P. DAIMLER.

ENGINE COOLING SYSTEM.

APPLICATION FILED AUG. 30, 1912.

1,066,714.

Patented July 8, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

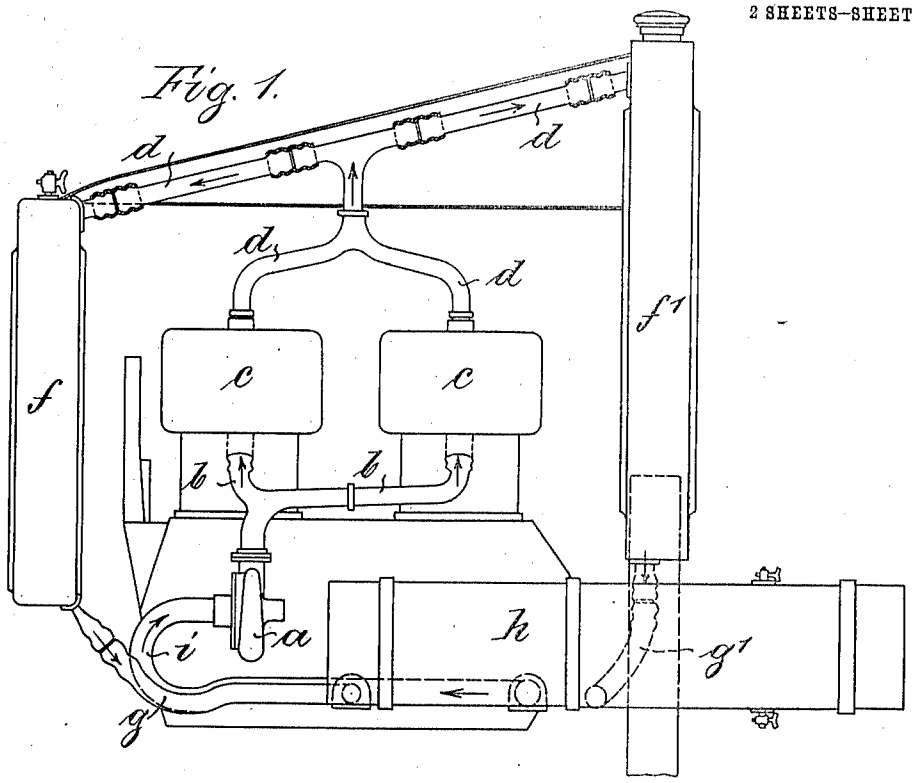
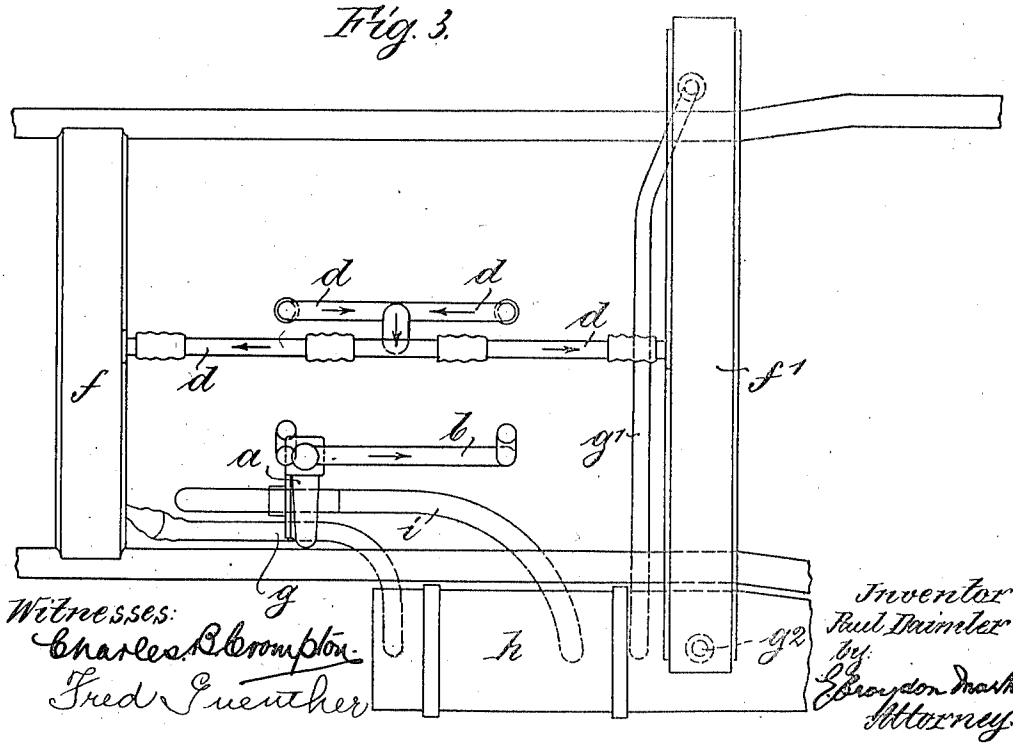


