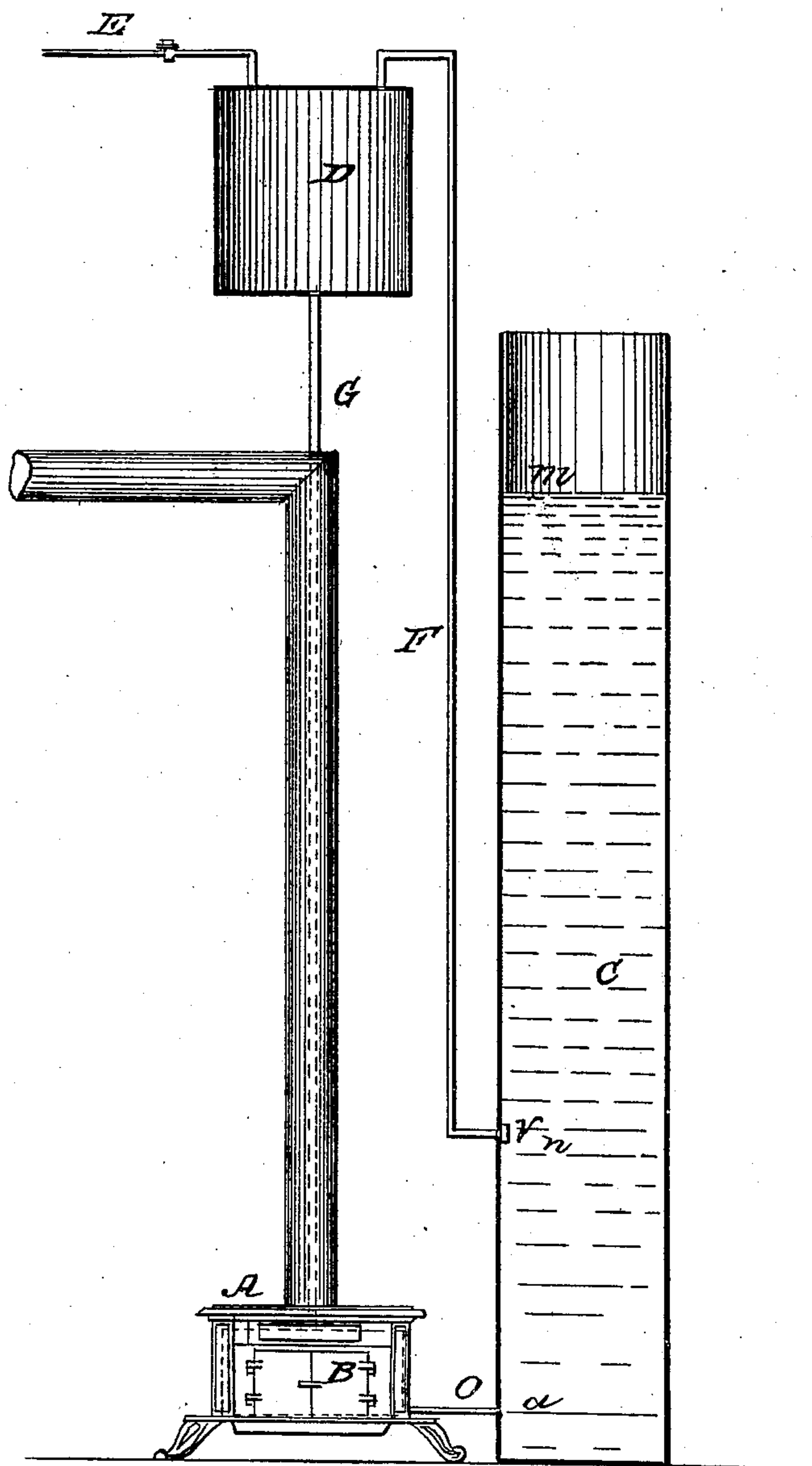


J. T. KING.
Steam Heater.

No. 14,318.

Patented Feb. 26, 1856.



UNITED STATES PATENT OFFICE.

JAMES T. KING, OF NEW YORK, N. Y.

IMPROVEMENT IN DOMESTIC STEAM-GENERATORS.

