

APPLICATION FILED JAN. 14, 1908.

2 SHEETS—SHEET 1.

910,222.

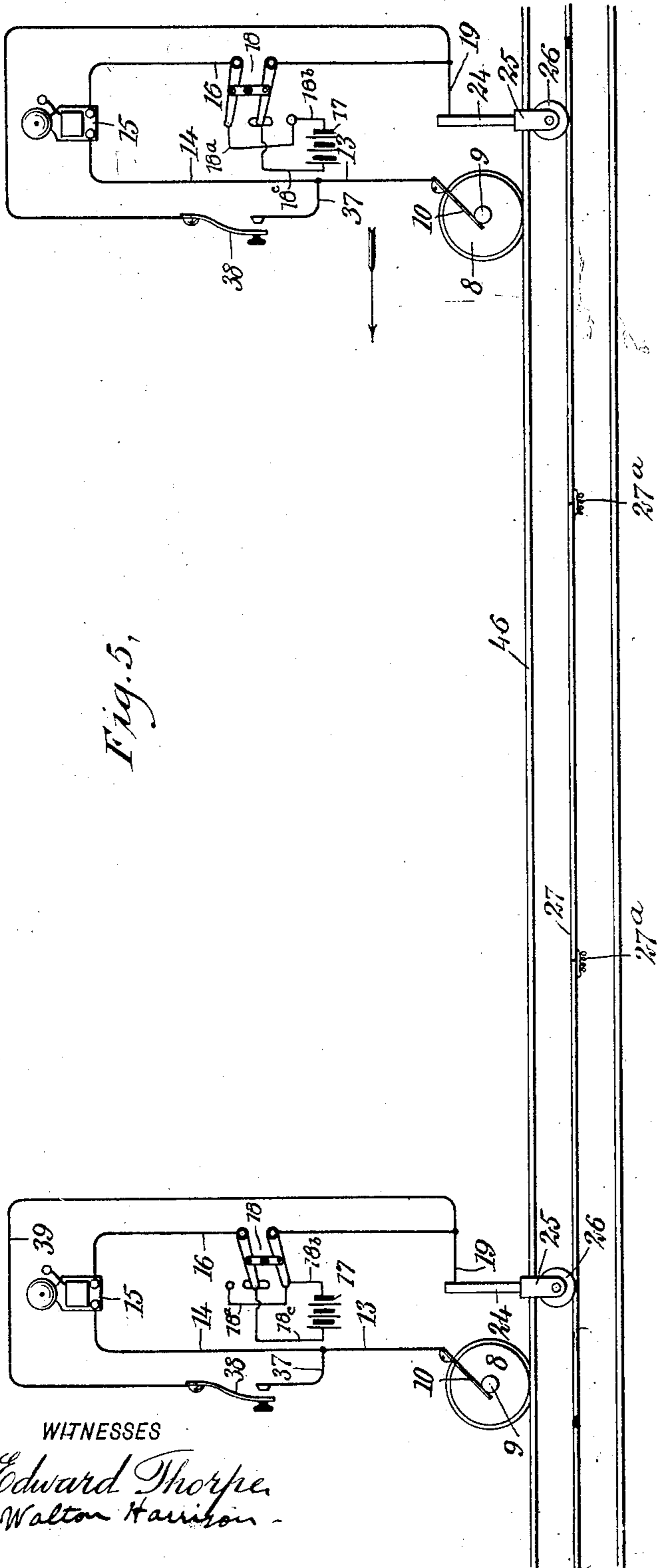


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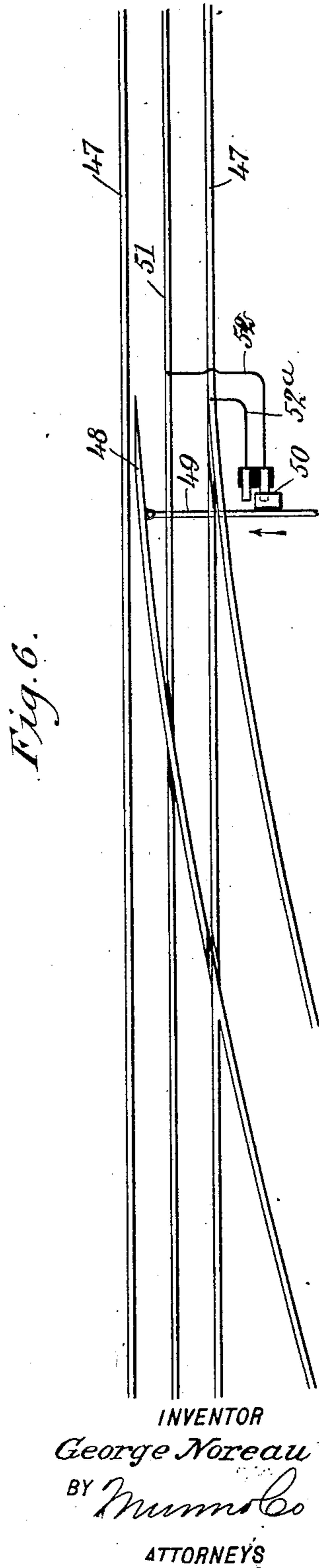
G. NOREAU.
LOCOMOTIVE ELECTRIC ALARM SYSTEM.
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Patented Jan. 19, 1909.
2 SHEETS—SHEET 2.



