

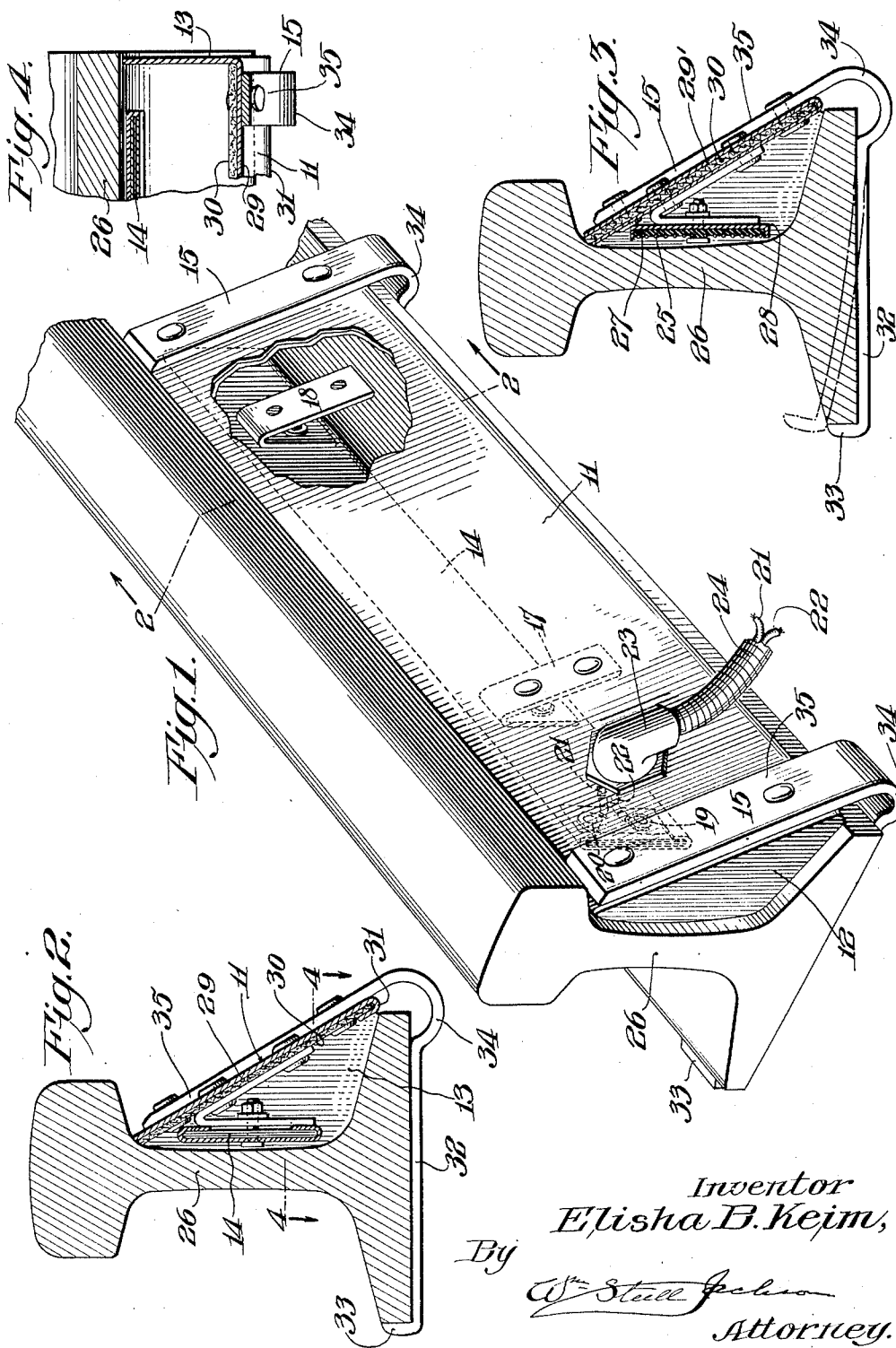
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SWITCH HEATER

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UNITED STATES PATENT OFFICE.

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SWITCH HEATER.

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My invention relates to railway switch heaters for use in keeping exposed switch rails adequately free from ice and snow so as to be reliably operable at all times.

5 A purpose of my invention is to provide inexpensive means for adjustably and removably mounting an electric heater adjacent the web of a switch rail in a way that will let the heater effectively transmit its
10 heat to the rail.

A further purpose is to removably clamp an electric heater to a switch rail by spaced clamp members underneath the rail head.

15 A further purpose is to mount an electric heater member upon a heat-casing including an insulating sheet that fits along a portion of the rail between opposing head and foot surfaces thereof, presents the heater along the rail web and is preferably provided with
20 end flaps closing the space between the ends of the sheet and the rail, thus shutting the heater into a fairly tight chamber between the rail and sheet.

25 A further purpose is to enclose an electric switch heater by a heat insulated sheet that is carried upon clamps and held to place without the aid of screws or bolts.

Further purposes will appear in the specification and in the claims.

30 I have elected to show one main form only of my invention with a minor modification, selecting a form that is practical and efficient in operation and which well illustrates the principles involved.

35 Figure 1 is a perspective assembly view showing structure embodying my invention applied to a stock rail, by which I refer to the rail against which the switch rail rests in closed position.

40 Figure 2 is a vertical section taken upon the line 2—2 of Figure 1.

Figure 3 is a vertical section corresponding generally to Figure 2 but showing a somewhat different form.