Specification forming part of Letters Patent No. 14,318, dated February 26, 1856.

To all whom it may concern:

Be it known that I, JAMES T. KING, of New York, in the county and State of New York, have invented a new and useful Domestic Steam-Generator; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

The nature of my invention consists in so constructing a steam apparatus as to make it perfectly safe and self-operating by connecting a water-tank with a water-back or steam-generator placed in a stove or kitchen-range and with a steam-chamber in such a manner that the connecting-pipe from the steam-chamber to the water-tank is connected with the latter some distance above the pipe which connects the water-tank with the steam-generator and supplies the same with water. By this arrangement the height of water above the pipe leading to the steam-chamber regulates the pressure of steam in the same, while the pipe leading to the steam-generator or water-back, being under a greater pressure, will always insure a sufficient supply of water to the same and prevent any accidents. In case the water in the water-tank falls below the orifice of the pipe leading to the steam-chamber there will then be a free passage for the escape of the steam into the air, making thereby the apparatus perfectly safe and self-acting and rendering any care to it unnecessary. The steam may be used to any purpose desired, such as heating, cooking, washing, or for motive power.

The accompanying drawing represents the apparatus applied to a cooking-stove A, having a water-back or steam-generator B. (Shown in dotted lines.)

C is a water-tank to supply the steam-generator with water and connected with the same through the pipe O.

G is a pipe leading from the top of the steam-generator B through the smoke-pipe (if convenient) and connected with the bottom of a steam-chamber D. This steam-chamber should be placed higher than the top of the water-tank C.

E is a pipe conducting the generated steam from the steam-chamber to any desired place for use either for heating, cooking, washing,

or any other purpose, and is provided with a stop-cock.

F is pipe running from the top of the steam-chamber D to the water-tank C, and is connected to the same about two feet above the pipe O, which supplies the steam-generator with water. This pipe is provided with a self-acting check or non-return valve; or a valve V may be placed over the orifice of said pipe on the inside of the water-tank to prevent the water entering the same.

The operation of the apparatus is as follows: The water-tank C being filled with water up to a certain height, the steam-generator B, as well as part of the pipe G, will be filled with water corresponding to the height of water in the tank. Suppose, for illustration, that the height of water *a m* above the opening of the pipe O is equal to six feet and the height of water *n m* above the opening of the pipe F and consequently above the valve V is equal to four feet. There will then be a pressure equal to about three pounds per square inch against the orifice of the pipe O and a pressure of two pounds per square inch, about, against the orifice of the pipe F or against the valve V.

When fire is applied to the stove, steam will be generated from the water in the water-back B and pipe G and escape into the steam-chamber. The valve V will be kept closed by the pressure of the water above the same, equal to about two pounds, and (provided the cock in the pipe E is closed) the steam can consequently not escape until it has obtained a pressure equal to the pressure corresponding to the column of water above the valve V. When the steam has obtained that pressure, the valve V will be forced open by the same and allow the steam to escape into the water until the pressure is again reduced and corresponds to the column of water above the valve V, while the water-back or steam-generator, being under a pressure of at least one pound more than the valve V, will always be supplied with water through the pipe O, even when the steam has obtained such a pressure as to escape through said valve V. Should at any time the water in the water-tank C fall below the orifice of the pipe F or valve V, then the steam will escape freely into the water-tank and into the room, preventing there-

by any danger from explosion and giving timely notice of a deficiency of water, while the steam-generator will still be supplied with water, the same being even then under a pressure equal to a column of water from n to a or the distance the pipes O and F are apart.

The water-pipe to supply the water-tank C can be arranged with a ball cock or valve in such a manner that the water in said tank will always be kept at a certain height, by which all attention will be unnecessary and the whole apparatus made entirely self-acting.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of a water-tank, steam-chamber, and steam-generator, connected together in the manner and for the purpose specified, so that the height of water in the water-tank above the orifice of the pipe leading to the steam-chamber shall always regulate the pressure of the steam, while there will be a free escape of steam as soon as the water in the water-tank falls below said orifice.

JAMES T. KING.

In presence of—

HENRY E. ROEDER,
ERASTUS C. SANDERSON.