No. 647,097. Patented Apr. 10, 1900.

J. JORGENSON.

RAILWAY SIGNAL.

(Application filed Aug. 22, 1899.)

(No Model.)

Fig. 1.

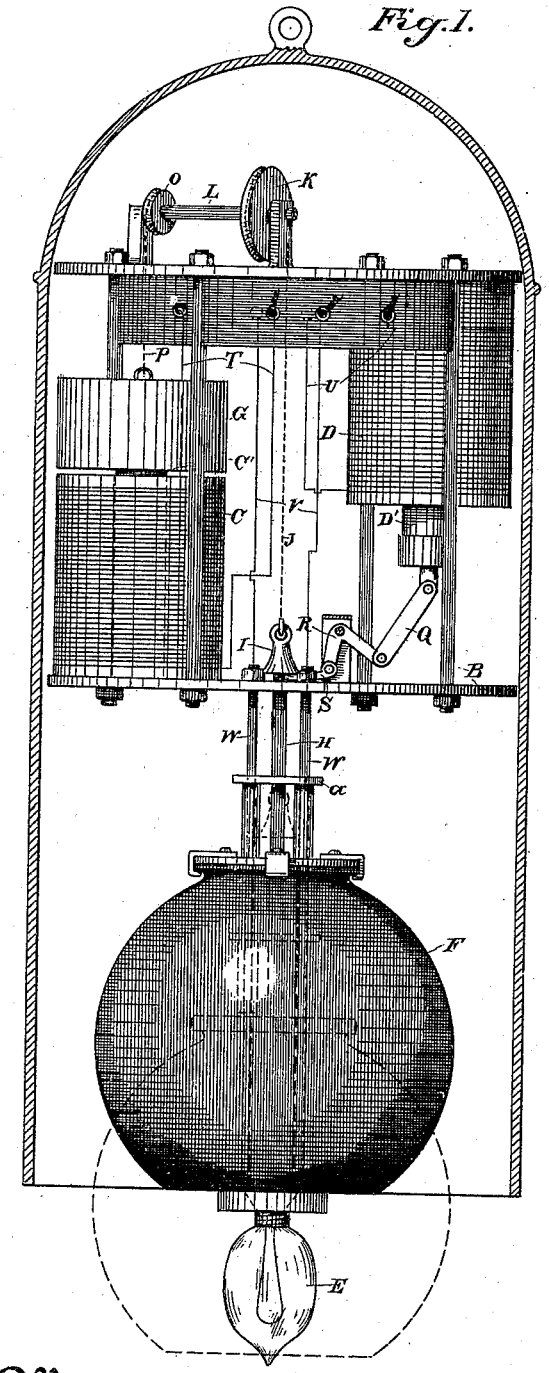


Fig. 2.

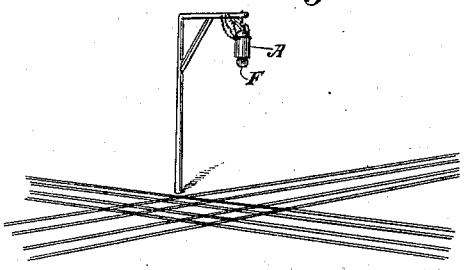
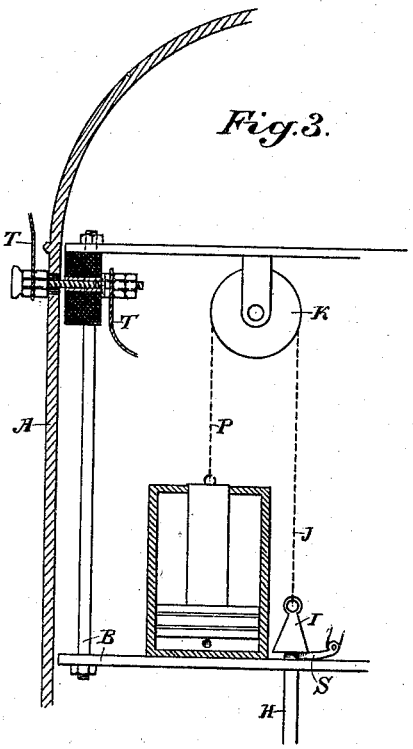


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN JORGENSON, OF SAN FRANCISCO, CALIFORNIA.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 647,097, dated April 10, 1900.

Application filed August 22, 1899. Serial No. 728,124. (No model.)

To all whom it may concern:

Be it known that I, JOHN JORGENSON, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Railway-Signals; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a signaling device which is applicable to lines of railway wherever it is desirable to employ a signal, and particularly to crossings of such lines.

It consists of the parts and the constructions and combinations of parts hereinafter described and claimed.

Figure 1 is a section through the casing, showing the inside mechanism. Fig. 2 shows its application. Fig. 3 shows the arrangement when compressed air is used for operating the signal.

In the present case I have shown my signal as arranged with relation to track-crossings.

The signal apparatus may be suspended or supported in any suitable manner with relation to the crossing or other part where it is to be exhibited and is preferably inclosed in a housing A, which will protect it from the action of the weather. Within this housing is supported the actuating mechanism, which in the present case consists of a frame B, carrying electromagnets or solenoids C and D.

