W. G. ASMUS.

THERMOSTATIC ALARM SYSTEM.

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1,015,118. Patented Jan. 16, 1912.

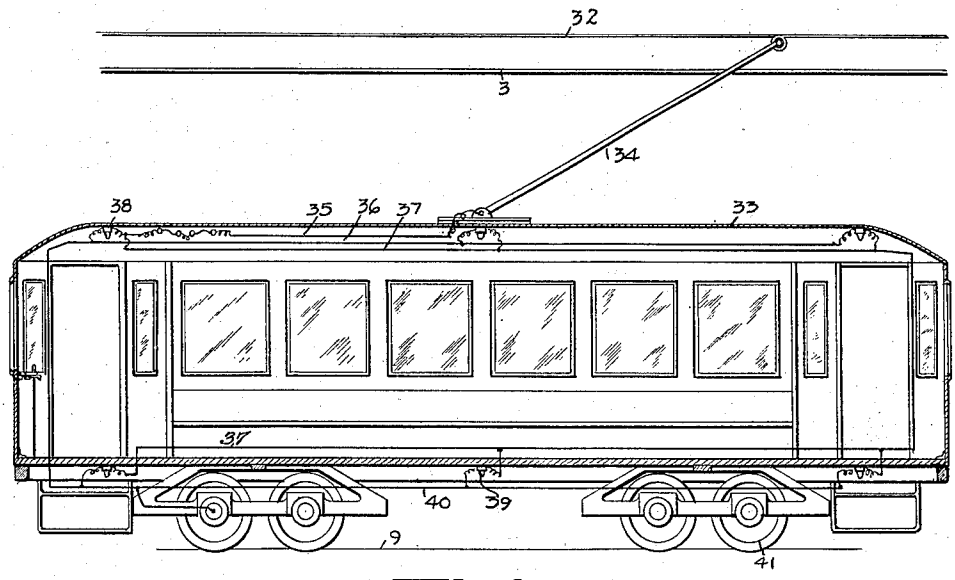

Fig. 1.

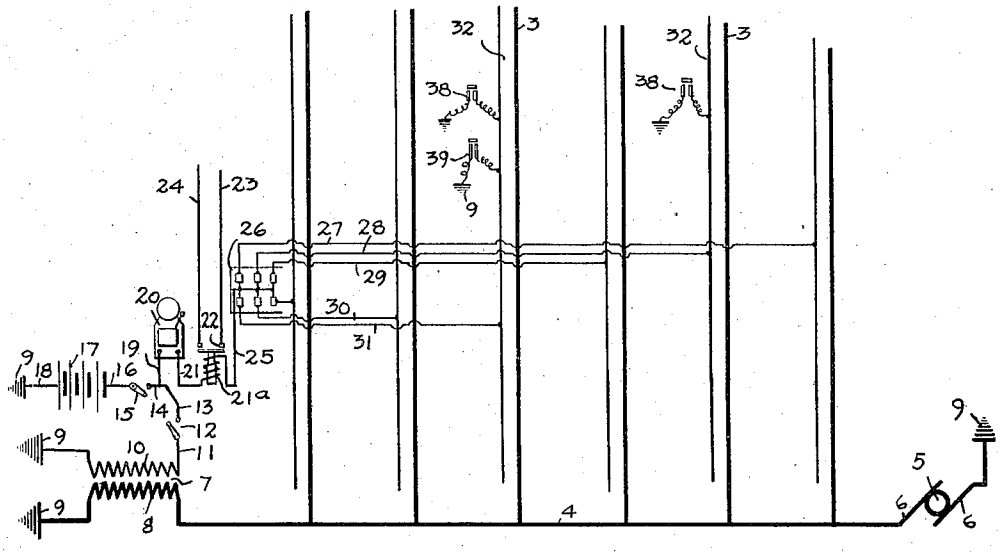

Fig. 2.

WITNESSES

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THERMOSTATIC ALARM SYSTEM.

1,015,118. Specification of Letters Patent. Patented Jan. 16, 1912.

Application filed December 21, 1910. Serial No. 598,537.

To all whom it may concern:

Be it known that I, WILLIAM G. ASMUS, a citizen of the United States, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and Improved Thermostatic Alarm System, of which the following is a full, clear, and exact description.

