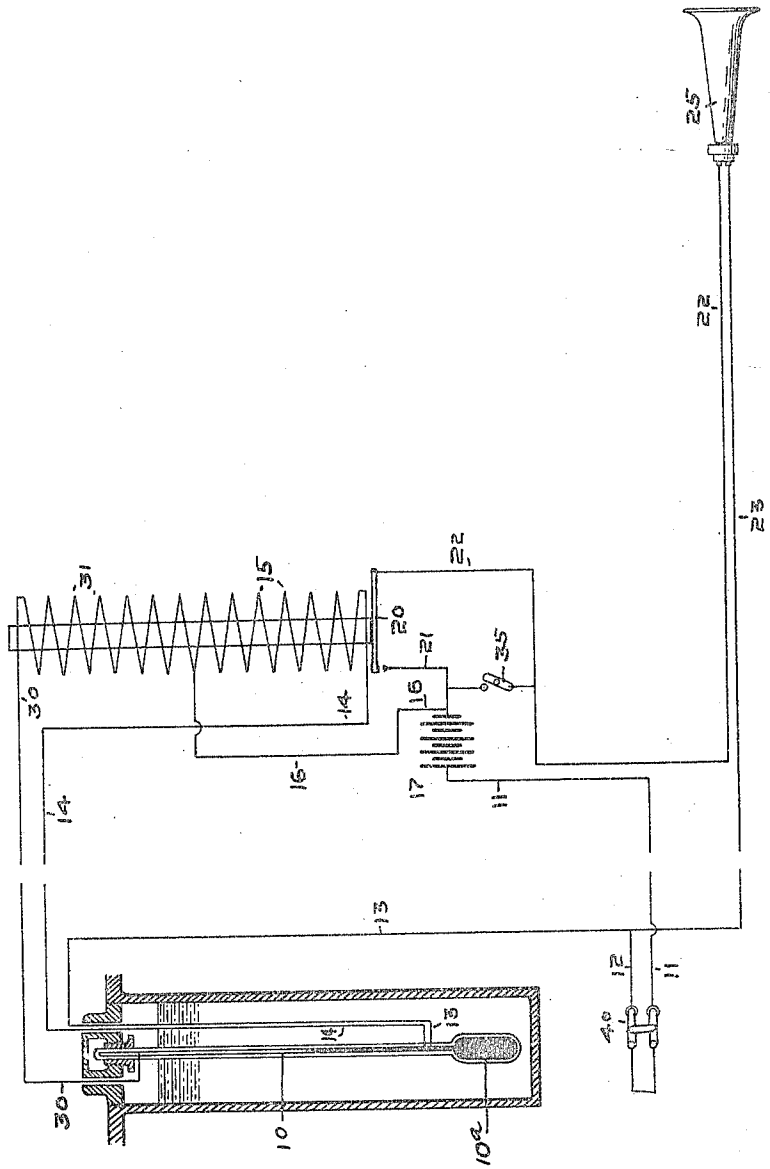
C. BRANDON.

ELECTRIC SIGNALING DEVICE.

APPLICATION FILED FEB. 3, 1915.

1,164,572. Patented Dec. 14, 1915.



WITNESSES:

L. B. Moomer.

Wm Hurte.

INVENTOR

Carl Brandon,

BY Minton & Moomer,

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CARL BRANDON, OF INDIANAPOLIS, INDIANA.

ELECTRIC SIGNALING DEVICE.

1,164,572. Specification of Letters Patent. Patented Dec. 14, 1915.

Application filed February 3, 1915. Serial No. 5,898.

To all whom it may concern:

Be it known that I, CARL BRANDON, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Electric Signaling Devices, of which the following is a specification.

This invention relates to an electric signaling device for enunciating arbitrarily fixed maximum and minimum temperatures of matter, within prescribed limits of safety, by the introduction of a thermostat for opening and closing the electric circuits.

The present invention is particularly applicable to be used for indicating the temperature, within prescribed limits, of water used in the circulating systems of motor cars, whereby injury to parts of the device with which the water comes into contact may be prevented, in case the temperature of the water rises too high or falls too low.

The object of the invention is to provide an electric signaling device of the above character which will indicate by signal or alarm when the temperature of water, when the latter is employed as a cooling medium for internal combustion engines, rises above or falls below arbitrarily fixed standards of safety, thereby decreasing the liability of injury of the parts.

Referring to the accompanying drawings, forming a part hereof, the figure illustrates a diagrammatic view of my improved signaling device.

