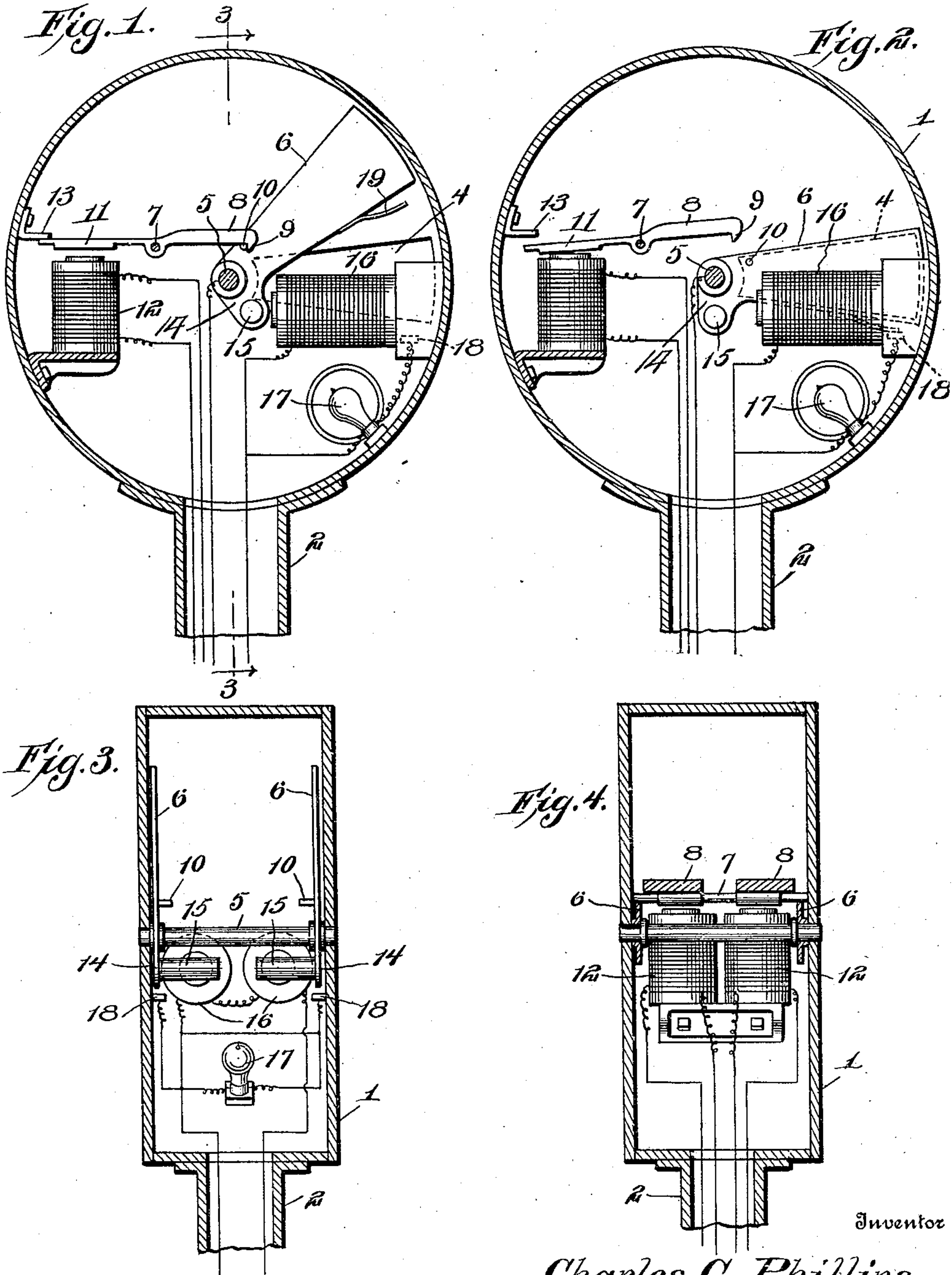


No. 855,971.

PATENTED JUNE 4, 1907.

C. C. PHILLIPS.  
RAILWAY SIGNAL.  
APPLICATION FILED AUG. 6, 1906.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 5.

