P. SEBOK, JR.

CIRCUIT CLOSER.

APPLICATION FILED NOV. 15, 1913. RENEWED JULY 7, 1915.

1,149,787. Patented Aug. 10, 1915.

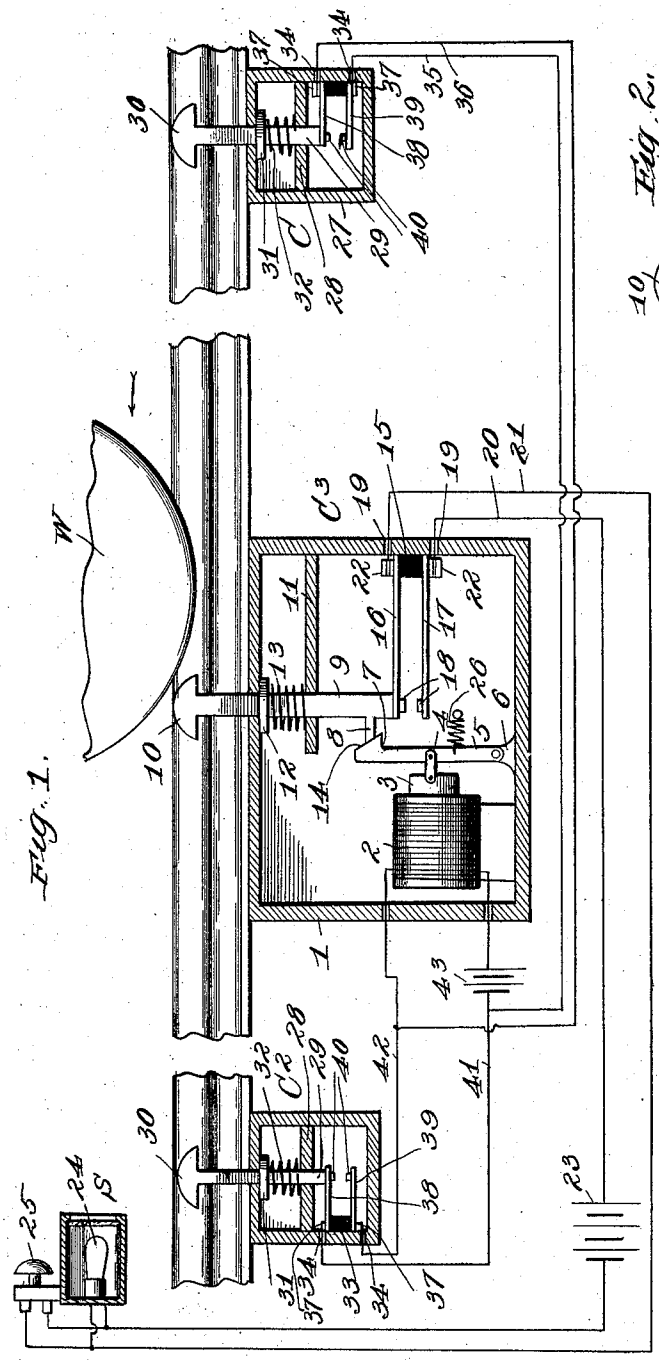


Fig. 1.

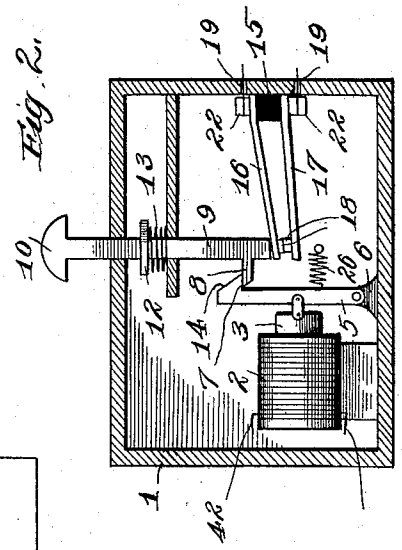


Fig. 2.

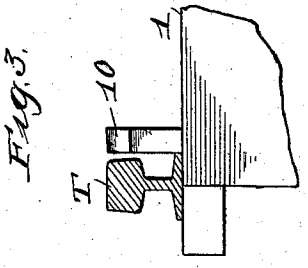


Fig. 3.

Witnesses:

G. A. Pankerschmidt

R. M. Elliott

Inventor,

Paul Sebok, Jr.,

By R. M. Wilson

Attorney.

UNITED STATES PATENT OFFICE.

PAUL SEBOK, JR., OF HEATHERMAN, WEST VIRGINIA.

CIRCUIT-CLOSER.

1,149,787. Specification of Letters Patent. Patented Aug. 10, 1915.

Application filed November 15, 1913, Serial No. 801,221. Renewed July 7, 1915. Serial No. 38,532.

To all whom it may concern:

Be it known that I, PAUL SEBOK, Jr., a subject of the King of Hungary, residing at Heatherman, in the county of Kanawha and State of West Virginia, have invented certain new and useful Improvements in Circuit-Closers, of which the following is a specification.

This invention relates to circuit closers especially adapted for use with railway signaling systems.

The object of the invention is to provide a circuit closer designed to control visual and audible signals in railway signaling systems in a positive and certain manner, and in which the liability of derangement of the parts in use will be reduced to the minimum, while their efficiency will be raised to the maximum.

The invention consists in the novel construction and arrangement of parts hereinafter fully described.

In the accompanying drawings, forming a part of this specification and in which like characters of reference indicate corresponding parts: Figure 1 is an enlarged detail sectional view showing the mechanism by which the signals are rendered operative and inoperative by the passage of a train over the tracks. Fig. 2 is an enlarged detail sectional view showing the position of the parts of the circuit closer when a signal is being transmitted. Fig. 3 is a fragmentary detail view displaying the position of the trip mechanism relative to the track.

