R. D. PETERS.

TRAIN CONTROLLED HIGHWAY SIGNAL.

APPLICATION FILED AUG. 6, 1909.

985,628.

Patented Feb. 28, 1911.

2 SHEETS—SHEET 1.

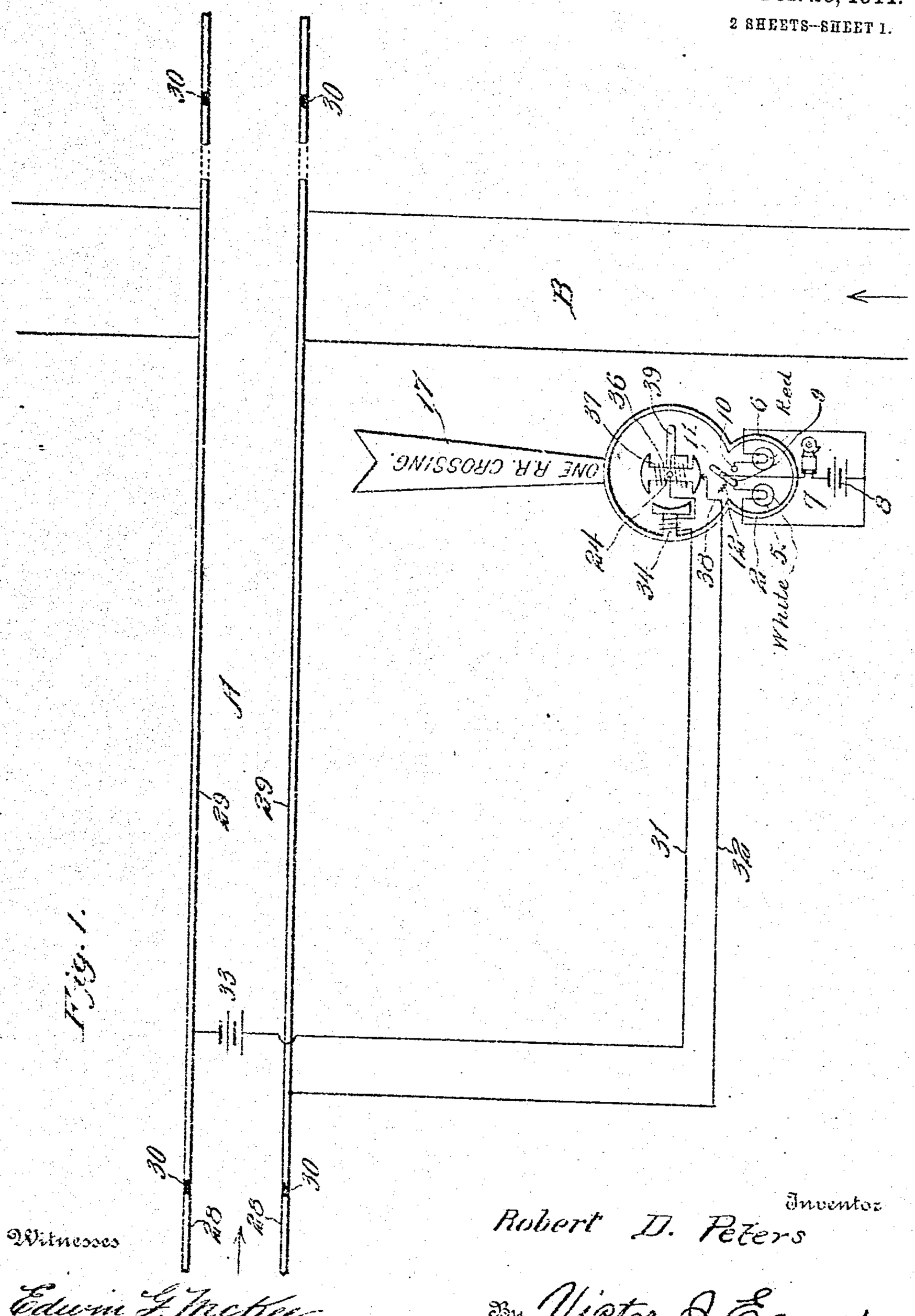


Fig. 1.

