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WATER HEATING ATTACHMENT FOR INTERNAL COMBUSTION MOTORS.

APPLICATION FILED MAR. 16, 1920.

1,361,017. Patented Dec. 7, 1920.

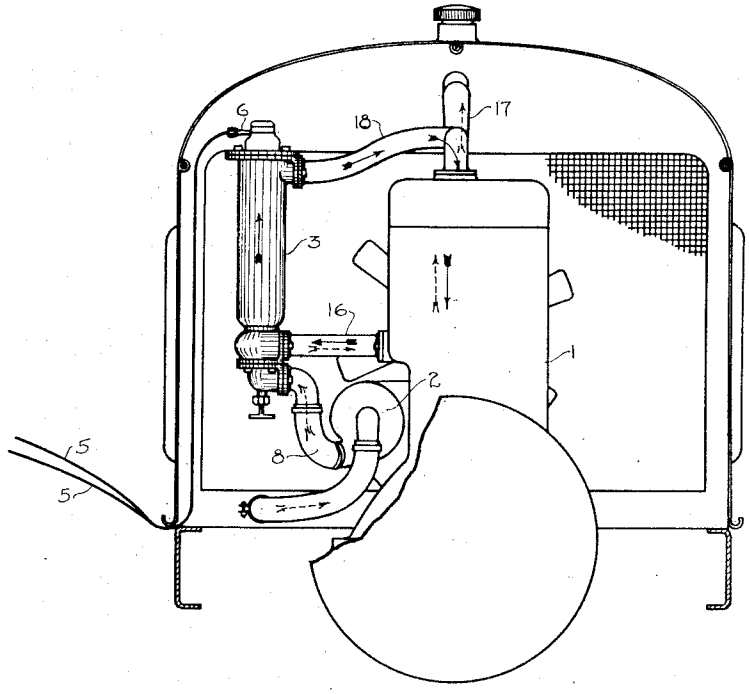


FIG. 1.

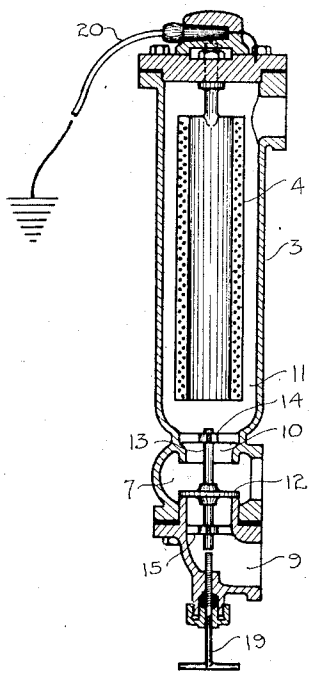


FIG. 2.

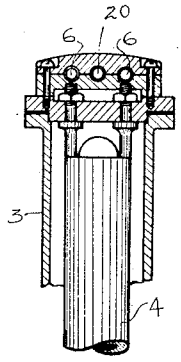


FIG. 3.

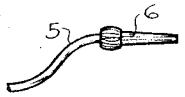


FIG. 4.

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WATER-HEATING ATTACHMENT FOR INTERNAL-COMBUSTION MOTORS.

1,361,017. Specification of Letters Patent. Patented Dec. 7, 1920.

Application filed March 16, 1920. Serial No. 366,370.

To all whom it may concern:

Be it known that we, OSCAR B. CLAYTON and GEORGE T. OBERWETTER, citizens of the United States, residing at Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Water-Heating Attachments for Internal-Combustion Motors, of which the following is a specification.

This invention relates to new and useful improvements in a water heating attachment for internal combustion motors.

One object of the invention is to provide an attachment of the character described by means of which the water which circulates through the water jackets of the motor cylinders for the purpose of cooling said cylinders, may be heated independent of the motor and when the motor is at rest. In water cooled motors now in common use, the cooling fluid is circulated through the water jackets around the cylinders by means of a pump which operates only when the motor is running, and when the motor is stopped the fluid stops circulating and soon becomes cool, inasmuch as it is heated only by the heat radiated from the cylinders. In cold weather the motor is usually hard to start and as a rule does not run well until it becomes heated up. It is the object of this invention to provide an attachment whereby the circulating fluid may be kept heated while the motor is at rest so that the motor can be quickly started and to prevent the freezing of the radiator and other parts containing the circulating liquid. The attachment is therefore particularly useful in connection with the motors of ambulances, fire fighting apparatus and the like where quick starting is necessary.

