July 3, 1923. 1,460,772

F. TODD

RADIATOR CORE

Filed July 26, 1920

FIG. 1

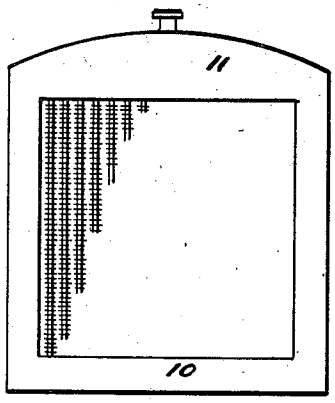



FIG. 2

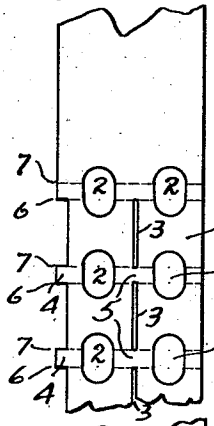



FIG. 8




FIG. 4

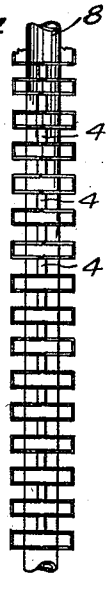



FIG. 5

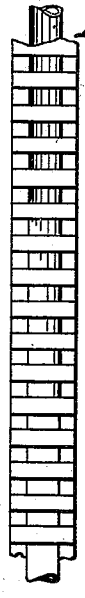


FIG. 3

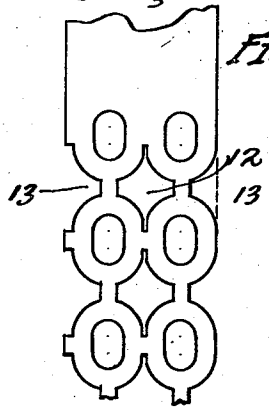
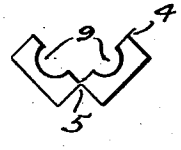



FIG. 7




FIG. 6




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# UNITED STATES PATENT OFFICE.

FRANK TODD, OF MINNEAPOLIS, MINNESOTA.

## RADIATOR CORE.

Application filed July 26, 1920. Serial No. 399,176.

*To all whom it may concern:*

Be it known that I, FRANK TODD, a citizen of the United States, and a resident of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Radiator Cores, of which the following is a specification.

One object of my invention is to provide in a radiator core an improved form of tube.

Another object is to provide an improved form of fin used in constructing the radiator tube.

Another object is to provide a type of fin strip that can be formed into a rigid structure that will reinforce the tube to which it is assembled, give a maximum amount of radiation, and also be economical to manufacture.

With these and incidental objects in view, the invention consists of certain novel features of construction and combination of parts, the essential elements of which are hereinafter described with reference to the drawing which accompanies and forms a part of this specification.

In the drawing, Figure 1 is a front view of a radiator, showing the embodiment of my invention; Figure 2 is a fragmentary plan view of a blank from which my improved fin strip is formed; Figure 3 is a similar view of a modification of the blank; Figure 4 is a fragmentary side elevation of an assembled tube embodying my invention; Figure 5 is a view taken at right angles to that shown in Figure 4; Figure 6 is an end view of the blank shown in Figure 2 after it has been formed and partly closed; Figure 7 is an end view of the tube shown in Figure 4; and Figure 8 is a side elevation of the fin strip after it has received the first forming operation.

In making my improved fin strip I first form a blank, as shown in Figure 2, having a plurality of right and left hand fin portions 1. Apertures 2 are spaced between the fin portions and slots 3 are punched out in the center of the strip, and lips 4 formed on one side thereof, corresponding hinge portions 5 being left between the slots 3.

The blank so made is formed alternately right and left along the lines 6 and 7, producing a structure such as shown in Figure 8.

The blank as formed in Figure 8 is then folded together, bending at the hinges 5, as shown in Figure 6, and the tube 8 placed in the tubular opening 9 formed by the closing together of the two halves of the fin strip, as partly shown in Figure 7.

The lips 4 are locked over the edge of the adjacent metal, thereby holding the formed fins solidly onto the tube.

The assembled tube is then dipped to solder the fin strip to the tube, thereby creating a joint of high conductivity between the fins and the tube.

A suitable number of tubes so completed are placed in a radiator, the lower ends being joined to the lower tank 10 and the upper ends to the upper tank 11, Figure 1, in the customary manner, so as to allow a free circulation of water from the tank 11 to the tank 10 through the tubes 8.

The blank shown in Figure 3 is handled similarly to that shown in Figure 2, the only difference being that portions 12 and 13 are blanked out to lighten the completed fin strip.

While I have described my invention and illustrated it in two particular designs, I do not wish it understood that I limit myself to this construction, as it is evident that the application of the invention may be varied in many ways within the scope of the following claim:

Claim:

A fin strip formed of a single piece of material and comprising two substantially similar portions, each of said portions being formed of a plurality of fin portions, the inner edge of one of said fin portions extending downwardly and joining the inner edge of the adjacent fin portion from which it is spaced, the outer edge of said last named portion extending downwardly and joining the outer edge of the next adjacent fin portion from which it is likewise spaced, said two similar portions being joined together by lips extending transversely from adjacent extensions from said inner edges of adjacent fin portions, each of said fin portions being cut away semi-circularly at the center of one side so that when said two similar portions are brought together a tubular aperture extends axially through the structure so formed.

FRANK TODD.