The circuit breaker comprises a boxing or casing 1 which is disposed beneath the rails or the sleepers of a railway track, and may be constructed of any suitable material, such as cement, or of metal as may be preferred. Arranged within the boxing is a solenoid magnet 2, the core 3 of which has connected with it one end of a yoke 4, the other end of which is pivotally-connected with a dog 5 pivoted at its lower end to a standard 6 secured on the base of the boxing, the upper end of the dog being provided with a head or catch 7 that is arranged to engage with a lug 8 projecting from the lower portion of a push rod 9, the upper end of which projects upward through the top of the boxing and is provided with a head 10 disposed approximately flush with the upper face of the tread of a rail. This push rod is guided in its movements by an arm 11 projecting from the inner wall of the boxing, and carries a rigid stop 12 that is designed to bear against the under side of the top of the boxing to limit the upward movement of the push rod. Interposed between the stop and the arm 11 is a coiled spring 13, the function of which is to cause the head normally to occupy the position shown in Fig. 5, that is, with its upper face flush with the tread of the rail. The outer end of the lug 8 is beveled as is also the opposing face 14 of the head 7, the object being that when downward pressure is applied to the push rod, there will be a sliding action between the lug and the beveled face of the head to force the dog to one side without injury, which would otherwise occur if the parts were not so constructed.

Rigidly secured to an insulated block 15 mounted on one end of the boxing are two spring arms 16 and 17, each of which is provided with a contact point 18, the arms 16 being at all times in engagement with the push rod, as clearly shown in Figs. 3 and 4, while the contacts 18 are normally out of contact with each other. Arranged in the end wall of the boxing adjacent to the block are two openings 19 through which project the terminals of two conductors 20 and 21, the latter being secured to binding posts 22 rigidly secured to the arms and to the block. The two conductors form a circuit including a battery 23 and connect at their free terminals with an incandescent lamp 24 and with a bell 25, these two latter constituting the audible and visual signals referred to. In order to hold the head of the dog normally in contact with the lug, and with the core of the solenoid extended, a coiled spring 26 is provided, one end of which is secured to the dog and the other end to a wall of the boxing.

Each of the circuit breakers is a counterpart of the other and comprises a casing 27 arranged beneath the rail, and having therein a transverse partition 28 that serves as a guide for the lower end of a push rod 29, the upper portion of which projects through the top of the casing and is provided with a head 30 similar to and positioned in the same manner as the push rod 10. The push rod 29 carries a rigid stop 31 against which bears one end of a coiled spring 32 surrounding the push rod and bearing at its lower end upon the partition 28. One side wall of the casing carries an insulated block 33 adjacent to which and passing through the

walls of the casing are two openings 34, from which project the terminals of two conductors 35 and 36 that are secured to binding posts 37. Between these binding posts and the block 33 are clamped or otherwise secured two resilient arms 38 and 39, the former of which is always in contact with the push rod 29 and each rod carries at its free end a contact point 40. As the construction of the circuit breaker C^2 is the same as that just described, the same reference characters are applied thereto and will be readily understood. The free ends of the conductors 35 and 36 bridge the conductors 20 and 21 and the conductor 35 is tapped into a conductor 41, while the conductor 36 is tapped into a conductor 42. The conductors 41 and 42 are at one end in circuit with the arms 38 and 39 of the circuit breaker C^2, while the other terminals of these conductors connect with the solenoid magnet, the conductor 41 including a battery 43.

Having thus described the parts of the apparatus, the mode of its operation will be given. Assuming a train to be traveling in the direction indicated by the arrow in Fig. 1, the front pilot wheel W of the engine will depress the push bar 30 at the entering end of the block, but no result will ensue as to the operation of the signals, as the contacts on the arms 16 and 17 of the circuit closer C^3 are open. As soon however, as the pilot wheel contacts with the push rod 10, the latter will be depressed and bring the contacts 18 on the arms 16 and 17 into engagement, as shown in Fig. 2, thereby closing the circuit 20 and causing the signals to become operative. As the push rod 9 is depressed, it will force the dog backward so as to permit the lug 8 to pass under the shoulder of the head 7 and thus hold the contacts 18 in engagement, so that the signals will remain operative until the other end of the block is reached. As soon as the pilot wheel contacts with the push rod on the circuit breaker C^2, the circuit will be closed to the solenoid, thereby energizing its core, which will be retracted, and throw the dog out of engagement with the lug 8, whereupon the spring 13 will cause the push rod to resume its normal position. The reverse of this operation ensues when a train moves in the opposite direction.

It will be seen from the foregoing description that although the improvements herein defined are simple in character, they will be thoroughly efficient for the purposes designed, and will co-act in the production of a practical and positively operating signaling mechanism.

What I claim as new and desire to secure by Letters Patent is:—

1. A circuit closer comprising a spring-pressed push rod provided with a stop to limit its upward movement, and a laterally-projecting lug, a guide for said rod, a spring between said stop and guide, a pivoted dog arranged to engage said lug, a magnet having its core connected to said dog, a pair of insulated contact arms one of which is in the path of movement of said rod, and in engagement therewith, and an electric circuit in which said contact arms are connected.

2. A circuit closer comprising a spring-pressed push-rod provided with a head at its upper end, a stop to limit the upward movement of the rod, and a laterally-projecting lug, a guide through which the rod extends, a coil spring around said rod between said stop and guide, a pivoted dog adapted to engage said lug, a solenoid having its core loosely-connected to said dog, a pair of contact arms one of which is connected to said rod, and an electric circuit to which said contact arms are connected.

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

PAUL SEBOK, JR.

Witnesses:
LOUIS ELEKER,
STEVE SEBOK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."