Dec. 2, 1952 C. R. TROWBRIDGE 2,620,430

WATER PIPE HEATER

Filed March 7, 1951

Fig. 1

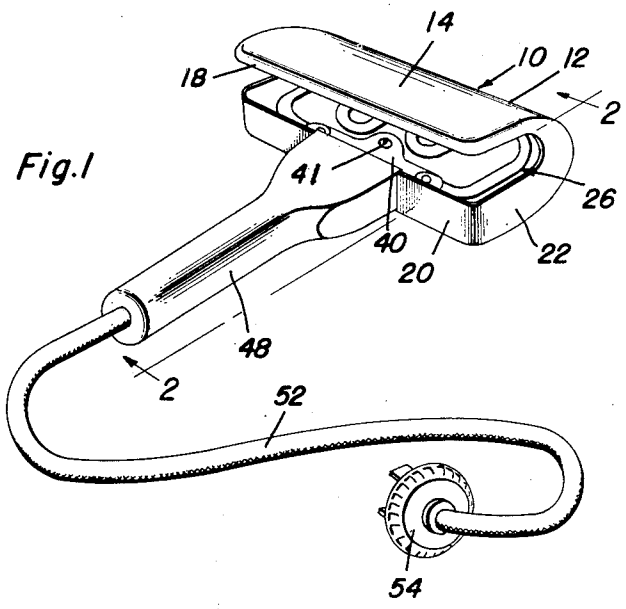


Fig. 2

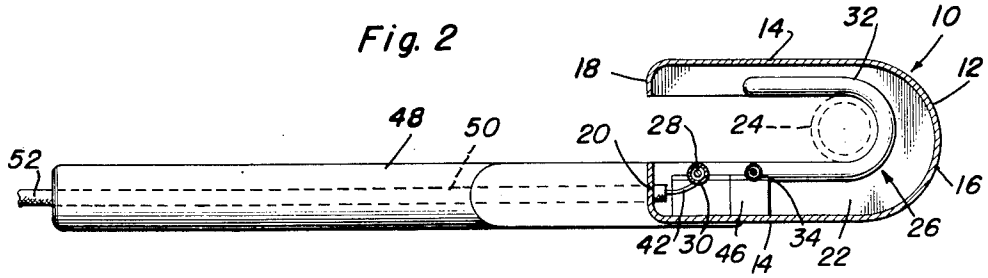
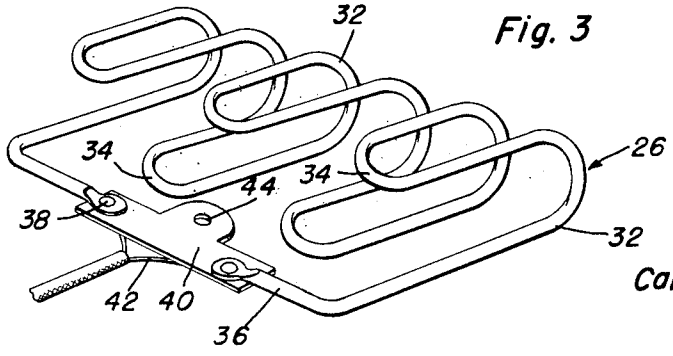


Fig. 3



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WATER PIPE HEATER

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3 Claims. (Cl. 219—38)

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This invention comprises novel and useful improvements in electrical heaters, and more particularly pertains to an electrical heater for thawing pipes.

An important object of this invention is to provide a heater for thawing pipes in which the heater unit will resiliently grip the pipe to increase the heat exchange between the unit and the pipe due to conduction, and to aid in supporting the heater on the pipe.

Another object of this invention is to provide a heater, in accordance with the foregoing object, with an improved shield which is disposed about the heater unit, and which shield forms a heating chamber when disposed on a pipe.

Other objects of this invention are to provide a pipe heater which is of simple and compact construction, and which will heat pipes with a high degree of efficiency.

An important feature of this invention resides in the provision of a heating unit formed of a resistance element encased in an electrically insulative sheath, which element includes a plurality of serially connected U-shaped portions which are disposed in sidewise alignment with each other and adapted to resiliently grip a pipe.

