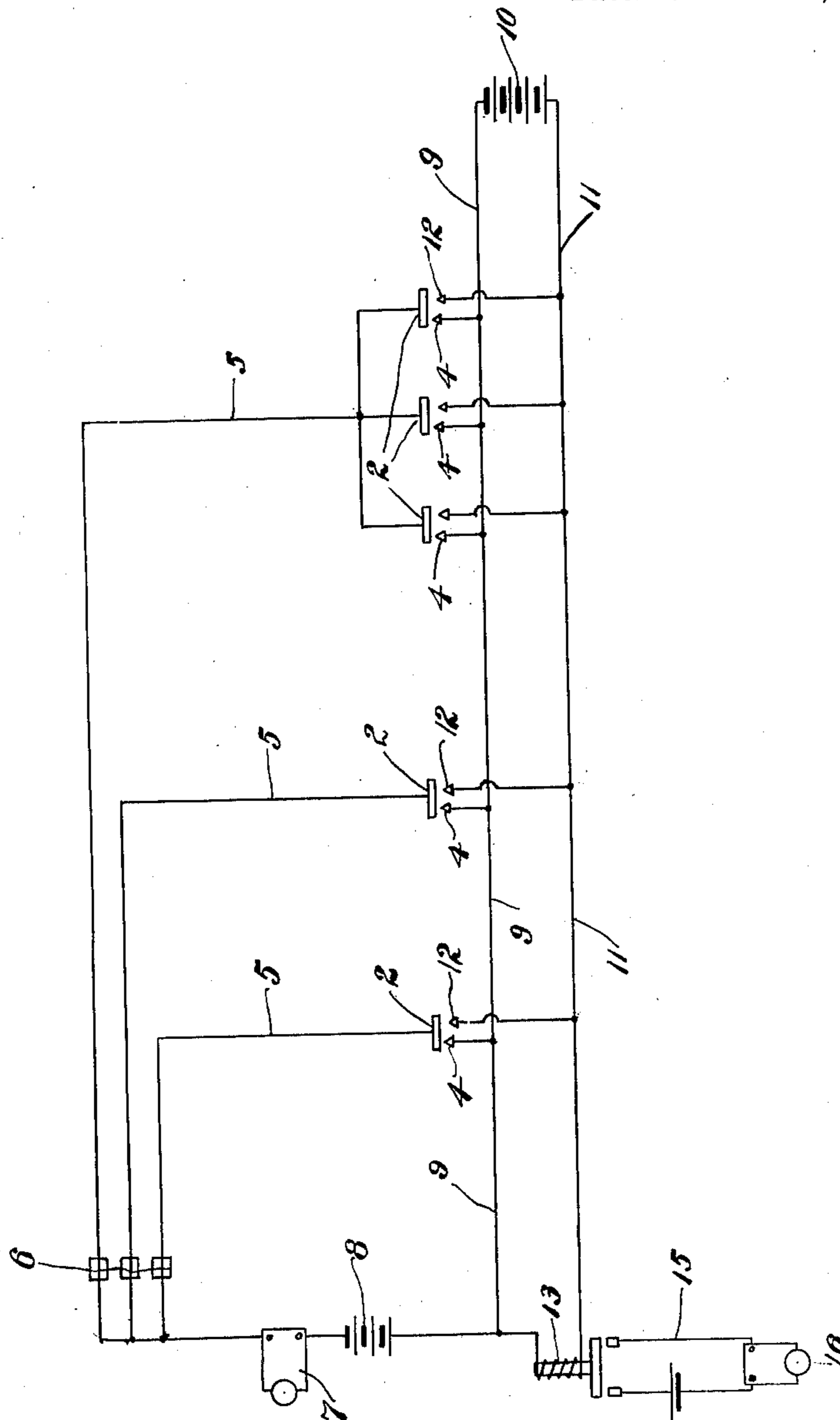


J. H. FIELD.
ELECTRIC ALARM AND CALL BELL SYSTEM.
APPLICATION FILED JAN. 25, 1909.

976,562.

Patented Nov. 22, 1910.



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CANADIAN TAYLOR AUTOMATIC FIRE ALARM AND CALL BELL COMPANY, LIMITED,
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ELECTRIC ALARM AND CALL-BELL SYSTEM.

976,562.

Specification of Letters Patent. Patented Nov. 22, 1910.

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To all whom it may concern:

Be it known that I, JAMES HASLIP FIELD, a subject of the King of Great Britain, residing at Victoria, in the Province of British Columbia, Canada, have invented a new and useful Electric Alarm and Call-Bell System, of which the following is a specification.

This invention relates to an electric fire alarm system of that class wherein manual switches are used to close the circuit and ring an alarm or where the circuit is automatically closed by thermostats, when the temperature surrounding any of them is raised beyond the limit for which it has been set, and the invention is especially directed to the improvement of that system of wiring wherein with an open circuit separate connections are made from each thermostat or group of thermostats or from any manual switch or switches to each drop of an electromagnetic annunciator so that the source of any alarm will be indicated.

