

No. 635,765.

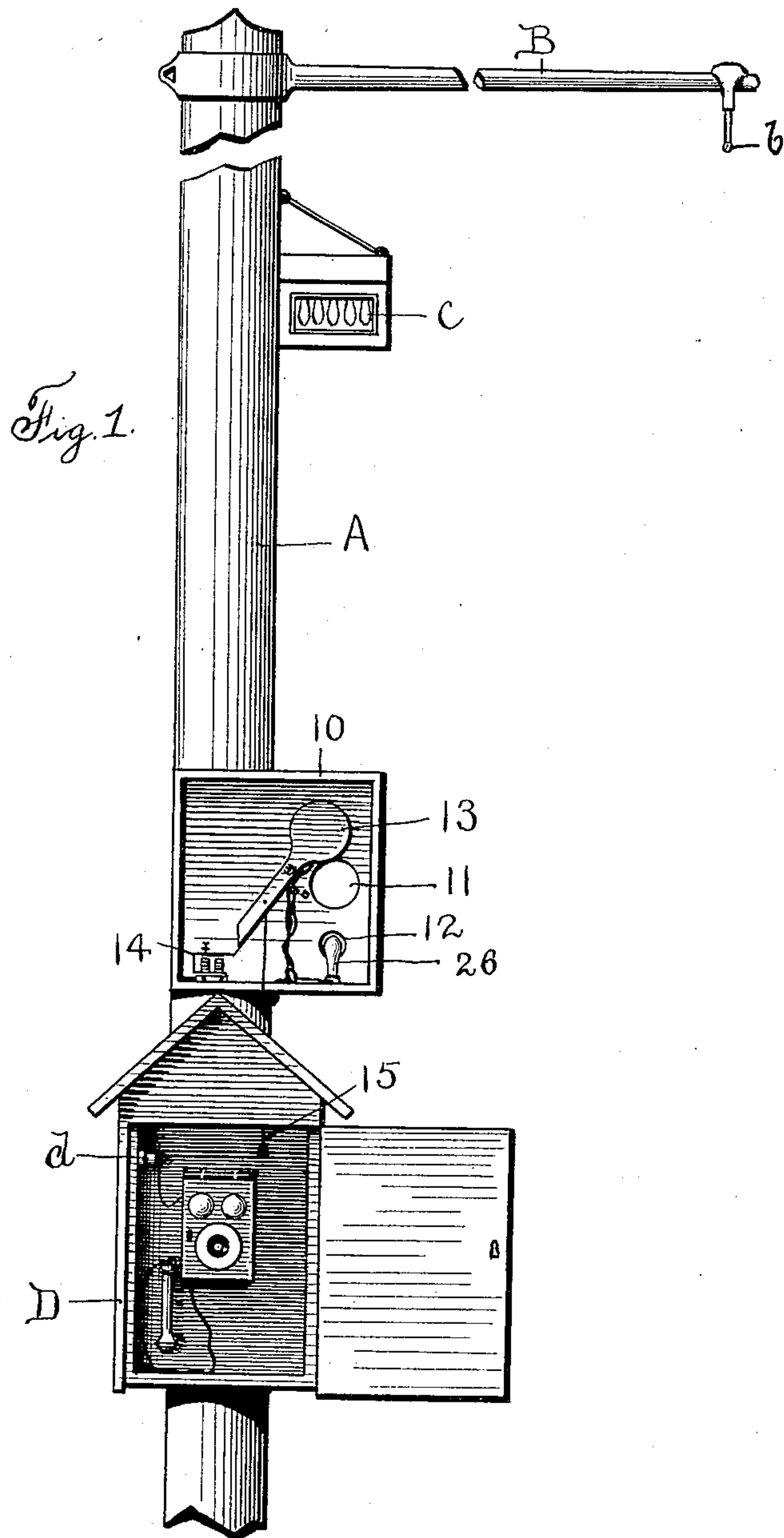
Patented Oct. 31, 1899.

H. T. GIBBS.  
ELECTRIC SIGNAL.

(Application filed Feb. 9, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.  
H. M. Rugg.  
M. C. Regan.

