

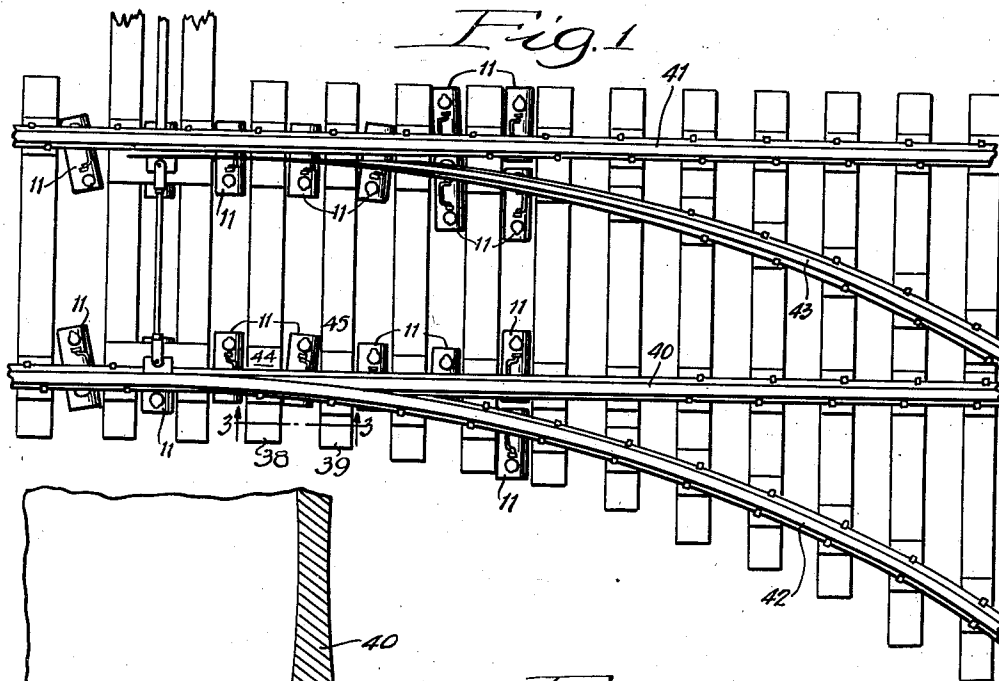
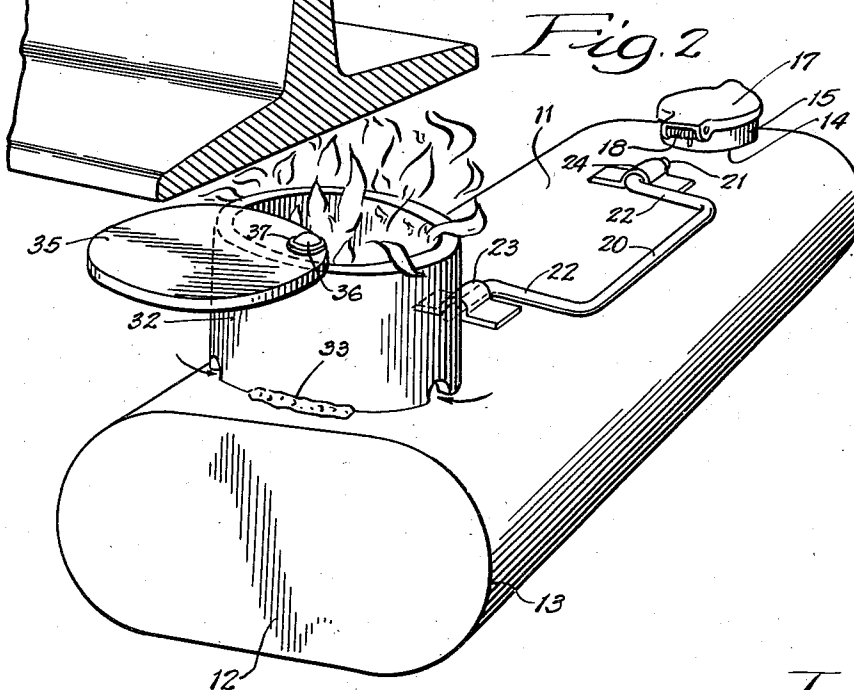
Sept. 29, 1942.

