imparted all or nearly all their heat to the flues *h* and heated the air rising through the flues *h*, and while

only two flues *h* are shown in the drawings this number may be decreased to one or increased indefinitely, so as to produce a large heating-surface to be acted upon by the heated gases.

*g'* indicates the inlet-pipe for gas, and *w* indicates a filling-pipe for the water-tank *d*.

Preferably the water-tank when placed next adjacent to gas-burner should be coated on its front side with asbestos, but can be left without anything, and this asbestos should preferably be of the fibrous kind, such that it may become incandescent in the flame and furnish the light and genial appearance produced by burning gas against fibrous or wooly asbestos. The asbestos thus not only becomes a source of beauty in the stove, but protects the water-tank from becoming too greatly heated, furnishing a large radiating-surface to receive and radiate the first impact of the burning gas.

The entire stove is held together by bolts and rods in the usual way.

In action the heated products of combustion pass from the fire back and forth across the stove between the several diaphragms, and on each passage across the stove the heated products of combustion strike against the air-flues which conduct pure air up through the stove to the top of it, thus imparting the heat to a circulating current of moist air which is circulated in the room.

What I claim is—

1. In a gas-stove the combination of an air-chamber, a combustion-chamber, a burner

located in said combustion-chamber, a water-tank adjacent to said burner and opening into said air-chamber, flues leading from said air-chamber, and a passage-way leading from said combustion-chamber around said flues whereby a draft is induced through said flues, and the vapor, and air in said flues are thoroughly dried and mingled, substantially as shown and described.

2. In a gas-stove, the combination of the casing, a combustion-chamber communicating with the interior of said casing, an air-chamber, a water-tank adjacent to said combustion-chamber and opening into said air-chamber, flues leading from said air-chamber, and a series of perforated diaphragms in said casing surrounding said flues, substantially as shown and described.

3. In a gas-stove, the combination of a casing, the lower part of said casing being divided into a combustion, and an air-chamber, a water-tank adjacent to said combustion-chamber and opening into said air-chamber, flues leading from said air-chamber through said casing, and a series of perforated diaphragms in said casing, above said chambers surrounding said flues, substantially as and for the purpose described.

In testimony whereof I sign this specification in the presence of two witnesses.

JOHN ARTHUR DAILEY.

Witnesses;

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VIRGINIA M. CLOUGH.