

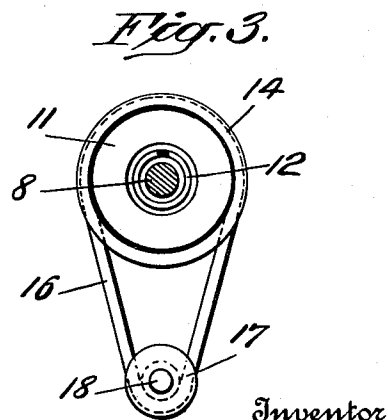
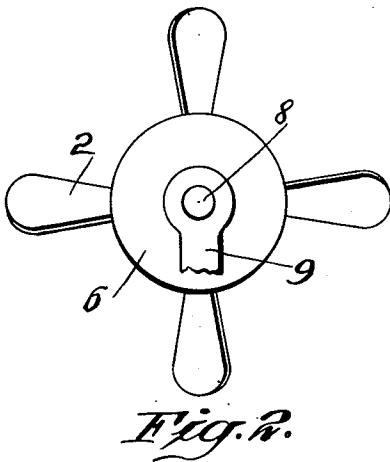
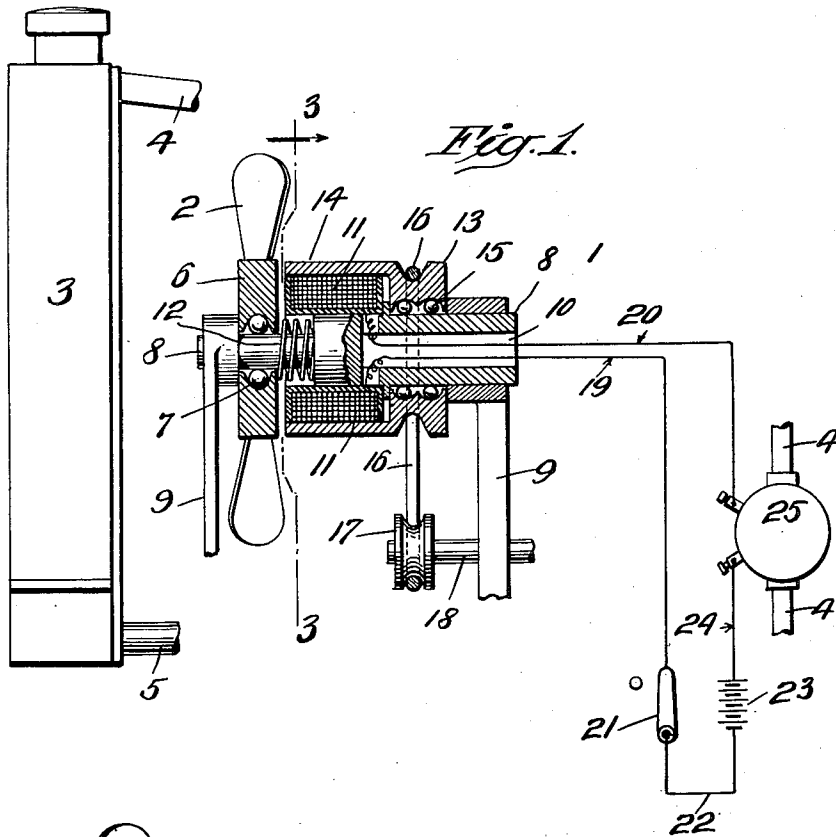
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DEVICE FOR KEEPING COOLING WATER AT DESIRABLE TEMPERATURES.

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DEVICE FOR KEEPING COOLING-WATER AT DESIRABLE TEMPERATURES.

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Specification of Letters Patent.

Patented Apr. 5, 1921.

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To all whom it may concern:

Be it known that I, HARRY F. WAITE, a citizen of the United States, and a resident of the city of New York, county of Queens, and State of New York, have invented a new and useful Improvement in Devices for Keeping Cooling-Water at Desirable Temperatures, of which the following is a specification.

Heretofore cooling water for gasoline engines has been kept at desirable temperatures in cold weather by covering a part of the radiator.

The object of my invention is to provide a device which may be used in winter or summer and which will always keep the cooling water at proper temperatures without covering or uncovering the radiator. This object is accomplished by my invention, one embodiment of which is hereinafter more particularly set forth.

