

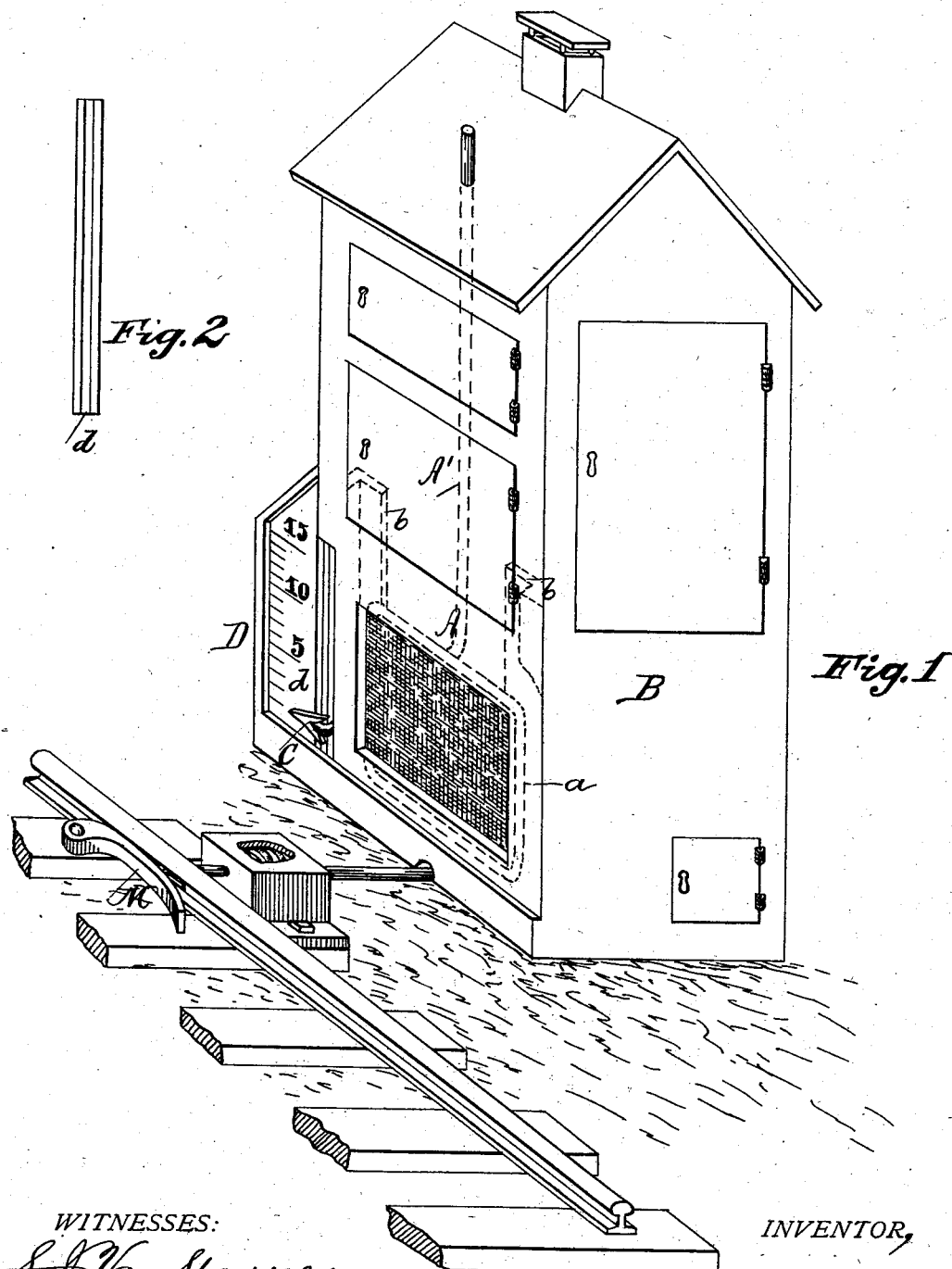
(No Model.)

2 Sheets—Sheet 1.

W. V. WILSON.
RAILROAD TIME SIGNAL.

No. 259,961.

Patented June 20, 1882.



WITNESSES:

S. J. Vanstavern
S. L. Jones

INVENTOR,

Wm. V. Wilson,
By Connolly Bros.,
ATTORNEYS.

