July 18, 1944. R. H. RICHARDSON 2,354,061

CRANKCASE HEATER

Filed May 21, 1943 3 Sheets-Sheet 1

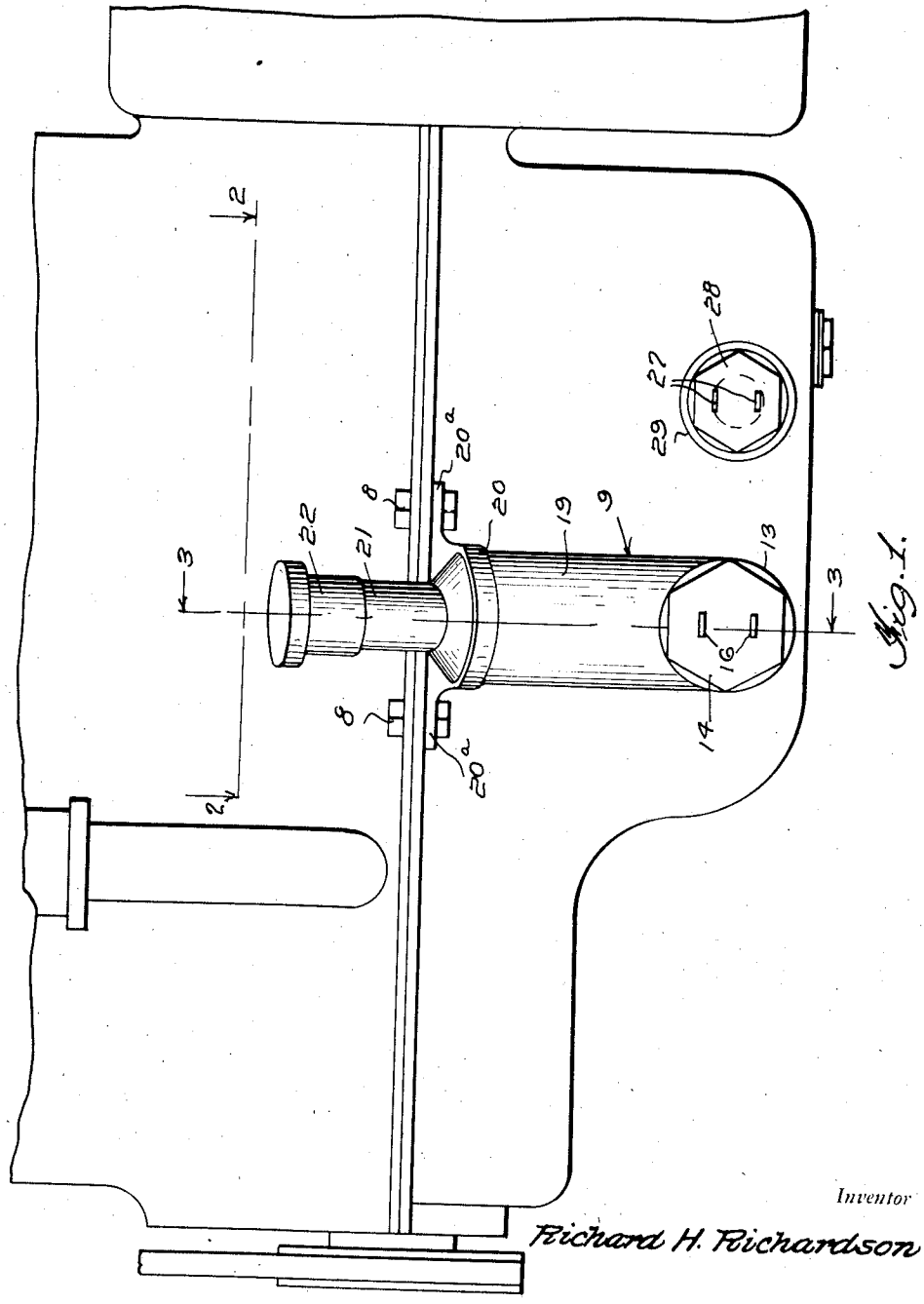


Fig. 1.

