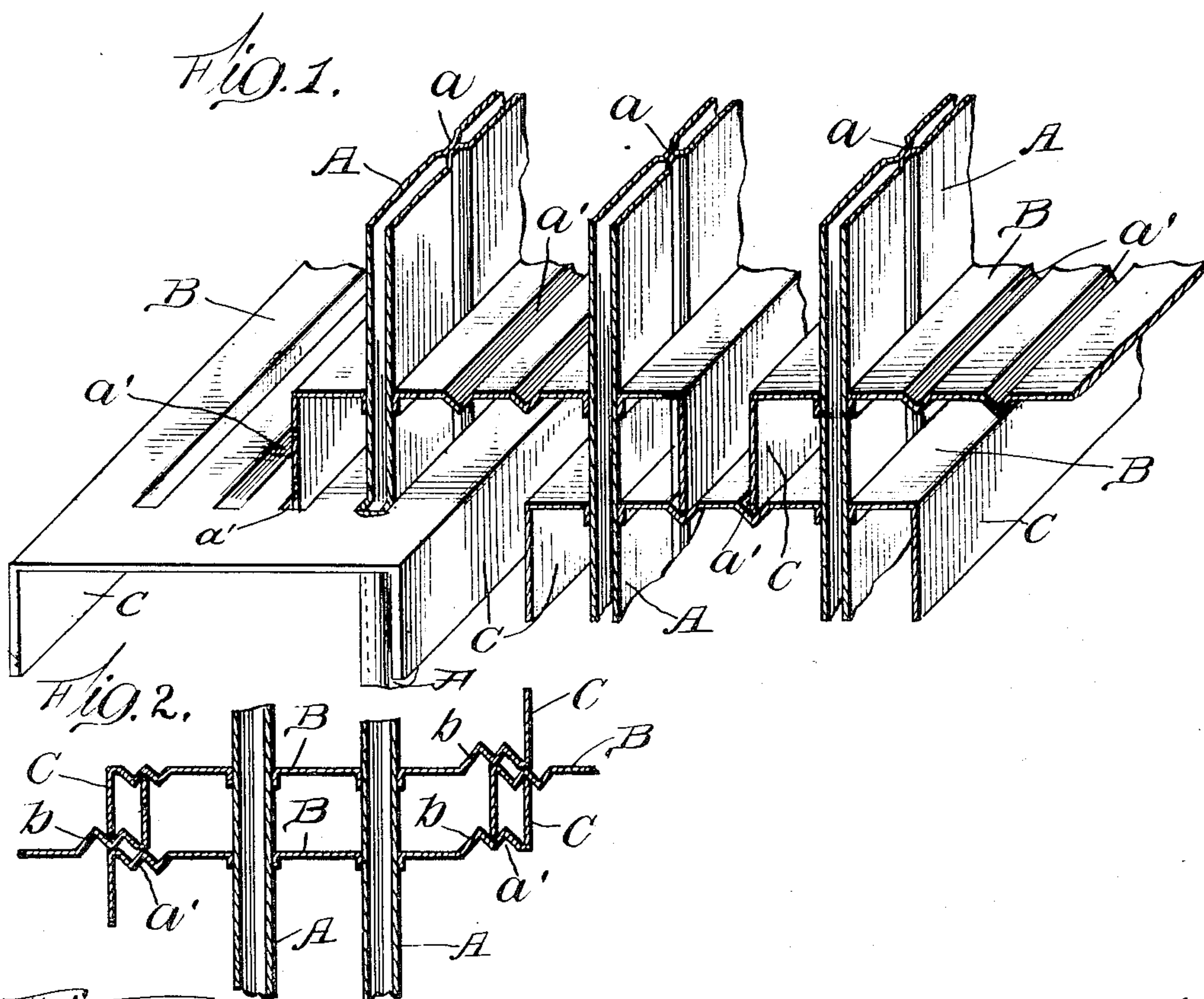


No. 869,822.

PATENTED OCT. 29, 1907.

C. WRIGHT.
RADIATOR.

APPLICATION FILED APR. 16, 1906.



Witnesses:
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Inventor:
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by: *[Signature]* atty:

UNITED STATES PATENT OFFICE.

CHRISTOPHER WRIGHT, OF CHICAGO, ILLINOIS.

RADIATOR.

No. 869,822

Specification of Letters Patent

Patented Oct. 29, 1907.

Application filed April 16, 1906. Serial No. 311,933.

To all whom it may concern:

Be it known that I, CHRISTOPHER WRIGHT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

The present invention relates to a radiator which is particularly well adapted for use on automobiles, where lightness, compactness and high efficiency are of importance. Manifestly it may be used in other situations where it is desired to radiate heat into the surrounding atmosphere. It is manifest also that it may be used as a cooler for absorbing heat from the surrounding atmosphere, but for the sake of brevity the following description will be confined to a radiator, with the understanding, however, that I reserve to myself the exclusive right to use the invention in coolers.

The invention relates to that type of radiators in which the fluid circulates through tubes, the tubes being provided with extended radiating surfaces and the object of the invention is to provide extended radiating surfaces of improved construction and of high efficiency. To this end the invention consists in the features of novelty that are hereinafter described with reference to the accompanying drawing which is made a part hereof and in which,

Figure 1 is an isometrical view of a fragment of the radiator embodying the invention in its preferred form. Fig. 2 is a vertical section of a fragment of a radiator showing a modification.

A represents a series of tubes through which the fluid circulates. In radiators for use on automobiles a plurality of these tubes are arranged side by side, either vertically or horizontally, and their opposite ends are connected with headers from one of which the fluid enters the tubes and into the other of which the fluid is discharged from the tubes. These headers are not shown because their construction and arrangement are well understood by those skilled in the art, and furthermore they form no part of the present invention. In the drawing I have shown broad tubes, the sides of which are flat and substantially parallel with each other, excepting that at intervals they are provided with

internal beads, *a*, which prevent the tube from collapsing, but this forms no part of the present invention. . . 45

B are plates provided with slots corresponding with the cross section of the tubes. The plates are sleeved onto the tubes in a plurality of horizontal series and the plates of the several series are staggered. The plates of each series are provided with flanges C which contact with the plates of the adjacent series, whereby the plates of the several series are spaced and held at the proper distance apart. The plates are provided with grooves *a'* for receiving the contacting edges of the flanges C, whereby the flanges are braced against deflection laterally with respect to the tubes. The flanges are perpendicular to the general plane of the plates, or in other words parallel with the tubes. In the form of the invention shown in Fig. 1, both flanges of each plate project in the same direction therefrom, while in the form of the invention shown in Fig. 2 they project in opposite directions, one side of each plate being offset as shown at *b*, in order that the plates of adjacent series shall fall in the same plane. 50 55 60

By staggering the plates of the several series and by making each plate embrace at least two of the tubes, all the tubes from side to side are tied together and all of the plates of the several series from side to side are tied together, so that the several parts are braced one against another, making a very rigid structure, the parts of which, after being assembled and dipped in a soldering or galvanizing bath, are incapable of movement relatively to each other, whereby they are prevented from rattling. 65 70

What I claim as new and desire to secure by Letters Patent is:

A radiator having a plurality of radiating tubes, a plurality of radiating plates sleeved onto said tubes in a plurality of horizontal series, each plate embracing a plurality of said tubes and the plates of the several series being staggered, each plate being provided with flanges and grooves, the edges of the flanges of the plates of each series being in engagement with the grooves of the plates of the adjacent series. 75 80

CHRISTOPHER WRIGHT.

Witnesses:

L. M. HOPKINS,
H. A. WRIGHT.