My invention relates to thermostatic alarm systems and more particularly to a thermostatic system adapted for use in connection with railway cars, especially while the latter are housed in barns or standing upon sidings.

My invention comprehends, generally speaking, a thermostatic alarm system in which a part of the wiring is fixed and is connected with electrically-operated alarm mechanism, and other portions of wiring, together with thermostatic circuit closers, are mounted upon separate cars temporarily in communication with the fixed wiring by aid of the trolley poles carried by the respective cars.

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 both the figures.

Figure 1 is a substantially central vertical section through a car provided with thermostatic circuit closers and temporarily connected to form a part of my system; and Fig. 2 is a diagram of the wiring associated with Fig. 1.

At 3 are a number of trolley wires which, as is usual in such cases, may be disposed parallel with sidings or other portions of the track and may be either in the open air or in a car barn or shed. At 4 is a conductor for supplying current to the trolley wires 3. The wire 4 is connected with a dynamo 5 by aid of brushes 6, the dynamo being connected with the ground 9. The wire 4 leads to a transformer 7, being connected with the primary winding 8 thereof. The transformer 7 is provided with a secondary winding 10 which is also in communication with the ground 9. A wire 11 leads from the secondary winding 10 to a hand switch 12, and connected with the latter is a wire 13, this wire being connected with a wire 14 which leads to a hand switch 15. A wire 16 connects this hand switch with a battery 17 or equivalent source of electricity, and a wire 18 leads from the battery 17 to the ground 9.

Connected with the wires 13, 14 is a wire 19 which leads to an alarm bell 20, and a wire 21 is also connected with this bell and leads to a relay 21^a which is provided with contact mechanism 22; leading to this contact mechanism are wires 23, 24 which communicate with another electric alarm located at a distance—say, at the fire headquarters of the city. A wire 25 leads from the relay 21^a to an annunciator 26 which may be of the usual or any approved type. A number of separate wires 27, 28, 29, 30, 31 lead from different sections of this annunciator to a number of signal wires 32, these signal wires being disposed adjacent to and parallel with the various trolley wires 3 and being severally spaced about eighteen inches from the latter.

At 33 is a car which is provided with a trolley 34, the latter being adapted to engage either the trolley-wire 3 or a signal wire 32 as desired by the operator. Mounted upon the car and connected with the trolley 34 are wires 36—37, each of the latter being connected with various thermostatic circuit closers 38—39. A wire 40 extending along the floor of the car is practically a continuation of the wire 36 which extends along the roof of the car. The car 40 through the agency of the car wheels communicates with the earth, as indicated at the lower left hand corner of Fig. 1. Both wires 36—40 are thus permanently grounded. The wires 35—37 are not grounded, that is, they are not normally in communication with the earth. The several circuit closers are each bridged across from an ungrounded wire to a grounded wire and are thus in parallel with each other. Any number of the cars 33 may be provided, each car carrying as many of the circuit closers 38, 39 as may be desired.

The operation of my device is as follows: Any number of cars being in a power house, car barn or yard adapted for containing them, are first lodged upon various tracks. The respective trolleys are then disconnected from the trolley wires 3 and placed upon the signal wires 32 immediately adjacent thereto. The dynamo 5 being constantly in action supplies current to the trolley wires 3 and also, operating through the transformer 7, energizes the secondary winding 10 there-

