No. 625,364. Patented May 23, 1899.

J. M. SMITH.

ELECTRIC SIGNAL.

(Application filed Apr. 30, 1898.)

(No Model.)

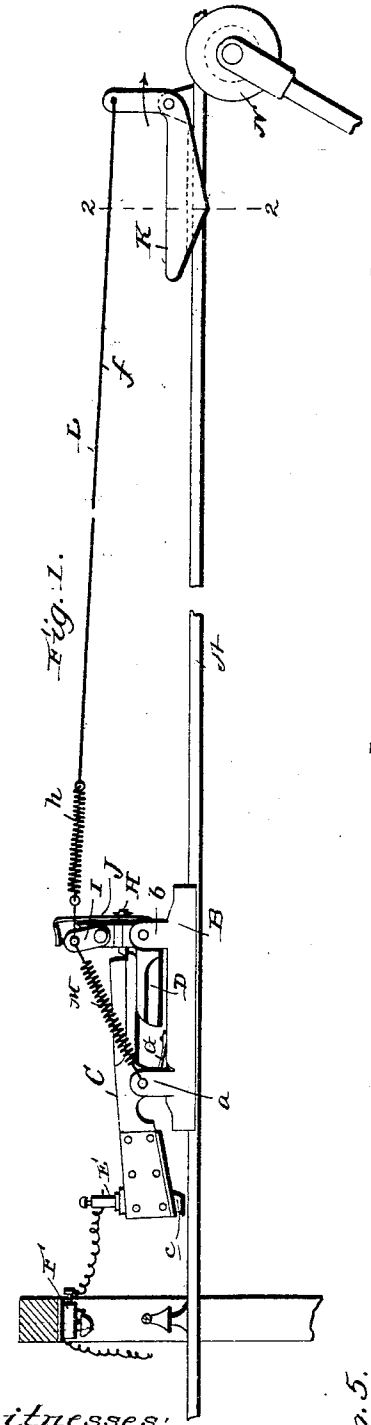


Fig. 1.

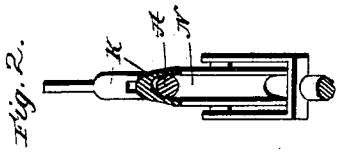


Fig. 2.

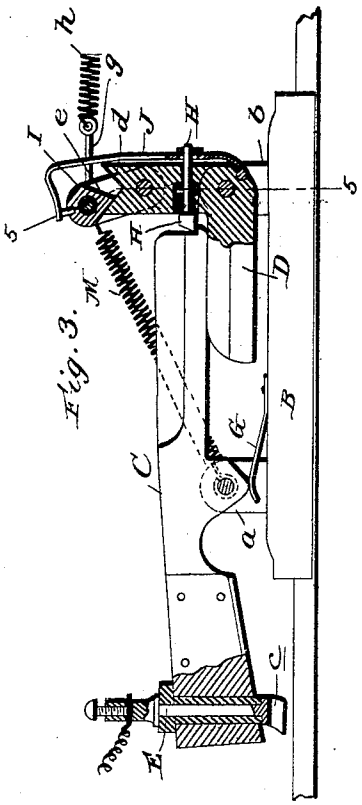


Fig. 3.

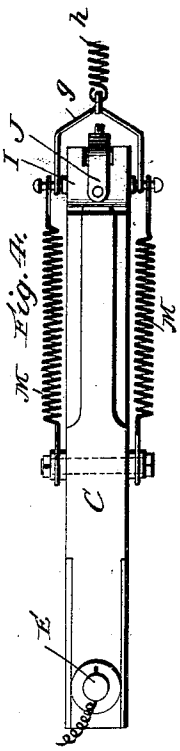


Fig. 4.



Fig. 5.

Witnesses:
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UNITED STATES PATENT OFFICE.

JULIAN M. SMITH, OF NEW ORLEANS, LOUISIANA.

ELECTRIC SIGNAL.

SPECIFICATION forming part of Letters Patent No. 625,364, dated May 23, 1899.

Application filed April 30, 1898. Serial No. 679,307. (No model.)

To all whom it may concern:

Be it known that I, JULIAN M. SMITH, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Electric Signals, of which the following is a specification.

My invention relates to that class of electric signals which are designed more especially for use in connection with trolley-railways for announcing the approach of cars; and its novelty and many advantages will be fully understood from the following description and claims when taken in conjunction with the annexed drawings, in which—

Figure 1 is a side elevation of a portion of a trolley-wire equipped with my improvements. Fig. 2 is a detail section taken in the plane indicated by the line 2 2 of Fig. 1. Fig. 3 is an enlarged side elevation, partly in section, of the circuit-closer and its appurtenances. Fig. 4 is a plan view of the same, and Fig. 5 is a transverse section taken in the plane indicated by the line 5 5 of Fig. 3.

