

A. F. MASURY.
RADIATOR FOR AUTOMOBILES.
APPLICATION FILED SEPT. 16, 1915.

1,192,218.

Patented July 25, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

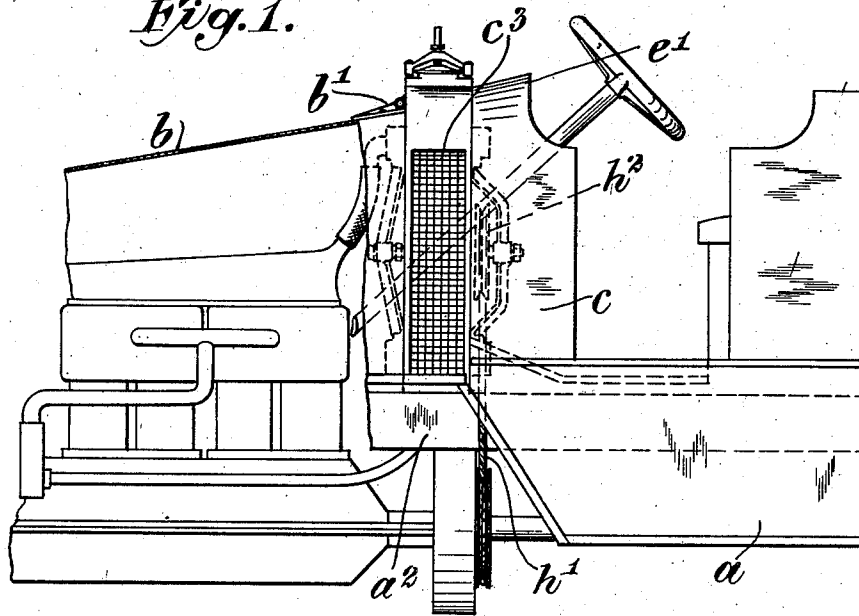


Fig. 3.

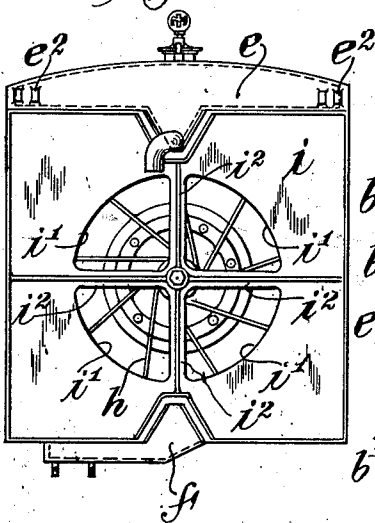
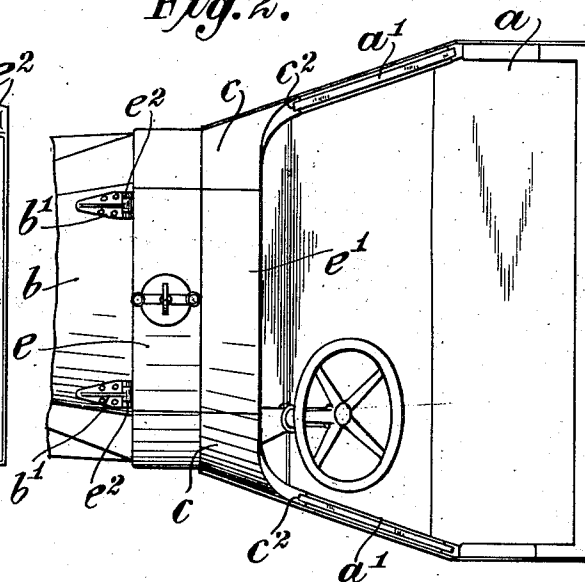


Fig. 2.