of, tending to set up alternating currents in this secondary winding. Owing to the fact that the circuit closers 38 are normally open, there is ordinarily no way in which the current can flow. Suppose, now, that the hand switch 12 is closed and that a particular car catches fire or is exposed to intense heat, so that one or more of its thermostatic circuit closers 38, 39 produces a short circuit. A current may now be traced as follows: secondary winding 10, wire 11, hand switch 12 (now closed), wires 13, 14, bell 20, wire 21, relay 21^a, wire 25 to annunciator 26, thence through some one of the wires 27, 28, 29, 30, 31 (say in this instance 31) to one of the circuit closers 38, 39 (say in this instance 38), thence to the ground 9, and back to the secondary winding 10. The closing of the circuit just traced actuates the bell 20 and the relay 21^a. The bell 20 gives an alarm and the relay 21^a closes its contact mechanism 22, thereby completing a circuit through the wires 23, 24 to the distant electric alarm (say the fire headquarters of the city). Suppose, now, that the switch 12 be opened and the switch 15 closed. The battery 17 is now relied upon to furnish the current. If, now, one of the circuit closers be actuated by excessive heat, the circuit may be traced as follows: battery 17, wire 16, switch 15, wires 14, 19, bell 20, wire 21, relay 21^a, wire 25, to annunciator, one of the wires 27, 28, 29, 30, 31 (say 31), car, thence through some one of the thermostatic closers (say 38) to the ground 9, and back through wire 18 to battery. This circuit actuates the bell 20 and the relay 21^a, the rest of the action being precisely the same as when the circuit was energized from the dynamo 5.

It will be noted that in the particular form of the system just described, the units to be protected or guarded are railway cars which, of course, are movable. It will also be noted that each trolley 34, normally used as one of the factors for conveying current to the car in order to propel the same, is now temporarily used for connecting one of the signal wires 32 with the various circuit closers 38, 39. It will be noted, further, that when current is supplied through the trolley wire 3 and trolley 34 to the car motors in the usual manner, the wires 35, 36, 37 and 40 are not in any wise affected for the reason that the circuit closers 38, 39 are in such condition that all of the circuits through them are open. Hence, while the car is running along a track in the usual manner, the thermostatic circuit closers are doing no harm and yet when the car is switched off into a siding and otherwise handled as above described, the car is immediately ready, without any change in the wiring inside of the car, to give an alarm in case of a fire breaking out in or under the car.

I do not limit myself to the precise arrangement herein described, as variations may be made therein without departing from the spirit of my invention. Neither do I limit myself in all cases to the use of the device upon cars, the scope of my invention being commensurate with my claims.

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

1. In a thermostatic alarm system, the combination of a car, a trolley carried by said car and normally used for supplying current for propelling said car, a thermostatic circuit closer mounted upon said car and connected with said trolley, a trolley wire to be normally engaged by said trolley, a signal wire disposed adjacent to said trolley wire and adapted to be engaged by said trolley when said car is not in active service, and alarm mechanism connected with said signal wire and controllable by said circuit closer mounted upon said car.

2. A thermostatic alarm system, comprising a car movable in a general direction, a trolley wire extending in a direction substantially parallel to that in which said car travels, a signal wire disposed adjacent to said trolley wire and substantially parallel therewith, a trolley carried by said car and controllable at the will of the operator for engaging either said trolley wire or said signal wire, a thermostatic circuit closer carried by said car and connected with said trolley, and electrically-operated alarm mechanism connected with said signal wire and controllable by said circuit closer.

3. A system of the character described, comprising a car movable in a general direction, a signal conductor extending generally in a direction parallel with the path of travel of said car, a trolley carried by said car and adapted for engagement with said signal conductor, a thermostatic circuit closer carried by said car and connected with said trolley, an electrically-operated alarm mechanism located at a distance and connected with said signal conductor, said alarm mechanism being controllable by said circuit closer.

4. In a system of the character described, the combination of a trolley wire, a circuit for energizing the same, a transformer connected with said circuit, a signaling circuit connected with said transformer and energized inductively from said first-mentioned circuit, a movable car, a thermostatic circuit closer carried thereby, means for temporarily connecting said thermostatic circuit closer with said signaling conductor, and an alarm operated electrically and connected with said signaling circuit and controllable by said thermostatic circuit closer.

5. The combination of an electrically-operated vehicle adapted to travel in a certain

path, a trolley wire disposed substantially parallel with said path for supplying current for propelling said vehicle, a signal wire likewise disposed substantially parallel with the path of travel of said vehicle, a trolley carried by said vehicle and adapted to engage either said trolley wire or said signal wire at the will of the operator, means for supplying current to said trolley wire for the purpose of propelling said vehicle, a distant alarm connected with said signal wire, and a thermostatic circuit closer mounted upon said car and connected with said trolley.

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

WILLIAM GEORGE ASMUS.

Witnesses:
H. O. LEINARD,
D. E. PHILLIPS.