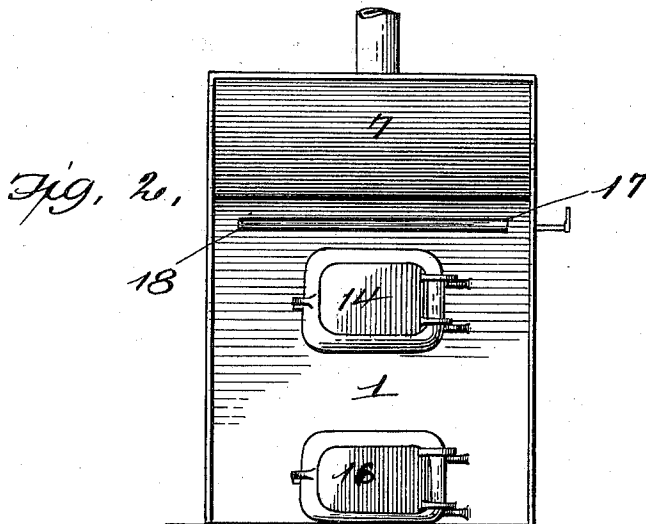
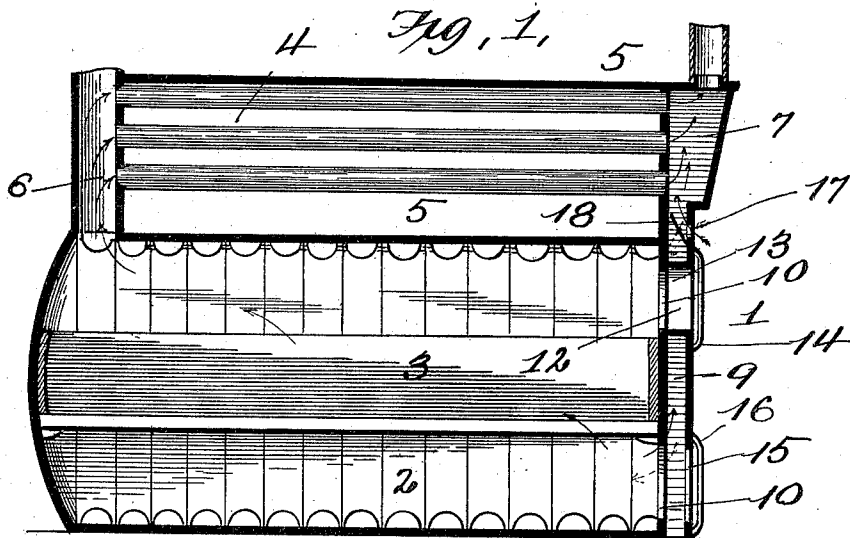


(No Model.)

C. D. HOWARD.
FURNACE.

No. 586,129.

Patented July 13, 1897.



WITNESSES:

E. A. Ryan.
Morris Price

INVENTOR

Chas. D. Howard

BY

J. R. Nottingham
ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES D. HOWARD, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE
HOWARD FURNACE COMPANY, OF SAME PLACE.

FURNACE.

SPECIFICATION forming part of Letters Patent No. 586,129, dated July 13, 1897.

Application filed April 5, 1897. Serial No. 630,789. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. HOWARD, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Furnaces; and I 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.

The invention relates to heating stoves and furnaces; and it consists, essentially, in the combination and arrangement of the several parts, as will be hereinafter more fully explained, and particularly set forth in the claims.

The principal objects of the invention are to provide feeding air to the burning fuel to increase combustion, to check combustion when necessary, and to prevent the radiation of heat at the front of the stove or furnace. These objects are attained by means of the device illustrated in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal sectional view of a furnace, showing my invention applied to the same; and Fig. 2, a front view of the same.

Referring to the several views, the numeral 1 indicates the furnace, which may be of any approved construction; 2, the ash-pit, and 3 the combustion-chamber thereof. Immediately above the combustion-chamber is a heating-chamber 4, in which is situated a series of fire-tubes 5, opening into a flue or chamber 6 at the rear and into a chamber 7 at the front. The products of combustion pass up into the flue or chamber 6, through the fire-tubes 5, into the chamber 7, and out through the smoke outlet or pipe 8, leading from the chamber 7.

The front of the furnace is constructed with double walls, forming an air-chamber 9 between them, which opens into the chamber 7. The inner wall is provided with openings 10 and 11, which open into the combustion-chamber and the ash-pit, respectively. The opening 10 is surrounded by a suitable casing 12, which projects and is fitted to a corresponding opening 13, made in the front wall. The opening 13 is closed by a door 14, by means of which access is had to the combustion-chamber. The front wall opposite the opening into the ash-pit is provided with an open-

ing 15, which is closed by a door 16, by means of which access is had to the ash-pit. The front wall above the door opening into the combustion-chamber is provided with a long narrow opening 17, and just below said opening, within the air-chamber 9, is journaled a damper 18, which is adapted to direct a current or flow of air either to the combustion-chamber by way of the ash-pit or to the smoke-outlet.

If it is desired to increase combustion, the damper 18 is turned as shown in full lines, Fig. 1. This directs the current of fresh air down the air-chamber 9, into the ash-pit, and up through the fuel. When it is desired to check combustion, the damper is turned as shown by the dotted lines. The current of air then passes up into the chamber 7 and out through the smoke-outlet.

By constructing the front of the furnace with double walls the radiation of heat is materially lessened, which is greatly to be desired, especially in furnaces.

By a proper adjustment of the valve air may be directed from the ash-pit to the smoke-outlet, as indicated by the full-line arrow.

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

1. In a furnace, the combination of a double-walled front forming a chamber, the upper portion of which communicates with the smoke-outlet and the lower portion of which communicates with the furnace below the grate, said front having an air-inlet near its top and adjacent to the smoke-outlet, in combination with valve mechanism for directing the air either to the smoke-outlet or to the combustion-chamber.

2. In a furnace, the combination of a double-walled front, forming a chamber, the upper portion of which communicates with the smoke-outlet and the lower portion with the furnace below the grate, said front having an air-inlet near its top and adjacent to the smoke-outlet, and a valve mechanism for directing the air from the ash-pit to said smoke-outlet.

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

CHARLES D. HOWARD.

Witnesses:

F. H. MOORE,
J. H. NORTON.