

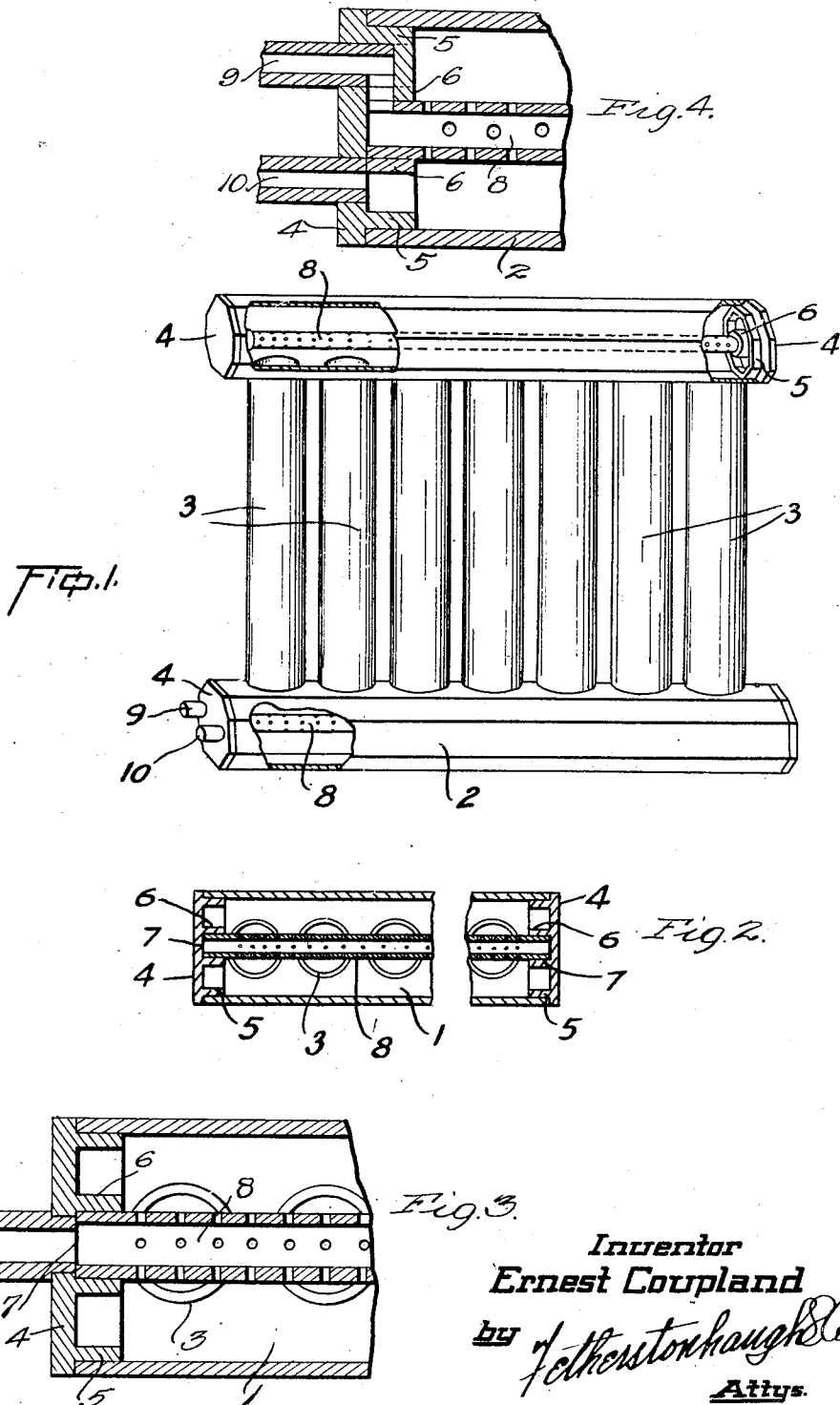
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STEAM AND HOT WATER RADIATOR

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UNITED STATES PATENT OFFICE.

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STEAM AND HOT-WATER RADIATOR.

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My invention relates to improvements in steam or hot water radiators, and the object of the invention is to devise a radiator of this type which will be light, strong and durable, which will not corrode, which will have maximum radiation for any given pressure, and which due to its even expansion and contraction will eliminate the detrimental results due to freezing, and it consists essentially of the arrangement and construction of parts as hereinafter more particularly explained.

Fig. 1 represents a perspective view of a radiator section constructed in accordance with my invention.

Fig. 2 is a longitudinal sectional view through one of the headers intermediately broken away for a part of its length.

Fig. 3 is a further enlarged sectional detail showing the steam pipe connection to the enclosure of the upper header.

Fig. 4 is a sectional view similar to Figure 3 showing the hot water connections to the lower header 4.

In the drawing like characters of reference indicate corresponding parts in each figure.

1 and 2 indicate the upper and lower headers which are preferably octagonal and connected by the water tubes 3 which are welded thereto to form an integral unit. The ends of the headers 1 and 2 are open ended and provided with closures 4, such closures being provided with internal flanges 5 fitting within the ends of the headers 1 and 2 and welded therein.

Each closure 4 is provided with a central boss 6 recessed as indicated at 7 so as to receive an end of a perforated tube 8, which ends are freely held within the recesses to permit free expansion and contraction of the headers and yet definitely space the closures 4 apart, the tubes 8 being perforated in order to permit of their even contraction and expansion.

When steam is used as the heating medium an orifice is formed in one of the closures 4 into which the steam inlet pipe is secured as shown in Fig. 3, the steam passing directly into the upper perforated tube 8 and through the perforations thereof, thereby preventing the steam striking directly upon the cold surface of the radiator and condensing to produce a precipitation of water thereby lowering the temperature of the radiator.

When hot water is used as the heating medium the orifice in the closure 4 above referred to is plugged and the outlet and inlet 9 and 10 are employed, the hot water passing in through the inlet 9 and rising through the water tubes 3 until it gradually cools when the cool water gradually descends passing out from the outlet 10.

The radiator section such as I have described may be formed of sheet aluminum which is light, strong, durable and will radiate a maximum amount of heat.

It will also be understood that the tube 8 is perforated to a greater extent towards the ends than at the centre, the closures 4 being of cast metal absorb heat more slowly than the sheet metal of the units and that therefore if the tubes 8 were perforated evenly the centre of the section would heat prior to the ends and thereby cause a buckling action in the metal.

What I claim as my invention is:

A radiator section formed of sheet metal and comprising upper and lower tubular headers and tubes extending between the headers and welded thereto to form an integral unit, closures for the open ends of the headers, and a perforated tubular spacer extending longitudinally through each of the headers and slidably held at its ends in the closures to permit of the free expansion and contraction of the headers.

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