

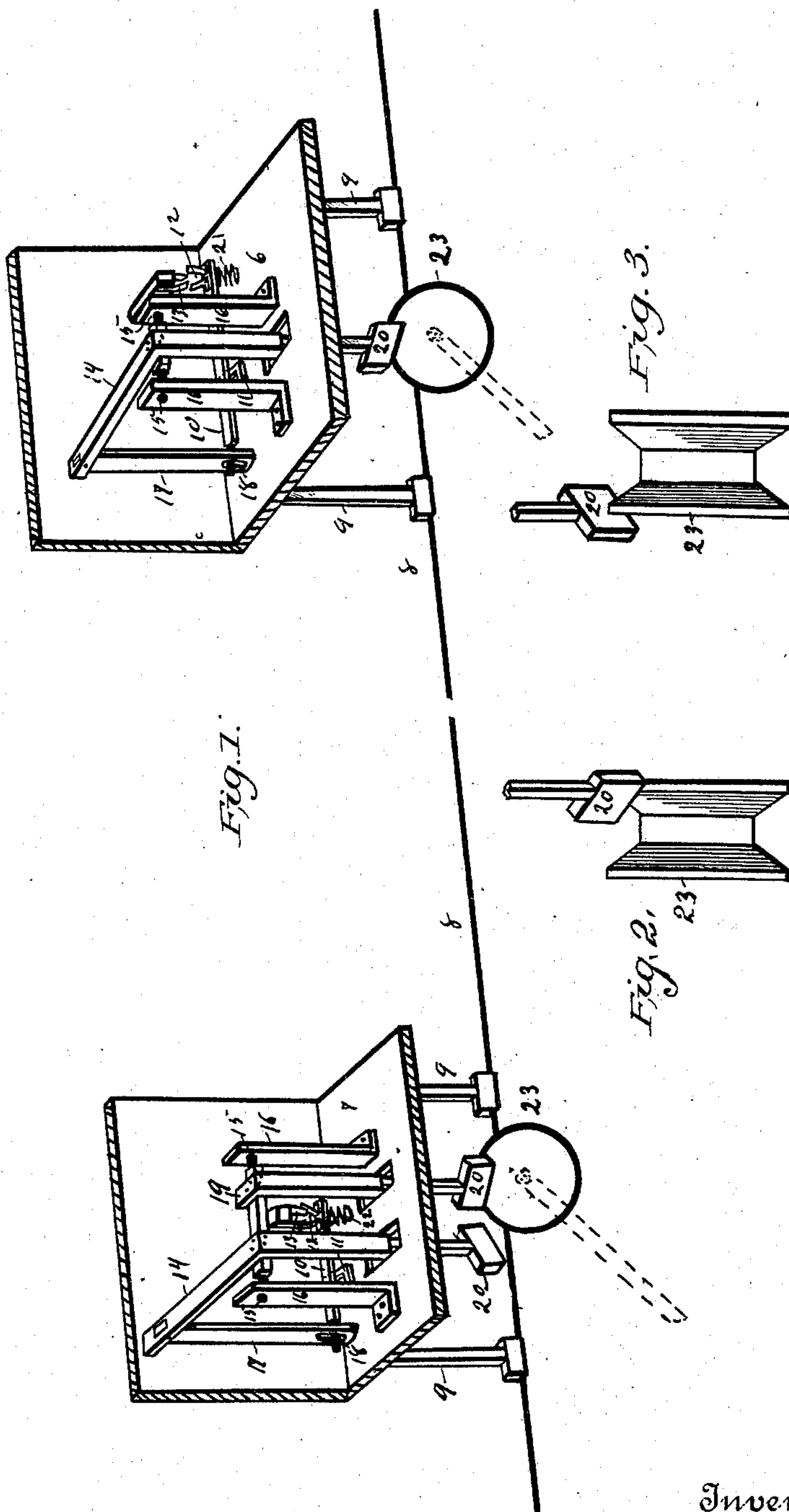
(No Model.)