In the said drawings similar letters designate corresponding parts in all of the several views, referring to which—

A is a trolley-wire, and B is the body, on which the circuit-closer and its appurtenances are mounted. Said body B is secured on the wire in any suitable manner and is provided with two pairs of standards *a b*, respectively. In the standards *a* the circuit-closer C, which is in the form of a lever, is mounted, while in the standards *b* is arranged a bell-crank lever D for imparting movement to the circuit-closer, as presently described. At its forward end the circuit-closer is provided with a contact-piece E, which is suitably insulated therefrom and terminates at its lower end in a bifurcated and preferably resilient portion *c*, designed to straddle and contact with the wire A. The other end of said contact-piece is electrically connected with an electric bell or other electric signal F, which is in turn electrically connected with the ground or other return, whereby when the contact-piece impinges against the wire the signal will be actuated.

G is a spring for holding the contact-piece of the circuit-closer against the wire A when said circuit-closer is rocked by the bell-crank lever D, and H is a spring-pressed latch which is carried by the bell-crank lever and has for its purpose to normally engage the circuit-closer and hold the contact-piece thereof away from wire A. From this it follows that in order to move the circuit-closer through lever D it is necessary to first disengage the latch from the circuit-closer. To this end I provide the sublever I, which is pivotally connected to the lever D and has by reason of the contiguous portions *d e* a limited rocking movement thereon, and the spring J, which is suitably connected at its opposite ends with the lever D and the sublever I and at an intermediate point of its length with the latch H, as best shown in Fig. 3.

K is a bell-crank tappet which is fulcrumed on the wire A and has one of its arms kerfed to straddle the same, and L is a connection between the other arm of the tappet and the sublever I. This connection preferably comprises a wire *f*, a bail *g*, connected with but insulated from the sublever I, and a coiled spring *h*, said spring being provided in order to take up slack in the connection and also to prevent breakage of the parts in the event of the lever K being rocked to a greater extent than necessary by a trolley-wheel having a peripheral groove of abnormal depth.

M desinates coiled springs which are connected with but insulated from the sublever I and have for their purpose to return the lever D and sublever I to the position shown in Fig. 3 after a trolley-wheel has passed the tappet K.

When the invention is employed in cities, the tappet K is preferably arranged near one intersecting street and the circuit-closer and its appurtenances, together with the signal F, are arranged near the next intersecting street with respect to the direction in which the trolley-cars travel. In consequence of this when the trolley-wheel N of a moving car engages the kerfed arm of the lever K said lever will be rocked in the direction indicated by arrow, the sublever I will be rocked to move spring J and disengage the latch H from the circuit-closer C, and the bell-crank lever D will be rocked to move the contact-piece E against the wire A. When the trolley-wheel N passes out of engagement with the tappet, the said tappet, the sublever I,

the lever D, and the latch H will be returned to their normal positions (shown in Fig. 3) by the action of the springs M. By reason of the spring G pressing against the circuit-closer the contact-piece E will be held against the trolley-wire and the electric signal will be actuated until the trolley-wheel N reaches the said contact-piece. When the trolley-wheel reaches the contact-piece E, it will engage the same and rock the circuit-closer C sufficiently to place the rear end of the same in engagement with the latch H, when the circuit in which the electric signal F is arranged will be interrupted.

Having thus described my invention, what I claim is—

1. In an electric signal, the combination of an electric conductor, a tappet arranged to be engaged by a car device movable along the conductor and a circuit-closer connected with the tappet and arranged to make electric connection with the conductor and also arranged to be engaged by the car device, substantially as specified.

2. In an electric signal, the combination of a trolley-wire, a tappet thereon operative by a trolley-wheel, a circuit-closer arranged on the wire and operative by a trolley-wheel, a lever arranged to move the circuit-closer, a latch on said lever arranged to engage the circuit-closer, a device arranged on and movable with respect to the lever and connected with the latch, and a connection between said movable device and the tappet, substantially as specified.

3. In an electric signal, the combination of a trolley-wire, a tappet thereon operative by a trolley-wheel, a circuit-closer arranged on the wire and operative by a trolley-wheel, a bell-crank lever having one arm arranged to engage the circuit-closer, a sublever arranged on and having a limited movement with respect to the bell-crank lever, a latch on the bell-crank lever arranged to engage the circuit-closer and connected with the sublever, means for returning the bell-crank lever and its appurtenances to their normal positions, and a connection between the sublever and the tappet, substantially as specified.

4. In an electric signal, the combination of a circuit-closer, a lever arranged to move the circuit-closer, a latch on said lever arranged to engage the circuit-closer, and a movable device on the lever connected with the latch, substantially as specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JULIAN M. SMITH.

Witnesses:
DANIEL S. KELLEY,
WILLIAM P. KILLELEA.