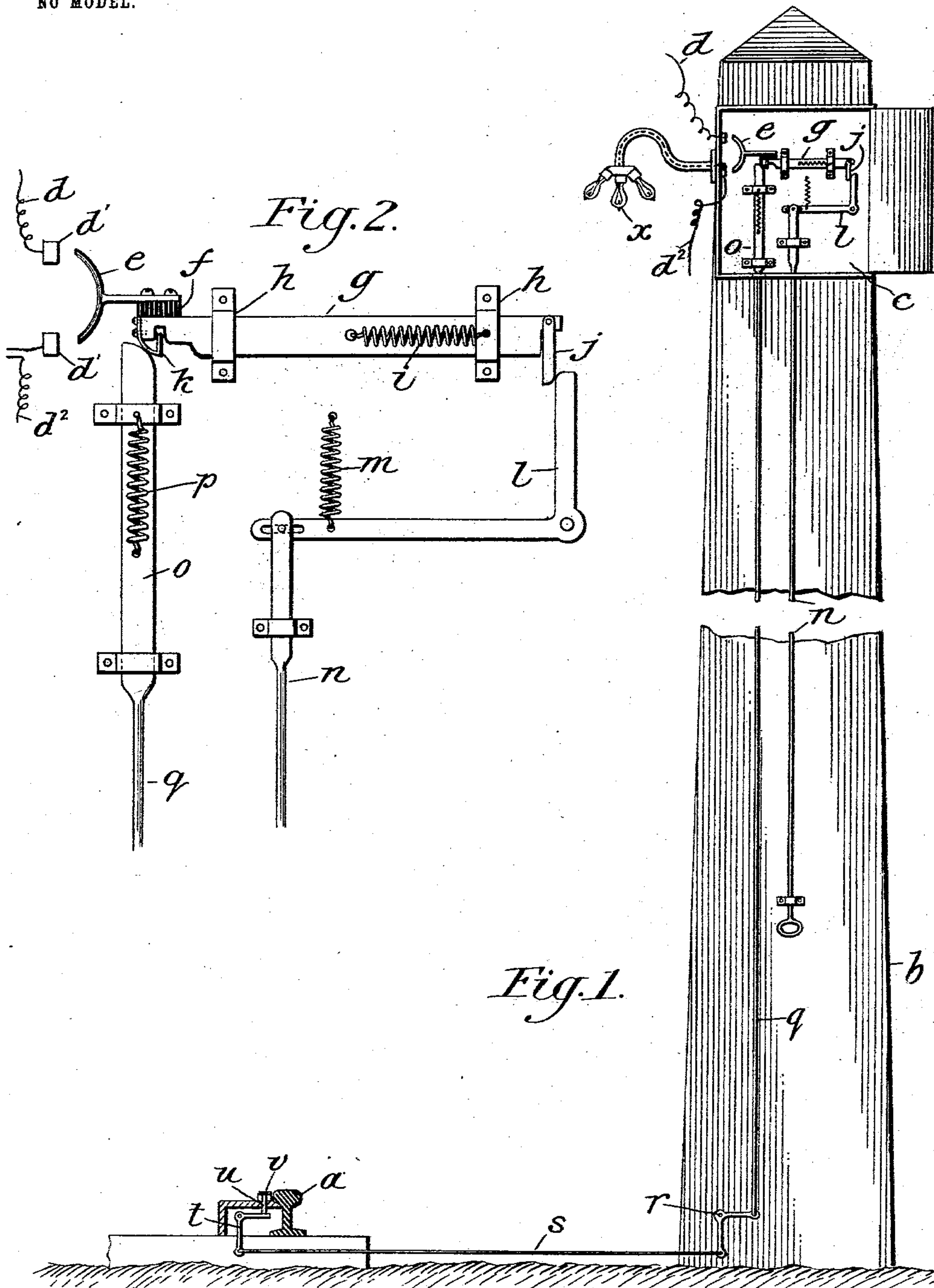


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J. L. WRENN.  
RAILWAY STATION SIGNAL.  
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NO MODEL.



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# UNITED STATES PATENT OFFICE.

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## RAILWAY STATION-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 743,789, dated November 10, 1903.

Application filed June 30, 1903. Serial No. 163,726. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN L. WRENN, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Railway Station-Signals; 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.

