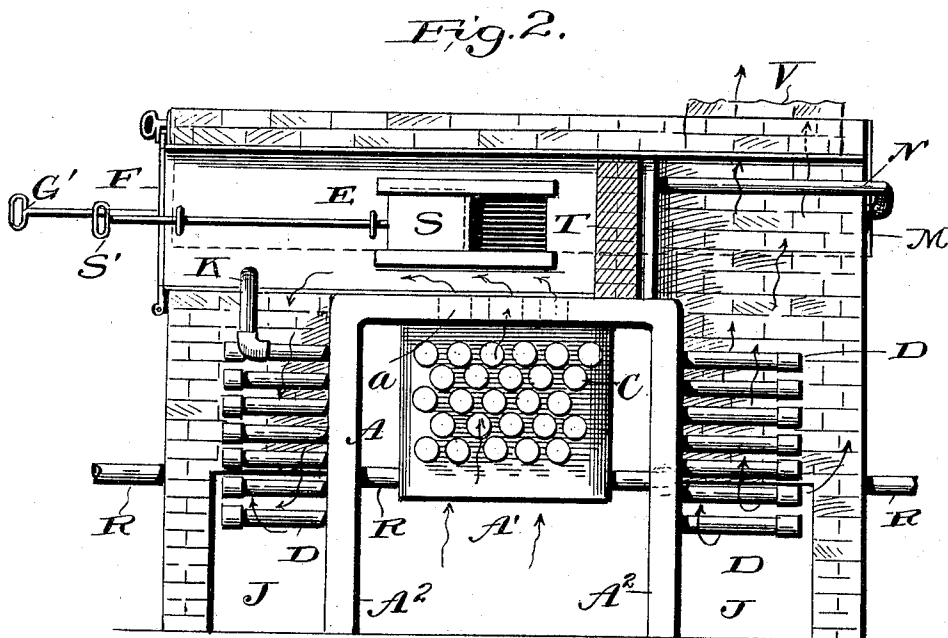
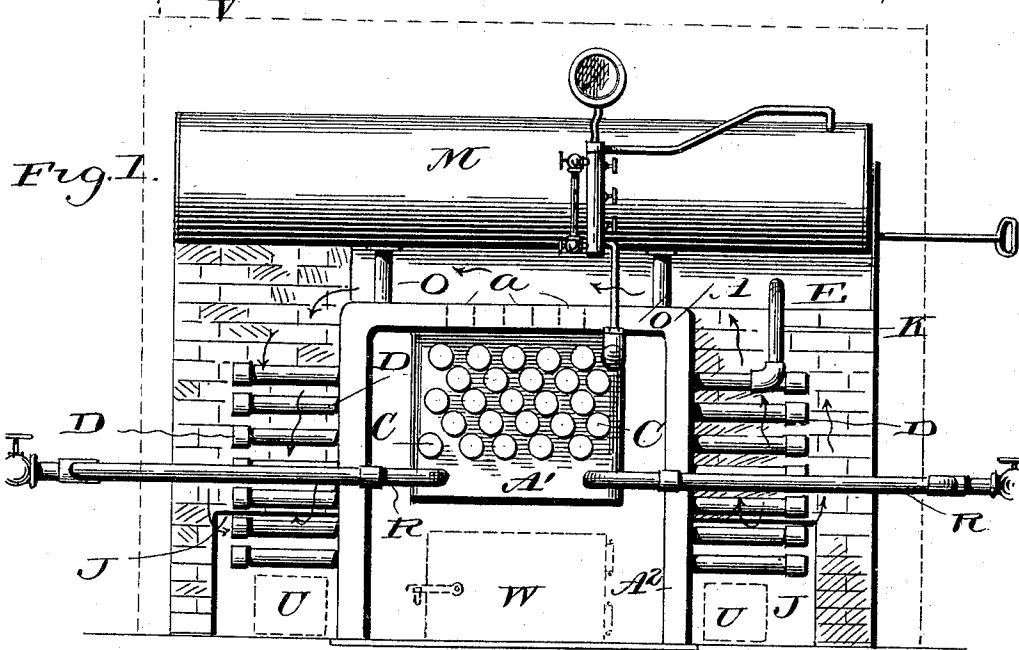


H. BARTON.
STEAM BOILER.

No. 584,257.

Patented June 8, 1897.



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L. C. Mills
A. L. Hough

Inventor:
Henry Barton
by Franklin A. Hough
Att'y.

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Fig. 3.