T. J. HEGEMAN
RAILWAY SWITCH HEATER

2,297,059

Filed May 8, 1941

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 3

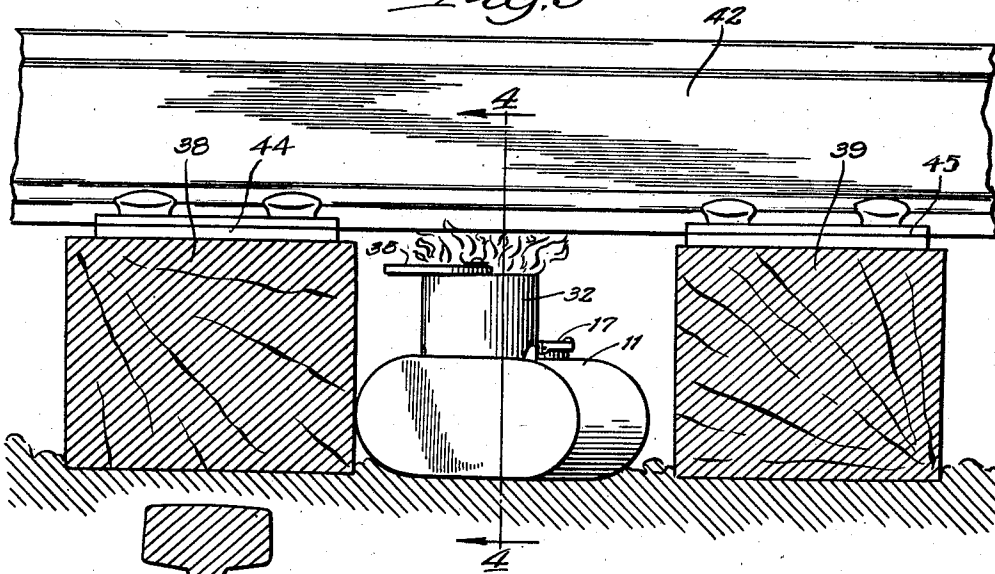


Fig. 4

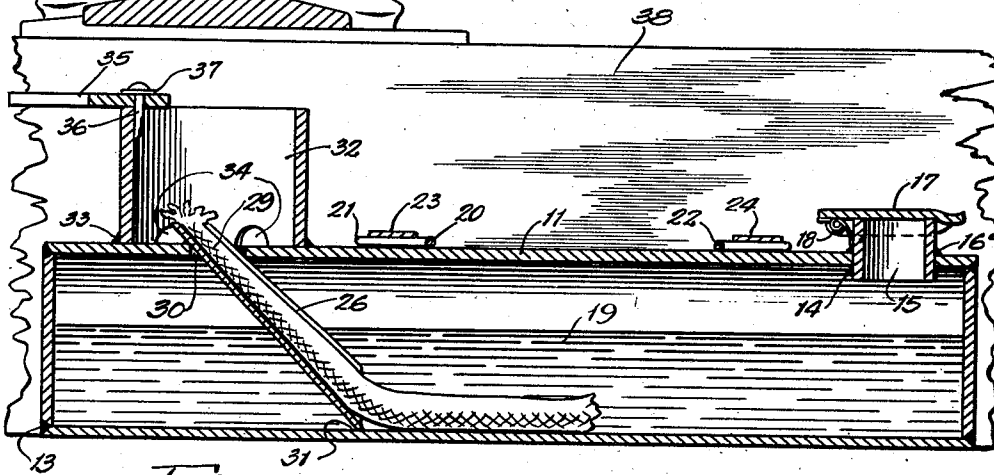
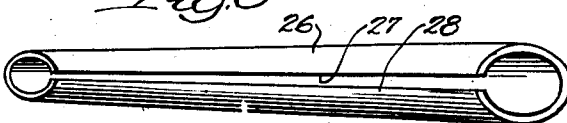


Fig. 5



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UNITED STATES PATENT OFFICE

2,297,059

RAILWAY SWITCH HEATER

Theodore J. Hegeman, Aurora, Ill.

Application May 8, 1941, Serial No. 392,583

1 Claim. (Cl. 158—94)

My present invention relates to a portable unitary heater, and is particularly concerned with the heating of switches of railway tracks to prevent the accumulation of ice and snow about such switches during severe winter weather, and also for the melting of any such accumulation in case it should occur.

My invention contemplates and provides an improved heater which effectively and satisfactorily solves the switch heating problem.

An object of my invention is to provide a simplified and generally improved railway track switch heater.

Another object of my invention is to provide an improved railway track switch heater comprising a compact and effective fuel burner.

Another object is to provide an improved railway track switch heater having the body thereof formed as a fuel container adapted to have a minimum area of contact with a tie surface, adjacent to which the heater is installed, and presenting a maximum area of heat dissipating surface.

