2 Sheets—Sheet 1.

J. I. CONKLIN, Jr.

ELECTRIC STATION INDICATOR FOR RAILWAYS.

No. 190,198. Patented May 1, 1877.

Fig. 2.

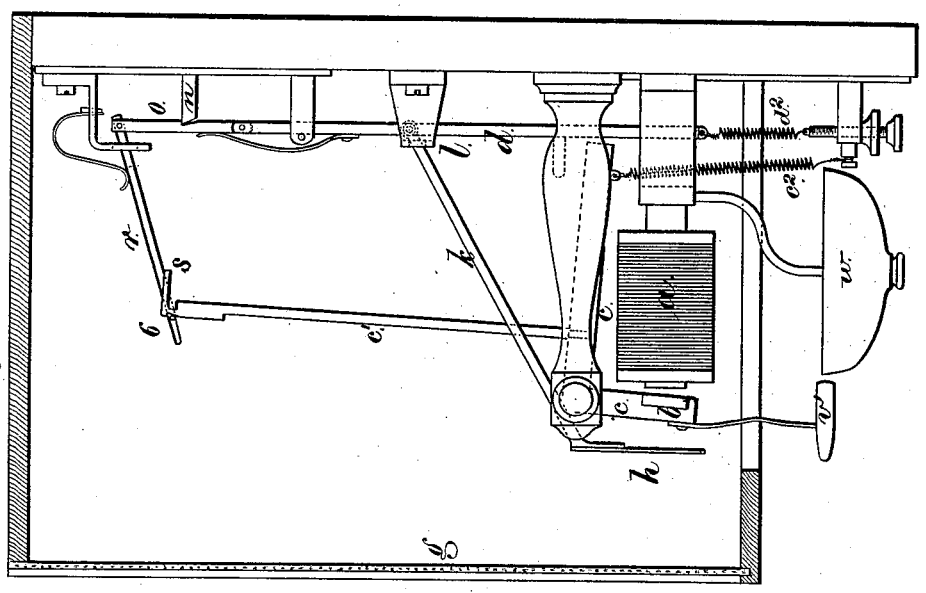
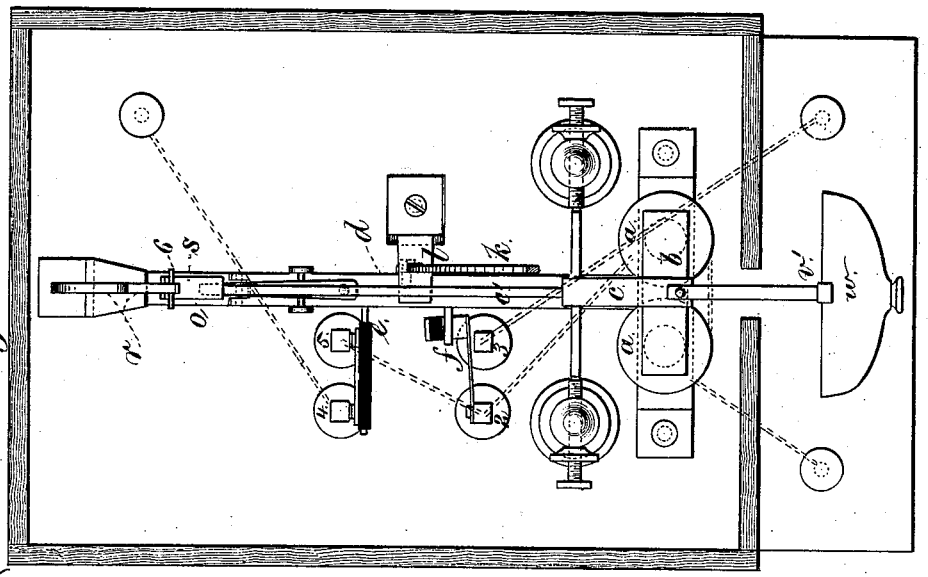


Fig. 1.



Witnesses

Chas. H. Smith

Harold Serrell.

Inventor

Jos. I. Conklin Jr.

per Lemuel W. Serrell atty.

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J. I. CONKLIN, Jr.

