July 27, 1926. 1,593,699

M. LEIBOVITZ

AUTOMOBILE RADIATOR

Filed Dec. 11, 1920

FIG. 1

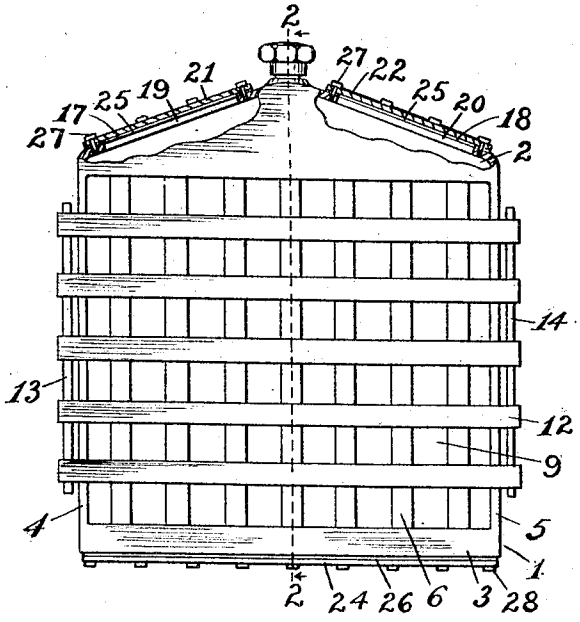


FIG. 2

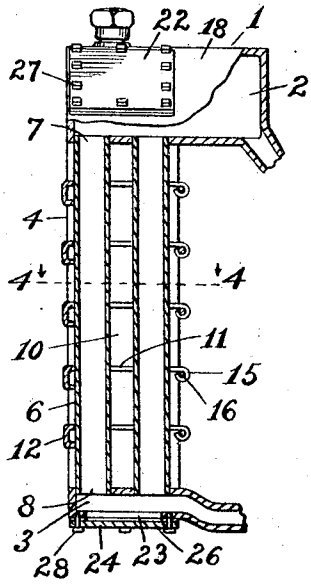


FIG. 3

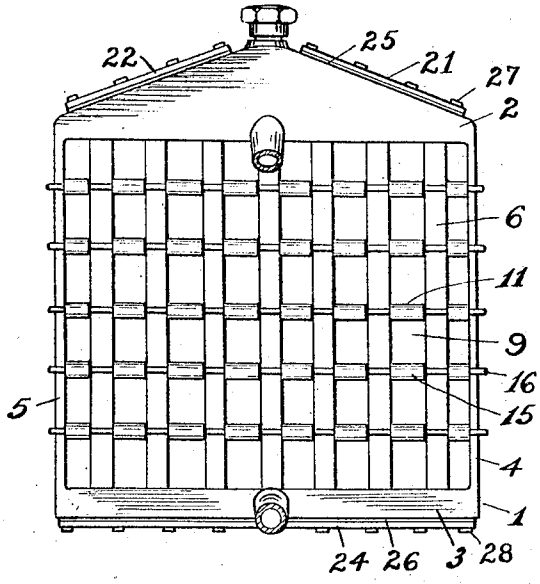
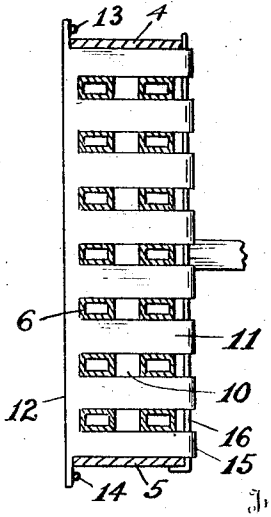


FIG. 4



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UNITED STATES PATENT OFFICE.

MORITZ LEIBOVITZ, OF LORAIN, OHIO.

AUTOMOBILE RADIATOR.

Application filed December 11, 1920. Serial No. 429,872.