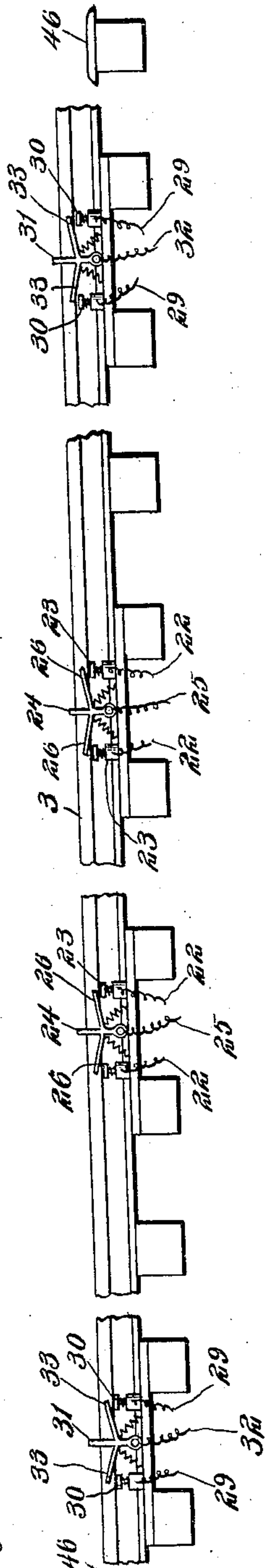


Fig. 6.

