A. RIOUX.

RAILWAY SIGNALING SYSTEM.

APPLICATION FILED JULY 29, 1910.

1,051,262. Patented Jan. 21, 1913.

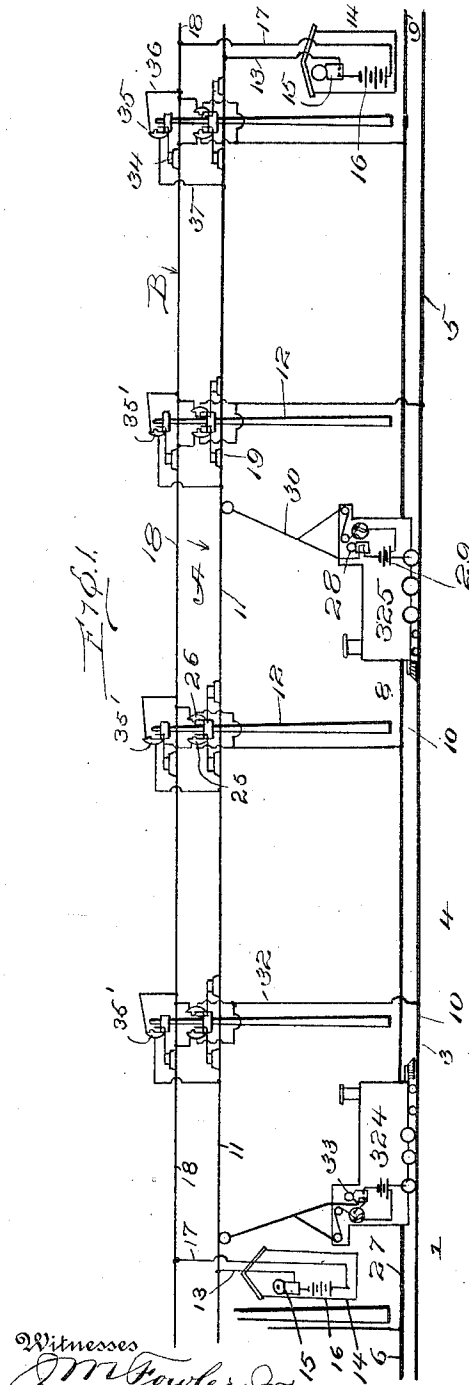

Fig. 1.

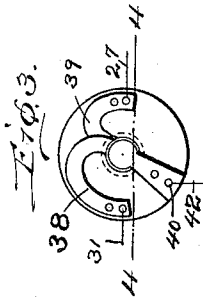

Fig. 3.

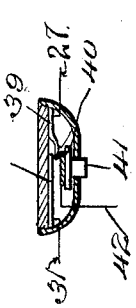

Fig. 4.

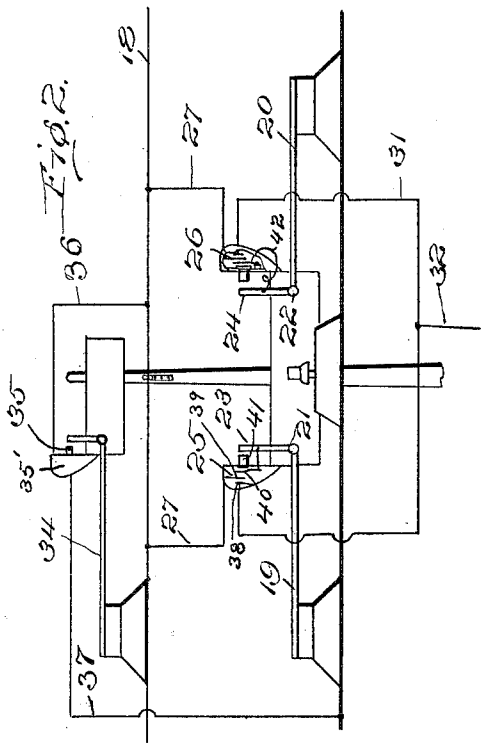

Fig. 2.

Witnesses

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RAILWAY SIGNALING SYSTEM.

1,051,262. Specification of Letters Patent. **Patented Jan. 21, 1913.**

Original application filed February 1, 1910, Serial No. 541,330. Divided and this application filed July 29, 1910. Serial No. 574,483.

To all whom it may concern:

Be it known that I, ALPHONSE RIOUX, a citizen of the United States, residing at Nashua, in the county of Hillsboro and State of New Hampshire, have invented certain new and useful Improvements in Railway Signaling Systems; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in railway signaling systems, and particularly to means for giving an alarm when the signaling system is disabled or partially disabled.

