

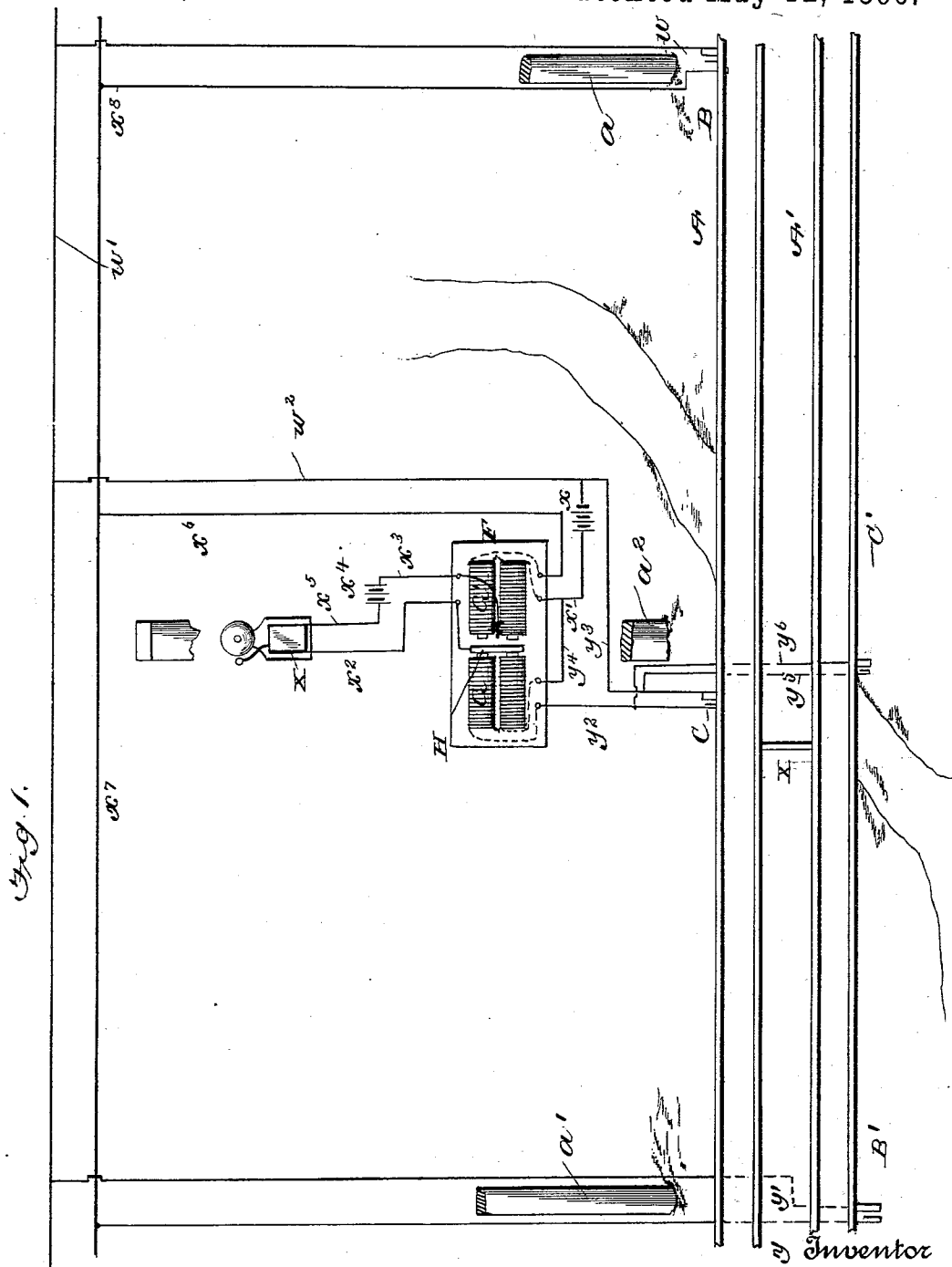
(No Model.)

2 Sheets—Sheet 1.

D. C. STEWART.
RAILWAY SIGNAL.

No. 560,071.

Patented May 12, 1896.



