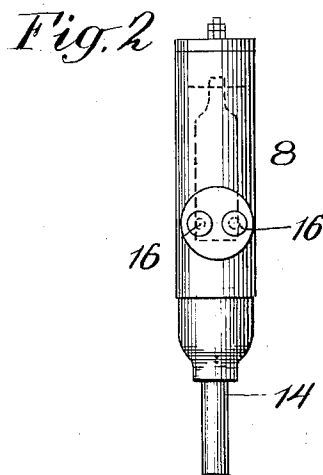
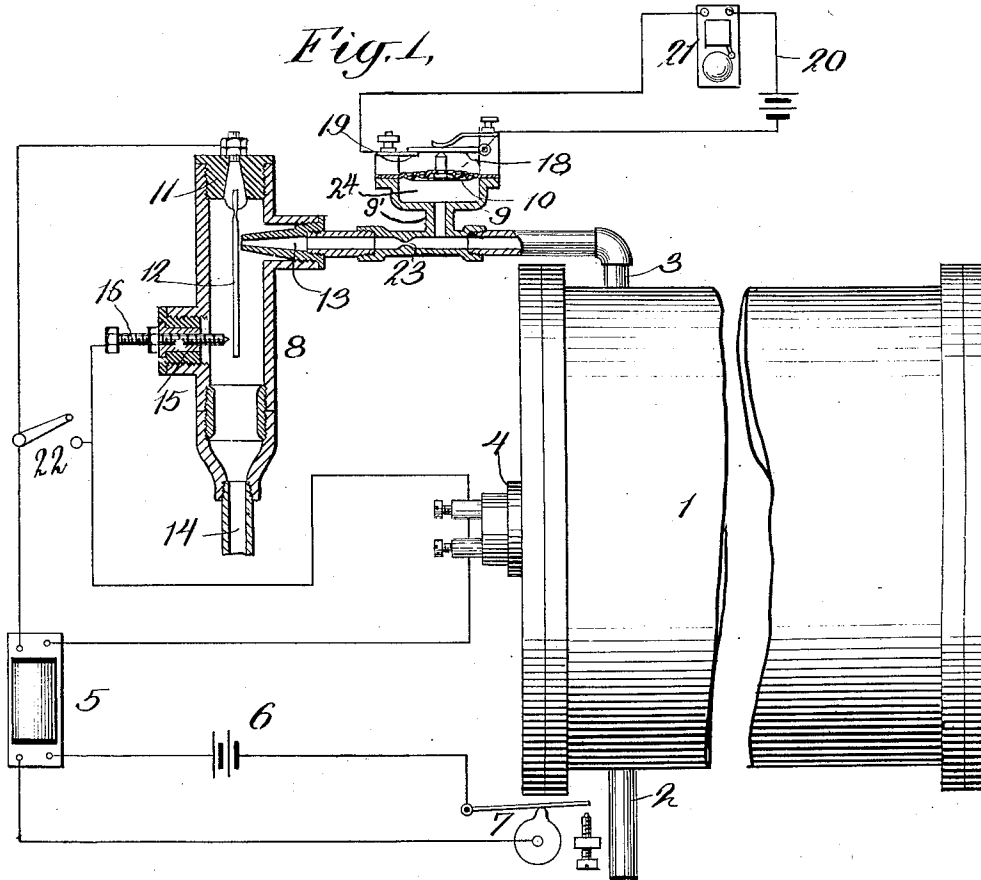


No. 828,262.

PATENTED AUG. 7, 1906.

D. B. ADAMS.
AUTOMATIC STOPPING DEVICE AND ALARM.
APPLICATION FILED NOV. 30, 1903.



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DANIEL B. ADAMS, OF SUMMITVILLE, NEW YORK.

AUTOMATIC STOPPING DEVICE AND ALARM.

No. 828,262.

Specification of Letters Patent.

Patented Aug. 7, 1906.

Original application filed May 23, 1902, Serial No. 108,630. Divided and this application filed November 30, 1903. Serial No. 183,112.

To all whom it may concern:

Be it known that I, DANIEL B. ADAMS, a citizen of the United States, residing at Summitville, in the county of Sullivan and State of New York, have invented certain new and useful Improvements in Automatic Stopping Devices and Alarms; 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.

My invention relates to automatic stopping devices and alarms for stopping the operation of engines and other machines having water-cooled cylinders in case the circulation of water through the jacket of the cylinder ceases or decreases materially for any reason and for indicating by an alarm when the engine is so stopped.

My invention consists in automatic means operated by diminution of water-pressure in the engine-jacket for operating an alarm; in means operated by diminution of water-pressure in the engine-jacket for interrupting an igniter-circuit of the engine and completing an electric alarm-circuit; in a diaphragm-contact device for operating the alarm-circuit, and generally in the features of invention hereinafter more fully described, and particularly pointed out in the claims.

The objects of my invention are to stop the operation of an engine or other machine or apparatus to which my invention may be applied when the circulation of cooling-water fails or becomes deficient; to operate an alarm when such circulation ceases or becomes deficient, and to make the device simple, compact, reliable, and relatively inexpensive.

I will now proceed to describe my invention with reference to the accompanying drawings, in which one form of my improved automatic stopping device and alarm-operating device is illustrated, and will then point out the novel features in claims.