Another feature of this invention resides in the provision of a heater in accordance with the foregoing feature together with a U-shaped shield having a marginal inwardly directed rim, which shield overlies the heater unit and forms a heating chamber when disposed on a pipe.

These, together with various ancillary objects and features are attained by this device, a preferred embodiment of which has been illustrated in the accompanying drawings wherein:

Figure 1 is a perspective elevational view of the pipe heater;

Figure 2 is a sectional view taken on the plane 2—2 of Figure 1; and

Figure 3 is a perspective elevational view of the heater unit.

Reference is now made more specifically to the accompanying drawings wherein the pipe heater is denoted generally by the numeral 10. The heater 10 includes an elongated shield 12 of U-shaped cross-section having parallel leg portions 14 and an arcuate web 16. Inwardly directed flanges 18 and 20 are preferably formed integrally with the legs 14, and C-shaped end plates 22 are secured to the opposite ends of the shield and flanges. The end plates are so constructed as to slidably receive a conduit or pipe 24 and support the shield thereon and in spaced relation thereto.

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A heating unit 26 is preferably formed of a resistance element 28 encased in an electrically insulative sheath 30, which element is bent to form a plurality of U-shaped sections 32 serially connected as at 34, which sections are disposed in spaced sidewise aligned relation to resiliently grip the conduit 24 in heat exchange relation therewith. The ends 36 of the heating unit are each secured by a fastener 38 to a dielectric mounting plate 40 and to one of the conductors 42. The plate 40 is mounted as by fastener 41 which extends through the bore 44 therein to the mounting block 46 carried by the shield 12. As will be appreciated, the fasteners 38 serve not only to mount the heating unit in the shield, but additionally, electrically connect the unit to the conductors 42.

A handle member 48, having an axial bore 50 therein is attached to the flange 20 and extends transversely thereof, the conductors 42 being disposed in a casing 52 which extends through the bore in the handle. The conductors 42 terminate in a conventional plug 54 by means of which the heater may be connected to a source of electrical energy.

It is to be noted that since the heating unit resiliently grips the pipe, the heat exchange therebetween, by conduction, will be enhanced. Additionally, the shield, which is disposed in spaced relation with the heater unit, forms a partially closed heating chamber when disposed on a pipe, and, since the handle will maintain the shield with the legs thereof depending from the pipe, it will be appreciated that the air heated by the heater unit will be retained within the shield to enhance heating of the pipe by convection.

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

1. A pipe thawing device comprising an elongated shield having a U-shaped cross-section, inwardly directed flanges on the longitudinally extending edges of said shield, C-shaped end plates on the ends of said shield, a handle attached to one of said flanges and extending transversely thereof, and a U-shaped heating unit disposed in said shield in spaced relation thereto and so constructed and arranged to resiliently grip a conduit.

2. A pipe thawing device comprising an elongated shield having a U-shaped cross-section, inwardly directed flanges on the longitudinally extending edges of said shield, C-shaped end plates on the ends of said shield, a handle attached to one of said flanges and extending transversely

thereof, a heating unit comprising a resistance element encased in an electrically insulating sheath, said element including a plurality of serially connected U-shaped portions disposed in sidewise alignment with each other, said unit being disposed in spaced registry with said shield and so constructed and arranged to resiliently grip a conduit disposed longitudinally of said shield, and conductors extending through said handle and connected to said unit.

3. A pipe thawing device comprising an elongated shield having a U-shaped cross-section, inwardly directed flanges on the longitudinally extending edges of said shield, C-shaped end plates on the ends of said shield, a handle attached to one of said flanges and extending transversely thereof, a heating unit comprising a resistance element encased in an electrically insulating sheath, said element including a plurality of serially connected U-shaped portions disposed in sidewise alignment with each other, said unit being disposed in spaced registry with said shield and so constructed and arranged to resiliently

grip a conduit disposed longitudinally of said shield, an insulative mounting plate attached to said shield, conductors extending through said handle into said shield, and fasteners each attaching one end of said heating unit and one conductor to each other and to said plate to support said unit in said shield and electrically connect said conductors to said heating unit.

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