

UNITED STATES PATENT OFFICE

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RADIATOR FIN FOR PIPES

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1 Claim. (Cl. 257—262.16)

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This invention relates to heat exchange apparatus and more particularly to a radial fin which is adapted to increase the radiating capacity of a heating or refrigerating pipe and which may easily be applied to, adjusted upon, and removed from the pipe.

One object of this invention is to provide a radiator fin of the above nature whereby any exposed pipe may be easily converted into an efficient radiator.

Another object is to provide a device of the above nature which is adjustable to embrace pipes of different sizes and which will make efficient heat conducting contact with any pipe to which it is applied.

A further object is to provide a device of the above nature which will be simple in construction, inexpensive to manufacture, easy to install and manipulate, compact, ornamental in appearance, and very efficient and durable in use.

With these and other objects in view, there have been illustrated on the accompanying drawing two forms in which the invention may conveniently be embodied in practice.

In the drawing,

Fig. 1 is a view in elevation showing the first form of the improved radiator fin as it would appear when in operating position upon a pipe, the latter being shown in cross-section.

Fig. 2 is a cross-sectional view of the same, taken on the line 2—2 of Fig. 1, looking in the direction of the arrows.

Fig. 3 is a fragmentary cross-sectional view showing the original tapered shape of the collar portion before the radiator fin is fully clamped on the pipe.

Fig. 4 is a perspective view showing a second form of the radiator fin of rectangular shape, as it would appear when fully assembled upon a pipe.

Referring now to the drawing, in which like reference numerals denote corresponding parts throughout the several views, the first form of the improved radiator fin comprises a pair of substantially semi-circular generally flat, arcuate body sections 10, 11, each of which extends through substantially more than 180 degrees so that said body sections may be assembled in overlapping relationship to provide a continuous annular fin.

The body section 10 has end portions 12, 13 which are adapted to overlap corresponding end portions 14, 15 of the body section 11, the end portions 13 and 15 being provided with single apertures to receive a cotter pin 16 for swingably connecting the body sections 10, 11 together.

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As a means for holding the body sections 10, 11 in embracing relationship about a pipe P, the end portion 12 is provided with a plurality of apertures 17, and the end portion 14 is provided with a plurality of apertures 18, said apertures being so arranged that a cotter pin 19 may be engaged through two of said apertures selectively holding the body sections 10, 11 in snugly embracing relationship about different sizes of pipe.

In order to provide efficient heat transfer between the pipe P and the body sections 10, 11, the inner edges of the respective body sections are provided with substantially concentric curved flanges 20, 21 which are tapered in their original form, as shown in Fig. 3, but which are adapted to be deflected into cylindrical shape when the body sections 10, 11 are fastened about the pipe P, so that said flanges will have efficient resilient, heat-conducting engagement with the outer surface of the pipe, as shown in Fig. 2, for example.

The tapered flanges 20, 21 extend around a major portion of the inner edges of the body sections 10, 11, but terminate short of the overlapping end portions 12 and 15 respectively, so as to avoid interference with each other when in assembled relationship upon the pipe.

It will be noted that this shortened formation of the flanges 20, 21 provides notches 22, 23 respectively, which will afford clearance for the flanges 20, 21, and thus will permit the body section 10 to be assembled in either overlapping or underlapping relationship with respect to the body section 11.

The improved radiator fin may be made of any suitable heat conducting sheet material such as tin, mild steel, copper or aluminum, and is preferably provided with a plurality of radial stiffening ribs 24 for reinforcing the body sections 10, 11. The fin may also be plated with nickel or chromium, if desired.

Second form

The second form of the invention shown in Fig. 4 comprises a pair of flat rectangular body sections 25, 26 having end portions 27, 28, and 29, 30, respectively, which are adapted to overlap each other when said body sections are applied to the pipe P, thus providing a fin which is generally square in outline. The body sections 25, 26 are otherwise similar to the body sections 10, 11 of the first form of the invention in all material respects, and have a pair of initially tapered flanges 31, 32 integrally formed therewith for providing efficient heat-conducting engagement with the pipe P.

The overlapping flat end portions 28 and 30 are

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provided with single apertures for a cotter pin 33 for swingably connecting the body sections 25, 26 together.

The overlapping end portions 27 and 28 are provided respectively with a pair of apertures 34 and a pair of apertures 35 which are so arranged that a cotter pin 36 may be engaged selectively therethrough for holding the body sections 25, 26 in firm embracing relationship upon pipes of different sizes.

Operation

The body sections 10, 11 will be swingably connected prior to use by means of the cotter pin 16. This may be done either by the manufacturer or by the user. When the radiator fin is to be applied to the pipe P, it will merely be necessary to swing the body sections 10, 11 together in such a manner that the tapered flanges 20, 21 will loosely embrace said pipe.

The body sections 10, 11, will then be pressed farther toward each other with sufficient force to insure that the flanges 20, 21 make efficient heat-conducting contact with the pipe P, and assume a cylindrical curvature. The sections 10, 11 will then be secured in rigid relationship by inserting the cotter pin 16 in the appropriate apertures 17, 18 and fastening said cotter pin in place by bending the prongs thereof outwardly.

It will be understood that the pair of apertures 17, 18 will permit the flat body sections 10, 11 to be firmly attached to pipes of different sizes and that the deformable characteristics of the flanges 20, 21 will be an important factor in securing efficient heat-conductive contact between the fin and the pipe, even though small variations in the size of the pipe may occur.

The body sections 25, 26 of the second form will be assembled in the same manner, the cotter pin 36 being inserted through the appropriate apertures 34, 35 for holding said body sections in place.

The invention herein disclosed will be found useful for increasing the radiating capacity of any exposed pipe, and when applied in suitable numbers will furnish a radiator capable of heating a room or space of substantial size.

One advantage of the invention is that the individual radiator fins may be readily attached to or removed from the pipe, thus permitting the effective radiation of the pipe to be adjusted as desired after the pipe has been installed.

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While there have been disclosed in this specification two forms in which the invention may be embodied, it is to be understood that these forms are shown for the purpose of illustration only and that the invention is not to be limited to the specific disclosures, but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claim.

Having thus fully described the invention, what is claimed as new, and for which it is desired to secure Letters Patent, is:

In a radiator fin, the combination comprising a pair of flat separable body sections having arcuate inner edges adapted to be disposed concentrically with a common axis, said body sections extending radially from said axis and having diametrically opposed pairs of abutting, overlapping end portions, a pair of inner arcuate flanges extending laterally from said inner edges and initially tapered inwardly towards said axis, said flanges being deformable in an outward direction, said body sections being provided with radially extending reinforcing ribs, means comprising a pivot device for swingably connecting together one of said pairs of overlapping end portions, a plurality of apertures in the other of said pairs of overlapping end portions, and a pin adapted to be selectively engaged in said apertures for firmly securing said body sections in assembled relationship upon a pipe, whereby said flanges will assume a cylindrical shape and establish heat conducting contact with the pipe when said body sections are compressed thereon.

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