M. GOUDARD & M. MENNESSON.

COOLING DEVICE FOR THE MOTORS OF MOTOR CARS.

APPLICATION FILED JULY 28, 1908.

914,822. Patented Mar. 9, 1909.

3 SHEETS—SHEET 1.

Fig.1.

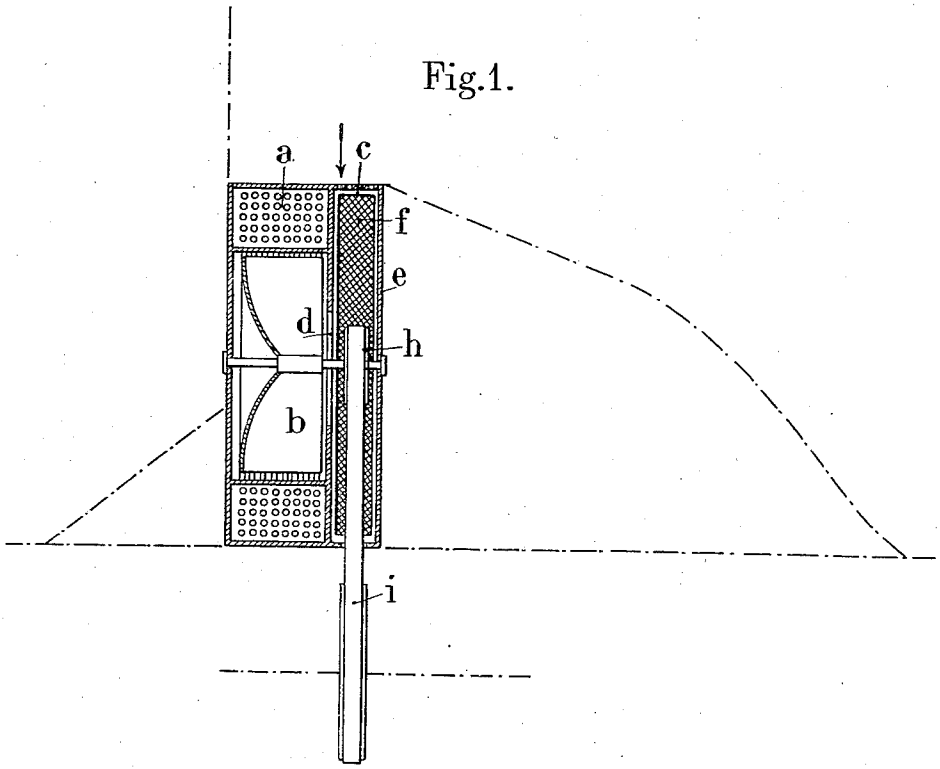
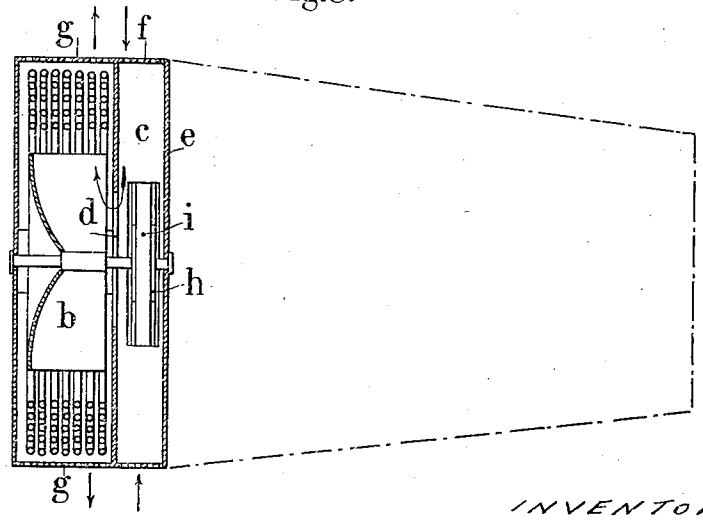


Fig.3.



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3 SHEETS—SHEET 2.

