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PATENTED NOV. 27, 1906.

L. M. LA BARR.
STEAM HEATING APPARATUS.
APPLICATION FILED DEC. 1, 1905.

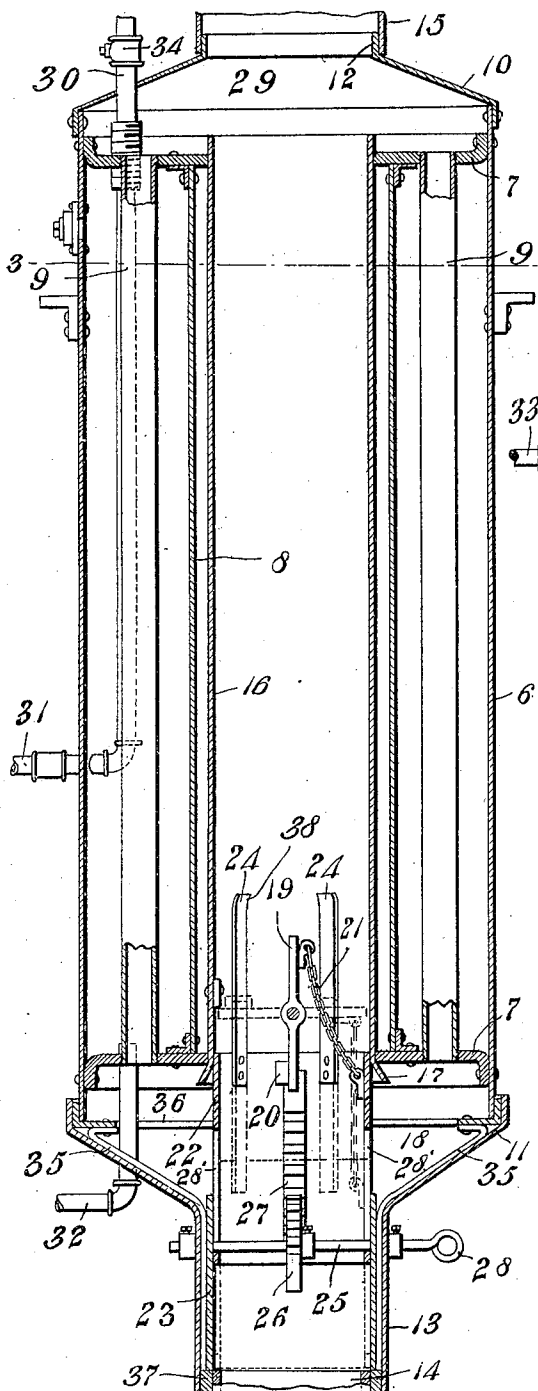


Fig. 1.

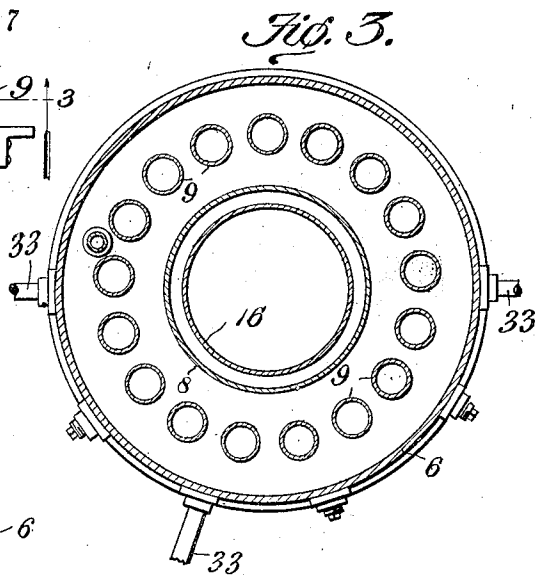


Fig. 3.

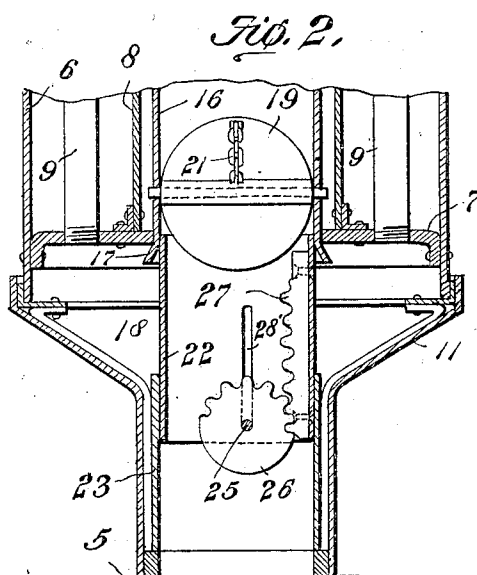


Fig. 2.