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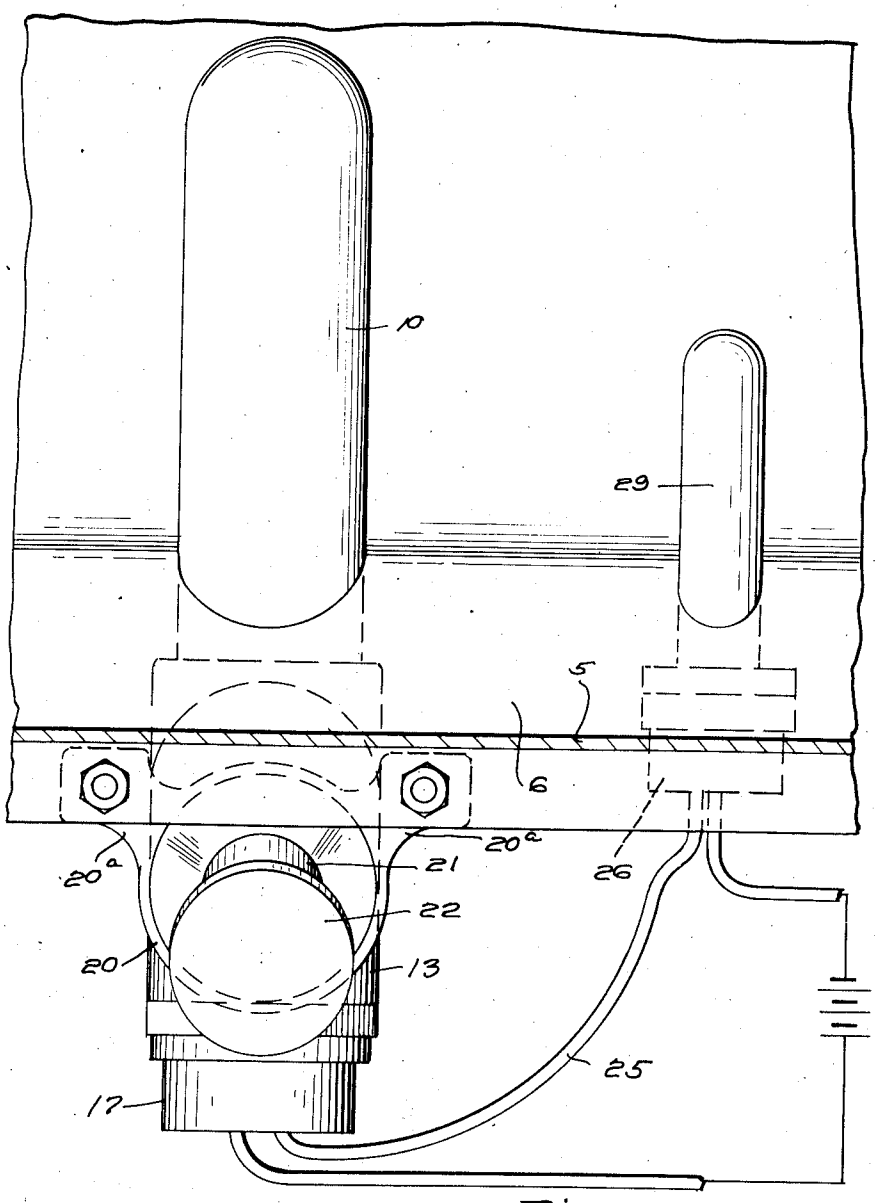


Fig. 2.

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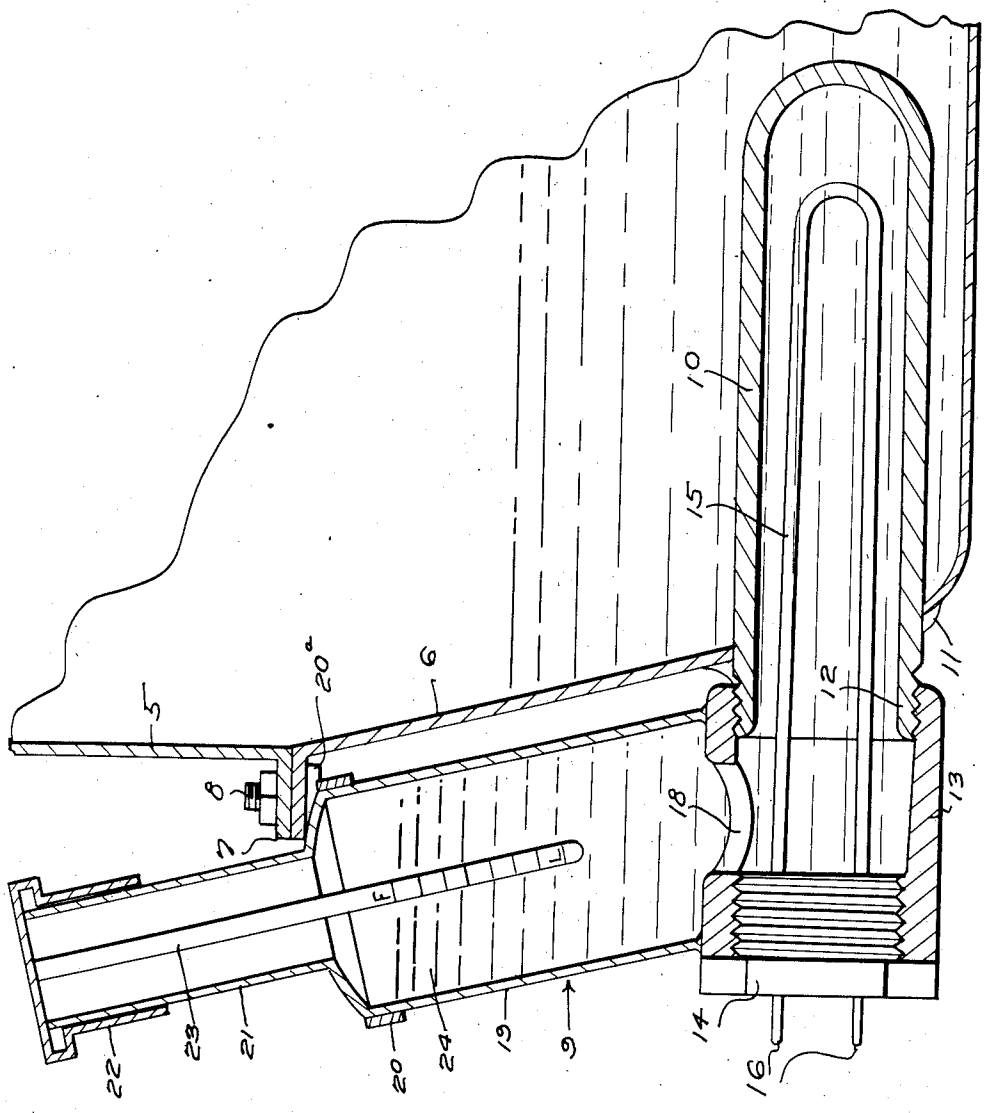