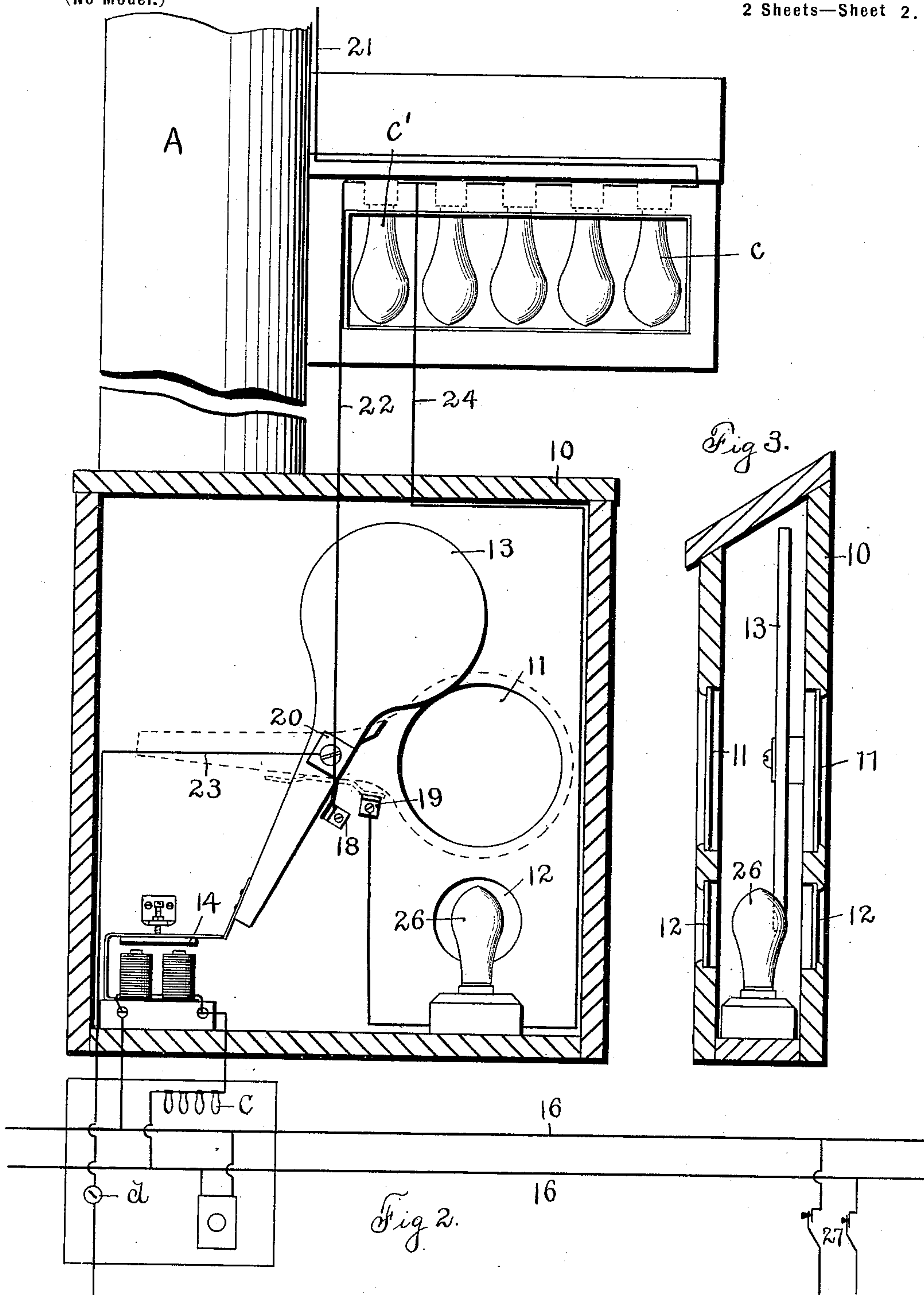
Inventor,  
H. T. Gibbs,  
By Attorneys  
Southgate & Southgate.

