(No Model.) 2 Sheets—Sheet 1.

J. H. BEAN.

GAS STOVE.

No. 263,671 Patented Sept. 5, 1882.

Fig. 1.

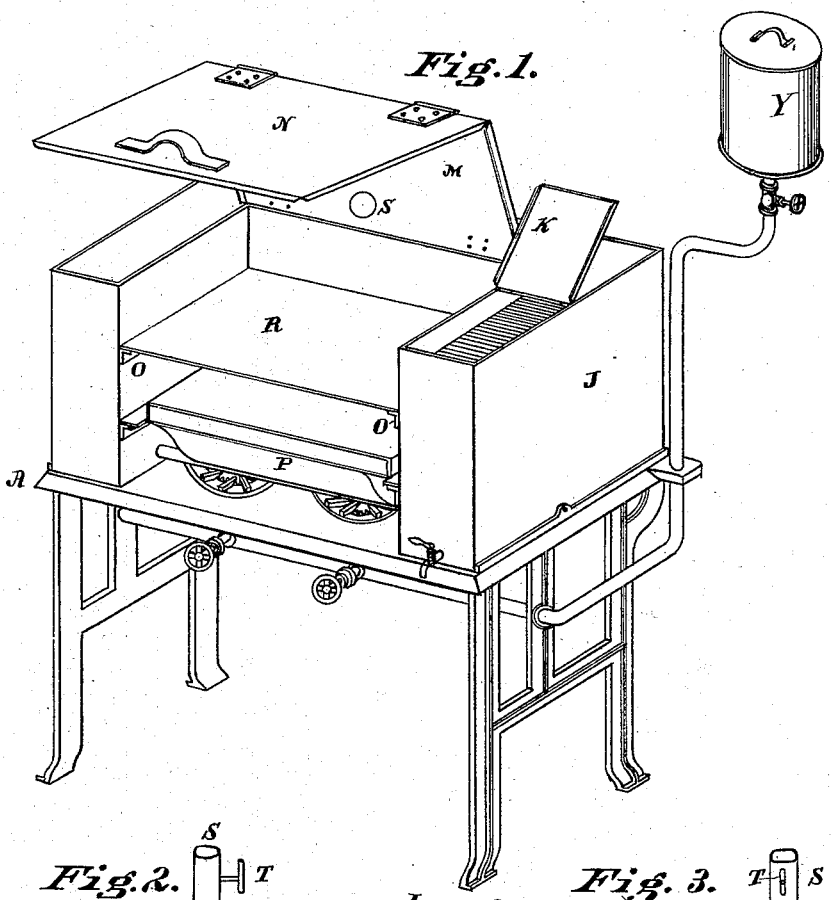


Fig. 2.

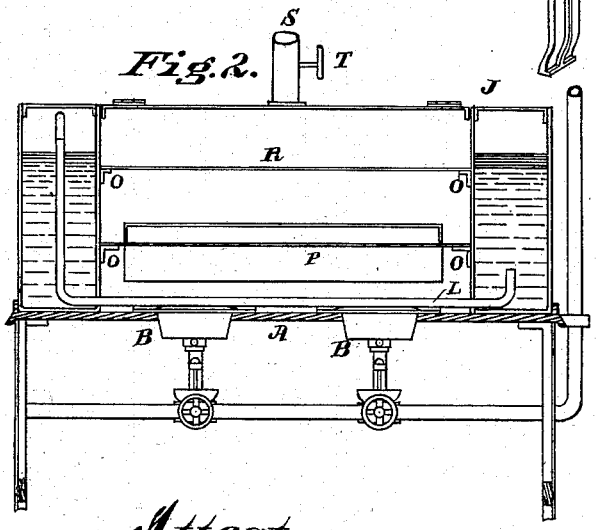
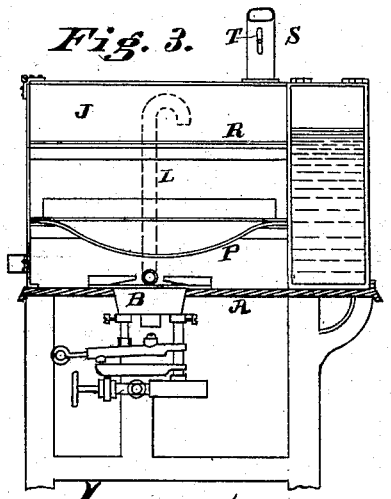


