Jan. 8, 1957 C. W. STOCKWELL 2,777,074

AUTOMATIC EMERGENCY FURNACE CONTROL

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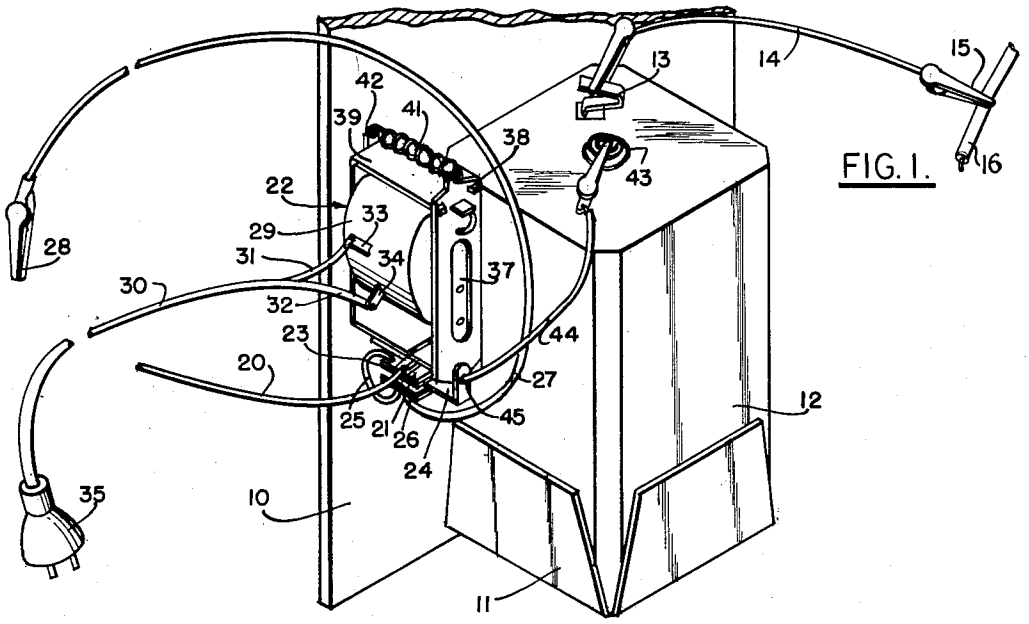

FIG. 1.

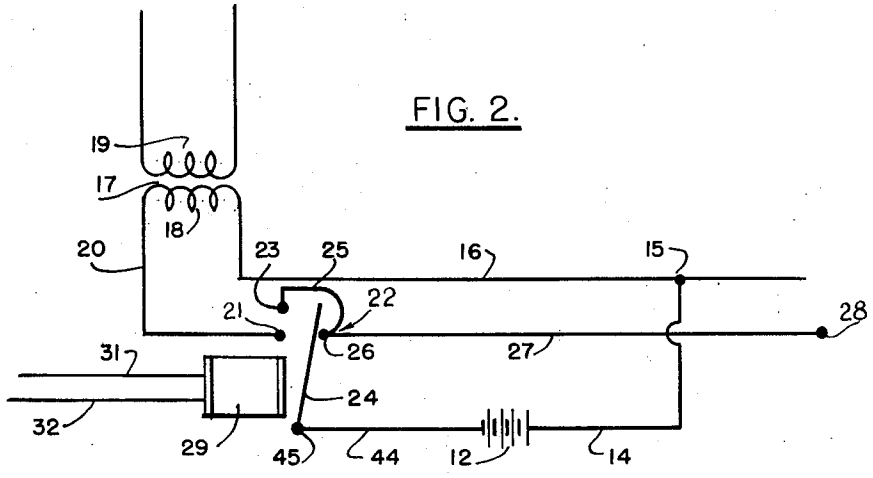

FIG. 2.

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AUTOMATIC EMERGENCY FURNACE CONTROL

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1 Claim. (Cl. 307—64)

This invention relates to an automatic emergency furnace control.

It is an object of the present invention to provide an automatic furnace control adapted to keep the furnace supplied with electricity should the power lines be broken and there be a resultant failure of power.

It is another object of the invention to provide an automatic emergency furnace control unit which can be easily installed upon the furnace and connected with the power line source and wherein upon failure of the electric current, the contact arm would be released to make contact with one of the electrical source wires and deliver battery voltage to the furnace and wherein the contact arm is normally retained by a relay to close the secondary circuit from the transformer but upon failure of power source, the relay releases the contact arm so that the current is delivered to the furnace leads by the battery.

