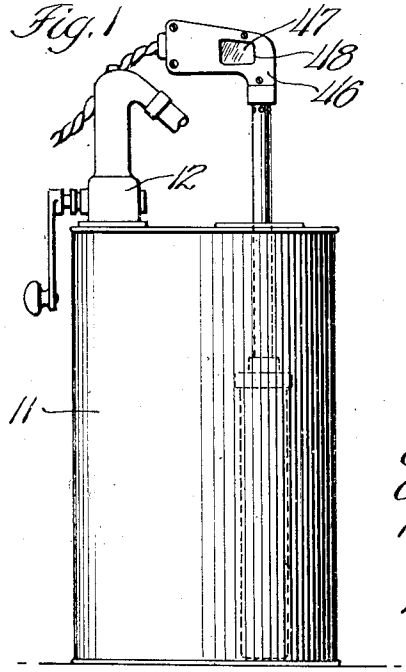
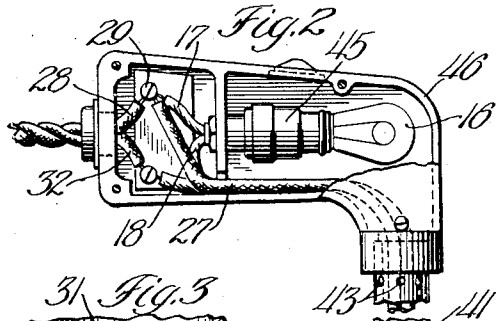
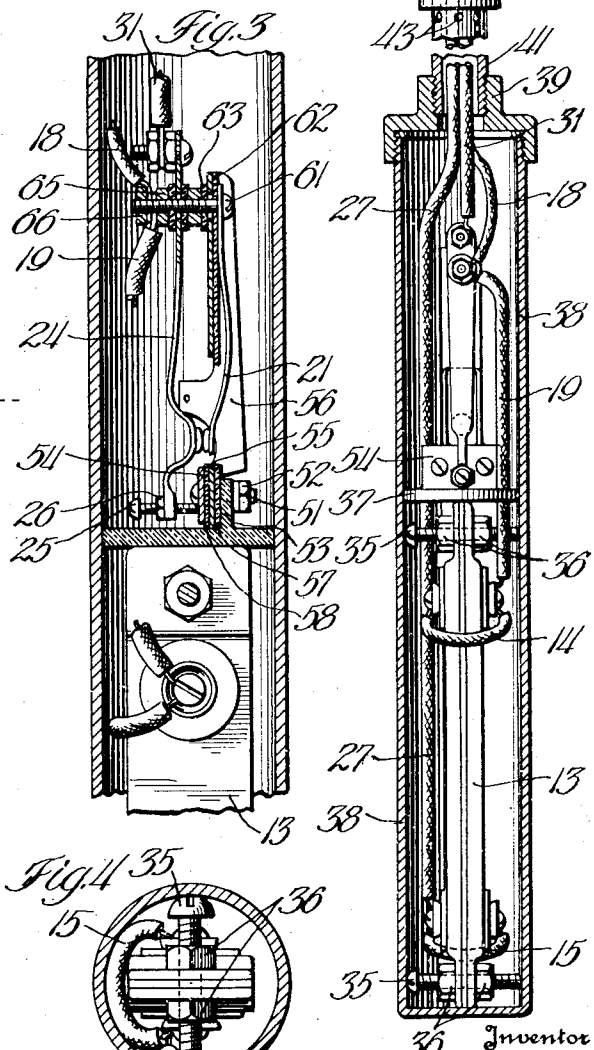
Dec. 15, 1931. A. L. WERTZ 1,837,000

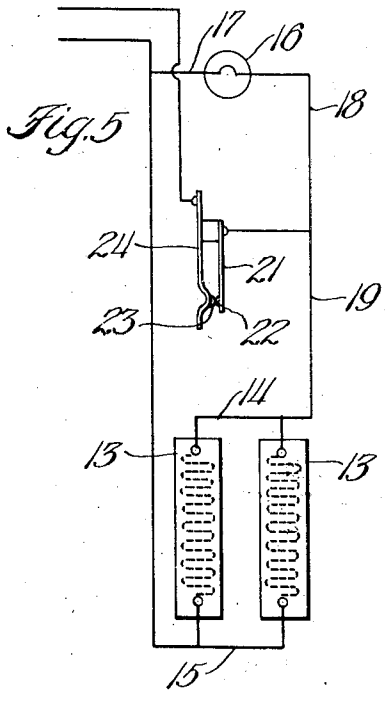
TEMPERATURE REGULATING DEVICE

Filed Sept. 9, 1929









Inventor

Austin L. Wertz

By Williams, Bradbury, McCaleb & Hinkle

Attorney

Patented Dec. 15, 1931 1,837,000

UNITED STATES PATENT OFFICE

AUSTIN L. WERTZ, OF LAKEWOOD, OHIO

TEMPERATURE REGULATING DEVICE

Application filed September 9, 1929. Serial No. 391,203.

My invention relates to temperature regulating and heating devices and more particularly to such devices adapted for the controlling of temperature lubricant contained in dispensers.

In lubricant dispensers of the type which are not buried in the ground, the lubricant is subjected to great changes in temperature. The heavier lubricants or oils become very viscous in the winter time and are normally very difficult to pump.

An object of my invention is the provision of means for controlling the temperature of the oil in such a dispenser to facilitate pumping thereof.

Another object is the provision of means to indicate when the temperature of the oil falls below a predetermined value and the provision of other means to heat the oil for maintaining it within a predetermined range of temperatures.

Other objects and advantages of my invention will become apparent from the following description.

