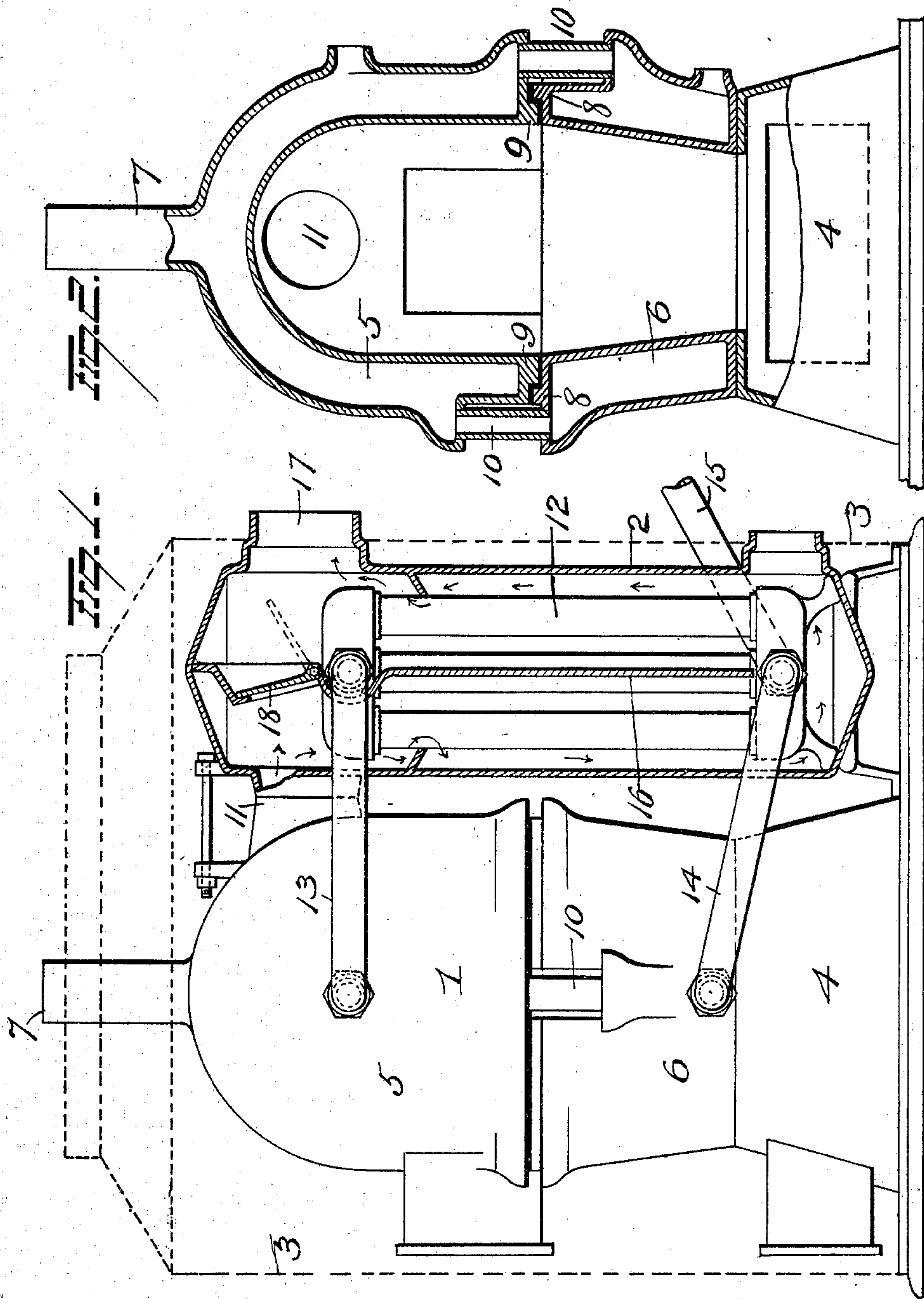


No. 732,951.

PATENTED JULY 7, 1903.

T. J. MARCH.
HEATING APPARATUS.
APPLICATION FILED SEPT. 3, 1902.

NO MODEL.



WITNESSES

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THOMAS J. MARCH, OF POTTSTOWN, PENNSYLVANIA.

HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 732,951, dated July 7, 1903.

Application filed September 3, 1902. Serial No. 121,990. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. MARCH, a resident of Pottstown, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Heating Apparatus; 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.

My invention relates to an improved heating apparatus, and more particularly to a combined hot-water and hot-air heater, the object of the invention being to provide a heating apparatus of this character in which water is heated in a furnace and in an auxiliary drum to heat the greater portion of the building and the surface radiation of the drum utilized to heat air to be supplied to a portion of the building.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view, partly in section, illustrating my improvements. Fig. 2 is a view in longitudinal section.

My improved heating apparatus comprises the main water-heater 1 and the auxiliary drum 2, both inclosed in a casing 3, forming an air-heating chamber around the drum.

