S. D. STAUFFER.

COMBINED STEAM AND WATER RADIATOR.

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1,027,630.

Patented May 28, 1912.

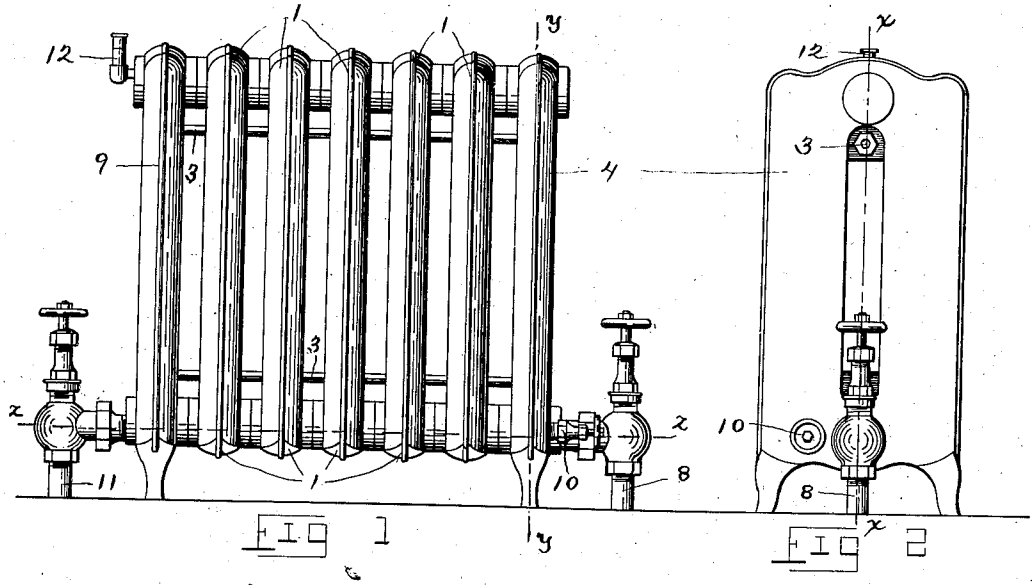

FIG 1

FIG 2

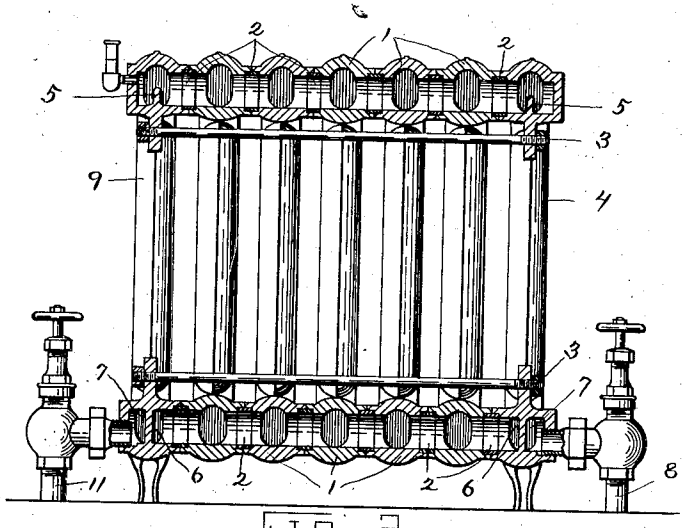

FIG 3

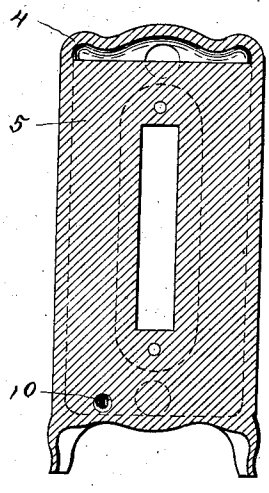

FIG 4

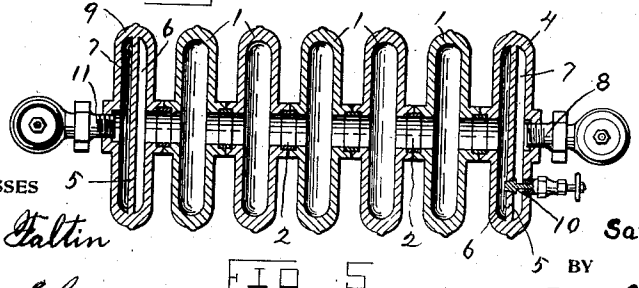

FIG 5

WITNESSES

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COMBINED STEAM AND WATER RADIATOR.