The signal E may be of any suitable or desired construction. It may be an electric or other light at night, and an inclosing casing F, movable with relation to the light, so as to either expose or cover it, in which case the casing may have the usual danger color—red—through which the light will shine when the casing incloses it, and when the casing is withdrawn into the hood A the light will be exposed. In daytime the casing itself by its color indicates "danger," and, as before, when drawn up into the hood A will show a clear track.

In order to operate the device, the solenoid C is made of considerable strength and has a core C′ movable within it. This core carries with it a weight G, which is sufficient to very nearly counterbalance the weight of the globe F and the movable parts connected therewith.

H is a stem by which the globe F is suspended. Its stem has upon the upper end a catch I of any suitable form, and a cord J extends upwardly therefrom over a pulley or drum K, mounted upon a shaft L, suitably journaled upon a supporting-frame. From another drum O a cord P passes down and connects with the stem by which the weight G and the core C′ are suspended. This or equivalent mechanism connects the globe F with the counterbalance-weight G. The other solenoid D has a core D′, movable within it and connected by a link Q with a lever R, suitably fulcrumed and carrying a latch S, which when the globe F is raised and concealed within the hood engages with the catch I, and thus retains the globe in its elevated position. The solenoid C is energized by an electrical current passing through the wires T from any suitable source of electrical supply, and the solenoid D is in the same manner energized by a current passing through the wires U.

If an electric light is employed, the wires V convey the current down through the hollow guide-rods W, upon which the cross-head *a* is slidable. This cross-head is fixed to the suspending-rod H and movable with it and the globe F.

The energizing and deënergizing of the electromagnets C and D are effected by means of any available electric current.

The completion of the electric circuit and the breaking of the same is effected by the action of the approaching car or train, which operates contact-making devices of any usual or well-known construction, and the deënergizing of the magnets is correspondingly effected when the train passes away from the signal-point. The action will then be as follows: When the globe is concealed within the hood A, which is its normal condition, the track is clear and the globe is held up by the engagement of the latch S with the catch I. When a train or car approaches and it is necessary to indicate the fact, the car passing the contact-making device will complete the electrical circuit through the wires U and the solenoid D, which, being energized, causes its core B′ to move up into the solenoid, and, acting through the links Q and lever R, will withdraw the latch S and allow the globe F to descend until it is visible beneath the hood, and when an electric or other light is employed it will descend far

enough to inclose such light, so that at night the signal will be plainly visible. When the train has passed out of the danger zone, it operates contact-making devices which close the circuit and cause an electric current to pass through the wires T and the solenoid C, and this being energized draws the core C′ into it and with it moves the counterbalance-weight G, and pulling upon the cord P it rotates the drum O and shaft L, thus acting in turn upon the drum K, winds up the suspending-cord J, which is connected through the rod H with the globe F, and the globe is thus drawn up into the hood, and when the catch I has passed the latch S the latter will engage with it. Its actuating-solenoid being now deënergized the weight of the core and connected parts will be sufficient to move the latch S, so that it will engage with the catch I, and thus continue to support the globe after the solenoid C has been deënergized, which occurs by the breaking of the electrical circuit as soon as the car or train has passed the contact-making devices.

It will be understood that the operation of moving the globe could be equally well effected by the use of compressed air by substituting an air-cylinder for the solenoid C and connecting the cords which suspend the globe with the plunger of said cylinder, so that when air is admitted to the cylinder at one side of the piston it will move the globe in one direction, and when admitted to the opposite side it will move it in the opposite direction in the same manner as previously described. In this case the actuating agent, being air, may be compressed into a receiver in readiness for use, and the mechanism being essentially similar to that herein described the operation will be in no wise different from that produced by electrical current.

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

1. The combination with a line of track, a signal including a concealing-casing and a globe, one movable with relation to the other, of means for operating the signal including a vertically-disposed solenoid, a weighted core movable into and out of the solenoid, a cord passing therefrom over a journaled drum, a corresponding cord passing over a second drum upon the same shaft connecting with the signal, so that the energizing of the solenoid will act to raise the signal, and a latching device by which it is retained in its raised position after the solenoid has been deënergized.

2. The combination with a line of track, a signal including a concealing-casing and a globe, one movable with relation to the other, of a solenoid and suspending connecting-cords and a counterbalance-guided weight and connected core which is drawn into the solenoid when the latter is energized so as to raise the signal, a latch by which the signal is retained in its raised position after the solenoid is deënergized, a second solenoid having a core movable therein, and connections between said core and the latch mechanism whereby the energizing of said second solenoid will disengage the latch and allow the signal to drop by gravitation.

3. In a signal apparatus, the vertically-movable signal and the concealing hood or casing, a cord by which the signal is suspended, a drum mounted upon a rotary shaft about which said cord is coiled, a second drum and cord connecting the drum with a counterweight, a solenoid and a core movable into and out of it, said core being connected and movable in unison with the counterweight, a latch by which the signal is retained in its elevated position after having been raised, and a second solenoid having a movable core with connections actuated by said core whereby the latch is disengaged to allow the signal to descend by gravitation.

In witness whereof I have hereunto set my hand.

JOHN JORGENSON.

Witnesses:
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