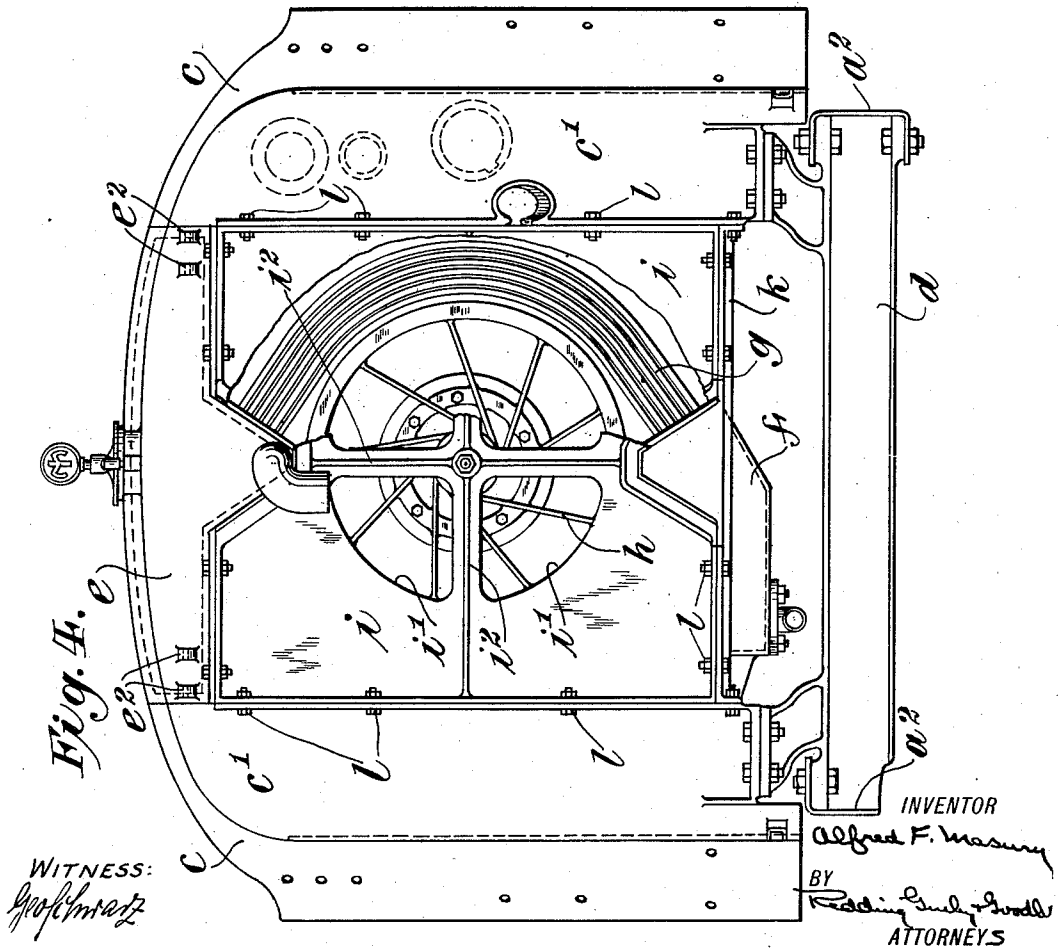
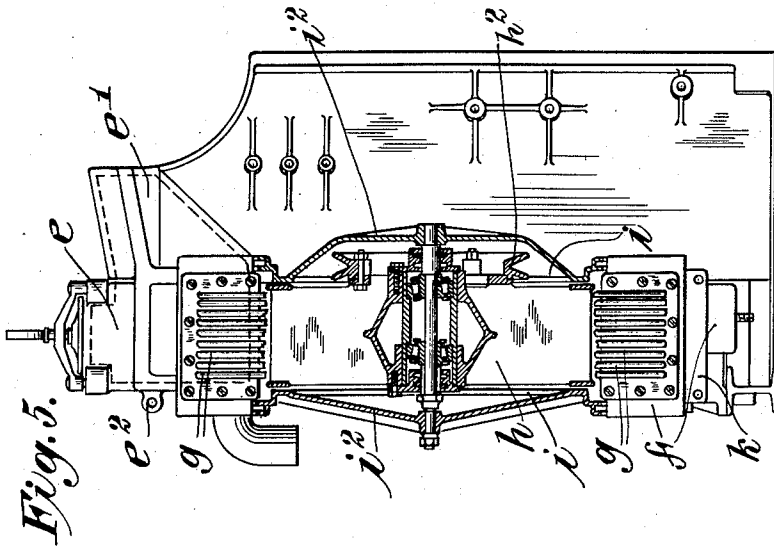
WITNESS:
Geo. Schmetz

INVENTOR
Alfred F. Masury
BY
Reading G. Giddett
ATTORNEYS

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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

ALFRED F. MASURY, OF NEW YORK, N. Y., ASSIGNOR TO INTERNATIONAL MOTOR COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

RADIATOR FOR AUTOMOBILES.

1,192,218.

Specification of Letters Patent.

Patented July 25, 1916.

Application filed September 16, 1915. Serial No. 50,962.

To all whom it may concern:

Be it known that I, ALFRED F. MASURY, a citizen of the United States, residing in the borough of Manhattan of the city of New York, in the county of New York, in the State of New York, have invented certain new and useful Improvements in Radiators for Automobiles, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

In a co-pending case filed by the present applicant on February 26, 1915, Serial No. 10,674, there is shown and described a radiator for automobiles which is of such construction and so mounted with respect to the motor, as to eliminate many disadvantages heretofore present in radiators and insure an effective and adequate cooling of the motor and the cooling water for the motor, at all times.

