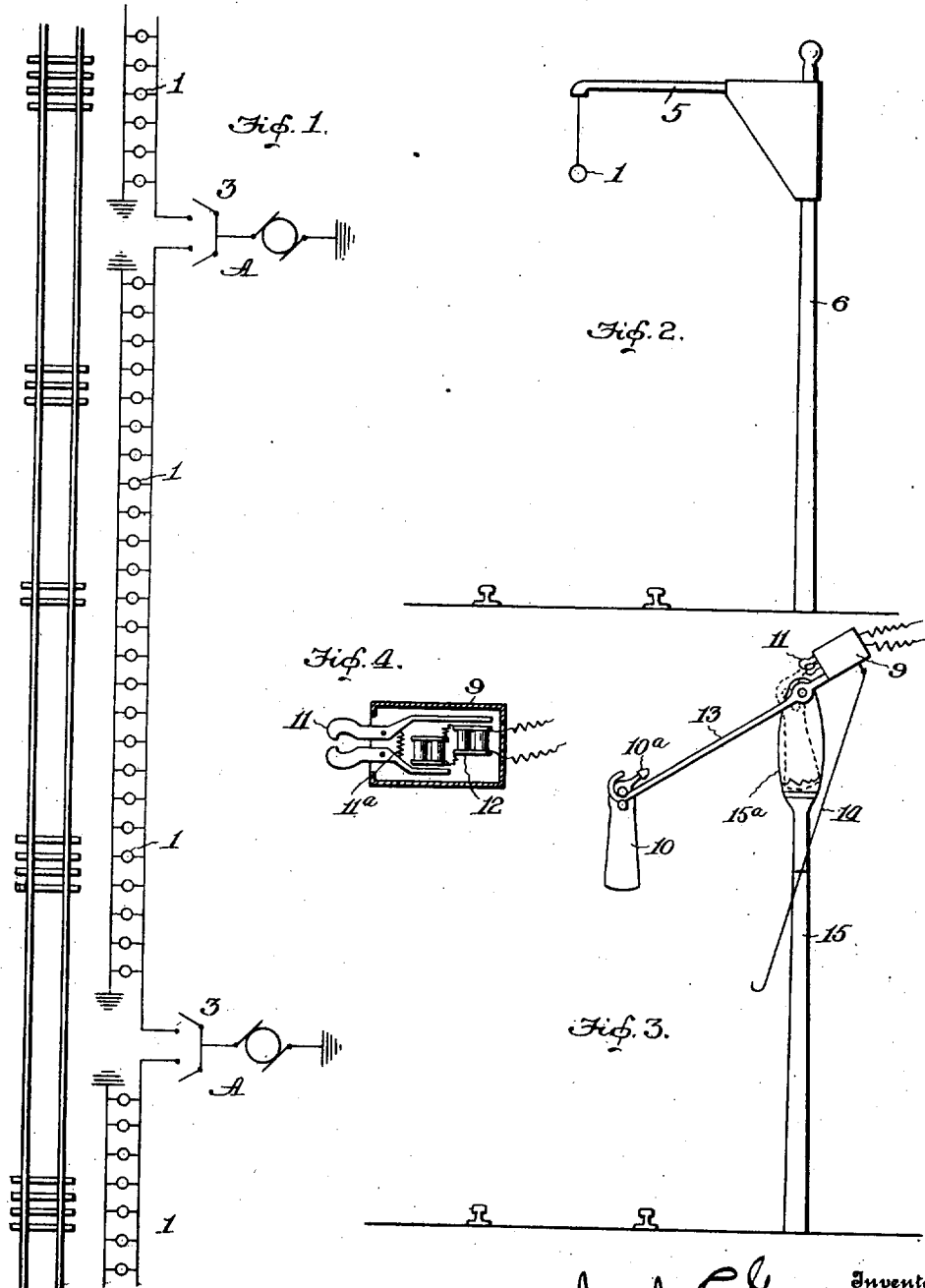


No. 890,049.

PATENTED JUNE 9, 1908.

J. H. GUNN.
ELECTRIC SIGNAL FOR RAILWAYS.

APPLICATION FILED OCT. 31, 1907.



Witnesses

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ELECTRIC SIGNAL FOR RAILWAYS.

