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2,604,023

THAW DRAIN DEVICE FOR CURBS

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3 Sheets-Sheet 1

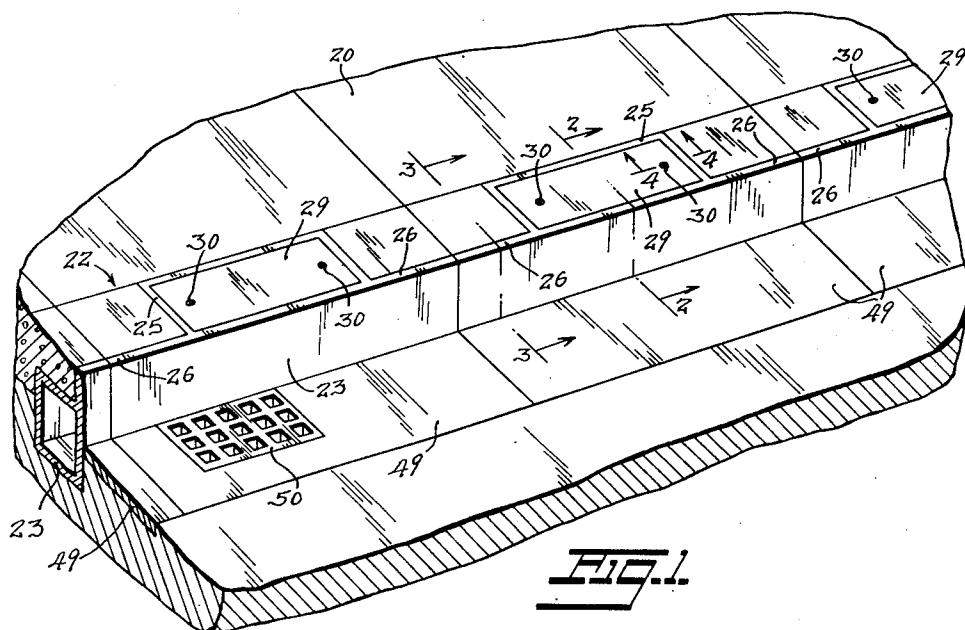


FIG. 1

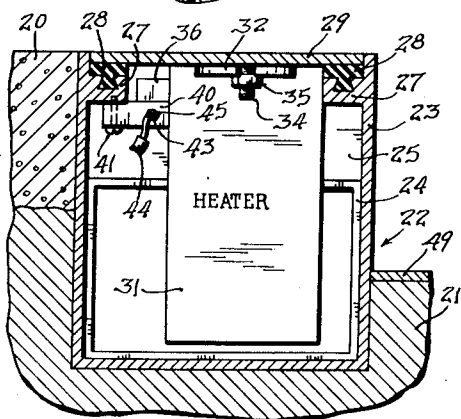


FIG. 2

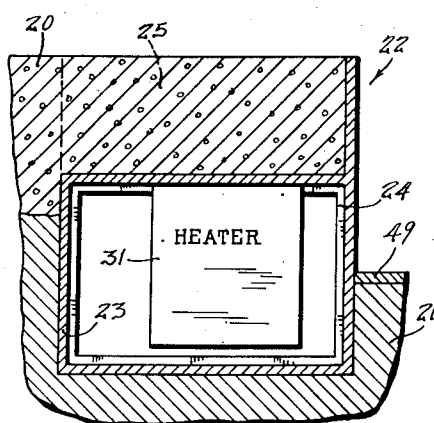


FIG. 3

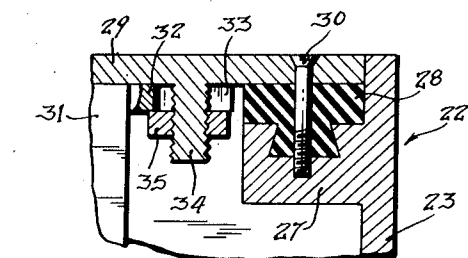


FIG. 4

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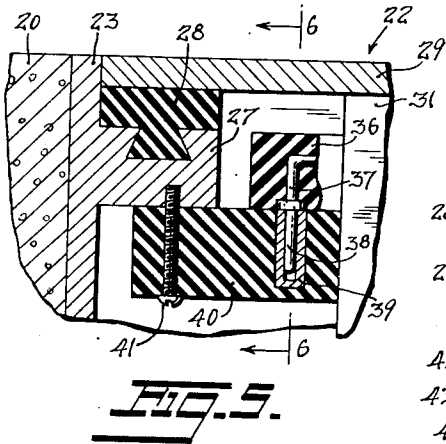
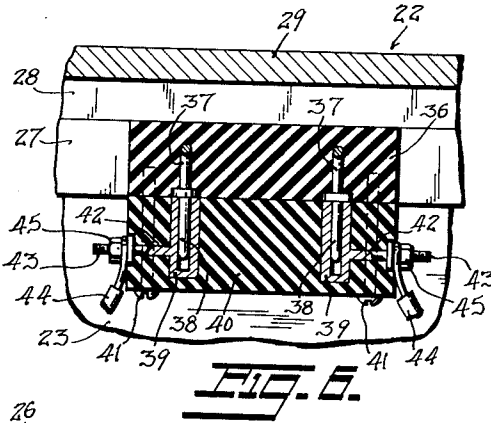
