(No Model.) 2 Sheets—Sheet 1.

Q. S. BACKUS.

STEAM HEATER.

No. 344,512. Patented June 29, 1886.

Fig. 1.

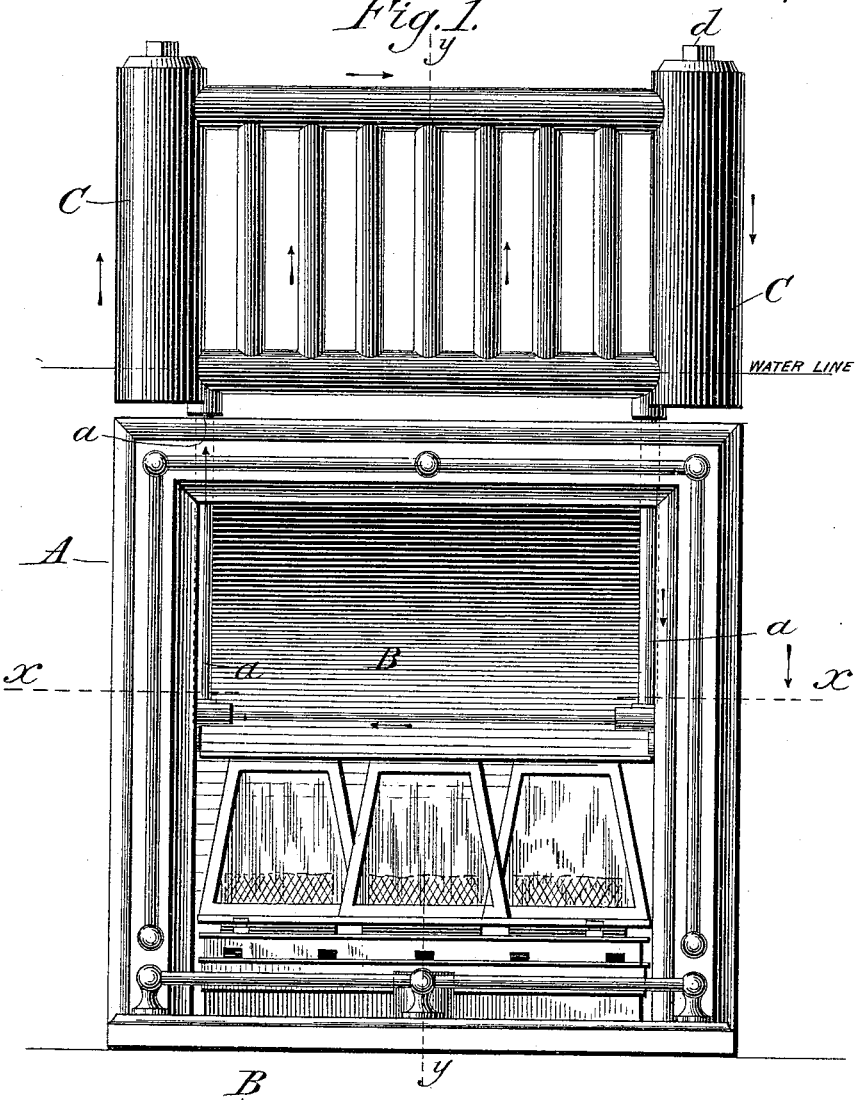
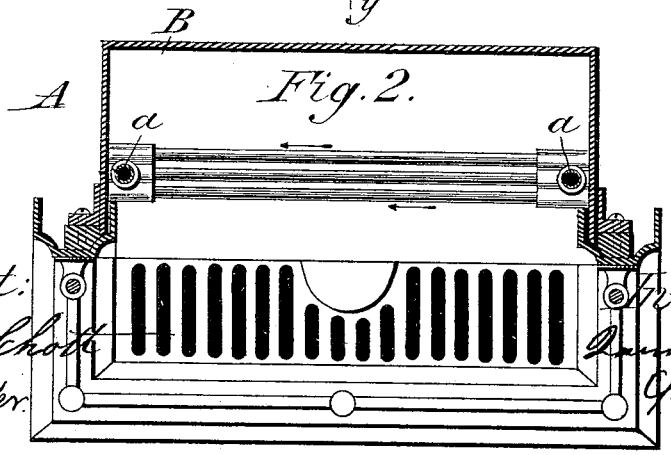


Fig. 2.



Attest:
F. H. Schott
A. E. Dasker

Inventor:
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per John L. Dasker
atty

(No Model.)

2 Sheets—Sheet 2.

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STEAM HEATER.

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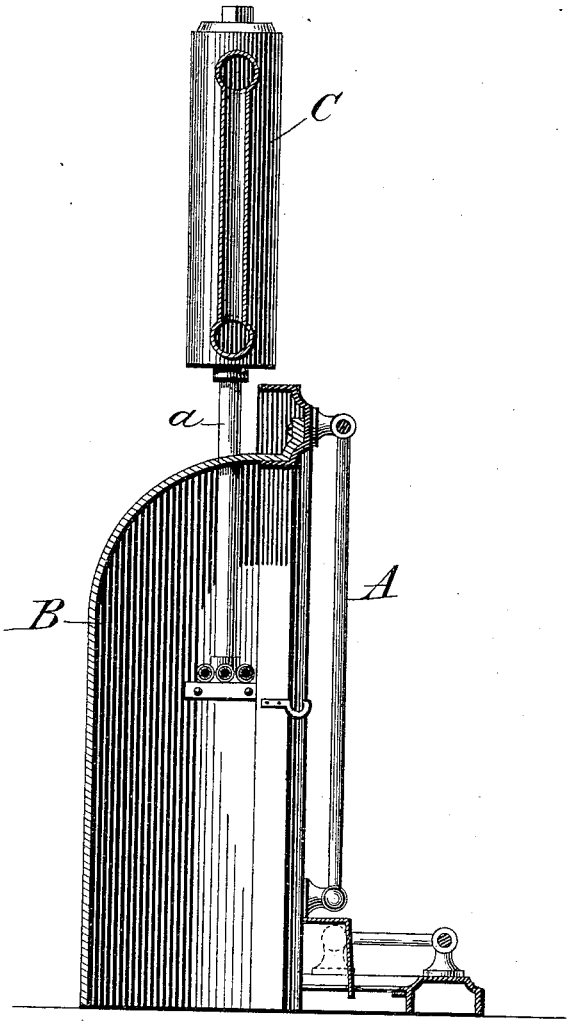
Fig. 3.



