

May 13, 1930.

B. BLACKMORE

1,758,684

RADIATOR

Filed Oct. 6, 1926

2 Sheets-Sheet 1

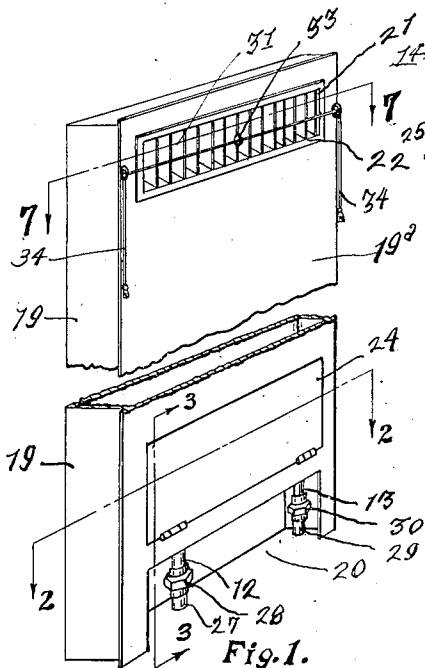


Fig. 1.

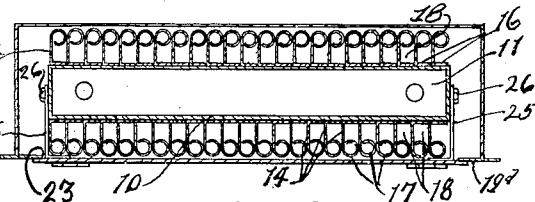


Fig. 2.

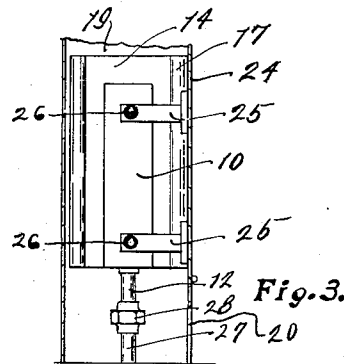


Fig. 3.

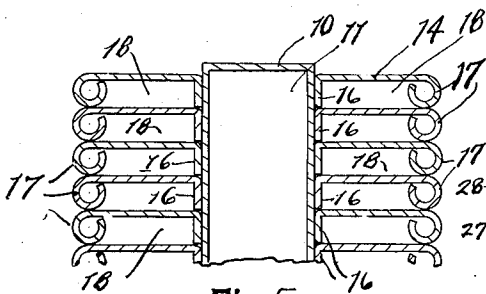


Fig. 4.

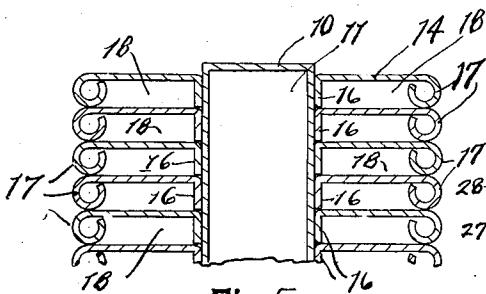


Fig. 5.

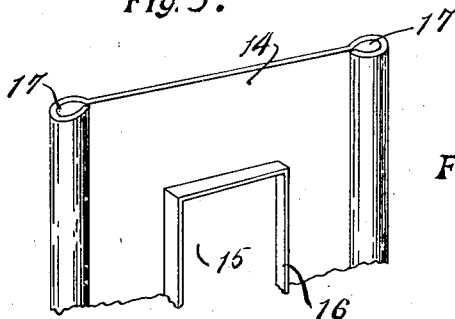


Fig. 6.

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BY T. E. Shannon

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2 Sheets-Sheet 2

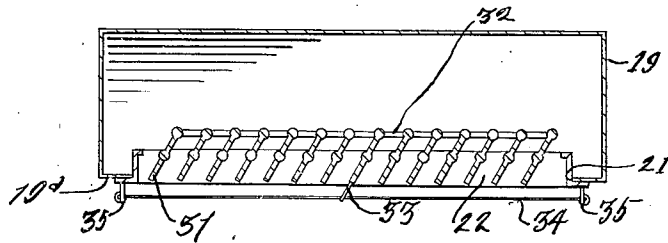


Fig. 7.

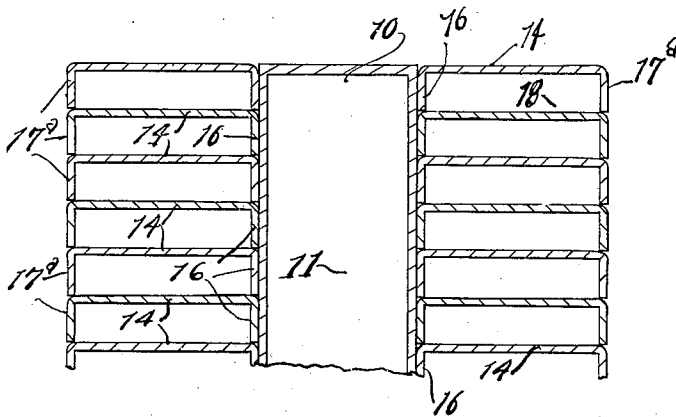


Fig. 8.