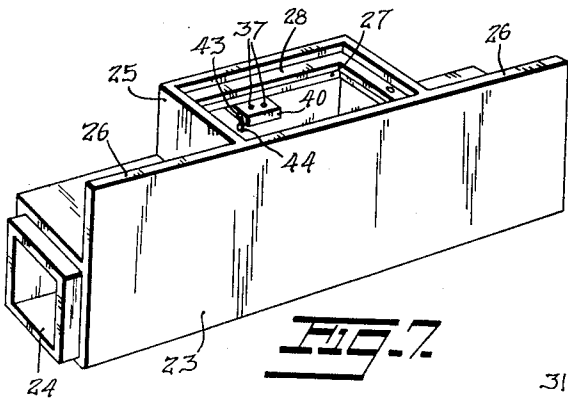
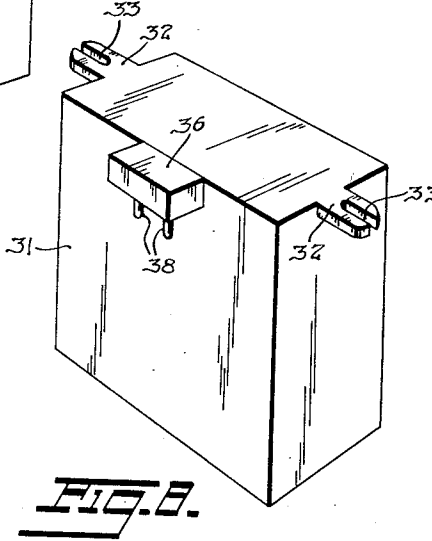
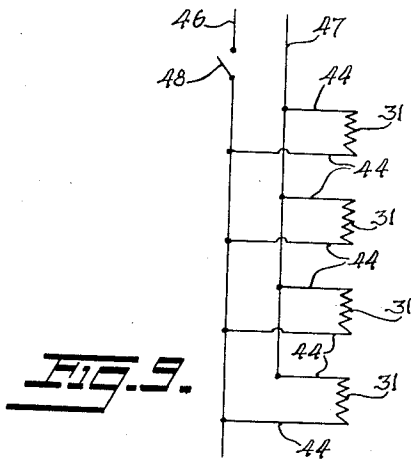
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THAW DRAIN DEVICE FOR CURBS

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3 Sheets-Sheet 2



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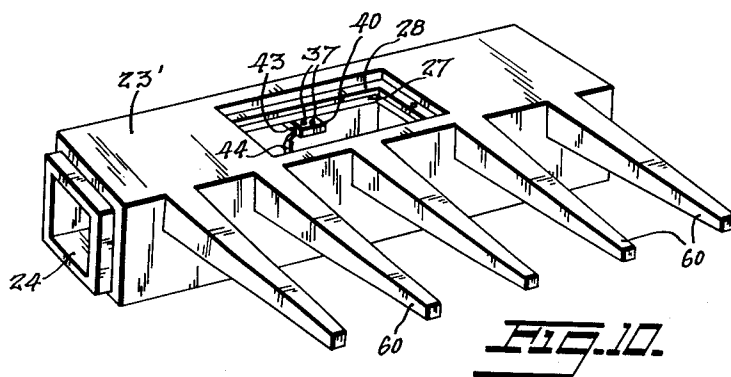
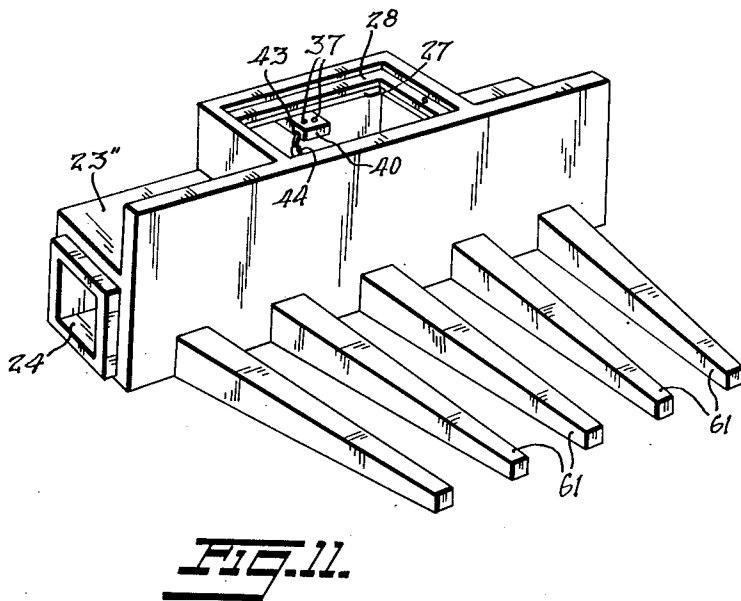
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THAW DRAIN DEVICE FOR CURBS

