No. 891,302. PATENTED JUNE 23, 1908.

M. STEINER.

RADIATOR FOR AUTOMOBILES.

APPLICATION FILED FEB. 15, 1908.

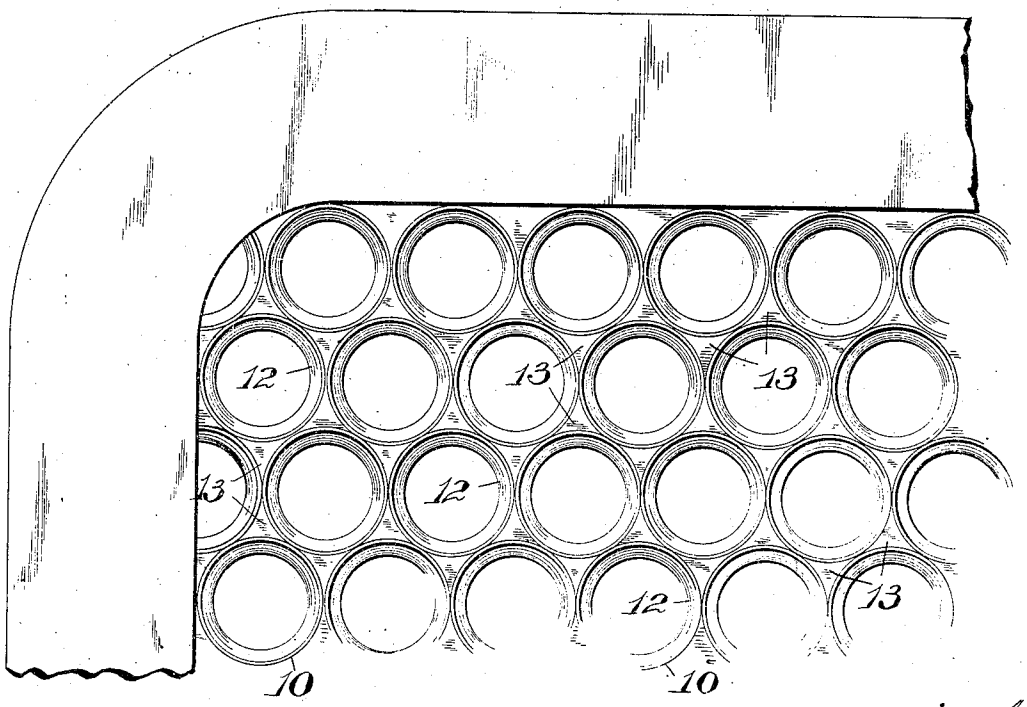


Fig. 1

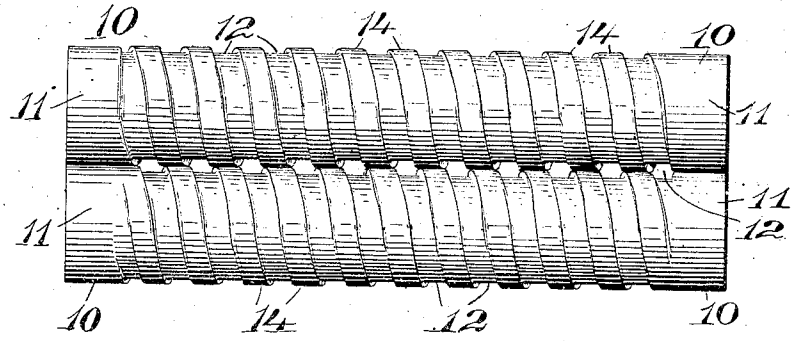


Fig. 2

WITNESSES:

S. G. Rogers.

R. Johnson.

INVENTOR

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BY

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MAX STEINER, OF NEWARK, NEW JERSEY.

RADIATOR FOR AUTOMOBILES.

No. 891,302. Specification of Letters Patent. Patented June 23, 1908.

Application filed February 15, 1908. Serial No. 416,023.

To all whom it may concern:

Be it known that I, MAX STEINER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Radiators for Automobiles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to a radiator for automobiles which is durable and strong and is easily manufactured, and is of a disposition that makes repairing extremely easy and also permits of the easy stopping of any tube that happens to leak.

The radiator is composed of short tubes which allow the air to pass through, and these tubes are made with a groove, this groove being of a nature to make the manufacture of the tube an easy matter, since the finished tube is easily withdrawn from the mandrel on which it is formed, which is not the case with the usual form of radiator tube.

The invention is illustrated in the accompanying drawing, in which

Figure 1 is a face view of a small part of a radiator showing the tubes. Fig. 2 is a side view of two of the tubes placed side by side to show their relation.

The tubes 10 are arranged to abut on their ends 11 and are of full width at that point. Each tube is provided with a helical groove 12 which passes around the tube and forms a channel in the shape of a helix, and these channels provide for the passage of water between the tubes, both horizontally and vertically, but twisting the current sufficiently to retard the water to an extent to make its passage of long enough duration to thoroughly cool it. The groove 12 in each tube preferably stops short of the ends so that the ends abut and are readily united by the solder 13 shown in Fig. 1, which solder closes the space between the ends of the tube and prevents leakage at that point. When these tubes are made they are usually formed on a mandrel, and when they are completed they are easily screwed off the mandrel, which is not the case in a great many styles of tubes having transverse channels which make a collapsible mandrel necessary, and these collapsible mandrels being expensive, the radiator tubes are necessarily high priced.

The ridges 14 which are formed by the groove 12 in its convolutions, are preferably of the full width of the ends of the tube 10 so that they abut as in Fig. 2 to prevent the water from passing, except through the channels provided therefor. This helical groove gives a big surface for cooling, as the corrugated surface of the tube is more extensive than if the tube were straight. The tubes are preferably arranged in relation to one another as shown in Fig. 2, that is with the ridges 14 abutting so that the grooves 12 come together and give a fairly free channel for the water to pass through.

It will be seen from this construction, since the tubes are staggered, that the water is well cooled in passing through the radiator, but I wish to be understood as not limiting myself to the exact staggered arrangement shown in Fig. 1, as different dispositions might be made of the tubes in a radiator.

Having thus described my invention, what I claim is:—

1. A radiator consisting of a series of round tubes, each tube having a single helical groove in its periphery, the groove being flat and leaving flat contacting surfaces between the tubes.

2. A radiator consisting of a series of round tubes, each tube having a flat helical groove in its periphery, the groove having a pitch to form flat contacting surfaces between the tubes of a width approximately that of the groove.

In testimony, that I claim the foregoing, I have hereunto set my hand this 13th day of February 1908.

MAX STEINER.

Witnesses:
WM. H. CAMFIELD,
E. A. PELL.