

J. BROWN & L. BRIDGES.  
COMBINED FURNACE AND COOKING RANGE.

No. 30,203.

Patented Oct. 2, 1860.

Fig. 2.

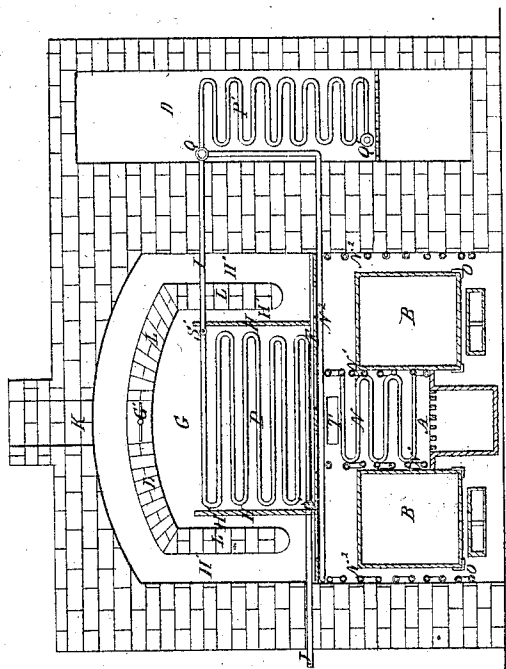


Fig. 4.

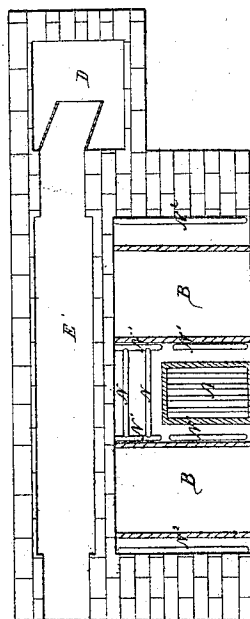
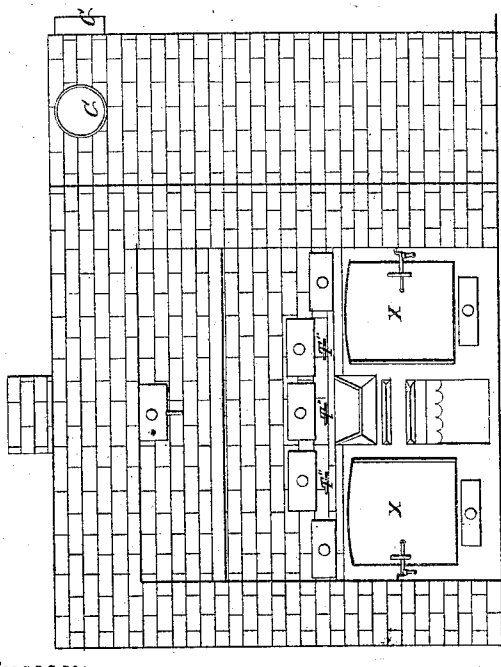
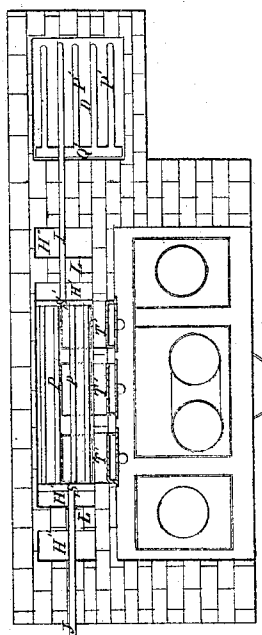


Fig. 1.



Witnesses:  
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Fig. 3.



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# UNITED STATES PATENT OFFICE.

J. BROWN AND L. BRIDGES, OF CHICAGO, ILLINOIS.

## FURNACE AND COOKING-RANGE.

Specification of Letters Patent No. 30,203, dated October 2, 1860.

*To all whom it may concern:*

Be it known that we, JAMES BROWN and LYMAN BRIDGES, both of Chicago, in the county of Cook and State of Illinois, have  
5 invented a new and useful Combined Furnace and Cooking-Range; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings,  
10 forming a part of this specification, in which—

Figure 1, is a front view; Fig. 2, a vertical section, and Figs. 3 and 4, horizontal sections of the combined furnace and range.

