

- [54] **PORTABLE ELECTRIC WATER HEATING
DEVICE FOR MELTING SNOW**
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219/381; 222/146 HE; 239/135
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146 HE; 137/341; 128/254-255, 256, 257,
400; 239/133-136; 15/250.01, 250.05;
126/271.1, 271.2, 343.5 R

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[57] **ABSTRACT**

A portable snow melter for manual operation includes a hollow hand grip of dielectric material having attached thereto an elongated wand carrying a discharge chamber. The grip is provided with a hose connection for supplying a flow of water to the interior of the grip. A manually operated valve is provided on the grip for selective control of the water flow. An electrical resistance wire helix is located in the grip for raising the temperature of the water as it flows through the grip. The wand conveys the heated water to a series of discharge nozzles in the discharge chamber wherefrom the heated water is ejected toward a snowy surface to melt the snow.

4 Claims, 4 Drawing Figures

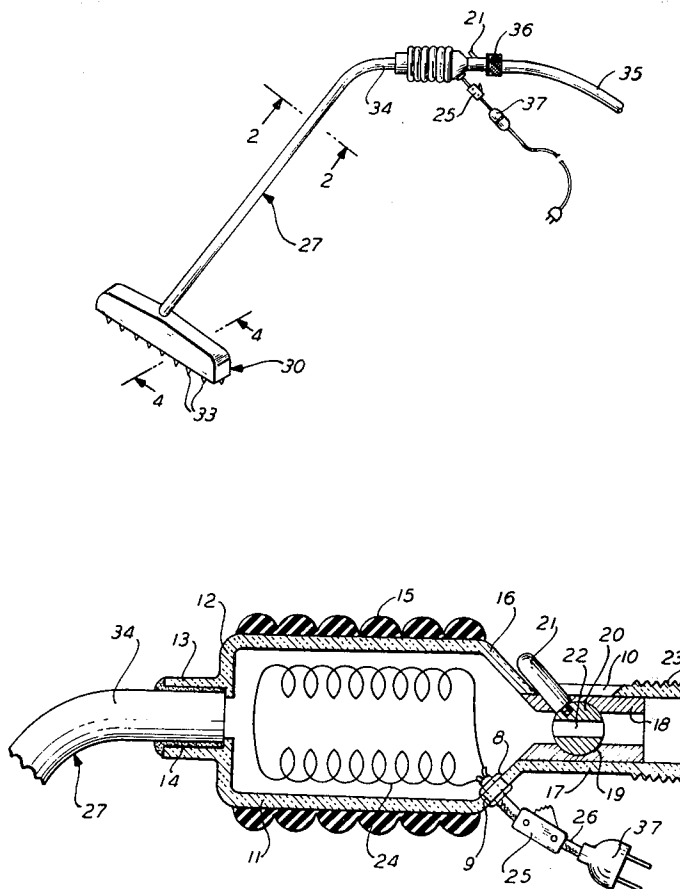


FIG. 1

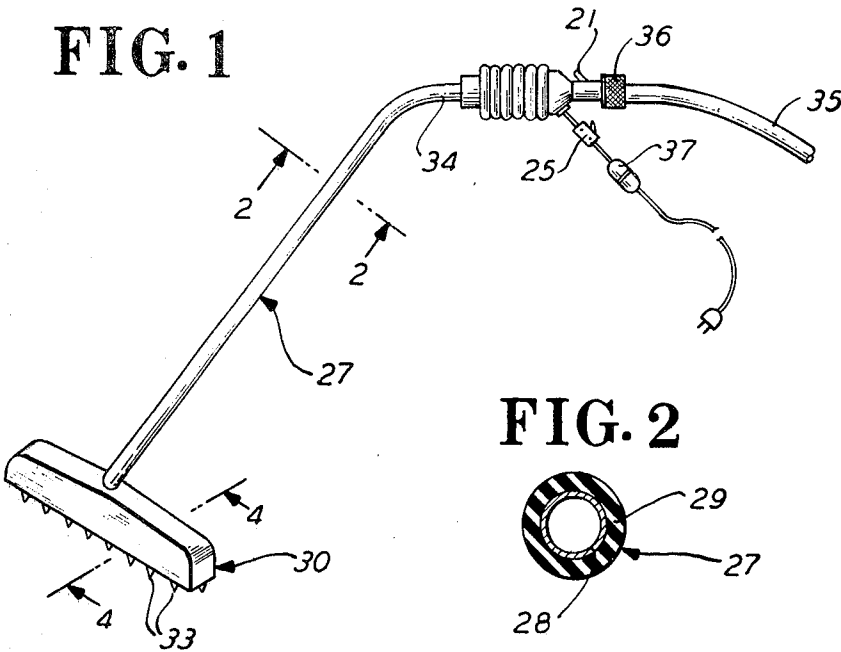


FIG. 2

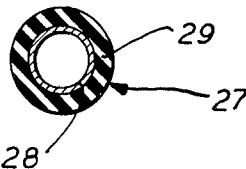


FIG. 4

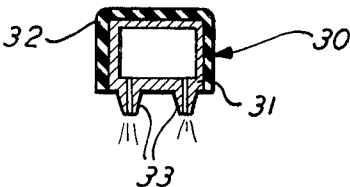
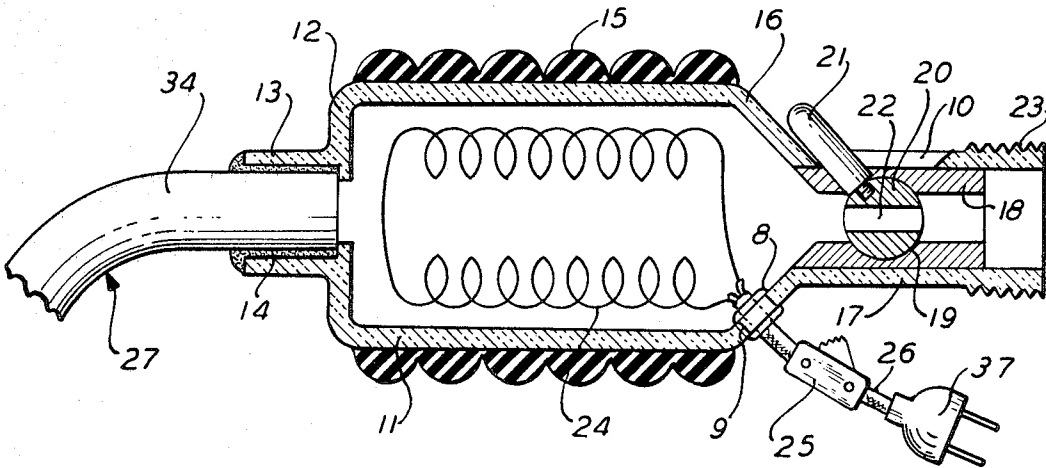


FIG. 3



PORTABLE ELECTRIC WATER HEATING DEVICE FOR MELTING SNOW

BACKGROUND OF INVENTION

1. Field of the Invention

This invention relates generally to snow melters and particularly to portable snow melters wherein an electrical heating coil is incorporated for heating flowing water and a nozzle assembly discharges the heated water onto a snowy surface.

2. Description of Prior Art

The removal of snow is generally accomplished by motorized scoops or by shoveling. There are often small snow falls which are not adequately or conveniently dealt with by cumbersome apparatus, and the use of snow shovels becomes heavy work.

SUMMARY OF INVENTION