This invention relates to automobile radiators and has for its principal object to provide a radiator for automobiles, which is of such a construction that it may be easily repaired temporarily in case of a leak when on the road, and is readily disassembled for convenience in soldering when permanent repairs are to be made.

With the above and other objects in view as will be readily understood, the invention will be hereinafter fully described in connection with the accompanying drawings illustrating the same, and the novel features thereof will be distinctly pointed out in the appended claims.

In the drawings similar characters of reference are used to indicate corresponding parts.

Figure 1 is a front view of an automobile radiator constructed in accordance with my invention,

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1,

Fig. 3 is a rear view of the radiator, and

Fig. 4 is a sectional view taken on line 4—4 of Fig. 2.

Referring to the drawings, 1 represents a water reservoir consisting of an upper chamber 2 and a lower chamber 3, which are formed integrally with side plates 4 and 5, and communicate with each other by means of vertical rectangular tubes 6 having open upper and lower ends 7 and 8 respectively. The tubes 6 are constructed of very thin metal and are arranged in spaced relation in front and rear rows to obtain the greatest radiating surface. For bracing the tubes 6 against lateral strain and also to provide horizontal air spaces at 9 and leaving the vertical air spaces between said front and rear rows of tubes at 10, a plurality of rows of horizontal plates 11 are arranged between and their edges are in engagement with said tubes. The plates 11 extend rearwardly from and are formed integrally with cross bars 12, which engage the faces of the front row of tubes 6, and the ends of said cross-bars are fixed in any suitable manner to vertical tie-bars 13 and 14 so that all of said plates may be withdrawn from and replaced between the tubes as a unit. The rear or free ends of the plates 11 are turned under to form horizontal eyes 15 for receiving locking rods 16, which are adapted to engage and press tightly against the rear edges of the side plates 4 and 5 for drawing the cross-bars 12 against the front faces of the front row of tubes 6′ for securely holding said plates in position and yet provide easy means for allowing the removal of the plates when it is necessary to solder any of the tubes 6.

In order to be able to temporarily discontinue the use of any of the tubes 6 in case of a leak by stopping up the open ends of the leaking tube by using wooden plugs or rags, the inclined sides 17 and 18 of the top of the upper chamber 2 of the water reservoir are provided with openings 19 and 20, which are closed by cover plates 21 and 22, and the bottom of the lower chamber 3 is provided with an opening 23 closed by a cover plate 24. Sheet packing at 25 is arranged between the sides 17 and 18 and the cover plates 21 and 22 respectively and likewise at 26 between the bottom of the lower chamber 3 and the cover plate 24. The cover plates 21 and 22 are removably held in place by stud bolts 27 or other suitable means and the cover plate 24 by similar bolts 28.

From the drawings and description it is obvious that a radiator so constructed is easy to temporarily repair in case of a leak when out of reach of a repair shop, and is readily disassembled to make it convenient for soldering the tubes.

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

1. In an automobile radiator, the combination of an upper and a lower water chamber connected by tubes, plates between the tubes and being arranged horizontally, the plates being removable, bars adapted to engage the front side of said tubes, said plates being integral with said bars, the free ends of said plates extending beyond the rear side of said tubes and terminating in eyes, and rods passing through said eyes for holding said bars in engagement with said tubes, substantially as described.

2. In an automobile radiator, the combination of an upper and a lower water chamber connected by tubes, the tubes being arranged in front and rear rows, plates arranged horizontally in rows between the tubes in said

front and rear rows of tubes to provide horizontal passages between said tubes and leave vertical passages between the front and rear tubes of said rows of tubes, bars adapted to engage one side of said tubes, said plates of each row being fixed to one of said bars, and means cooperating with said plates engaging the rear sides of the rear row of tubes for holding said bars against the front sides of the front row of tubes to retain said plates in position, substantially as described.

In testimony whereof I affix my signature.

MORITZ LEIBOVITZ.