Another object is to provide an improved, sturdy, compact railway track switch heater with a wick-container and combustion head, constructed and arranged for maximum strength and simplicity, which cooperate to sustain a flame which occupies approximately the entire area of the upper open end of such combustion head.

Another object of my invention is to provide a track switch heater with a wick holder and combustion head cooperating to sustain a flame which swirls upwardly in the combustion head and occupies substantially the entire area of the upper open end thereof.

Other objects and advantages of my invention will be apparent from the following description and the accompanying drawings in which similar characters of reference indicate similar parts throughout the several views.

Referring to the drawings, of which there are two sheets,

Fig. 1 is a plan view of a conventional type of railway track switch, showing a number of heaters embodying my invention installed beneath the rails at suitable points for maintaining a proper temperature to prevent and dispel accumulations of sleet, snow and ice on the switch during periods of inclement weather;

Fig. 2 is a view in perspective of a heater embodying the present invention, as it would appear in operation, a fragment of a rail against which the flame is arranged to impinge also being illustrated in perspective;

Fig. 3 is an enlarged fragmentary sectional view taken as on the plane of the line 3—3 of Fig. 1;

Fig. 4 is a further enlarged sectional view taken as on the plane of the line 4—4 of Fig. 3, and

Fig. 5 is a plan view of a tubular, tapered, slotted wick holder employed in the heaters illustrated in Figs. 1 to 4, inclusive.

Referring to the drawings in detail, the heater comprises a body portion 11 of relatively heavy sheet metal, such as for instance No. 11 standard U. S. gauge steel. The body portion 11 may be formed into a generally oval shape as best illustrated in Figs. 2 and 3, the top and bottom surfaces of the body being substantially flat, and the sides being rounded as illustrated. The body portion conveniently may be made by flattening the top and bottom of a piece of ordinary, round, welded-seam tubing, and is provided with oval ends 12 which may be cut or punched from sheet metal of approximately the same thickness as the body portion 11. The ends preferably are welded to the body as at 13 to form a fuel-tight tank.

It will be noted in Fig. 3 that the rounded sides of the heater body 11 can contact the side of a tie beside which the heater is positioned, along but a single line, and that the rounded sides of the heater body are fully exposed to the atmosphere both below and above the single line of possible contact with a tie, so as to provide an extremely large heat dissipating area. This provision insures against the scorching or overheating of the side of a tie against which the heater may be positioned, and permits a maximum dissipation of heat from the heater, which tends to raise the temperature of the atmosphere in the vicinity of the rail, and adds to the over-all efficiency of the heater.

An opening 14, Fig. 4, is provided in the body 11 adjacent an end thereof, and in the opening is inserted a filler-pipe 15, through which a supply of oil 19 may be introduced into the body of the heater. The filler-pipe 15 is secured in place as by welding 16. A closure cap 17 is hinged mounted on the filler-pipe 15, and is provided with a spring 18, which holds cap 17 normally in a closed position.

A carrying handle 20 is formed of steel rod, and is provided with diverging end portions 21 and 22, which are swiveled beneath straps 23 and 24, respectively, welded to the top of the body portion 11.

A wick-holder 26 is made of sheet metal rolled into the form of a tube, with edges 27 and 28 thereof slightly separated. The wick-holder is

constructed to have a larger diameter at its lower end so as to facilitate the manipulation of a wick 29 therein. The wick-holder is mounted in an opening 30 in the top of the body portion 11 and is disposed at an acute angle to the top surface of the body portion 11, extending downwardly on a diagonal toward the center of the body 11. It is secured in place as by welding at the opening 30, and is of a length so that the lower end thereof rests on the bottom of the body portion 11 as at 31.

A combustion head 32 comprises a cylindrical wall portion, which may be welded as at 33 to the top surface of the body portion 11. The wall of the head 32 is provided with air inlets at the lower margin thereof which in the illustrated heater comprise a pair of notched openings 34 on each side of the head. These openings preferably are located closely adjacent a vertical plane transversely of the body portion 11, so that air, entering the openings will sweep across the lower end of the combustion head toward the wick. When the heater is installed for use, as illustrated in Fig. 3, the openings 34 will be protected against the direct impact of any wind which may be blowing. This protection is afforded due to the fact that when the heater is in position between the ties, the ties themselves protect the entire heater from blasts blowing from either side, while the location of the notched openings 34 on the sides of the heater protects them from the direct impact of wind blowing from either end of the heater.

The location of the air inlets on opposite sides of the combustion head in the above manner has the further and desirable feature of causing an observed swirling and spreading of the flame as it emerges from the upper end of the combustion head. This is a most effective form of structure for the intended use, and results in high track heating effectiveness.