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

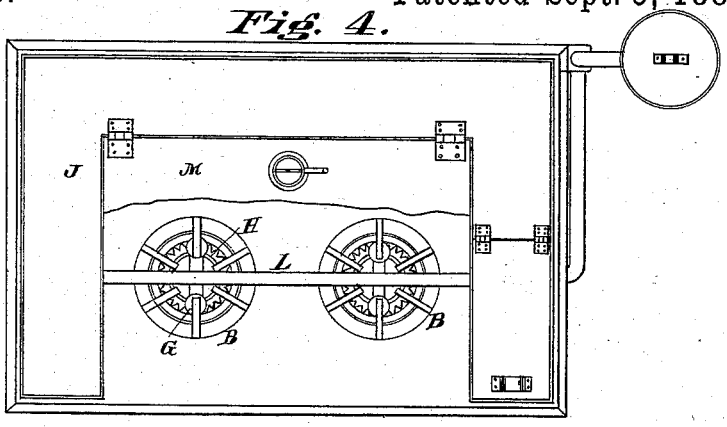


Fig. 5.

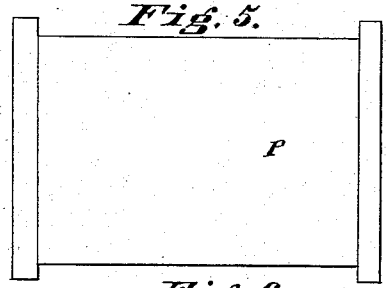


Fig. 6.

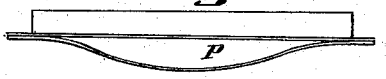
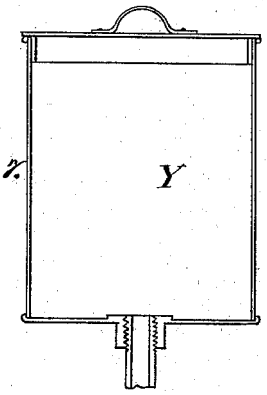


Fig. 7.



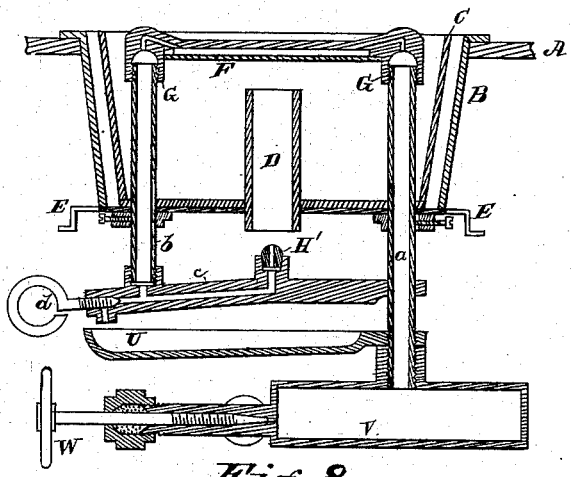


Fig. 8.

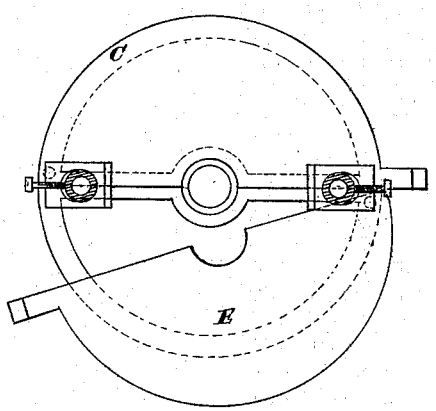


Fig. 9.

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JOSEPH H. BEAN, OF CINCINNATI, OHIO.

GAS-STOVE.

SPECIFICATION forming part of Letters Patent No. 263,671, dated September 5, 1882.

Application filed April 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. BEAN, of Cincinnati, county of Hamilton, and State of Ohio, have invented new and useful Improvements in Gas-Stoves, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to produce a gas-stove composed of old and new features so arranged as to produce a new and useful combination of the same, which will economize fuel and produce far better results than is possible in the old way. These several parts will be described in detail, so as to give a clear and comprehensive description of the whole.

Figure 1 is a perspective view of my invention; Fig. 2, a longitudinal section; Fig. 3, a transverse section; Fig. 4, a plan view. Figs. 5 and 6 are parts of the oven. Fig. 7 is a sectional view of the oil-fount, while Figs. 8 and 9 show the construction of the burner.