No. 890,049.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEPH H. GUNN, a citizen of the United States, residing at Cortland, in the county of Cortland and State of New York, have invented certain Improvements in Electric Signals for Railways, of which the following is a specification.

This invention is an improvement in railway signals, and the primary object of the same is to provide a form of signaling apparatus or system by means of which the engineer of a train may receive a signal at any point between the usual signal stations, whereby in the event the engineer of a train should misunderstand a signal at any station and proceed, or in case the operator at that station should for any other reason desire to signal the train after it has passed he can display a series of signals between his station and the next to warn the engineer either to stop and return or to proceed under caution.

In the operation of the ordinary "block system" now generally employed in connection with railroads it frequently occurs that through carelessness of an operator, or an error in transmitting telegraphic instructions, a train is permitted to enter a block which is already occupied by another train, and after the second train has passed the station into the block it is impossible, with the system as now in general use, for the operator at that station to stop or signal the train before it reaches the next station. Errors of this kind have resulted in serious accidents by collision of the second train with the first before the latter has passed from the block, and in many instances, if not in all, such accidents could have been prevented if provision had been made for signaling at points between the regular stations and operated from either or both signal stations of each block.

My invention therefore contemplates the perfection of the ordinary "block-system" by providing a series of signaling devices between the stations in the nature of emergency signals, which are constructed, arranged and operated in the manner herein-after described, and what I claim as new and desire to fully protect by Letters-Patent is more specifically set forth in the appended claims.

In the accompanying drawings, which form a part of this specification: Figure 1 is

a diagrammatic view to illustrate the arrangement of signals in opposite directions from a station. Fig. 2 is an enlarged view of one form of electric signal device. Fig. 3 is a detail view of another form of electric signal device. Fig. 4 is an enlarged detail view of the engaging and releasing means employed in connection with the form shown in Fig. 3.

Like numerals of reference indicate like parts in all the figures of the drawings.

In carrying out my invention I employ a series of auxiliary signaling devices, for instance the incandescent electric-lamps 1, shown in Fig. 1, and locate the same at suitable distances apart along the railroad and at either side of each station, as A, and provide means for operating said signals from said station. When incandescent electric-lamps are employed it will be necessary, of course, to install an electric lighting system along the road, but in such cases where it is not practical to install an electric lighting system other signaling devices may be employed, such for instance as those herein-after described; the main purpose of my invention being to provide a signaling system or apparatus which will permit emergency signals to be displayed along the railroad at different points and operated from the usual signal stations.

When an electric lighting system is employed, as illustrated in Fig. 1, an electric-switch 3 (Fig. 1) is employed and the points arranged so that the lamps at either or both sides of the station may be lighted so as to signal a train that has passed a station, one that is approaching the station, or both simultaneously, according to the position to which the levers of the switch are thrown.

The lamps may be supported in any suitable manner along the railroad track, for instance from a cross-arm 5 extending towards the track from an ordinary telegraph pole, as 6; but in case there are no telegraph poles along the road suitable supporting poles may be erected.

The electric lamps preferably show a red light and are therefore very efficient signals for night use, but would not be sufficiently effective for signaling in the daytime. Therefore, I contemplate using in connection with each lamp a signal arm or blade 10, operated by means of an electro-magnet. In this latter instance, as shown in Fig. 3 the signal-blade 10 may be held or supported out

of operative position by the engagement of a projecting portion 10^a thereof with a spring catch 11 which latter is moved out of engagement with the signal-blade by means of the electro-magnets 12, and when released said signal-blade will slide down and be suspended from the lower end of the pivoted supporting arm, as 13, directly over the track so as to be in full view of the engineer. The electro-magnets 12 are supported in a box 9 at the inner end of the supporting-arm, and the catch members are moved to closed position by means of a spring 11^a. This arrangement is therefore especially adapted for those sections of the country where it is impracticable or too expensive to install an electric lighting system, and may be employed without lamps inasmuch as the head-light of an engine will light up the signal-blade so that it will be seen at night. For this purpose I purpose to locate the signal blade as far over the track as possible, and so that the engineer cannot fail to see it. In employing the electric lamps they are also similarly located. It is purposed of course that a single series of electric lights or signaling devices be provided along the railroad, and that the electric wiring and switch-connections at the several signal-stations be so arranged that the operator at each station will control the lights in both directions from his station.

