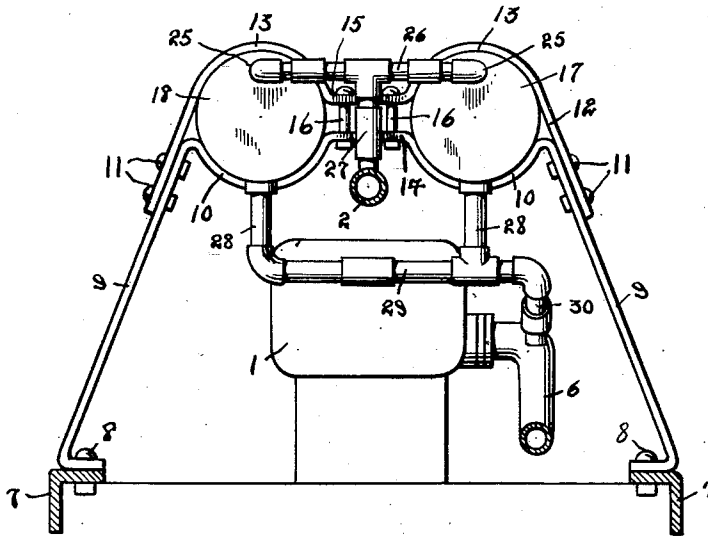
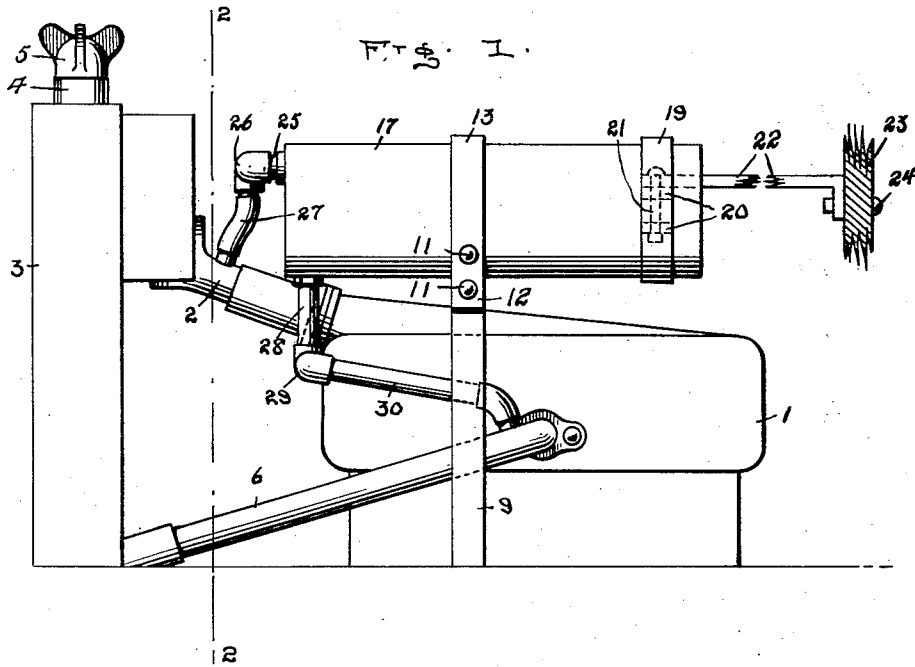


AUXILIARY COOLING SYSTEM AND CONDENSER FOR AUTOMOBILES.

1,186,319.



Witnesses

Witnesses
Thos. W. Peery
J. H. Reid.

 $\mathbb{F}_q$

W. J. Fitzgerald

Attorney

UNITED STATES PATENT OFFICE.

JESSE D. LANGDON, OF WATERTVILLE, WASHINGTON.

AUXILIARY COOLING SYSTEM AND CONDENSER FOR AUTOMOBILES.

1,186,319.

Specification of Letters Patent.

Patented June 6, 1916.

Application filed October 7, 1915. Serial No. 54,612.

To all whom it may concern:

Be it known that I, JESSE D. LANGDON, a citizen of the United States, residing at Watertville, in the county of Douglas and State of Washington, have invented certain new and useful Improvements in Auxiliary Cooling Systems and Condensers for Automobiles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an auxiliary cooling system and condenser for automobiles and has for one of its objects the provision of an auxiliary cooling system adapted to be installed in the cooling system of the engine.

