

Feb. 14, 1933.

W. P. SCHOLZ

1,897,218

SWITCH HEATER FOR RAILROADS

Filed July 17, 1930

2 Sheets-Sheet 1

Fig. 1

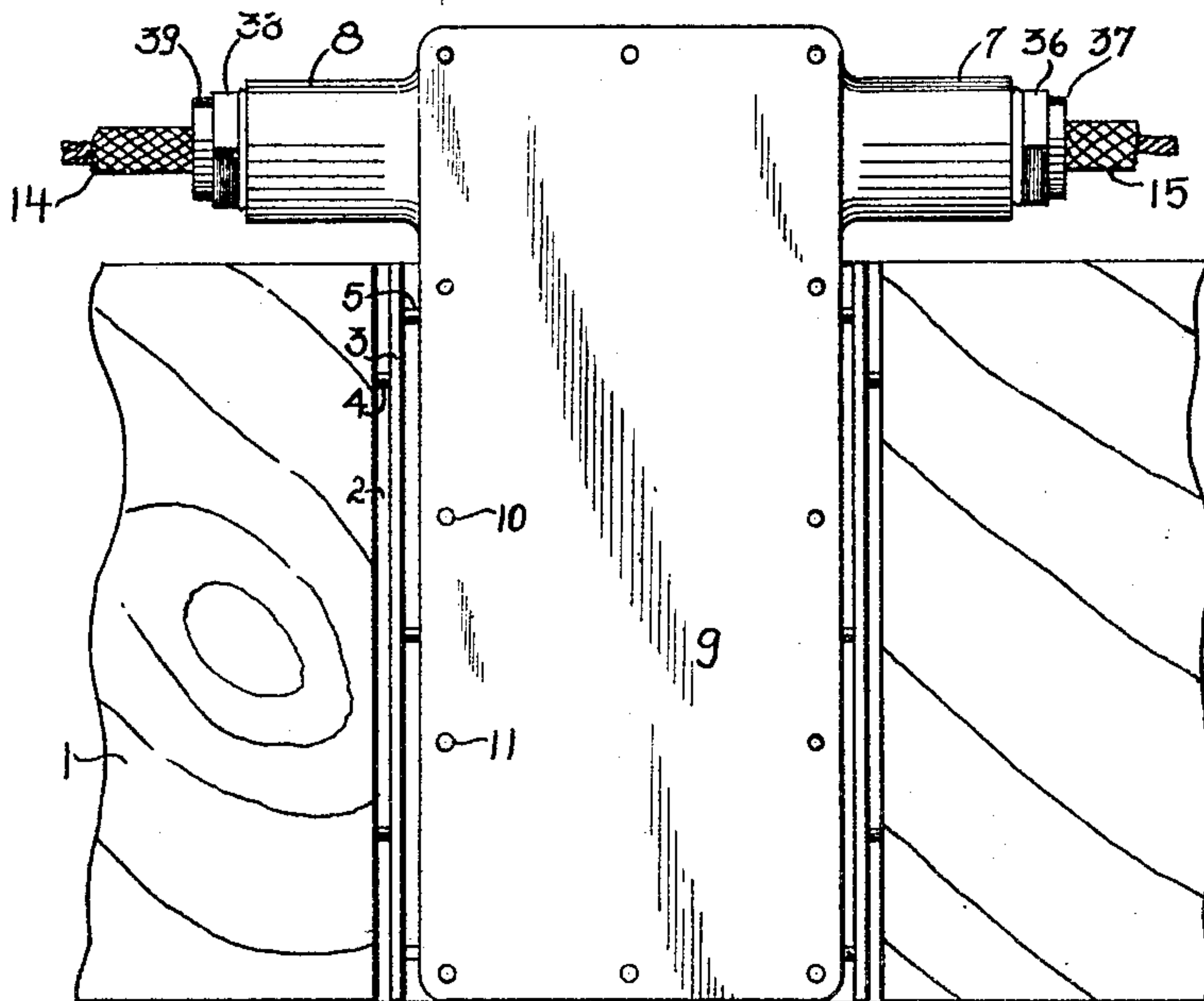


Fig. 2

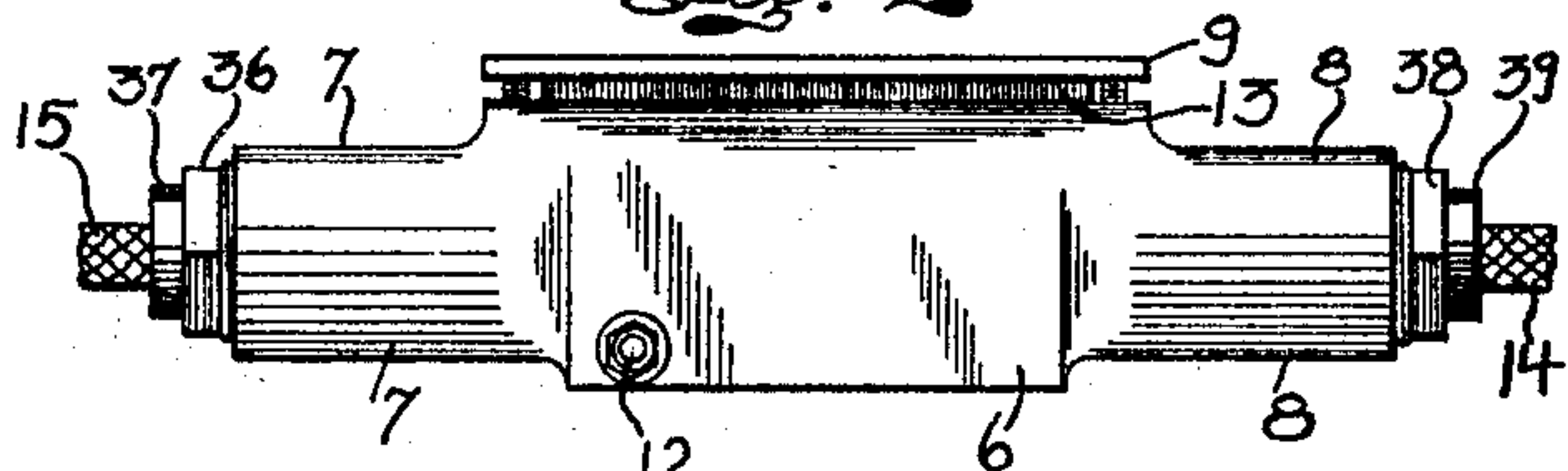
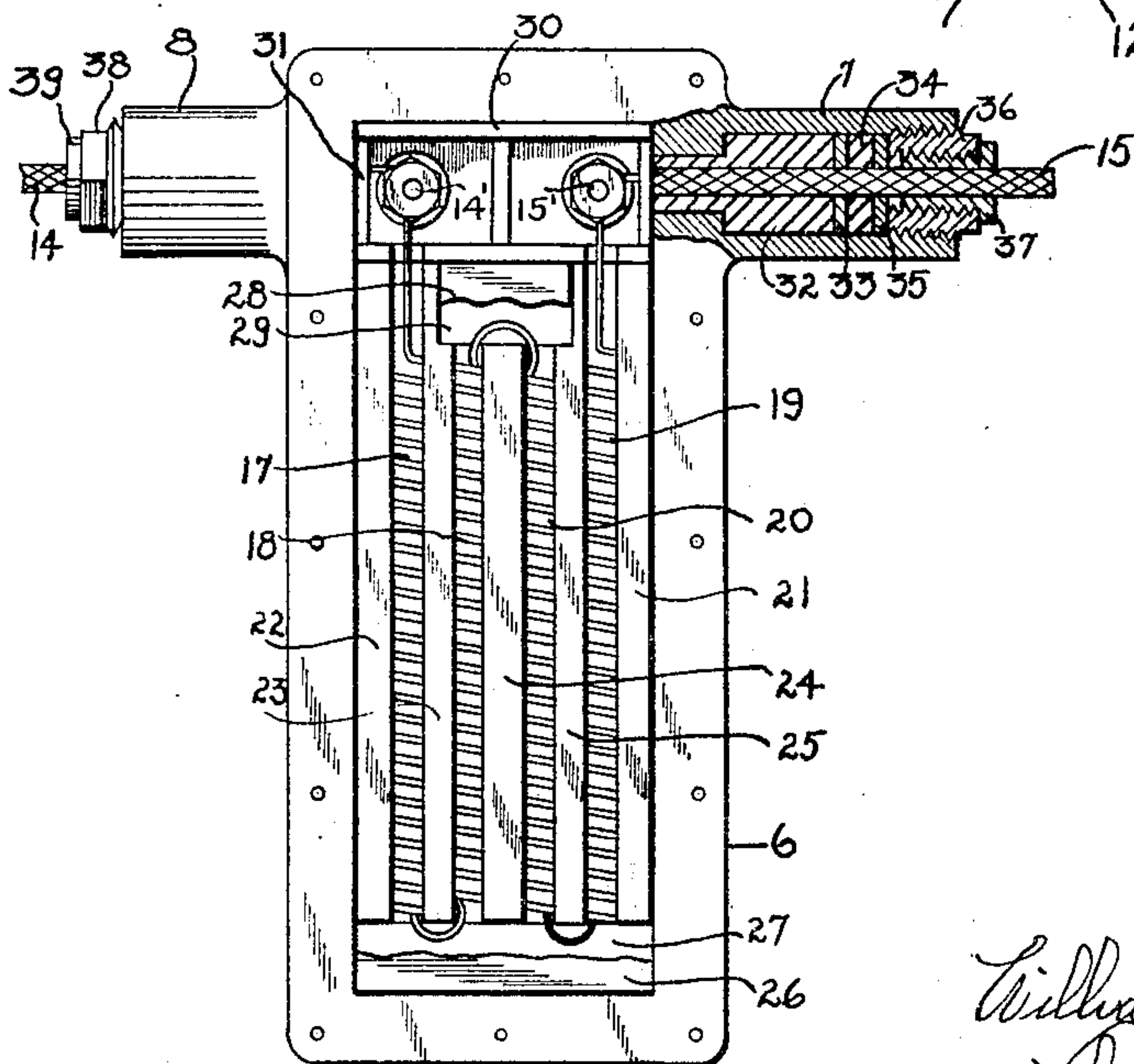


