No. 762,957. PATENTED JUNE 21, 1904.

G. THOMPSON.

PARTIAL CIRCUIT FOR ELECTRIC CURRENTS.

APPLICATION FILED AUG. 2, 1902.

NO MODEL.

Fig. 1.

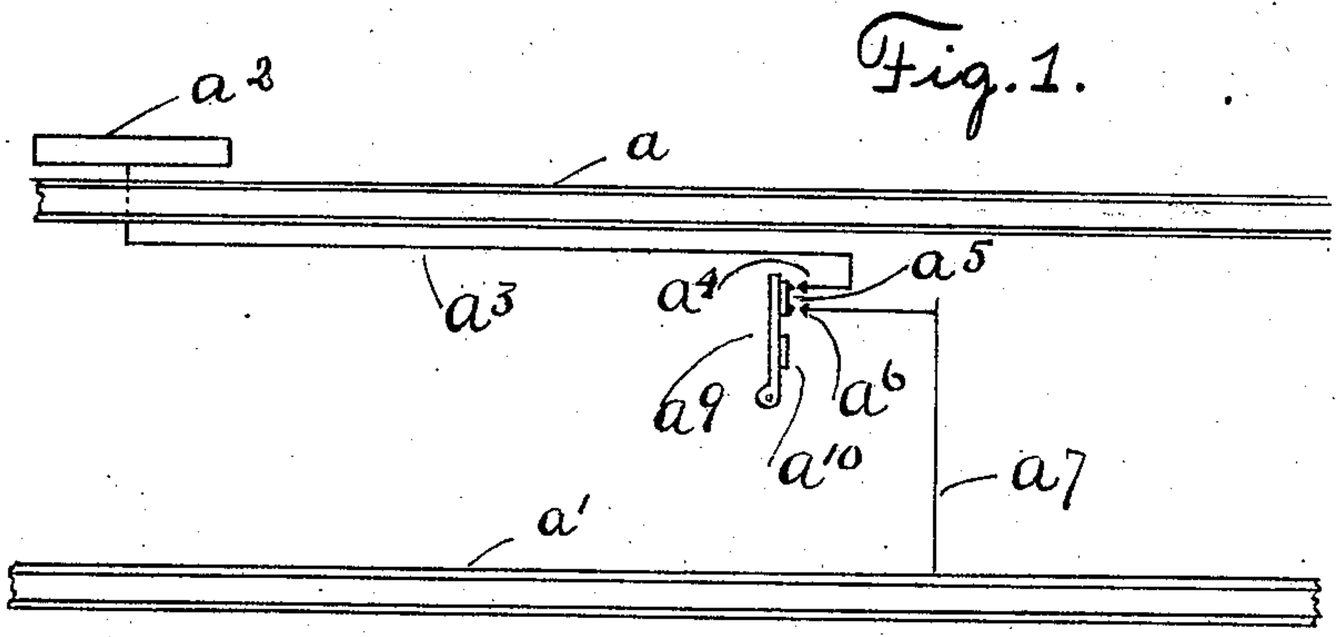


Fig. 2.

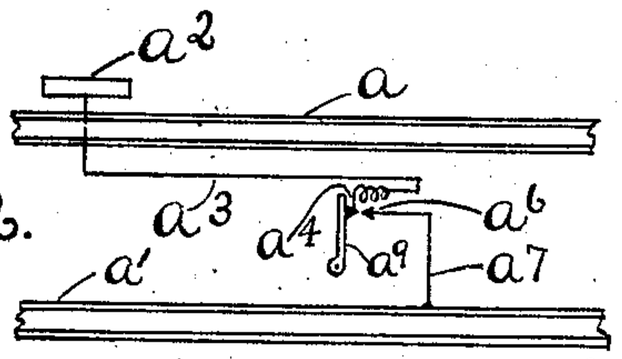


Fig. 3.