WITNESSES
Edward Thorpe
Walton Harrison



INVENTOR
George Noreau
BY *Mumma Co*
ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE NOREAU, OF QUEBEC, QUEBEC, CANADA, ASSIGNOR OF ONE-HALF TO ALEXANDER CUMMINGS, OF QUEBEC, CANADA.

LOCOMOTIVE ELECTRIC ALARM SYSTEM.

No. 210,222.

Specification of Letters Patent.

Patented Jan. 19, 1909.

Application filed January 14, 1908. Serial No. 410,780.

To all whom it may concern:

Be it known that I, GEORGE NOREAU, a subject of the King of Great Britain, and a resident of Quebec, Province of Quebec, Dominion of Canada, have invented a new and Improved Locomotive Electric Alarm System, of which the following is a full, clear, and exact description.

My invention relates to electric alarm systems suitable for use in connection with railways.

My invention further relates to certain details of construction whereby the efficiency of the signaling mechanism is greatly increased.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical section showing a locomotive, a railway track and a third rail, the locomotive being provided with a portion of the contact mechanism, and further provided with a battery, a bell and local testing circuit, all ready for use; Fig. 2 is a detail section showing the contact plunger and the contact roller carried by it, this roller engaging the third rail; Figs. 3 and 4 are sections showing how the third rail is insulated from the track; Fig. 5 is a diagram showing the electrical connections whereby two engines mutually warn each other when they happen to be in the same block; and Fig. 6 is a diagram showing my improvement as applied to a switch and used for the protection of an approaching train.

A locomotive is shown at 7 and is provided with service wheels 8 and with axles one of which is shown at 9. Pressing upon this axle is a leaf spring 10 carried by the cab 11 and insulated by aid of a strip 12 of hard rubber or other suitable insulating material. At 15 is a continuous-ring bell. A wire 16^a leads from this bell to a pole changing switch 18 connected with a battery 17. A wire 16 connects the switch 18 with a wire 19. The battery 17 is connected with the pole changing switch 18 by aid of wires 18^a, 18^b, 18^c. A wire 19 is in electrical communication with

a plate 20 having a metallic sleeve 21 extending downwardly. A plate 22 is provided with a sleeve 23 extending downwardly therefrom through the floor of the cab, this sleeve encircling the metallic sleeve 21 and holding the same firmly in position.

A plunger 24, having the form of a cylindrical rod, is slidably mounted within the metallic sleeve 21. The lower end of the plunger is provided with a fork 25 and with oil tubes 25^a, and carries a roller 26, which is thus rendered self-oiling, and said roller is adapted to engage a third rail 27. This third rail is made up of a number of separate rail members connected electrically together by copper strips, bands or wires 27^a, and held in position by chairs 28, faced internally with plates 29 of insulating material, these plates being bent partially over the foot of the third rail and being provided with spikes 30, for fastening the chairs 28 upon sills or cross-ties 31. The chairs 28 are staggered relatively to each other, as will be understood from Fig. 1.

The plunger 24 is provided with a slot 32 through which extends a pin 33. The plunger is also provided with a threaded portion 34 and a milled nut 35 is screwed upon this threaded portion for purposes of adjusting the plunger. A leaf spring 36 is mounted upon the plate 22 and engages the nut 35 for the purpose of holding it firmly in position. Connected with the wires 13, 14 is a wire 37 which leads to a push button 38. From the latter a wire 39 leads to the wires 18, 19. The equipments of the two locomotives are exactly alike, except that in the locomotive traveling in one direction the batteries are reversed relatively to those traveling in the opposite direction, as will be understood from Fig. 5.

A snow scraper 40, having the form of a brush, is provided with a tube 41 having a slot 42, and this tube fits slidably upon a rod 43. A pin 44 extends through the rod 43 and is rigid in relation thereto, this pin extending through the slot 42. By means of an insulating plate 45 the rod 43 is insulated from the cab 11.