My invention relates to railway-signals, and has for its object to provide a station apparatus that may be operated by a prospective passenger to signal an approaching car or train, and when so operated said apparatus will maintain a signal until the passing car further operates the apparatus to withdraw the signal.

To this end my invention comprises an electric circuit for operating a visible signal, preferably a cluster of electric lights, a manually-operated switch for closing said circuit to actuate the signal, and mechanical means, preferably operated by a passing car, to open the circuit, and thereby discontinue the signal.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a representation in elevation of a complete signal apparatus to be applied at any point along the railway. Fig. 2 is an enlarged detail view of the switch mechanism.

In the practical operation of railways having numerous isolated stations or stopping-places it is essential that some means be provided to signal an approaching train or car when it is desired to have the latter stop at a particular station. The necessity of some such arrangement upon suburban trolley-lines is manifest, and attempts have been made to meet the requirements by placing clusters of lamps at the proposed stopping-places, which lamps were either allowed to burn continuously or were thrown into operation by a prospective passenger. The former method is objectionable because it is wasteful of current and affords no criterion for the motorman, as he must stop whether passengers be waiting or not. Under the second scheme the lights were turned on by a prospective passenger either by holding down a manual switch or by actuating electrical devices for closing a circuit. Neither of these

latter methods is feasible, because the passenger objects to holding the switch closed until a car approaches and the alternative arrangement involves complex and costly electrical apparatus, which is frequently disabled by heavy charges and renders such installation generally impossible.

It is the purpose of my invention to provide a simple, effective, and inexpensive signal that involves no complex mechanism or intricate operation, by which a circuit operating a signal may be closed by a prospective passenger, and the very act of closing the circuit locks the closing mechanism in position to maintain the signal until the car signaled passes the station and restores the apparatus to its original condition.

Referring to the drawings, *a* represents one of the rails of a railway, which may be of any of the well-known types, either steam or electric. In the particular application of my invention illustrated the signal is used in connection with a trolley-road, and *b* indicates a trolley-pole located at a convenient stopping-place. Mounted upon one side of said pole, and preferably near the top thereof, is a box *c*, adapted to be closed by a suitable hinged cover. Leading into said box *c* is wire *d*, connected with the feed-wire or trolley-wire and terminating in a contact *d'*. A second wire *d''*, connected to a similar contact *d'''*, leads to the ground or return circuit and has interposed therein a cluster of electric lights *x*. The contacts *d'* *d'''* are adapted to be bridged by a switch *e*, whereby the circuit is closed from the trolley or feed wire through the lamps. The switch *e* is mounted upon a slide-bar *g*, guided in suitable bracket-pieces *h* *h*, and a spiral spring connected to said bar *g* and one of said brackets *h* serves to hold the bar in normal retracted position, so that the switch *e* is out of connection with the contacts *d'* *d'''*.

In order to actuate the slide-bar *g*, a bell-crank lever *l* is mounted within the box *c* adjacent to said bar *g*, which lever is adapted to engage at its upper end with the depending end of a detent *j*, which latter is freely movable in a rearward direction, but is prevented from moving forward beyond a vertical position by the rear end of the bar *g*. The bell-crank lever *l* is returned to inoper-



active position by a spiral spring *m*, and said lever is adapted to be rocked to actuate the bar *g* and set the switch by means of a pull-rod *n*, which is connected to said bell-crank lever by a suitable pin-and-slot connection and is provided at its lower end with a handle to be grasped by the operator. Adjacent to the forward end of the bar *g* and projecting in the path of movement of said bar is a locking-bolt *o*, which is adapted to engage a suitable shoulder on the said bar *g* when the latter has been advanced and lock said bar in its advanced position. In the form of my invention illustrated the shoulder on bar *g* consists of a spring-detent *k*, which is depressed by the upper rounded end of the locking-bolt *o* as the bar is advanced and which springs out again as the end of the bolt passes behind the shoulder *k*. Bolt *o* is held in its forward position to engage bar *g* by a spiral spring *p*, and said bolt is moved in the opposite direction against the tension of said spring by means of a pull-rod *q* or similar connection. Said rod *q* is connected at its lower end to a bell-crank lever *r*, which in turn is operatively joined to a second bell-crank *t* by means of a link or rod *s*. Bell-crank *t* is mounted in suitable housing adjacent to the rail *a* and is adapted to be rocked by a depending plunger *u*, which is operated by the depression of a flat spring *v*, mounted upon the housing and adapted to be engaged by the wheel-flanges of a passing car.

