

(No Model.)

2 Sheets—Sheet 1.

E. C. WILEY.
ELECTRIC RAILWAY SIGNAL.

No. 471,230.

Patented Mar. 22, 1892.

Fig. 1.

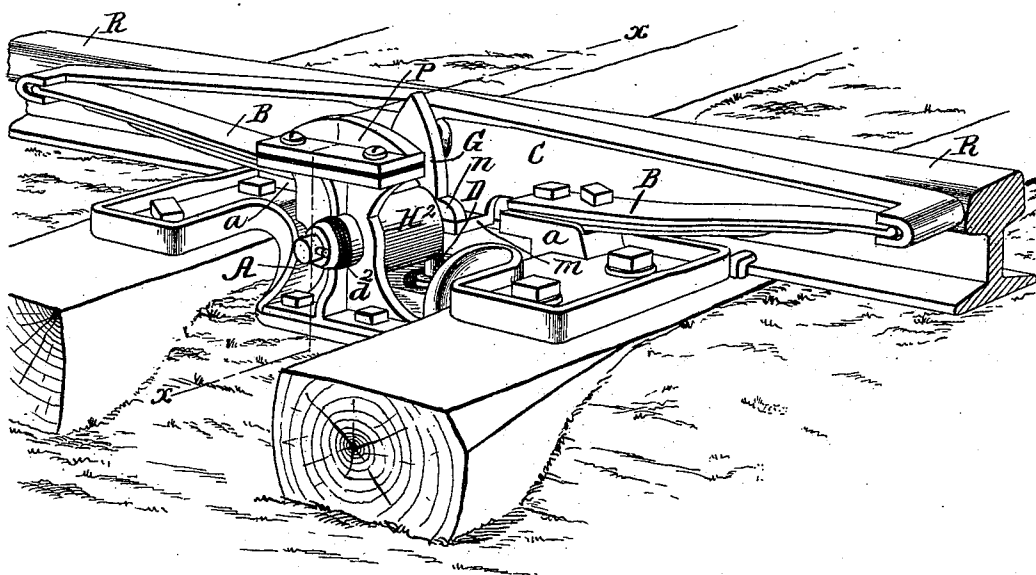
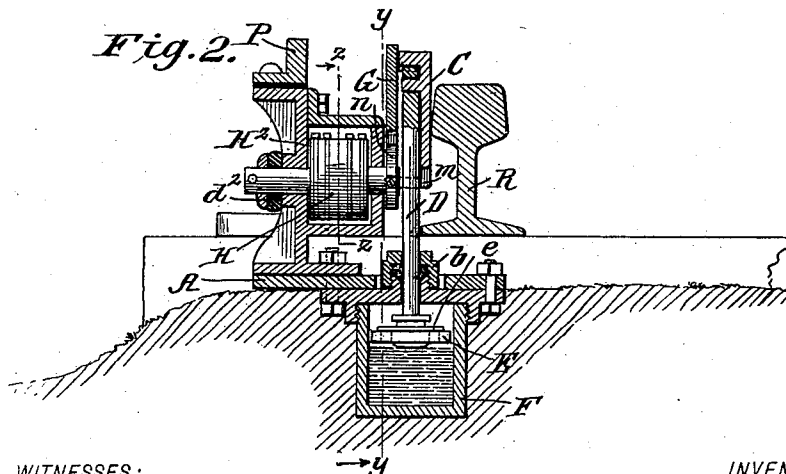


Fig. 2.



WITNESSES:

Fred L. Dietrich
Edw. W. Byrne

INVENTOR:

