Nov. 30, 1948. S. J. TEMPLE 2,455,102

ELECTRIC HEATING UNIT

Filed March 22, 1947

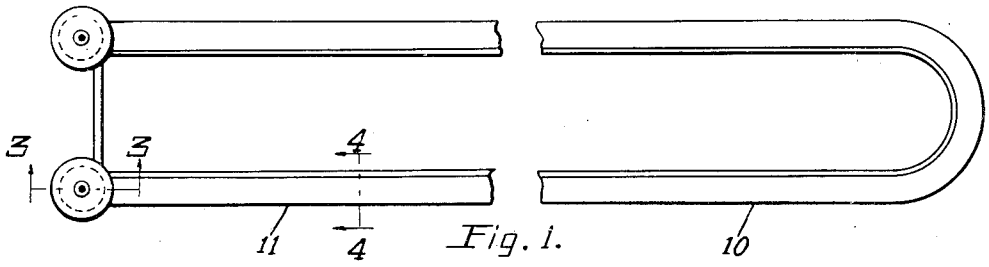


Fig. 1.

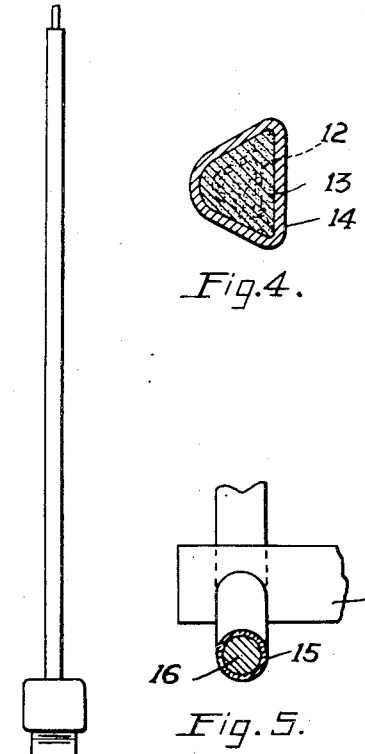


Fig. 4.

Fig. 5.

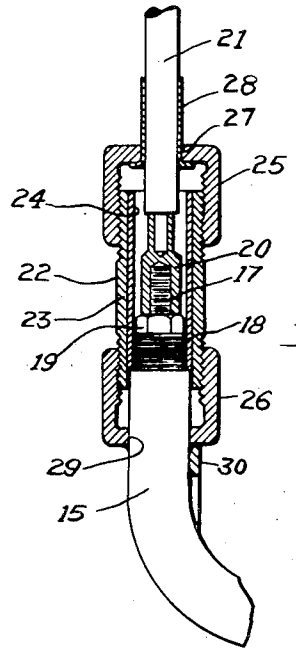


Fig. 3.

Fig. 2.

SIDNEY J. TEMPLE.
INVENTOR.

BY

ATTORNEY.

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ELECTRIC HEATING UNIT

Sidney J. Temple, Forest Hills, Pa., assignor to Edwin L. Wiegand Company, Pittsburgh, Pa., a corporation of Pennsylvania

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2 Claims. (Cl. 201—67)

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My invention relates to electric heating, and the principal object of my invention is to provide a new and improved electric heating unit.

In the drawings accompanying this specification and forming a part of this application I have shown for purposes of illustration one form which my invention may assume, designed particularly for heating foundry sand, and in these drawings:

Figure 1 is a plan view of this illustrative embodiment of my invention,

Figure 2 is a side elevation of the same,

Figure 3 is an enlarged section taken on the line 3—3 of Figure 1,

Figure 4 is an enlarged section taken on the line 4—4 of Figure 1, and

Figure 5 is a detail view illustrating the application of the cross-brace extending between the ends of the element.

Referring to the drawings, the illustrated embodiment of my invention comprises a tubular electric heating element 10 having an active section 11 generally triangular in cross-section and comprising a generally triangularly helical resistor 12 embedded in suitably refractory 13 enclosed in a generally triangular tubular sheath 14, as shown particularly in Figure 4, and having terminal portions 15 substantially circular in cross-section and comprising resistor end portions 16 extending substantially axially, as shown particularly in Figure 5, and connected to stud terminals 17 suitably insulated from the sheath 14 as by means of mica washers 18 held in position by nuts 19 screw-threaded onto the stud terminals 17.

In the present embodiment of my invention, screw-threaded onto the stud terminals 17 are cable terminals 20 swaged or otherwise suitably connected to the ends of cables 21 serving to connect the element 10 to a suitable source of electricity, and each of the terminal connections is enclosed in a housing 22.

As herein shown, each of the housings 22 comprises a metal tube 23 provided with an insulating liner 24 abutting at one end the respective end of the element sheath, the tube 23 is screw-threaded at its ends for the reception of caps 25 and 26, the cap 25 is apertured at 27 for the passage of a sleeve 28 surrounding the respective cable 21 and provided to prevent too sharp bending of the cable 21, and the cap 26 is apertured at 29 for the passage of the respective terminal portion 15 of the element 10.

In the illustrated embodiment of my invention the apertures 27 in the caps 25 are formed to closely receive the sleeves 28, and the sleeves 28 are formed to closely receive the cables 21, where-

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by the sleeves 28 and cables 21 substantially seal the apertures 27, and to the same purpose the terminal portions 15 of the element 10 are suitably sealed to the caps 26 at the openings 29, as by brazing, welding, or soldering.

Further, with the element in the form herein shown, with the two ends disposed in propinquity, the two terminal portions 15 desirably are interconnected by a cross-brace 30 secured to the terminal portions in any suitable manner, as by brazing, welding, or soldering, and serving to impart rigidity to the unit as a whole.

Accordingly it will be appreciated by those skilled in the art that the illustrated embodiment of my invention provides a unit well suited especially for heating foundry sand, and particularly by reason of the protection afforded by the metal sheath, including against abrasion by the sand, and the portability afforded by the flexible cables 21, the effective enclosure of the terminals, and the rigidity of the unit resulting from the cross-bracing between the terminal positions 15.

However, likewise it will be appreciated by those skilled in the art that my invention has other applications, either in the specific embodiment herein shown and described, or with various modifications which may be made within the scope of my invention, and accordingly it will be understood that the particular embodiment herein shown and described is illustrative only, and that my invention is not to be regarded as limited thereto.

Wherefore I claim:

1. An electric heating unit comprising a tubular electric heating element provided at at least one end with a resistor terminal, an insulated cable provided with a terminal detachably connected to said resistor terminal, an insulating sleeve surrounding said resistor terminal and said cable terminal, and a plural-part separable housing comprising a tubular body portion surrounding said sleeve and having one end provided with an aperture for the passage of and closely engaging the periphery of the respective end of said element and the other end provided with an aperture for the passage of and closely engaging the periphery of said cable.

2. An electric heating unit comprising a tubular electric heating element having its two ends disposed adjacent each other and each provided with a resistor terminal, a pair of insulated cables each provided with a terminal and having said terminals respectively detachably connected to said resistor terminals, a pair of insulating sleeves one surrounding one of said resistor terminals

and the respective cable terminal and the other surrounding the other of said resistor terminals and the respective cable terminal, a pair of plural-part separable housings each comprising a tubular body portion surrounding the respective said sleeve and having one end provided with an aperture for the passage of and closely engaging the periphery of the respective end of said element and the other end provided with an aperture for the passage of and closely engaging the periphery of the respective said cable, and brace means interconnecting the two ends of said element independent of said housings.

SIDNEY J. TEMPLE.

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