(No Model.)

W. P. KOOKOGEY.

ELECTRIC RAILWAY SIGNAL.

No. 414,773. Patented Nov. 12, 1889.

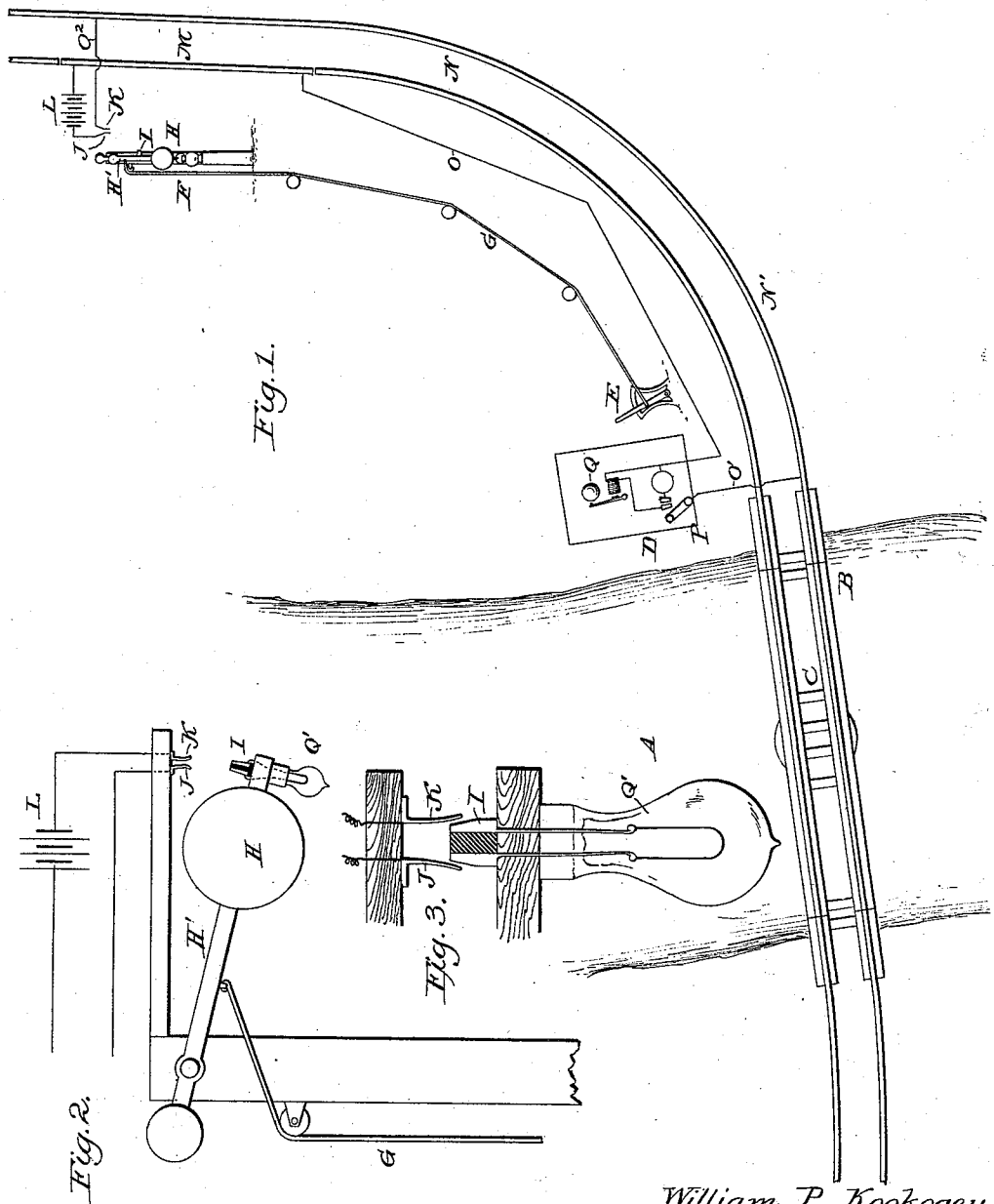


Fig. 1.

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

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ELECTRIC RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 414,773, dated November 12, 1889.

Application filed March 15, 1887. Serial No. 230,974. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. KOOKOGEY, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Electric Railway-Signals, of which the following is a specification.

This invention relates to electric railway-signals, and though susceptible of general or varied application, is more especially designed for use at approaches of draw-bridges and like places, where the continuity of the track is broken at times for any purpose.

The invention consists in a novel arrangement of electric signals in connection with existing manually-controlled signals, whereby the operation or failure of operation of the manually-controlled signal may be made known to the operator at a distant point, and whereby, also, said operator may be informed whether or not due attention is paid by the engineer of an approaching train to the signal.

Figure 1 illustrates my invention as applied to a railroad at the approach to a draw-bridge, and Figs. 2 and 3 detail views.