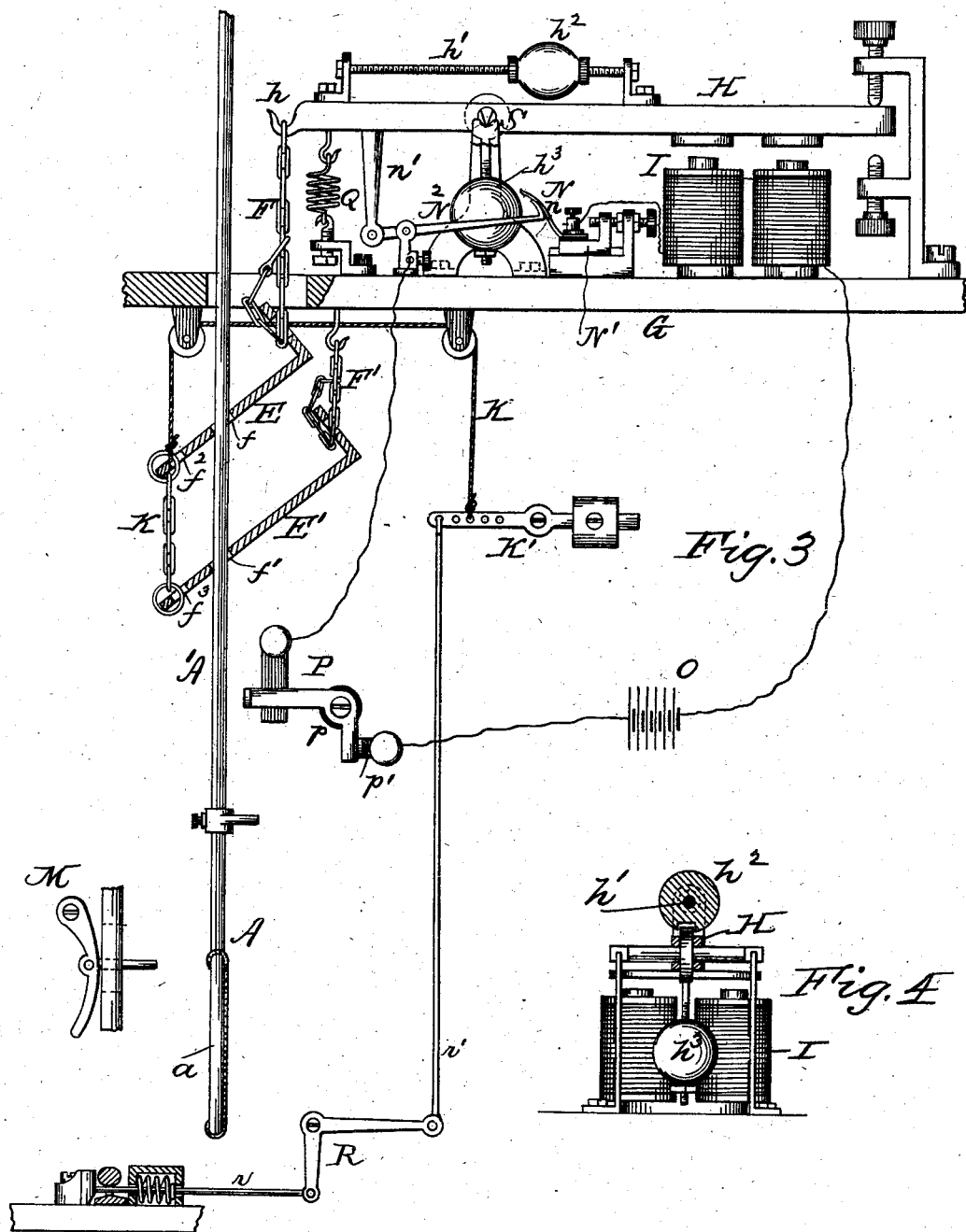
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UNITED STATES PATENT OFFICE.

WILLIAM V. WILSON, OF DAYTON, NEW JERSEY.

RAILROAD TIME-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 259,961, dated June 20, 1882.

Application filed February 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM V. WILSON, a citizen of the United States, residing at Dayton, in the county of Middlesex and State of New Jersey, have invented certain new and useful Improvements in Danger-Signals for Railroad-Trains; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a perspective of a signal-box provided with my improvements. Fig. 2 is a detail elevation. Fig. 3 is a sectional elevation of mechanism constituting my invention; and Fig. 4 is a detail elevation thereof, partly in section.

The object of my invention is to display on railways a danger-signal which will indicate the time that has elapsed since a train has passed the point where such signal is located.