The present invention is concerned with a radiator of the same type and one which embodies all of the advantages pointed out with respect to the radiator shown in the above mentioned application, but seeks to improve the construction of such a radiator in many respects which will commend it to the manufacturer and the automobile builder. The trend in the motor car industry is toward constructions which are rugged, simple, inexpensive, clean, and, so far as practicable, unitary. These considerations have been taken into account in providing the radiator herein disclosed in that it is proposed to provide a radiator which shall have its side plates and support formed as the usual cowl of the car, shall have its exposed upper surface conform to the general lines of the car and constitute the dash therefor, shall have its end plates of stiff metal capable of lending support and rigidity to the radiator structure proper, and shall be built throughout as a unitary structure susceptible of ready removal from the car without disturbing the surrounding parts or the supporting cowl plates.

Other objects of the invention will appear hereinafter in connection with a detail description of the preferred embodiment of the invention which is illustrated in the accompanying drawings.

In these drawings—Figure 1 is a view in side elevation of a fragment of a motor

truck equipped with the improved radiator and showing the disposition of the latter between the motor bonnet and the driver's seat. Fig. 2 is a view in plan of a fragment of the car shown in Fig. 1. Fig. 3 is a view in elevation of the improved unitary radiator structure showing the latter as removed from the car. Fig. 4 is a view in elevation of the improved radiator looking from the front end of the car, the motor bonnet being removed and a portion of the front plate of the radiator being broken out in the interest of clearness. Fig. 5 is a view partly in vertical section and partly in side elevation taken through the radiator shown in Fig. 4.

As noted in the preamble to this specification, the present invention is concerned with a radiator which embodies all of the advantages pointed out with respect to the radiator in the co-pending case, above identified, and is of the same type as said radiator and is mounted in substantially the same relationship to the motor bonnet and the driver's seat so that air is drawn into the radiator from under the motor bonnet and from under the dash and is thrown out radially by a centrifugal fan through the bundles of tubes partially surrounding the same. It will be unnecessary to dwell further in this application upon the features of this type of radiator, broadly considered.

The car body indicated at *a* carries directly in front of the driver's seat and to the rear of the usual motor bonnet *b* side cowl plates *c* which in the present instance are each integral, extending from the rear edge of the motor bonnet rearwardly to the fore doors *a'* and curved or shaped in any approved form. Each of the cowl plates *c* is supported on a transverse frame member *d* which extends between the main side frame members *a''* of the chassis of the car. It is clear from Fig. 4 that the cowl plates *c* extend inwardly at the front edges so as to present exposed surfaces *c'* at the sides of the motor bonnet *b*, as is desirable. The rear edges of the cowl plates *c* may be grooved as at *c''* to afford guide-ways for the sliding doors *a'* or to furnish support, or otherwise cooperate with, doors of any character. The integral cowl plates *c* not only perform the functions thus far ascribed to them but are of the peculiar character described for reasons peculiar to the entire construction em-

ployed at this portion of the car and concerned particularly with the structure of the radiator now to be considered. The radiator comprises generally an upper integral reservoir *e* and a lower reservoir *f* which is in communication with the upper reservoir through semi-cylindrical bundles of tubes *g* extending therebetween and arranged around a centrifugal fan *h* which may be driven conveniently by a belt *h'* engaged operatively with a driving pulley *h²* on the shaft of the fan and with any convenient source of motive power. The radiator is provided with stiff front and rear plates *i*, preferably of cast metal, which are bolted at their upper edges to the under face of the reservoir *e* and at their lower edges to a plate *k*, whereby the entire radiator, as indicated in Fig. 3, somewhat conventionally, is formed as a unitary structure, which, as will appear hereinafter, may be readily placed in position in the car or removed therefrom as a unit, as conditions require. The plates *i* are formed with central openings *i'* to permit the free inflow of air from both sides of the radiator to the fan but across these openings are provided diametrically extending arms *i²* which form supporting spiders for the fan. The plates *i* in the present construction constitute more than mere protective closures for the bundles of tubes and the fan inasmuch as they themselves are supporting units for the radiator as will appear.

The unitary structure described and shown in Fig. 3 when placed in its intended position rests between the two cowl plates *c* snugly so that supporting bolts *l* may be passed between suitable juxtaposed flanges formed respectively on the edges of the cowl plates, the end radiator plates *i* and the bottom radiator plate *k*. When thus bolted firmly in position, the radiator as a unit is supported directly from the cowl plates *c* and indirectly on the transverse frame member *d*, as will be evident.