The operator, in order to adjust the con-

tact plunger 24 merely adjusts the nut 35. This nut taken in connection with the spring 36 determines the tension of the roller 26 upon the third rail, and consequently the contact of this roller and the third rail may be governed so as to reduce sparking to a minimum and also to insure the ringing of the bell 15 upon proper occasion.

When the operator desires to test the local circuit upon his cab, he merely presses the button 38. The following circuit is thereby completed: battery 17, wire 18^b, left-hand member of switch 18, wire 16^a, bell 15, wires 14, 37, button 38, wires 39, 16, right-hand member of switch 18, wire 18^c, back to battery 17. This rings the bell 15 and shows the condition of the battery.

A track is shown at 46 in Fig. 5. In Fig. 6 the invention is shown as applied to a switch. The track is shown at 47, the switch tongue at 48, the switch rod at 49, a contact at 50, the third rail at 51 and connecting wires at 52, 52^a.

The operation of my device is as follows: Each engineer, before starting out on a trip tests his local circuit as above described. Finding the same in order, no further attention may be paid the apparatus for the time being. Suppose, now, that two locomotives approach each other, as indicated in Fig. 5. When these locomotives arrive upon the same portion of the third rail 27 a circuit is completed as follows: battery 17 of locomotive at the right of Fig. 5, wires 18^b, 18^a, left-hand member of switch 18, wire 16^a, bell 15, wires 14, 13, spring 10, axle 9, wheel 8, rail 46, to ground, through ground to locomotive shown at the left of Fig. 5, wheel 8 of this locomotive, axle 9, spring 10, wire 13, wire 14, bell 15, wire 16^a, left-hand member of switch 18, wire 18^c, battery 17, wire 18^b, right-hand member of switch 18, wires 16, 19, plunger 25, roller 26, third rail 27, back to locomotive at the right, roller 26 of this locomotive, fork 25, plunger 24, wire 19, wire 16, right-hand member of switch 18, wire 16^b, back to battery 17, whence the current started. This rings the bells 15 upon both locomotives and the engineers being thus warned take appropriate action to prevent a casualty.

Where the switch shown in Fig. 6 is used, the warning is given as follows: The switch 48 being open or misplaced so that the tendency would be to divert the locomotive from the main track, the rod 49 occupies such position that the contact 50 is closed. Normally this contact should be open as shown in Fig. 6. If, now, a locomotive approaches so as to make contact with the third rail 51, a circuit is completed substantially as above traced with regard to the locomotive but proceeding therefrom as follows: third rail

51, wire 52, contact 50, wire 52^a to track 47, thence to ground and back to locomotive. This warns the engineer.

I do not limit myself to the use of any particular materials in constructing the parts above described. Neither do I limit myself to the exact construction of any particular part, except in so far as my claims may specify such construction.

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

1. In a locomotive electric alarm system, the combination of a plate of insulating material to be mounted upon a locomotive cab and provided with an opening and with a sleeve bounding said opening, a metallic plate mounted upon said plate of insulating material and provided with a metallic sleeve extending through said opening and concentric to said first-mentioned sleeve, a plunger slidably mounted within said metallic sleeve and provided with a slot, a pin extending through said slot and engaging said metallic sleeve so as to prevent said plunger from turning, a nut adjustably mounted upon said plunger, a spring engaging said nut so as to force said plunger downward, a member mounted upon the lower end of said plunger and adapted to engage a third rail, electric connections for said third rail and for said first-mentioned metallic plate, means controllable by movements of rolling stock for energizing said electric connections, and an alarm member to be energized by said electric connections.

2. In an electric alarm signal, the combination of a circuit including an alarm member, a source of electricity for energizing the same, a third rail, and a contact for closing a circuit through said battery, said third rail and said alarm member, said contact mechanism comprising a sleeve, a plunger slidably mounted therein and provided with a member for engaging said third rail, means for preventing said plunger from turning, a nut adjustably mounted upon said plunger, a surface acting as a limiting stop to be engaged by said nut so as to prevent excessive movement of said plunger, and a spring for forcing said plunger toward said surface.

3. In a locomotive electric alarm system, the combination of an electric alarm bell, a switch, a battery, a main circuit to be closed by movements of rolling stock, a local circuit to be closed at will by hand, contact mechanism for closing said main circuit, said contact mechanism comprising a tube of insulating material, a metallic sleeve mounted therein, a pin extending diametrically through said sleeve, a plunger mounted within said sleeve and provided with a slot

inclosing said pin, a nut mounted upon said
plunger and adjustable in relation thereto, a
spring engaging said nut for the purpose of
pressing the plunger in one direction, and a
5 contact roller mounted upon said plunger
and adapted to engage said third rail, the
fork having self oiling tubes.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

GEORGE NOREAU.

Witnesses:

E. G. MEREDITH,
J. E. BANKS.