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M. K. THOMAS

2,390,475

ANTIFREEZE DEVICE

Filed Feb. 24, 1943

Fig. 1.

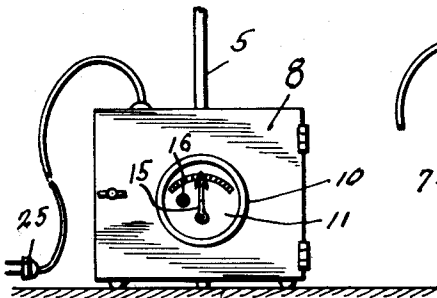


Fig. 2.

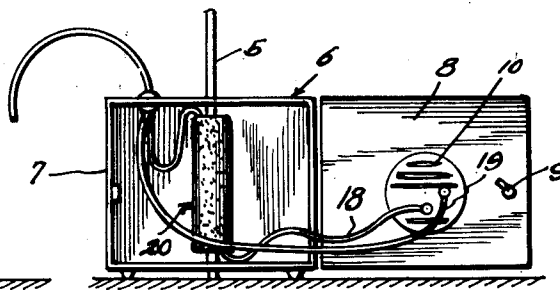


Fig. 3.

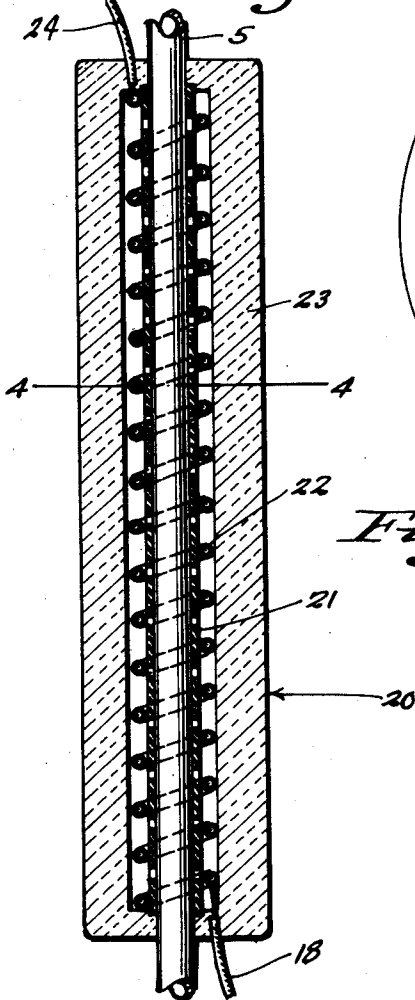


Fig. 5.

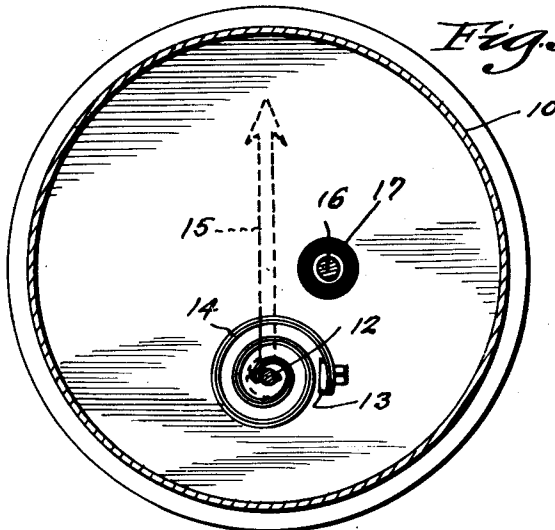
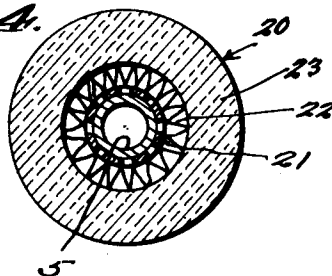


Fig. 4.



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UNITED STATES PATENT OFFICE

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ANTIFREEZE DEVICE

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Application February 24, 1943, Serial No. 476,953

1 Claim. (Cl. 219—39)

This invention relates to new and useful improvements in means for preventing the freezing of pipes and like structures.

The principal object of the present invention is to provide an electrical device for automatically subjecting water pipes and like structures to the application of heat when temperature drops to a freezing degree.

Another important object of the invention is to provide a device of the character stated which is automatic in operation and which is of simple construction and of low cost of manufacture.

These and various other important objects and advantages of the invention will become apparent to the reader of the following description.

In the drawing:

Figure 1 represents a front elevational view of the device.

Figure 2 is a front elevational view with the door in open position.

Figure 3 is a fragmentary vertical sectional view showing the heating unit.

Figure 4 is a cross section on the line 4—4 of Figure 3.

Figure 5 is a vertical sectional view through the thermal switch.

Referring to the drawing wherein like numerals designate like parts, it can be seen that numeral 5 denotes a water pipe or the like to be protected against freezing weather. Numeral 6 generally refers to the electrical apparatus for automatically heating the pipe 5 in the event temperature drops to a freezing degree.

The apparatus 6 embodies a box 7 having a front door 8 and a suitable latch 9 therefor.

The door 8 has an opening therethrough, through which partly projects a thermostatic indicating and switching unit. This thermostatic and switching unit is composed of a case 10 having a front dial 11 with suitable degree graduations thereon, this dial being visible from the front of the door 8. A shaft 12 is disposed through the case 10 and inside of the case is an anchor 13 from which extends a coiled bi-metal element 14 and the other end secured to the shaft 12, the bi-metal thermal element 14 being convoluted about the shaft as shown in Figure 5.

On the shaft 12, at the front of the dial 11, is a hand 15 and on the dial 11 is a contact element 16 disposed through a bushing 17 of insulation. The contact 16 is in the path of the hand 15, and the contact 16 and hand 15 have conductor wires 18, 19 connected thereto.

Around the pipe 5 and within the confines of the box 7 is a heating unit generally referred to by numeral 20, this unit consisting of a tube of insulation 21 embracing the pipe 5 and around which is an electrical heating element 22. Enveloping the heating element 22 and the tube 21 is a case or jacket 23 of some refractory material, such as plaster or the like. The conductor 18 from the hand 15 is in fact a jumper which extends to one end of the electric heating element 22, while the other conductor 19 and a conductor 24 which extends from the other end of the heating element on the opposite sides of an electric circuit, which may be interrupted by a plug 25, for use in conjunction with the usual commercial electric current supply.

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:

Apparatus for preventing pipes from freezing comprising a closed casing adapted for extension of a pipe into the same and having a side door, a hollow electrical heating element in said casing adapted to receive therein a pipe extended into the casing, a thermal indicator mounted on said door and including an indicating hand and a heat responsive device for actuating the hand, a contact on said door for engagement by said hand, and lead lines from the hand and contact to opposite sides of the heating element and arranged in said casing to be extended out of the same when the door is open.

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