The main heater 1 consists of the base or ash-pit 4, on which is supported water-casings 5 and 6, respectively, which form, in effect, water-linings for the combustion-chamber and in which the water is heated to be supplied through the outlet 7 in the top of chamber 5 to radiators in the building. These chambers fit snugly one upon the other, the lower chamber being provided centrally around its upper edge with a flange 8, in which a depending flange 9 on upper chamber 5 fits. When the plungers are cemented together, the chambers are held securely in position and possibility of their separation prevented. The two chambers are recessed at opposite sides and connected by short pipes or nipples 10 of large diameter to permit a free flow of water from the lower chamber 6 into upper chamber 5 and be thoroughly

heated before its exit into radiator supply-pipe 7. The nipple connections at one side are preferably in a lower plane than those at the other side to facilitate a perfect circulation and for drainage in emptying the heater.

Adjacent to the rear of main heater 1 the auxiliary drum 2 is located and connected at its upper end with the smoke-exit of said main heater by means of a pipe or coupling 11. In the drum, radiator coils or pipes 12 are located and connected at the upper and lower ends of the coils with chambers 5 and 6, respectively, by means of pipes 13 and 14 to permit a current of water to flow from the coils or pipes 12 into chambers 5 and 6, the hottest water being supplied to the former and the coolest to the latter, thus always maintaining the hottest water in chamber 5, from which it is supplied to the radiators, the preliminary heating in coils 12 relieving the chambers 5 and 6 of the first or preliminary heating and preventing any cold water entering the chambers to chill the water therein. The return-pipe 15 from the radiators communicates with coils 12, thus making the circuit from chamber 5 to the radiators, back to coils 12 and to the chambers 5 and 6 again. In the drum and projecting down to near the bottom thereof is a baffle-plate 16, compelling the passage of the smoke and gases about the coils 12 before escaping through the smoke-outlet 17, and a damper 18 is provided in the upper portion of the baffle-plate above the coils to permit a direct draft of the smoke when a strong draft is desired—as, for instance, in starting the fire or charging the furnace with soft coal.

The casing 3, to which fresh air is supplied near the bottom, as is customary with hot-air furnaces, serves to confine a quantity of air around the drum 2, to be heated by radiation therefrom. This air is supplied through suitable ducts to a portion of the building, thus serving the purpose of a heater and a ventilator to supply fresh hot air to the building or to a portion thereof.

A great many slight changes might be made in the general form and arrangement of the several parts described without departing from my invention, and hence I do not limit myself to the precise construction set forth, but consider myself at liberty to make such

slight changes and alterations as fairly fall within the spirit and scope of my invention.

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

5 Patent, is—

1. The combination with a furnace constructed with a water-heater surrounding the fire-chamber, an auxiliary water-heating drum and circulating-pipes connecting the
10 upper and lower ends of the water-heaters surrounding the fire-chamber and auxiliary water-heating drum, of a casing inclosing the water-heating drum and forming a heating-chamber for said drum, and a pipe for conveying heated air and gases from the furnace
15 to said heating-chamber, substantially as set forth.

2. The combination with a furnace constructed with a water-heater surrounding the
20 fire-chamber, an auxiliary water-heating drum comprising a drum, and water-circulating pipes, and pipes connecting the upper and lower portions of the water-heater surrounding the fire-chamber with the upper and
25 lower ends of the auxiliary water-heating drum, of a casing inclosing the auxiliary water-heating drum and forming a heating-chamber, and a pipe for conveying heated air and gases from the fire-chamber of the
30 furnace to said heating-chamber, substantially as set forth.

3. The combination with a furnace constructed with a water-heater, an auxiliary water-heating drum comprising a drum and water-circulating pipes, a baffle-plate in said
35 drum, and pipes connecting the upper and lower portions of the water-heater of the furnace with the upper and lower portions of the auxiliary water-heating drum, of a casing
40 inclosing the auxiliary water-heating drum

and forming a heating-chamber, and a pipe for conveying heated air and gases from the furnace to said heating-chamber, substantially as set forth.

4. The combination with a furnace constructed with a water-jacket forming a water-heater, an auxiliary water-heating drum comprising a drum, and water-circulating pipes, and pipes connecting the upper and lower portions of the water-heating chamber
50 inclosing the furnace, with the upper and lower ends of the auxiliary water-heating drum, of a casing inclosing the water-heating drum and forming a heating-chamber, and a pipe for conveying heated air and gases
55 from the furnace to said heating-chamber, substantially as set forth.

5. The combination with a furnace provided with a water-heater, an auxiliary water-heating drum provided with water-circulating pipes, and pipes connecting the upper and lower portions of the water-heater and auxiliary water-heating drum, of a casing inclosing the water-heating drum and forming
65 a heating-chamber, a pipe for conveying heated air and gases from the furnace to the heating-chamber, a baffle-plate for diverting the heated air and gases downward and around the auxiliary water-heating drum, and a valve for permitting the heated air and
70 gases to flow direct to the chimney, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

THOMAS J. MARCH.

Witnesses:

F. C. E. MIHLHOUSE,
AARON J. WARNER.