Aug. 21, 1923. 1,465,607

H. A. McCOY ET AL

RADIATOR

Filed May 8, 1922

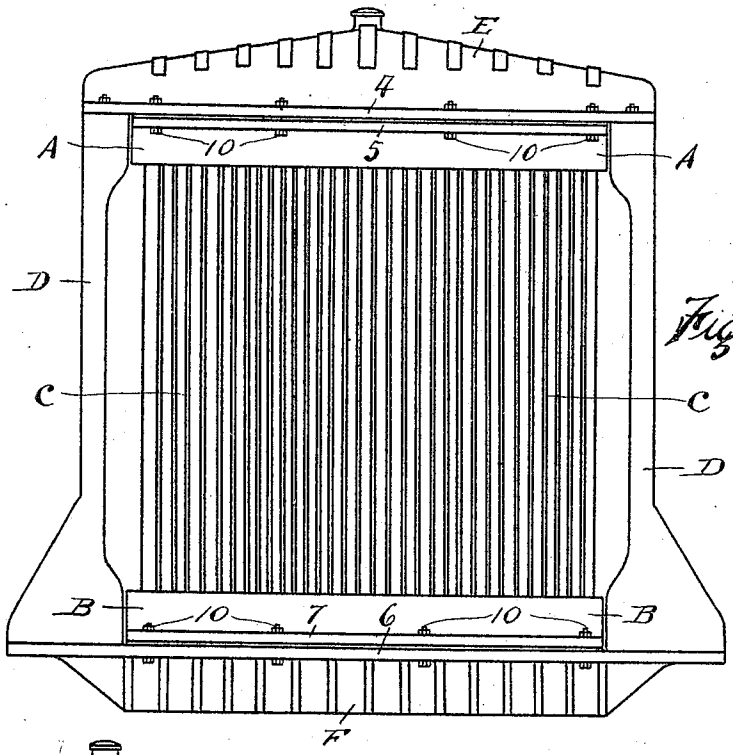


Fig. 1.

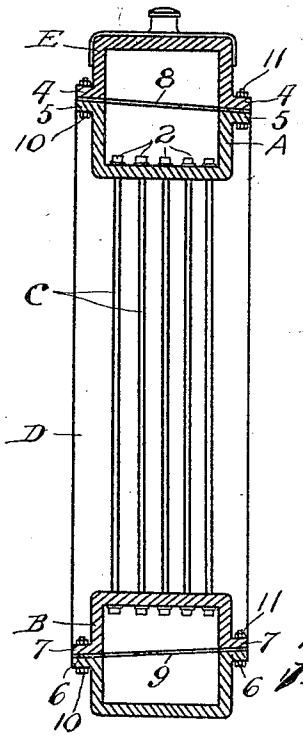


Fig. 2.

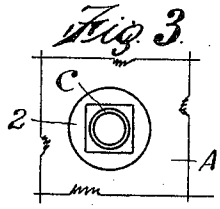


Fig. 3.

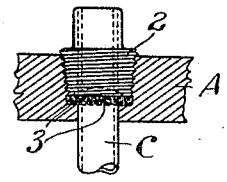


Fig. 4.

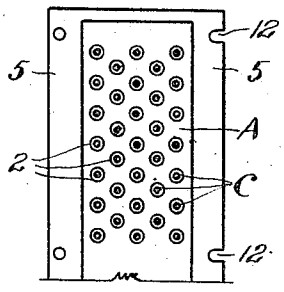


Fig. 5.

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UNITED STATES PATENT OFFICE.

HENRY A. McCOY, OF HAMILTON, AND THOMAS G. ANDERSON, OF ANCASTER, CANADA.

RADIATOR.

Application filed May 8, 1922. Serial No. 559,415.

To all whom it may concern:

Be it known that we, HENRY A. McCOY and THOMAS G. ANDERSON, both subjects of the King of Great Britain, residing at Hamilton, in the county of Wentworth and Province of Ontario, Canada, and Ancaster, in the county of Wentworth and Province of Ontario, Canada, respectively, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

Our invention relates to improvements in radiators of motor vehicle cooling systems, and consists essentially of a core removable from the radiator frame and comprising a pair of header plates forming part of the upper and lower tanks respectively and connected by a multiplicity of tubes secured thereto by a new and novel method.