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3 Sheets-Sheet 3



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THAW DRAIN DEVICE FOR CURBS

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5 Claims. (Cl. 94—33)

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The present invention relates to a thawing curb construction.

More particularly, the present invention proposes a heated tubular curb construction for streets, highways, and with minor modifications, railroads, rights-of-way, private roadways, and front walks of residences. Snow and ice piled against this curb by snow-plows, will melt and run off to points of delivery as rain water does; avoiding the slow, tedious, and highly expensive method now being used of carting it off, or allowing it to remain a dangerous menace and block to all traffic until the season of thaw arrives.

Local city governments have for a long time been faced with the problem of disposing of the accumulations of snow and ice in the winter so as to speed up motor traffic and provide safe unobstructed crossings for pedestrians at the lowest possible cost and the least amount of man power commensurate with the size of the task at hand. The present invention provides a novel curb construction which is always in position for its intended purpose and which can be caused to operate by the mere act of throwing a switch at some central location.

The curb construction of the present invention is characterized by a tubular housing extended along the curb of a sidewalk with electric heaters positioned at spaced points along the interior of the housing in a manner to heat the surrounding curb, sidewalk and gutter to melt the accumulations of snow and ice and provide a clearance so that the water may flow along the gutter to the usual catch basins.

Another object of the present invention proposes mounting metallic plates in the gutter to extend outward from the tubular housing in a manner to carry the heat some distance outward from the housing.

A still further object of the present invention proposes forming the tubular housing of a plurality of separate sections arranged to be positioned in end alignment with a heater positioned in each of the sections in a manner to evenly heat the entire interior of the tubular housing.

The invention further proposes mounting each of the heaters on a removable cover located flush with the level of the sidewalk in a manner so that the covers can be removed to expose the respective heaters for servicing and replacement when required.

Still another object of the present invention proposes a novel socket and plug arrangement for each of the heaters which will disconnect each

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of the heaters from the energizing circuit when the cover is removed and which will put the heater back in the energizing circuit when the cover is remounted in position.

A further object of the present invention proposes sealing the mounting of each of the covers in position on its respective section of the tubular housing to prevent the seepage of water into the housing.

The invention is further characterized by the fact that the sections of the tubular housing are formed with upstanding flanges along the faces of the curb in a manner to reinforce the same against damage caused by the engagement of vehicle wheels and the like therewith.

It is a further object of the present invention to provide a thawing curb construction which is simple and durable, which is simple to install and effective in use and which can be manufactured and installed at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of the present disclosure:

Fig. 1 is a perspective view of a portion of a sidewalk having a thawing curb construction in accordance with the present invention.

Fig. 2 is an enlarged transverse vertical sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged transverse vertical sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is an enlarged partial longitudinal vertical sectional view taken on the line 4—4 of Fig. 1.

Fig. 5 is an enlarged detailed vertical sectional view of a portion of Fig. 2.

Fig. 6 is a partial vertical sectional view taken on the line 6—6 of Fig. 5.

Fig. 7 is a perspective view of one of the sections used to form the tubular housing.

Fig. 8 is a perspective view of one of the heaters per se.

Fig. 9 is a schematic wiring diagram of the device.

Fig. 10 is a view similar to Fig. 7, but illustrating the section of the tubular housing constructed in accordance with a modification of the present invention.

Fig. 11 is another view similar to Fig. 7, but illustrating the section of the tubular housing

constructed in accordance with another modification of the present invention.

The thawing curb construction, according to the present invention, is arranged in connection with a sidewalk 20 and is extended along the outer edge thereof between the sidewalk 20 and the gutter 21.

