E. E. MANSELL & W. H. WARNER.

RADIATOR.

APPLICATION FILED SEPT. 22, 1915.

1,242,961. Patented Oct. 16, 1917.

Fig. 1.

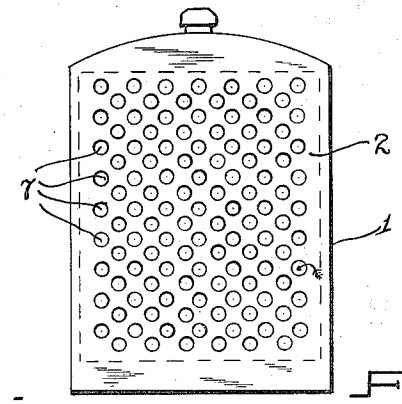



Fig. 3.

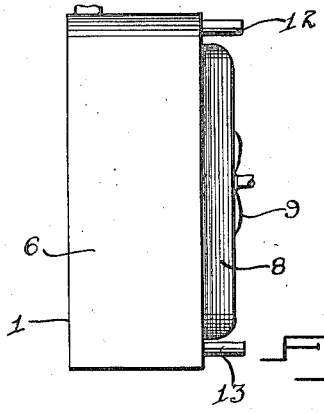



Fig. 4.

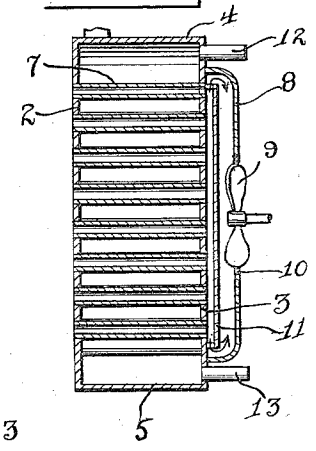
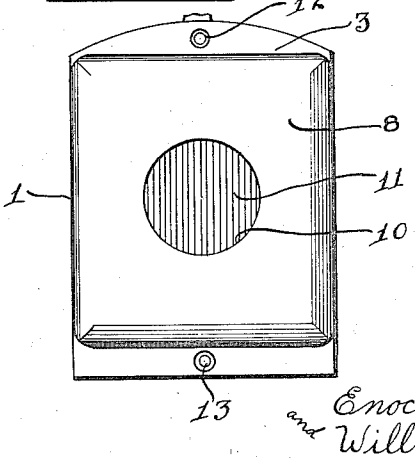



Fig. 2.




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# UNITED STATES PATENT OFFICE.

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## RADIATOR.

1,242,961. Specification of Letters Patent. Patented Oct. 16, 1917.

Application filed September 22, 1915. Serial No. 52,061.

*To all whom it may concern:*

Be it known that we, ENOCH E. MANSELL and WILLIAM H. WARNER, citizens of the United States, residing at Castlerock, in the county of Cowlitz and State of Washington, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

Our invention relates to radiators for internal combustion engines and more particularly to an improved radiator for use in connection with internal combustion engines of the automobile type.

A still further object of the invention is to provide a deflector plate of a construction whereby an even distribution of air suction force is in evidence throughout the several air cooling tubes.

The above and additional objects are accomplished by such means as are illustrated in their preferred embodiment in the accompanying drawings, described in the following specification and then more particularly pointed out in the claim which is appended hereto and forms a part of this application.

In describing our invention in detail reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a front elevation of our improved air tube radiator;

Fig. 2 is a rear elevation;

Fig. 3 is a side elevation; and

Fig. 4 is a longitudinal sectional view.

Referring now to the drawings by numerals, 1 designates as an entirety a novel container for the cooling fluid used. The container 1 in its preferred embodiment may be said to consist of a front tube sheet 2, a rear tube sheet 3, top 4, bottom 5 and sides 6—6. The front, back, top, bottom and sides of the container are welded or otherwise fastened together. A multiplicity of tubes 7 are supported by the plates 2 and 3 in staggered relation, each of the several tubes being open at both ends.

A fan case 8 is fastened to the rear plate 3 of the container to inclose that portion of the mentioned rear plate having the tube openings formed therein. A fan 9 is mounted to operate in an opening 10 of the fan case that a suction force may be obtained. That the suction force may be evenly distributed throughout all of the several tubes 7, a deflector plate 11 is mounted within the fan case 8 in spaced relation to the several tube terminals and as shown to advantage in Fig. 4. An inlet pipe 12 is disposed preferably at the top of the container 1 and an outlet pipe 13 at the bottom thereof, the mentioned pipes affording a means whereby the cooling fluid may be circulated throughout the engine cylinder walls and said container.

In operation, the several tubes 7 are open to the atmosphere that air may be admitted thereto at any and all times. While the engine (in connection with which the device is used) is in operation, suction fan 9 is driven to thus create a suction force within the fan case 8 and at the rear of the several tubes. The deflector plate 11 will act to evenly distribute the suction force throughout all of the several air induction tubes, thereby causing each of the several tubes to receive an equal amount of the cooling air to thus offer a cooling effect upon the cooling fluid circulated throughout the container.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent, is:—

A radiator for internal combustion engines, including a fluid container having inlet and outlet openings, tubes extending through the container and in communication with the atmosphere, a deflector plate covering one of the ends of the tubes in spaced relation thereto, a fan casing inclosing the plate in spaced relation thereto, and in spaced relation to the edges of the plate, said casing having a central opening and a fan revolubly mounted in the opening, whereby air may be drawn through the tubes against the plate so as to flow along the plate to the edges thereof and into the fan casing for withdrawal through the opening therein.

In testimony whereof we affix our signatures in presence of two witnesses.

ENOCH E. MANSELL.
WILLIAM H. WARNER.

Witnesses:
RALPH E. FRAIDENBURG,
GEO. B. ROWAN.