This stove is adapted to use of any kind of gas, but is especially fitted for producing and using gas from heavy kerosene-oil.

A is a solid cast plate placed on iron legs of ordinary construction. Through this plate are one or more openings for the burners, into which are loosely dropped shallow cylindrical castings B. (Shown in Figs. 2, 3, 4, and 8.) These may be cone-shaped or straight, and of cast or sheet metal. Inside this cylinder is placed another and smaller one, C, of the same depth and shape. The first and larger one has no bottom, but is provided with a flange at the top, which rests on the plate A. The smaller one, C, is open at the bottom, except a narrow strip across the center, into which is screwed the tube D, and through which pass the pipes *a* and *b*. To this center strip, and close to the pipes *a b*, are bolted or loosely riveted the draft-doors E E, which are made of thin sheet-steel. These swinging doors are used to close or unclose the opening in the bottom of the cylinder C for the purpose of increasing or decreasing the draft through the same. By opening the doors E a large amount of air is admitted to the inside of the cylinder and around the generator. The result is an intensely fierce fire. By closing these doors the bottom of C is almost entirely closed, and a far less powerful fire is the result. While cooking the lid M is shut down and the door N is thrown back against the flue-pipe S and the inside pieces, P and R, removed. The inner walls of the water-tank J and the lid M now constitute a hood for collecting and carrying out of the room, by means of the flue-pipe S, the odors of the burning gas and the cooking food. If, now, the lid M and door N are removed, there is room to set a wash-boiler in the space which was before used as an oven or cooking-chamber.

The generator F is a cylindrical casting, with a deeply-toothed edge for spreading the flame, and is large enough to nearly fill the top of the cylinder C. Through the center of this casting is cored out a cavity one-quarter inch in thickness and about two inches in diameter. This opening extends from the pipe *a* to the pipe *b*. Through this cavity the oil must pass, and in it is decomposed and converted into gas, as the generator is kept red-hot all the time by the consumption of the gas inside the cylinder C.

To the under side of the generator, and near its outer edge, are cast the lugs G G, into which are screwed the pipes *a* and *b*, and to which are riveted loosely the draft-doors E E, which are made of thin sheet-steel. These draft-doors regulate the amount of air necessary to produce the combustion of the gas inside the cylinder C and around the generator F.

The generator F is a cylindrical hollow casting, to which are cast the lugs G G and the teeth H. (Shown in the plan view, Fig. 4.) Into one of these lugs is screwed the oil-pipe *a*, into the other the gas-pipe *b*. This pipe is screwed into the valve and tip seat *c*. The gas-tip H′ is removable. The valve *d* serves as a plug, and the opening it closes to draw off any heavy residuum that may form in the gasways.

To the lower end of the oil-pipe *a* is screwed the well V, into which the oil is admitted by means of the needle-valve W.

Onto the pipe *a* and above the well V is screwed the lighting-spoon U, which is a shallow spoon-shaped casting. Into this is placed the oil for heating the generator in starting the fire. The valve W controls the oil-supply and the gas at the same time.

Onto the plate A is permanently fastened the hot-water tank J. This extends across the ends and back of the plate A and around the burners, forming a hollow square open in the front, top, and bottom, except as the bottom is closed by the plate A, on which it rests. This tank is made of sheet metal, and in the ordinary way, with a lid at K for pouring in and dipping out water, and is provided with a faucet for drawing off the hot water as wanted.

A hot-water pipe, L, is connected with the bottom of the tank at the right of the stove, passes over the burners on top of the plate A, and up through the bottom of the tank at the opposite end, and, rising above the water, turns down in a goose-neck, as shown in Fig. 3. To the top and rear of this tank is hinged the lid M, and to this lid is hinged the door N. (Shown in perspective, Fig. 1, and as broken away across the lid in Fig. 4.)

To the inside of the right and left walls of the water-tank are fastened cleats O O, running from the front to the rear of the tank.