Another object of this invention is the provision of means for efficiently supporting the auxiliary cooling system in proximity to the engine and radiator.

Another object of this invention is the provision of means for supporting one end of the reservoir of the auxiliary cooling system for preventing longitudinal movement or end thrust of the reservoir.

Another object of this invention is the provision of an auxiliary cooling system for internal combustion engines which is adapted to be efficiently interposed in the cooling system of any internal combustion engine now in use.

Other objects and advantages will be hereinafter more clearly set forth in the specification, defined in the claims, and illustrated in the accompanying drawings, in which,

Figure 1 is a side view in elevation showing the invention as applied to the cooling system of the engine. Fig. 2 is a front end view, partly in section, on line 2—2 of Fig. 1, showing the invention as it appears with the radiator removed.

Referring to the drawings, 1 denotes the water jacket of the engine, 2 the hot water pipe leading from the engine to the radiator 3, provided with the usual filler tube 4 and cap 5, and 6 the cold water pipe leading from the radiator 3 to the water jacket 1 of the engines.

Suitably secured to the side rails 7 of the automobile frame at each side of the engines, as by the bolts 8, are the free ends of the continuous supporting bar. This bar is

formed so as to provide the upwardly and inwardly directed standards 9 at either side of the engines and project thereabove, the intermediate portion of the bar extends transversely across and above the engines, and is formed with one or more circular depressions, two being here shown as illustrations, to provide supports or saddles 10. Suitably secured to the upper portions of the standards 9 by means of the bolts 11, or other suitable securing means, is the binding strap or bar 12. The bar 12 has its ends extending downwardly for engaging the standards 9, and has its horizontal portion formed with one or more circular recesses 13, two of these recesses being shown as these recesses 13 must correspond in number with the number of supports or saddles 10 used, and also register therewith, and the intermediate portion 14 of the supporting bar between the saddles 10 and the intermediate portion 15 of the binding strap or bar between the recesses 13 also register with each other but disposed in parallel spaced relation, and passing through the portion 14 of the supporting bar and the portion 15 of the binding strap are the bolts 16 for drawing the portions 14 and 15 inwardly toward each other, the purpose of which will be hereinafter described.

Supported between the saddles 10 of the supporting bar and the recesses 13 of the binding strap are the elongated tanks 17 and 18, which tanks are secured within the saddle 10 of the supporting bar and the recesses 13 of the binding strap or bar by the binding action effected by the drawing together of the intermediate portions 14 and 15 of the bars by the bolts 16, and at a point substantially midway of the ends of the tanks 17 and 18. For additionally supporting the tanks 17 and 18 at their rear ends, and also for preventing longitudinal movement or end thrust of the tanks 17 and 18, the retaining or steady band 19 is provided. This band 19 is substantially of 8-shape conformation and is slipped over the rear ends of the tanks 17 and 18 and has its intermediate portions 20 in parallel spaced relation with each other, the portions 20 being drawn toward each other by the bolt 21 for causing the band 19 to impinge or bind against the outer surfaces of the tanks 17 and 18, and projecting rearwardly from the bolt 20 is the brace bar 22, having its rear end secured

to the dash board 23, shown in section and partly broken away, through the medium of the bolt 24.

For connecting the tanks with the cooling system of the engine, the upper portions of the forward ends of the tanks 17 and 18 are provided with the connecting pipes 25, connected to the cross connecting pipe 26, provided with the connecting pipe 27 which latter pipe is connected to the hot water pipe 2 leading from the water jacket 1 to the radiator 3. The tanks 17 and 18 are further provided at their forward bottom sides with the connecting pipes 28 connected to the cross pipe 29, the cross pipe 29 being provided at one end with the connecting pipe 30, which latter pipe is connected to the cold water pipe 6 leading from the radiator 3 to the water jacket 1 of the engines.