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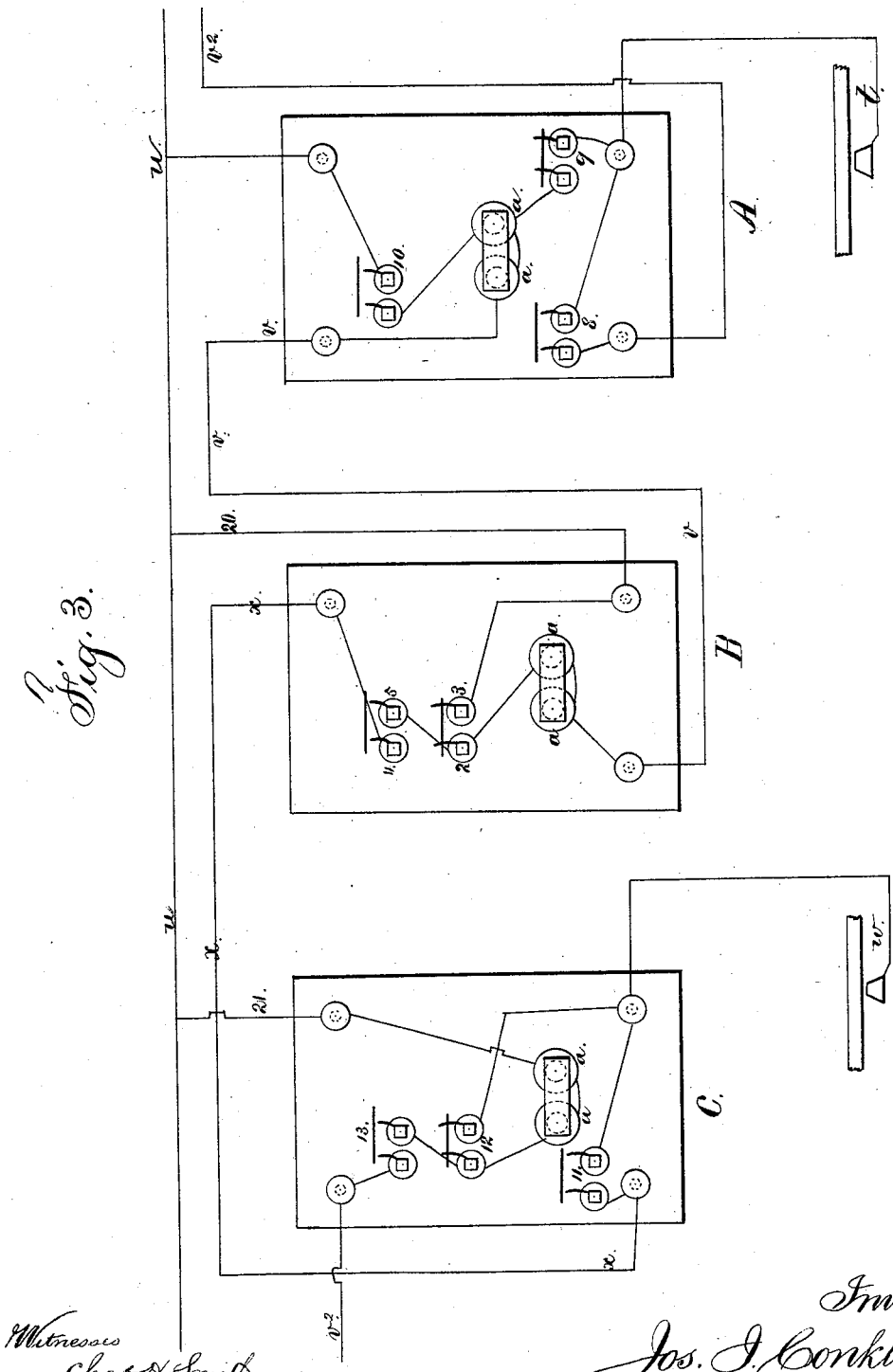

Witnesses
Chas. H. Smith
Harold Serrell.

Inventor
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UNITED STATES PATENT OFFICE.

JOSEPH I. CONKLIN, JR., OF NEW YORK, ASSIGNOR TO HIMSELF AND CHARLES A. DRESSER, OF BROOKLYN, N. Y.

IMPROVEMENT IN ELECTRIC STATION-INDICATORS FOR RAILWAYS.

Specification forming part of Letters Patent No. **190,198**, dated May 1, 1877; application filed June 2, 1876.

To all whom it may concern:

Be it known that I, JOSEPH I. CONKLIN, Jr., of the city and State of New York, have invented an Improvement in Electric Station-Indicators for Railways, of which the following is a specification:

This indicator is made for showing at the railway-station whether there is any train upon the track at the station, so that the station-master may know whether or not the track is clear. This is of importance, because in the multiplicity of other duties he may neglect to realize the approaching train, or to know whether or not it has passed beyond the next signal-station. This signal is intended to be placed at the railway-station in connection with a signal-box at each side of the station, say half a mile away. As the approaching train reaches the signal-box the indicator thereof changes and marks "danger;" the signal at the station also marks "danger," showing that the track is occupied by the approaching train. A bell is simultaneously rung at the station. These two signals remain as aforesaid until the train has left the station and reached the signal-box, say half a mile away, and as it passes this point the signal of that is moved to "danger," and the signal at the station and at the first signal-box are moved back to the normal position, indicating that the track is clear.