Fig. 3.



Witnesses:
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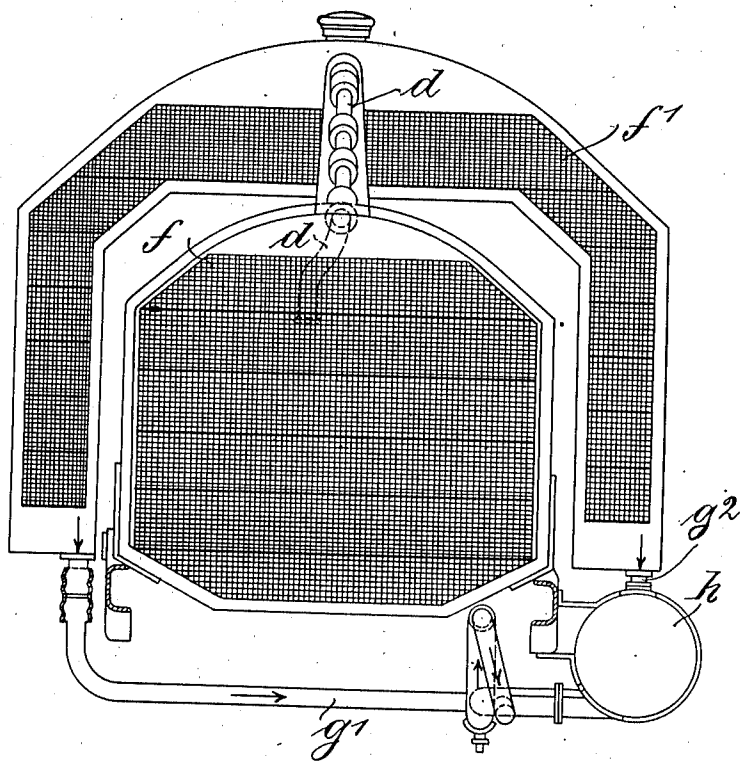
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

PAUL DAIMLER, OF CANNSTATT, GERMANY, ASSIGNOR TO THE FIRM OF DAIMLER-MOTOREN-GESELLSCHAFT, OF UNTERTÜRKHEIM, GERMANY.

ENGINE COOLING SYSTEM.

1,066,714. Specification of Letters Patent. Patented July 8, 1913.

Application filed August 30, 1912. Serial No. 717,897.

To all whom it may concern:

Be it known that I, PAUL DAIMLER, subject of the King of Wurttemberg, residing at 87 Waiblingerstrasse, Cannstatt, in the Kingdom of Wurttemberg, German Empire, have invented certain new and useful Improvements in Engine Cooling Systems, of which the following is a specification.

