

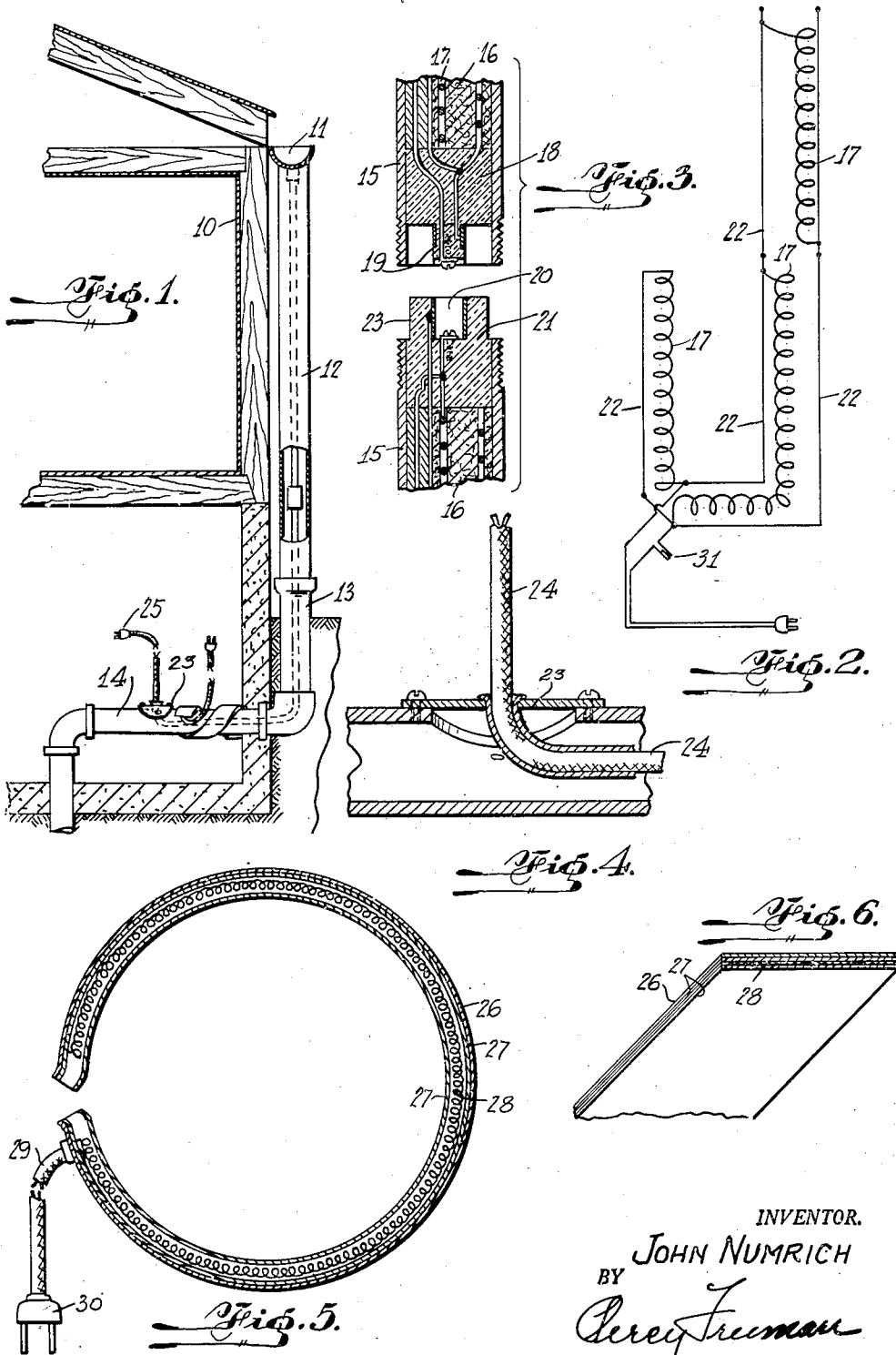
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HEATING UNIT FOR PIPES

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HEATING UNIT FOR PIPES

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1 Claim. (Cl. 219—38)

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This invention relates to new and useful improvements in means for preventing the formation of ice in pipes especially in drain pipes leading from the eaves of a house to the ground, to a soil pipe, or other outlet.

One object of the invention is to provide a simple, compact, durable, economical, easily assembled unit which can be associated with the element to be de-iced whether it be a pipe, a tank, or any other element with which the de-icer can be used.

A further object is to provide a device which can be adapted for use with any length of element to be de-iced and can be quickly and easily installed.

A still further object is to provide a device in which the heating effect can be kept within predetermined bounds automatically and in which the device can be installed without the use of any appreciable number of extra parts.

Further and more specific objects, features, and advantages will more clearly appear from a consideration of the specification hereinafter set forth especially when taken in connection with the accompanying drawings which illustrate a present preferred form which the invention may assume and which form part of the specification.

In brief and general terms the invention includes a series of sections of pipe, in each section of which are embedded heating coils, preferably in parallel, these sections capable of being plugged together to make a heating unit as long as desired. This length of heating unit is preferably disposed within or closely adjacent the element to be de-iced. In the drawings it is shown as within a drain pipe of a house, although it is to be understood that this is but one of many ways in which it can be used.

The heating unit is connected to any suitable source of current preferably within the house, and an extra heating coil in the form of a flat band of material, housing a heating coil, may be wrapped around the element to be de-iced, such as a pipe.

As later described, the device lends itself to application with existing parts and appliances without requiring any major change in them for the purpose of installing it therewith.