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Southgate & Southgate



# UNITED STATES PATENT OFFICE.

HARRY T. GIBBS, OF PORTSMOUTH, RHODE ISLAND, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO HIMSELF, STANTON M. FOYE, AND FRANK G. SWEENEY, OF SAME PLACE.

## ELECTRIC SIGNAL.

SPECIFICATION forming part of Letters Patent No. 635,765, dated October 31, 1899.

Application filed February 9, 1899. Serial No. 705,031. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY T. GIBBS, a citizen of the United States, residing at Portsmouth, in the county of Newport and State of Rhode Island, have invented a new and useful Electric Signal, of which the following is a specification.

The object of my present invention is to provide a simple, efficient, and inexpensive signal system for electric railroads which may be applied and utilized in connection with the telephones located at the turnouts at different points along the line.

To these ends my invention consists of the features of construction and combinations of parts, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying two sheets of drawings, Figure 1 is a side view of a trolley-pole carrying a plurality of street-lights, a telephone-box, and a semaphore or signal box constructed according to my invention. Fig. 2 is an enlarged sectional view illustrating, diagrammatically, the connections which may be employed in a signal system constructed according to my invention; and Fig. 3 is a transverse sectional view of one of the semaphore or signal boxes.

In the operation of single-track trolley-lines it is desirable that means should be provided for communicating with the conductors of the various cars from the power-house or other central station, so that the relative position of the cars may be ascertained and desired orders given.

In connection with many of the trolley-lines telephone-boxes are now frequently located at each of the turnouts, so that the conductors can call up the power-house whenever their car reaches such a turnout.

The especial object of my present invention is to combine a system of signals with the telephone-line employed in connection with electric railroads, so that means will be provided at the power-house or other central station for setting a semaphore or other sig-

nal during the daytime and for lighting a signal-light at night to indicate that a call from the power-house is wanted, the signal being arranged to be set or the light allowed to remain lighted until reset or extinguished by the conductor.

A further object of my present invention is to utilize the trolley-line as a circuit for setting the signals, so that my signal system can be installed without an additional line of wiring.

In the accompanying drawings, A designates a trolley-pole having a trolley-arm B, carrying a trolley-wire *b*. Mounted on the pole A are a plurality of street-lights C and a telephone-box D. The telephone-box D contains the ordinary telephone instrument and the light-switch *d*, controlling a shunt-circuit from the trolley-line for the street-lights C; also, preferably mounted on the pole A, above the telephone-box D and in position to be easily observed from the moving cars, is a signal-box 10. The signal-box 10, as illustrated, is provided with glass-covered openings 11 for exposing a semaphore or drop-signal 13 and with glass-covered openings 12 for exposing a signal-light 26. The semaphore or drop-signal is normally held in a raised position by a magnet-controlled detent 14, and the drop-signal can be reset by a setting-cord 15, which extends down into the telephone-box D.

The electrical connections preferably employed for controlling a signaling device of this character are most clearly illustrated in Fig. 2. As shown in this figure, 16 designates a telephone-circuit. Located at the central station or power-house I provide a double key, as 27, or other means for closing a shunt-circuit from the trolley-circuit through the telephone-line. This will send a comparatively heavy current through the telephone-line and then preferably through the street-lights C, energizing the magnet to release the detent 14, so as to allow the semaphore 13 to drop down to the position indicated by dotted lines. In Fig. 2 of the drawings a second small set



of street-lights is shown diagrammatically in the magnet-circuit for the sake of clearness; but it is to be understood that in practice the magnet-circuit may be sent through the series of street-lights located in their usual position at the upper end of the pole. The semaphore is also preferably provided with electrical connections for controlling the signal-light. As illustrated, 18 and 19 designate terminals or connecting-pieces coöperating with a double contact-piece 20, carried by the semaphore, said terminal pieces 18 and 19 forming stops which limit the motion of the semaphore in either direction. When the semaphore is in its raised or normal position and the switch *d* is turned to light the street-lamps, a shunt from the trolley-circuit will pass through the wires 21, through all of the lamps *C*, through a wire 22 to the terminal piece 18, and will be grounded through the wire 23. When the semaphore 13 is allowed to swing down to the position indicated in dotted lines, one of the street-lights, as *C'*, will be cut out, the circuit passing from the remaining street-lights through a wire 24, through the signal-light 26 to the terminal piece 19, and then grounded through the wire 23, the swinging semaphore thus acting to light or cut out the signal-light, as desired, while at the same time the number of lamps in the shunt-circuit will be kept constant.

