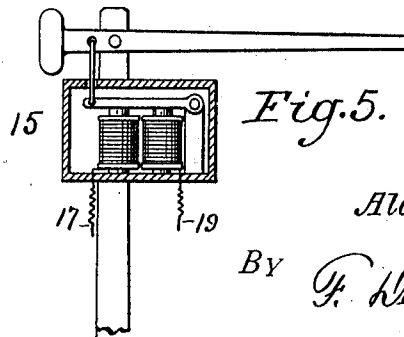
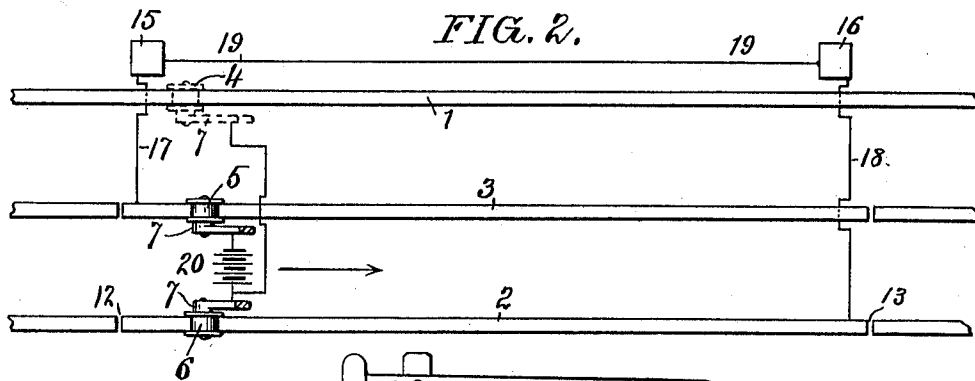
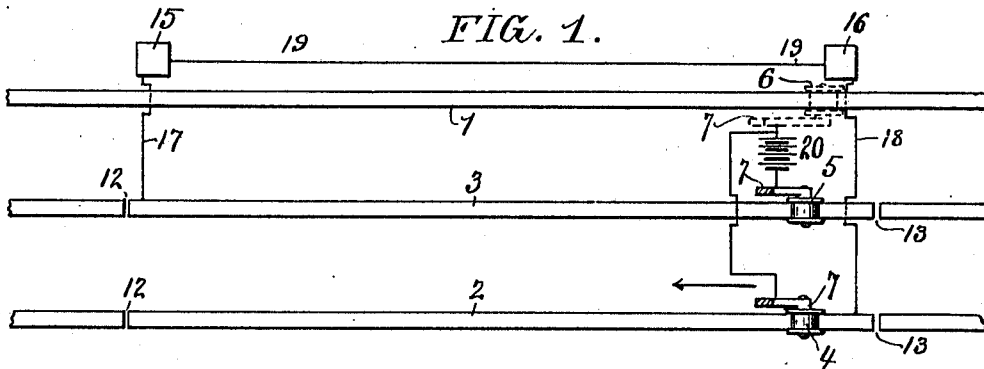
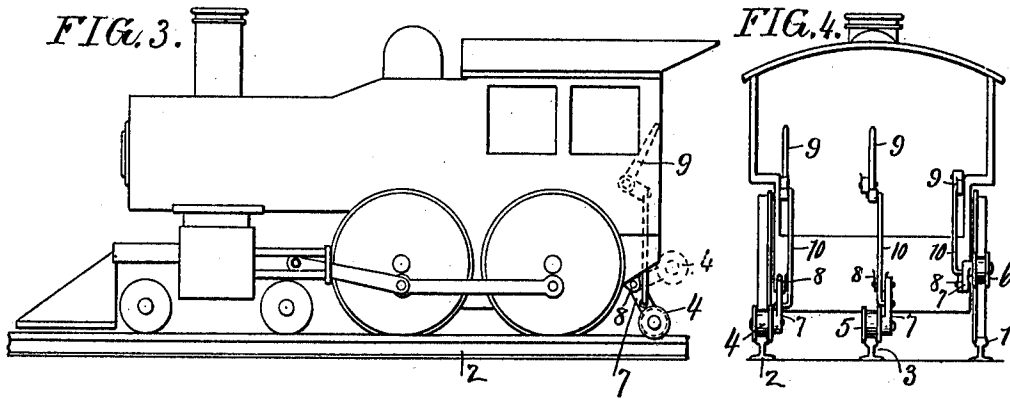


A. C. MATHER.
RAILWAY SIGNALING SYSTEM.
APPLICATION FILED JULY 3, 1907.

978,180.

Patented Dec. 13, 1910.



WITNESSES:

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REISSUED

RAILWAY SIGNALING SYSTEM.

978,180.

Specification of Letters Patent.

Patented Dec. 13, 1910.