2 Sheets—Sheet 1.

C. P. WILKINSON.  
ELECTRIC SIGNAL.

No. 567,759.

Patented Sept. 15, 1896.



Witnesses  
Thomas W. Stewart  
Lui. F. Cox

Inventor:  
Charles P. Wilkinson,  
By his Attorney Lucius C. West

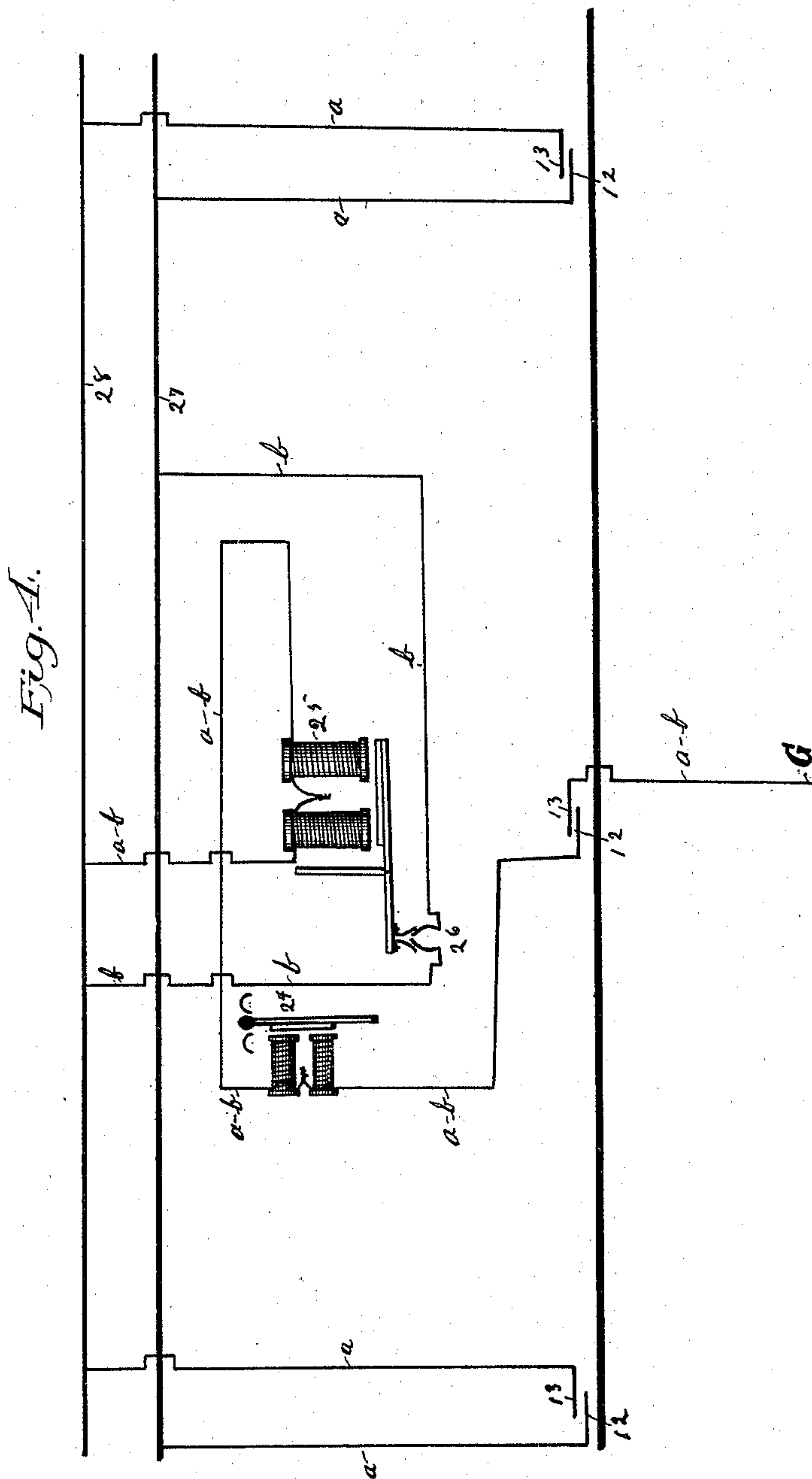
(No Model.)

