

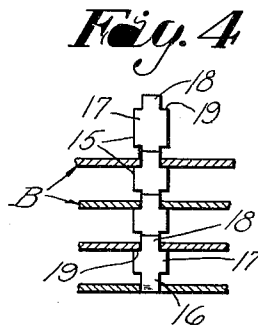
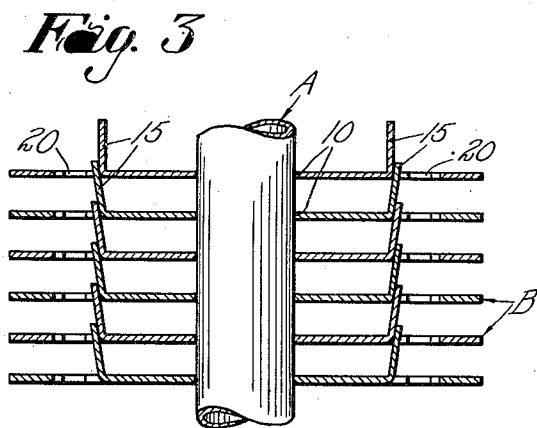
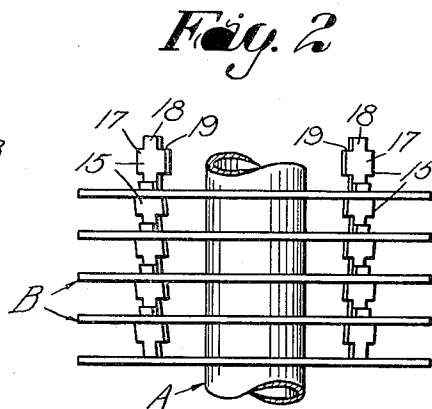
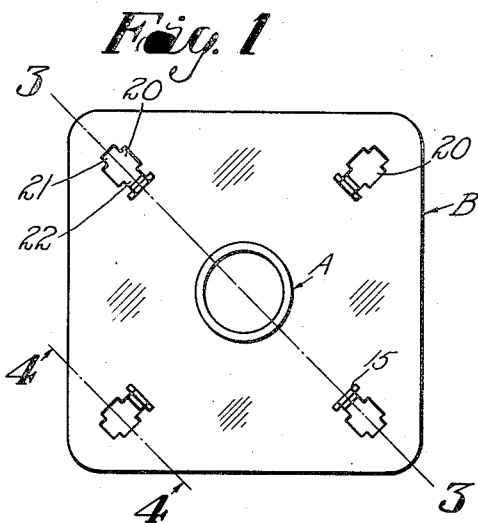
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C. E. CLARK

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HEAT EXCHANGE DEVICE

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Inventor
Charles E. Clark

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H. C. Layton

Attorney

UNITED STATES PATENT OFFICE

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HEAT EXCHANGE DEVICE

Charles E. Clark, West Hartford, Conn.

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4 Claims. (Cl. 257—262.)

This invention relates to heat exchange devices or radiators of the type having a tube and a plurality of radiating members in the form of plates or fins arranged in parallel spaced apart relation about the tube and in close intimate contact therewith.

The aim of the present invention is to provide in a heat exchange device of this type an improved arrangement whereby the plates and fins are not only held in proper spaced apart parallel relation to one another, but are also securely held against angular or turning movement with respect to one another and the tube, my improved arrangement being characterized by its simplicity in construction, its economy in manufacture, and by its effectiveness in maintaining the fins against derangement.

Other objects will be in part obvious, and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawing, wherein is shown one of the many embodiments which the present invention may take,

Fig. 1 is an end view of my improved heat exchange device;

Fig. 2 is a side elevational view of as much thereof as is necessary to illustrate the invention;

Fig. 3 is a longitudinal central sectional view, this view being taken substantially on line 3—3 of Fig. 1; and

Fig. 4 is a detail sectional view showing the manner in which the plates are interlocked, this view being taken substantially on line 4—4 of Fig. 1.

