July 28, 1953 E. C. SCHMID 2,646,972

FIN TYPE RADIATOR

Filed Feb. 4, 1950

Fig. 1.

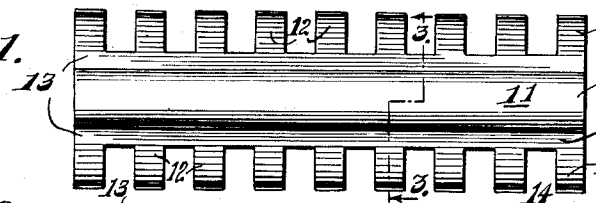

Fig. 3.

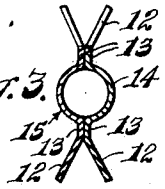

Fig. 2.

Fig. 4.

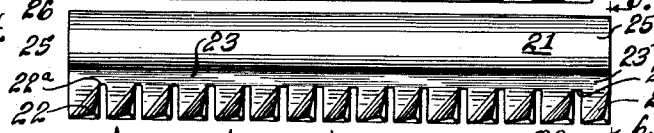

Fig. 6.

Fig. 5.

Fig. 7.

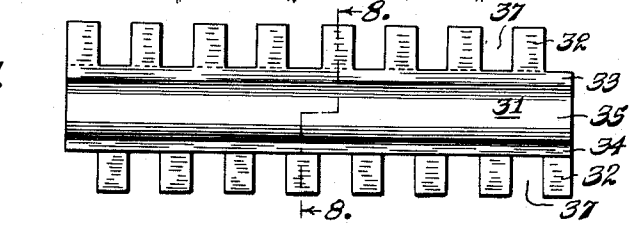

Fig. 8.

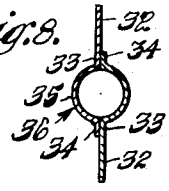

Fig. 9.

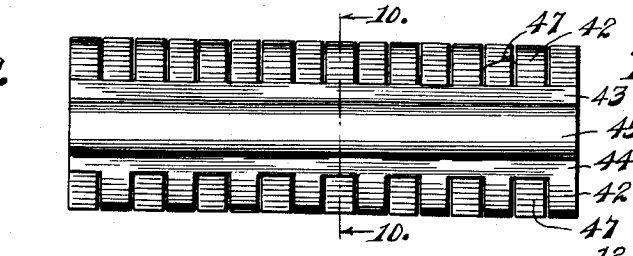

Fig. 10.

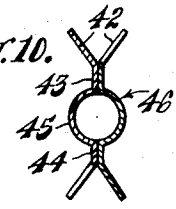

Fig. 11.

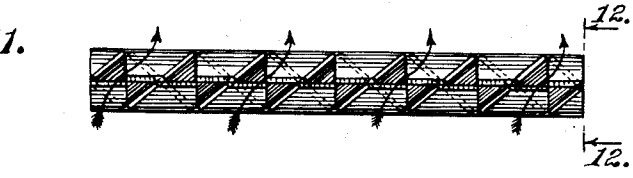

Fig. 12.

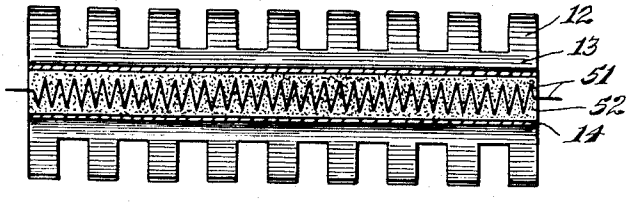

Fig. 13.

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Patented July 28, 1953 2,646,972

UNITED STATES PATENT OFFICE

2,646,972

FIN TYPE RADIATOR

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Application February 4, 1950, Serial No. 142,503

2 Claims. (Cl. 257—262.13)

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This invention relates to a fin type radiator and more particularly to simple and novel fin type radiators which are formed in a novel manner from metal stampings.