A cover plate 35 is pivotally mounted on the top of the head 32 as by means of a pin 36 welded to the inside of the head. The pin 36 preferably is provided with a spring washer 37 to exert a resilient pressure on the cover 35, and thereby assists in maintaining the cover in adjusted position. The cover is of a size to completely close the top of the combustion head when moved to a closed position, and in such closed position, protects the combustion head and wick against the entrance of snow or sleet to which the heater might be exposed when not lighted, as for instance on storage platforms, on cars, or if left in place between the ties when not in use. The cover is also useful in adjusting the amount of heat imparted to the rails, and may be used to extinguish the flame by completely closing the cover.

In using my heaters, they may be positioned between adjacent ties 38 and 39 as illustrated in Figs. 1 and 3, the heaters preferably being positioned so that the tops of the combustion heads 32 are positioned approximately one or two inches below the bottoms of the rails to be heated. The heaters will operate satisfactorily at different distances from the bottoms of the rails, but I have found that a separation of between one and two inches from the bottom of the rail permits effective heating, and insures that the burner will operate cleanly under all conditions of wind and weather.

The life of the wick 29 is practically indefinite in ordinary use, provided the supply of fuel in the body portion 11 is not allowed to become

depleted to such an extent that it does not reach the wick 29. In such case, of course, the wick will become charred, but it is a simple matter to pull the wick up in the wick holder 26 as desired by inserting a pointed instrument such as the point of a knife or a wire, not illustrated, in the slot between the edges 27 and 28, and thereby to pry the wick upwardly in the wick holder as required.

I prefer to use a soft cotton wick with braided cover, and of a size to be gripped somewhat by the upper end of the tube 26, so as to be secured thereby against accidental displacement lengthwise of the tube.

It will be noted in Fig. 4 that the planes defined by the end surfaces of the wick holder 26 are approximately perpendicular to each other, so that when the plane of the upper end of the wick holder is disposed horizontally, as illustrated in Fig. 4, the plane of the lower end will be substantially vertical, so that the wick 29, in issuing from the bottom of the tube, will lie along the bottom of the container 11. This insures that the wick 29 will be in the oil 19 even when the oil in the container 11 is very low, and even in case the body portion 11 may not be exactly level.

In use, the heaters are disposed between the ties along the rails and switch elements of a switch connecting a main track here illustrated or comprising the rails 40 and 41, with a second track comprising the rails 42 and 43. The heaters are positioned principally along the movable portions of the track elements comprising the switch so as to maintain these elements and the tie-plates, such as the plates 44 and 45 in Fig. 3, free from ice and snow.

The heaters are easily and cheaply made, are rugged, and may be stored even in the open air without damage, providing the covers 35 are closed to protect the burner shells against the elements. Such protection is of course needed only when the heater is not lighted, since when burning, the heat of the flame will melt and vaporize any snow, sleet or rain which may find its way into the combustion head.

Heaters embodying my invention are easily ignited, and easily extinguished, since it is necessary only to close the cover 35 to extinguish the flame. The body 11 holds sufficient oil for extended periods of operation, and when desired, the heater may be left in place and filled through the easily accessible filler-pipe 15.

One of the salient advantages of my improved heater resides in the fact that its characteristic flattened tube form (elliptical cross-section) enables me to place it in operating position, between standard ties, without performing any excavation between those ties. This is a very real advantage, because the heater naturally is used only in cold weather.

While I have illustrated a preferred embodiment of my invention, many modifications may be made without departing from the spirit of the invention, and I do not wish to be limited to the precise details of construction set forth, but desire to avail myself of all changes within the scope of the appended claim.

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

In a portable heater for railway tracks and the like, a liquid fuel container comprising a generally oval tubular metal member having substantially flat upper and lower walls, and a

pair of end walls fitted and welded, one to each end of said tubular member, said upper wall having a filling opening adjacent one end of said upper wall, a filling spout comprising a metal tube welded in said filling aperture and having a cover on the outer end of said tube, and a burner head comprising a metal tube welded to said upper wall and having a plurality of notches in its end adjacent said upper wall forming air inlets, said upper wall having a wick aperture located in said burner head, and a wick

in said wick aperture, and depending into said container for engagement with liquid fuel therein, and a burner head cover comprising a metal plate adapted to cover the end of the burner head, said plate being pivotally mounted on an axially projecting headed pin carried by the wall of said head, and resilient means between the head of said pin and the cover to urge the cover into better closure with the end of said burner head.

THEODORE J. HEGEMAN.