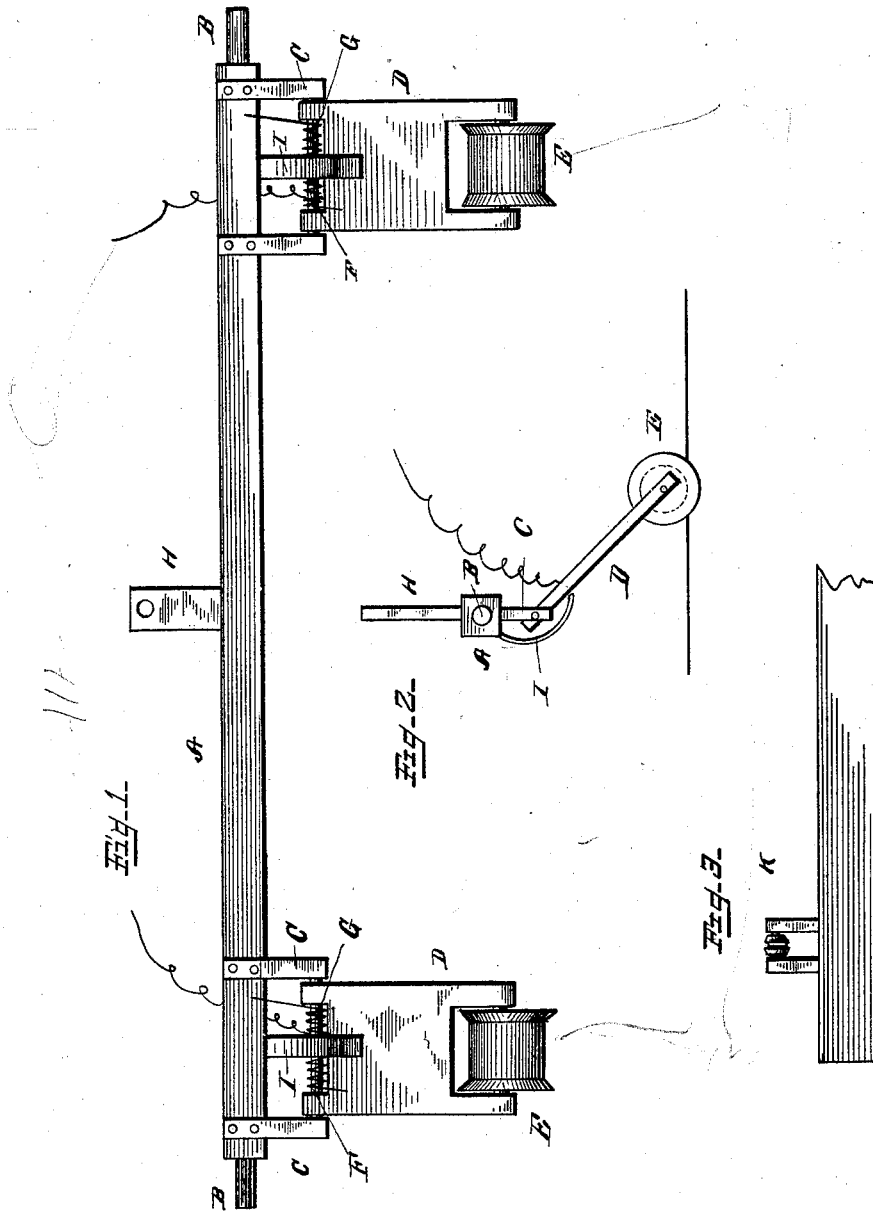


(No Model.)

L. W. LINDLEY.  
ELECTRIC TRAIN SIGNAL.

No. 302,505.

Patented July 22, 1884.



WITNESSES

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# UNITED STATES PATENT OFFICE.

LAFAYETTE W. LINDLEY, OF DANVILLE, KENTUCKY.

## ELECTRIC TRAIN-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 302,505, dated July 22, 1884.

Application filed December 3, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, LAFAYETTE W. LINDLEY, of Danville, Boyle county, State of Kentucky, have invented a new and Improved Electric Train-Signal, so that the current of electricity passes through the cab of two engines at the same time and rings electric bells in the cab of both engines simultaneously, even though they are both running at a high rate of speed, and will continue to ring until one of the engines leaves the track where the two track-wires are laid, and also that one train may communicate with the other by means of telephone, either in front or rear; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the figures and letters of reference marked thereon, in which—

Figure 1 represents a front elevation of the device; Fig. 2, a side elevation of the same, and Fig. 3 a detail view of an insulator to be attached to the ties for carrying the track-wires.

