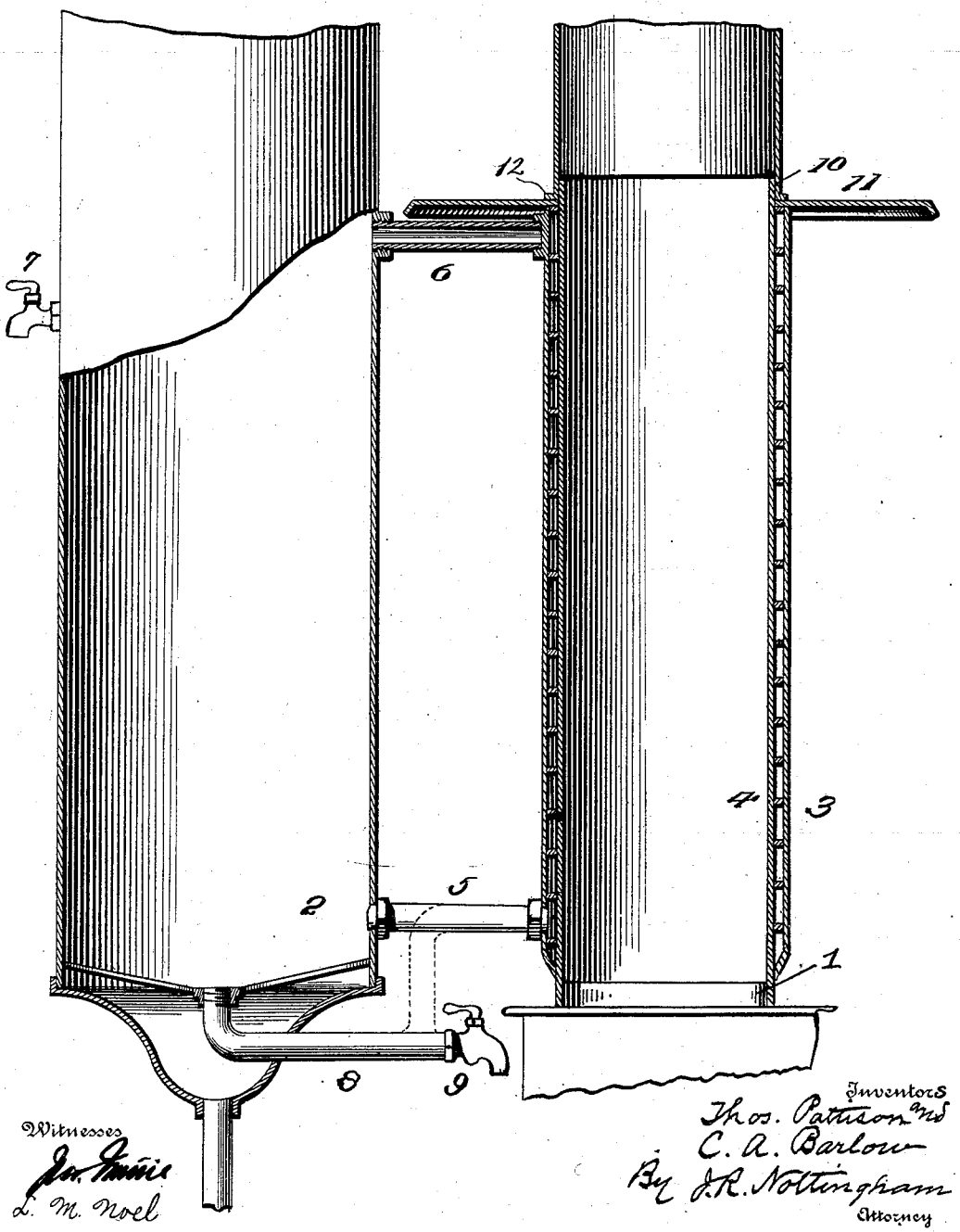
No. 650,083. Patented May 22, 1900.

T. PATTISON & C. A. BARLOW.

WATER HEATER.

(Application filed Sept. 25, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

THOMAS PATTISON AND CHARLES AVERILL BARLOW, OF SAN LUIS OBISPO, CALIFORNIA.

WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 650,083, dated May 22, 1900.

Application filed September 25, 1899. Serial No. 731,671. (No model.)

To all whom it may concern:

Be it known that we, THOMAS PATTISON and CHARLES AVERILL BARLOW, citizens of the United States, residing at San Luis Obispo, in the county of San Luis Obispo and State of California, have invented certain new and useful Improvements in Water-Heaters; and we do hereby 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 appertains to make and use the same.

Our invention relates to that class of water-heaters commonly called "stovepipe" water-heaters; and it consists, primarily, of the peculiar construction, combination, and general arrangement of the various parts, as will be hereinafter fully described, and particularly pointed out in the claims.

