

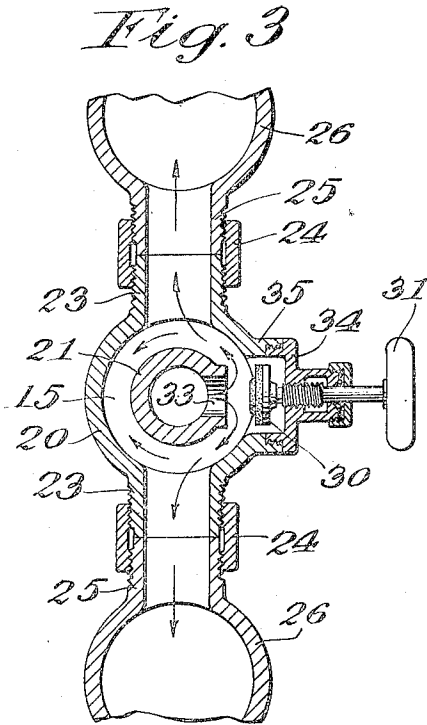
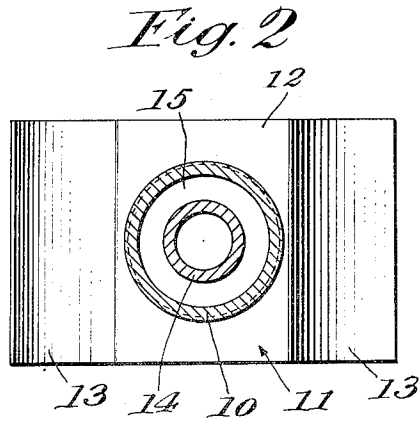
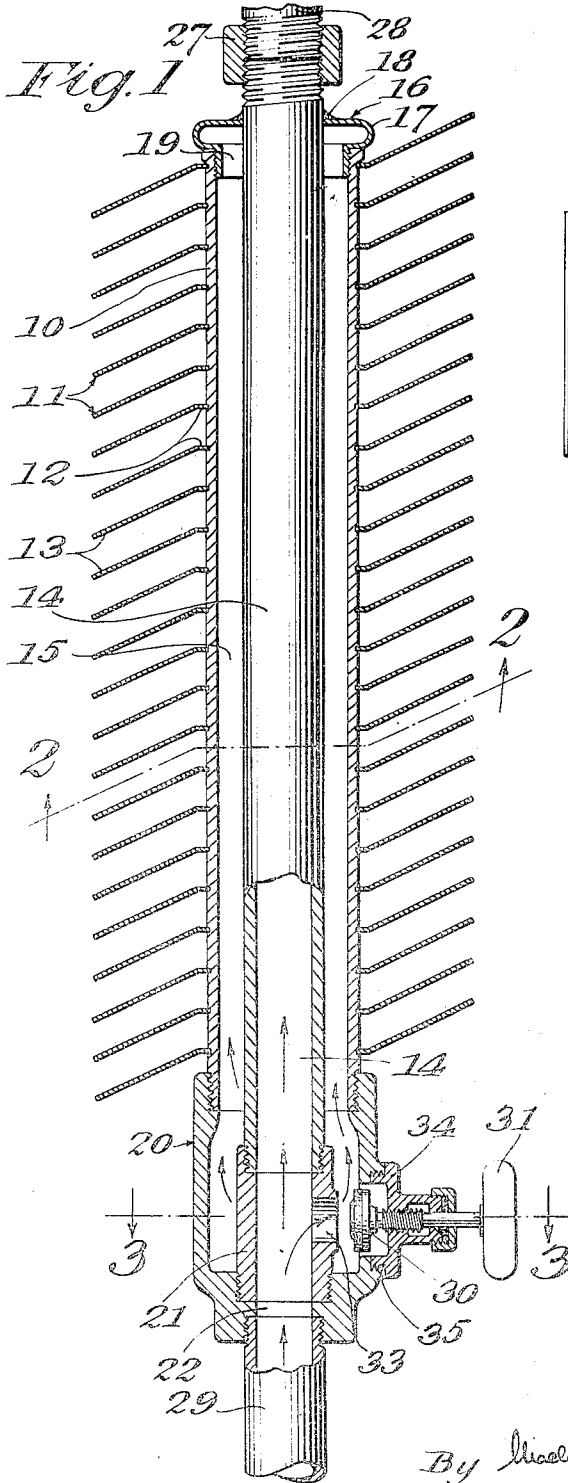
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RADIATOR

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UNITED STATES PATENT OFFICE

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RADIATOR

Application filed January 31, 1930. Serial No. 424,864.

