

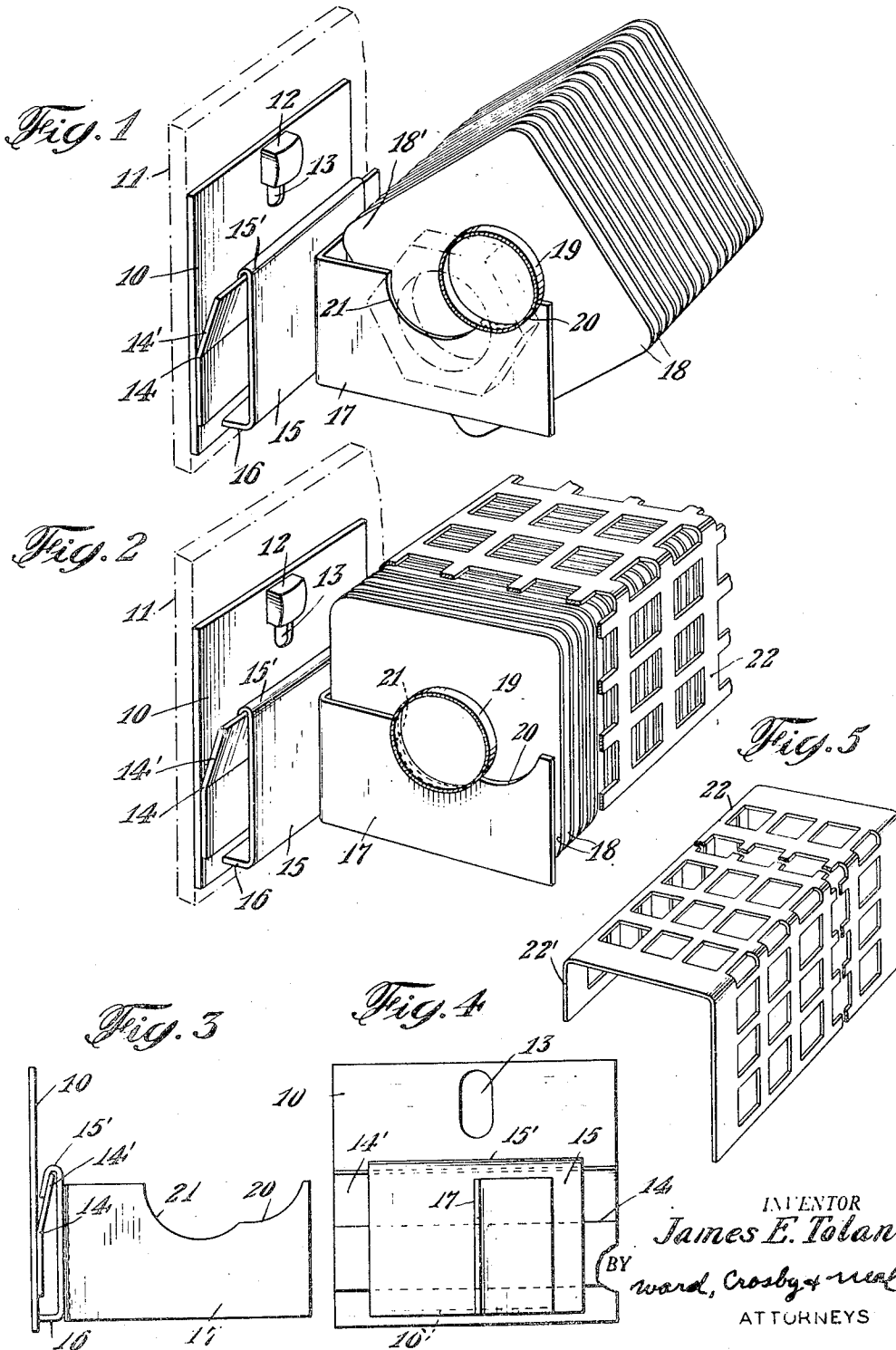
March 21, 1950

J. E. TOLAN
RADIATOR BRACKET

2,501,147

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2 Sheets-Sheet 1



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Fig. 6

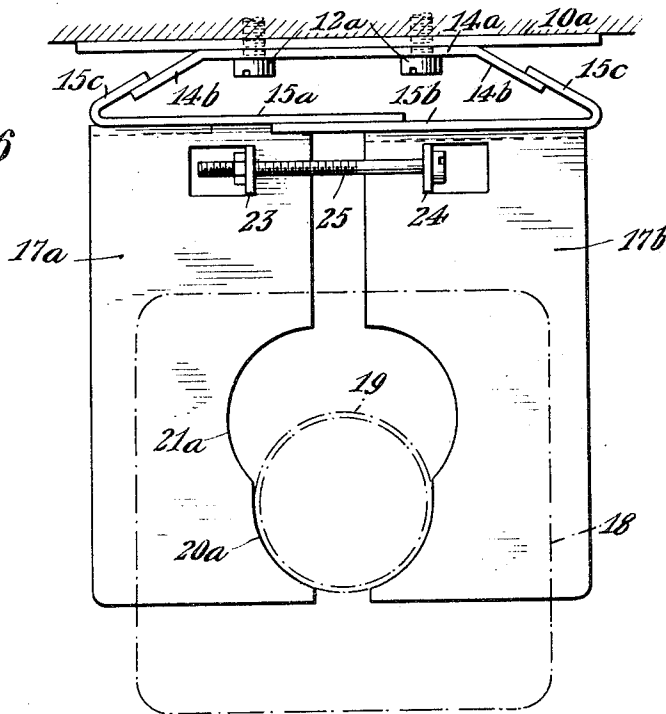
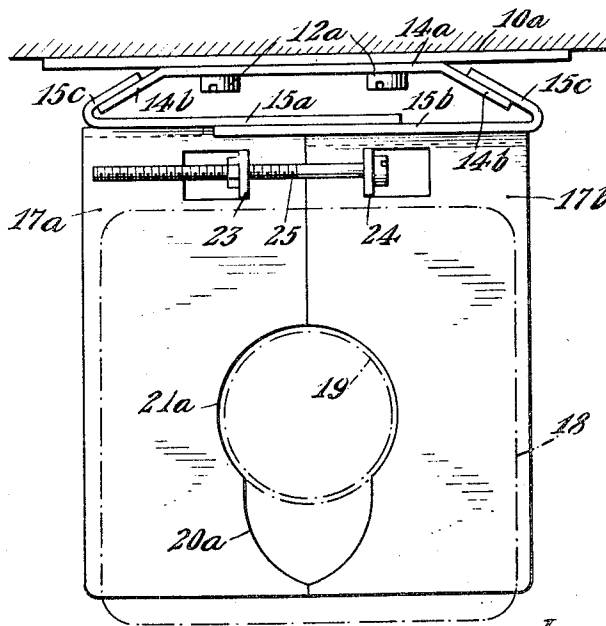


Fig. 7



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RADIATOR BRACKET

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5 Claims. (Cl. 257-163)

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This invention relates to radiator structures and supporting brackets therefor.

More particularly, the invention has to do with radiator elements of a type comprising a tube embraced by a series of closely spaced fins generally of substantially rectangular outline. Where such radiator elements are used, for example in industrial plants, it is desirable to support the same on brackets positioned at spaced points along the wall or the ceiling of the room to be heated. In order to secure highly efficient radiation from such finned units, it is desirable to mount the same as close as possible to the surface of the room to be heated, particularly when they are mounted along a wall, as such close spacing promotes more rapid circulation of air over all the surface areas of the fins. It is of course also desirable to mount them close to the wall or ceiling so that they will not extend out and obstruct the available working space in the room. Yet if they are mounted in brackets such that one edge of each rectangular fin is as close as desirable to the wall or ceiling, difficulties are encountered in mounting a series of such radiator elements and coupling them together. That is, in order to couple successive elements together, it will ordinarily be practically necessary to rotate them, but this cannot be done if they are mounted in their supporting brackets in normal position close to the wall before they are coupled together. On the other hand, if a series of the elements are coupled together before they are mounted in their supporting brackets, a number of men may be required thereafter to lift the whole assembly into place on the supporting brackets, with considerable danger that some of the fins will be bent and seriously jammed out of place. Then again, if it becomes necessary to uncouple one of the radiator elements for repair or replacement, it cannot be rotated for this purpose without the trouble of taking down a series of the radiator elements from their supporting brackets.