Attest:
F. H. Schott
Fred E. Tasker.

Inventor:
Quimby S. Backus
per John C. Tasker
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UNITED STATES PATENT OFFICE.

QUIMBY S. BACKUS, OF WINCHENDON, MASSACHUSETTS.

STEAM-HEATER.

SPECIFICATION forming part of Letters Patent No. 344,512, dated June 29, 1886.

Application filed November 23, 1885. Serial No. 183,736. (No model.)

To all whom it may concern:

Be it known that I, QUIMBY S. BACKUS, a citizen of the United States, residing at Winchendon, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Steam-Heaters; 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 and figures of reference marked thereon, which form a part of this specification.

This invention relates to an improvement in apparatus for generating and applying steam to heating purposes, the object being to provide a simply-constructed and inexpensive arrangement in which steam can be heated to as high a degree as is desirable, consequently allowing a proportionate amount of heat to be thrown off into the surrounding atmosphere, and which apparatus can therefore be used in place of the many devices now used for heating by steam or otherwise; and the invention consists in certain peculiarities of the construction and arrangement of parts, as will be hereinafter fully described and claimed.

In the annexed drawings, illustrating my invention, Figure 1 is a front elevation of the entire device, showing an oil-stove within the fire-place, which may be used to generate steam within the coil or superheater. Fig. 2 is a horizontal cross-section on the line *x x* of Fig. 1; and Fig. 3 is a vertical section on the line *y y* of Fig. 1.

Like letters of reference indicate like parts in the several views.

A represents a fire place frame, within which is situated a reflecting fire-back, B, preferably curved in form, as shown in Fig. 3. A casting, C, which serves as a receptacle for steam, and as a radiator is situated upon the top of the fire-place. This casting may be made in any form consistent with its purpose. As shown in the drawings, it consists of a series of vertical tubes connected by an upper and lower horizontal tube, the end vertical tubes being made larger than the others, for the purpose of containing more steam and also to give the device an ornamental finish. The casting is preferably provided near each end with a tube, *a*, which extends downward through the top of the fire-place, and connects with a longitudinal pipe-coil consisting of two or more turns of pipe, placed at such a point within the fire-place as will best allow the heat to act upon it. Below the pipe-coil is situated the stove for supplying heat, this stove having a series of lengthened burners or wicks, which are placed end to end in such a manner as to produce a continuous line of flame. This line of flame acts directly upon the pipe-coil in the direction of its length, being parallel therewith, and heats the water therein much better than could be done with an oil stove having its wicks arranged crosswise, or in any other manner than the longitudinal row in line with the coil.

In using this steam-heating arrangement, I first pour an amount of water into the radiator or receptacle C, through its top, as at *d*. This water passes down through the tubes until the pipe-coil over the flame is filled, and also the lower horizontal tubes of the radiator, and until the water-level is somewhere near the line marked "water-line" in Fig. 1. If, now, heat be applied to the pipe-coil, the steam generated will rise upward and fill the radiator. One filling of water will last a long time, since there is no waste of the steam by exit from the receptacle; and by the constant formation of steam I am enabled to raise the heat of the receptacle or steam-radiator to a very high degree. In practice it is found that as high a pressure as eighty-five (85) pounds may be attained without danger.

A further advantage consists in the ability to use the apparatus in rooms without any chimney or other appliance for carrying off the waste product of combustion, as in the well-constructed hydrocarbon-burner no noxious gases or smoke are generated in sufficient quantity to render the apparatus offensive in the closest rooms, while the amount of heat thrown off will be greatly in excess of that produced by the same stove without the steam-radiator attachment.

Certain features embodied in the present case—such as a curved fire-shield and a front rail and guard—are not herein claimed, since they are made the subject of a separate application by me for Letters Patent, filed September 26, 1885, Serial No. 178,223.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a fire-place compartment, of a steam-radiator mounted thereon, a lengthened pipe-coil in said compartment communicating therewith, and a series of burners placed in line or lines beneath said pipe-coil and extending the entire length of the same, substantially as described.

2. The combination, with a fire-place compartment, of a steam-radiator mounted thereon, a lengthened pipe-coil in said compartment communicating therewith, and an oil-stove having lengthened wick-tubes placed end to end beneath said pipe-coil, parallel with the pipes of said coil and extending the entire length of the same, substantially as described.

3. The combination, with a casing open at the front, of a radiator mounted thereon, a coil located within the casing and communicating with said radiator, and burners situated below the coil, substantially as described.

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

QUIMBY S. BACKUS.

Witnesses:
PHILIP MAURO,
FRED E. TASKER.