2 Sheets—Sheet 2.

C. P. WILKINSON.  
ELECTRIC SIGNAL.

No. 567,759.

Patented Sept. 15, 1896.



Witnesses  
Thomas Stewart  
Levi F. Coe

Inventor:  
Charles P. Wilkinson,  
By his Attorney Lucius C. West.



# UNITED STATES PATENT OFFICE.

CHARLES P. WILKINSON, OF JACKSON, MICHIGAN.

## ELECTRIC SIGNAL.

SPECIFICATION forming part of Letters Patent No. 567,759, dated September 15, 1896.

Application filed December 7, 1895. Serial No. 571,426. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES P. WILKINSON, a citizen of the United States, residing at Jackson, in the county of Jackson, State of Michigan, have invented a new and useful Electric Signal, of which the following is a specification.

This invention relates to that class of electric signals in which circuit-makers and circuit-breakers are employed which have a lever to be operated by the wheel of the trolley in giving or stopping the signal or set it to "danger" or "safety."

The principal object of this invention is to construct a new circuit-maker lever designed to facilitate the operation and to obviate much of the shock heretofore experienced by the direct stroke of the trolley-wheel against the lever.

Other objects will appear in the description and claims.

A construction in general embodying the invention consists in a circuit-maker or circuit-breaker provided with a T-headed lever set at such an oblique angle to the trolley-wheel that said lever is moved laterally by a shearing contact with the side of the trolley-wheel.

In the drawings forming a part of this specification, Figure 1 is a perspective view of a circuit-maker and a circuit-breaker mounted upon a trolley-wire, parts being broken away; Fig. 2, a trolley-wheel and lever enlarged, looking from a point at left of Fig. 1, and showing the operation with the trolley-wheel in contact with the left-hand T-head in said figure; Fig. 3, an enlarged view of trolley-wheel and lever, looking from a point at the right of either trolley-wheel in Fig. 1, and showing the operation of tilting the lever laterally; and Fig. 6 is a diagrammatical view showing a signal system illustrating the use of the circuit-maker and circuit-breaker.

Referring to the parts of the drawings pointed out by numerals, a circuit-breaker is shown at 7 used at the crossing, Fig. 1. The signal shown in Fig. 4 is also located at the crossing. Out a suitable distance each way from the crossing is a circuit-maker 6, Figs. 1 and 4, which are operated by the trolley-wheels of the cars to give the signal, while the

circuit-breaker at the crossing is operated by the trolley-wheel to stop the signal. These circuit makers and breaker are supported on the trolley 8 by supports 9 9 in the usual way. At 10 are levers fulcrumed between their two ends by supports 11. On the free end of the levers 10 are metal contact-points 12, which are insulated therefrom. At 13 are circuit-terminals attached to supports projecting out from the back wall of the cases, and with these circuit-terminals the contact-points 12 are brought in contact by the operation of levers 14, 17, and 10 to make the circuit and give the alarm or signal, and are disconnected by the operation of the same levers to break the circuit and stop the signal. At 14 are T-headed elbow-levers attached to a bar which is journaled at 15 to supports 16. Connecting-rods 17 are pivotally attached at the upper ends to the rear ends of the elbow-levers 14 and at the lower ends by an elongated slot 18 to the end of the lever 10. In the circuit-maker 6 at right hand in Fig. 1 a spring 21 is shown beneath the end of the lever 10. This spring draws down this end of lever 10 and holds the connection-points 12 disconnected from the circuit-terminals 13 in the normal condition. In this circuit-maker the slot 18 extends below the pivoted lever 10, so that the cars will operate the signal only on approaching the crossing. In the circuit-breaker 7 at the crossing I employ two T-headed levers 14 and 19, so as to break the circuit and set the signal to "safety" in going past the crossing in either direction. The T-heads 20 are attached to the lower ends of levers 14 and 19 in the circuit-breaker and to lever 14 in the circuit-makers. The lever 19 is attached to the same support that lever 14 is attached to, said support or bar being journaled at 15. By this means either lever 14 or 19 at the crossing in circuit-breaker 7 will operate the lever 10. A spring 22 beneath the end of the lever 10 in circuit-breaker 7 presses upward and holds the contact-points 12 in contact with the circuit-terminals 13 in the normal condition, thus holding the circuit closed. The T-heads 20 hang over the trolley-wire and are set at an oblique angle to the plane of the wire and the trolley-wheel 23, so that the latter will contact with the T-heads, when the car passes, in a shearing