The operation of my station signaling apparatus as above described is as follows: A prospective passenger on arriving at the station or stopping-place grasps the handle on the end of rod *n* and pulls the latter down, thereby rocking the bell-crank *l*, the upper end of which engages the depending detent *j* and forces bar *g* forward against the tension of spring *i*. As the bar *g* advances detent *k* rides over the upper rounded end of bolt *o*, and just as the switch *e* makes a good electrical bridging contact with contact-blocks *d' d'* the bolt *o* passes behind detent *k* and locks the bar *g* in its advanced position. At this time the upper end of bell-crank *l* passes out of engagement with detent *j*, and when the rod *n* is released the spring *m* returns the bell-crank and said rod *n* to their original positions. It is to be noted that the operation of the switch is so timed and adjusted that bolt *o* passes behind the detent *k* to lock the switch just when bell-crank *l* is about to disengage detent *j*, so that it would be practically impossible for a malicious person to hold the switch closed by tying down the handle *n*. When switch *e* bridges contacts *d' d'*, the circuit is closed through the lamps *x* from the trolley-wire or other source of current, and the signal thus set is maintained until the next approaching car strikes the track instrument and the wheel-flange depresses spring *v* and plunger *u*, thereby rocking the bell-crank *t*, which imparts a corresponding motion to bell-crank *r* through rod *s* and retracts

bolt *o* by means of rod *q*. As bolt *o* is withdrawn from engagement with detent *k* on bar *g* the latter is immediately withdrawn by spring *i* to break the connection between switch *e* and contacts *d' d'*, thereby opening the circuit and extinguishing the signal-lights. As the car-wheel leaves spring *v* the spring *p* upon bolt *o* restores the bolt and its connected bell-crank system to normal position, (indicated in the drawings,) so that the whole apparatus is ready for operation, as before.

It is to be noted that the form of apparatus described may be varied in many particulars without departing from my invention, which contemplates the employment of an electrical station-signal which is operated entirely by mechanical means—to wit, a mechanical hand-setting device for the signal and a car-operated or other mechanical tripping mechanism to release the signal.

Having thus described my invention, what I claim is—

1. In a station signaling apparatus, the combination of an electric circuit, a signal operated thereby, a manually-operated switch to close said circuit and operate the signal, and mechanical means actuated by a passing car to open the circuit.

2. In a station signaling apparatus, the combination of an electric circuit, a signal operated thereby, a manually-operated switch to close said circuit and operate the signal, a lock to hold said switch in closed position, and independent mechanical means coöperating with said lock to release the same and permit the switch to open the circuit.

3. In a station signaling apparatus, the combination of an electric circuit, a signal operated thereby, a switch for closing said circuit to operate the signal, means for normally opening said switch, manually-operated means for closing said switch, a lock to hold said switch in closed position, and independent mechanical means coöperating with said lock to release the same and permit the switch to open.

4. In a station signaling apparatus, the combination of an electrical circuit, a signal operated thereby, a switch for closing said circuit, a sliding bar upon which said switch is mounted, manually-operated means for moving said bar to close said switch, means for normally opening said switch, a locking-bolt for holding said bar when it is moved into position to close the switch and means operated by a passing car to retract the bolt and permit the sliding bar to open the switch.

5. In a station signaling apparatus, the combination of an electric circuit, a signal operated thereby, a switch for closing said circuit, a normally retracted sliding bar upon which said switch is mounted, a pivoted lever adjacent to said bar and adapted to engage and advance said bar and close the switch, manual means for operating said lever, a locking-bolt engaging said bar to hold the



latter in advanced position, and means operated by a passing car to retract the bolt and permit the sliding bar to open the switch.

5 6. In a station signaling apparatus, the combination of an electric circuit, a signal operated thereby, a switch for closing said circuit, a sliding bar upon which said switch is mounted, means for normally retracting said bar, a detent mounted on said bar, a bell-  
10 crank pivoted adjacent to said bar and engaging said detent to advance the bar and close the switch, said detent yielding to the

reverse movement of said bell-crank, manual means for operating said bell-crank, a locking-bolt engaging said bar to hold the latter in advanced position, and means operated by a passing car to retract the bolt and permit the sliding bar to open the switch.

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

JOHN L. WRENN.

Witnesses:

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H. H. RAY.