Furthermore, if ordinary simple rigid forms of brackets are used to support radiator elements of the above described type, a further difficulty arises in that the space between fins is very narrow and sometimes does not afford sufficient clearance to permit the finned tubing to be slid endwise during coupling or due to expansion and contraction on heating and cooling without the danger of jamming the fins against the brackets.

In accordance with the present invention, a bracket structure for the above indicated type of radiator elements is provided in a form which

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eliminates the above noted difficulties and permits the radiator elements to be individually placed in a temporary position in the brackets wherein the elements may be freely rotated for coupling without interference with the bracket structure or supporting surfaces and, after the elements are all coupled together, the assembly may be moved slightly to a different and normal position as close as desired to the wall or ceiling surface. At the same time the brackets of the invention are so constructed as to afford the necessary endwise movement of the radiator elements.

Various further and more specific objects, features and advantages of the invention will appear from the detailed description given below taken in connection with the accompanying drawings which form a part of this specification and illustrate by way of example, preferred forms of the invention. The invention consists in such novel features and combinations of parts as may be shown and described in connection with the apparatus herein disclosed.

In the drawings:

Fig. 1 is a perspective view of one embodiment of the invention showing a portion of a radiator element in temporary position with respect to a bracket, at which position the element may be freely rotated for coupling to an adjacent element;

Fig. 2 is another perspective view showing the radiator element moved to normal position in the supporting bracket;

Fig. 3 is an end elevational view of the bracket structure of Figs. 1 and 2;

Fig. 4 is a front elevational view thereof;

Fig. 5 is a perspective view of a protective cover member for the finned radiator structure; and

Figs. 6 and 7 are end views of an alternative embodiment of the invention adapted to suspend the radiator elements from the ceiling, Fig. 6 indicating the radiator element in temporary position and Fig. 7 showing the parts in normal position.

In the embodiment of the invention shown in Figs. 1-4 a member 10 is provided adapted to be fixedly mounted flatwise against the wall of a room as at 11. Preferably this member may be fixed in position as by a screw or bolt 12 which passes through a vertically extending slot as at 13, whereby the elevation of the member 10 may be adjusted to a certain extent as desired before the screw 12 is tightened in place. The member 10 on its outer surface is formed with channel means as at 14, which may take the form of a

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plate or strip welded in place and having an upwardly and outwardly deflected edge portion as at 14' upon which a bracket member 15 is adapted to be slidably hooked, the upper edge of the latter member being curled over inwardly and downwardly as at 15' to hook over the upper edge of the portion 14'. The lower edge of the member 15 may be bent inwardly as at 16 to rest against the member 10 to thereby hold the outer surface of member 15 in vertical position. The member 15 has secured thereto as by welding, a protruding arm portion as at 17 formed for example of sheet metal, sufficiently thin to readily enter between adjacent fins as at 18 which form a part of the radiator element. That is, the radiator element may comprise a series of the closely spaced and substantially rectangular fins 18 which embrace a central tube 19.