manner to move said T-heads laterally, as explained below. In Fig. 4 a signal-bell is shown at 24. Of course a bell or lights or both may be used, but a bell will serve to illustrate the idea. At 25 is a relay, 26 circuit-terminals, 27 feed-wire, and at 28, circuit signal-wire.

The circuits are pointed out by letters *a b* and are traced as follows: Circuit *a* runs from feed-wire 27, through circuit-terminals 13, to signal-wire 28, thence to relay 25, thence to bell 24, on to circuit-terminals in circuit-breaker at crossing, and thence to ground at G. Circuit *b* starts from the feed-wire 27, to circuit-terminals 26, thence to signal-wire 28, thence to relay 25, on to bell 24, then to circuit-terminals at the crossing and on to ground at G.

In the operation, supposing a car to be coming from a point at the right in Figs. 1 and 4, the side of the trolley-wheel 23 contacts in a shearing manner with the T-head 20, as in Fig. 3, moving said head laterally. This action would bring the contact-points 12 in touch with the circuit-terminals 13, energizing the magnets of the relay 25, closing the signal-circuit thereby, and ringing the bell at the crossing. When the car passes the crossing, the trolley-wheel would first act upon the first T-head 20 (the right-hand one) in the same manner as it acted upon the one in the circuit-maker 6, but owing to the slot 18 being above the pivoted end of the lever 10 there would be no action, except to pass this point; but the next T-head 20 (extreme left-hand one) would move in laterally, as in Fig. 2, and this action would separate the contact-points 12 from the circuit-terminals 13, the effect of which is to break the signal-circuit and stop the bell. When the car passed on and came to the left-hand circuit-maker, (not shown in Fig. 1, but indicated in Fig. 4 by the points 12 and 13 at left hand,) the action would be the same as in passing the left-hand T-head 20 in Fig. 1, but owing to the slot 18 there would be no effect on the lever 10 of

the circuit-maker. When the cars come from the opposite direction, the action is of course reversed. The T-heads 20 here shown are arranged so that the trolley-wheel 23 will straddle them in going in one direction and contact with one side in going in the other direction, but they may be longer, so that first one side of the wheel will shear against one side and then the other, according to which way the car is going. As shown in the drawings, first one side of one flange of the wheel contacts with the T-head and then the other side of the same flange. The T-head should be insulated from its lever.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A circuit maker or breaker comprising circuit-terminals, a pivoted lever or levers having at the lower end over the trolley-wire, a T-head, set at an oblique angle edgewise to the wire and wheel, so that said wheel will have a shearing contact with the head, and means connecting said lever and contact-points, substantially as set forth.

2. In a circuit maker or breaker, a lever having a head at the lower end set at an oblique angle edgewise to the wire and trolley-wheel so that said wheel will have a shearing contact with the head, substantially as set forth.

3. The combination, of a lever having a head at the lower end over the trolley-wire set at an oblique angle, edgewise to the wire and trolley-wheel, circuit-terminals, contact-points, means connecting said points of contact and lever, a signal, relay and connecting-wires, substantially as set forth.

In testimony of the foregoing I have hereunto set my hand in the presence of two witnesses.

CHARLES P. WILKINSON.

Witnesses:

JOHN MCDEVITT,

HENRY D. DONMALL.