The thawing curb construction includes a tubular housing 22 which is extended along the outer edge of the sidewalk 20 and which is formed of a plurality of metallic sections 23 arranged in end alignment. One end of each of the sections 23 is formed with a reduced tubular extension 24, see Figs. 2 and 3 and especially Fig. 7, which is extended into the end of the adjacent section connecting them together. On the drawings, the curb construction is shown extended along a straight section of the sidewalk 20 but it is to be understood that the sections 23 could be appropriately shaped to extend continuously around corners and other obstructions.

Intermediate of their ends, each of the sections 23 is formed with an upward extension 25 having an open top flush with the sidewalk 20, as clearly shown in Figs. 2 and 3. Integrally formed with the upward extensions 25 and extended outward therefrom along the top edges of the sections 23 there are flanges 26 which extend along the vertical edge of the sidewalk 20, as shown in Fig. 3. The upward extensions 25 and the flanges 26 cooperate to form a metallic facing for the outer edge of the sidewalk protecting that edge from damage resulting from being contacted by vehicle wheels and the like.

Inward of its open top, each of the upward extensions 25 is formed with an inwardly directed flange 27 having a sealing gasket 28 of rubber or the like mounted on the top face thereof. A cover 29 of metal is provided for closing the open top of each of the upward extensions 25. The covers 29 have their bottom faces resting on the face of the gaskets 28 to seal the contacting surfaces of the covers and the flanges 27 against the seepage of water into the tubular housing 22. The covers 29 are removably retained in position, with their top faces flush with the tops of the upward extensions 25 and the sidewalk 20, by means of bolts 30. The bolts 30 are passed downward through aligned holes formed in the cover 29 and the gasket 28 and are threadedly received in complementary threaded holes formed in the flanges 27. There is one bolt 30 at each end of the cover 29.

Depending downward from the bottom faces of the covers 29 into the upward extensions 25 there are heaters 31. The heaters 31 are of the electrical type and details of their interior construction will not be given in this application as such details form no part of the present invention and are generally known by those skilled in the art to which the present invention pertains. The heaters 31 are formed on diametrically opposite sides with outwardly extending ears 32 which extend along the bottom faces of the covers 29. The ears 32 are formed with elongated slots 33 extended inward from the free ends thereof. Each cover 29 is formed with a pair of spaced downwardly extending threaded studs 34 which extend through the slots 33 and which are engaged by nuts 35, see Figs. 2 and 4, for adjustably supporting the heaters 31 on the cover 29 for a purpose which will become clear as this specification proceeds.

Extending from one side of each of the heaters 31 there is an insulation block 36 formed in-

ternally with a pair of conductor strips 37 each connected to one end of the winding of the respective heater. The conductor strips 37 continue into spaced plugs 38 which depend beyond the bottom face of the insulation blocks 36.

The plugs 38 are arranged to be individually received in complementary spaced sockets 39. The sockets 39 are mounted in an insulation block 40 secured to the bottom face of an adjacent flange 27 by means of spaced bolts 41. Extended outward from each of the sockets 39 there is a conductor strip 42 each of which continues into a threaded stud 43 extended beyond the respective end of the insulation block 40. A branch lead 44 is connected to each of the threaded studs 43 by means of a nut 45. The branch leads 44 are in turn connected in parallel to a pair of leads 46 and 47 connected with a source of electrical current, not shown. Connected in one of the leads 46 or 47 there is a manually operable switch 48 for controlling the supply of electric current to the heaters 31. The switch 48 is preferably located at some convenient centrally located point to be easily turned on to energize the heaters 31 when required.

The relationship of the plugs 38 and the sockets 39 is such that the heaters 31 will be connected in the energizing circuit all the time that the covers 29 are mounted in position. However, when the covers 29 are removed, the heaters 31 will be lifted out of the upward extensions 25 as a unit with the covers disengaging the plugs 38 from the sockets 39. This permits the heaters 31 to be conveniently exposed for repair or replacement when desired. The adjustable mounting of the heaters 31 on the bottom face of the covers 29 permits the heaters 31 to be properly adjusted with relation to the covers 29 so that the plugs 38 will be engaged in the sockets 39 when the covers 29 are in position closing the open tops of the upward extensions 25.

Mounted in the gutter 21 and extended outward from the tubular housing 22 there are end aligned metallic plates 49. The metallic plates 49 contact the tubular housing 22 and serve to transmit the heat out into the gutter to melt a greater amount of the snow and ice which accumulates in the gutter and to keep the gutter open so that the water may conveniently flow to the appropriate located catch basin 50, see Fig. 1. Details of the construction of the catch basin 50 will not be given in this specification, it being deemed sufficient to say that the same is connected with the usual underground sewer pipes to convey the water away from the catch basin.

