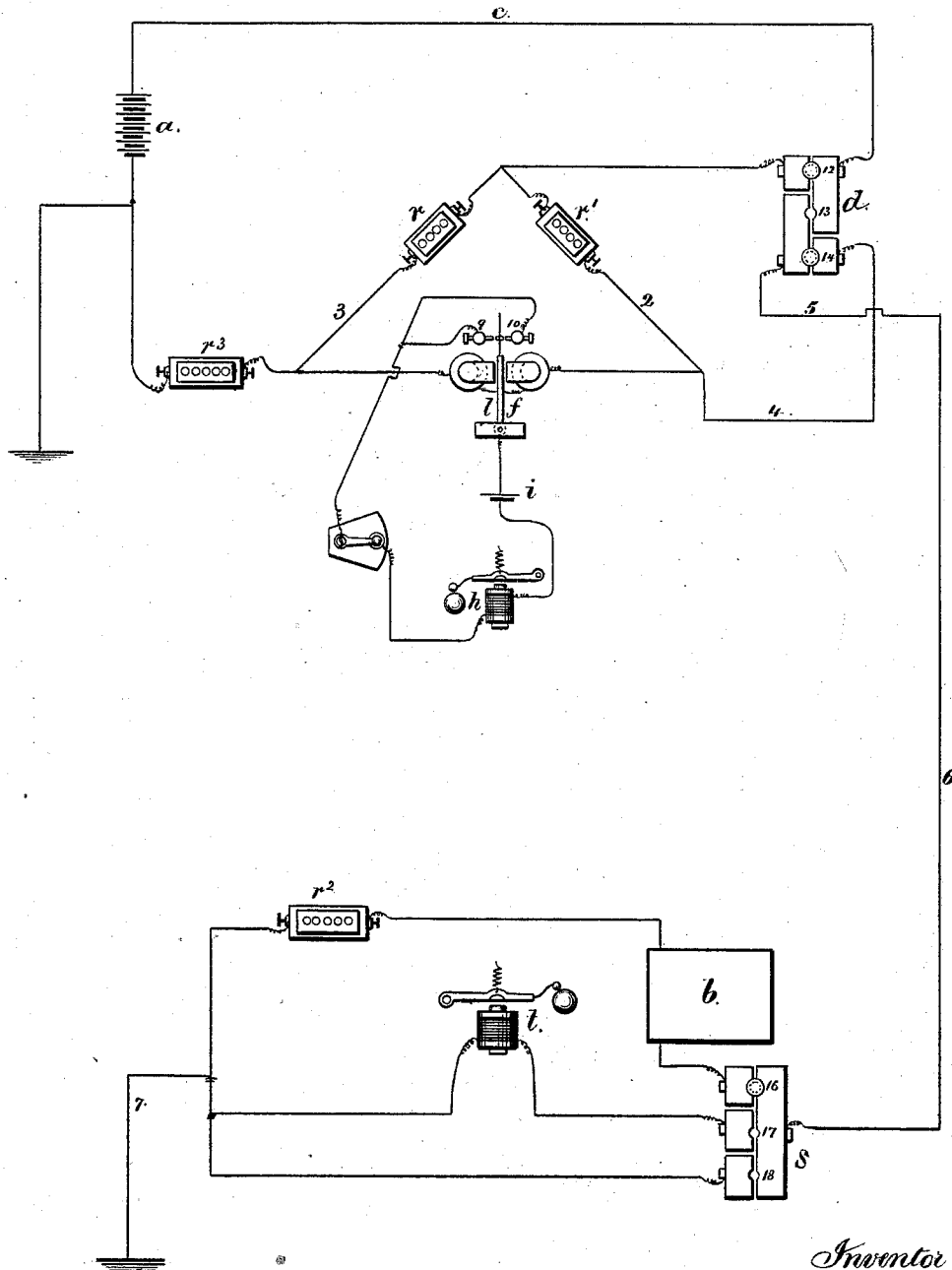


T. D. LOCKWOOD.
Burglar-Alarm.

No. 217,543.

Patented July 15, 1879.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS D. LOCKWOOD, OF ELIZABETH, NEW JERSEY.