Certain characteristic features of the improved radiator not heretofore noted may now be gone into in some detail and their importance in the radiator structure and in relation to the surrounding portions of the car will be readily appreciated. In the first place, in the improved radiator account has been taken of the desirability of providing a water reservoir *e* which shall be of maximum capacity so as to do away with the danger of an insufficient supply and the evil of constant boiling now so generally found in constructions where the reservoirs must necessarily be of very limited capacity. The disposition and character of the improved radiator make it especially suitable for the inclusion of a large water tank. From Fig. 4 it will be noted that the tank *e* extends entirely across the radiator from one cowl

plate *c* to the other, thereby giving maximum width to the reservoir. From Figs. 2 and 5 it will be seen that the reservoir has been extended rearwardly far to the rear of the radiator structure proper, as indicated generally at *e'* and advantage has been taken of its additional size to shape it so as to form a dash of the usual configuration and appearance. In the illustrated form, this dash is curved transversely and rearwardly in keeping with the approved stream-line form and conforms to the general configuration of the side cowl plates *c* so that these plates with the exposed upper wall of the reservoir *e* constitute an unbroken cowl and dash of usual appearance. Another function which the improved radiator has been made to serve is the supporting of the motor-hood *b* at its rear edge as by means of lugs *e²* cast on the front face of the reservoir *e* to be engaged by hinges *b'* secured to the top of the motor bonnet along its rear edge and in proper relation to the lugs. A bonnet of this kind, of course, is swung upwardly from its front edge about the hinges *b'* to expose all of the parts inclosed by the bonnet.

As shown in Fig. 1, the side cowl plates *c* are formed with large openings *c³* directly opposite the fan *h* to permit the free outflow of the air which is forced radially through the bundles of tubes *g*. These openings *c³* are preferably provided with screens or gratings to prevent the entrance of foreign objects and protect persons against personal injury through the insertion of the hand against the hot tubes or, perhaps, the blades of the fan *h*.

Conversely to the mounting of the radiator structure as a unit, may be pointed out the removal thereof, by the loosening of the supporting bolts *l* and the withdrawal of the unitary structure shown in Fig. 3 from its position between the side cowl plates *c*. In this removal, the reservoirs *e* and *f*, of course, are maintained in position by their attachment to the end plates *i* of the radiator. Of course, when desired, the reservoir *e* may be removed from its position in the radiator unit while the latter is in position in the car or after it has been removed in the manner described. Access to the fan and tubes in the radiator unit may be had conveniently by removal of the end plates *i* after the radiator unit has been demounted.

Changes in form, dimension and arrangement of parts may be made without departing from the spirit of this invention, provided such modified constructions fall within the scope of the appended claims.

What I claim is:—

1. In an automobile, in combination with cowl plates therefor, a radiator disposed between the motor and the driver's seat and

between the cowl plates and forming therewith a cowl and dash.

2. In an automobile, in combination with cowl plates therefor, a radiator disposed between the motor and the driver's seat and freely exposed to the air within the motor bonnet and to the air in the space around the driver's seat and forming with the cowl plates a cowl and dash.

3. In an automobile, in combination with cowl plates therefor, a radiator disposed between the motor and the driver's seat and supported detachably on the cowl plates.

4. In an automobile, in combination with the cowl plates therefor, a radiator disposed between the motor and the driver's seat, and forming with the cowl plates a cowl and dash and means to support the radiator unit detachably on the cowl plates.

5. In an automobile, a radiator disposed between the motor and the driver's seat and having a reservoir extended rearwardly to form a dash.

6. In an automobile, a radiator disposed between the motor and the driver's seat and having its upper reservoir shaped to form a cowl of natural appearance and extended rearwardly to form a dash.

7. In an automobile, two integral cowl plates mounted respectively at opposite

sides of the chassis, a radiator unit disposed therebetween and composed of stiff front and rear plates and a bottom plate, and means to secure the radiator plates to the cowl plates.

8. In an automobile, side cowl plates supported at opposite sides of the chassis and extending rearwardly to form jambs at the sides of the driver's seat and a radiator unit supported between the cowl plates and having the upper surface of the reservoir exposed and shaped to conform to the shape of the cowl plates and form therewith a cowl and a dash.

9. In an automobile, in combination with the cowl plates, a radiator disposed between the motor and the driver's seat and having upper and lower reservoirs, substantially circular bundles of tubes extending between the reservoirs, a centrifugal fan within the bundles of tubes, front and rear plates for the radiator in which the fan is journaled, said plates having openings to admit air freely from both sides of the radiator, and means to secure the front and rear plates to the cowl plates.

This specification signed this 14th day of Sept. A. D., 1915.

A. F. MASURY.