Fig.2.

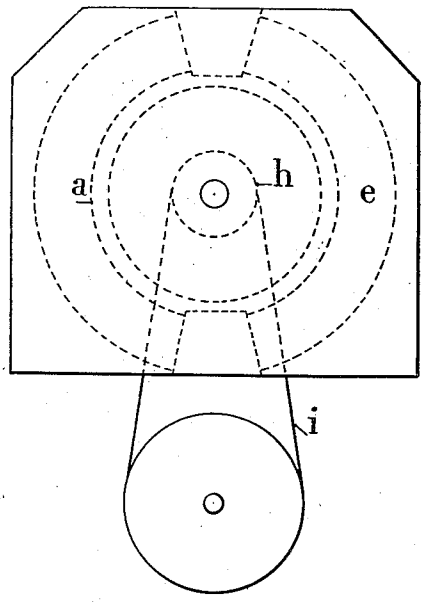
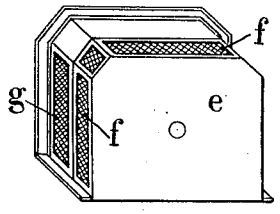


Fig.4.



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3 SHEETS—SHEET 3.

Fig.5.

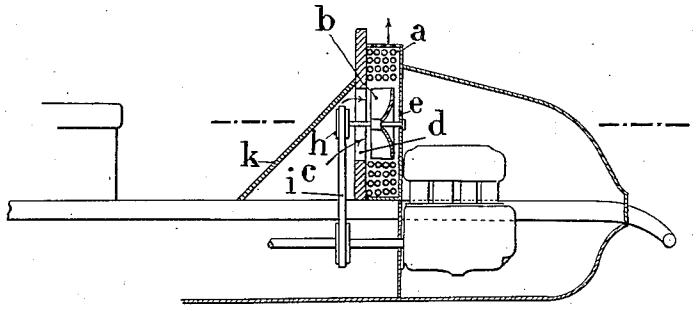


Fig.6.

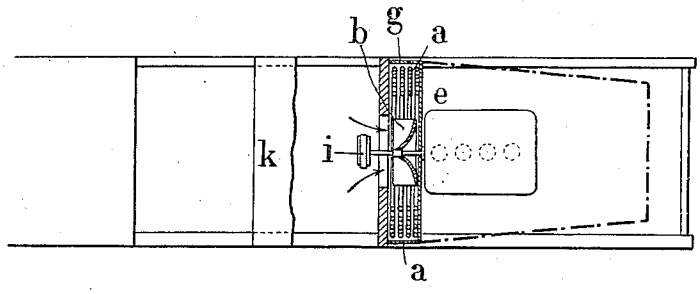
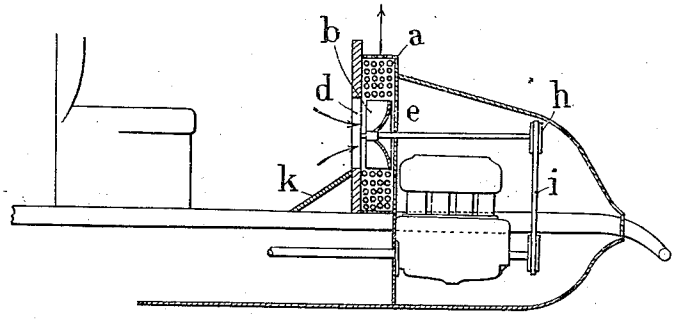


Fig.7.



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UNITED STATES PATENT OFFICE.

MAURICE GOUDARD AND MARCEL MENNESSON, OF PARIS, FRANCE, ASSIGNORS TO THEMSELVES AND HENRY DUCASSE, OF PARIS, FRANCE.

COOLING DEVICE FOR THE MOTORS OF MOTOR-CARS.

No. 914,822. Specification of Letters Patent. Patented March 9, 1909.

Application filed July 28, 1908. Serial No. 445,834.