This invention relates especially, although not exclusively, to sectional radiators of the extended surface type and has for its general object to provide an improved radiator construction comprising a unit which may be connected directly in a vertical supply riser so as to constitute a continuous part or section of the latter, thereby eliminating the piping and other parts heretofore usually necessary in order to connect the radiator with such riser.

The more particular objects of the invention will best be understood from the following description of a preferred embodiment thereof illustrated in the accompanying drawing, but it will also be understood that the particular construction described and shown has been chosen for purposes of exemplification merely, and that the invention, as defined by the claims hereunto appended, may be otherwise embodied without departure from its spirit and scope.

In said drawing:

Fig. 1 is a vertical sectional view of a radiator unit or section embodying the invention.

Figs. 2 and 3 are sections taken substantially on the lines 2—2 and 3—3, respectively, Fig. 1.

The invention is herein shown as embodied in a radiator unit or section of the extended surface type comprising a tube 10 having spaced, parallel fins or flanges 11 secured thereon in any usual or well known manner, as by brazing or expansion of the tube, as described in United States Patent No. 1,646,384, dated October 25, 1927. As herein shown, each of the fins or flanges 11 comprises a central portion 12 and end portions 13, said central portion being disposed perpendicular to the tube 10, being formed with an opening to receive said tube, and being secured thereto as above mentioned, and said end portions 13 being bent at an angle to said central portions so as to provide, in effect, an

inclined fin or flange, as is desirable under some circumstances. It will be obvious, however, that fins or flanges disposed perpendicular to the tube throughout their area may, if desired, be employed.

Extending longitudinally through the tube 10, and preferably axially thereof, is a pipe 14, said pipe being connected with the ends of said tube to form a fluid chamber 15 within said tube and about said pipe. The connection between the pipe and tube at one end, herein the upper end, comprises an expansion joint preferably in the form of a thin metal member 16 having one or more bellows folds 17 and brazed or otherwise secured, as shown at 18, to the pipe 14, said member having a cylindrical thimble portion 19, threaded into or otherwise secured to the upper end of the tube 10. The connection at the opposite (herein the lower end) comprises a rigid fitting 20 in which the lower ends of the tube and pipe are rigidly held. As shown, the lower end of the tube 10 is threaded into the upper end of the fitting 20, while the lower end of the pipe 14 is threaded into the upper end of a nipple 21 the lower end of which is, in turn, threaded into a counterbored opening 22 in the lower end of said fitting, the nipple 21 being disposed in the fitting 20 in a position corresponding to the position of the pipe 14 in the tube 10, so as to provide therearound a space constituting an extension of the fluid chamber 15. The fitting 20 is preferably provided at opposite sides with nipples 23 (Fig. 3) constituting means for lateral connection, as by unions 24, with similar nipples 25 on adjacent radiator sections 26 similar to the section above described, but which may be without pipes or thimbles corresponding to the pipe 14 and thimble 21.

Means are provided whereby the ends of the pipe 14 may be connected with adjacent sections of a vertical riser so as to permit said pipe to constitute a continuous part of such

riser. As herein shown, the upper end of the pipe 14 which projects beyond the member 16 is threaded to receive a union 27, whereby it is connected with an upper riser section 28, while the opening 22 in the fitting 20 is counterbored and threaded to receive the threaded upper end of a lower riser section 29, so that when the parts are thus connected the lower riser section 29, nipple 21, pipe 14, and upper riser section 28 will be alined to form a continuous fluid supply conduit.

For controlling communication between the interior of the pipe 14 and the fluid chamber 15 there is provided a valve 30 having an operating handle 31 accessible from the exterior of the tube 10. As herein shown, the valve 30 is of the reciprocating type and controls a port 33 in the thimble 21, said valve being carried by a bonnet 34 threaded into a hollow boss 35 formed on the fitting 20.

