To all whom it may concern:

Be it known that I, SHELLMAN T. STEWART, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Signaling Systems for Railroad-Trains; 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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to a system of the class that employs an electrical circuit to show, when it is unbroken, that all the gates or doors of a railroad train are shut, since the gates make and break the circuit when they are closed and opened. The closed circuit operates an audible or visual signal and indicates to the engineer or motorman that all gates are shut, without any manual manipulation of signals by the guards or trainmen.

This system further embraces a second circuit that is made and broken by the motorman, engineer, and which acts to unlock the latches that hold shut the gates that make the first circuit. This system insures all the gates being held shut until the train is at a full stop and the motorman releases the latches of the gates. The bolts of the latches can be made to connect with the gates to complete the first circuit.

The invention is illustrated in the accompanying drawing, in which Figure 1 is a diagrammatic view of the system as applied to a train, and Fig. 2 is a diagram of the circuits and showing a detail of the preferred form of latch for the railroad.

I illustrate, in broken outline, the cars 10, which are supplied with the usual gates 11, which are closed by the guards or trainmen when the passengers are all aboard. The gates 11 act to conduct electrical current, and when shut complete a circuit which passes through the wires 12 in each car, these wires connecting the gates of the car, and a detachable connection 13, of any usual style, is installed to complete the circuit passing through the gates, where it is necessary to cross from one car to the next. This circuit passes through the gates and returns to the motor car or engine by means of a return wire 14, and this return wire enters the contact 15 of a two-way switch 16. A signal 17, either audible or visual, is in this first circuit, and is suitably installed to be seen or heard by the motorman. This circuit is completed by being attached to the contact 18 of the switch 16. The latch 19 of each gate, when it is engaged by its gate, locks the gate in its closed position and when the gates are so locked, the signal 17, preferably a bell, indicates a complete circuit which is supplied from a battery 20, conveniently placed.

When all passengers are on and the gates are shut, the bell rings and the switch 16 is opened to prevent the bell from ringing continuously.

The latches 19 are not to be operated normally, by the train guards, but are to be disengaged from their respective gates in unison, and only after the train stops, by the motorman. To accomplish this I install a bolt 21 in each latch, and this bolt is operated by a magnet 26 which is in a second circuit, consisting of a wire 22 in each car, these wires being connected, but detachably, as at 23 between the cars and being attached at one end to the contact 24 of the switch 16, and at the other end to the wire 14 which is the return wire for both circuits.

When the motorman throws the switch 16 to engage the contact 24, after the train stops at a station, the magnets 26 draw back the bolts 21 and the gates can be opened by the guards. The bolt 21 is preferably held normally in operative position by a weight 25, but any kind of electrically operated latch can be used in this system.

The benefits of this system are obvious, since the gates can not be opened until the train is stopped and the responsibility for opening is placed. Again, when the bell or signal circuit is closed by the switch 16, it shows at once whether the latches have operated or not.

Having thus described my invention, what I claim is:

1. A train-signal system comprising a circuit, a signal therein, gates to make and break the circuit, latches for locking the gates shut, and a second circuit to operate the latches.

2. A train-signal system comprising a circuit, a signal therein, gates to make and break the circuit, latches for locking the gates shut, a circuit connecting the latches and having one end connected to the return wire of the first circuit, and manually oper-
ated means as a switch for making the second circuit.

3. A train-signal system comprising a circuit, a signal in the circuit, a two-contact switch in the circuit, gates to make and break the circuit, latches to hold the gates normally shut, and a second circuit connecting the latches and having its ends connected to the two-contact switch.

4. A train-signal system comprising a circuit, a signal in the circuit, a two-contact switch in the circuit, gates to make and break the circuit, latches for locking the gates, magnets adapted to operate the latches to release the gates, a second circuit connecting the magnets and being attached to the two-contact switch whereby the latches can be operated in unison, the signal circuit being made by the switch when the second circuit is broken, and vice versa.

5. A train-signal system comprising a signal circuit and second circuit, the circuits having a common return wire, manually operated means on the return wire for making either of the circuits complete, a signal in the signal circuit, gates to make and break the signal circuit, and electrically operated latches in the second circuit to normally hold the gates shut.

6. A train-signal system comprising a signal circuit, a signal in the circuit, gates for making and breaking the circuit, a latch for each gate, a bolt adapted to operate the latch to engage the gate to hold it shut and acting to contact with the gate for making the signal circuit, means for normally holding the bolt in engagement with the gate, a magnet in each latch and adapted to operate the bolt to release the gate, a second circuit connecting the magnets, and manually operated means for making the second circuit operate the magnets in unison.

In testimony, that I claim the foregoing, I have hereunto set my hand this 25th day of January 1908.

SHELLMAN T. STEWART.

Witnesses

Wm. H. CAMFIELD,
E. A. PELL.