15 Similar letters of reference, in each of the several figures indicate corresponding parts.

The nature of our invention consists in the arrangement of coils of hot water pipes at both sides of the removable ovens in combination with a combustion chamber, hot air chamber and coils of hot water pipes, all the parts constructed and connected together in the manner and for the purposes hereinafter to be described.

25 To enable others, skilled in the art, to make and use our invention, we will proceed to describe its construction and operation.

The range of this combined apparatus consists of a fire-box A, two ovens B, B, (one at each side of the fire box and each provided with a door X,) and a plate F, with suitable holes for the insertion of cooking utensils. The fire box communicates through a flue T, with flues T', T', T', which latter lead into a combustion chamber G. The flues T', are provided with separate dampers the handles of which are shown in Fig. 1, at T'', so that one or more of them may be opened and thereby the communication with the combustion chamber G, and (through it and the spaces H', H'', with the chimney K,) may be regulated. A damper G', on top of the combustion chamber when opened, allows of an immediate communication between the combustion chamber and chimney.

45 The combustion chamber is surrounded by plates H, H, and brick wall L, so as to form spaces H', between the wall L, and plates H, and spaces H'', between wall L, and the main wall of the furnace. The air in passing through the circuitous route formed by said spaces has time to give up its heat and pass quite cool into the chimney K.

55 A hot air chamber D, communicates at the bottom by means of a flue E, with the out-

side air, and through flues C, C, at its top, with the apartments to be supplied with hot air.

A pipe J, leads from a water reservoir into the combustion chamber G, and communicates through cylinder S, with a coil or coils of pipes P, in the combustion chamber. A cylinder S', at the upper terminus of pipes P, communicates through pipe I, with a cylinder Q, in the hot air chamber D, and through said cylinder Q, with a coil or coils of pipes P', in the hot air chamber. A cylinder Q', connects the lower terminus of the pipes P'. Another pipe N<sup>2</sup>, leads from cylinder Q', below the range plate F, and communicates there with coils of pipes N', N<sup>2</sup>, at both sides of the ovens B, B, and with two coils of pipes N, N, in the rear portion of the fire box.

75 The ovens are placed in guide ways O, O, so that they can be withdrawn and removed when desirable for the purposes of repairing them or allowing the contents gradually to cool off.

80 When one or more of the dampers T', are opened, the products of combustion, pass through flue T, into the combustion chamber G, where they are completely consumed. The heat is kept in the chamber G, by the reflecting walls L, and the plates H, until the smoke and gases are consumed, thus giving the water pipes P, all the heat that can be obtained by rendering the combustion as perfect as possible.

85 The water reservoir is situated higher than the small cylinder Q. This supply reservoir is filled so as to form a pressure of water through the pipe J, which pipe connects with the small cylinder S, thus connecting with all the pipes in the generating chamber G, and passing the heated water from the small cylinder S', to the small cylinder Q.

90 The water passes from the cylinder Q, down the pipes P', into the smaller cylinder Q', from this last cylinder the water that has become cooled between the cylinder Q, and Q', is returned again through the cylinder S. Also the coils of pipes around the fire box and ovens are supplied with water from the small cylinder Q, through the supply pipes connecting with each different set of coils or pipes. The water, as it becomes heated in the pipes around the fire box and ovens, ascends into the small cylinder Q, and together with the water  
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heated in the pipes P, enters cylinder Q, and fills the pipes P', in the chamber D, so as to heat the air therein.

5 Either one or more of the coils may be used for furnishing hot water for hot water boilers &c. or for passing hot water through small or detached chambers of pure air in different parts of the building.

10 What we claim as our invention and desire to secure by Letters Patent, is—

The arrangement of coils of hot water

pipes N', N<sup>2</sup>, at both sides of the reversible ovens B, B, in combination with a combustion chamber G, hot air chamber D, and coils of hot water pipes P, and P', all the 15 parts constructed and connected, substantially as and for the purposes set forth.

JAMES BROWN.  
LYMAN BRIDGES.

Witnesses:

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