

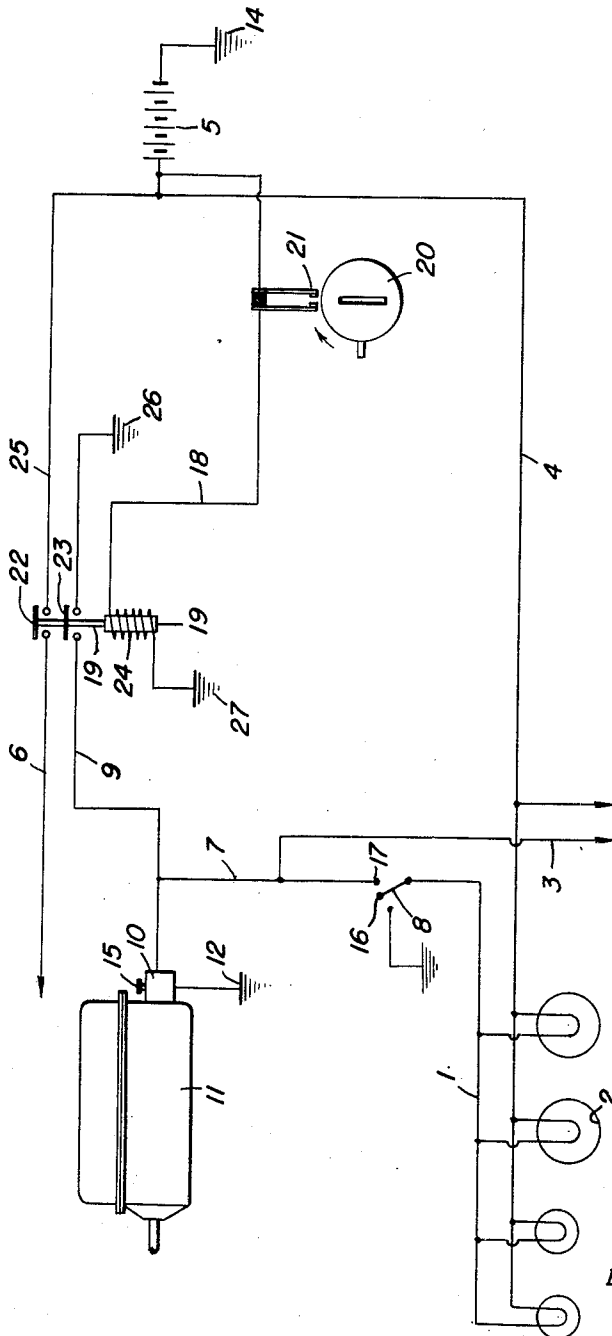
Feb. 14, 1950

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2,497,792

AUTOMATIC CIRCUIT BREAKING SYSTEM FOR AUTOMOBILES

Filed Feb. 23, 1949



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UNITED STATES PATENT OFFICE

2,497,792

AUTOMATIC CIRCUIT BREAKING SYSTEM
FOR AUTOMOBILES

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Application February 23, 1949, Serial No. 77,877

4 Claims. (Cl. 171-97)

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This invention relates to automatic circuit breaking systems for automobiles and it has for its main object to provide a safety arrangement preventing the continued current consumption in those circuits and installations of a car which are not used when the car is parked or is at a standstill.

In the customary installation of a car no provision is made for oversight or neglect to switch off the headlights, the radio and other current consuming apparatus mounted on a car. However, continued use of such current consuming devices during many hours results in the partial or complete exhaustion of the car battery, as the battery has to provide for the full current consumption of the devices without being recharged.

The invention provides an automatic circuit breaking system which makes a continuous supply of current to current consuming circuits dependent on the running of the engine under load and it therefore eliminates completely the above explained drawback.

According to the invention the purpose of switching off current consuming circuits when the engine of the car is parked or at a standstill is achieved by the control of the battery connection or of the return connection of the said circuits by means of a thermostatic device placed in proximity to the engine and so adjusted that the connection with the battery or the current supply is established as long as a certain temperature prevails in the vicinity of the engine. This temperature may of course be adjustable according to season and according to other circumstances.

In addition to the above stated objects it is a further object of the invention to provide means whereby the thermostatic control of the circuit may be eliminated.

A more specific object of the invention consists in providing either a special light switch or a special control of the return line which establishes a return line which is parallel to the connection controlled by the thermostatic switch so that the latter is without influence on the current consuming circuits under certain circumstances.

A further and more specific object of the invention consists in providing two supply circuits for all current consuming circuits of the car, one of said circuits being completed by the thermostatic switch while the other contains branches or

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return lines which are in parallel with the branch controlled by the thermostatic switch, the selection of said supply circuits being in its turn controlled by the ignition key.

Further and more specific objects will be apparent from the following detailed specification.

The invention is shown diagrammatically in the annexed drawing.

The diagram shows a single embodiment of the invention but it is to be understood that this embodiment is shown by way of example in order to explain the principle of the invention and the best mode of applying the principle. Further ways of applying the principle will be obvious to experts skilled in the art and modifications of the specific system illustrated in the drawing therefore do not necessarily constitute a departure from the invention.

The diagram shows merely the connections of the system which will be described.

In the embodiment of the invention which has been illustrated in the drawing the circuit 1 of the headlights 2, the circuit 3 of the radio and other current consuming circuits which have not been shown, preferably those which are only used when driving, branch off from a supply circuit which may be directly connected with a battery 5 of the car over the ignition key 20 in the well known manner or which may be connected in the manner which is explained below. The source of current 5 is shown as grounded at 14 but it is to be understood that a current conductor or a return line connected with the chassis may be used.