In the said drawings, Figure 1 is a diagrammatic view showing a portion of a cylinder of a gas or oil engine with my invention applied thereto, the automatic switch for interrupting the igniter-circuit and completing the alarm-circuit being shown in section. Fig. 2 shows a front view of a portion of this automatic switch.

In the said drawings, 1 designates the engine-cylinder, and 2 and 3 pipes of the circulating system of the engine by which water is conveyed to and from the cooling-jacket

thereof. I have shown the engine as provided with a conventional form of electric igniting apparatus comprising an igniter-plug 4, a sparking coil 5, a battery 6, a circuit-breaker 7, (which may be operated by some moving part of the engine not shown,) and suitable conductors.

For automatically stopping the engine and for operating the alarm I provide an automatic switch connected to pipe 3 and comprising a chamber 24, inclosed by the diaphragm-casing 9 and by a pipe 9'. This chamber is in open communication with the pipe 3, so that water-pressure therein is the same as in said pipe. The chamber 24 discharges through a nozzle 13, formed as a termination of pipe 9', and in front thereof is suspended a plate 12 of electrically-conductive material arranged to swing freely from its point of support. For convenience in supporting this plate and to prevent splashing of water the plate is inclosed within another casing 8, supported by pipe 9', and provided at its upper end with a plug 11, of insulating material, from which plate 12 is suspended.

At the other end of the casing 8 there is a discharge-orifice to which any suitable pipe 14 for carrying off the water may be connected. In the side of the casing is a plug 15, of insulating material, carrying two contact-screws 16. Two screws are employed to avoid any tendency to twist plate 12.

The sparking circuit of the engine passes through one of these contact-screws and the plate 12. So long as water is flowing in sufficient volume through the jacket of the engine the stream of water projected from the nozzle 13 against said plate holds said plate in contact with said screws 16, thus completing the igniter-circuit; but if the flow of water ceases or becomes deficient said plate will no longer be held against said contact-screws, but will swing back by gravity, breaking the igniter-circuit, and so stopping the engine.

The diaphragm 10 is arranged when pressed outward by pressure of water in pipe 3 to hold a contact-lever 18 out of contact with a contact-point 19, these contact-points being in an electric circuit 20, including a bell 21 or other indicating device. These parts are so arranged that when through diminution in water-pressure in the jacket the plate 12 swings backward and interrupts the igniter-circuit diaphragm-lever 18 also drops sufficiently to bring together contact-points

18 and 19, thereby completing the circuit through the bell.

For convenience in starting the engine a switch 22 is provided for completing the igniter-circuit around the contacts 12 and 16.

There may be a contraction 23 in the pipe 9' at a point beyond the point of connection of the chamber 24 thereto, so as to insure sufficient pressure in said chamber to lift the diaphragm 10 so long as water continues to circulate in sufficient quantity.

It is obvious that various other cooling fluids may be used besides water, and where "water" is named in the foregoing description and following claims I wish it to be understood that any other cooling fluid may be substituted as an equivalent.

It is obvious that the automatic stopping and alarm-operating device herein illustrated and described is susceptible of many modifications and changes in construction and arrangement of the parts without departing from the principles hereinbefore set forth.

I do not limit myself to any particular construction of the device. Neither do I limit myself to the use of the invention with any particular type or system of electrical ignition.

The device may be arranged to break the ignition-circuit at any suitable point, and when, as illustrated in the drawings, the system employed comprises both primary and secondary circuits the switch may be placed in either of these circuits, as preferred.

In another application for Letters Patent, filed May 23, 1902, Serial No. 108,630, (of which this is a division,) I have claimed specifically casing 8 and the parts contained in or associated therewith, also the use in connection with a water-cooled machine having an electric ignition-circuit of means operated by diminution of flow of cooling-water for stopping the operation of the engine. Therefore such inventions are not claimed herein.

What I claim is—

1. The combination, in an internal-combustion engine or the like, of a water-jacketed cylinder, electrical igniting means, an alarm, and automatic means operated by diminution of water-pressure for operating the alarm and breaking the circuit of said igniting means.

2. The combination with a water-cooled explosive or internal-combustion engine having an electric igniter, and a water-passage for said engine, of an alarm, and automatic stopping and alarm-operating means operated by variation in the flow of the cooling-water and controlling the operation of said electric igniter and said alarm.

3. The combination with a water-cooled explosive or internal-combustion engine having an electric igniter, and a water-passage for said engine, of an alarm, and automatic stopping and alarm-operating means operated by variation in the flow of the cooling-water and controlling the operation of said electric igniter and said alarm, the alarm-operating means comprising a diaphragm-chamber connected to said passage, and a diaphragm closing said chamber but responsive to variations of pressure therein, and contacts operated by the diaphragm.

4. In an alarm-operating device for engines, the combination with a diaphragm-chamber, a diaphragm therefor, and a water-passage connected with said chamber, having a contraction beyond the point of connection of said chamber thereto in the direction of flow of the water, of means operated by said diaphragm controlling the operation of an alarm.

In testimony whereof I affix my signature in the presence of two witnesses.

DANIEL B. ADAMS.

Witnesses:

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