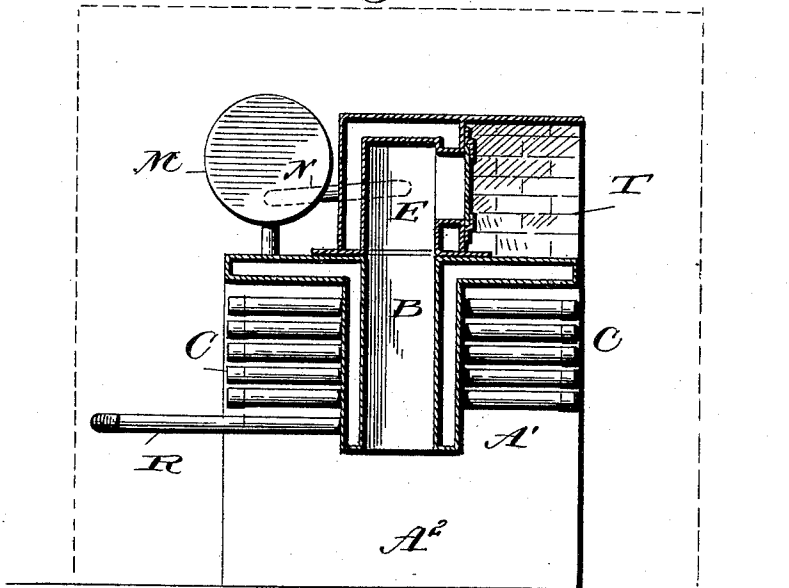
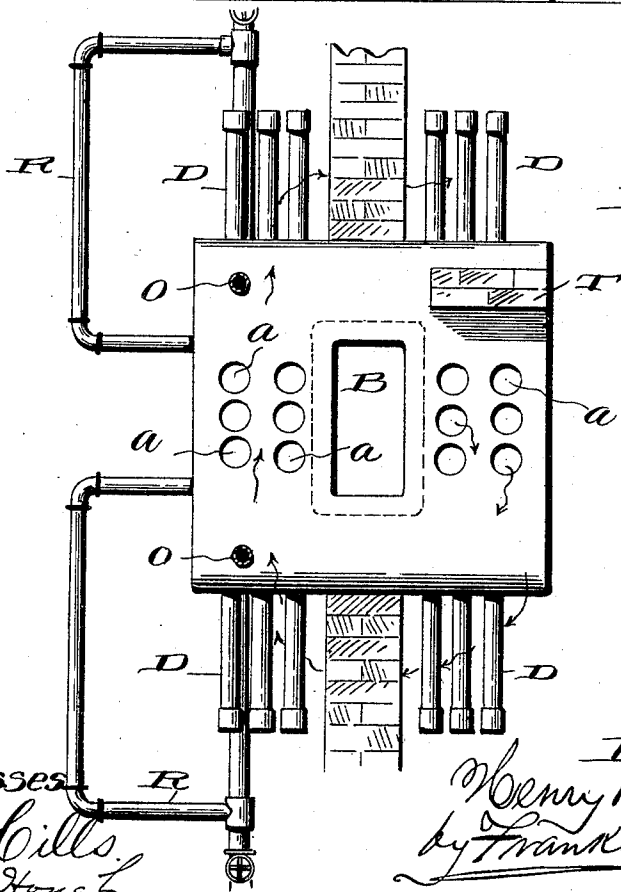


Fig. 4.



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(No Model.)

3 Sheets—Sheet 3.

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Fig. 5.