It is another object of the invention to provide an automatic emergency furnace control which will keep the furnace in operation even though the electric power fails in the power lines, which is of simple construction, easy to install on the furnace, inexpensive to manufacture, has a minimum number of parts, compact, automatic and efficient in operation.

For other objects and for a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which:

Figure 1 is a perspective view of the unit including the battery and the relay and embodying the features of the present invention;

Fig. 2 is wiring diagram of the electrical circuit.

Referring now to the figures, **10** represents a supporting plate having a bracket **11** for supporting a battery **12**. This battery has a negative terminal **13** which is connected to a cable **14** and a connector **15** to a furnace lead wire **16** that extends from transformer **17** having a secondary winding **18** and a primary winding **19**. The wire **16** is connected to one side of the secondary winding **18**. The other side of the secondary winding **18** is connected to a cable **20** with a contact **21** of a relay **22**. Adjacent the contact **21** is a contact **23** which can be bridged by contact arm **24** with contact **21** whereby to close through cable **25** leading to a contact **26** the secondary of the transformer circuit which has a cable **27** that leads to the furnace leads and can be connected to one of the same by a connector **28**.

The relay **22** has a magnet coil **29** that is supplied by the regular 115 volt power supply by a cable **30** having wires **31** and **32** that connected respectively with coil terminals **33** and **34**. The cable **30** has a plug **35**, adapted to fit a wall receptacle.

The contact arm **24** is carried on a magnetizable member **37** hinged at **38** to relay frame **39**. A tension spring **41** is connected to a projection **42** on the frame **39** and to one end of the hinged member **37**. The spring **41** urges the hinge member to a position so that the contact arm **24** is down and in engagement with contact **26**. When the power supply is available, the coil **29** is energized and the member **37** will draw toward the coil **29** against the action of the spring **41** and the contact **24** will bridge the contacts **21** and **23** so that electric current is

supplied to the furnace leads through the wire or cable **27**. This supply of current to the furnace leads continues as long as the relay is energized, but upon failure of the current supply, the tension spring **41** will move the member **37** outwardly so that the contact arm **24** will engage contact **26**. The battery **12** has its positive terminal **43** connected by a wire **44** with contact arm **24**, as indicated at **45**.

When the contact arm **24** is against the contact **26**, the furnace leads will be supplied with current from the battery **12**. The battery or circuit is connected to the lead wire **16** and the contact arm **24** will be connected to the contact **26** and the lead wire **27**, the circuit including the battery **12**, wire **14**, wire **44**, terminal **45**, contact arm **24**, and contact **26**. This battery will keep the furnace in operation if the power fails. When the power is restored, the coil **29** of the relay **22** will again be energized, and contact **24** will be moved to bridge the contacts **21** and **23** so that the furnace leads will again be supplied from the secondary winding **18** of the transformer **17**.

It is to be understood that provision is made for disconnecting lead **44** in Fig. 2 from arm **24** when solenoid **29** is energized and when, therefore, arm **24** connects contacts **21** and **23**. For instance, suitable contacts may be associated with the relay **22**, such contacts being disconnected when relay **22** is energized and such contacts being connected when relay **22** is de-energized, such contacts to be inserted in series with lead **44** of Fig. 2. Details such as the foregoing are within the province of a man skilled in the art, and therefore no illustration of any such provision has been thought necessary in the drawings.

It should now be apparent that there has been provided an automatic emergency furnace control for gas and oil furnaces whereby auxiliary battery power is supplied upon failure of the regular alternating current supply.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention, as defined by the appended claim:

What is claimed is:

An automatic emergency gas furnace control comprising a transformer having an input coil adapted to be connected to a primary source of power, and an output coil with two terminals, a first gas furnace lead connected to one terminal of the output coil, a second gas furnace lead, a relay having a first contact conected in the circuit of said second gas furnace lead, said relay including an electromagnet adapted to be connected to the primary source of power, a second contact on said relay and a wire bridging the first contact with the second contact, a third contact on said relay and connected to the other terminal of the output coil, said relay further including a movable contact arm adapted to bridge the second and third contacts when the said coil is energized, spring means for normally retaining said contact arm away from said electromagnet and in engagement with the first contact, an auxiliary source of power, one terminal of said auxiliary source of power being connected to said first furnace lead, the other terminal of said auxiliary source of power being connected to said relay movable contact arm, whereby to place said auxiliary source of power between the furnace leads automatically upon failure of the primary source of power.

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