It has been found that jets of heated water can be generated at the site to effectively melt snow falls. The present invention incorporating an electrical heater in a chamber to which water is supplied, and a discharge assembly at the end of a wand, can quickly discharge heater water to melt the snow on a surface, and clear it with a minimum of effort.

The discharge nozzles are on a wand which is manipulated by a handle containing an electrical heater. The heated water passes through the wand and out of the nozzles.

The apparatus is light-weight and easy to handle.

DRAWINGS

These objects and advantages, as well as other objects and advantages may be attained by the device shown by way of illustration in the drawings in which FIG. 1 is a perspective view of the portable snow melter.

FIG. 2 is a cross-sectional view taken on the line 2—2 in FIG. 1, looking in the direction of the arrows, showing the construction of the wand;

FIG. 3 is a vertical-sectional view of the water heating chamber; and

FIG. 4 is a vertical-section view of the discharge chamber and nozzles taken on the line 4—4 in FIG. 1 looking in the direction of the arrows.

DESCRIPTION OF PREFERRED EMBODIMENT

Referring now to the drawings in detail, the snow melter provides a general tubular, dielectric, elongated housing 11. The housing is made of a material having a low co-efficient of thermal conduction such as ceramic material, although, other materials may be utilized.

The tubular housing 11 has an integral inwardly extending generally radial flange 12 at one end. The flange is provided with an integral tubular arrangement 13 defining a socket. A tubular gasket 14 is inserted in the enlargement 13 and functions as a liquid seal as hereinafter set forth.

The housing is provided with an external tubular grip made of a material having a low co-efficient of thermal conduction and a high co-efficient of friction. The outer surface of the grip 15 is serrated. The other end of the housing 11 is provided with an integral conical flange 16. The flange 16 is provided an integral tubular enlargement 17. The enlargement 17 has a slot 10 for a valve handle as will later appear.