My invention relates to automatic electric railway-signals adapted to be applied to moving trains, and has for its objects to provide a means of communication between moving trains on the same track, whether the said communication be by alarm, telegraph, or telephone. It is adapted to alarm approaching trains on the same track and thus prevent collision.

The device is intended to operate in connection with insulated track-wires, and is so constructed as to be connected and disconnected with them at will.

In the drawings, A represents a shaft having suitable bearings, B, at each end, adapted to be secured in suitable boxing on any convenient part of the engine or train. Near each end of the shaft are secured the insulated bearings C, in which is pivoted a plate, D, of good conductive material. This plate is recessed at its lower end, as shown. In this recess is the roller E, also of good conductive material, and having bearings in the extensions of the plate on either side of the slot before mentioned. The upper part of the plate D is also recessed or cut away, so as to expose the pivoting-rod F for some distance between the side exten-

sions of the plate, as shown. Around this rod is a spring, G, arranged to keep the roller normally pressed on the track-wire. The weight of the device would generally keep the roller pressed against the wire, but any sudden inequality would tend to throw it up. The spring overcomes this and keeps the roller always against the wire, as stated above. In case of any obstruction on the wire the roller and plate, by means of the pivot-joint at F, will jump it and fall on the wire again.

H represents a standard erected on the shaft and connected to the cab of the engine or to the interior by means of ropes, as shown, or by a compound lever. If desired, this may be connected to one end of the shaft instead of the middle. This arrangement, in connection with the pieces I, connected to the shaft and extending downward, as shown, behind the plates, will serve as a means of raising the rollers from the wires when it is desired to break the connection.

K represents a grooved insulator secured in standards erected on the cross-ties of the railroad. The grooves extend into the insulator a distance equal to about two-thirds the thickness of the track-wire. These insulators support the said track-wire, but offer no obstruction to the passage of the rollers. In lieu of these insulators the wire may be laid in grooved strips of wood or other material extending between the rails of the track and secured thereto by some insulating material. Two wires may be used between the tracks; or one wire may be used, one of the rollers traveling on one of the rails.

This device is particularly valuable on single-track roads, and the lines of track-wire may be laid between such points as are dangerous. The wires are not connected to each other.

From each plate D extends a wire to an alarm. It may also be connected to a telephone or a telegraph instrument, each or all of which are to be in the cab of the engine or on one of the cars, as preferred.

It will readily be seen that when two engines are approaching each other, or going in the same direction, each with the device described above on the wires, the circuit is completed, and may be used to ring an alarm, or

communication between the two trains may be had by telegraph or telephone, or, by pre-arranged signals, communication may be had by simply raising and lowering the device, thus breaking and closing the circuit, which will be noted on the alarm on the other train. The proper current of electricity may be supplied by a battery or electric machine, as is preferred.

10 If the battery be placed on the train, one of the wires from one of the plates D may be connected to it, and a wire from the said battery connected to the alarm, &c., and should the battery be placed in the line of the track-wire, the said wire may be divided and the two ends connected, respectively, to the positive and negative poles of the same.

When the battery is placed on the train, it is placed on the engine, or on a car, should the said car have the device attached to it.

Having thus described my invention, what I claim is—

1. The combination, with track-wires, of the shaft journaled transversely on the engine or a car, the insulated bearings secured to each end of the same, the recessed plates pivoted

in the said bearings, and there provided with a spring, keeping the device pressed normally against the wires, and the broad-flanged rollers journaled in a recess in the free ends of the plates, the plates being connected to a battery, and operating substantially as and for the purpose specified.

2. The combination, with the track-wires, of the shaft journaled transversely on the engine or a car, the insulated bearings secured to each end of the said shaft, the recessed plates pivoted at one end in the said bearings, and there provided with a spring for keeping the device normally against the track-wires, the broad-flanged rollers journaled in recesses in the free ends of the plates, the curved pieces in the rear of the plates, and the upward-projecting rod on the shaft, the parts arranged, with proper electric connections, to break and close the circuit by raising and lowering the rollers from the wires, substantially as and for the purpose specified.

LAFAYETTE W. LINDLEY.

Witnesses:

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