E. C. Wiley.
BY *Munn & Co.*

ATTORNEYS

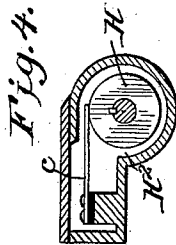
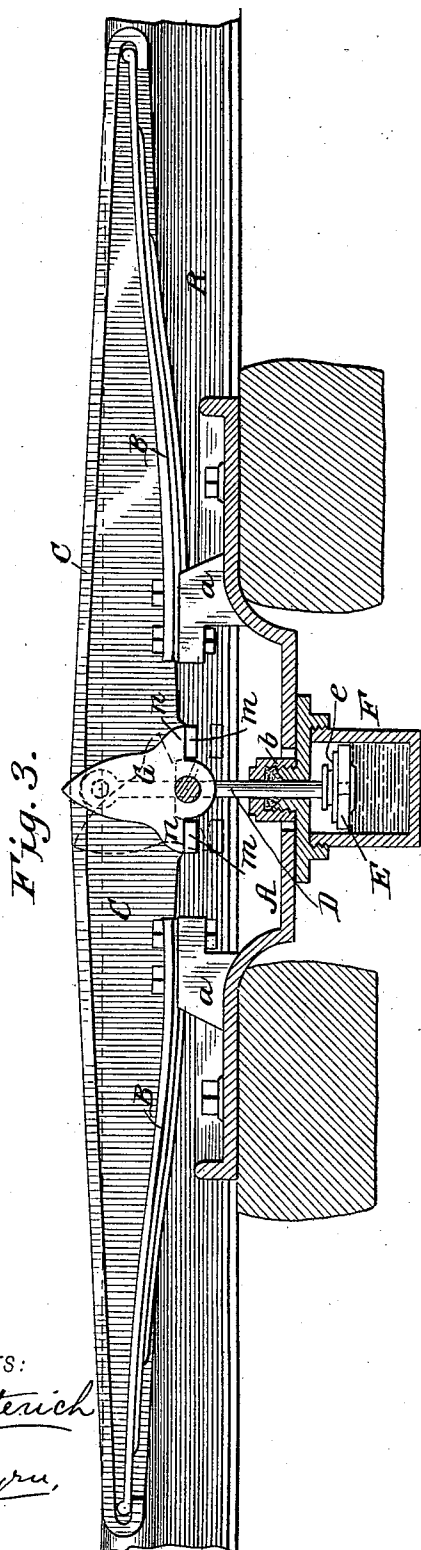
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UNITED STATES PATENT OFFICE.

EDGAR C. WILEY, OF BRISTOL, TENNESSEE, ASSIGNOR OF TWO-THIRDS TO
JAMES A. DICKEY AND NAPOLEON B. AINSWORTH, OF SAME PLACE.

ELECTRIC RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 471,230, dated March 22, 1892.

Application filed June 18, 1891. Serial No. 396,704. (No model.)

To all whom it may concern:

Be it known that I, EDGAR C. WILEY, of Bristol, Sullivan county, in the State of Tennessee, have invented a new Improvement in Electric Railway-Signals, of which the following is a specification.

My invention is in the nature of an improved circuit-closing device for use in connection with the system set forth in my patent, No. 445,106, granted January 20, 1891, or in connection with any other system employing a rotary commutator; and it consists in the peculiar construction and arrangement of devices whereby a depressible bar acted upon by the car-wheel is made to adjust the commutator to position for making the circuits, hold it in this position for a limited time, and then allow it to be restored to its normal position, as hereinafter fully described.

Figure 1 is a perspective view of the device applied to the railway-track. Fig. 2 is a vertical transverse section taken through line *x x* of Fig. 1. Fig. 3 is a vertical longitudinal section taken through line *y y* of Fig. 2, and Fig. 4 is a vertical transverse section taken through line *z z*.

In the drawings, A represents the base-plate, upon which the various parts of the device are mounted. This base-plate is made of cast metal and is bolted to two of the cross-ties and is formed with a depressed portion in the middle, which fits down between the ties and helps to firmly hold the device against displacement from the lateral strain of the passing train.