The current consuming circuits 1, 3 . . . , for instance, the headlight circuit 1 or a radio circuit or additional light circuit 3 are connected by means of supply circuit 4 with the battery 5, which is grounded at 14. These circuits are connected on the other side to a conductor 7 which leads to a thermostatic switching device 10. The conductor 7 may contain the customary light switch 8 for controlling the headlights and other lights of the car.

The thermostatic device is arranged with its heat responsive element in the immediate vicinity of the engine 11 and it closes the return or ground connection 12 of the conductor 7 when the temperature of the engine is at a predetermined level. The value of the temperature level is adjustable, as indicated at 15, so as to be in accord with

seasonal changes or with the temperatures reached by the engine in different phases of its operation.

The automatic device for disconnecting the current consuming circuit must however be capable of being disabled if necessary, as occasions may arise in which it is necessary to operate the headlights or other circuit when the car is at a standstill. This result is obtained by the arrangement described below.

The ignition circuit 6 of the car is controlled, as usual, by the ignition switch 20 operated by the customary ignition key and provided with contacts 21, closed upon operation of the key. The circuit 18 which is directly controlled by the key and the contacts operates the solenoid 24 which is provided with a core 19 carrying two contact arms 22, 23. The contact arm 22 closes the ignition circuit 6 by connecting it with the battery 5 grounded at 14 by means of conductor 25 as soon as the solenoid is operated.

The contact arm 23, on the other hand, closes the branch circuit 9 in parallel to the thermostatic switch 10 and connects it with the return conductor or ground 26 which is not dependent on the thermostat and is arranged in parallel thereto. This branch circuit 9 therefore acts as a disabling circuit for the thermostatic device 10.

In operation, when the ignition key is turned, the solenoid 24 is energized from grounded battery 5 over circuit 18, the solenoid being grounded at 27. The operation of the solenoid closes the ignition circuit 6 by connecting said circuit with the grounded battery 5 over conductor 25. Simultaneously the operation of the solenoid also connects the disabling circuit 9 of the thermostatic switch to the ground at 26.

The driver now operates the circuit as usual, as they are not in any way connected with or controlled by the thermostatic switch 10.

However if the driver leaves the car and takes out the ignition key, omitting to open the switch 8 for the headlights or omitting to cut out the radio or lights in the circuit 3 these circuits are automatically brought under the control of the thermostatic switch 10 which controls the ground or return connection as soon as the solenoid 24 is de-energized. These circuits are therefore dependent for their completion on their connection, with ground or return conductor 12 and therefore are dependent on the temperature of the engine. If the driver has stopped the engine so that its temperature will drop the thermostat will soon interrupt these circuits.

The battery is thus protected against exhaustion through forgetfulness of the driver.

It will be clear that changes of an unessential nature may be made departing from the essence of the system described.

Having described the invention, what is claimed as new is:

1. An automatic circuit breaking system for automobiles driven by an engine, comprising a current supply circuit, current consuming devices and operative circuits for the same, the said operative circuits having a common branch, and a thermostatic switching device, provided with a heat responsive element, the latter being arranged in immediate vicinity of the automobile engine and operated by the heat developed by the same, said thermostatic switch being located in the common circuit branch of the circuits and breaking said circuit when the engine is cold.

2. An automatic circuit breaking system for automobiles driven by an engine, comprising a

current supply circuit, an ignition key switch, current consuming devices and operative circuits for the same, the said operative circuits having a branch, leading to a return connection, a thermostatic switching device in said branch, provided with a heat responsive element placed in the vicinity of the automobile engine and operated by the heat developed by the said engine, said thermostatic switching device controlling the connection of the said operative circuits with the return conductor, a disabling circuit arranged in parallel to the branch containing the thermostatic switching device, and providing an independent connection with the return conductor, and means controlled by the ignition key switch for closing and opening said disabling circuit.

3. An automatic circuit breaking system for automobiles provided with an engine, comprising a source of current, current consuming devices, and operative circuits for the same, an ignition circuit, supply circuits, one of them directly connected with said operative circuits of the current consuming devices, a common branch for said operative circuits, a return conductor connected with said branch including a thermostatic switching device, provided with a heat responsive element, arranged in close vicinity of the engine, so as to be operated by the heat developed by the same, a disabling circuit for said thermostatic device leading from said common branch and arranged in parallel to the return conductor controlled by the thermostatic switching device, a solenoid arranged in a further supply circuit, means operated by said solenoid for connecting the ignition circuit with the aforesaid supply circuit and further means operated by said solenoid simultaneously with the first mentioned means for connecting said disabling circuit, leading from the common branch, with a return line.

4. An automatic circuit breaking and disconnecting system for automobiles provided with an engine, comprising a source of current, an ignition circuit, an ignition key switch, a source of current supply, current consuming devices and operative circuits therefor, two parallel common branches connectable with the said operative circuits, one of said branches being provided with a thermostatic switching device having a heat responsive element arranged in the vicinity of the automobile engine and operated by the heat developed by the same, and the second branch being a disabling branch, two supply circuits controlled by the ignition key switch including a solenoid, provided with means for connecting the ignition circuit with one of said supply circuits and further provided with means for simultaneously controlling the disabling branch, the second supply circuit being directly connected with the aforesaid operative circuits, the de-energization of the circuit controlled by the ignition key interrupting automatically the disabling branch, the operative circuits of the current consuming devices connected with the second supply circuit being left in control of the thermostatic switching device.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,013,044	Friis	Sept. 3, 1935