This invention relates to an improved engine water-cooling system and is particularly applicable for use in connection with motor vehicles such as are required for use in hot climates or for use in connection with slow speed motor vehicles which cannot often take up fresh water.

According to the present invention, the motor vehicle is provided in the usual manner with a water-cooler at the front of the motor cover and a saddle-shaped cooler at the rear of the motor cover. The upper ends of these two coolers are connected together by means of a connecting pipe and, inasmuch as the saddle-shaped cooler is higher than the front cooler, the connecting pipe is inclined upwardly toward the rear and thus any steam generated in the coolers will collect in the rear cooler, being conducted by way of the inclined connecting pipe from the front cooler to the rear. Inasmuch as the two coolers are of different dimensions and in different positions relatively to the motors and the direction of motion, the temperature of the water leaving the two coolers will be different, and in order therefore to equalize the temperature, the two coolers are preferably connected below to a reservoir in which the water from the coolers mixes and is drawn from thence and supplied to the cooling jackets of the motor by the usual circulating pump.

In order that the invention may be more clearly understood, reference is made to the accompanying drawings whereon one construction of the cooling system is shown by way of example.

Figure 1 is a side-view of the fore part of a motor vehicle with the motor cover removed. Fig. 2 is a front-view of the same and Fig. 3 is a plan-view thereof.

The circulating pump *a* supplies water through the pipes *b* to the cooling jackets *c* on the cylinder heads of the motors. The water in a heated condition flows from the jackets *c* through pipes *d* to coolers *f* and *f'* respectively, the cooler *f* being arranged in front of the motor and being of the usual shape, while the cooler *f'* is of saddle-shape and is arranged at the rear of the motors. The cool water from the cooler *f* passes through a pipe *g* into a reservoir *h* fitted in any suitable position on the vehicle frame, while the cool water from the cooler *f'* enters the reservoir *h* through the pipe *g'* and connection g^2. The water after mixing in the reservoir *h* is withdrawn by the circulating pump *a* through the pipe *i* and again supplied to the cooling jackets.

It will be seen in Fig. 1, that the pipes *d* unite to form an inclined connecting pipe from the upper end of the cooler *f* to the upper end of the cooler *f'* and thus insure any steam collecting in the cooler *f'*.

It will be seen that if the inclination of the connecting pipe *d* is sufficiently great, the possibility of steam collecting in the front cooler *f* and in the circulating pipes will be obviated, and that the steam generated will at all times rise to the highest point of cooling system and thus prevent the water circulation from being disturbed.

I claim:—

1. An engine cooling system, comprising an engine having a cooling jacket, a front cooler, a rear cooler whose upper end is at a higher level than the upper end of said front cooler, a circulating pump, a pipe connection between the upper ends of said coolers, pipes connecting said coolers with the circulating pump, a pipe connecting the cooling jacket of the engine with the circulating pump, and an outlet from said cooling jacket connected to said coolers.

2. An engine cooling system, comprising an engine having cooling jackets, a front cooler, a rear cooler whose upper end is at a higher level than the upper end of said front cooler, a circulating pump, pipes connecting the lower ends of said coolers with said circulating pump, pipes connecting said circulating pump with the cooling jackets of the engines, water outflow pipes from said cooling jackets connected to the upper ends of said coolers and united to form an inclined connecting pipe between the upper ends of said coolers.

3. An engine cooling system, comprising an engine having a cooling jacket, a front cooler, a rear cooler whose upper end is at a higher level than the upper end of said front cooler, a reservoir, pipes connecting

said reservoir to the lower ends of said coolers, a circulating pump, pipes connecting said circulating pump with said reservoir and with the cooling jacket of the engine respectively, a pipe connecting the upper ends of said coolers and an outlet from said cooling jacket connected to said coolers.

In testimony whereof I affix my signature in presence of two witnesses.

PAUL DAIMLER.

Witnesses:
ROBERT UHLAND,
FRIDE KLAIBER.