For a more particular description of my invention, reference is to be had to the accompanying drawings, forming a part hereof, in which—

Figure 1 is a diagrammatic sectional view of one embodiment of my invention.

Fig. 2 is an end view of the fan employed in my device.

Fig. 3 is a sectional view, taken on the line 3—3 of Fig. 1, looking in the direction of the arrow.

Throughout the various views of the drawings, similar reference characters designate similar parts.

My improved device 1 is placed in the rear of a fan 2 which is immediately in rear of a radiator 3 of an automobile or similar device where a radiator is employed for cooling the water used in the jackets of the engines. The engine is not shown but the inlet pipe 4 and the outlet pipe 5 of the radiator are both indicated.

The fan 2 is provided with an iron hub 6 and ball bearings 7 which enable the fan to run free on a fixed shaft 8 which is held by suitable supports 9 in the conventional manner. At one end this shaft 8 is made hollow, as indicated at 10, and provided with a fixed and powerful electromagnet 11, which is adapted to draw the iron hub 6 against the tension of a coil spring 12 which is placed on the shaft 8 and between it and this magnet 11, as indicated in Fig. 1.

Over the hollow portion 10 of the shaft 8 is mounted a pulley 13 which is made with

an iron boss or shell 14 which projects around the magnet 11 and close to the hub 6, and this pulley is provided with suitable ball bearings 15 so it will run free and easily on the shaft 8. This pulley 13 is driven by a belt 16 which also runs on a pulley 17 fixed to a shaft 18 which is run from an engine in the conventional manner.

The magnet 11 has two leading in wires 19 and 20. The wire 19 runs to a suitable switch 21 which may be open or closed and is manually controlled and from thence a wire 22 runs to a battery 23, or other source of power, and from the battery 23 a wire 24 runs to a thermostatic switch 25 which is placed in the pipe 4 or in any other convenient place. This thermostatic switch is so arranged and disposed that when the cooling water in the pipe 4 rises above a predetermined maximum temperature after leaving the engine, the switch 25 will close and when this cooling water falls below this maximum temperature, this switch opens and it may be set for its maximum point in the conventional manner.

Obviously, the temperature of the water passing through the pipe 4 will vary with the temperature of the engine so that when the temperature of the engine rises above a predetermined point, the cooling water will be correspondingly heated and its temperature will then be at or about the maximum above mentioned. The thermostatic switch is connected directly to the wire 20, as indicated.

In view of the foregoing, the operation of my improved regulating device will be readily understood. Assuming the parts to be as indicated, and the cooling water to be of a temperature above the maximum above mentioned, the thermostatic switch 25 is then closed and the circuit complete from the battery 23 through the wire 24, switch 25, wire 20, magnet 11, wire 19, switch 21, wire 22 to the battery 23. As soon as the magnet 11 is energized its lines of force will go through the iron shell 14 of the pulley 13 and draw the hub 6 of the fan 2 against the tension of the spring 12 so that the magnetic circuit is made complete through the shell 14 and hub 6, and then the fan being held by magnetism, will turn with the pulley 13 and cool the radiator so as to cause the cooling water to reach the desired temperature. When the temperature has been reduced below the maxi-

mum above mentioned, the thermostatic switch 25 automatically opens and thereby causes the magnet 11 to be deenergized, and this results in demagnetizing the shell 14
5 of the pulley 13 and the hub 6 of the fan 2 so that the fan leaves the pulley under the influence of the spring 12 and goes to rest until the cooling water is again heated as before when the above cycle is repeated.
10 In the foregoing, the source of electricity has been described as a battery 23. Obviously, this may be any suitable source as a dynamo which forms a part of the equipment of an ordinary automobile or any other
15 suitable source.

While I have shown and described one embodiment of my invention, it is obvious that it is not restricted thereto, but is broad

enough to cover all structures that come within the scope of the annexed claim.

Having thus described my invention, what I claim is:

In a device of the class described, a radiator, a fan mounted to revolve immediately in the rear of the radiator, a pulley im- 25
mediately in rear of the fan and means for driving the same, an electromagnetic coil incased in said pulley, means for energizing the magnet including a thermostatic switch which is controlled by the en- 30
gine temperature so that when the system is in use, the magnet will be energized and the pulley will drive the fan and cool the radiator whenever the heat of the engine rises above a predetermined point.

HARRY F. WAITE.