Witnesses

Edwin F. Mecklenborg

C. C. Hines.

Inventor

Robert D. Peters

By Victor J. Evans

Attorney

R. D. PETERS.

TRAIN CONTROLLED HIGHWAY SIGNAL.

APPLICATION FILED AUG. 6, 1909.

985,628.

Patented Feb. 28, 1911.

2 SHEETS—SHEET 2.

Fig. 2.

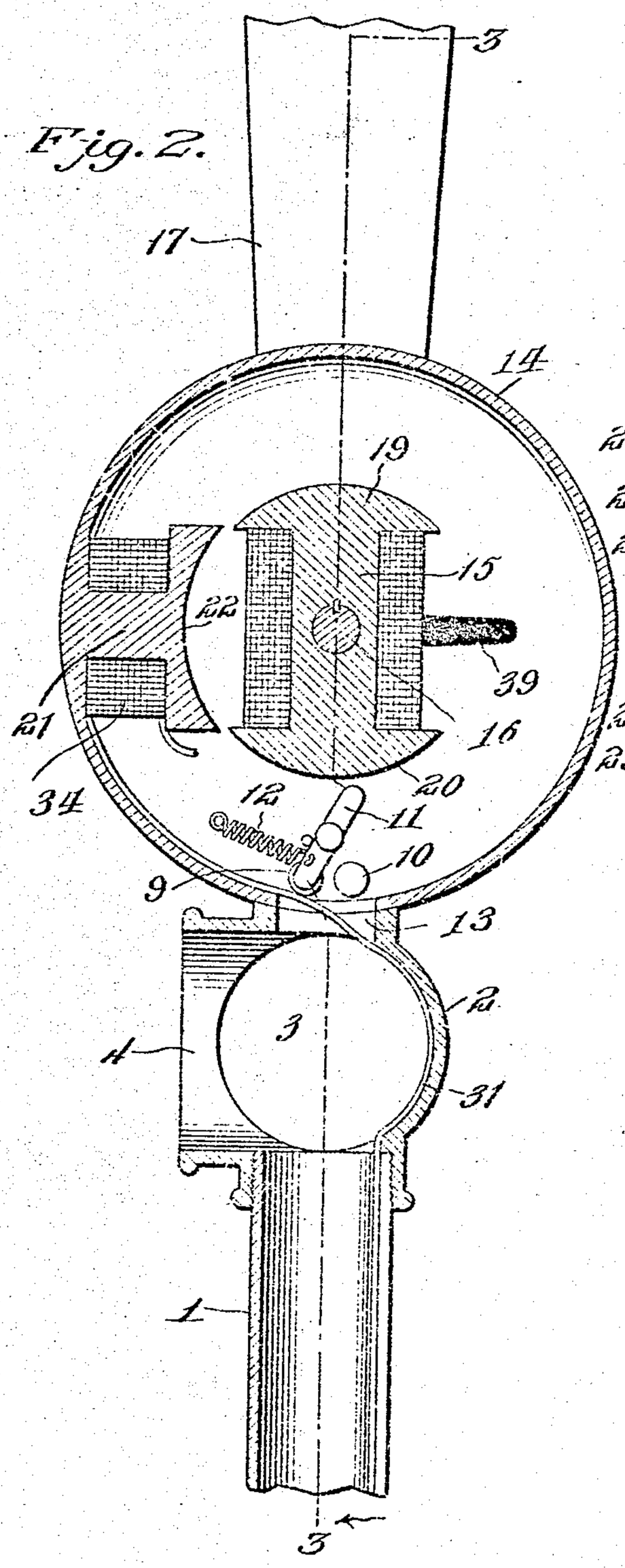
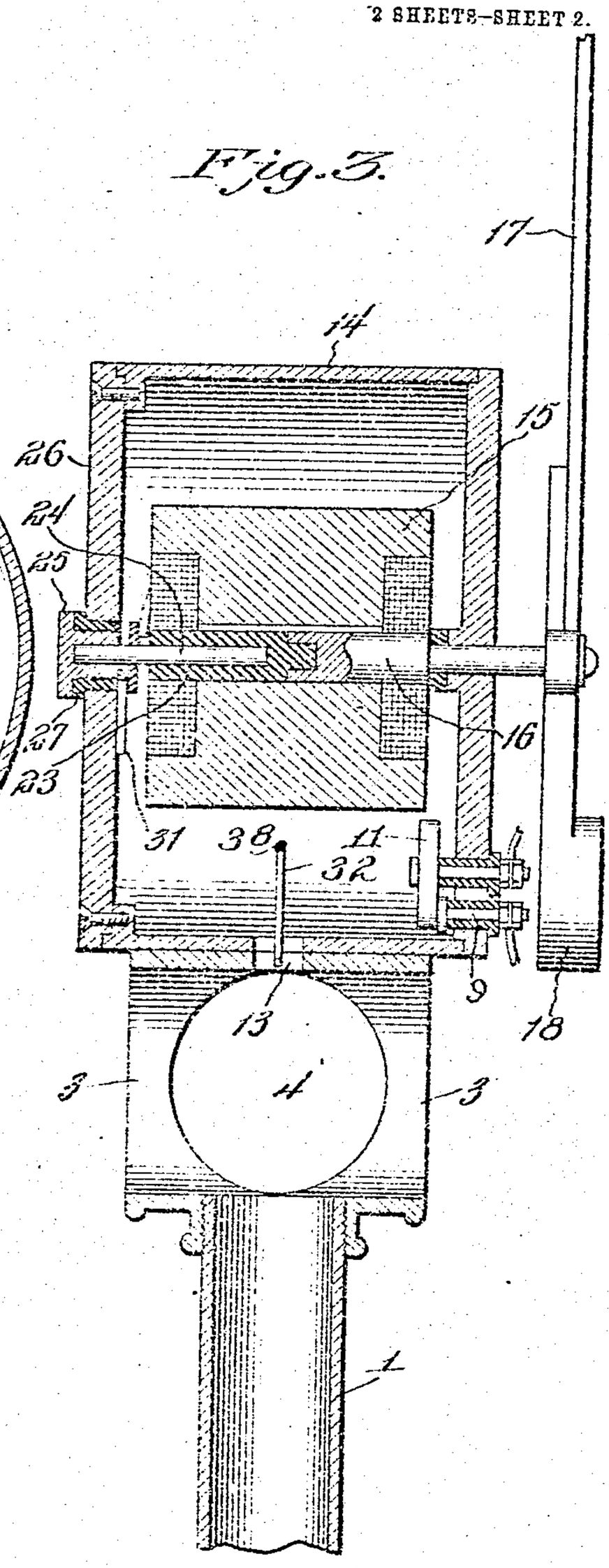