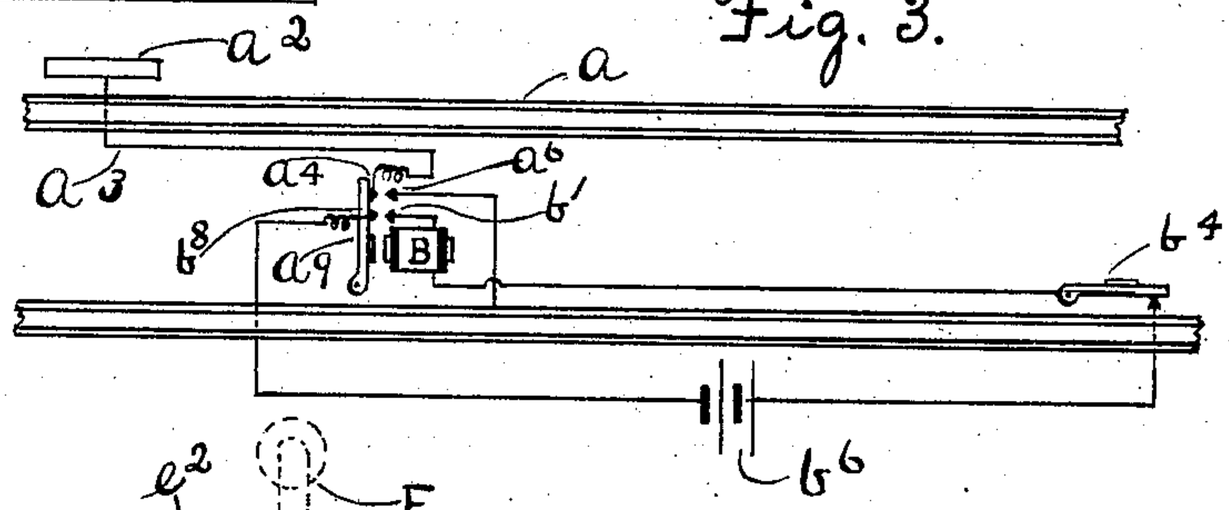
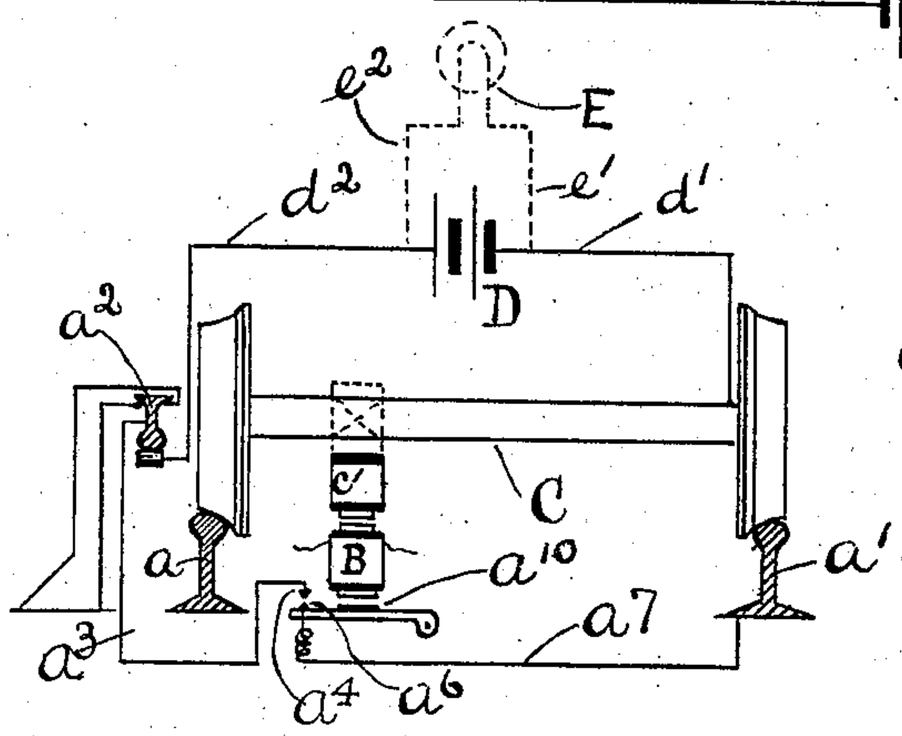


Fig. 4.