In previous attempts to provide de-icing devices, they have been designed for special locations and in connection with special constructions and this has limited their wide application to other locations. This invention is of such universal nature and construction that it

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lends itself to association with and application to any location and almost any sort of element to be de-iced, such as water pipes, drain pipes, water or other tanks, refrigerators, ship tanks, airplanes, radiators, neon light signs, and for railroads in many adaptations.

The present preferred form of the invention is shown, in one application thereof, in the drawings, of which:

Fig. 1 is a partial vertical section of a house showing the invention as a de-icer for the drain pipe from the eaves.

Fig. 2 is a circuit diagram of the heating units.

Fig. 3 is a partial longitudinal section through ends of adjacent heating sections.

Fig. 4 is a partial section through the drain pipe within the house, showing the manner in which the heating unit wires are led out to be connected to a source of current.

Fig. 5 is a sectional view of a heating unit to be wrapped around an element such as a pipe.

Fig. 6 is a partial perspective view of the heating unit shown in Fig. 5.

Referring now merely to the construction and operation of the form of the invention shown herein, it is seen that there is a house structure 10, having eaves 11 from which depends a drain pipe 12 leading to a stand pipe 13 in the ground, which in turn is connected to a pipe 14 within the house leading to the sewer mains. It is evident and well known that this drain pipe and the connected pipes in very cold weather may be clogged up with ice, and the intention of this invention is to prevent this action. To this end, it is proposed to support, within the drain pipe and related pipes, a heating unit which is preferably disposed centrally within said pipes and is supported therein in any suitable manner (not shown). This heating unit comprises a series, preferably, of readily connectable sections such as are shown in Fig. 3, and each section is comprised as follows:

An outer tube of material such as copper or aluminum 15, an inner filling of asbestos 16 in which is embedded in any desired manner heating wires 17 preferably of Nichrome, in the forms of coils, as shown. As shown in Fig. 3, the lower end of one section is provided with a porcelain plug 18 having a projecting lug 19 which is adapted in the well-known manner to coact with a socket 20 in another porcelain plug 21 disposed in the adjacent end of the next section so that the two sections are connected merely by forcing them together whereupon the mechanical union is effected and the electrical

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connections between the heating wires as well. From Fig. 2, it is seen that the wires are connected in parallel across lead wires such as 22. In a manner common in electric light bulbs and sockets, these lead wires are connected by merely plugging one section into the other. It will be noted that the lower plug 21 has a projecting portion 23 around the socket 20, which projection fits snugly into the lower end of the adjacent aluminum or copper pipe 15, so that the mechanical connection is made thus secure, snug, and waterproof.

It is clear that as many sections can thus be joined as are required to dispose the heating deicer along any length of element to be heated whether it is the drain pipe or any of the other elements above noted.

As shown in Fig. 4, the lower ends of the aluminum or copper tubes are bent around to pass through the stand pipe 13 and through the pipe 14 to a point therein where it is bent up through a cap 23 in the pipe 14 and the cable 24 extending from the sections and containing the lead wires is passed through the cap to be connected to a suitable plug 25 and connected to a suitable source of electricity.

In addition to the form of heater just described, the form shown in Figs. 5 and 6 may be used either by itself or in conjunction therewith. This form is preferably made in band-like shapes such as is shown in Fig. 6, and comprises a shallow U-shaped band 26 of spring steel with two spaced layers of asbestos housed therein with an intermediate layer of heating wire 28 formed in any desired shape especially in flat plane formation. The spring steel support for the insulation and the heating wires will cause the element thus assembled to assume a curved shape shown in Fig. 5, which is especially adaptable to be curved or wrapped around pipes, as shown in Fig. 1. A suitable cable 29 is connected to the wires therein and has a plug 30 on its end to permit this form of unit to be plugged into a source of current. This may be used for the purpose of heating the pipe 14 inside the house or in any other situation where the heating sections previously mentioned may not be required to be in service.

In either form used, there may be provided a thermostat of any known construction such as 31, shown in Fig. 2, which will enable the current in the coils to be kept at a predetermined value dependent upon the heat produced.

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While the invention has been described in detail with respect to a present preferred form which the invention may assume, it is not to be limited to such details and forms since many changes and modifications may be made in the invention without departing from the spirit and scope of the invention in its broadest aspects. Hence, it is desired to cover any and all forms and modifications of the invention which may come within the language or scope of the appended claim.

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

A heating unit which comprises detachably connected pipe sections, heating coils insulatingly disposed in each section, an insulated plug in the end of one section having a body portion with a face disposed at a predetermined distance from the end of the pipe, and a projecting lug extending therefrom to the end of the pipe, an insulating socket element disposed in the end of an adjacent pipe section and having a body portion extending a predetermined distance beyond the end of the pipe and having a socket recess therein to receive the projecting lug of the adjacent section, the extending body portion of the socket element fitting snugly within the end of the adjacent pipe section whereby a firm mechanical and electrical connection is thereby established.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,642,197	Fowler	Sept. 13, 1927
1,697,040	Appelberg	Jan. 1, 1929
1,841,864	Weicheit	Jan. 19, 1932
1,936,391	Harrover	Nov. 21, 1933
1,997,146	Hynes	Apr. 9, 1935
2,015,209	Whiteside	Sept. 24, 1935
2,022,662	Geyser	Dec. 3, 1935
2,111,251	Spilsbury	Mar. 15, 1938
2,286,161	Rights et al.	June 9, 1942
2,389,466	Stoffel	Nov. 29, 1945

OTHER REFERENCES

H. & A. Mfg. Co., Inc., "Plastics," November 1944, page 77.