Onto the lower pair of cleats is placed the double-air-chamber oven-bottom or heat-moderator P, (shown in position in Figs. 1 and 2,) an end view of which is shown in Fig. 6 and a top view in Fig. 5. A narrow strip is cut away in the front and rear, except an inch at each end, as shown in Figs. 1 and 5, making the width less than the oven proper, so as to allow the heat from the burner to pass freely up into the oven above it. This heat-moderator is only used when baking or roasting is to be done. Onto the upper cleats, which are about three inches above the lower ones, is placed a flat sheet-metal deflecting-plate, R, which entirely closes the space between the walls of the hot-water tank J and the door N. This plate is only used when baking such things as biscuits and pies, where a quick and powerful heat is needed. This plate, when so placed, will insure a perfect and uniform heat all over the oven, browning the biscuits in a most beautiful manner, while the double air-chamber forming the oven-bottom is a perfect protection against burning the bottoms.

The proper distance between the upper and lower cleats, O, was only determined after many and oft-repeated trials in baking biscuits and pies.

The deflector R is never used when light bread is being baked.

When baking is to be done the lid M is closed down and the door N tightly shut, as shown in the end view in Fig. 3. The inner walls of the hot-water tank J, the lid M, door N, and the plate A, with the double air-chamber P and deflector-plate R, form a perfect oven.

If so desired, the double-air-chamber bottom and deflecting-plate may be used in a movable oven, and the whole put in and out at will.

To the top and near the rear of the lid M is fastened the short pipe S, in which is placed the damper T. This pipe is to be connected with a flue by means of a longer pipe for the purpose of carrying out of the house the odor of cooking and the escaping carbonic acid from the burning gas, while the damper regulates the draft. When cooking keep the lid M shut down, throw back out of the way the door N, and remove the oven-pieces P and R. When a wash-boiler is to be used the flue-pipe is lifted off, the lid M and door N thrown back, the heat-moderator P and deflecting-plate R removed, and the boiler placed in the oven-space and over the burners. The hot-water tank is made to reach only up to the handles of a wash-boiler, so as never to be in the way.

A sectional view of the oil-fount Y is shown in Fig. 7. This is simply a cup of suitable size provided with a tight lid and felt band or similar material, which makes a perfect joint. This lid is provided with a handle for lifting it off and on when filling. This does away with the use of the funnel and insures against overrunning the fount, as the contents are plainly visible when the lid is off.

The operation of my stove is as follows: The oil-fount being filled and the valve W previously closed, a little alcohol, gasoline, or coal-oil is placed in the spoon U; or a little asbestus swab saturated with the fluid and laid in the spoon is set on fire. The draft-doors E E are thrown wide open to allow the flame to strike the generator F through the opening in the bottom of the cylinder C. When the oil in the spoon is nearly burned out the valve W is slowly opened, when the oil flows in a fine stream through the pipe *a* into the generator F, which is now very hot, it being flashed into a vapor, and passing down the pipe *b* and out of the gas-tip H′, and burning thereabove soon heats the generator red-hot. This will now convert the heavy oil into a perfectly fixed gas. The draft-doors E are now nearly closed, reducing the amount of air in the small cylinder C and causing it to flow up between the large and small cylinders and mix with the burning gas at the top of the generator F, producing a flame of great beauty and intensity. To regulate or extinguish the flame, partially or wholly close the valve W. When coal-gas is used instead of oil the fount is removed and connection by means of elastic tubing made with the oil-supply pipe near the stove. The small gas-tip is removed, and one with a much larger opening inserted in its place, this being the only change necessary to change from oil to coal-gas.

Some of the advantages of my invention are economy of fuel, economy of space, perfect freedom from the odor of gas or of food while cooking, freedom from the ill effects of escaping carbonic acid into the room, and great convenience, as the hot water is always ready, and every burner can be used for cooking purposes.

What I claim is—

1. In combination with the plate A, the

two cylindrical castings B and C, generator F, lugs G, pipes *a* and *b*, tube D, valve and tip seat *c*, tip H′, and draft-doors E, as and for the purpose described.

2. In combination with the plate A, hot-water tank J, hot-water pipe L, oven-lid M, door N, gas-generator F, with the serrations H, valve and tip seat *c*, and tip H′, as and for the purpose described.

3. In combination with the hot-water tank J, oven-lid M, door N, and gas-generator F, plate A, pipes *a* and *b*, gas-tip and seat H′, double-air-chamber oven-bottom P, and heat-deflecting plate R, as and for the purpose set forth.

4. In combination with the plate A, gas-generator F, pipes *a* and *b*, valve and tip seat *c*, tip H′, valve and seat W, with the oil-fount Y, and its connecting-pipe, as set forth and described.

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Attest:

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C. WEISENFELDER.