45 Figure 4 is a fragmentary sectional plan view taken on the line 4—4 of Figure 2.

Like numerals refer to like parts in all figures.

50 Describing in illustration and not in limitation and referring to the drawings:—

My invention is directed to the mounting of an electric heater upon a stock rail or other part of the track structure of which the stock rail will here be considered to be
55 representative for preventing the snow and

ice of winter storms from affecting the certainty of operation of the switch.

My device is a composite unit, made up to any desired length, to be put on and taken off as a unit, and includes a heat insulating
60 sheet 11 adapted to fit along a portion of the rail between the head and foot surfaces thereof, turned in at the ends at 12 and 13 against the rail web, presenting a heat element 14 along and closely adjacent to the
65 rail web, and removably held and locked to place by spaced spring clamp members 15 under the rail.

The heat element 14 is suitably supported. In the form shown it has been convenient
70 to support it from the casing sheet 11 by suitable brackets 17 and 18. Its electric terminals 19 and 20 are connected by conductor wires 21 and 22 through an outlet fitting
75 *qw* and conduit 24 to any suitable source of current, not shown.

The heat element 14 may be of any suitable type and in Figures 1 and 2 the illustration of this element is therefore intended for a conventional indication for any suitable heater.

80 Preferably the heat element should direct its radiant heat against the adjacent rail surface and be adapted to prevent heat passage outwardly toward the sheet member 11, and in Figure 3 I, therefore, show the element as including resistance coils 25 presented toward the rail web 26 and protected from heat transmission away from the rail by heat insulation 27 and a metal cover 28
90 polished on its exposed surface to make a poor heat radiator in a direction away from the rail web.

In the form shown in Figures 1 and 2 the heat-insulating sheet 11 is a composite
95 sheet and may comprise a sheet of galvanized iron 29 and an insulating lining 30 of asbestos fastened to the inside of the sheet 29, which is shown turned up at 31 to clamp the bottom edge of the asbestos lining.

100 I may increase the effectiveness with which the member 11 resists outward transmission of heat by providing an inwardly directed heat reflecting surface inside the asbestos lining and I have illustrated this
105 in Figure 4 where the composite sheet 11 includes a sheet member 29' that is bent up from the bottom back of the asbestos sheet of insulation which is thus between the spaced metal sheets.

The metal sheets may desirably be tinned or otherwise surfaced so as to make them resist heat absorption from the inside and resist heat radiation to the outside that is in order to enhance their heat adaptation to resist heat transmission from the heat element.

The insulating sheet member 11 is carried upon two or more spaced spring clamps 15 which are adapted to hook under and back of the rail so as to hold the device firmly to place and yet adapt it to relatively easy removal by pushing down the spring hooks 32 until their upwardly extending lugs 33 are low enough to pass across the bottom of the rail flanges.

The spring members are suitably bowed or goose-necked at 34 to increase their adaptation to spring deflection and have a diagonally upwardly extending portion 35 across the outer face of the sheet 11 to which they are riveted or otherwise fastened.

In operation the device is normally installed before cold weather at different exposed switch rails that need to be heated during winter storms and may preferably be left in place throughout the winter months.

Whenever weather conditions are such as to make it advisable to protect the switches from snow or ice the different heaters at the switches are energized from a suitable source of current and sufficiently heat up the adjacent switch rails to maintain the freedom of switch movement that would otherwise be endangered or prevented by the snow or ice.

The presence of the heater avoids the necessity for workmen at the individual switches during such storms, and goes far toward eliminating the great expense and inconvenience that in the past has resulted from a necessity to maintain the exposed switches free from snow and ice during winter storms.

In view of my invention and disclosure variation and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the structure shown, and I, therefore, claim all such in so far as they fall within the reasonable spirit and scope of my invention.

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

1. A railroad switch including a rail and

an electric heater removably clamped to the rail and free from rail alteration.

2. A railroad switch including a rail and an electric heater removably clamped about the flanges of the rail.

3. A railroad switch including a rail, an electric heater, a heat insulating casing adapted to fit along a portion of the rail between the flange and head of the rail engaging with the rail to enclose the heater and clamp means beneath and about the rail flanges fastening the casing to place.

4. A railroad switch including a rail, an insulation sheet, spaced V-clamps adapted to extend under and clamp back of the rail to hold the sheet in place between the flange and foot of the rail and an electric heater adjacent to the rail web and between it and the sheet.

5. A railroad switch including a rail, an electric heater presenting a heat element toward the rail flange and rearwardly surfaced to prevent outward radiation of heat, an insulation casing, enclosing the heater between the rail and casing and united to the heater and clamp means for removably engaging the rail flange to hold the parts in position.

6. A railroad switch including a rail, spaced V-clamps adapted to latch across and under the rail flange and having diagonally upward and inwardly extending arms that mount the heater.

7. A railroad rail which is intended to be heated, a metallic casing adapted to be fastened to the rail and comprising a longitudinally extending member reaching from a point beneath the head to a point near the outer flange edge, ends extending from the member transversely to close off a compartment upon one side of the rail, an electric heater within the compartment and nearer to the rail web than to the longitudinally extending member and means for holding the member and heater in position against the rail.

8. A switch rail, a longitudinally extending sheet of material sloping diagonally between the rail head and the outer part of the rail flange, inwardly turned ends from the sheet conforming generally to the contour of the rail side to form a casing, an electric heater supported from the casing and nearer to the web of the rail than to the sheet, connections for supplying electricity to the heater and clips holding the casing and heater to the rail flanges.

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