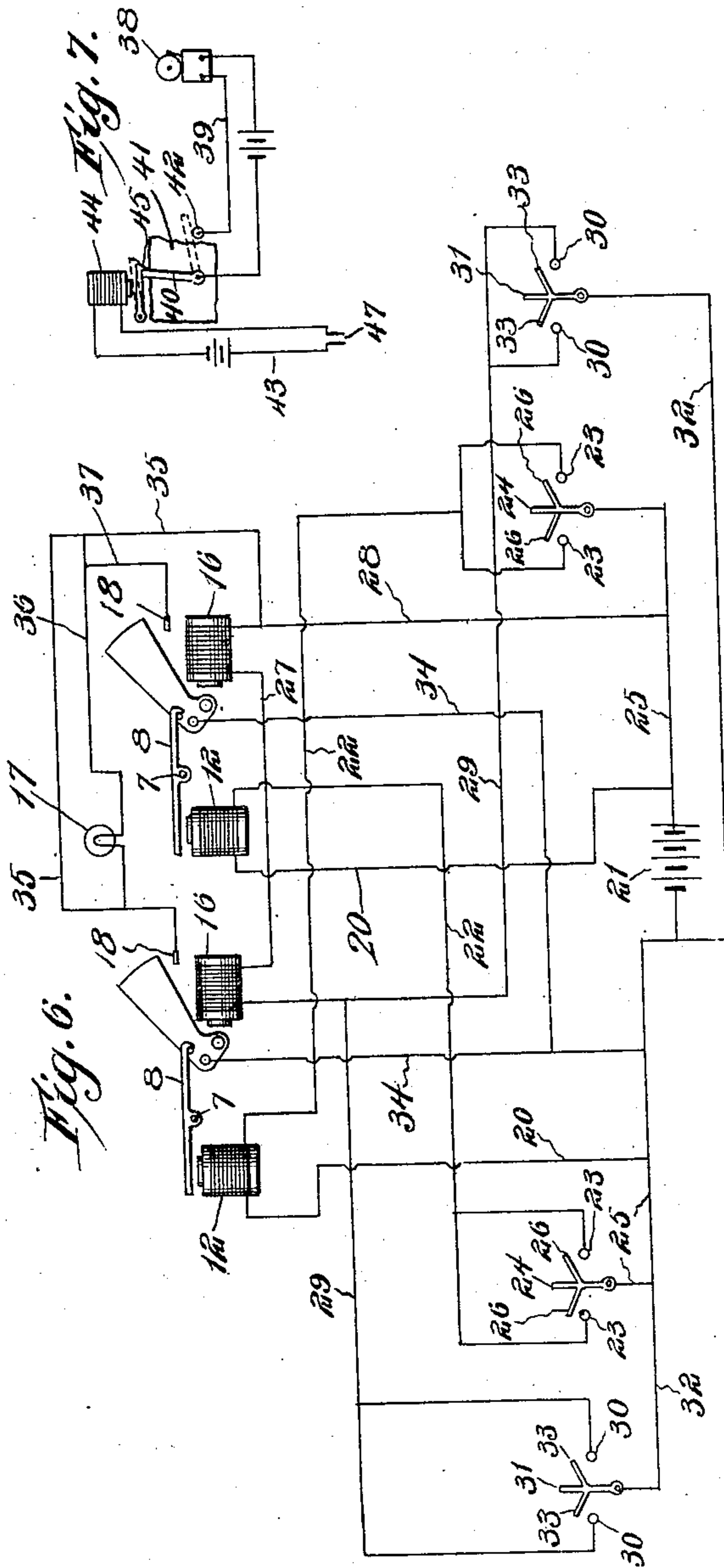
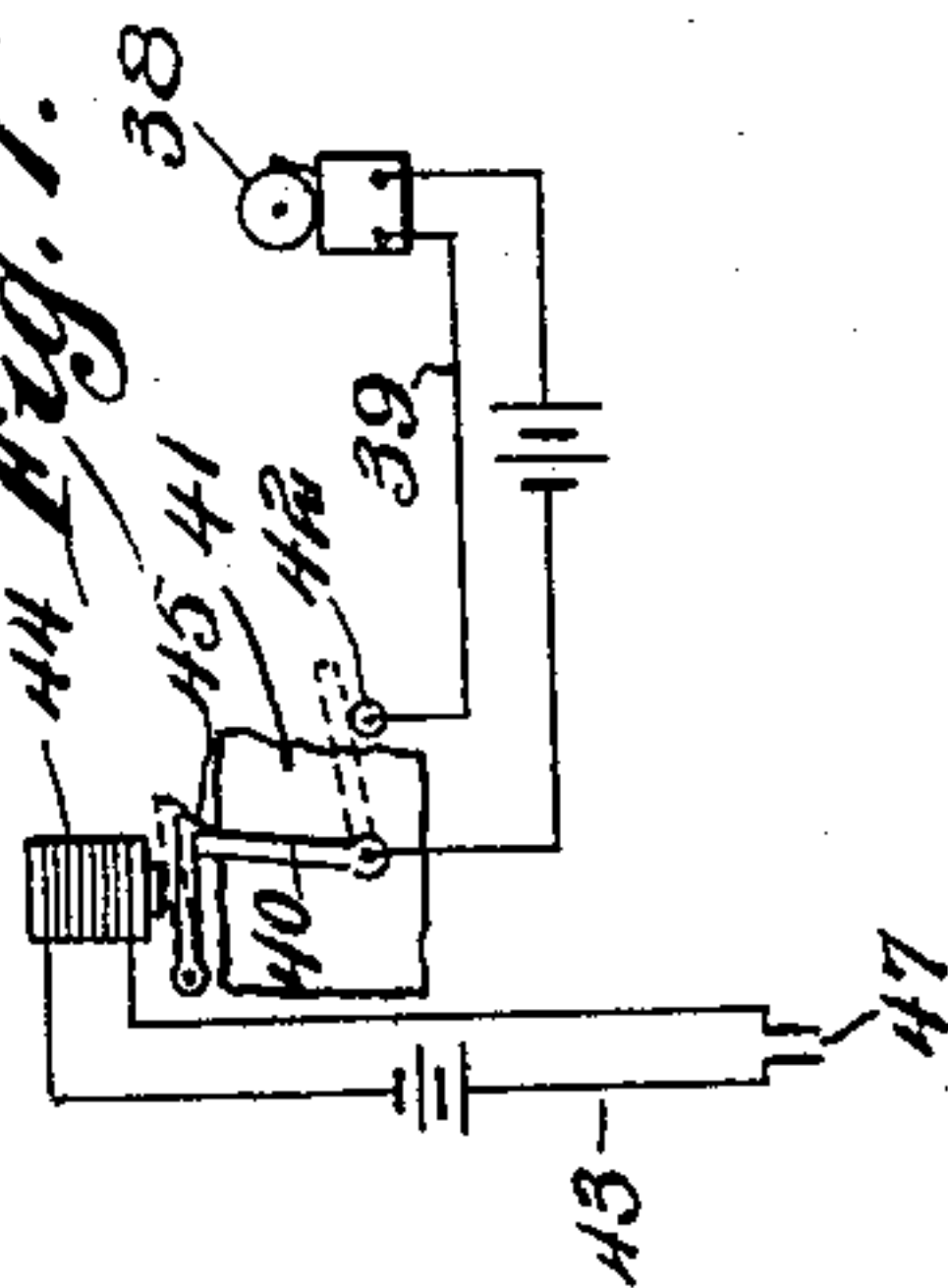


Fig. 7.



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# UNITED STATES PATENT OFFICE.

CHARLES C. PHILLIPS, OF OWENSBORO, KENTUCKY.

## RAILWAY-SIGNAL.

No. 855,971.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed August 6, 1906. Serial No. 329,470.

*To all whom it may concern:*

Be it known that I, CHARLES C. PHILLIPS, a citizen of the United States, residing at Owensboro, in the county of Daviess and State of Kentucky, have invented new and useful Improvements in Railway-Signals, of which the following is a specification.

This invention relates to railway signals of the type disclosed in Patent No. 824,580 granted to me on the 26th day of June, 1906, being especially directed to the electrical resetting mechanism, through the medium of which the semaphore blades are returned to normal position.