As best shown in Figs. 1-3, the upper edge of the portion 17 has a double scalloped formation. That is, an arcuate edge portion 20 is provided and shaped to partially embrace and support the tube 19 in a stable position, spaced sufficiently from the supporting parts of the bracket structure and wall so that the corners as at 18' of the fins may be rotated past all portions of the bracket structure without interference. Thus, when the radiator element is supported in the position shown in Fig. 1, it may be readily rotated about the axis of the tube so as to permit coupling thereof to one or more other elements in the series. The remainder of the above mentioned double scalloped formation comprises an arcuate edge portion as at 21 adapted to partially embrace and to support in stable position the tube 19 when the radiator element is moved closer to the wall, as shown in Fig. 2. In this position it will be apparent that the radiator element is positioned with one vertical edge of the rectangular fins parallel to the wall surface and so close thereto and to the parts of the bracket structure that the radiator elements could not in this position be rotated. After a series of the elements each individually positioned as in Fig. 1 have been coupled together, then the whole series may be easily moved over closer to the wall to the position shown in Fig. 2. They will then remain in this position because the arcuate cut-out portion 21 extends to a slightly lower level than the cut-out portion 20. Yet, if it is desired to uncouple one of the elements, it is merely necessary to move them slightly upwardly and outwardly so that they are supported at the cut-out portions 20 where there will be no interference against rotation. With the radiator elements in either position, they are free to be readily slidable with respect to the wall without danger that the bracket will jam against the fins, since the bracket portion 15 is slidable along the channel member 14. Thus, the longitudinal positions of the elements can be adjusted as desired while they are being coupled together and, after the elements are finally in place in normal position, the slidable brackets will permit free expansion and contraction lengthwise of the series of elements.

As shown in Figs. 2 and 5, it is desirable to provide a protective covering for the fins such as indicated at 22. This as shown may comprise a suitably perforated sheet metal member so shaped as to extend over and to protect the top and outside edges of the fins and having a downwardly directed portion as at 22' engaging the rear edges of the fins so as to hold the device in place.

As shown in Figs. 6 and 7, important features

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of the invention may be embodied in brackets of a type adapted to be suspended from the ceiling. Here a member 10a is secured flatwise against the ceiling as by screws 12a, which may also serve to retain a plate-like member 14a flatwise against the member 10a. The latter member may be formed with outwardly and downwardly deflected edge portions as at 14b, providing channel-like means for slidably receiving in hooked relationship, bracket members 15a and 15b, the latter members at their outer edges having upwardly and inwardly directed hook portions as at 15c for engaging the portions 14b respectively. The members 15a and 15b respectively may have secured thereto as by welding, vertically extending plate members as at 17a, 17b. These may have struck-out lugs as at 23, 24 through and between which an adjusting screw as at 25 passes to enable adjustment of the space between portions 17a and 17b. That is, these latter members may be adjusted to the temporary spaced positions shown in Fig. 6 or to the normal closed position shown in Fig. 7, with the adjacent edges of the members 17a and 17b in contact and with the hook portions 15c slid up further into the channel portions 14b.

The portions 17a and 17b are formed with complementary double scalloped edge portions as at 20a and 21a corresponding respectively to the arcuate portions 20, 21 of Fig. 1. That is, the radiator elements may be initially hung individually in these ceiling brackets with the tubes and fins positioned as indicated by dotted lines in Fig. 6, at which position the radiator elements may be freely rotated for coupling, etc. At the same time, they are slidable to the extent desired endwise, in that the hook portions 15c are slidable longitudinally of the channel portions 14b. Then, after a series of the radiator elements have been coupled together, the series or successive portions thereof may be elevated slightly to the position indicated by dotted lines in Fig. 7, whereupon the screws 25 may be tightened to permanently support the radiator elements in the position shown in the latter figure and closer to the ceiling.

It will be apparent that both forms of the bracket provide for free lineal expansion and contraction of the finned tube during heating and cooling thereof. Thus any danger of distortion or destruction of the fins by engagement with the brackets upon heating and cooling is avoided, and the possibility of noises produced by such distortions is eliminated. Furthermore, the freely slidable construction of the brackets avoids the possibility of distortion of the tubing and the consequent accumulation of the water therein which would cause noises and interfere with the flow of heating medium in the tubing.