It will also be understood that in employing electric lamps and signals they are only operated in case of an emergency or when the customary signal at a station has failed. Therefore the emergency lamps are used independent of the usual signals and the expense of operation will be comparatively small.

The operation of the signaling system herein shown and described will be readily apparent; for supposing the operator at a station A should through carelessness or misunderstanding instructions permit a second train to pass his station into the block ahead while a train was already in that block, and discovered the error after the train passed, he could in such event display the danger signals all along that block by simply throwing the switch-lever which operates said signals, and by this means the engineer of the second train would be immediately warned that there was danger ahead and to proceed with great caution. The same warning signals could be displayed in case a train should pass the usual signals at a station, owing to the failure of the engineer to see the usual signals at said station or failure to properly understand them. By operating the electric switch-lever to operate the signals in the series in the other direction from the station a train in that block approaching said station could be signaled to proceed cautiously owing to an impediment at or near said sta-

tion. Also, in case the conditions require it, the operator may display the signals in both directions from his station, so as to warn trains in both blocks of any danger that might be imminent. It will be seen, therefore, that at all times the operator at each station has full control of all trains approaching and leaving his station and at all points between his station and the next in either direction therefrom. This provides, therefore, that a mistake may be corrected without serious accident even if the operator does not discover the mistake until after a train has passed by his station, and which could not be corrected in the operation of the "block-systems" as now in general use.

In the arrangement shown in Fig. 3 of the drawings, and in the normal position of the parts, the supporting-arm 13 is disposed at a downward inclination towards the track and the signal-arm 10 held at the upper end thereof by the catch 11, so that when the catch is released the said signal-arm will slide down the supporting-arm and will be located directly over the track and act as a signal. For the purpose of returning the signal-arm to its normal position the pivoted supporting-arm 13 is operated or swung to an opposite inclination by means of a rod 14 suitably supported on the post 15. The supporting-post 15 is provided at its upper end with a housing 15^a, in which the signal-blade is concealed in its normal position.

Having described my invention, what I claim as new, and desire to secure by Letters-Patent, is:—

1. A signaling device for railways, comprising signal stations, supporting-posts located along the railway at suitable distances apart between the stations, a supporting-arm on each supporting-post disposed at an inclination towards the track, a signal device slidably mounted on the supporting-arm, means for holding the signal device temporarily at the upper end of the inclined supporting-arm, and means for releasing the signal device, said latter means being operated from the stations.

2. A signaling device for railways, comprising signal stations, supporting-posts located along the railway at suitable distances apart between the stations, a pivoted supporting arm on each supporting-post adapted to be disposed at an inclination towards the track, a signal device slidably mounted on the supporting-arm, a catch for holding the signal device temporarily at the upper end of the inclined supporting-arm, and means for releasing the signal device, said means being operated from the stations.

3. A signaling device for railways, comprising signal stations, supporting-posts located along the railway at suitable distances apart between the stations, a supporting-arm disposed at an inclination towards the

track, a signal device slidably mounted on the supporting-arm, means adapted to engage the signal device and hold it temporarily at the upper end of the supporting-arm, 5 electrically-operated means for tripping the signal device, and electric switches at the stations comprised in the electric circuit.

4. A signaling device for railways, comprising signal stations, supporting-posts located along the railway at suitable distances 10 apart between the stations, a pivoted supporting arm on the supporting-post adapted to be disposed at an inclination towards the track, a signal device slidably mounted on 15 the supporting-arm, a catch for holding the signal device temporarily at the upper end of the supporting-arm, electro-magnets for releasing the catch, and electric switches at the stations comprised in the electric circuit.

20 5. A signaling device for railways, comprising signal stations, supporting posts lo-

cated along the railway at suitable distances apart and each provided with a housing at its upper end, a supporting-arm pivoted in the housing and adapted to be disposed at an 25 inclination towards the track, a signal blade slidably mounted on the supporting-arm, a catch for holding the signal blade temporarily at the upper end of the supporting-arm and within the housing, electrically operated 30 means for tripping the catch, and electric switches at the stations comprised in the electric circuit, substantially as herein shown and described.

In testimony whereof I have signed my 35 name to this specification in the presence of two subscribing witnesses.

JOSEPH H. GUNN.

Witnesses:

GEO. I. WATSON,
T. M. MARKS.