By operating the valve 30 by means of its handle 31, it will be seen that heating fluid from the riser may be admitted to the fluid chamber 15 in the radiator tube 10 or may be excluded therefrom as desired, the expansion joint 16 permitting differential expansion and contraction of the parts due to variations in the temperature of the tube 10 with respect to the pipe 14. It will also be seen that heating fluid admitted through the port 33 will pass, not only to the heating chamber 15 of the unit described, but will likewise pass through the nipples 23 and 25 to the remaining sections 26 of the radiator as a whole.

It will be understood that if the radiator unit described is to be used alone, or as the end section of a radiator assembly, one or more of the nipples 23 may be closed by suitable caps, not shown. It will also be understood that, in the case of a two-pipe heating system, two riser radiator sections will be included in the radiator assembly, one of said sections being connected in the supply riser and the other in the return riser.

Having thus described my invention, I claim:

1. A radiator unit or section comprising a radiator tube, a pipe extending longitudinally through said tube and connected therewith at the ends of the latter to form a fluid chamber within said tube and about said pipe, means at the ends of said pipe whereby said pipe may be connected in a vertical riser to constitute a continuous part thereof, and a valve accessible from the exterior of said tube for controlling communication between the interior of said pipe and said fluid chamber.

2. A radiator unit or section of the extended surface type comprising a tube having spaced, parallel fins or flanges thereon, a pipe extending longitudinally through said tube and connected therewith at the ends of the latter to form a fluid chamber within said

tube about said pipe, and means at the ends of said pipe whereby said pipe may be connected in a vertical riser to constitute a continuous part thereof, and a valve accessible from the exterior of said tube for controlling communication between the interior of said pipe and said fluid chamber.

3. A radiator unit comprising a radiating portion and a portion having at its ends means whereby it may be connected in a vertical riser to constitute a continuous part thereof, an expansion joint connecting said portions, and a valve controlling communication between said portions.

4. A radiator unit or section comprising a radiator tube, a pipe extending longitudinally through said tube and connected therewith at the ends of the latter to form a fluid chamber within said tube and about said pipe, one of the connections between said tube and pipe comprising a fitting in which the ends of said tube and pipe are rigidly held, means at the ends of said pipe whereby said pipe may be connected in a vertical riser to constitute a continuous part thereof, and a valve carried by said fitting and accessible from the exterior thereof for controlling communication between the interior of said pipe and said fluid chamber.

5. A radiator unit or section comprising a radiator tube, a pipe extending longitudinally through said tube and connected therewith at the ends of the latter to form a fluid chamber within said tube and about said pipe, means at the ends of said pipe whereby said pipe may be connected in a vertical riser to constitute a continuous part thereof, means whereby said unit or section may be connected laterally with adjacent sections, and a valve accessible from the exterior of said tube for controlling communication between the interior of said pipe and said fluid chamber.

6. A radiator unit or section comprising a radiator tube, a pipe extending longitudinally through said tube and connected therewith at the ends of the latter to form a fluid chamber within said tube and about said pipe, one of the connections between said tube and pipe comprising a fitting in which the ends of said tube and pipe are rigidly held, said fitting having means for lateral connection with adjacent radiator sections, means at the other end of said pipe whereby said pipe may be connected in a vertical riser to constitute a continuous part thereof, and a valve accessible from the exterior of said tube for controlling communication between the interior of said pipe and said fluid chamber.

7. A radiator unit or section comprising a radiator tube, a pipe extending longitudinally through said tube and connected therewith at the ends of the latter to form a fluid chamber within said tube and about said pipe, one of the connections between said tube and pipe comprising an expansion joint and the other

comprising a fitting in which the ends of said tube and pipe are rigidly held, said fitting having means for lateral connection with adjacent radiator sections, means at the other end of said pipe whereby said pipe may be connected in a vertical riser to constitute a continuous part thereof, and a valve accessible from the exterior of said tube for controlling communication between the interior of said pipe and said fluid chamber.

In testimony whereof I affix my signature
ARTHUR C. WALWORTH.