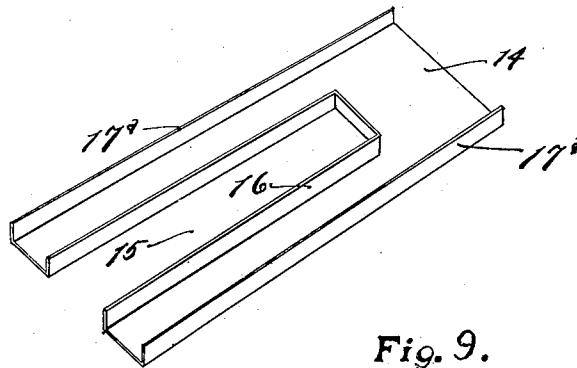


Fig. 9.

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UNITED STATES PATENT OFFICE

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RADIATOR

Application filed October 6, 1926. Serial No. 139,830.

This invention relates to new and novel improvements in radiators and while the invention is capable of being adapted to radiators generally, it is particularly intended for use in steam, hot water or vapor heating systems.

Objects of the invention are to provide a radiator of simple, durable construction which may be manufactured at a low cost and which will be extremely efficient in use.

A particular object is to provide a chambered radiator body having radiating fins detachably mounted thereon and to provide a new and improved mounting in which the radiator is made readily accessible whereby the radiator blades may be quickly and conveniently removed, cleaned and replaced.

A further object is to provide a radiator having a chambered body and to provide a plurality of fins each having a flange projecting from the inner edge thereof at a right angle to the main body of the fin, whereby the flange will be positioned flat against said body with the outer edge thereof in contact with the adjacent fin and to thereby provide a fin which may be provided at a low cost and which will have a relatively large area contacting with the main body of the radiator whereby a relatively large amount of heat will be absorbed by each fin.

An additional object is to provide a radiator having a removable fin provided with spacing flanges on both the outer and inner edges thereof whereby air passing there-through will quickly absorb heat from the main body of the radiator.

A still further object is to provide a fin which may be formed of relatively thin sheet metal and which will possess great rigidity and will not be easily bent or displaced.

The above objects are accomplished and additional ends are attained by the novel construction, combination and arrangement of parts hereinafter described and illustrated in the accompanying drawing wherein I have shown a preferred form of the invention, it being understood that the invention is capable of various adaptations and that changes and modifications may be made or

resort had to substitutions which come within the scope of the appended claims.

In the drawings like numerals of reference are employed to designate like parts as the same may appear in any of the several views and in which:—

Figure 1 is a perspective view of a radiator constructed in accordance with this invention, the same showing the casing which is adapted to be positioned in a wall and in which the radiator proper is positioned, the same being shown with parts broken away to conserve space.

Figure 2 is a cross sectional view taken as indicated by the lines 2—2 of Figure 1,

Figure 3 is a vertical, sectional view taken as indicated by the lines 3—3 of Figure 1,

Figure 4 is a similar sectional view showing the radiator disconnected from the inlet and outlet pipes and swung to a forward position,

Figure 5 is a horizontal, sectional view showing a portion of the radiator body and illustrating the manner of positioning the radiating fins thereon,

Figure 6 is a perspective view showing the upper portion of one of the fins employed in carrying out this invention.

Figure 7 is a horizontal, sectional view taken as indicated by the lines 7—7 of Figure 1,

Figure 8 is a fragmentary view showing in horizontal section a portion of the radiator body with a modified form of radiating fins positioned thereon.

Figure 9 is a perspective view of the modified form of radiating fin disclosed in Figure 7.

Proceeding now to a detailed description of the invention with reference to the particular adaptation thereof disclosed in the drawings, the numeral 10 is used generally to denote the main radiator body. The body 10 is preferably rectangular in form and is provided with a chamber 11. The body 10 is provided in the bottom wall thereof adjacent one end thereof with an inlet opening in which is fitted an inlet pipe 12. The body is likewise provided on the bottom thereof at a point adjacent the other end thereof with

an outlet opening in which is fitted an outlet pipe 13. The numeral 14 is used generally to denote the fins employed in carrying out the invention. Each fin 14 is formed of relatively thin sheet metal having a centrally positioned opening 15 which extends therein from the lower edge thereof and terminates in spaced relation to the upper wall thereof.

Each fin 14 is provided around the inner edge thereof with a flange 16 which projects at a right angle to the main body of the fin. The fins 14 are positioned vertically on the body 10 with the said body received in the opening 15 and with the flange 16 positioned flat against the outer surface of said body. The flange 16 is of sufficient width to contact with the adjacent fin thereby forming means whereby the fins may be conveniently spaced apart. Each fin is curved along each lateral edge thereof to provide a roll or tube 17 which projects from the same side of the fin 14 as the flange 16. The roll 17 is arranged to contact with the outer edge of the adjacent fin thereby forming air passages 18 between adjacent fins.