In the modification of the invention shown in Fig. 10, the sections 23' used for forming the tubular housing are designed for use with railroad tracks and especially at switches. The section 23' does not have the upward extension 25 and the flanges 26, but instead, the top of the section 23' is formed with a plurality of laterally extended parallel bars 60 for conveying the heat outward from the section 23'.

In forming the tubular housing, the sections 23' are laid end to end along the side of a railroad track with the tops of the sections flush with the roadbed and with the bars 60 extended beneath the rails between the ties upon which the rails are mounted. When the tubular housings are installed, snow and ice accumulations on the railroad tracks and especially at the switches will be melted eliminating the usual delays and preventing accidents and damage to rolling stock from that cause.

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In other respects, the form of the invention shown in Fig. 10 is similar to that previously described and like reference identify like parts in all of the views.

The further modification of the invention shown in Fig. 11 is designed for use at the private entrances to residences and is characterized by a housing 23" similar to that shown in Fig. 7, but which is provided along its bottom with laterally extending parallel bars 61. The bars 61 are to be covered with cement in constructing private walks to residences, so that by just pushing a button accumulations of ice and snow will be cleared away without the necessity of resorting to the use of a pick and shovel.

In other respects, the form of the invention shown in Fig. 11 is also similar to that described in connection with Figs. 1 to 9 and similar reference numerals identify like parts in all of the views.

While no covers have been illustrated for closing the ends of the tubular housing formed by laying the sections end to end, it is appreciated that those open ends of the housing may be closed by any suitable cover or by the cement used for forming the sidewalk or the ground at the end of the entrenchment in which the tubular housing is laid.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. A thawing device having an elongated tubular housing formed of a plurality of end aligned sections, comprising an upward extension on each of the sections intermediate of their ends, said upward extensions having open tops, a cover closing the open top of each of the upward extensions, an electric heater mounted on the inner face of each of said covers, a socket member mounted within each of the upward extensions and connected in an electric circuit, and a plug carried by each of said heaters and engageable with the respective socket member when the respective cover is in position closing the open top of the respective upward extension to supply the required electric current to energize the respective heater.

2. A thawing device having an elongated tubular housing formed of a plurality of end aligned sections, comprising an upward extension on each of the sections intermediate of their ends, said upward extensions having open tops, a cover closing the open top of each of the upward extensions, an electric heater mounted on the inner face of each of said covers, a socket member mounted within each of the upward extensions and connected in an electric circuit, a plug carried by each of said heaters and engageable with the respective socket member when the respective cover is in position closing the open top of the

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respective upward extension to supply the required electric current to energize the respective heater, said cover having its bottom face resting on an inwardly directed flange formed in the tubular housing, and a sealing gasket between the adjacent faces of said flange and said cover.

3. A thawing device having an elongated tubular housing formed of a plurality of end aligned sections, comprising an upward extension on each of the sections intermediate of their ends, said upward extensions having open tops, a cover closing the open top of each of the upward extensions, an electric heater mounted on the inner face of each of said covers, a socket member mounted within each of the upward extensions and connected in an electric circuit, a plug carried by each of said heaters and engageable with the respective socket member when the respective cover is in position closing the open top of the respective upward extension to supply the required electric current to energize the respective heater, and means adjustably mounting said heater on the bottom face of said cover so that said heater can be adjusted with relation to said cover to insure engagement of said plug with said socket member when said cover is in position closing the open top of the upward extension.

4. A device of the class described having an elongated tubular housing formed of a plurality of end aligned sections having open tops, comprising a cover closing the open top of each of the sections, an electric heater mounted on each of said covers, a socket member mounted within each of the sections and connected in an electric circuit, a plug carried by each of said heaters and engageable with the respective socket member when the respective cover is in position closing the open top of the respective upward extension to supply the required electric current to energize the heaters, and a plurality of parallel bars extended laterally from the tops of the sections.

5. A device of the class described having an elongated tubular housing formed of a plurality of end aligned sections having open tops, comprising a cover closing the open top of each of the sections, an electric heater mounted on each of said covers, a socket member mounted within each of the sections and connected in an electric circuit, a plug carried by each of said heaters and engageable with the respective socket member when the respective cover is in position closing the open top of the respective upward extension to supply the required electric current to energize the heaters, and a plurality of parallel bars extended laterally from the bottoms of the sections.

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