Fig. 3



INVENTOR
William P. Scholz
BY
Arthur J. Marr
ATTORNEY

Feb. 14, 1933.

W. P. SCHOLZ

1,897,218

SWITCH HEATER FOR RAILROADS

Filed July 17, 1930

2 Sheets-Sheet 2

Fig. 4

Fig. 6

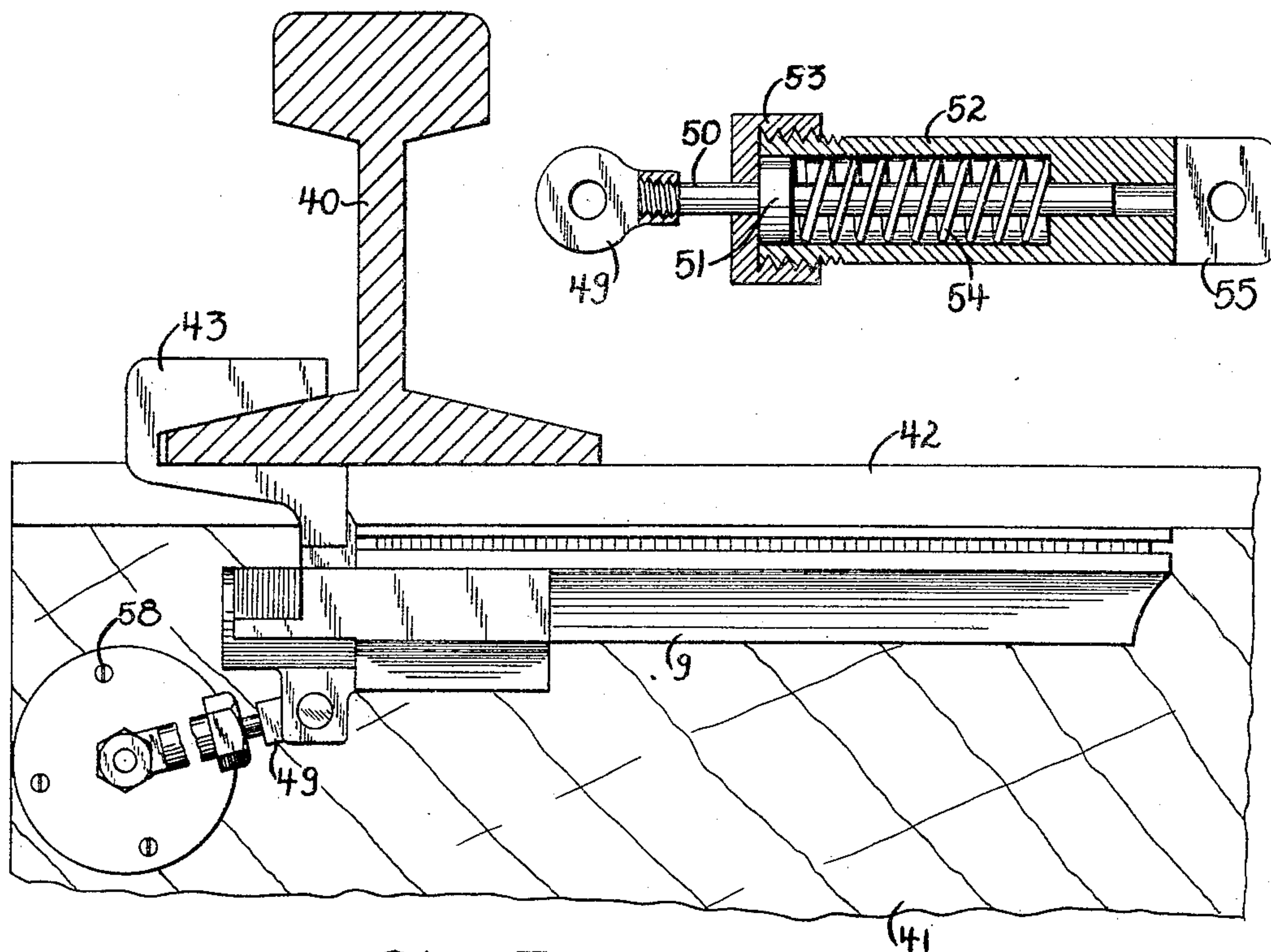
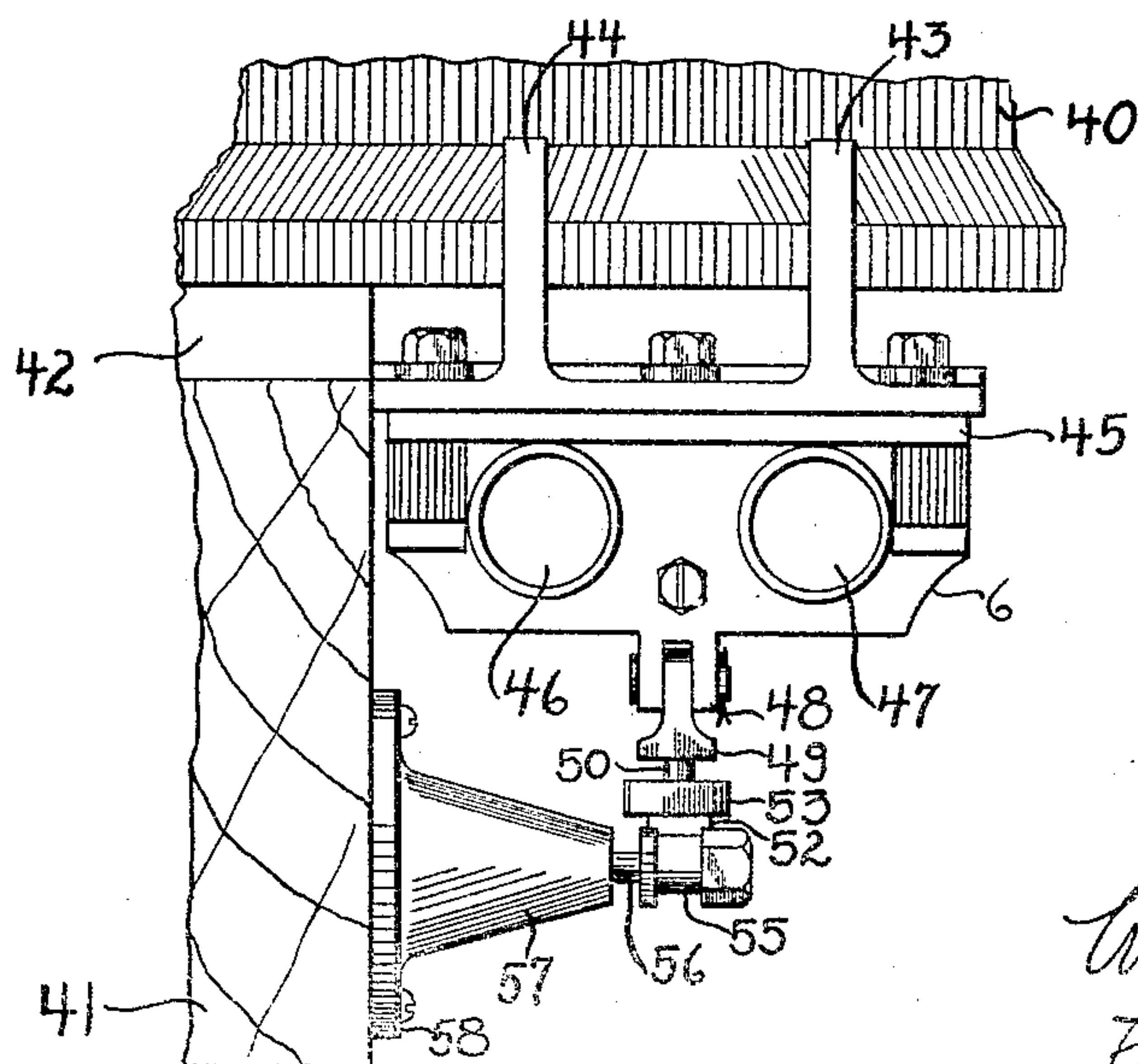