The signaling device as a whole, which may be installed on steam, electrical or other roads, embodies in its organization a signaling box or casing containing a lamp and a pair of independently movable semaphore blades included in a normally open circuit with the lamp and constituting movable contacts through the medium of which the circuit is completed or broken, the blades being maintained in normal position, with said circuit open, by means of magnet controlled latch members and being adapted to be returned to such position under the influence of magnets included in normally open track circuits including movable contacts in turn operated by a car or other railway vehicle in its passage over the track.

The invention has for its objects to provide a comparatively simple, inexpensive device of this character wherein a car approaching the signal from either direction will, when at a determined point suitably remote therefrom, operate the track devices for closing the appropriate circuit to release the semaphore blade at the far side of the casing for permitting movement of the blade to a position for signaling danger to a car approaching in the opposite direction, one in which the other blade will be similarly released after the car has passed to a suitably remote point beyond the signal for giving proper warning to a succeeding car, and one wherein the appropriate circuit will be closed for energizing the magnets to finally reset either or both of the blades upon arrival of the car at a determined point beyond the signal.

A further object of the invention is to provide a device of this class wherein the semaphore blades will, when released, move automatically by gravity to danger position, one wherein the blades will, when in the latter

position, complete the lamp circuit for causing the lamp to glow, and one in which the blades are automatically returned to initial or non-danger position and the lamp simultaneously extinguished on the passage of the car out of the block.

With these and other objects in view, the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings: Figure 1 is a vertical, sectional view taken centrally through a signaling box or casing containing a signaling mechanism embodying the invention and showing the normal position of the semaphore blades. Fig. 2 is a similar view showing the semaphore blades in danger position. Fig. 3 is a vertical, transverse section taken on the line 3—3 of Fig. 1 and viewed in the direction of the arrow. Fig. 4 is a similar view taken on the line 4—4 of Fig. 2, looking in the direction of the arrow. Fig. 5 is a side elevation of a portion of a railway track, showing the circuit closing track devices. Fig. 6 is a diagrammatic view showing the various circuits. Fig. 7 is a diagrammatic view of a signal to be arranged in the engine cab.

Referring to the drawings, 1 designates a signaling box or casing, preferably mounted on the upper end of a tubular post or standard 2 which may be planted at a suitable point within the course of and adjacent to a railway track 3, there being mounted at the center of the casing 1, the side walls of which are provided with segmental openings 4, a transverse shaft 5 on which is journaled a pair of independently movable signaling members or blades 6 adapted to normally stand in raised or non-danger position, as seen in Fig. 1, and to move automatically by gravity to a substantially horizontal or danger position for covering respectively the openings 4.

Fixedly mounted in the casing at a point in rear of the shaft 5 is a transverse pintle 7 on which is fulcrumed a pair of latching members or bars 8 having their forward ends which are suitably weighted provided with engaging portions or hooks 9 adapted for engagement with keepers in the form of inwardly projecting pins 10 fixed on the blades 6 for holding the latter in normal position, there being provided on the rear portions of the members 8, which are pivoted at a point between their ends, armatures 11 designed to



be acted upon by electro-magnets 12 sustained within the casing for moving the latching members to releasing position, the movement of the members to engaging position being limited by stops 13 with which the rear ends of the members contact.

The blades 6 are provided with depending portions or extensions 14 carrying inwardly projecting armature bars 15 adapted to be acted upon by electro-magnets 16 mounted in the casing for returning the blades to initial non-danger position, there being also fixed in the casing a lamp 17 included in a normally open duplex lamp circuit containing a pair of fixed contact pieces 18 disposed respectively in the path of the blades 6 and for engagement by contact pieces 19 carried by the latter to close the circuit and light the lamp when either of the blades is in danger position.

The magnets 12 are each connected by a wire 20 with a battery 21 and by a second wire 22 with a pair of relatively spaced, fixed contacts 23 disposed on the track 3 at a point beyond and suitably remote from the signal device, there being arranged between each pair of fixed contacts 23 a vertically disposed, movable contact member or lever 24 connected by a wire 25 with the battery and having a pair of oppositely projecting contact portions 26 arranged to cooperate respectively with the contacts 23 for closing the circuit through the wires 20, 22 and 25 to energize the corresponding magnet 12, it being noted in this connection that the sets of contacts 23 and 24 are so disposed on the track that when one of the contacts 24 is moved for completing its circuit the far magnet 12 will be energized, thus to operate the appropriate latch 8 for releasing the semaphore blade 6 at the far side of the casing 1 relative to the direction in which the car is approaching.