1,027,630. Specification of Letters Patent. Patented May 28, 1912.

Application filed March 12, 1910. Serial No. 548,778.

To all whom it may concern:

Be it known that I, SAMUEL D. STAUFFER, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Combined Steam and Water Radiators, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a combined water and steam radiator of that class where the water is contained in certain parts of the radiator where it may be heated by the admission of steam in such a way that all of the advantages of a hot water heating system may be obtained with a less amount of fuel than that required for the usual water system, as it requires much less fuel to generate sufficient steam to heat the water than it does to directly heat the water, owing to the fact that in a combined system the water does not have to circulate and thus retains the heat for a longer time.

The objects of the invention are to provide a combined radiator that may be used on either a single or a double pipe system and that shall combine all of the advantages of both the hot water and the steam systems.

With these and other objects in view my invention consists in certain construction and combination of parts as will hereinafter be fully described and claimed herewith, and fully illustrated in the accompanying drawings, which form a part of this application and in which like figures of reference refer to corresponding parts in all of the views; but it is fully understood that while I have here described my invention as shown, that I do not confine myself to the exact construction as shown, as slight changes may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings:—Figure 1, is a side elevation of a radiator embodying my construction as applied to a double pipe system. Fig. 2, is an end view of the same. Fig. 3, is a vertical sectional view, taken on the line X—X of Fig. 2. Fig. 4, is a vertical sectional view of one of the combined coils, taken on the line Y—Y of Fig. 1. Fig. 5, is a horizontal section, taken on the line Z—Z of Fig. 1.

Referring to the drawings, the radiator comprises the series of intermediate water sections or coils 1, of the usual double hub pattern, which are connected together in the usual way by the nipples 2, and the stay rods 3. The end sections or coils 4, and 9, are divided vertically by an integral wall 5, which extends to within a short distance of the top, thus dividing said coil into a water compartment 6, and a steam compartment 7; the outer compartment 7, communicating with the inlet pipe 8, attached to one of said end sections 4, and the inner compartment 6, communicating both at the top and bottom with the adjacent coil 1; said wall 5, thus closes communication between said chambers or compartments 6, and 7, except near the top of said coil 4, and as governed by the valve 10, which is placed near the bottom of said coil 4. The end section or coil 9, is constructed in like manner, except that the outer chamber 7, is attached to the outlet pipe 11, and it is provided with the air cock 12, and with no opening in the wall 5; and as stated, in a single pipe system this second divided coil may be dispensed with and the usual coil used.

Referring to the drawings of the double pipe system, it will be seen that the intermediate section 1, and the inner chambers 6, of the end coils 4, having been filled with water to the level of the top of the wall 5, steam may be admitted through the inlet pipe 8, into the outer chamber 7, of the coil 4, and said steam will circulate upward through said chamber 7, and through the upper hub of the coils over the surface of the water and downward through the chamber 7, in the opposite end coil to the outlet pipe 11, thus heating the water with a minimum amount of steam.

To fill the radiator with water, the water may be admitted through the inlet steam pipe 8, until the water chambers are filled and then the chamber 7, may be drained off. and to empty the radiator the valve 10, may be opened allowing the water to escape from the coils through the inlet pipe.

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

1. A radiator comprising a series of sections communicating with one another at the top and bottom, the end section being provided with a vertical partition dividing it into a steam chamber and a water chamber, said chambers having communication with each other above the communication

between the sections at the top of the radiator, said steam chamber formed with a steam inlet whereby the water within the sections may be heated and circulated by admission of steam to the steam chamber.

2. A radiator comprising a series of sections communicating with one another at the top and bottom, the end section being provided with a vertical partition dividing it into a steam chamber and a water chamber, said chambers having communication with each other above the communication between the sections at the top of the radiator, said steam chamber formed with a steam inlet whereby the water within the sections may be heated and circulated by admission of steam to the steam chamber, and a valve placed in said vertical partition on a level with the lower end thereof for the purpose of draining the water from said radiator.

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

SAMUEL D. STAUFFER.

Witnesses:
WM. J. COULTER,
MABEL L. LEFEVRE.