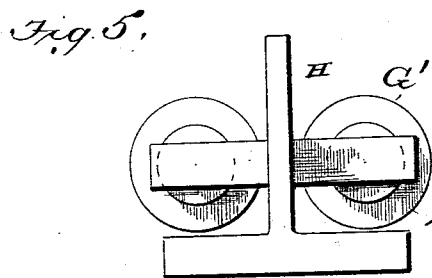
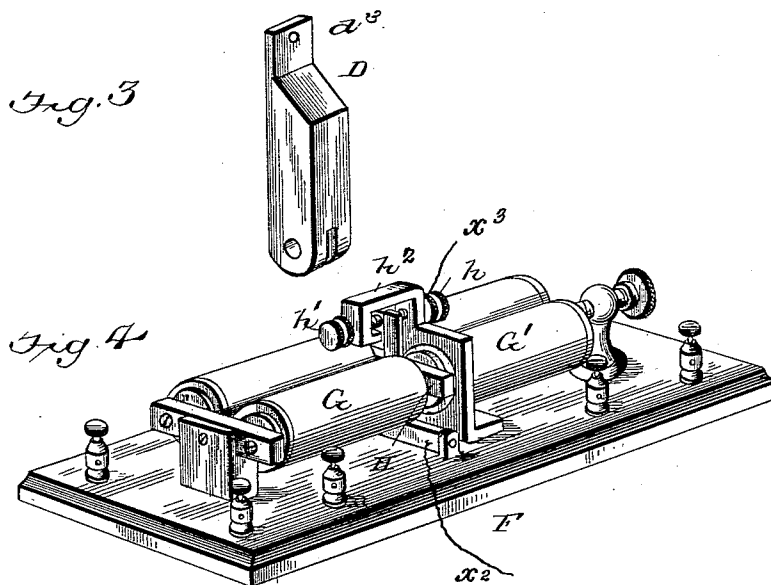
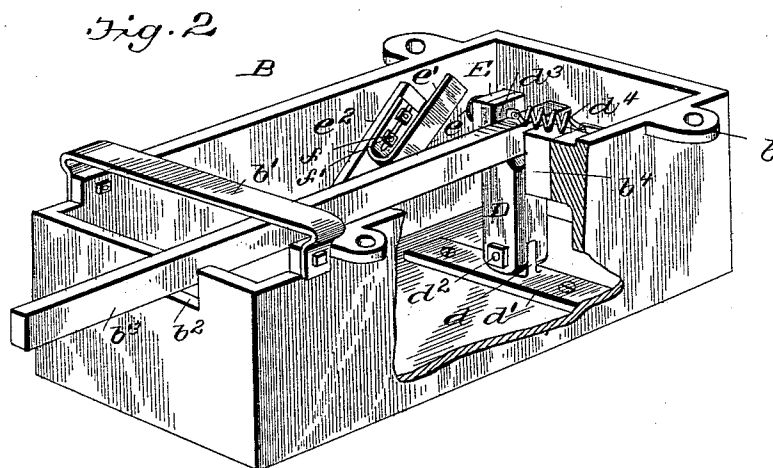
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2 Sheets—Sheet 2.

No. 560,071.

Patented May 12, 1896.



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UNITED STATES PATENT OFFICE.

DAVID C. STEWART, OF WARREN, OHIO.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 560,071, dated May 12, 1896.

Application filed March 9, 1894. Serial No. 503,052. (No model.)

To all whom it may concern:

Be it known that I, DAVID C. STEWART, of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Railway-Signals; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention contemplates certain new and useful improvements in railway-signals; and it has for its object the production of simple and highly efficient means for automatically ringing an electric bell located at or near a road crossing or tunnel by an approaching train, and which will be automatically thrown out of operation after the train has passed such crossing.

The invention comprises two circuit-closing boxes having electrical connections with a bell or the like and designed to have their circuits closed by a passing train, an intermediate relay to which both of said circuit-closing boxes are connected, the same having a movable armature which is thrown into and out of engagement with the magnets of the relay by the operation of first one and then the other of said circuit-closing boxes.

The invention also comprises improvements in the details of construction, combination, and arrangement of parts substantially as hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view with the tracks in perspective and illustrating on an enlarged scale in side elevation the arrangement of my improved signaling device. Fig. 2 is a view in perspective of one of the circuit-closing boxes. Fig. 3 is a detail thereof. Fig. 4 is a view of the relay. Fig. 5 is a detail.

Referring to the drawings, A A' designate two tracks, and α a road crossing the same. Along one side of one of the tracks are three poles a' a'' a^3 , the latter being located adjacent to the cross-road and the two former some distance on either side thereof.