With the above and other objects in view the invention has particular relation to certain novel features of construction, arrangement of parts and use, an example of which is given in this specification and illustrated in the accompanying drawings, wherein:

Figure 1 is a fragmentary front view of an internal combustion motor showing the attachment applied thereto.

Fig. 2 is a vertical sectional view of the heater coil casing, showing the coil therein, partially in section.

Fig. 3 is a fragmentary sectional view of said casing, and

Fig. 4 shows a terminal of the wiring employed.

Referring now more particularly to the drawings wherein like numerals of reference designate similar parts in each of the figures, the numeral 1 refers to the motor and the numeral 2 refers to the pump by means of which water is kept in circulation through the water jackets and the radiator.

The numeral 3 refers to the heater casing which is preferably tubular in form and within this casing is the electrical coil 4. An electrical circuit may be completed through this coil from the electrical wiring 5, 5. This wiring may be connected to any convenient source of electric supply, preferably by means of a plug which may be screwed into a socket in the usual way. The connection of the wiring 5, 5 with the heater coil 4 is made by the insertion of the terminals 6, 6 carried by the wiring, into the sockets 6′, 6′ of the casing head. These terminals may be quickly and easily removed, when it is desired to use the vehicle. At its lower end, the casing 3 is provided with a chamber 7 and a circulating pipe 8 leads from the pump 2 through which the cooling fluid is delivered into the chamber 7, passing through the port 9. Alined above the port 9 there is a port 10 which leads from the chamber 7 into the chamber 11 within the casing 3. A double acting valve 12 is provided which is mounted on the stem 13. The respective ends of this stem slide through the upper and lower bearings 14 and 15 which are supported by spiders fixed in said respective ports. When said valve is lifted, it closes the port 10 and when it falls it closes the port 9. When the motor is running the water is forced through the pipe 8 and it lifts the valve 12 and closes the port 10 and the water passes thence through the pipe 6 and through the water jackets and on to the radiator through the pipe 17 in the usual way. When the motor stops the valve 12 falls by gravity and closes the port 9. The heater coil 4 may then be connected with a suitable supply, as above indicated, and the water in the chamber 11 will thereby be heated and will circulate out through the pipe 18, connected with said chamber 11, and

through the water jackets of the motor, returning to the chamber 11 through the pipe 16.

The circulating fluid may thus be kept at as high a temperature as desired so that the motor will at all times be in readiness to start without delay.

In extremely cold weather it is desirable to circulate warm water through the radiator to prevent it from freezing and for that reason a push rod 19 is threaded through a tapped hole formed in the bottom of the casing 3. This rod is alined with the stem 13 and may be screwed up against the lower end of said stem to lift and hold open the valve 12. This will permit the heated water to also circulate through the radiator, which will keep the same from freezing.

A ground wire 20 leading from the head of the casing 3 is grounded so as to ground the current with which the vehicle may become charged by reason of defective insulation of the terminals, or a defective heater coil, so as to protect those who may come into contact with the vehicle.

What we claim is:

1. The combination with an internal combustion motor having water circulating conduits through which water may be circulated around the cylinders of the motor, a pump for creating a circulation through said system, a casing, conduits leading from said casing and entering the water jackets of the motor, a double acting valve operating to close one of said conduits when said pump is in operation and to open the same when said pump is at rest.

2. The combination with an internal combustion motor, of a pump, a casing, an electrical heater in the casing, two fluid conduits leading from the casing and entering the water jackets of the motor, a pipe leading from the pump and entering said casing, a double acting valve, arranged to be actuated by the current sent through the pipe by said pump, to close one of said conduits, said valve operating by gravity to close said pipe when the pump is at rest.

3. The combination with a casing of an electrical heater in the casing, two fluid conduits leading from the casing and entering a common chamber, a pump, a pipe leading from said pump and entering said casing, a double acting valve arranged to be actuated by the current sent through the pipe by said pump to close one of said conduits, said valve operated by gravity to close said pipe when the pump is at rest.

4. The combination with a casing of an electrical heater in the casing, two fluid conduits leading from the casing and entering a common chamber, a pump, a pipe leading from said pump and entering said casing, a double acting valve arranged to be actuated by the current sent through the pipe by said pump to close one of said conduits, said valve operated by gravity to close said pipe when the pump is at rest, and an adjustable means provided to engage against said valve to prevent it from closing said pipe when the pump is at rest.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

OSCAR B. CLAYTON.
GEORGE T. OBERWETTER.

Witnesses:
E. V. HARDWAY,
JAS. W. OLIVER.