To all whom it may concern:

Be it known that we, MAURICE GOUDARD and MARCEL MENNESSON, both of 16 Avenue Jules Janin, in the city of Paris, Republic of France, mechanical builders, have invented a Cooling Device for the Motors of Motor-Cars, of which the following is a full, clear, and exact description.

This invention has for its object a cooling device with force air circulation for the motors of motor cars. This cooling device comprising a radiator with an internal centrifugal fan is essentially characterized by the fact that the radiator placed at the rear of this motor is separated from the latter by a wall and the casing of the radiator is provided with air inlets arranged either at the front or at the rear of the radiator thereby allowing the air to come to the fan without passing over the motor. In virtue of this arrangement, the several mechanical parts which are near to the radiator and more particularly the motor are protected against the draft and are consequently protected against the dust carried along by the latter.

The invention is represented by way of example in the accompanying drawing:

Figure 1 is a vertical section. Fig. 2 is a front view. Fig. 3 is a horizontal section. Fig. 4 is a perspective internal view. Figs. 5, 6 and 7 show modified forms.

The new device essentially comprises a radiator *a*, Figs. 1 and 2, at the center of which is mounted a centrifugal fan *b* and an air supply chamber *c* communicating at its periphery with the outer air and arranged at the front of this radiator; the free internal space of the fan *a* freely communicates with this chamber through a central orifice *d* which constitutes the aspirating mouth of the fan.

The air supply chamber *c* is constituted by a wall *e* arranged in front of the radiator and connected to the front face of the latter by apertured surfaces *f*, wire trellis or gauze.

The radiator is composed of several parts of any kind, leaving between them empty spaces so as to enable the air forced back by the ventilator to escape through the periphery of the apparatus; this radiator can be provided on its periphery with a perforated iron sheet or wire trellis *g*.

In the shaft of the fan *b* is fastened a pulley *h* around which passes a transmitting belt *i* carried along by a pulley fast on the driving shaft of the motor car; the fan can be operated by any other suitable transmission system according to the applications.

This cooling device can be secured to any part of the car, for example in front of the dash board, as shown in Fig. 1.

The circulation of air is as follows: The external air aspirated by the fan or ventilator enters through the apertured surfaces *f* into the chamber *c*, passes through the aspirating mouth *d* into the radiator; this air is thrown by means of the fan over the radiating bundle, then passes out from the apparatus and then through the periphery of the radiator, by passing through the openings of the casing *g*.

This device has the advantage of removing from the air circulation the several mechanical parts which can be either at the front of the radiator (for instance the motor) or at the rear (for instance the clutches and the variable speed gear) and consequently protect all these parts against the dust deposits. It is to be observed that in virtue of this air circulation process, the radiator can be entirely concealed behind the head and can have the same outline as the latter.

Figs. 5 and 6 show a modified form in which the air supply chamber *c* is beneath the dash board *k;* the radiator is separated from the motor by a wall *e*, as in the previous arrangement.

In the arrangement shown in Fig. 7, the air enters directly into the ventilator through the opening *d* which is above the dash-board *k;* in this arrangement, the air does not undergo any heating whatsoever before entering the radiating bundle and it reaches the ventilator without any loss of charge.

The present cooling device can be made of any shape and sizes and its details of construction may vary according to the several applications.

Claims:

1. In a cooling device for motor cars, the combination of a circular tubular bundle of water tubes, a perforated casing surrounding said water tubes, a centrifugal ventilator for forcing air through said bundle, an engine and an imperforate wall separating said ventilator from the engine, substantially as described.

2. In a cooling device for motor cars, the

combination of a circular tubular bundle of water tubes, a perforated casing surrounding said tubes, an air supply chamber, a passage leading from said chamber to the bundle of tubes, and a fan for forcing the air from said chamber to the bundle of tubes, substantially as described.

The foregoing specification of our cooling device for the motors of motor-cars signed by us this 9th day of July 1908.

MAURICE GOUDARD.
MARCEL MENNESSON.

Witnesses:
HANSON C. COXE,
MAURICE H. PIGUET.