B B' designate two circuit-closing boxes, one attached to two of the ties of each track on a line with the poles a' , and C C' are two

similar boxes, one for each track, on a line with or near the pole a^2 . Each box has lateral lugs b for attaching it to the railroad-ties and is provided with an upper cross-bar b' , which serves to keep the cover (not shown) in place. In one end of the box is an opening b^2 through which is designed to be extended a bar b^3 , which is rigidly secured at its outer end to one of the rails of the track, which rail will be depressed when the train passes thereover, thereby depressing said bar at the same time.

D is an arm pivoted at its lower end on a lug d of a lower cross-bar d' , said lug fitting in a slit in said bar, a nutted bolt d^2 , passed through coincident holes, forming the pivot-bearing. The upper end of this bar is reduced and has a beveled shoulder d^3 , with which bar b^3 comes in contact when depressed. A lug or block b^4 is attached to the inside of the box opposite the pivoted arm, so that in case the bar b^3 should become loose it will still be crowded over onto the arm. This bar is normally held in the position shown in Fig. 2 by a coiled spring d^4 , attached thereto and to one side of the box, and to said bar is connected a rubber block E, having a screw e extending therefrom, to which one wire w is connected. A bent brass arm e' is connected to one side of the box, a rubber block e^2 being interposed between the same and the box. From the inner portion of this arm e' projects a threaded screw f , having a nut f' . To this screw is connected the wire w' . When the bar b^3 moves the pivoted arm D, the screw e of the latter is made to contact with the brass arm e' , thus closing the circuit. The wire w leads from the box B underground to the base of pole a , up the latter, and is connected to overhead wire w' . A branch wire w^2 leads from this wire to a battery x , which is connected by a wire x' with a relay E. The return connection is through a wire x^6 , leading from the relay to a second overhead wire x^7 , which communicates with the box B by a branch wire x^8 . The other outer box B' is connected by wires y y' with the overhead wires. The box C is connected to battery x and relay F by wires y^2 y^3 , a third wire y^4 connecting said battery to said relay. The box C' is connected with the wires y^2 y^3 by

wires $y^5 y^6$. The foregoing arrangement of relay, batteries, &c., may be inclosed in a box attached to post a^2 , on which the bell is secured. The drawings do not, however, show the parts so inclosed, the box or covering being omitted and the parts shown enlarged for the sake of perspicuity.

The relay F comprises two sets of magnets G G', between which is pivotally mounted a wabbling iron or armature H, the movement of which is limited by set-screws $h h'$ of an overhanging arm h^2 . Connected to the wabbling iron or armature H is a wire x^2 , leading to a bell X which latter is connected by a wire x^3 to a battery x^4 , and from said battery is passed a wire x^5 , which is connected by any suitable means to the set-screw h in the overhanging arm h^2 . When the circuit is closed, save by the depression of bar b^3 in box B, the wabbling iron or armature H will be drawn to the magnet G and the bell-connecting circuit being closed by contact of said wabbling iron or armature with the set-screw h the bell will commence to ring. Thus a signal is given as the train approaches the cross-road or tunnel, and after the last wheel of the rearmost car of the train has passed beyond box B the circuit formed through box C will close, charging the magnet G', which will draw the wabbling iron away from magnet G and against set-screw h' , thus breaking the bell-circuit and causing the bell to cease ringing. The current from battery x^4 is prevented from passing through set-screw h' when the wabbling iron H is resting thereagainst by any suitable insulating material surrounding said screw where it is passed through the overhanging arm h^2 .

The operation of the circuit-closers of the

track A' is identically the same as that above described of the closers of the track A.

It is obvious that the invention can be adapted for use on a single as well as a double track.

The advantages of my invention are apparent to those skilled in the art to which it appertains, and it will be specially observed that the same is extremely simple and being composed of but few parts is not liable to readily get out of order or be deranged.

I claim as my invention—

1. The circuit-closer herein described, comprising the box, the pivoted spring-held arm provided with a beveled shoulder and having a circuit-wire connected thereto, a depressible bar in juxtaposition to one of the rails of a track and designed to engage said beveled shoulder, and a contact-arm to which the other circuit-wire is connected, substantially as set forth.

2. The combination with the box having an opening in one end, and a lower cross-bar provided with a lug, of the arm pivoted on said lug having an upper beveled shoulder, a depressible bar in juxtaposition to one of the rails of a track and designed to engage said arm, a spring connected to said arm and a screw projecting therefrom, and an arm connected to the box on a line with said screw and having a screw extending from its inner end, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

DAVID C. STEWART.

Witnesses:

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GEO. W. UPTON.