Fin type radiators of the prior art are formed of a heat conductive shell on which are mounted fins. These fins may be in the form of a plurality of thin annular sheets that are welded to the shell, or may be a single thin sheet of metal that is rolled onto the shell in a spiral and welded thereto. This fin type radiator is rather expensive to fabricate. The labor and difficulty involved in attaching the fins to the shell of the radiator makes the entire fabricating process costly and time consuming.

Thus, one of the objects of this invention is to provide a fin type radiator of novel design in which the fins are integral with the shell of the radiator.

Another object of this invention is to provide a fin type radiator of novel design in which the fins are integral with the shell of the radiator, and whose fins are twisted so as to simulate spiral fins.

A further object of this invention is to provide a fin type radiator of novel and simple design which may be easily and inexpensively produced.

Further objects and advantages of this invention will become apparent as the following description proceeds and the features of novelty which characterize this invention will be pointed out with particularity in the claims annexed to and forming part of this specification.

A preferred embodiment of the invention is shown in the accompanying drawing, in which—

Figure 1 is a plan view of one form of my novel fin type radiator.

Figure 2 is a side view of the radiator shown in Figure 1.

Figure 3 is a cross sectional view of the radiator taken substantially on the line 3—3 of Figure 1.

Figure 4 is a plan view of another form of the novel fin type radiator.

Figure 5 is a side view of the form of the radiator shown in Figure 4.

Figure 6 is an end view of the form of the fin type radiator shown in Figure 4 and taken substantially on the line 6—6 of Figure 4.

Figure 7 is a plan view of another form of the novel fin type radiator.

Figure 8 is a cross sectional view of the form of radiator shown in Figure 7 and is taken substantially on the line 8—8 of Figure 7.

Figure 9 is a plan view of still another form of the novel fin type radiator.

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Figure 10 is a cross sectional view of the form of radiator shown in Figure 9 and is taken substantially on line 10—10 of Figure 9.

Figure 11 is a side view of a modification of the form of the radiator shown in Figure 9 showing the fins in twisted position, and

Figure 12 is an end view of the modified form of radiator shown in Figure 11 and is taken substantially on the line 12—12 of Figure 11.

Figure 13 is a view, partially in cross section, showing the manner in which a heating element is assembled within a fin type radiator of the form shown in Figure 1.

Referring to the drawing, Figures 1, 2 and 3 show a fin type radiator which is formed by a pair of sheet stampings 11 of conductive material. A portion of each stamping along opposite longitudinal edges has formed therein a plurality of tabs 12. These tabs 12 may be formed in stamping 11 by simply stamping out the material between the tabs 12. A longitudinal strip-like portion 13 is provided in each stamping adjacent the base of each set of tabs 12. Since there are two sets of tabs 12 in each stamping 11, there are two strip-like portions 13 in each stamping. These strip-like portions 13 of each sheet 11 are adapted to have secured thereto similar strip-like portions 13 in the other stamping 11 forming the radiator. The corresponding strip-like portions 13 of two stampings 11 are joined together in any well known manner, and preferably by spot welding.

The central portion 14 of each stamping between the pair of strip-like portions 13 is bent to the form of a half cylinder as shown in Figure 3. Then the pair of stampings 11 are positioned in mirror image fashion so that the strip-like portions 13 of the opposed stampings 11 butt against each other. The half cylinders of the opposed sheets 11 are then in register so as to form a tubular body 15. The tabs 12 are bent outward from the plane of the original sheet of material so as to provide more evenly spaced heat conductive members. The tabs 12 may also be twisted in the manner shown in Figures 4 and 11 to partially simulate spiral finning on the radiator.

The modified form of radiator shown in Figures 4, 5 and 6 is formed of a single stamping 21 of heat conductive material. A portion of the stamping 21 along one longitudinal edge has formed therein a plurality of tabs 22. These tabs 22 may be formed by a plurality of slots 22a cut in sheet 21 transverse to the edge thereof.

A longitudinal strip-like portion 23 is provided adjacent the base of the set of tabs 22. Another strip-like portion 24 is provided adjacent the

other longitudinal edge of stamping 21. These strip-like portions 23 and 24 are adapted to be secured to each other, preferably by welding.