The application and the operation of this invention is briefly described as follows:—The invention is installed in the manner above described, the tanks, however, are so positioned that the upper portions thereof lie in a plane below that of the filler tube 4 of the radiator 3 and the steam space in the upper part of the radiator. The connecting pipe 27 is connected to the hot water pipe 2, or its hose connection, leading from the engine to the radiator at any desired point, and the connecting pipe 30 is connected to the cold water pipe 6 leading from the radiator to the engine at any desired point. When the hot water and steam travels through the pipe 2 from the water jacket 1 to the radiator 3, a due proportion of the hot water and steam passes up through the pipe 27 to the cross pipe 26 and into the tanks 17 and 18, where the steam is condensed and the hot water cooled. The cool water in the tanks 17 and 18 will then pass through the pipe 28 into the cross pipe 29, thence through the pipe 30 into the cold water pipe 6 leading from the radiator to the water jacket. The cool water from the pipe 30 commingles with the cool water in the pipe 6, the cooler water in one or the other of the pipes 30 and 6 will thereby reduce the temperature of the other, and when the water in the pipe 30 and the pipe 6 become of equal temperature, thermo-siphon is immediately established between the pipe 2 and the tanks 17 and 18 which draws the hot water and steam into the tanks 17 and 18 to be condensed and cooled and subsequently returned to the water jacket of the engine.

While I have herein shown and described the invention as applied to the water cooling system of an automobile engine, I desire to be understood that I do not limit my invention to this exact application, as the same is equally applicable to any other internal combustion engine now in use, as it is only necessary to tap the hot water pipe and the

cold water pipe of the engine cooling system and by the introduction of a suitable nipple or connection in the respective pipes readily attach the invention to the cooling system, and therefore minor variations and alterations may be made from time to time without departing from the spirit of the invention or the scope of the claims.

Having described my invention what I claim as new and desire to secure by Letters-Patent, is:—

1. In a device of the class described, the combination with the cooling system of an internal combustion engine, the hot water pipe, the cold water pipe, and the radiator thereof, of reservoirs for receiving a proportion of the heated water for reducing the temperature thereof, hot water pipe connections between said reservoirs and said hot water pipe, cold water pipe connections between said reservoirs and said cold water pipe, a support for supporting said reservoirs above the engine and in proximity to the cooling system, said support comprising a frame consisting of standards connected together at their upper ends by a horizontal bar provided with circular seats therein in which are seated said reservoirs substantially centrally thereof, a securing strap having its ends secured to said standards and also provided with circular seats for embracing the upper surfaces of said reservoirs, and bolts projecting through the horizontal portions of the horizontal bar and the securing strap for rigidly securing said reservoirs within said support.

2. In a device of the class described, the combination with the cooling system of an internal combustion engine, the hot water pipe, the cold water pipe, and the radiator thereof, of reservoirs for receiving a proportion of the heated water for reducing the temperature thereof, hot water pipe connections between said reservoirs and said hot water pipe, cold water pipe connections between said reservoirs and said cold water pipe, a support for supporting said reservoirs above the engine and in proximity to the cooling system, said support comprising a frame consisting of standards connected together at their upper ends by a horizontal bar provided with circular seats therein in which are seated said reservoirs substantially centrally thereof, a securing strap having its ends secured to said standards and also provided with circular seats for embracing the upper surfaces of said reservoirs, bolts projecting through the horizontal portions of the horizontal bar and the securing strap for rigidly securing said reservoirs within said support, a duplex ring member for embracing the rear ends of said reservoirs, a bolt projecting through the portions between the rings for binding the same upon said reservoirs, and a brace bar extending from

said bolt and secured to a support for preventing end thrust of said reservoirs.

3. In a device of the class described, the combination with the cooling system of an
5 internal combustion engine, the hot water pipe, the cold water pipe, and the radiator thereof, of reservoirs for receiving a proportion of the heated water for reducing the temperature thereof, inlet pipes for said
10 reservoirs, a cross pipe connecting said inlet pipes, a pipe connecting the cross pipe of the inlet pipes with said hot water pipe, outlet pipes for said reservoirs, a cross pipe con-

necting said outlet pipes, a pipe connecting the cross pipe of said outlet pipes with said
15 cold water pipe, and frames for supporting said reservoirs above the engine and in proximity to the radiator and the hot and cold water pipes of the cooling system.

In testimony whereof I have signed my
20 name to this specification in the presence of two subscribing witnesses.

JESSE D. LANGDON.

Witnesses:

GEORGE L. THOMSON,
GEO. R. BURBANK.