Fig. 5



INVENTOR
William P. Scholz
BY
Orrin Phelps Marr
ATTORNEY

UNITED STATES PATENT OFFICE

WILLIAM P. SCHOLZ, OF MORRISTOWN, NEW JERSEY

SWITCH HEATER FOR RAILROADS

Application filed July 17, 1930. Serial No. 468,546.

The device, the subject of this invention, is intended as a means for heating rail switches, and if the device does not actually heat the rail and switch, it does at least provide sufficient heat to prevent the formation of ice or sleet, or the collection of snow between the switch tongue and the rail, and thus assures that the switch may be readily operated, and without delay or difficulty even in the most severe winter weather.

The object of this particular invention is to provide a heater of novel construction and shape, and one that may be readily inserted, and will operate efficiently under all conditions, and yet one that where and if repairs are necessary, may be very readily repaired.

It is of course understood that this device must be impervious to water, and a special object of the invention, then, is to provide a peculiar gasketing means for the introduction of the electric-cable.

In the drawings, and in the description, I will refer to a shield or container for this heater, but this shield or container is made the subject of a separate application, Serial No. 468,547 filed by me on even date herewith.

The use of the shield suggests that this device be inserted into a tie, but I am fully aware that the device may be employed in a position away from a tie; that is, directly supported upon the rail itself, and under the switch plate.

This construction requires that a particular operating means be provided, and such an operating means is here shown and described.

The following is what I consider the best means of carrying out this invention, and the accompanying drawings should be referred to for a complete understanding of the specification which follows.

In the drawings:—

Fig. 1 is a top plan view of my device installed and ready for operation, but with the switch plate removed.

Fig. 2 is an end elevation of the device.

Fig. 3 is a top plan view partly in section, the cover being removed to expose the interior structure.

Fig. 4 shows a side elevation of my device supported by a rail.

Fig. 5 is an end view thereof, and

Fig. 6, an enlarged sectional view of a part removed.

Similar reference numerals indicate like parts in all the figures where they appear.

At 1, I show a rail tie, which may be an ordinary wooden tie, if such are used, and as wooden ties are in practice, we will consider the tie 1 as being of wood.

This tie is provided with a recess 2, in which is arranged a trough shaped member 3, for the reception of my heater and spacers 4 and 5, of which a number are employed, to assure that the trough member or container 3 will be separated from the tie 1, and the heater will in turn, be separated from the trough member. Thus, by providing a clear air space between the heater and the container, and the container and the tie, charring of the tie because of the heat generated in the heater, will be negligible, or will probably not occur.

My heater consists of a body member 6, which is a cast metal box, having outstanding lugs 7 and 8, arranged at one end thereof. The heater is provided with a cover plate 9, secured to the box member by screws, such as are shown at 10 and 11.

On the exterior of the box member, I provide a ground connection 12, which shall be referred to later, and as shown in Fig. 2, the cover member 9 is separated from the box member by suitable water-proof packing 13.

Lead wires from a source of current supply enter through the lugs 7 and 8, and are indicated at 14 and 15. These lead wires continue to binding screws 14' and 15', within the casing and connected to these binding screws, are heater coils, and I employ four heater coils, as shown at 17, 18, 19 and 20.

It is my desire that because of the signaling circuit that passes at least in part through the rails and rail bonds, that my heater should be non-inductive, and therefore I arrange the coils parallel, each of the same number of turns, and both wire connections at one end of the heater coils.

The heater coils 17 to 20 inclusive, are arranged within slots provided by placing in the box member, barriers, and these barriers may be loose, if desired. The box is lined by

5 insulating strips of refractory material, or other suitable insulating material, as suggested at 21 and 22, and spacers or barriers previously referred to, are shown at 23, 24 and 25.