In the accompanying drawings,

Fig. 1 is an elevational view of a conventional type of lubricant dispenser showing my invention incorporated therein;

Fig. 2 is an enlarged sectional view of my temperature controlling device;

Fig. 3 is an enlarged vertical section of a fragment of that shown in Fig. 2, and taken in a plane at right angles to Fig. 2;

Fig. 4 is a cross sectional view adjacent one end of the heating element and looking in the direction of the heating element to show the means for spacing it from the tubular container; and

Fig. 5 is a diagram illustrating the electric circuits of my invention.

The dispenser shown in Fig. 1 may be of any conventional construction comprising a tank or oil container 11 having a suitable mechanism 12 mounted thereon, for dispensing oil from the tank.

My invention is applied to the dispenser by inserting the same in the tank into the position shown in dotted outline in Fig. 1. Numeral 13 represents heating elements of the electrical resistance type which are electrically connected in parallel by jumpers 14 and 15, and in parallel with an incandescent light bulb 16 by conductors 17 and 18. A conductor 19 connects the heaters in series with a thermostatic element 21 having a contact 22 thereon which is normally out of engagement with but adapted to engage contact 23 on the spring conductor 24 which is adjustable by means of a set screw 25 and a nut 26 for the purpose of predetermining the temperature below which the contacts 22 and 23 become engaged for completing a circuit through the heaters and lamp in parallel, all in series with the thermostat. A conductor 27 leads from the lower end of the heaters to the line conductor 28 which is also connected by a screw 29 to conductor 17. Conductor 31 leads from the spring conductor 24 to the other line conductor 32 for completing the circuit whenever the temperature of the region of the thermostat falls below a degree for which it is adjusted to operate.

The heating elements 13 are positioned in the lower end of a metal tube 38 and held in spaced relation thereto by set screws 35 and lock nuts 36 thereon. A diaphragm or partition 37 preferably composed of high-grade insulating material separates the lower end of the tube from the upper end to substantially prevent transmission of heat upwardly, thus requiring the heat from below to conduct outwardly into the oil which normally surrounds the tube.

The thermostat operates by heat which is conducted inwardly through the tube 38 from the oil. Were it not for the partition 37, heat from the elements 13 would operate the thermostat too quickly and hold the contacts 22 and 23 apart and prevent useful operation of the device.

The tube 38 is formed with a closed bottom and the top is closed by a cap 39 and a vertical conduit 41 fixed thereinto. The conduit 41 extends through the top of the tank or dispenser and is provided with a plurality of openings 43 for the escape of heat developed therein and for ventilation.

The bulb 16 is fitted in a socket 45 fixed in a casing 46 which is provided with an opening 48 having a transparent closure 47 there-

for to permit light to be seen through the opening 48 when the heater is in operation and the electric bulb lighted. In Fig. 3, in which the specific construction of the thermostat and its mounting is shown, a bolt 51 having a nut 52 thereon passes through an upstanding lug 53 on the partition 37 and extends through an abutment plate 54 against which the end of set screw 25 is adapted to engage, also a vertical portion 55 of the supporting member 56, and plates 57 and 58 of insulating material.

Through the upper end of the support 56 passes a bolt 61 which is insulated therefrom by insulating strips 62 and 63. The bolt 61 is in contact with the thermostatic element 21 and passes through but is insulated from the spring conductor 24. To the outer end of bolt 61 is secured conductors 18 and 19 by nuts 65 and 66 electrically connecting them with the thermostatic element 21.

In operation the tube 38 is immersed in oil within the tank or container and when the temperature of the oil drops below a predetermined degree, the thermostatic element closes the contacts 22 and 23, thereby completing an electric circuit through the electric bulb and through the heaters in parallel. When the heaters raise the temperature of the oil above the predetermined temperature, heat from the oil is absorbed by the thermostat which again opens the contacts 22 and 23, thereby breaking the electric circuit and shutting off the heaters and the light.

I claim as my invention:

1. A temperature control device for a lubricant dispenser comprising an electric circuit including a heating element and a thermostatic circuit breaker in series, a closed bottom tube of heat conducting material adapted to be immersed in the lubricant, a heat insulating partition dividing the interior of said tube into two compartments, said heating element being in one of said compartments and said thermostatic circuit breaker being in the other compartment, a thermostatic support fixed to said partition and spaced from the walls of said tube, a conduit leading from one of said compartments to a point above the lubricant and having ventilating openings therein.

2. A device of the class described for controlling the temperature of lubricant comprising a two-compartment unit formed of heat conducting material and adapted to be immersed in the lubricant, an insulating partition forming a heat barrier between the two compartments, heating means in one of said compartments and a thermostat in the other compartment, an electric circuit including said thermostat and said heating means in series, means for spacing said heating means from the wall of said unit, a supporting member for said thermostat fixed to said partition and spaced from the wall of said unit, said thermostat being operable to open said circuit when heated to the predetermined temperature and means for adjusting the temperature at which said thermostat is operable.

3. A device of the class described for controlling the temperature of lubricant comprising a two-compartment unit formed of heat conducting material and adapted to be immersed in the lubricant, an insulating partition forming a heat barrier between the two compartments, heating means in one of said compartments and a thermostat in the other compartment, an electric circuit including said thermostat and said heating means in series, means for spacing said heating means from the wall of said unit, means fixed on and wholly supported by said partition and supporting said thermostat spaced from the wall of said unit, said thermostat being operable to open said circuit when heated to the predetermined temperature, means for adjusting the temperature at which said thermostat is operable, and an electric signal connected in circuit with said thermostat for indicating when the circuit is closed.

In witness whereof, I hereunto subscribe my name this 4th day of September, 1929.

AUSTIN L. WERTZ.