I am aware that many changes may be made in constructing my signal system for electric railroads by those who are skilled in the art—as, for example, the telephone instruments may be arranged in series rather than in parallel arc, as herein illustrated, or a grounded circuit may be used for the telephones rather than a metallic circuit, as herein shown, or a bell with a local circuit at the signal-box or other signaling device may be substituted for the semaphore. I do not wish, therefore, to be limited to the arrangements herein shown and described; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In a signal system for electric railroads, the combination of a signal, a telephone-line, and means located at a central station for shunting a trolley-current onto the telephone-line to set the signal, substantially as described.

2. In a signal system for electric railroads, the combination of a semaphore, a magnet-controlled detent for the semaphore, a telephone-line, and means located at a central station for sending a current over the telephone-line to set the semaphore, substantially as described.

3. In a signal system for electric railroads, the combination of a semaphore, a magnet-controlled detent for the semaphore, a telephone-line, and means for shunting a trolley-current onto the telephone-line to set the semaphore, substantially as described.

4. In a signal system for electric railroads, the combination of a plurality of street-lights located in a shunt from the trolley-circuit, a signal-light, and means controlled from a central station for cutting out one of the street-lights and lighting the signal-light, whereby the number of lights in the shunt from the trolley-circuit will be kept constant, substantially as described.

5. In a signal system for electric railroads, the combination of a semaphore, a telephone-line, means located at a central station for sending a current over the telephone-line to set the semaphore, and electrical connections controlled by the semaphore for lighting a signal-light, substantially as described.

6. In a signal system for electric railroads, the combination of a semaphore, a telephone-line, means located at a central station for shunting a trolley-current onto the telephone-line to set the semaphore, and electrical connections controlled by the semaphore for lighting a signal-light, substantially as described.

7. In a signal system for electric railroads, the combination of a plurality of street-lights located in a shunt from the trolley-circuit, a signal-light, a semaphore, and electrical connections controlled by the semaphore, for cutting out one of the street-lights and lighting the signal-light, whereby the number of lights in the shunt from the trolley-circuit will be kept constant, substantially as described.

8. In a signal system for electric railroads, the combination of a plurality of street-lights located in a shunt from the trolley-circuit, a signal-light, a semaphore, a telephone-circuit, means located at a central station for sending a current over the telephone-circuit to set the semaphore, and electrical connections controlled by the semaphore for cutting out one of the street-lights and lighting a signal-light, whereby the number of lights in the shunt from the trolley-circuit will be kept constant, substantially as described.

9. In a signal system for electric railroads, the combination of a plurality of street-lights located in a shunt from the trolley-circuit, a signal-light, a semaphore, a telephone-line, means located at a central station for shunting a trolley-current onto the telephone-line to set the semaphore, and electrical connections controlled by the semaphore, for cutting out one of the street-lights and lighting a signal-light, whereby the number of lights in the shunt from the trolley-circuit will be kept constant, substantially as described.

10. In a signal system for electric railroads, the combination of a plurality of street-lights, a signal-box, a signal-light located therein, a swinging semaphore, a magnet-controlled detent for holding up the semaphore, a telephone-line connections located at a central station, for shunting a trolley-current onto the telephone-line to release the semaphore, terminal pieces 18 and 19 secured in the sig-



nal-box in position to coöperate with a double  
contact-piece 20, carried by the swinging sema-  
phore, to cut out one of the street-lights when  
the signal-light is thrown in, whereby the  
5 number of lights from the shunt in the trol-  
ley-current will be kept constant, substan-  
tially as described.

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

HARRY T. GIBBS.

Witnesses:

SARAH E. CHASE,  
BENJAMIN F. FRANKLIN.