The invention has for its primary object to provide a radiator from which the core may be removed for repair without removing the entire radiator from the frame of the car. It is well known that leaks frequently occur in the cores of radiators, and in order to effect a permanent repair to the particular part of the core it has been necessary to remove the entire radiator which necessitated the greater proportion of the labor to be performed from beneath the car, separation of the sealed hose connections and the like, and finally the removal of the core from the shell or frame.

A further object is to provide a radiator core comprised of a multiplicity of separate tubes each a unitary part in itself and capable of replacement without disturbing any of the other tubes.

A still further object is attained by providing means in a core of the class specified which will permit a leak to be effectively temporarily plugged while on the road, particularly if no spare tubing is at hand.

These, together with other objects, may be attained by the construction, combination and arrangement of the parts as will be hereinafter more fully described, illustrated in the accompanying drawing, and pointed out in the claims hereunto appended.

With reference to the drawing:

Figure 1 is a front elevation of the radiator and core fully assembled;

Figure 2 is a cross-sectional side elevation of the same;

Figure 3 is an enlarged detailed top view of one of the tube connections;

Figure 4 is an enlarged side or front elevation of Figure 3 showing a fragment of the header plate in cross-section; and,

Figure 5 is a top view of one end part of a header plate.

Similar reference characters refer to similar parts throughout the several views.

The radiator core comprises opposed upper and lower header plates A and B, respectively, connected by a multiplicity of perpendicularly disposed radiation tubes C. These tubes are individually connected to the said header plates and adapted to communicate with the interior thereof as follows:

The header plate is drilled to the exterior diameter of the tube, and then tapped partially through its thickness concentrically with the drilled hole, as shown in detail in Figure 4, to receive a taper pipe plug 2 which is also drilled to the exterior diameter of the tube C and registers with the drilled hole in the header plate, to receive the end of said tube. A packing ring 3, preferably of graphite asbestos for example, is inserted between the drilled pipe plug 2 and the bottom of the tapped hole so as to constitute a water tight connection when the said pipe plug is screwed down tight thereupon.

Referring particularly to Figures 1 and 2, D indicates the radiator standards which are or may be permanently secured to the frame of the car. The upper tank E which is supported by and secured to the standards D, is provided with flanges 4 which are bolted to the flanges 5 on the upper header plate A, with a gasket 8 formed of cork for example, therebetween, to form a watertight connection.

The lower header plate B is secured in like manner to the lower tank F by bolting flanges 7 of the header plate to flanges 6 of the tank, with a gasket 9 formed of cork for example therebetween.

The adjoining surfaces of the upper tank and upper header plate have a rearward or inward declivity, and the adjoining surfaces of the lower tank and lower header plate have a corresponding acclivity.

It will follow that the radiator core is practically wedged between the upper and lower tanks E and F.

The operation of the device is as follows:

In case of repair having to be made in any one of the tubes C, the entire core is removed from the frame by taking out the bolts 10 in the forward flanges of the header plates and tanks, and by loosening the bolts 11 in the rear flanges, grooves 12 being provided in the rear flanges of the header plates in lieu of bolt holes.

The defective tube C may be withdrawn from the header plates A, B, by loosening the respective pipe plugs 2. The old tube may be repaired, or be replaced by a new tube at option, or, if a leak occurs and it be inconvenient to repair or to replace the tube, ordinary pipe plugs (undrilled) may be screwed into place in the header plates to seal the openings therein.

It will be particularly noted that by the provision of our improved radiator, leaks may be readily repaired while on the road by carrying spare lengths of tubing, or ordinary pipe plugs.

Having now fully described our invention, what we claim and desire to secure by Letters Patent is:

1. In a device of the class described, the combination with a radiator frame, of an upper tank, a lower tank, a header plate removably secured to the upper tank, a header plate removably secured to the lower tank, the adjoining surfaces of the upper tank and upper header plate having a rearward declivity, the adjoining surfaces of the lower tank and lower header plate having a rearward acclivity, and a plurality of tubes connecting said header plates and individually removable therefrom.

2. In a device of the class described, the combination with a radiator frame, of an upper tank, a lower tank, a header plate removably secured to the upper tank, a header plate removably secured to the lower tank, the adjoining surfaces of the upper tank and upper header plate having a rearward declivity, the adjoining surfaces of the lower tank and lower header plate having a rearward acclivity, said header plates being trough shaped whereby to receive and house tube fastening means and a radiation core connecting said header plates.

In testimony whereof we have affixed our signatures.

HENRY A. McCOY.
THOMAS G. ANDERSON.

Witnesses:
H. G. HENDRY,
V. D. EARLE.