

R. C. GILDERSLEEVE.

COOLER.

APPLICATION FILED MAR. 27, 1909.

1,037,754.

Patented Sept. 3, 1912.

Fig. 1.

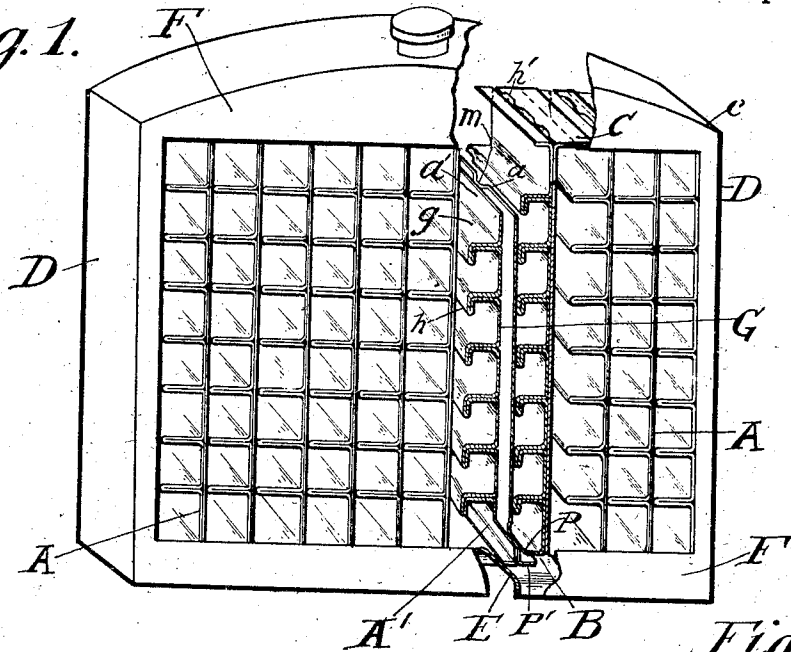


Fig. 3.a.

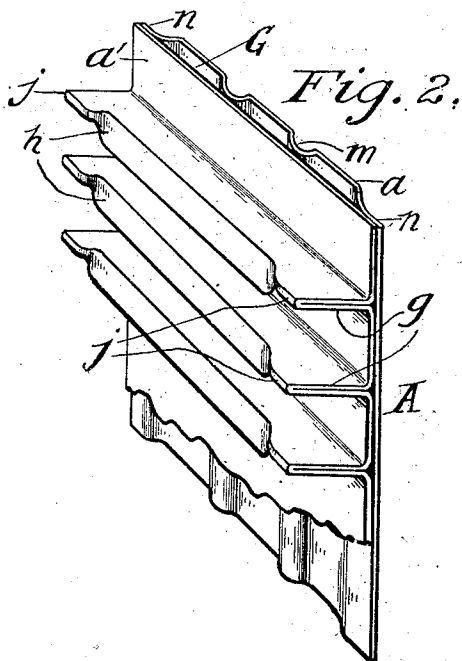


Fig. 2.

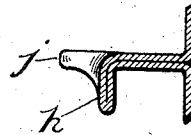


Fig. 3.b.

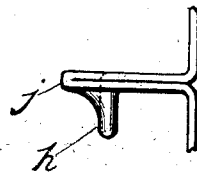
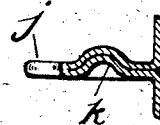


Fig. 3.c.



WITNESSES:

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COOLER.

1,037,754.

Specification of Letters Patent.

Patented Sept. 3, 1912.

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To all whom it may concern:

Be it known that I, RALEIGH C. GILDERSLEEVE, a citizen of the United States, residing in the borough of Manhattan, in the city and State of New York, have invented certain new and useful Improvements in Coolers or Like Apparatus, of which the following is a specification.

My invention has for its object an improved construction of coolers, or, as they are sometimes called, radiators, and while applicable to various uses, the particular application of my invention is to radiate heat from the cooling water of an internal combustion engine, as, for instance, on automobiles.

In the practice of my invention I obtain a cooler which is efficient, simple of manufacture particularly in the assembly, and increased strength of construction, while maintaining or increasing the other features of advantage of existing constructions of articles of this character.

In the accompanying drawings forming a part hereof, I have shown a particular form of embodiment of my invention, which is specifically described as follows:

Figure 1 is a front elevation of a cooler partly broken away and partly shown in section; Fig. 2 is a perspective view of a component section of my cooler; Fig. 3^a is a transverse section of one rib of a section; Fig. 3^b is the end view of one rib and Fig. 3^c is a section of one rib of a modified form.

In the drawings AA are sections which are put together to form the radiator as shown part broken away in Fig. 1.

B is a bottom partition formed by the overlapping offset ends of opposed plates of adjacent sections A, which turned-over ends P and P' may be brazed, soldered or otherwise secured.

C is in effect a top partition formed by the overlapping of offsets from the upper ends of adjacent sections, which are likewise secured in any suitable manner.

c is the top of the casing, D are the sides of the casing, E is the bottom of the casing, F is a front cover secured to the side walls and the top wall and the bottom, and secured around its inner edge to the sections or body portion of the radiator. This junction of side walls, top and bottom and the joining to the body section, forms a water-space at the upper portion of the radiator

and a water-space at the lower portion of the radiator, while any suitable connections lead to the rear of the top space and from the rear of the bottom space to the water-jacket of the engine, or other source of heated water or steam to be cooled. The spaces G between the walls of each section A form a vertical passage from the top water-space to the bottom water-space.