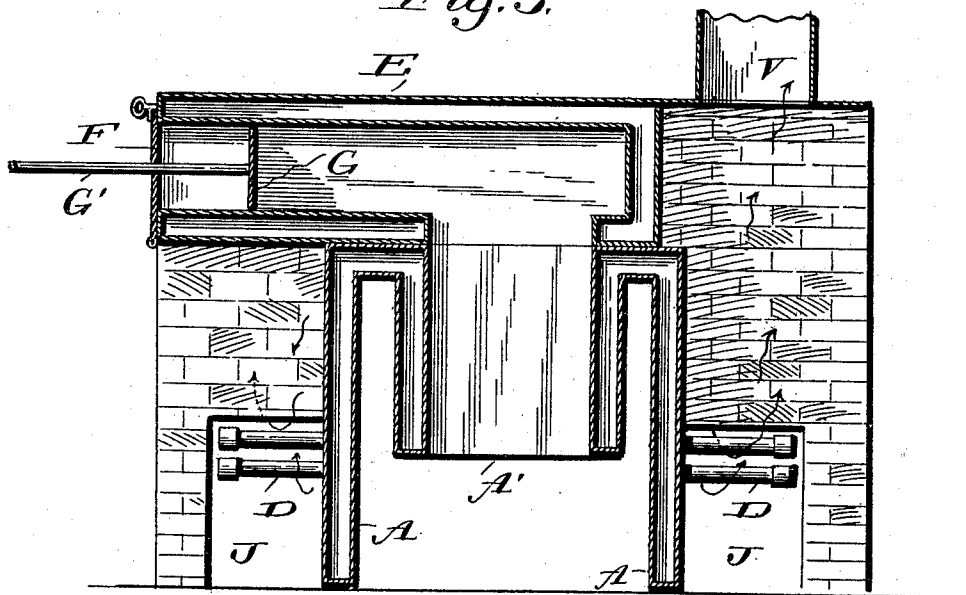
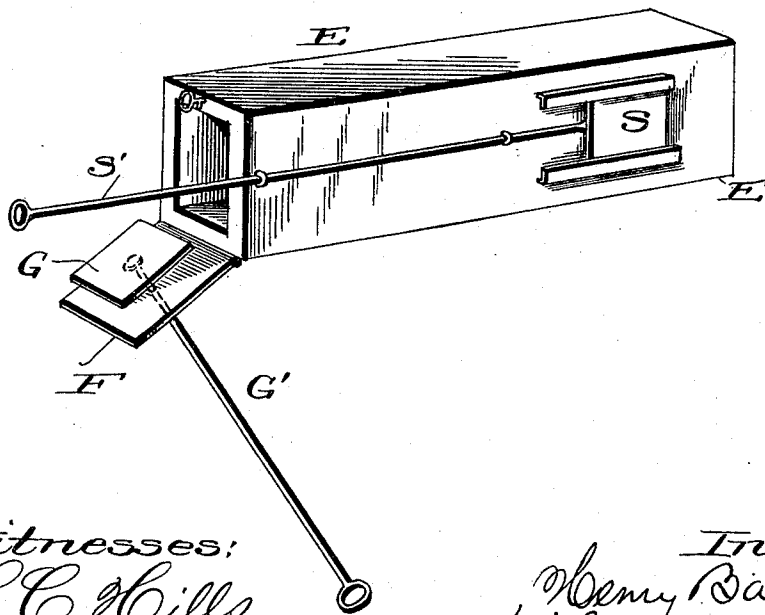


Fig. 6.



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UNITED STATES PATENT OFFICE.

HENRY BARTON, OF CHARLESTON, WEST VIRGINIA.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 584,257, dated June 8, 1897.

Application filed February 26, 1897. Serial No. 625,186. (No model.)

To all whom it may concern:

Be it known that I, HENRY BARTON, a citizen of the United States, residing at Charleston, in the county of Kanawha and State of West Virginia, have invented certain new and useful Improvements in Steam Boilers and Furnaces; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in furnaces and boilers for heating water and generating steam, and especially to the construction of a boiler which has an extensive surface of flues peculiarly arranged so as to utilize to the fullest extent the heat from the furnace, and also consuming the smoke by means of the novel course which it is caused to take when soft coal is used as fuel in the furnace.

The invention relates, further, to the provision of a combined base and magazine burner for a steam-boiler whereby the fuel may be fed into the magazine through the center of the boiler, a suitable push-lever being provided to force the fuel into the magazine from the laterally-opening fuel-chamber.

To these ends, and to such others as the invention may pertain, the same consists, further, in the novel construction, combination, and adaptation of the parts, as will be hereinafter more fully described, and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which drawings similar letters of reference indicate like parts throughout the several views, in which—

Figure 1 is a front elevation of my improved boiler and furnace. Fig. 2 is a rear elevation of the same, the walls of the furnace being broken away to better illustrate the invention. Fig. 3 is a central sectional view through the boiler at right angles to the length of the steam-drum. Fig. 4 is a top plan view. Fig.

5 is a longitudinal vertical section through the fuel-box and boiler. Fig. 6 is an enlarged detailed view of the fuel-box and push-rod.

Reference now being had to the details of the drawings by letter, A designates the boiler, which is provided at its center with the downwardly-projecting portion A', which forms the magazine B between its walls and within which the coal is adapted to be fed.

Laterally extending from the portion of the boiler surrounding the magazine are the tubes C, which are closed at their outer ends by suitable caps, with their inner ends opening into the boiler.

