

J. J. LAWLER.
RADIATOR.
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977,202.

Patented Nov. 29, 1910.

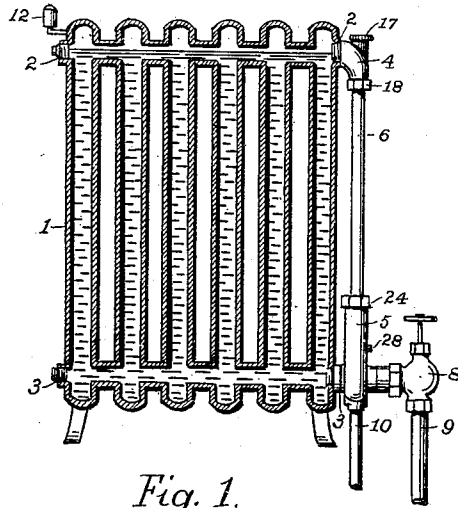


Fig. 1.

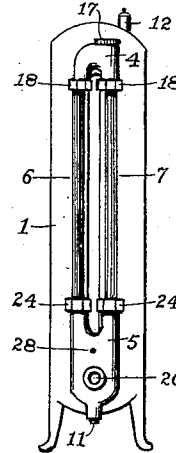


Fig. 2.

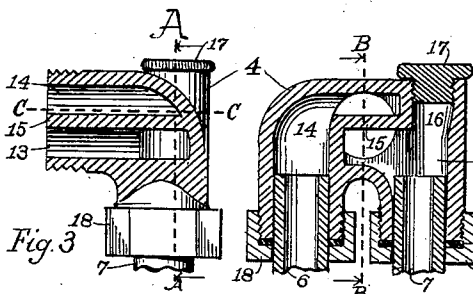


Fig. 3.

Fig. 4.

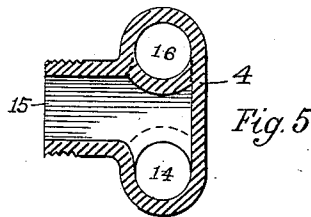


Fig. 5.

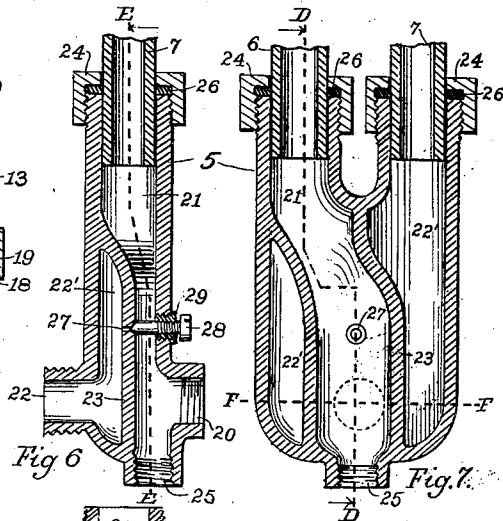


Fig. 6.

Fig. 7.

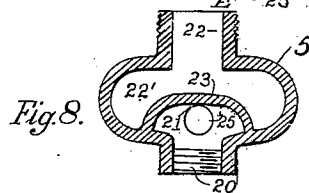


Fig. 8.

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RADIATOR.

977,202.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES J. LAWLER, a citizen of the United States, and resident of Pelham Heights, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

My invention relates to radiators for heating rooms and so forth—the objects being the production of a simple steam and water circulating attachment for converting a common radiator to which it is attached into a steam or hot water radiator at will without any change being made in the said radiator.

My improvement is shown in the accompanying drawings in which—

Figure 1 is a sectional front elevation, the attachment being shown in elevation; Fig. 2 is an end elevation of Fig. 1, the steam valve being removed; Fig. 3 is the upper elbow or fitting of the attachment, showing a sectional view on line B—B of Fig. 4; Fig. 4 is a cross sectional view on line A—A of Fig. 3; Fig. 5 is a sectional plan view on line C—C of Fig. 3; Fig. 6 is a sectional side view of the lower fitting on line D—D of Fig. 7; Fig. 7 is a sectional view on line E—E of Fig. 6, and Fig. 8 is a sectional plan view on line F—F of Fig. 7; the views from Figs. 3 to 8 inclusive being enlarged for clearness of illustration.

The radiator 1 is formed of a plurality of units communicating at their upper and lower portions by nipples whereby a circulation is had between the units. Each of the outer units in its outer side is provided with an upper opening 2 and a lower opening 3, the upper and lower openings in the outer side of one of the units being closed by plugs. Secured in the opening 2 of the other outer unit and communicating with the interior of said unit is an upper member, fitting or elbow 4 divided to provide a pair of chambers and secured in the opening 3 of said unit as well as communicating with the interior of the unit is a lower member or fitting 5 provided with a pair of chambers. The upper and lower members 4 are shown in detail in Figs. 3 to 8 inclusive. Pipes 6, 7, are coupled with the said members for connecting them together.