A tubular insert 18 is positioned in the tubular enlargement 17. The tubular enlargement has a transverse annular bore 19 in which a generally cylindrical valve 20 is rotatably positioned. The valve has a handle 21 which is passed through the slot 10 and into threaded engagement with the valve 20 so that the valve passage 22 can be arranged in closed position, with respect to the passage in the insert 18, and moved to open position as shown in FIG. 3.

The end of the tubular enlargement 17 is provided with an external thread so that a water hose coupling can be applied thereto.

A double (folded) helix of electric resistance wire 24 is positioned in the housing and the insulation covered ends of the helix 24 are passed in spaced relationship to each other through a steel 8 and the passage 9 in the housing 11. The double helix is more efficient in heating water in the housing. These ends are connected to the switch 25 which in turn is connected to an electric power supply cable 26 at the end of which there is a plug 27 for establishing a connection to a power circuit. The opposite portions or halves of the helix 24 occupy opposite halves of the housing 11 and are spaced from each other.

At the opposite end of the housing 11, a wand 27 is attached to the housing. The wand 27 is a tubular body 28 which may be aluminum or a dielectric plastic material. The tube 28 is covered with a sheath or coating of material such as rubber, which has a low co-efficient of thermal conduction in order to retain the heat of water therein. The wand has an offset upper end 34, and its lower end terminates in a head assembly 30. The head assembly has a light-weight elongated discharge chamber which is provided with a plurality of discharge nozzles 33. The head assembly 30 and nozzles 33 are preferably made of aluminum.

The chamber 31 is covered with a sheath 32 of material having a low co-efficient of thermal conduction such as the material of the sheath 29 on the tube 28.

The snow melter is intended for use in the removal of snow by melting. A hose for supplying water is attached to the threaded end 23 by a coupling 36. The valve 21 is opened, allowing water from the hose 35 to enter the housing 11. The switch 25 is move to closed circuit position to energize the double helix 24. The double helix has a resistance sufficient to heat the wires and the water entering the housing and passing through the wand 27 out of the nozzles 33. The grip 15 and the ceramic housing 11 provide electrical and thermal insulation to the hand of the operator so that a person may maneuver the snow melter by directing its motion with the grip 15, so that the heated water discharged from the nozzles 33 melts the snow. The snow melter is operated and manipulated similar to the manner of operating a vacuum cleaner.

What is claimed:

1. A portable snow melter for manual operating comprising:
 - a. a dielectric housing for an electrical resistance wire,
 - b. a helix of electrical resistance wire disposed in the housing,
 - c. the housing having a low co-efficient of thermal conduction, and an elongated generally hollow tubular form, defining a water flow passage around the electrical resistance wire,

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- d. an integral generally tubular end portion on one end of the housing having a water outlet passage therethrough and defining a socket for a wand,
- e. a gasket in the socket for defining a water seal between the housing and a wand, inserted in the socket, 5
- f. an integral generally tubular enlargement on the other end of the housing,
- g. a generally tubular insert in the enlargement, and having a first bore therethrough forming a water inlet passage to the housing, 10
- h. a cylindrical bore in the insert transverse to said first bore,
- i. a rotatable cylindrical valve rotatably seated in the transverse bore, 15
- j. a water flow passage through the valve,
- k. a handle attached to the valve, and extending through a slot in the enlargement, for adjusting the valve from an aligned open position to a transverse blocking closed position relative to the first bore in the insert, 20
- l. a means for engaging a water supply hose to the enlargement,
- m. means connecting the wire helix in the housing to an electric power supply outside the housing, 25
- n. an elongated generally tubular wand having one end engaged with the water seal gasket in the

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- socket and defining a water flow passage communicating with the water outlet from the housing,
- o. an elongated discharge chamber disposed transversely at the other end of the wand and communicating with the water flow passage in the tubular wand,
- p. a plurality of nozzles on the bottom of the discharge chamber for ejecting heated water in close proximity to a snowy surface.
- 2. A portable snow melter for manual operation:
 - a. the device according to claim 1 and,
 - b. a sheath covering the exterior of the wand and the discharge chamber and having a low co-efficient of thermal conduction.
- 3. A portable snow melter for manual operation:
 - a. the device according to claim 1 and,
 - b. the wire helix is folded in half with the respective portions thereof in spaced relation to each other in opposite halves of the housing.
- 4. A portable snow melter for manual operation:
 - a. the device according to claim 1 and,
 - b. a tubular grip attached to the outside of the housing,
 - c. the tubular grip having a low co-efficient of thermal conduction.

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