Witnesses

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No. 762,957. Patented June 21, 1904.

UNITED STATES PATENT OFFICE.

GUION THOMPSON, OF DULUTH, MINNESOTA, ASSIGNOR TO THE THOMPSON SAFETY APPLIANCE COMPANY, A CORPORATION OF NEW JERSEY.

PARTIAL CIRCUIT FOR ELECTRIC CURRENTS.

SPECIFICATION forming part of Letters Patent No. 762,957, dated June 21, 1904.

Application filed August 2, 1902. Serial No. 118,071. (No model.)

To all whom it may concern:

Be it known that I, GUION THOMPSON, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain Improvements in Partial Circuits for Electric Currents, of which the following is a specification.

My invention relates to partial circuits for electric currents, and has for its object the provision of means for establishing a temporary partial circuit upon the route of a conveyance which when so established will be adapted to complete a circuit partially established on a conveyance moving on said route, and including a source of electricity carried thereby and directly or indirectly governing signals, engine-controlling means, or other mechanisms on said conveyance.

With this and other objects in view it consists in the combination of two stationary conductors respectively located at opposite sides of said route, one of which conductors preferably constitutes one of the rails of a railway-track and the other of which is short and independent of said track-rails, a conductor of electricity connected at one end to said independent conductor and extending forward a suitable distance along said route and provided at its free end with a contact, a series of conductors, including a relatively independent movable contact, extending from the vicinity of the first said contact to the opposite rail, and means to govern the position of said independent contact and adapted to bring said independent contact into temporary contactual relation with the first said contact and with the other member of said series.

It also comprises certain other constructions, combinations, and arrangements of parts, as will be hereinafter set forth and claimed.

In the drawings, Figure 1 is a diagram of my partial circuit in normally open condition. Fig. 2 is a diagram of a modified construction thereof. Fig. 3 is a diagram of said partial circuit and of one of the controlling systems invented by me for effecting the closing of said partial circuit, and Fig. 4 is a diagram of a partial circuit established on a conveyance which my said partial circuit may be utilized to complete.

In the drawings, a and a' are the rails of a railway-track, and a^2 is a rail or contact external to said track-rails. Connected at one end to said external rail and extending forward a suitable distance along said route is a conductor a^3, provided at its free end with a contact a^4. Connected at one end to said rail a' is a conductor a^7, extending to the vicinity of said conductor a^4 and provided at its free end with a contact a^6, which contacts a^4 and a^6 may be adapted to be brought into direct contactual relation by making one of said conductors elastic, as a^7, Fig. 2, and attaching its contact to the operating-lever or armature a^9, as in said Fig. 2, or, if desired, may be brought into communication by means of an intermediate double contact a^5, as in Fig. 1, which contact a^5 is supported by an operating bar or lever a^9, preferably embodying or constituting an armature a^{10}, which lever is adapted when operated to bring said contact a^5 into mutual contact with said contacts a^4 and a^6, thus completing the partial circuit from said rail a' to said rail a^2. It is obvious that said bar a^9 may be operated by various means; but I prefer to construct the same as an armature or to attach the same to an armature a^{10}, which is operated, as shown in Fig. 2, by an electromagnet B, the coil of which is included in a normally open circuit including a distant normally closed contact governed by an armature b^4, a source of electricity, and a normally open contact, which electromagnet is primarily energized by induction from a transient magnet c', adapted to be carried past said electromagnet within magnetically influential distance of the same by a conveyance C, moving on said track, which electromagnet will thereupon attract said armature a^{10} and draw the contact b^8 into contact with the contact b', thereby closing the normally open contact included in the circuit with said coil, the magnetism of which electromagnet will

then be maintained by the source b^6 included in said circuit. The partial circuit comprising my invention being by said operation of said armature also closed, such condition will be maintained until said transient magnet c' reaches the armature b^4, governing said distant normally closed contact, when said magnet c' will attract said armature b^4 and break said normally closed contact, whereupon said electromagnet will again become inert and drop its armature, and thereby open said partial circuit.