10 The movable barrier member 26 arranged at one end of the coil has overlapping lips, one of which is shown at 27, for the purpose of retaining the ends of the coils and a shorter barrier member 28 having overlapping lips

15 29, is shown at the other end, as this member 28 only supports the ends of two of the coils.

The binding posts 15 and 16 are retained within the compartment also lined with insulating material, as shown at 30 and 31, the

20 insulating material being arranged at all sides of the binding post compartment.

I have previously mentioned that it was my desire to provide efficient means for preventing water entering with the lead wires and into my casing, and in Fig. 3, I have shown the construction not only of the lug

25 8, which is common to both lugs, but also the interior thereof.

Within the interior of the lug 8, I arrange

30 a plug member 32 of suitable insulating material. Upon this member, I place a fabric ring 33, and thereon I place a soft rubber gasket ring 34, a second compression ring 35 and a hollow nut 36, for supporting all

35 of these members.

This hollow nut 36 serves as a thimble. For the reception of a hollow stud or insulating bushing 37, which is placed around the wire, and when the wire has been introduced and

40 secured to the binding post, the member 36 is screwed firmly inwardly, expanding the soft rubber member 34, causing it to fill up all the spaces within the lug, and to close

45 the spaces around the wire.

As previously stated, both lugs are of similar construction, and to emphasize this, I have indicated at 38 and 39, the thimble and compression members which serve with the

50 lug 8.

The object of the ground clamp 12 is to prevent injury to a workman, should the lead wires or heater coils in any way become grounded with the casing of my device, and

55 as my device is supported on the wooden tie, grounding of the device might have serious consequences, particularly if upon grounding, the device became out of order and required repairs.

Thus far, I have described the construction of the heater, and the means of supporting it in a recess in a tie.

In Fig. 5, the heater is shown directly

65 connected to a rail. The rail being shown at

40, is supported upon a tie 41, and between the rail and the tie, is a switch plate 42.

The heater proper indicated at 9, has secured thereto, a plurality of hooks 43 and 44, insulated from the heater by an insulating

70 block 45. This heater, or rather the end portion thereof, is of a little different construction than that of the heater shown in Figs. 1 to 3, inclusive, in that the lugs 46 and 47 are arranged at the end of the heater, and the

75 heater is provided with a hinged lug 48, adapted to receive a block 49, which is screw threaded to a rod 50.

The rod 50 is a piston rod, having arranged thereon, a piston 51 arranged in a cylinder

80 52, having an adjusting cap 53. The spring 54 in the cylinder 52 urges piston 51 forward.

The free end of the piston 52 is provided with a hinged block 55, supported on a pin

85 56, which is in turn, supported by a bracket 57, the bracket being secured by screws 58, to the tie 41.

It will be noted then, that the spring urges the heater inward toward the rail, and that the depression or separating of the rails, due

90 to the passage of a train, will be amply compensated for by the spring 54, which upon the passage of the train, will urge the heater backward to its proper position.

I may of course provide suitable covers, guards, or shields for the operating parts of

95 my device, and for the cables entering therein.

It will of course be understood that the size of my device and all of the parts thereof

100 may be changed at will.

A greater number of heating coils may be employed in a heating unit, or I may employ a plurality of units adjacent to each switch

105 plate, and this is probably what will occur, as it is rather desirable that the units be not made sufficiently large to be difficult to handle, and if made too large, much heat might be ineffectively dissipated.

It will of course be understood that I have omitted the tie plate, as such plates are well

110 known in the art.

Having carefully and fully described my invention, what I claim and desire to secure

115 by Letters Patent is:—

1. A rail heater comprising a casing having a cover therefor, cylindrical lugs formed integral with said casing, electrical conductors passing through said lugs, compression means within said lugs for engaging said conductors, heater coils within said casing and binding posts for connecting said conductors to said coils, and a plurality of normally loose barriers for separating said heater coils, for retaining said coils and for separating

125 said binding posts from said coils, an insulating and waterproof means between said cover and said casing and a ground clamp upon said casing, all combined for joint operation.

2. A switch heater comprising a heater member, having a body member, a plurality of hooked members secured thereto but insulated therefrom, a cylinder and piston in
5 hinged relation with said heater, and having means therein for urging said heater toward the rail.

WILLIAM P. SCHOLZ.

10

15

20

25

30

35

40

45

50

55

60

65