Referring to the drawing, the signaling device embraces three separate and distinct divisions, which, for convenience, will be termed, first, the "primary circuit," second, "secondary circuit" and third, "auxiliary circuit."

When the signaling device is used in connection with a motor car to indicate when the temperature of the water employed in the circulating systems therein rises above or falls below fixed standards of safety, a warning is sounded through the closing of certain electric circuits, so that the parts of the motor car that confines the water will not be injured, by means of the introduction of a thermostat 10, the latter being inserted into the water within the radiator, not shown. The thermostat is arranged within the primary circuit comprising the conductor wires 11, 12, 13 and 14, the lower portion 15 of the coil, the conductor wire 16 and battery 17. The ends of the conductor wires 13 and 14 are brought into direct contact with the column of mercury within the thermostat 10 near the bulb 10^a so that under normal conditions the mercury will maintain a closed circuit within the primary circuit of the signaling device. In case the temperature of the water should fall sufficiently to cause the column of mercury to open or break the primary circuit, the contact arm 20, which is magnetically held against the pole piece will drop and contact the wire 21, thereby closing the circuit through the conductor wires 11 and 12 of a primary circuit, and conductor wires 23, 22 and 21 of the auxiliary circuit, causing the signal 25 to be sounded. On the other hand, if the temperature of the water increases sufficiently to cause the column of mercury to rise and contact the end of the conductor wire 30 a circuit will be established through conductor wires 11, 12 and 13 of the primary circuit, and conductor wire 30, upper portion 31 of the coil and conductor wire 16 of the secondary circuit and battery 17, and as a constant current is normally maintained through the primary circuit, as heretofore stated, both ends of the coil will receive a current of like value which, through the reverse winding of the two halves of the coil, causing the current to be neutralized will cause demagnetization of the coil, thereby allowing the arm 20 to drop and contact conductor wire 21. This action of the arm 20 will close the circuit through the conductor wires 11 and 12 of the primary circuit and wires 23, 22 and 21 of the auxiliary circuit, at which time the signal or alarm will be sounded.

As heretofore stated, the primary circuit is normally closed, on account of the fact that sufficient heat will be generated when the engine is running to impart the necessary temperature to the water for maintaining the column of mercury above the ends of the conductor wires 13 and 14, and the mercury will only fall below the ends of said wires in case the engine remains idle for an indefinite period of time during extremely cold weather. With the primary circuit normally closed the operator may, at will, sound the alarm by closing the circuit through the conductor wires 11 and 12 of the primary circuit, and wires 23, 22 and 21

of the auxiliary circuit, by means of the switch 35 which, on a motor car, is conveniently located on the steering wheel.

The electric signaling device herein described is also provided with a double-pole switch 40 whereby the electric circuit may be temporarily suspended. This may be desirable when placing the car in storage for an indefinite period of time.

It will be noted that by means of the hereinabove described signaling device warning is given when the temperature of the water has reached a maximum or minimum point of safety, so that an opportunity is afforded to remedy the situation before the apparatus is injured on which the signaling device is employed.

Having thus fully described my said invention, what I desire to secure by Letters Patent, is—

1. In a device for the purpose specified, an electric circuit, a source of current, a signaling device in said circuit, an armature in said circuit, an electro-magnet attracting the armature to break said circuit, a circuit connected with said first circuit between the source of current and armature to energize the magnet, a thermostat having a column of mercury in said last circuit adapted to break the circuit and demagnetize the electro-magnet at a predetermined low temperature, a current conductor connecting the thermostat column at a predetermined high temperature with the electro-magnet to neutralize the magnetic action of the latter, whereby, in either case, the armature will be released at predetermined low or high temperatures, and the first circuit thereby closed to operate the signal.

2. In a device for the purpose specified, an electric circuit, a source of current and a signaling device in said circuit, a manually operated switch also in the circuit, a circuit extension, an armature in said circuit extension, a circuit connected with said first circuit to energize the electro-magnet, a thermostat having a column of mercury in said last circuit adapted to break the circuit and demagnetize the electro-magnet at a predetermined low temperature, a current conductor connecting the thermostat column at a predetermined high temperature with the electro-magnet to neutralize the magnetic action of the latter, whereby, in either case the armature will be released at predetermined low or high temperatures, and the first circuit thereby closed to operate the signal.

In witness whereof, I have hereunto set my hand and seal at Indianapolis, Indiana, this 30th day of January, A. D. one thousand nine hundred and fifteen.

CARL BRANDON. [L. S.]

Witnesses:
F. W. WOERNER,
J. A. MINTURN.