In the drawing, Figure 1 is an elevation, and Fig. 2 a side view, of the station-indicator, the box being in section; and Fig. 3, a diagram of the circuits to the station-indicator and the signal-boxes.

The electro-magnet *a* is provided with the armature *b* upon the bent lever *c*, and there is a sliding bar, *d*, that actuates the danger-signal and also opens and closes the circuits. The arm *e* closes the circuit between 4 and 5 as the armature is attracted, and simultaneously the arm *f* opens the circuit between 2 and 3. When the bar *d* is allowed to move in the other direction the circuit at 2 3 is closed, and at 4 5 opened.

In front of the station-indicator box is a glass plate, *g*, or other inclosure, with suitable lettering, such, for instance, as "This station is," and below there is an opening or transparent glass. If the swinging plate *h* is visible through said opening the indication is danger, or that the track is occupied; if this plate *h* is not visible, the station-indicator shows the track unoccupied or clear. This plate *h* should be painted red.

The plate *h* is upon an arm, *k*, and this is pivoted to the sliding bar *d*, and the plate *l* becomes a fulcrum, in which the arm *k* swings, so that when the armature *b* is attracted the bar *d* is moved endwise, the plate *h* swung down into sight, and the spring-latch *o* on *d* drops over the stud *n* and holds the parts.

At the end of the latch *o* is jointed the lever-arm *r*, and there is a cross-pin, 6, near the upper end. Upon the armature-lever *c* there is an arm, *c'*, with a forked end, *s*, and as the latch *o* drops over the stud *n* the arm *r* strikes against the horizontal portion of the fork *s*, and as the electro-magnet demagnetizes, the armature allows the arm c^1 to move back by the spring c^2, and the pin 6 drops into the position shown in Fig. 2, so that when the magnet is again changed the fork *s* draws the lever-arm *r*, unlatching the bar *d* and allowing it to move back to the normal position by the spring d^2 at the same time raising the danger-signal plate *h* so that it is no longer visible. The movement of the armature causes the hammer *v'* to strike the bell *w*.

In the diagram, Fig. 3, the station marked B illustrates the instrument aforesaid, as placed at the depôt. The signal-box at one side is indicated at A, and at the other side as at *c*, and the instruments in these signal-boxes are the same as at B, except that a bell is not needed, and the circuit-wires and circuit-closers are differently positioned on the diagrams for greater clearness, it being understood that the circuit-closers are operated by the movement of the bar *d*.

In the normal position of the instrument at A the circuit-closer 9 is closed and 8 and 10 open, and in the instrument at B, 2 3 is closed and 4 5 open, and instrument at *c*, 12 is closed and 11 and 13 open.

When the train operates the circuit-closer *t* the current passes from the line-wire *u* by 20 through 2 3, operating magnet *a*; thence by wire *v* to A through its magnet *a*, and by 9 to

t. Thus the danger-signals at station B and signal-box A are displayed, and the circuits at 4, 5, 8, and 10 are closed, and 9 and 2 3 opened.

When train passes station *c* the track-closer *w* is operated, and the current passes by 21 from line-wire *u* through magnet *a* at the box C, thence by 12 to earth, and in so doing the signal at *c* is changed to "danger," and circuits 13 and 11 closed and 12 broken. The current then passes instantly from line through 10 and magnet at A by *v*, magnets *a* at B, thence by 5 4 *x* 11 to *w*, and the current passing through the magnets at A and B changes the signals from "danger" to "track clear."

The instrument at A when it is first operated by the train at *t* closes the circuit at 8 and opens a connection to the instrument at the previous station, turning it from red or "danger" to white or "track clear," and, in like manner, when the train has proceeded to the station next beyond C, the signal there is turned red, and at the same time the current is thrown through the magnet *a*, via 21 and 13, C causing it to turn the signal and show white or "track clear" at C.

It will be understood that this signal is operated with only two wires, the wire *u* being the line-battery wire, and the wires *v x* v^2 the local-circuit wires from station to station.

I claim as my invention—

1. The signal *h* upon the lever-arm *k*, pivoted to the sliding bar *b* and passing through the fulcrum-plate *l*, in combination with the armature *h*, electro-magnet *a*, catch *o*, and armature-lever *c* c^1, substantially as set forth.

2. The signaling-instruments at A B C and circuit-connections, arranged as specified, in combination with the track-circuit closers at A and C, operated by the passing train, substantially as set forth, whereby the signals at A and B are operated simultaneously and remain visible until the train reaches C and closes a reversing-circuit, as set forth.

Signed by me this 26th day of May, A. D. 1876.

J. I. CONKLIN, JR.

Witnesses:
GEO. T. PINCKNEY,
CHAS. H. SMITH.