Fig. 3.



Witnesses

Edwin L. Hickee

C. C. Hines.

Inventor

Robert D. Peters

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

ROBERT D. PETERS, OF KNOX, INDIANA.

TRAIN-CONTROLLED HIGHWAY-SIGNAL.

985,628. Specification of Letters Patent. Patented Feb. 28, 1911.

Application filed August 6, 1909. Serial No. 511,570.

To all whom it may concern:

Be it known that I, ROBERT D. PETERS, a citizen of the United States, residing at Knox, in the county of Starke and State of Indiana, have invented new and useful Improvements in Train-Controlled Highway-Signals, of which the following is a specification.

This invention relates to railway signals of the semaphore type, and its object is to provide a crossing or highway signal controlled by trains approaching the crossing to indicate to pedestrians, drivers of vehicles and automobilists traveling along the highway whether or not the way is clear for travel over the railway track.

A further object of the invention is to provide a simple construction of day and night semaphore signal which will be visible for a maximum distance and which will indicate the number of railway crossings at the particular point, so that the passenger will be warned to proceed with proper caution.

With these and other objects in view, the invention consists of the features of construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a diagrammatic view showing the signal and circuit in which it is included. Fig. 2 is a vertical longitudinal section transversely of the signal embodying the invention. Fig. 3 is a section taken on line 3—3 of Fig. 2.

Referring to the drawings, A indicates a railway track and B an intersecting road or highway at the protected crossing point.

Arranged at a suitable point at the side of the highway B and at a desired distance from the crossing is a tubular post or standard 1 which has mounted on its upper end a lamp box 2 with side openings 3 and a front opening 4, which latter faces the highway. In said box are inclosed a white light 5 and one or more red lights 6, the latter depending in number upon the number of railways crossing the highway, as hereinafter explained.

The lamps are arranged in a circuit 7 including a suitable source of energy 8 and spaced contacts 9 and 10. A pivoted switch 11 normally engages the contact 9 to close the circuit through the white or safety signal lamp 5, in which position it is held by a contactile spring 12. Said switch is adapted to be swung, however, out of engagement with the contact 9 to cut out the lamp 5 and into engagement with the contact 10 to close the circuit through the lamp or lamps 6 when the semaphore arm swings to danger position.

Mounted on top of the box 2 and communicating therewith through the medium of an opening 13 is a casing 14 inclosing the movable member or core 15 of an electric motor, said core being fixed upon a rotary shaft 16 disposed centrally of the casing and journaled in suitable bearings in the side walls thereof. Fixed upon one end of the shaft, which projects beyond the casing, is a semaphore arm or blade 17 weighted at its normally lower end, as at 18, whereby the semaphore will normally stand in vertical or safety position, as will also the heads 19 and 20 of the core 15, it being apparent that, inasmuch as the core and semaphore are both fixed upon the shaft, they will move in unison with the latter.

Fixed at a suitable point within the casing and disposed in a horizontal plane normally perpendicular to the longitudinal axis of the semaphore is the stationary member or pole piece 21 of the motor, the contact face 22 of said pole piece being concaved and the outer face of the coacting head 20 convex to conform to the curvature thereof. The shaft 16 includes in its organization a section 23 composed of fiber or other suitable insulating material and having a central bore in which is entered a metal contact portion or pin 24 projected beyond the outer end of the section 24 and journaled in a metal bearing member 25 constituting a contact insulated from the adjacent wall 26 of the casing by insulating material 27, the said wall 26 being in the form of a removable cap, secured in any suitable manner to the body of the casing, as by screws 26′ through the medium of which access may be had to the mechanism housed within the casing.

Referring particularly to Fig. 1 wherein is diagrammatically illustrated the circuits for the system, 28 and 29 designate sections of the track included in the same block and insulated from each other, as at 30, it being understood that the track section included in any one block extending beyond opposite sides of the highway or protected point is divided into a central section 29 and end sections 28 insulated therefrom, thus du-

plicating the apparatus at each end of the track. The circuit includes conductors 31 and 32 leading to the respective rails of the track sections 29 and having a source of energy, as a battery 33. The conductor 31 extends to one terminal of the field coil 34, the other terminal of which is connected through the plug 25 with the pin 24 to which is connected one terminal of the armature coil 36, the other terminal of which is connected with the core 15, as at 37. The core 15, as previously described, is in metallic circuit with the casing 14, to which the conductor 32 is connected, as at 38. By this arrangement a circuit will be completed through the connection of the rails of the track section 29 by the wheels of a car to energize the field and cause it to attract the head 20 of the core or pole piece 15, whereby the semaphore arm will be swung to a horizontal or danger position against the resistance of the weight 18, which, upon the breaking of the circuit, will return the semaphore to normal or safety position. On shaft 16 is mounted a contact arm 39 which is adapted upon the rotation of the shaft in adjusting the signal 17 from safety to danger position to engage and throw the switch 11 out of engagement with the contact 9 and into engagement with the contact 10, thus cutting the white light 5 out of circuit and throwing the red light 6 into circuit. When the signal 17 is thrown in the reverse direction back from danger position to safety position, the arm 39 releases the switch 11, which is retracted into normal engagement with the contact 9 by means of the spring 12.