The ends of the boiler are downwardly extended, as shown at A², and are provided with tubes D, similar to the tubes C, which are closed at their outer ends and open into the downwardly-projecting portion of the boiler.

In the upper surface of the boiler, as shown best in the top plan view, are the apertures a, there being preferably six in a series each side of the magazine B. These apertures, passing through the upper portion of the boiler, allow the heat to pass through the same and come in contact with the laterally-extending tubes C. Mounted on the upper side of the boiler and having communication with the magazine B is a fuel-box E, provided with a suitable door F and a push-plate G, to which is secured a handle G', which passes through the door F, and by means of which the coal which is placed in the fuel-box may be pushed forward so as to fall into the magazine in the center of the boiler. Surrounding the said fuel-box is a double wall, between the walls of which water is allowed to circulate from the boiler, there being suitable connecting-pipes K between the boiler and the water-space about the fuel-box. This fuel-box has also connection, by means of the pipes N, with the steam-drum M, which is mounted over the boiler, and has direct communication, through the pipes O, with the lower portions of the steam-boiler are the tubes R, through which water may be fed to the boiler.

In Fig. 2 of the drawings is shown a slide S, having an aperture therein provided with an operating-handle S', by which the said

slide may be worked horizontally to open or close over an aperture leading into the fire-box when the furnace is adapted for use as a base-burner.

5 A suitable partition T is formed between the space containing the fuel-box above the boiler and the chamber from which leads the chimney V, and at the front of the furnace are suitable doors U and W, by which access
10 may be had to the under side of the boiler and the laterally-extending flues connected therewith.

In operation when the furnace is adapted for use as a magazine-burner the fuel is inserted in the box on the boiler through the door F and by means of the push-plate G is forced the length of the fuel-box and drops into the magazine B. The heat coming from the furnace passes up between the tubes A
15 on one side of the downwardly-projecting portion of the boiler and through the apertures *a* and passes to the left, as indicated by arrows, thence downward between the tubes at the end of the boiler and, passing
20 under the portion J, rises on the opposite side of the partition, passes up through the tubes and over the apertures A' on the opposite side of the boiler, thence downward between the tubes at the right-hand end of the boiler,
25 as indicated by arrows, and, passing under the partition at the end of the boiler, rises up through the tubes at the right-hand end of the boiler and passes through the chimneys V, thus completing its circuit from the furnace to the chimney.
30

When my invention is adapted for use as a hot-water heater, the drums are dispensed with, and when steam is used the drums are connected in the manner described to the top
35 of the boiler, and by the provision of the tubes arranged as-described I am enabled to consume the gases and products of combustion in the smoke which pass up through the apertures at the top of the boiler by means of the flames, which, passing in the
40 circuit described, contact with and ignite the gases as they pass up through the apertures on the rear upper surface of the boiler.
45

Having thus described my invention, what

I claim to be new, and desire to secure by Letters Patent, is—

1. In a steam-boiler furnace, the combination with the boiler, having a magazine centrally arranged therein, downwardly-projecting portions of the said boiler, tubes extending laterally from the boiler portion about the magazine, and from the downwardly-projecting portions, of a fuel-box, mounted on the boiler and having communication with the magazine, substantially as shown and described.
50 55 60

2. In a steam-boiler furnace, the combination with the boiler, having a magazine in the center thereof, laterally-extending tubes therefrom, the ends of the boiler downwardly turned and provided with tubes D', of the fuel-box mounted on the boiler, provided with a suitable door, and a push-plate mounted to work longitudinally therein, the forward end of said fuel-box having communication with the magazine, substantially as shown and described.
65 70

3. In combination with the boiler as described, the fuel-box, mounted thereon and a water-tank surrounding the said box, having communication with a steam-boiler, substantially as shown and described.
75

4. In combination with the steam-boiler, as described having apertures through its upper portion, over the magazine-flues, the fuel-box mounted over the boiler, water-tanks surrounding the said box, the steam-drum, and suitable connection between the said water-tank and boiler, and the steam-drum, substantially as shown and described.
80 85

5. In combination with the steam-boiler, having a central magazine, in combination with the fuel-box made over the boiler, and a horizontally-sliding member working in said fuel-box, and adapted to open or close over an aperture in the said fuel-box, substantially as shown and described.
90

In testimony whereof I affix my signature in presence of two witnesses.

HENRY BARTON.

Witnesses:

A. STALNAKER,
L. C. TAWNEY.