A steam valve, 8, is used to control the supply in pipe 9, and if a two pipe or return system is used, the return pipe 10 may be screwed into the lower opening 25 as shown

in Fig. 1; otherwise with a single pipe system a plug 11,—shown in Fig. 2—is used. An air valve 12, is placed near the top of the radiator above the water line.

The elbow 4 is of cast metal and has a passage 13 for water and a passage 14 for steam, a partition 15 in the center separating the steam and water, the flattened portion of said partition—in the round end of the fitting—forming a dam or overflow whereby the height of the water in the radiator is limited, when used as a hot water radiator. The radiator is filled with water through the opening 16 which is closed by a capped plug 17. A coupling nut 18 on the steam pipe 6 and a similar nut on the water pipe 7 clamp suitable packing 19 thereby forming a tight joint against the periphery of the pipes. The lower attachment fitting 5 is also of cast metal and so cored that the steam entering through the inlet 20 passes upward to and through the chamber 21 and the pipe 6 while the water circulates by entering the inlet 22 and passing upward it contacts against the partition 23 which separates the steam from the water, the water rising up through the chamber 22' to and through the water pipe 7. Coupling nuts 24 with packing 26 form tight joints at the pipe connections. In the partition 23 a small hole 27 is provided on a line with a tapered end screw 28 passing through a bushing 29 in the face of the fitting a short distance above the steam inlet as shown. The length of the lower fitting 5 may be varied to suit the particular requirements.

Such being the construction, the operation, which has been partly explained in the description, is as follows:—The elbow 4 is screwed into the upper side opening of an ordinary radiator; into the lower side opening the fitting 5 is screwed. Two pipes of proper length and diameter are inserted into the two fittings by slipping the coupling nuts and packing up on the pipe, the lower end of which is inserted into the lower fitting and pushed down until the upper end clears the lower end of the elbow 4 when the pipe is pushed up into the elbow a proper distance and the nuts tightened up on both of the fittings so that the packing is compressed and tightened around the pipe to make a tight joint. The steam connection is then made and water filled in through the opening 16 in the elbow until it reaches the partition 15 over which any surplus will run

down into the steam supply pipe to be returned with the condensed water to the boiler or elsewhere. When the steam is turned on, it passes up through the lower fitting—heating the partition and walls and rising it enters the upper or steam space in the radiator above the level of the water, driving out the air through the air valve, and, as the water in the fittings and pipe becomes warm, a circulation is established, the water increasing in temperature until the maximum is reached. Any expansion of the water will run over the partition in the elbow and be returned through the steam pipe as explained.

In extremely cold weather when the radiator is to be used for steam heating, the screw 28 is backed out a few threads to permit the water to be drained off either into the return pipe or through the steam pipe if a single pipe system is used. When the steam is turned on it will fill the radiator and circulate through it as usual, the condensed water returning to boiler or elsewhere.

When used as a hot water radiator, it will be seen that the level of the water is about central with the side openings of the loops or sections of the radiator so that a free circulation of the water is had.

No expansion chamber or other extraneous means for taking care of the surplus water is required and no connecting water pipes are needed as is usual in hot water systems. Each radiator is self contained and can be adapted for either steam or hot water heating in a few minutes without any alteration.

What I claim as new is:

1. In combination a radiator having an upper and a lower opening, an upper member having a partition whereby two chambers are formed therein, said member being adapted for connection with the upper opening of the radiator, a lower member provided with two chambers—one chamber being adapted for connection with the lower opening of said radiator and the other chamber being adapted for steam connection, and of two pipes connecting the respective chambers of one member with the respective chambers of the other member.

2. The combination with a radiator, of a fitting communicating therewith for changing from a hot water to a steam radiator

comprising an upper and a lower member each provided with an inner and an outer chamber, means whereby communication is permanently established between the chambers of the upper member and the upper portion of a radiator, means whereby communication is permanently established between the inner chamber of the lower member and the lower portion of the radiator, a pipe for connecting the inner chamber of one member to the inner chamber of the other member, a pipe for connecting the outer chamber of the upper member to the outer chamber of the lower member, said outer chamber of said upper member having a water inlet, and said outer chamber of said lower member having a steam inlet, and said lower member further provided with a bypass whereby water can be drained from the radiator, and a valvular means carried by the lower member for closing said bypass.

3. The combination with a radiator, of a fitting communicating therewith for changing from a hot water to a steam radiator comprising an upper and a lower member each provided with an inner and an outer chamber, means whereby communication is permanently established between the chambers of the upper member and the upper portion of a radiator, means whereby communication is permanently established between the inner chamber of the lower member and the lower portion of the radiator, a pipe for connecting the inner chamber of one member to the inner chamber of the other member, a pipe for connecting the outer chamber of the upper member to the outer chamber of the lower member, said outer chamber of said upper member having a water inlet, said outer chamber of said lower member having a steam inlet, and said outer chamber of said lower member provided with an outlet, and said lower member provided with a by-pass whereby water can be drained from the radiator and a valvular means carried by said lower member for closing the by-pass.

Signed at New York city in the county and State of New York this fifth day of January A. D. 1910.

JAMES J. LAWLER.

Witnesses:

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