The object in view is the arrangement of a signaling system, including line wires, associated with means for automatically indicating at stations along the track or moving trains when the system is disabled to any extent.

A further object of the invention is the arrangement in combination with a track signaling system, of means for signaling stations along the track when the track signaling system is out of order.

A still further object of the invention more specifically is the arrangement of a system of signaling for railways, in which a trolley wire is used, and a station wire, together with means for indicating at stations along the track whenever one of the wires has been broken and the system thereby crippled.

With these and other objects in view the invention comprises certain novel constructions, combinations, and arrangement of parts as will be hereinafter more fully described and claimed.

In order that the invention may be more fully understood an embodiment of the same is shown in the accompanying drawings, in which—

In the accompanying drawings: Figure 1 is a diagrammatic view showing a track signaling system, and means for indicating when the same has been disabled. Fig. 2 is an enlarged detail side elevation of the mechanism used for signaling stations along the track when the system has been crippled. Fig. 3 is an enlarged detail top plan view of a three pole push button embodying certain features of the invention. Fig. 4 is a section through Fig. 3, approximately on line 4—4.

In constructing or establishing a system for signaling trains on the track, and means for indicating that the same has been disabled, a trolley wire is mounted over the track or near the same, and parallel therewith. The various engines traveling over the track are provided with means for communicating with said trolley wire, and in the event of the trolley wire breaking there is a medium of notifying the responsible persons of a train or depot as to the conditions, and an auxiliary wire thrown into circuit.

1 and 2 indicate the rails of the track which are divided into blocks or sections 3, 4, 5, 6, 7, 8 and 9 by insulations 10. These sections or blocks are arranged in staggered relationship to each other, so that the insulations 10 on rail 1 will be midway between the insulations 10 on rail 2. Arranged above, and if desired to one side of the track, is a trolley wire 11 supported by any desired number of supporting poles 12. Trolley wire 11 is designed to carry only sufficient current for operating the various signals, and is not used for providing propulsion current. Trolley wire 11 extends for the full length of the signaling system, and is connected by wires 13 to the respective stations 14 arranged at any desired distance along the track. Wire 13 of station 14 is connected with bell 15 so that when trolley wire 11 breaks current may flow through bell 15 to battery 16, wire 17, station wire 18, and one of the levers 19 and 20 and associated mechanism. When trolley wire 11 breaks at the point indicated as A, Fig. 1, levers 19 and 20 of the adjoining poles 12, drop down by gravity. The levers 19 and 20 which are electrically and rigidly secured to trolley wire 11 maintain their contact therewith and move upon their pivotal points 21 and 22 until the extensions 23 and 24 depress or close the switches 25 and 26. This will connect station wire 18 and trolley wire 11 on each side of point A, so that the stations on each side of the break will be notified.

When lever 19 moves downward and closes switch 25, the current will flow as follows: Commencing with battery 16 the direction of flow will be, for instance, through wire 17, station wire 18, wire 27, contact 39, contact 40, wire 42, extension 23, lever 19, trolley wire 11, wire 13, and through bell 15 back to battery 16. On the opposite side of the break to station 14 the

corresponding station will be signaled, and the current will flow substantially in the same manner as traced, except through the opposite wiring and associated parts, including lever 20. This means for indicating whenever trolley wire 11 is broken is associated with the various wirings and device for signaling trains 324 and 325, and is used for signaling these trains whenever the same enter any of the sections in which a break in trolley wire 11 occurs. If trolley wire 11 were broken at A, Fig. 1, not only would bell 15 be sounded, but also bell 28 on engine 325. The sounding of bell 28 would commence as soon as engine 325 had passed the insulation 10 and entered on section 4. As soon as engine 325 enters on section 4 current will pass from battery 29 on engine 325 to bell 28, trolley pole 30, trolley wire 11, lever 19, extension 23, wire 42, contact 40, contact 39, contact 38, wire 31, wire 32, track section 4, and from thence to the axle of the wheels of engine 325 back to the battery. The bell 28 will ring continuously until the break has been repaired or the engine has passed off of section 4.

Associated with levers 19 and 20 is a lever 34 which, together with the associated mechanism, is arranged to ring bell 15 when station wire 18 is broken, but does not ring either of the bells 28 or 33. The station wire 18 is supported by suitable brackets carried upon supporting poles 12, and in turn supports or carries the respective levers 34. In arranging levers 34 one lever is provided between each pair of poles 12, so that wire 18 cannot be broken at any point without permitting one of the levers 34 to drop. If wire 18 should break at the point indicated at B on Fig. 1, lever 34 will immediately drop and press button 35 of switch 35′. Connected to one of the poles of the switch 35′ is a wire 36 which is secured to station wire 18 on the opposite side of pole 12 to lever 34. Connected to the other pole of switch 35′ is a wire 37 connected to the trolley wire. By this arrangement whenever lever 34 drops and closes switch 35′ a circuit is established, so that current will flow from battery 16 through wire 17, station wire 18, wire 36, switch 35, wire 37, trolley wire 11, wire 13, bell 15, and back to battery 16.