A central portion 25 in stamping 21 between the pair of strip-like portions 23 and 24 is bent so as to form a tubular body 26. The tabs 22 are twisted in the manner shown in Figures 4 to 6 so as to partially simulate spiral finning on the radiator.

The modified form of radiator shown in Figures 7 and 8 is formed by a pair of stampings 31 of conductive material. Only one longitudinal edge of each stamping 31 has formed therein a plurality of tabs 32. A longitudinal strip-like portion 33 is provided adjacent the base of the set of tabs 32. Another strip-like portion 34 is provided adjacent the other longitudinal edge of each stamping 31. A central portion 35 in stamping 31 between the pair of striplike portions 33 and 34 is rolled to the form of a half cylinder as shown in Figure 8. The pair of stampings 31 are positioned so that the two half cylinder sections form a tubular body 36. In that position the tabs 32 extend in opposite directions from the sides of tubular body 36.

The tabs 32 in stamping 31 are formed by stamping out the material between the tabs 32. The tabs 32 in any set of tabs are then spaced from each other. The width of each stamped out portion 37 between the tabs 32 is substantially equal to the width of each tab 32.

The modified form of radiator shown in Figures 9 and 10 is formed by a pair of stampings of heat conductive material. Both longitudinal edges of each stamping has formed therein a plurality of tabs 42. The tabs 42 are spaced from each other a distance substantially equal to the width of a tab 42. In this modification the tabs 42 on one edge of each stamping extend alternately with respect to the tabs on the opposite edge of that stamping. Thus, for any tab 42 the edge directly opposite on that stamping has a stamped out portion 47 and vice versa. Strip-like portions 43 and 44, and a half cylinder section 45 are also provided in each stamping. The two half cylinder sections 45 are in register in the assembled radiator to form a tubular body 46.

In the assembly of the radiator, each stamping is aligned relative to the opposite stamping so that the tabs 42 on one stamping are adjacent the stamped out portions 47 of the opposite stamping and vice versa. The tabs 42 may be diverging as shown in Figure 10 in a manner similar to the form shown in Figures 2 to 3. As shown in Figures 11 and 12 the tabs 42 may be twisted to partially simulate spiral finning on a radiator. Since the fins 42 on adjacent stampings extend alternately, the twisted fins 42 are aligned to better simulate the spiral fins on a radiator.

In Figures 5 and 11 a few air flow arrows are shown to illustrate the manner in which the twisted fins deflect air that is rising past the fin type radiator.

Referring to Figure 13, a fin type radiator of the form shown in Figure 1 is shown with a heating element of a well known type installed therein. The heating element consists of an electrical resistance element 51 which is completely enclosed in a non-electrical conductor 52. This non-electrical conductor 52 usually is clay or some other ceramic material.

While there has been shown and described a particular embodiment of this invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention and, therefore, it is intended in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A fin type radiator comprising a pair of elongated sheets of conductive material adapted to mate with each other, each sheet having a set of similar tabs formed in a longitudinal end portion thereof, the tabs of each said set being spaced from each other a distance substantially equal to the width of a tab at its base, each said sheet forming a wall portion of an elongated hollow member, said sheets being joined together to form an elongated hollow member having fins extending therefrom, the tabs on one sheet being positioned alternately with the tabs on the other sheet so that each tab is longitudinally positioned between an adjacent pair of tabs in the opposite sheet, said tabs being twisted, and the extended end of each tab being aligned with the end of one of the adjacent tabs on the other sheet to form portions of spiral fins.

2. A fin type radiator as set forth in claim 1 wherein said tabs are formed in both longitudinal end portions of both sheets, whereby portions of spiral fins are formed along the length of said hollow member on opposite sides thereof.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,608,905	Murray et al.	Nov. 30, 1926
2,107,031	Evans	Feb. 1, 1938
2,434,519	Raskin	Jan. 13, 1948

FOREIGN PATENTS

Number	Country	Date
794,515	France	Dec. 12, 1935