The magnets 16, which are connected by a wire 27, are included in a normally open circuit comprising a wire 28 leading from one of the magnets to the battery 21 and a pair of wires 29 connected with the other magnet and each leading to a pair of fixed relatively spaced contacts 30 disposed on the track 3 at a point beyond and suitably remote from the signal, there being arranged between each pair of fixed contacts 30 a vertically disposed pivoted track lever 31 connected by a wire 32 with the battery and having a pair of oppositely projecting contact portions 33 arranged to cooperate respectively with the contacts 30 for closing the circuit through the wires 27, 28, 29 and 32 to energize both magnets 16, thus to reset both or either of the blades 6. It will be noted in this connection that the sets of contact 30 and 31 are disposed on the track at points beyond and remote from the sets of contacts 23, 24, whereby a car traveling in either direction will operate one

of the contact levers 31 before reaching the adjacent contact lever 24 and the other lever 31 after passing the second lever 24, for a purpose which will presently appear.

The lamp 17 is, as before stated, included in a normally open duplex circuit which is formed by wires 34 leading respectively from the blades 6 to one of the wires 25 for connection with the battery, a wire 35 leading from one of the contacts 18 to one of the wires 28 in turn connected by the other wire 25 with the battery, and a wire 36 connected in the wire 35 to lead through the lamp and having connection through a branch wire 37 with the other contact 18, the lamp circuit, which is normally open, being adapted to be closed through the medium of either of the blades 6 when moved to danger position.

In practice, as a vehicle traveling on the track 3 approaches the signal in either direction, say, from the right, the right-hand contact member 31 will be operated for contact with one of the pieces 30, thereby closing the circuit through the magnets 16 and setting either or both of the blades 6. As the vehicle continues to advance the contact member 24 will next be actuated for closing the circuit through the left-hand magnet 12, thus actuating the adjacent locking member 8 to release the corresponding blade 6 and signal danger to a car or train which may be approaching from the opposite direction, or, that is, from the left. After the car has passed the signal the other member 24 will be operated for closing the circuit through the other magnet 12, thus releasing the second blade 6 for signaling danger to a car or train which may be following the first car. Finally in passing out of the block, the other member 31 will be actuated for completing the circuits through the magnets 16 and resetting the signals. When either of the blades 6 is released and drops it will, owing to engagement of its contact piece 19 with the adjacent contact 18 complete one of the circuits through the lamp 17, thereby lighting the lamp, which will continue to glow until the blade or blades are reset under the action of one of the contact members 31, as before explained.

Arranged in the engine cab is a signal bell 38 included in a normally open circuit 39 which includes an annunciator arm 40 sustained upon a wooden base 41 and constituting a movable contact adapted for communication with a contact piece 42 to close the bell circuit. Included in a second, normally open circuit 43 is a magnet 44 adapted to operate a latch member 45 by which the annunciator arm 40 is held normally out of engagement with the contact 42, while arranged on the track 3 at a point remote from the signal station is a contact piece 46 adapted to connect with contact pieces 47 for closing the circuit 43. When the engine enters the



block at either end the adjacent contact 46 will, through connection with contacts 47, close circuit 43, thus energizing the magnet 44 to operate the latch 45 for releasing the annunciator 40, whereupon the arm 40 will move downward into contact with piece 42, thus closing the circuit 39 and sounding the bell 38, which will continue to ring until the arm 40 is manually returned to normal position.

While I have described the signal as being equipped with a lamp 17, it will be understood that in some instances, and particularly in connection with street railway circuits, a bell may be substituted for the lamp.

Having thus described my invention, what I claim is:

1. A signaling system comprising a pair of normally open circuits, a pair of independently movable signaling blades included respectively in said circuits, magnet controlled means for holding the members in normal position, track devices for closing the circuits to separately energize the magnets and release the blades, a normally open duplex lamp circuit adapted to be closed through the medium of either of the blades when re-

leased, a third open circuit including magnets for resetting the blades, and track devices for closing the third circuit.

2. A signaling system of the type described comprising a normally open circuit including a lamp and a movable contact member for completing the circuit to light the lamp, a latch member arranged for holding the contact member in normal position with the circuit open, a second normally open circuit including a magnet adapted to be energized, said magnet when energized being adapted to operate the latch member for releasing the movable contact and permitting the latter to close the first named circuit, automatically operable track devices for closing the second circuit, a third normally open circuit including a magnet adapted when said third circuit is closed to be energized and reset the movable contact member, and automatically operable track devices for closing the third circuit.

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

CHARLES C. PHILLIPS.

Witnesses:

A. S. ANDREWS,  
T. F. HAYS.