IMPROVEMENT IN BURGLAR-ALARMS.

Specification forming part of Letters Patent No. **217,543**, dated July 15, 1879; application filed April 24, 1879.

To all whom it may concern:

Be it known that I, THOMAS D. LOCKWOOD, of Elizabeth, in the county of Union and State of New Jersey, have invented an Improvement in Burglar-Alarms, of which the following is a specification.

Burglar-alarms are so seldom called into use that in many instances they do not properly operate, or else changes in the temperature or the condition of the battery cause such alarms to give a false signal, greatly to the annoyance of all concerned. This is particularly the case where vaults or safes are guarded by electric connections to a police-station or to any other place for alarm.

I provide a means for equalizing the electric action upon the alarm at any time, and for intensifying the electric action in case of any disturbance or breaking of the circuit at the safe or place that is guarded. Thereby my burglar-alarm is very delicately adjusted; but it is not liable to give any alarm in consequence of change in the condition of the battery or of the atmosphere.

I have represented in the drawing a diagram of my improved burglar-alarm circuit-connections.

a is the main battery. *b* is the safe, vault, or other device that is to be protected; and at this vault or safe there is to be any desired or ordinary circuit-breaking device, the same operating when the alarm is to be given.

The wire *c* leads from the battery *a* through the switch-board *d* to the branch wires 2 and 3, in which are placed the rheostats *r* *r*¹. Thence the line passes by 4, 5, and 6 to the safe to be guarded, thence through rheostat *r*² and wire 7 to ground *g*.

The alarm-instrument is to be of any desired character; but it is to be placed in the bridge-wire, for reasons herein set forth.

I have shown a polarized relay, *f*, working a local circuit-alarm having a call-bell, *h*, battery *i*, and local circuit, through the armature *l* of the polarized relay to the contact-points 9 and 10.

The armature is kept central and the local circuit broken between *l* and 9 and 10; but if the balance of the electric forces acting in the

bridge is disturbed, the polarized relay causes the armature to close the circuit to either 9 or 10 and ring the alarm *h*.

The rheostats *r* and *r*¹ are one or both adjustable, and so also is the artificial-line rheostat *r*³, so that the electric forces are balanced in the bridge-wire and polarized relay. The switch-pins will usually be in the holes 12 and 14; but by placing the pin from 12 into 13 and removing the pin from 14 altogether, the branch 2 3 will be thrown out of circuit, and the alarm at the safe sounded to see that all is in order.

The rheostat *r*² at the safe does not require to be adjusted; hence all the adjustment required is at the police or central station. This rheostat *r*² brings a resistance into the line, and renders the adjustment of the line and safe connections more delicate, so that signals will be given at the central station if the line or safe connection is disturbed at any point.

When the pin at the switch-board *s* is changed from 16 into 17, the current will actuate the electro-magnetic alarm *t*, and the disturbance at the central station, caused by moving the pin at *s* at a given time of day, may be understood beforehand to indicate that the current is to be put on in its strength by placing the pin-switch in the hole 13 to test the line and see that it is in order. At the safe the pin, except when the alarm is set, will usually be in 18, connecting directly to the ground.

It will be apparent that the battery being connected to the branch 2 3, and the alarm-instrument being in the bridge, the alarm is not operated by any rise or fall of battery-power, or by changes in the atmospheric condition; but so soon as the line is disturbed at the safe or elsewhere the balance in the bridge is destroyed and the alarm given.

I claim as my invention—

1. The combination, with a burglar-alarm, of a branch, artificial line, main line, and bridge-circuits, and an alarm-instrument placed in the bridge, substantially as and for the purposes set forth.

2. The polarized relay in the bridge-wire and

a burglar-alarm, in combination with the rheostats r r^1 in the branch, the rheostat r^2 , and battery at the police or central station, and a line extending to the circuit-breaker at the safe or other article to be guarded, and the switches or switch-boards, substantially as set forth, for testing the burglar-alarm and line, substantially as set forth.

Signed by me this 21st day of April, A. D. 1879.

THOS. D. LOCKWOOD.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.