WITNESSES:

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LESLIE M. LA BARR, OF FOREST CITY, PENNSYLVANIA.

STEAM-HEATING APPARATUS.

No. 836,770.

Specification of Letters Patent.

Patented Nov. 27, 1906.

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To all whom it may concern:

Be it known that I, LESLIE M. LA BARR, a citizen of the United States, residing at Forest City, in the county of Susquehanna and State of Pennsylvania, have invented a new and useful Steam-Heating Apparatus, of which the following is a specification.

This invention relates to steam-heating apparatus.

The object of the invention is to provide a steam-boiler capable of being used in connection with an ordinary domestic heating or cooking stove, so that the waste products of combustion may be utilized for generating steam to heat the building.

A further object of the invention is to provide an improved form of damper for deflecting the products of combustion through the boiler-flues or permitting the same to escape to the chimney without affecting the boiler.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in form, proportions, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

In the accompanying drawings, forming a part of this specification, Figure 1 is a longitudinal sectional view of a steam-heating apparatus constructed in accordance with my invention, the section being taken on the line 1 1 of Fig. 3. Fig. 2 is a detail longitudinal sectional view taken at right angles to Fig. 1. Fig. 3 is a transverse sectional view taken on the line 3 3 of Fig. 1.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The improved device is designed for use in connection with an ordinary domestic cooking-stove, a portion of which is indicated at 5, and consists of a cylindrical boiler 6, provided with oppositely-disposed heads 7, the latter being connected by a central tube or casing 8 and pierced by a plurality of hot-air flues 9.

Riveted or otherwise rigidly secured to the opposite ends of the boiler are substantially conical-shaped caps 10 and 11, provided with cylindrical extensions 12 and 13, the lower

extension 13 being adapted to engage the stove-pipe flange 14, while the upper extension 12 receives and supports the adjacent end of the stovepipe 15.

Extending longitudinally of the central tube or casing 8 is a draft-pipe 16, one end of which is flared laterally at 17 and projects within the chamber 18, formed by the cap 11.

Pivotally mounted in the flared end of the draft-pipe 16 is a damper 19, one end of which is weighted at 20, while the opposite end thereof is provided with a chain 21, which forms a flexible connection between said damper and a vertically-movable pipe-section 22. The pipe-section 22 is slidably mounted in a bearing sleeve or collar 23, secured to the extension 13 and provided with terminal spring-fingers 24, adapted to engage the interior walls of the draft-pipe to assist in guiding the movable pipe-section when moved to open and closed positions, as will be more fully described hereinafter. Journalled in the side walls of the extension 13 and collar 23 is a shaft 25, having keyed or otherwise rigidly secured thereto a mutilated gear-wheel 26, the teeth of which engage a rack-bar 27, carried by the interior walls of the movable pipe-section 22, so that when the knob or handle 28 is turned in one direction it will open the damper and connect the pipe-sections 17 and 22, and when the knob is turned in the opposite direction it will close the damper and disconnect said pipe-sections, there being oppositely-disposed slots 28' formed in the movable section to receive the shaft, as shown. It will thus be seen that when the damper is closed the products of combustion will pass through the collar 23 to the chamber 18 and thence through the flues 9 and chamber 29 to the pipe 15 and off to the chimney, and when the damper is open the products of combustion will ascend through the collars 23 and pipe 17 to the pipe 15 and thence to the chimney without affecting the boiler.

In order to heat the water preparatory to feeding the same to the boiler, the feed-pipe 30 is passed through the cap 10 and out through the side walls of the boiler, where it connects to a pipe 31, leading to the stove, the water being admitted to the boiler through a pipe 32, passing through the cap 11, as shown.

Threaded in suitable openings in the side walls of the boiler at the upper end of the latter are a plurality of pipes 33, through which

the hot water and steam are conducted to the several radiators located in the different rooms of the house.

The feed-pipe 30 is also provided with a valve 34 for automatically regulating the amount of water fed to the boiler.

The side walls of the cap 11 are preferably reinforced and strengthened by braces 35, one end of each of which is riveted or otherwise rigidly secured to a reinforcing-collar 36, while the lower ends thereof are interposed between the bearing-sleeve and extension 13, being preferably welded to a terminal collar or ring 37, carried by said extension. If desired, however, the braces and reinforcing-collar 36 may be dispensed with and the cap secured directly to the adjacent end of the boiler.

Attention is called to the fact that by having the lower end of the draft-pipe flared laterally it forms a guide for the movable pipe-section when the latter is moved to closed position, while by having the terminal portions of the spring-retaining fingers bent inwardly at 38 said fingers may be readily introduced into the draft-pipe without danger of contact with the lower edge of the latter.