Fig. 3.

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Patented July 18, 1944

2,354,061

UNITED STATES PATENT OFFICE

2,354,061

CRANKCASE HEATER

Richard H. Richardson, Welland, Ontario, Canada

Application May 21, 1943, Serial No. 487,921

4 Claims. (Cl. 219—38)

This invention relates to new and useful improvements in heaters for crankcases, especially adapted for heating crankcase oil during low temperature weather.

An important object of the invention is to provide a crankcase heater which employs an electrical element located within a volume of liquid having a low boiling point, which when activated by the electrical heating element will quickly heat up and radiate heat to various parts of the crankcase and the oil content thereof.

Other important objects and advantages of the invention will become apparent to the reader of the following description.

In the drawings—

Figure 1 represents a fragmentary side elevational view showing the present invention installed in a crankcase.

Figure 2 is a sectional view taken substantially on the line 2—2 of Figure 1.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1.

Referring to the drawings wherein like numerals designate like parts, it can be seen in Figure 3, that numeral 5 denotes the usual apron of an engine block, while numeral 6 denotes a crankcase, these items being flanged as at 6 and bolted together as at 8.

The present invention is generally referred to by numeral 9 and consists of an elongated tube 10 which projects into the lower portion of the crankcase 6 and is preferably welded at its outer end portion to the case as at 11, leaving only a short threaded portion 12 thereof, projecting outwardly from the crankcase and over this is disposed one end portion of a short neck 13 which is internally threaded at its outer end to receive a plug 14 from which projects a rigid electrical heating element 15, this element projecting longitudinally in the tube 10. Contact prongs 16 project outwardly from the plug 14, and engageable with these prongs is an electrical connector 17 (see Figure 2).

The bottom of the neck 13 has an opening 18 which communicates the interior of the tube 10 with the interior of an outwardly inclined upstanding reservoir 19, which at its upper portion has an encircling band 20 provided with apertured lugs 20a through which certain of the bolts 8 are disposed for securing the reservoir definitely in place.

Rising from the reservoir 19 is a filler neck 21 and over this is a cap 22 carrying a ullage rod or the like 23 which depends into liquid 24 contained in the reservoir 19 and which also fills the tube 10.

The liquid 24 is some liquid having a low boiling point such as alcohol or one of the numerous anti-freeze compounds found on the market, this type of fluid being employed so that but a minimum amount of current will be necessary to heat the same in low temperature weather.

The plug 17 has a jumper 25 to a connector 26 which is engageable with contact prongs 27 on a plug structure 28 at the outer end of a thermostatic unit 29 which also projects into the crankcase 6. Obviously, the thermostat 29 serves to shut off current to the heating element 15 when the temperature in the crankcase has become satisfactorily raised.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

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

1. In combination, a crankcase, a tube projecting into the crankcase, a plug at the outer end of the tube, a heating element projecting from the plug and into the tube, a reservoir rising from the outer end of the tube and being in communication with the tube and a volume of liquid in the reservoir tube of a type having a low boiling point.

2. In combination, a crankcase, a tube projecting into the crankcase, a plug at the outer end of the tube, a heating element projecting from the plug and into the tube, a reservoir rising from the outer end of the tube and being in communication with the tube and a volume of liquid in the reservoir tube of a type having a low boiling point, and a thermostatic control projecting into the crankcase and being electrically connected with the said heating element.

3. In combination, a crankcase, a tube projecting into the crankcase, a plug at the outer end of the tube, a heating element projecting from the plug and into the tube, a reservoir rising from the outer end of the tube and being in communication with the tube and a volume of liquid in the reservoir tube of a type having a low boiling point, a cap for the reservoir, and a ullage rod depending from the cap and into the liquid content of the reservoir.

4. In combination, a crankcase, a tube projecting into the crankcase, a plug at the outer end of the tube, a heating element projecting from the plug and into the tube, a reservoir rising from the outer end of the tube and being in communication with the tube and a volume of liquid in the reservoir tube of a type having a low boiling point, a band encircling the upper portion of the reservoir, apertured lugs on the band and bolts for attaching said lugs to a point of the crankcase.

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