The utilities of my said partial circuit are manifold; but one illustration will be sufficient, for which purpose it may be assumed that said partial circuit has been closed, as aforesaid, and that the conveyance bearing said magnet c' is at a point between said electromagnet and the distant armature b^4. Now comes a following conveyance upon which, as shown in said Fig. 4, is established a partial circuit comprising a battery D or other suitable source of electricity, to the opposite poles of which are connected conductors of electricity, respectively, as at d' and d^2, normally separated or insulated from each other and adapted to terminally contact, respectively, with said stationary conductors a' and a^2, and upon which conveyance is established a normally closed circuit including said battery D, portions of said conductors d' and d^2, a safety signal-lamp E, and conductors e' and e^2. When said conductors d' and d^2, respectively, contact with said conductors a' and a^2, (said partial circuit being closed, as aforesaid,) the partial circuit on said conveyance will be completed by said stationary partial circuit on said route, and the battery D on said conveyance will thereupon be short-circuited out of the circuit containing said lamp E, and the light of said lamp will thereupon be extinguished, thereby warning the driver of said conveyance that there is a preceding conveyance between said electromagnet B and said distant armature b^4. If, however, my said partial circuit from and including the rail a' to the rail a^2 be not closed, the safety signal aforesaid will remain undisturbed. It is obvious that said conductor a' may also, if desired, be external to the track-rail and constructed similarly to said rail or contact a^2, and that the partial circuit on said conveyance may be modified or changed or extended or may include or govern other circuits or signals or constructions, and that the means for operating said lever a^9 or armature a^{10} may be varied or extended or modified or incorporated with other constructions or circuits, and that suitable supports or anchorages or fastenings for the several parts may be provided, all within the scope of my said invention.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of a normally open electric circuit comprising a source of electricity, an electromagnet and a normally open circuit-controlling contact, an armature adapted to be operated by said magnet while energized, and, in operative position, to close said contact, a partial circuit comprising a normally open contact adapted to be closed by said armature, conductors extending from the opposite points thereof and provided at their outer ends with normally open contacts, a conveyance, a normally open electric circuit carried by said conveyance and including a source of electricity, conductors extending from the opposite poles of the last said source and provided at their outer ends with normally open contacts adapted to be carried by said conveyance into momentary circuit-extending contact with the contacts at the said outer ends of said partial circuit, and means carried by said conveyance and adapted to momentarily operate said armature after the momentary contact with said partial circuit of the normally open circuit carried by said conveyance, substantially as described.

2. The combination of a normally open electric circuit comprising a source of electricity, a normally closed circuit-controlling contact, an electromagnet and a normally open circuit-controlling contact, an armature for said magnet adapted when operated to close said normally open contact, a partial circuit comprising a normally open contact adapted to be closed by said armature when operated, conductors extending from the opposite points of the last said normally open contact and provided at their outer ends with normally open contacts, a normally open electric circuit including a source of electricity, conductors extending from the opposite poles thereof and provided at their outer ends with normally open contacts, a conveyance for carrying the last said normally open circuit into momentary circuit-extending communication with said partial circuit, means carried by said conveyance adapted to momentarily operate said armature after the termination of the momentary extension of the last said normally open circuit by said partial circuit, a lever adapted in operative position to open said normally closed contact, and means carried by said conveyance adapted to momentarily operate said lever subsequent to the initial operation of said armature, substantially as described.

3. The combination of a normally open electric circuit including a source of electricity, an electromagnet and a normally open circuit-controlling contact, an armature for said magnet adapted when operated to close said con-

tact, a partial circuit comprising a normally open circuit-controlling contact governed by said armature, and conductors extending from the opposite points of the last said open contact and provided at their outer ends with normally open contacts, substantially as described.

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

GUION THOMPSON.

Witnesses:
JNO. D. WATSON,
JAMES T. WATSON.