Referring to the drawing in detail, A denotes the pipe or tube formed of any suitable metal. About this tube are a plurality of heat radiating members B in the form of thin metal plates or fins of suitable configuration and having centrally disposed openings 10 through which the tube extends. After the radiating plates have been properly positioned upon the tube, the latter may be expanded so that it is in intimate contact with the edges of the openings 10, whereby a direct heat conductive relation between the tube and the plates is obtained. This is a common practice in the art.

In accordance with the present invention, each plate is provided with a plurality of integral lugs

15 adapted to cooperate with the next succeeding plate in such manner as to uniformly space and hold the plates in parallel relation and prevent angular movement between the plates. In the present instance, each plate is formed with four lugs respectively positioned adjacent the corners of the plate but, obviously, the number of lugs and their positions may be varied as desired. The lugs are preferably formed by punching the same from the body of the plate, and are bent generally at right angles to the plane of the plate. Each lug is of increased width intermediate its ends so that each lug has a neck portion 16 at its attached end, an intermediate or body portion 17, and a tongue portion 18 at its free end of the same width as the neck portion 16. The wide or intermediate portion 17 has, at opposite sides of the tongue portion 18, shoulders 19. The openings 20 from which the tongues are formed correspond in shape to the tongues themselves, the same having an intermediate wide portion and narrow notches 21 and 22 at its ends. The notches 22, which are adjacent the lugs, correspond generally in width to that of the tongue portion 18 of the lugs.

When the parts are assembled, it will be observed, particularly from Fig. 4, that the tongue portions 18 of the lugs of one plate engage in the notches 22 of the openings of the next succeeding plate, and the shoulders 19 of the lugs engage the face of the succeeding plate. Thus, the plates are uniformly held in parallel spaced apart relation and against relative turning movement. By engaging the tongues 18 in the notches 22, the plates are held in proper relation during the assembly of the parts, and derangement of the plates is guarded against during shipment, installation, and use of the radiator.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

1. A heat exchange device having a tube, a

plurality of spaced apart radiating plates surrounding said tube and each having openings spaced radially from said tube, and spacing lugs carried by said plates and disposed at an angle to the planes thereof, the lugs of each plate having at their free end tongues engaging in the openings of the next succeeding plate whereby to prevent relative rotation between the plates, said tongues further having shoulders adapted to engage the opposed face of the succeeding plate whereby to hold the plates in spaced apart relation.

2. A heat exchange device having a tube, and a plurality of parallel spaced apart radiating plates surrounding the tube, each plate having punched-out integral lugs each provided with a tongue at its free end and a shoulder at the base of the tongue, said plates further having openings from which the lugs are bent out, the tongues of the lugs of each plate engaging in the openings in the succeeding plate and the shoulders of said tongues engaging the opposed face of said succeeding plate.

3. A heat exchange device having a tube, and a plurality of spaced apart parallel radiating plates surrounding said tube, each plate having integral punched-out lugs bent at an angle to

the plane of the plate, each lug having a body portion and a tongue of reduced width at the free end of the body portion, said plates also having openings from which said lugs are bent out, said openings being provided with notches of lesser width than the body portions of said lugs, the tongues of lugs of each plate being engaged in the notches of the succeeding plate and the outer ends of the body portions of said lugs being engaged against the opposed face of the succeeding plate.

4. A heat exchange device having a tube, and a plurality of spaced apart parallel radiating plates surrounding said tube, each plate having integral punched-out lugs bent at an angle to the plane of the plate and openings corresponding in shape to the lugs and from which the lugs are pressed out, each lug having a neck portion, an intermediate wider portion and a tongue portion of lesser width than the intermediate portion, each opening having a notch adjacent the neck portion and of substantially the same width as the tongue portion, the tongue portions of the lugs of one plate being engaged in the notches of the openings of the next succeeding plate.

CHARLES E. CLARK.

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