From the foregoing description it will be seen that the boiler may be quickly attached to or detached from the stove, and by reason of the damper the amount of steam generated in the boiler may be regulated at will.

Having thus described the invention, what is claimed is—

1. The combination with a stove, of a boiler associated therewith and provided with a draft-tube for connection with the stovepipe, a damper for controlling the passage of heat through the draft-tube, a pipe-section movable into engagement with the draft-tube, and means for closing the damper and simultaneously disconnecting the movable pipe-section from the draft-tube.

2. The combination with a stove, of a boiler associated therewith and provided with a draft-tube for connection with the stovepipe, a damper arranged within the draft-tube, a pipe-section movable into engagement with said draft-tube, and a flexible connection between the damper and movable section.

3. The combination with a stove, of a boiler associated therewith and provided with a draft-tube for connection with the stovepipe, a damper arranged within the draft-tube, a pipe-section movable into engagement with said draft-tube and provided with a rack-bar, a flexible connection between the damper and movable section, and a gear-wheel adapted to engage the rack-bar for simultaneously closing the damper and disconnecting the movable section from the draft-tube.

4. The combination with a stove, of a boiler associated therewith and provided

with a draft-tube for connection with the stovepipe, a damper pivoted within the draft-tube and having one end thereof weighted, a pipe-section movable into engagement with said draft-tube and having a rack-bar secured thereto, a flexible connection between the opposite end of the damper and the movable section, and an operating-shaft provided with a gear-wheel adapted to engage the rack-bar for simultaneously closing the damper and disconnecting the movable section from the draft-tube.

5. The combination with a stove, of a boiler associated therewith and provided with a draft-tube having one end thereof flared laterally and its opposite end designed for connection with the stovepipe, a damper pivoted within the draft-tube, a pipe-section movable into engagement with the draft-tube and provided with spring-retaining fingers adapted to engage the walls of said draft-tube, a connection between the damper and movable section, and means for simultaneously closing the damper and disconnecting the movable section from the draft-tube.

6. The combination with a stove, of a boiler associated therewith and provided with a draft-tube for connection with the stovepipe, a damper pivoted within the draft-tube, a pipe-section movable into engagement with the draft-tube and provided with oppositely-disposed slots for the reception of an operating-shaft, a flexible connection between the damper and movable pipe-section, a rack-bar secured to the movable pipe-section, an operating-shaft engaging the walls of the slots, and a gear-wheel secured to the shaft and adapted to engage the rack-bar for simultaneously closing the damper and disconnecting the movable section from the draft-tube.

7. The combination with a stove, of a boiler associated therewith and provided with terminal caps forming heating-chambers, a draft-tube extending longitudinally of the boiler and having one end thereof flared and projecting within the adjacent heating-chamber, a damper for controlling the passages of heat through the draft-tube, a pipe-section movable into engagement with the flared end of the draft-tube, a connection between the movable pipe-section and the damper, and means for simultaneously closing the damper and disconnecting the movable section from the draft-tube.

8. The combination with a stove, of a boiler associated therewith and provided with oppositely-disposed caps having terminal extensions for connection with the stove and stovepipe, respectively, a draft-tube extending longitudinally of the boiler, a pipe-section slidably mounted in the extension of one of the caps and movable into engagement with the adjacent end of the draft-

5 tube, a damper pivoted within the draft-tube, a flexible connection between the damper and movable section, and means for simultaneously closing the damper and disconnecting the movable section from the draft-tube.

10 9. The combination with a stove, of a boiler associated therewith and provided with oppositely-disposed caps having terminal extensions for connection with the stove and stovepipe, respectively, a draft-tube extending longitudinally of the boiler and having one end thereof flared, a bearing-collar carried by the extension of one of the caps, a 15 pipe-section slidably mounted in the bearing-collar and movable into engagement with the flared end of the draft-tube, a weighted damper pivoted within the draft-tube, a flexible connection between the damper and 20 movable pipe-section, a rack-bar secured to the pipe-section, an operating-shaft journaled in the bearing-collar and adjacent extension, a gear-wheel secured to the shaft and

adapted to engage the rack-bar, and braces secured to the boiler and interposed between the bearing-collar and adjacent extension. 25

10. The combination with a stove, of a boiler associated therewith and provided with a draft-tube for connection with the stovepipe, means for feeding water to the 30 boiler, a plurality of service-pipes communicating with said boiler, a damper arranged within the draft-tube, a pipe-section movable into engagement with the draft-tube, a connection between the damper and movable 35 pipe-section, and means for simultaneously closing the damper and disconnecting the movable pipe-section from the draft-tube.

In testimony that I claim the foregoing as my own I have hereto affixed my signature 40 in the presence of two witnesses.

LESLIE M. LA BARR.

Witnesses:

FREDERICK T. GELDER,
LEE H. HORTON.