The evident objection to the open circuit system of wiring is that if a wire becomes disconnected or the operating battery weak, no warning is given: should the fault occur in a common wire all manual switches or thermostats other than those on the battery side of it are rendered inoperative to transmit an alarm, or if the fault occurs in an annunciator wire the manual switches or thermostats connected by that wire to that particular annunciator drop are similarly rendered inoperative. This defect is at present partially overcome by placing the common wire in a supplementary circuit in which is a constant current battery and relay that will, when a fault occurs in the circuit, close a trouble bell circuit to ring an alarm. With this arrangement should a fault occur in a common wire though the trouble bell rings an alarm yet all manual switches or thermostats other than those on the battery side of the fault are rendered inoperative. In the system which is the subject of this application these objections are overcome by connecting the return wire of the supplementary or test circuit to a secondary contact in each manual switch or thermostat. With this provision and by placing the constant current battery at the extreme opposite end of the circuit to that in which is the trouble bell relay, when the circuit is in per-

fect working order the manual switches or thermostats will close the open circuit and ring an alarm in the ordinary way, but if any defect occurs in the line the trouble bell will indicate it at once, but beyond that the manual switches or thermostats are not rendered inoperative as will be explained later.

The following specification fully describes the system reference being made to the drawing by which it is accompanied which represents diagrammatically an alarm bell system having my improvements.

In this drawing 2 2 2 represents manual switches such as push buttons, or thermostats of any approved type, which may be distributed about the rooms and passages of a building either separately or in groups, each manual switch or thermostat or group of switches and thermostats being connected by separate wires 5 to a separate drop of the annunciator 6 and thereafter through an alarm bell 7 to the positive pole of the operating battery 8. The contacts 4 of the thermostats or switches 2 are connected by a common wire 9 to the negative pole of the same battery 8. This is the common form of open circuit connection. When any manual switch is operated to close the circuit or when any thermostat is exposed to a temperature in excess of that for which it has been set and expands and engages its contact 4 the circuit will be closed and an alarm will be rung on 7 by the battery 8; but if as previously explained a wire is broken or disconnected or the battery becomes too weak the system is rendered useless and no warning of the fact is given. An attempt has been made to remedy this defect by placing the common wire 9 under test by including it in a supplementary circuit 11 in which a constant current is maintained by a battery 10 in which supplementary circuit is a relay 13 the armature of which holds open a circuit 15 in which is a trouble bell 16. As no reason exists for placing this constant battery 10 at any particular part of the circuit it is usually located adjacent to the relay which controls the trouble bell circuit, which again is naturally placed adjacent to the battery 8 which operates the alarm bell and annunciator of the general circuit. Stress is laid on this point for a reason which will be explained later. With this addition if

should become disconnected the trouble bell will ring, but, as before, all switches or thermostats other than those on the battery side of the fault are rendered inoperative and if
5 any of the wires 5 which connect the switches or thermostats to the annunciators should break they are not only inoperative but no intimation is given of the fact. To remedy these defects in what is otherwise a
10 convenient system I provide each manual switch or thermostat with secondary contacts 12, which secondary contacts are preferably set to be brought into engagement on a further movement of the switch or thermostat, and these secondary contacts are all
15 connected in the return wire 11, of the supplementary circuit.

Attention was drawn to the fact that in previous systems having a test or supplementary circuit there was no reason for
20 placing the constant battery 10 elsewhere than adjacent to the relay which controls the trouble bell circuit. Stress is laid on this because in the system which is the subject of this application it is necessary that
25 this battery 10 be located as shown in the drawing at the opposite end of the circuit to the relay. With this arrangement if one of the wires 5 from a manual switch or thermostat to the annunciator is disconnected,
30 when any one of them is operated or operates to ring an alarm it cannot do so on engagement with the first contact 4; but when brought into engagement with the secondary
35 contact 12, although the alarm bell 7 will not ring, the current from the battery 10 will be short circuited through the contact of 4 and 12, the relay will release its armature, close the circuit 15 and cause the trouble bell 16
40 to ring. Again if the fault is in the common wire 9 an alternative course is provided for the current from 7 through the supplementary circuit 11; while if the supplemen-

tary circuit 11 becomes disconnected or its battery 10 is too weak, the relay 13 will release its armature to close the trouble bell circuit 15 and ring the trouble bell 16.

Having now particularly described my invention and the manner of its operation, what I claim as new and desire to be protected in by Letters Patent, is:

1. In an electric alarm system, a normally open circuit including a source of electric energy, an indicator, a switch, and line wires connecting the aforesaid parts, a closed
55 circuit including a source of electric energy, one of said line wires of said normally open circuit and an auxiliary line wire together with a translating device in said auxiliary line wire in virtue of which said switch may
60 close said normally open circuit without effecting said translating device of said closed circuit.

2. In an electrical alarm system, a normally open circuit including a source of
65 electric energy, an indicator, a switch, and line wires connecting the aforesaid parts, a closed circuit including a source of electric energy, one of said line wires of said normally open circuit, an auxiliary line wire
70 together with a translating device in said auxiliary line wire in virtue of which said switch may close said normally open circuit without affecting said translating device of said closed circuit, and means coöperating
75 with said switch for bringing said translating device into said normally open circuit at times.

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

JAMES HASLIP FIELD.

Witnesses:

GEORGE PARKINSON,
JOS. PEIRSON.