Upon the base-plate are two raised abutments *a a*, upon which are bolted the oppositely-projecting leaf-springs B B. The outer ends of these springs are seated in recesses in the outer ends of a depressible bar C, which is formed with a double incline, with the central point the highest. This depressible bar is arranged beside the head of the rail R and in close proximity to the same and projects slightly above the rail, so that the periphery of the car-wheel will strike and depress it against the tension of the leaf-springs. To the central part of this depressible bar is pivoted a piston-rod D, which passes through a stuffing-box *b* in the base-plate and is attached to a piston E, working in a cylinder F,

which is screwed onto the bottom of the base-plate. This piston is provided with openings through it and has on top of the same an upwardly-opening valve *e*. The cylinder is designed to be filled with oil or other liquid. The object of this construction is to provide means for holding the depressible bar and the parts operated by it down to its depressed position for a definite length of time after the train has passed, instead of allowing said bar to immediately rise after being depressed. This result is accomplished as follows: When the bar C is depressed by the car-wheel, the piston E is forced down and the oil below it passes upwardly through the valve to the upper side. Then after the train has passed the springs B tend to lift the bar again; but this motion is retarded by the oil above the piston, which, being unable to pass back through the valve, leaks slowly around the periphery of the loosely-fitted piston to the lower side of the same, thus holding down its bar C and its attached parts for the desired interval.

Upon the middle of the base-plate is mounted an inclosing case H², which contains within it a commutator H, having conducting-plates on its periphery which connect with tangentially-arranged metal springs C, Fig. 4, which lead to various circuit-wires, and the rotary adjustment of which commutator serves to control the direction of the current through said circuit-wires. Any system of circuit-wires may be used; but that shown and described in my patent, No. 445,106, dated January 20, 1891, is the one for which it is mainly designed. The commutator H is fixed to a shaft which has its bearings in the case H², and said commutator works with a slight friction, so as to be free from looseness by reason of a soft-rubber washer *d*, Fig. 2, on its shaft retained between the collar *d*² and the case. The other end of the commutator-shaft is provided with a broad crank-arm or cam G, which is rigidly attached and projects up immediately beside the depressible bar C, so as to be also struck by the wheel of the car and deflected about the axis of the commutator. This crank has at its lower portion on each side of the axial center a toe *n*, which toes rest upon two supporting-lugs *m m*, depending from the depressible bar C. When

said bar is depressed, the lugs *m* move downwardly out of the way of the toes *n*, and when the crank-arm *G* is deflected to rotate the commutator one of the toes *n* of the crank-arm descends and the other rises, and when the bar *C* rises again after the proper interval has elapsed one of said lugs *m* lifts the lower toe of the crank-arm and restores the latter to its true vertical position. It will readily be seen that the double incline of the bar *C* and the symmetrical shape and arrangement of the crank-arm *G* permit the commutator to be operated by trains going in either direction.

P is an insulated contact-plate, which is designed to be impinged upon by a suitable contact-surface on the car.

In defining the present invention with greater clearness I would call attention to my previous patent for a circuit-closing device, No. 446,313, filed February 10, 1891, and I make no claim to anything shown therein.

I would also state in relation to the springs which support the double incline that I am aware that a different form of springs has been used in a similar relation; but the leaf-springs, secured at their inner ends to the base-plate and supporting at their outer ends the outer ends of the double incline, is a novel and meritorious feature which secures the following advantages: It not only supports the inclined bar, but prevents it from being driven endwise by the horizontal thrust of the contact of the car-wheels, doing away entirely with all guides or pins for that purpose. It also permits a better spring action and is not liable to break or become deranged.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the base-plate, of the two leaf-springs *B B*, secured thereto at their inner ends, and a double-inclined depressible bar *C*, supported at its outer end upon the ends of the leaf-springs, substantially as shown and described.

2. The combination, with a rotary commutator having a crank-arm projecting up beside the rail and provided with toes *n n*, of a depressible spring-bar having lugs resting beneath the toes of the crank-arm, substantially as shown and described.

3. The combination of a commutator having a crank-arm *G* and a depressible spring-bar *C*, both being arranged side by side near the edge of the rail to be struck by the car-wheel and the two being connected together for simultaneous restoration to normal position, substantially as shown and described.

4. The combination of the base-plate *A*, the two leaf-springs *B B*, the depressible double-inclined bar *C*, mounted on said springs, the piston-rod *D*, hung to the depressible bar, the oil-cylinder and valved piston below, the commutator *H*, with inclosed case *H*², the crank-arm *G*, having toes *n n*, and lifting-lugs *m*, attached to the depressible bar, substantially as shown and described.

EDGAR C. WILEY.

Witnesses:

ALFRED LURCOTT,
C. SEDGWICK.