The primary object of the invention is to produce a simple and cheaply-constructed heater having a maximum amount of heating-surface, so that its heating capacity will be greater than the average of this class of heaters.

Another object of the invention is to so construct the heater that the collection of soot will be rendered practically impossible and the draft of the stove to which the device is attached perfectly free and unobstructed.

These and other objects of the invention will become apparent upon the full disclosure thereof and are attained by means of the device illustrated in the accompanying drawing, in which the figure shown represents a vertical sectional view of the heater attached to the pipe-collar of a stove or range and connected with an ordinary stand-boiler.

Referring to the figure, the numeral 1 indicates the pipe-collar of an ordinary stove or range, 2 the stand-boiler, and 3 the heater.

The heater is composed of a spirally-passaged water-heating cylinder 4, having its lower end adapted to fit the collar 1 of the stove and its upper end adapted to fit the stovepipe. The inner wall of the water-heating cylinder is perfectly smooth, being free from all crevices, angles, or projections that are calculated to catch and hold the particles of soot and obstruct the draft of the stove. The spiral passage is oblong in cross-section, and the water flows therethrough in a ribbon-like stream, by reason of which it is quickly heated.

We prefer to construct the heater of two cylinders, an inner and an outer one, properly united at their ends, with a narrow space between the two. The narrow space is formed into a spiral passage by means of the spiral partition. As thus constructed the heater may be attached directly to the collar of the stove, as shown in the drawing, or it may be placed intermediate of the stovepipe-sections.

Free circulation of the water between the heater and stand-boiler is obtained by means of the pipes 5 and 6. The water flowing from the boiler through pipe 5 enters the spirally-passaged heating-cylinder at its lowest point and traveling through the entire length of the passage returns to the boiler in a highly-heated condition through the pipe 6. The boiler is provided with a draw-off cock or faucet 7 and with a draw-off pipe 8, the latter being provided with a valve 9 for emptying the boiler when desired. Instead of feeding water from the boiler to the heater through pipe 5 it may be taken through the draw-off pipe 8. This is accomplished by connecting the pipe 5 with the draw-off pipe 8 instead of having it enter the boiler direct, as shown in the drawing.

This construction of heater will be found to be exceedingly efficient in operation, and being inexpensive of construction it is easily within the reach of all persons who are compelled to employ this method of heating water and who cannot afford the more expensive and elaborate water-heating systems. It is neat and attractive in appearance and compact in form and does not interfere with the ordinary use of the stove.

The upper end of the inner cylinder of the heater forms a collar 10, and a pipe shelf or plate 11, upon which articles of food may be placed to keep warm, is fitted upon said collar and retained in position by means of a flange 12, turned on the section of the stovepipe above the heater.

In this class of water-heaters it is necessary to utilize all of the heat possible in order to maintain the water in the heating-section at

the desired or required temperature, and the plate 11 forms an important feature in this connection, as it serves to check or retard the upward flow of air. The flow of ascending air is sufficiently retarded by the plate 11 to preserve a body of heated air constantly around the water-heating section, thereby preventing any perceptible loss of heat by radiation, which would occur in case there were ascending currents of cool air coming in contact with the water-heating section. As the communicating pipe 6 is situated directly under the plate 11, it will be seen that no perceptible loss of heat will occur in the water in its passage through said pipe to the stand-boiler.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A water-heating attachment for stoves, comprising an inner cylinder, the ends of which are adapted to fit the stove-collar or sections of stovepipe, an outer cylinder spaced from the inner cylinder, and a spiral partition between said cylinders, by which a spiral passage is formed, said attachment being provided with suitable inlet and outlet openings.

2. In a water-heater, the combination with a boiler, of a water-heating attachment comprising an inner cylinder, the ends of which are adapted to fit the stove-collar or sections of stovepipe, an outer cylinder spaced from the inner cylinder, and a spiral partition between said cylinders, by which a spiral passage is formed, said attachment being provided with suitable inlet and outlet openings.

3. In a water-heater, the combination with a boiler, of a spirally-passaged cylinder constructed to cause the water to flow therethrough in a ribbon-like form, connections between said boiler and cylinder, and a shelf or plate situated at the upper end of the cylinder to check or retard the upward flow of air.

4. In a water-heater, the combination with the stove collar and pipe of a stove, of a spirally-passaged cylinder forming a section of the stovepipe, and stand-boiler connected with the cylinder by suitable feed and return pipes, and a shelf or plate situated between said cylinder and the lower stovepipe-section, whereby the ascending air is checked or retarded.

In testimony whereof we affix our signatures in the presence of two witnesses.

THOMAS PATTISON.
CHARLES AVERILL BARLOW.

Witnesses:
JOSEPH GREEN,
JESSE JONES.