In practice, the conductors 31 and 32 extend upward through the hollow post 1, lamp box 2 and opening 3 into the casing 14. The signal mechanism is arranged at one side of the highway B at a suitable distance from the crossing line A, and in such position that, when the semaphore arm or signal 17 is thrown to danger position, it will extend at a proper elevation over the highway. In addition to employing one or more red lamps 6 to indicate the number of crossing roads, a suitable warning is also preferably printed upon the semaphore arm 17 as shown, to indicate to a traveler along the highway that one or more railroads cross the same at the crossing point, so that after passing over one crossing line, proper caution may be taken if one or more additional railroad lines cross at or adjacent the same point.

It will be seen from the foregoing description that a normally open circuit is employed which will be closed by the wheels of a train running upon the track section 29 and connecting the rails thereof, and that upon the closing of said circuit the field and core will be energized to swing the semaphore 17 to danger position, in which position it will be maintained until the train passes off said block section 29, which may extend any desired distance beyond opposite sides of the highway. Upon the passage of the train off the track section 29 the circuit will be broken and the semaphore 17 restored to normal safety position by the weight 10. The mode of operation of the signal lamps has been previously described, so that it will be apparent that when the semaphore is in safety position, the white or safety light will glow, while when said semaphore is shifted to danger position, the red lamp or lamps will glow, giving warning of the approach of a train and at the same time indicating the number of crossing lines or tracks at the crossing point

By means of my improved highway signal a pedestrian, driver of a vehicle or automobilist will be warned of the approach of a train at a suitable distance from the crossing by a visual signal which may be readily seen and interpreted, so that measures may be taken to insure freedom from accidents. In many sections, a road or highway is crossed by steam and interurban electric railway lines running in parallel relation, and accidents are caused by a collision with a train of one line after tracks of another line have been crossed through ignorance of the fact that more than one line passes over the highway at the crossing point. Heretofore, so far as I am aware, no signal mechanism has been provided to indicate the approach of a train at a crossing and the number of railroad lines passing over the crossing. My invention overcomes this objection and insures greater freedom from accidents, as it simultaneously gives both warnings.

It will be understood, of course, that the conductors 31 will connect in practice with insulating sections of all crossing lines, where there are more than one, in order that the signal may be operated by a car or train traveling on either or any of the crossing lines.

I claim:—

1. A signaling apparatus comprising a semaphore, a normally open circuit, a spring-retracted switch for opening and closing said circuit, a second normally open circuit, a motor therein including a movable core for operating said semaphore, a signal lamp in the first-named circuit, and a projection carried by the core to engage and close said switch upon the energization of the motor.

2. A signaling apparatus embodying a normally open circuit, a semaphore, a motor in said circuit including a rotary core for operating said semaphore, a second normally open circuit containing a signal lamp, a pivoted spring retracted switch for opening and closing said lamp circuit, and a projec-

tion upon the core adapted to engage and close said switch upon the energization of the motor.

3. A signaling apparatus comprising a semaphore, a normally open circuit, said circuit being provided with spaced contacts, a second normally open circuit, a motor therein including a movable core for operating said semaphore, a signal arranged in the first-named circuit, a pivotally mounted switch movable between the contacts of said circuit to open and close the same, said switch being provided with an arm extending beyond said pivot, a projection carried by the core to engage said arm and close said switch upon the energization of the motor, and a spring for retracting the switch to open circuit, upon the release of the arm by said projection.

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

ROBERT D. PETERS.

Witnesses:
JOHN W. KELLOGG,
THOMAS FISHER.