Owing to the greater ease of constructing a road-bed along the lines of rivers and streams, it happens that the road-bed usually follows more or less closely to the stream; and it generally happens from this or other cause that before crossing a stream the road-bed follows the stream pretty closely for a considerable distance before turning to cross it. From this fact it follows that a train is usually hidden from sight of a watchman at or near the bridge until it arrives very closely thereto, and it also follows that a signal placed at a sufficient distance from the bridge to be thoroughly effective is hidden from view of the watchman at the bridge. From these circumstances many accidents result, for if, by reason of breakage, elongation, or locking of the long wire which runs from the watchman's station near the bridge to the distant signal, the signal fails to be properly set; or if through failure to observe the signal the engineer passes the point at which it is located without becoming aware of the danger ahead, the train is liable to plunge through the open draw before it can be brought to a standstill.

My invention is particularly designed to prevent such accidents; and to this end it consists of the following appliances and arrangements:

A indicates the stream to be crossed, B the bridge over the stream, and C the draw of the bridge.

D indicates the watchman's station; E, a lever by which a vertically-swinging or equivalent signal F at a distant point is operated through the medium of a connecting-wire G, in a manner common and well understood.

In the drawings the track is represented as having a curve or bend between the watchman's station and the signal, and it is to be assumed that, owing to the lay of the land, intervening shrubbery, or to distance between the two points, the watchman is unable to see the signal or to tell with certainty whether it is displayed or concealed, whether in the position indicating "danger" or "safety." To inform the watchman as to the true position of the signal, the disk H or its carrying-arm H′ is furnished with a metal plate I, preferably of copper or brass, and two contact plates or fingers J and K are so placed that when the disk is brought to the position indicative of danger the plate I shall bear upon and electrically connect the plates or fingers J and K. Said fingers J and K are introduced into an electric circuit comprising a battery L, a comparatively short insulated section M of rail N of the railway-track, a wire or conductor O, an electric lamp P, with or without an alarm-bell Q in multiple arc with the lamp, a conductor O′, rail N′ of the railway-track, and wire O^2. Under this arrangement the circuit is always open, except when the disk H is in the position indicating "danger;" but when the disk is in this position the circuit is completed, the bell rings, and the light becomes luminous, thus showing the watchman that the signal is properly displayed. If, when the signal is thus displayed, an engineer, disregarding the signal, runs forward upon the section of track embracing insulated rail-section M, the current is short-circuited through the battery, fingers J K, plate I, wire O^2, rail N′, the wheels and axles of the locomotive or train, rail N, back to the battery, thus causing the lamp to go out, the bell to cease ringing, and the watchman to be made

aware of the unwarranted advance of the train. Section M of the rail or track is located at such distance from the bridge or watchman's station that upon being thus informed of the approach of the train he may still have time to run forward and signal the train to stop. When the train leaves the section M, the lamp P again becomes luminous, and so remains until the disk drops, the circuit is broken, and the light and bell thus become inactive.

By "continuous rail" is meant one acting as a continuous electrical conductor, and by the term "divided rail" is meant one in insulated or electrically-separated sections.

It is obvious that two spring-fingers may be so arranged as to be pressed together by a disk H, or that any equivalent circuit-closer arranged to be controlled by the signal may be employed.

A switch may be placed between the bell and lamp in the manner indicated, so that the current may be caused to pass through either or both, the light not being necessary in the day-time, ordinarily. I propose also, in some cases, to place an electric lamp Q′ in or upon the disk H or lever H′, and arrange its terminals in such manner that when the disk is in the position indicating "danger" the lamp shall be introduced into and form a part of the circuit-closer by the movement of the signal, thus doing away with the necessity of an oil-lamp and the bother of attending the same, as at present required. This arrangement is shown in Figs. 2 and 3, in which the lamp and its terminals take the place of metal plate I of Fig. 1.

Having thus described my invention, what I claim is—

1. In combination with a track-signal and with a hand-lever or equivalent device connected with and located at a distance from or out of sight of said signal for setting the same, an electric circuit including a section of the railway-track and a lamp or signal, the latter in proximity to the hand-lever, said circuit being adapted to be short-circuited to cut out the lamp or signal when a train enters upon the section of the track previously constituting a part of the circuit.

2. In combination with a manually-controlled signal, as F, and an actuating device at a distance therefrom, an electric circuit, an electric lamp or signal included therein and located in proximity to the actuating device, a second electric lamp carried by the signal F and provided with electrically-insulated terminals and contact springs or fingers included in the circuit and arranged in the path of said terminals, substantially as set forth, whereby contact is made between the springs and terminals and the circuit is completed, thus rendering both lights luminous and giving warning to an approaching train and notice to the signal-operator that the signal is properly placed.

3. The herein-described signal apparatus, consisting of manually-controlled signal F, carrying a connecting-plate I, operating-lever E and intermediate connection, fingers J K, battery L, insulated rail-section M, conductor O, lamp or signal P, wire O^2, and conductors N′ and N^2, all substantially as described and shown.

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