

S. F. STEIN.
GAS ENGINE CONTROLLING MEANS.
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1,293,569.

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Fig. 1.

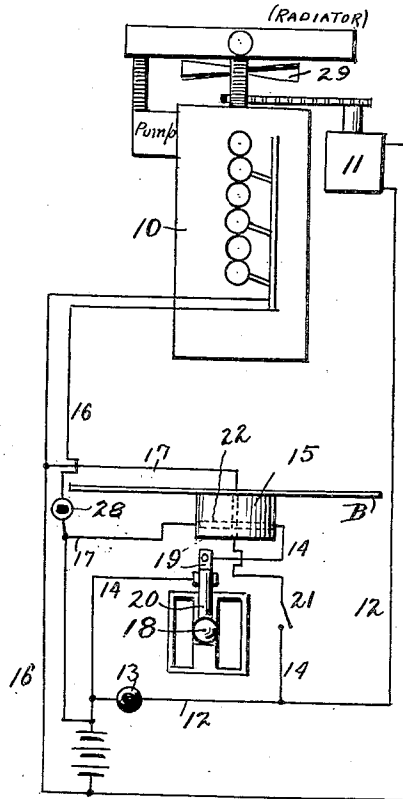
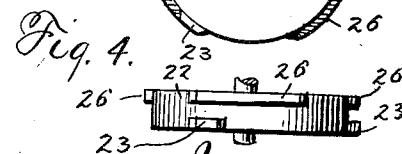
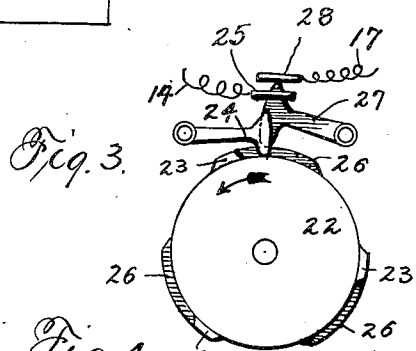
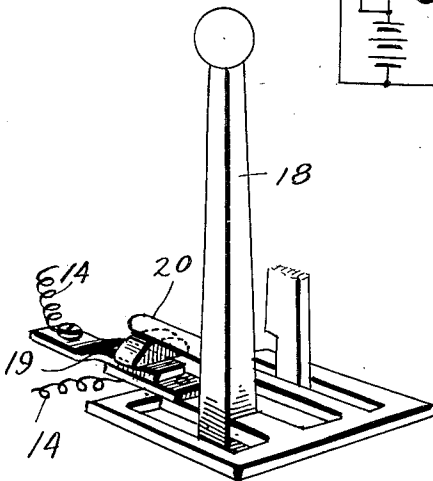


Fig. 2.



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UNITED STATES PATENT OFFICE.

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GAS-ENGINE-CONTROLLING MEANS.

1,293,569.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SAMUEL F. STEIN, of Williamsport, in the county of Lycoming, and in the State of Pennsylvania, have invented a certain new and useful Improvement in Gas-Engine-Controlling Means, and do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to means to prevent freezing of radiator water in water cooled engines, by automatically starting and running the engine periodically and my object is to prevent the engine being so started under conditions which would be dangerous and result in damage, and to this end, my invention consists in the combination of elements substantially as hereafter specified and claimed.

In the drawing,
Figure 1 is a top plan view, diagrammatic in nature, illustrating one embodiment of my invention.

Fig. 2 is a detail perspective view of the safety device.

Fig. 3 is a detail side view of the time switch.

Fig. 4 is a detail top view of the time switch disk.

I illustrate my invention embodied in a car that has an electric starter, and I so embody it by running branch wires from the motor starting circuit to a time switch and branch wires from the ignition circuit to said time switch, the contact for the starter circuit lasting only long enough to start the engine and the contact for the ignition circuit being for the period of time it is desired to have the engine run. It will be understood that the time switch contains a succession of contacts, so that periodically, at desired intervals apart, the engine will start, run for a limited period, long enough to prevent freezing of the water and then stop. An important feature of my invention is the provision of a switch by which, when the engine is so connected with the transmission as to drive the car, the time switch controlled circuit will be broken. Such switch may be under control of the gear shift, so that only when the latter is at neutral can the circuit, either for the starter or the ignition, or both be closed, and thus the danger is averted of the automatic starting of the engine when the motor is in gear with the transmission, which, of course, would cause the car to run wild.

In the drawings, 10 designates the engine, 11 the self starter motor, 12 the wires from the usual foot switch 13 to the starter, 14 the branch wires from the starter circuit wires 12 to the time switch 15, (which may be mounted on the instrument board B.) 16 the ignition circuit, and 17 the branch wires leading from the latter to the time switch. In one of the leads 14 of the branch circuit, is a switch that is normally open and which is located close to the gear shift lever 18 so that when the latter is at neutral, the movable member 19 of said switch will be engaged by a finger 20 on said lever and the circuit closed. When out of neutral, the circuit is broken through said switch and the engine cannot start automatically.

Preferably a switch 21 is provided in the circuit, so that in non-freezing temperature, as in summer the circuit may be broken, and the clock that controls the time switch may run to tell time without running the engine needlessly.

The time switch may have any desired construction. I show it as having a disk geared to the clock mechanism so as to revolve once an hour. On its periphery is a series of cams 23 that in succession engage a pivoted finger 24 and move it into contact with a plate 25 in the starter branch circuit 14; and also on its periphery is a series of cams 26 that in succession engage a pivoted finger 27 and to move it into contact with a plate 28 in the ignition circuit, the cams 26 being longer than the cams 23, so as to keep the ignition circuit closed the desired length of time. The starter and the ignition circuits include the disk 22 so that the current flows from the latter through the contact fingers 24 and 27.

The ignition circuit has the usual hand switch 28.

Preferably the cooling fan 29 is disconnected at the time the water is circulated, for which purpose a suitable clutch may be provided.

What I claim is:

1. The combination of a water cooled motor, means to circulate the water, and automatic means to stop and start the circulating means.

2. The combination of a gas engine, automatically operating means to start and stop the engine and means to prevent said automatically operating means acting when the engine is in gear to run the car.

3. The combination of a gas engine, and automatically operating means to start and stop the engine, including an electric circuit, and means to break said circuit when the engine is so connected with the transmission as to be able to run the car.

4. The combination of a gas engine, automatically operating means to start and stop the engine, including an electric circuit and a time switch in said circuit, and a switch in said circuit controlled by the gear shifting means.

5. The combination of a gas engine, an ignition circuit, an electric starter, a starter circuit, and automatic means that control said circuits independently. 15

6. The combination of a gas engine, an ignition circuit, a switch therein, an electric starter, a starter circuit, a switch therein, and a time mechanism controlling both switches. 20

In testimony that I claim the foregoing I have hereunto set my hand.

SAMUEL F. STEIN.