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To all whom it may concern:

Be it known that I, ALONZO C. MATHER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway Signaling Systems, of which the following is a specification.

My invention relates to improvements in a railway signaling system and the object of my invention is to operate one or more signals located adjacent the tracks by a source of electrical current carried by the vehicle running upon the tracks; a further object of my invention is to provide a system of wiring in which the tracks are used, with means upon the vehicle to contact with said tracks and complete the circuit in which said signals are connected; a still further object of my invention is to employ a third rail in the operation of my invention; a still further object of my invention is to construct the signaling system so that the signals will be in operation during the time the vehicle is traveling the entire distance of a certain signaling section of the tracks.

Referring to the drawing:—Figure 1 is a plan view of the railway tracks illustrating my improved signaling system. Fig. 2 is a view similar to Fig. 1 showing the parts carried by the vehicle in a different position; Fig. 3 is a side view of a locomotive showing the means employed for making contact with the rails; Fig. 4 is an end view of Fig. 3; and, Fig. 5 is a detail view of a form of electrical signal which may be used in carrying out my invention.

In the drawing 1 and 2 are the main rails of the railway upon which the locomotive or other vehicle carrying the source of current travels, and 3 is a third rail extending parallel with said rails 1 and 2. Upon the locomotive is provided means for making contact with the rails 1, 2 and 3 consisting of wheels 4, 5 and 6 carried by arms 7 pivoted in bearings 8 and adapted to be raised and lowered independently by hand levers 9 which are connected with the said pivoted arms 7 by connecting-rods 10.

When the signaling system is in operation the wheel 5 is placed in contact with the third rail 3 and either the wheel 4 or the wheel 6 is placed in contact with the track 2. If the locomotive is traveling in the direction of the arrow, Fig. 1, the wheel 4 is used to make contact with the rail 2, and if

the locomotive is traveling in the reverse direction as indicated by the arrow, Fig. 2, the wheel 6 is used to make contact with the rail 2. The rail 2 is insulated at the joints 12 and 13 so that a certain section of the tracks may be used for the operation of the signals. This signaling section may extend a mile or any desired distance.

The signals 15 and 16 are the usual form of electrically operated signals, and are preferably located at the ends of the signaling section. The signal 15 is connected by a wire 17 with the third rail 3; the signal 16 is connected by a wire 18 with the main rail 2 and the two signals are connected together by a wire 19.

The locomotive carries a source of electric current represented at 20 in Figs. 1 and 2. This source of current may be generated by a storage battery, or by a dynamo driven by a small engine, steam turbine or by a belt or other connection with the traction wheels.

When the locomotive carrying the source of current runs into the signaling section the wheel 5 is pressed down upon the third rail 3 and either the wheel 4 or 6 which may be over the rail 2 is depressed to make contact with the said rail 2, so that the circuit will be completed from the source of current upon the vehicle through the wheel 5 to the third rail 3 and from the third rail to the signal 15 through the wire 17 and operate said signal. The current then continues through the wire 19 to the signal 16 and operates it and then passes through the wire 18 to the main rail 2 from which it is picked up by the wheel 4 connected with the source of current 20. It will be seen that the circuit will be complete and the signals held in operation during the time the vehicle is traveling the entire length of the signaling section, and that the necessity of having batteries or other source of current at each signal is avoided.

It will be understood that the contact wheels 4, 5 and 6 and the source of electrical current may be carried upon a car in place of the locomotive as shown in the drawings.

My improved system of wiring may also be used to operate telegraph or telephone instruments from the vehicle without departing from my invention.

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

1. In an electric signal system the combi-

nation with main rails, one of said rails being divided into sections, a third rail divided into sections corresponding to the sections of the said last mentioned rail, electrically operated signal devices arranged along the track way including a partial electric circuit, one terminal of which is connected to a section of the third rail and the other terminal to a corresponding section of one of the track rails, in combination with a train carried device including a current generator, a plurality of trolleys, one pole of said current generator being connected to one of said trolleys which engages the said third rail and the other pole thereof connected to a pair of said trolleys, and means for bringing one or the other of said last mentioned trolleys into engagement with a given section of a given track rail depending upon the direction of the travel of the train.

2. In an electrical signaling system for

railways, the combination of a vehicle, main rails over which said vehicle travels in either direction, a third rail extending parallel with and midway between said main rails, an electric circuit including one of said main rails, the said third rail, a conductor connecting said main rail with said third rail, a source of current, an electrically operated instrument, a contact wheel carried by said vehicle located above said third rail, contact wheels carried by said vehicle located above each of said main rails and means for bringing either one of said last mentioned contact wheels into contact with the main rail which is included in said electric circuit to complete the latter.

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

ALONZO C. MATHER.

Witnesses:

JAMES F. BOYLAN,

M. R. CLEELAND.