Switch 35′ is of the ordinary two pole type and is intended to connect only wires 36 and 37, but buttons 25 and 26 are specially constructed and formed with three poles. The three pole switches 25 and 26, as more clearly shown in Figs. 3 and 4, are provided with suitable housings having spring contact members 38, 39 and 40. A suitable button 41 is also provided for contacting with the movable parts of levers 19 and 20. Contacts 38 and 39 are connected with wires 31 and 27, while contact 40 is connected with wire 42 which is secured to levers 19 and 20.

This is a divisional application removed from application for railway signaling systems, filed February 1, 1910, Serial Number 541,330.

What I claim is:

1. In a railway signaling system, the combination with an engine, of a track therefor, a generator positioned on said engine, means for electrically connecting said generator with said track, a signal carried by said engine and electrically connected with said generator, a trolley wire along said track, an electrical connection from said signal carried by said engine to said trolley wire, a station wire arranged substantially parallel with said trolley wire, an alarm device connecting said trolley wire and said station wire, a battery interposed in the circuit of said alarm device, wire supporting poles, cross arms connected to said poles, angle levers pivotally mounted on said cross arms and secured to said trolley wire, whereby the levers are normally prevented any pivotal movement, tripolar switches carried by the cross arms which support said levers, one pole of each of said switches being electrically connected to one of said angle levers, a second pole being connected to said station wire, and a third pole being connected to one of the rails of said track, an angle lever pivoted to one of the cross arms of said poles and rigidly connected with said station wire, whereby the same is normally prevented pivotal movement, a connecting wire connecting said station wire with said trolley wire, and a bipolar switch interposed in said connecting wire and arranged near one end of said angle lever, the free ends of said first mentioned levers and said angle lever closing the switches adjacent thereto in the event of a break in any of the wires to which said levers are secured for providing new circuits for the station wire and the trolley wire.

2. In a railway signaling apparatus, a track, a trolley wire arranged along said track, a station wire arranged parallel with said trolley wire, brackets for supporting said wires, an alarm device connecting said trolley wire and said station wire, a battery interposed in the circuit of said alarm device, angle levers pivoted to said brackets, one end of some of said levers being secured to said trolley wire, one end of the remaining levers being secured to said station wire, electrical switches one for each lever connected with the station wire and each adapted to be operated by one end of the corresponding lever, electrical connections, each including one of said switches, for connecting the station wire and the trolley wire,

whereby when said station wire is broken and any of the levers thereof moved current will flow from said battery through said switch, said station wire and trolley wire, and said alarm, electrical switches one for each lever connected with the trolley wire and each connecting said trolley wire and said station wire, adapted to be closed by the free end of the corresponding one of the levers connected to said trolley wire when the trolley wire is broken, for closing the circuit of said alarm device.

3. In a railway signaling system, the combination with an engine, of a track, a generator mounted on said engine, means for connecting electrically said generator with said track, a signal mounted on said engine and electrically connected with said generator, a trolley wire arranged along said track, means for electrically connecting said signal to said trolley wire, a station wire, a signal interposed between said station wire and said trolley wire, a battery interposed in the circuit of said signal, a pivotally mounted lever supported at one end by said trolley wire, a tri-pole switch arranged to be closed by the end of said lever opposite the end connected with said trolley wire, one pole of said switch being electrically connected with said lever, another to said station wire and a third to one of the rails of said track, said pivotally mounted lever being adapted to close said tri-pole switch upon the breaking of said trolley wire for closing the circuit of the signal mounted on said engine and at the same time closing the circuit of the signal interposed between said station wire and said trolley wire.

4. In a railway signaling apparatus, a track, a trolley wire arranged along said track, a station wire arranged parallel with said trolley wire, brackets for supporting said wires, an alarm device connected with said trolley wire and said station wire, a battery interposed in the circuit of said alarm device, angle levers pivoted to said brackets, one end of each of said angle levers being secured to said station wire, a normally open electrical switch adapted to be operated by the other end of each of said levers when the station wire drops, and an electrical connection including said switch for connecting the station wire and the trolley wire, whereby when said station wire is broken and any of the levers thereof moved current will flow from said battery through said switch, said station wire and trolley wire, and said alarm.

In testimony whereof I affix my signature in presence of two witnesses.

ALPHONSE RIOUX.

Witnesses:
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JOSEPH P. CLOUGH.