The numeral 19 denotes a casing which is preferably formed of rectangular cross section and is adapted to be positioned in a wall with the forward wall 19^a flush with the wall of the room. The casing 19 may be formed to extend to any desired height and is provided in the forward wall thereof, at the bottom thereof, with an opening 20 which forms a cold air inlet passage. The casing 19 is also provided on the forward wall 19^a thereof at the upper end thereof with an opening 21 in which is fitted a shutter frame 22.

The numeral 23 denotes a rectangular opening which is formed in the forward wall 19^a of the casing 19 at a point spaced upwardly from the opening 20. The opening 23 is provided with a door 24 which is hinged to the forward face 19^a at the bottom of the opening 23, whereby the door may be swung outwardly on a horizontal axis. The door 24 is provided on the inner face thereof at each lateral side thereof with a pair of brackets 25, the brackets 25 being spaced apart to receive the main body 10 of the radiator. Each bracket 25 is secured to the end wall of the body 10 by means of the bolts 26 or other suitable fastening means. The arrangement is such that with the door 24 in a closed position, the radiator body 10 will be in an upright position as shown in Figure 3. The inlet pipe 12 is operatively connected to a steam inlet pipe 27 by means of the union 28. The outlet pipe 13 is likewise connected to a steam or hot water return pipe by means of the union 30.

In the adaptation of the invention shown in the drawings, the opening 21 is provided with a frame 22 in which is mounted pivoted shutters 31. The shutters 31 are connected along the inner edge thereof to a rod 32, one

of the shutters 31 is provided on the forward face thereof with an outwardly projecting arm 33 to which is connected a cord 34. The numeral 35 is used generally to denote eyes which are secured to the forward wall 19^a of the casing 19 at a point adjacent each lateral side thereof, the cord 34 is positioned through said eyes with each end thereof depending therefrom whereby the cords may be operated to open and close the shutters 31.

In use, steam, hot vapor or hot water is introduced into the body 10 through the pipe 12, thus heating the body 10. The heat from the body 10 is transmitted through the flanges 16 to the fins 14 thereby causing the air in the passage 18 to become heated and to rise and escape through the opening 21. This displacement of air is replaced by cold air through the opening 20 thereby causing a rapid flow of air through the casing 19. In Figure 8 I have shown a modification of the invention in which the fins 14 are provided at the outer edge thereof with a straight flange 17^a which projects therefrom in parallel relation to the fins 16. The fins 14 being otherwise identical in construction.

Having thus illustrated my invention and described the same in detail, what I claim as new and desire to secure by Letters Patent is:—

1. In a radiator, a single chambered rectangular body, a plurality of separate fins detachably mounted on said body in parallel spaced relation to each other, each fin comprising a metal sheet having an opening extending therein from the bottom thereof, said body snugly received in said opening, a flange projecting at a right angle from the inner edge of each fin and extending around said opening, each flange being positioned flat against the outer face of said body.

2. In a radiator, a single chambered radiator body, fins separately and detachably mounted on said body in parallel spaced relation to each other, each fin comprising a metal sheet having an opening extending therein from the bottom thereof, said opening being of the same cross sectional shape as said body, said body snugly received in said opening, each sheet provided with a flange which extends around said opening, each flange being positioned flat against the outer face of said body.

3. In a radiator, a unitary chambered radiator body, fins separately and removably mounted on said body in parallel spaced relation to each other, each fin comprising a metal sheet having an opening extending therein from the bottom thereof, said body snugly received in said opening, a flange projecting at a right angle from the inner edge of each fin and extending around said opening, each flange being positioned flat against the outer face of said body, the outer edge of each flange contacting with the adjacent fin.

4. In a radiator, a single chambered radiator body, a plurality of fins each separately and movably positioned on said body; each fin comprising a sheet of metal having an opening extending therein from the lower edge thereof, said fins positioned over said body in parallel spaced relation to each other with said body completely filling said openings.

5. In a radiator, a chambered radiator body, fins detachably mounted on said body in parallel spaced relation to each other, each fin comprising a metal sheet having an opening extending therein from the bottom thereof, a right angle flange around said opening, said body snugly received in said opening with said flange positioned flat against the outer surface thereof, each lateral edge of each fin being curved to form a tubular flange, both of said flanges on each fin contacting with the adjacent fin to hold the fins in spaced relation with an air passage therebetween.

6. In a radiator, a chambered radiator body, fins detachably mounted on said body in parallel spaced relation to each other, each fin comprising a metal sheet having an opening extending therein from the bottom thereof, said body snugly received in said opening, each sheet provided along the outer edge thereof with a tubular flange, the flanges on each fin contacting with the outer edge of the adjacent fin.

In testimony whereof I have hereunto set my hand.

BENJAMIN BLACKMORE.