It will be further noted that with both forms of the invention the construction including the scallop formation is such that the finned tubes cannot be readily or accidentally displaced from normal position. That is, with the construction of Figs. 1-4, a force acting upwardly as well as outwardly is required to move the tube from its normal operative position and with the construction of Figs. 6 and 7 manipulation of the screw means 25 as well as vertical movement of the finned tubing is required to move the same from one position to the other within the brackets.

While the invention has been described in detail with respect to particular preferred examples, it will be understood by those skilled in the art after understanding the invention that various changes and modifications may be made with-

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out departing from the spirit and scope of the invention, and it is intended therefore in the appended claims to cover all such changes and modifications.

What is claimed as new and desired to be secured by Letters Patent is:

1. In combination, a radiator element comprising a tube embraced by a series of closely spaced fins of generally rectangular outline, a support therefor including a member adapted to be fixedly mounted, said member having groove means extending longitudinally of said tube, bracket means suspended from said groove means and slidable therealong, said bracket means in part extending perpendicular to said groove means and in between a pair of adjacent fins and being there shaped and constructed to at least partially embrace said tube and alternatively support same at two different elevations, at one of which elevations the radiator element is supported free for rotation about the tube axis without interference of the fin corners and bracket structure, and at the other of which elevations the radiator element is supportable in normal position too close to parts of the bracket structure to permit such rotation.

2. In a bracket construction for finned tube radiator elements, a plate-like support adapted to protrude in a generally vertical plane from a surface from which the radiator structure is supported and into the space between two closely spaced fins of the radiator element, an edge of said support being cut away along a line comprising two intersecting arcs, at one of which a temporary seat is provided for the radiator tube during rotational coupling of the radiator elements, and at the other of which a seat is provided for the tube when the radiator element is moved to normal position closer to said surface, and means slidably engaging and carrying said support to permit longitudinal movement of the radiator elements when in either of said positions.

3. A device for suspending finned tube radiator elements from the ceiling, comprising a member for attachment to the ceiling, formed with oppositely directed channels at its sides, a pair of cooperating bracket members formed with tongue portions slidably engaged in said channels to afford sliding of the bracket members longitudinally of the radiator element, the adjacent vertical edges of said bracket members being formed with two pairs of complementary cut-out areas providing seats within which the radiator tube may be alternatively engaged and supported at two different elevations, and means for adjusting the relative positions of said bracket members

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transversely of the tube to clamp the latter in position at either elevation while said tongue portions remain in engagement with said channels.

4. A device for suspending finned tube radiator elements from a wall, comprising a member for attachment to the wall, a bracket member, horizontally extending tongue and groove means on said members for connecting same whereby the latter is slidable longitudinally of a radiator element, an arm on said bracket member for extending in between fins to support the tube of a radiator element, the upper edge of said arm being formed with two adjacent cut-out areas providing a seat for supporting the tube in a sufficiently spaced relation to the wall and other bracket parts to afford free rotational clearance for the radiator element, and for providing another seat at a slightly lower elevation and closer to the wall to support the tube when the radiator element is moved closer to the wall.

5. A bracket device for suspending finned tube radiator elements from a wall, comprising a plate member for attachment to the wall and having thereon a portion directed at an angle upwardly and outwardly of the wall to provide a horizontally extending groove, a vertically positioned plate-like portion having its upper edge turned inwardly and downwardly to provide a horizontally and freely slidable hooked connection with said first named plate member, a vertically positioned plate-like arm fixed to the latter portion at right angles thereto and adapted to extend into the space between two closely spaced fins on the tube of the radiator element, the upper edge of said arm being formed with two adjacent cut out areas for supporting the tube in a sufficiently spaced relation to the wall and the other bracket parts to afford free rotational clearance for the radiator element and for providing another seat at a slightly lower elevation and closer to the wall to support the tube when the radiator element is moved to normal position closer to the wall.

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