The sections A consist of a plate *a* which is stamped to the form as shown in section in Fig. 2.

a' is a plate which is crimped at frequent intervals and each crimp is then closed on itself forming the ribs or shelves *g* at right angles to the body of the plate *a'*. These shelves or offsets have their edges turned down as at *h* for the full length except a short distance at each end *j*. Instead of turning down the edge, the shelf or horizontal projection may be crimped as shown at *k* in Fig. 3^c, for their entire length with the exception of a short distance *j* at either end.

The section plate *a* may have vertical or other projections as *m*, which serve to separate it from the main body of the plate *a'*, while the ends *n* of the plate *a* are bent so as to contact with the plate *a'*, to the same extent as the depression of the corrugation *m*. When placed against the plate *a'*, the plate *a* will form a clear space G running from top to bottom of the section, of a suitable depth or width to permit water to flow through it, while the edges on either side will be closed. These edges, where the side *n* of the plate *a* touches the plate *a'*, may be held together during the process of assembly by any suitable means, as punching or bending the edge, after which the suitable number of complete sections, such as A, are stacked together to form the main body portion of the radiator. When so assembled the edges are dipped in a bath of solder or spelter, or by any other suitable method they are united, which permanently secures the edges of the two plates in each section, and furthermore secures the edge *j* of the lateral shelves or ribs on each section to the back plate *a* of the adjoining section at the depression *n*.

It will be seen that the edge *h* of the lateral partitions *g* is turned over just enough to accommodate the thickness or depth of the offset of plate *a* from plate *a'*. In this way each partition may have along the

turned over edge h of its offsets, a bearing against a plate a , while each end of the lateral offset g is brazed or soldered to the adjoining section. This results in an inter-connection of sections, giving great stiffness and solidity of the radiator body as a whole. The arrangement and fashioning of parts likewise leave rectangular spaces between the sections running from side to side, which constitute air passages, thereby giving air access to the sides of plates a and a' between which, in the passage G , the heated water or steam is circulated. I may also modify the fashioning of the lateral projections in each section by crimping the projection along its middle, as shown at k in Fig. 3^e, still leaving the end j of the required width so as to contact with the front and rear edge $n n$ of the adjoining section to which it is then secured.

As shown in Fig. 1, a section A' is shown cut away a short distance in from the forward edge disclosing the passage G and the lateral projections with their turned over edges, while at P and P' the lower ends of the plates a and a' are shown turned over to form in effect a bottom plate B , so that the lower water-space of the radiator is connected to the passage G .

The upper end of the plate a of each section is turned over as shown at h' , overlapping the turned over end of the plate a' of the adjoining section to which it is soldered or brazed, or otherwise secured, to form a water-tight joint. The parts of section a may be made in more or less continuous strips and cut to lengths, so that the ribs may be employed to serve as the top and bottom offsets in place of the plain bent end shown at P . In either case the material of the two walls forming a section a are bent apart at the upper end and lower end, thereby leaving the passage G open, and the neighboring top and bottom flanges are united in any suitable manner to form a water-tight joint. When this central or body section of the radiator is complete, attachment to it of the front plate F , and the attachment of a similar plate to the rear, forms a water-tight joint, thereby closing the upper water-space and the bottom water-space. By this arrangement I eliminate the necessity of top and bottom plates to which the sections would otherwise be secured.

From the above the method of construction will be understood, and it will be seen that when assembled and secured together the resultant construction presents a series

of squares formed by the edges of the plates and lateral projections, through which rectangular openings the air can readily pass, making the interior walls an effective radiating surface.

It will also be noted that in the practice of my invention simplicity and economy of construction are effected by the elimination of parts in the construction, which otherwise would be required, as, for instance, separate top and bottom plates, and results in a very strong and simple method of construction.

Various modifications and details of construction and methods of manufacture may be used without departing from the spirit of my invention, and I do not wish to confine myself to the precise form herein shown and described, but

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

1. A cooler composed of sections, each section comprising two plates suitably spaced by means of ribs on one of the plates, a series of transverse spacing offsets on the other of said plates, each offset being provided with a crimp whereby the projection of the other plate on the adjacent section is accommodated.

2. A cooler composed of sections each comprising two plates suitably spaced and with joined edges along two sides, a series of transverse ribs formed by offsetting the material of one of said plates, a crimp along the edge of each rib extending the full length with the exception of the two ends.

3. A section of a cooler comprising two plates, depressions on one of said plates, a closed joint at two opposite edges of said plates, transverse projections extending from edge to edge of one of said plates, a bent over portion of said lateral projection extending from close to one end to close to the other end substantially as and for the purpose described.

4. Sections for radiators or coolers, comprising a portion of a longitudinal ribbed sheet metal strip as one wall, and having for the other wall a sheet metal strip with transverse off-sets, each of said offsets being bent back upon itself, and a portion of each of said offsets being bent parallel to the main body portion of said sheet to form a rigid truss.

Signed at New York, this 24 day of March 1909.

RALEIGH C. GILDERSLEEVE.

Witnesses:

H. MUCHMORE,

COKER F. CLARKSON.