My improvements consist broadly in the combination, with a vertically-moving slide, of electro-magnetic devices or appliances for communicating motion to said slide.

They also consist in the peculiar construction of devices whereby the feed movement or lifting of the slide is accomplished.

They consist, still further, in the employment, in connection with a vertically-moving slide carrying an index or pointer, of a glass case having a plate on which is a scale of figures, over which said pointer moves as the slide ascends, the movement of said pointer indicating time, like the minute-hand and dial of a clock.

My improvements consist, still further, in the peculiar construction of a balanced armature which operates the slide-feed, whereby a uniform and easy rate of progression is obtained.

My improvements still further consist in the peculiar construction of a contact-maker which controls the attraction of the armature specified, such contact-maker being so constructed that there will be an unusually large surface contact afforded, thereby insuring a prolonged contact and strengthening and lengthening the movement of the armature between the adjusting screws or stops.

Referring to the accompanying drawings, A indicates a slide constituting the signal, such

slide consisting of a square frame, *a*, covered with red or green cloth. Said frame is designed and adapted to move vertically in guides *b b* in the sides of a box, B, and has a rod, A', extending upwardly, as shown, through the medium of which the slide is moved upwardly, as hereinafter set forth.

Projecting laterally from one side of the slide A is a finger, C, which moves over a glass face, *d*, in a box, D, which forms a side extension of the box B. Said face *d* is laid off in a scale, and is numbered, as shown, from 1 up to, say, 15, over which scale the pointer is designed to move, for the purpose hereinafter explained. The plate *d* is designed to be made of ground glass, and should be protected on either side by plain glass plates or panes, as shown in Fig. 2, and which will allow the light to pass through the box, this arrangement enabling an engineer to obtain a better view than if the pointer indicated on a dark or opaque ground.

E and E' represent two L-shaped plates suspended by their short arms on chains F F'. The chain F' is attached to a ceiling or fixture, G, while the chain F is hung on the hooked end *h* of the armature H of an electric magnet, I. The plates E E' have openings *f f'* for the passage of the slide-rod A'. Normally the plates will hang at such an angle that they will both bite or clamp said rod, and thus keep the latter stationary without allowing it to slip through. When, however, the upper plate is jerked upwardly and let down as the magnet I attracts and releases the armature H, the rod will be gradually drawn upward, or a progressive upward feed movement will be communicated to it, the said rod being held by the plate E' until the plate E is let down and takes a fresh grip on it. The gripping-plate E is attached to the tripping-chain by a ring on said chain, which passes through a slot in the end of the plate. This allows of a slight endwise movement of the plate, so as to prevent it from binding on the rod when it is descending.

K represents another chain or cord connected to the outer ends of the plates E E', passing through openings *f² f³* therein. By drawing upon this chain the normal angle at which the plates E E' hang is changed, said plates be-

ing brought into a horizontal plane, whereby their grasp on the slide-rod is relaxed and the slide allowed to drop. Such draft is produced when the flanges of wheels of a passing train strike a pivoted rail, M, lying close to the main track, or other device for tripping momentarily a lever, K', to which one end of the chain K is attached. The movement of the pivoted rail is communicated to the lever by means of a bell-crank connected by a rod to the movable rail and by a rod to the lever.

The armature H has on its upper side a screw-rod, h' , on which is a traveling nut, h^2 . On its under side is a pendulum, h^3 . By these means the armature may be balanced so as to secure an easy and uniform movement, the adjustment of the nut h^2 being made as the strength of the actuating-battery diminishes or increases.

N represents a circuit-breaker, consisting of a slide, N', carrying a bent spring, n , and a lever, N², connected by a link, n' , with the armature H. The end of the lever, when circuit is made, comes in contact by a sliding motion with the face of the spring n , thus securing a prolonged contact and insuring a full movement of the armature between its limiting-stops and its close attraction to the magnet-poles. Circuit is made from a battery, O, or equivalent generator to the magnet I by way of the circuit-maker N. In such circuit there is another circuit-breaker, P, consisting of an elbow-lever, p , and binding-post, p' . Normally the lever hangs in contact with the post and keeps circuit at P closed. This device is located in the path of the slide A, and when the latter ascends it moves lever p away from the post, and thus breaks the circuit, which remains open until the slide is dropped by draft on the chain K, as already described.

The operation is as follows: Normally the slide is up and circuit open, an "all-clear" signal being displayed. As a train passes draft is exerted by the means specified, the clamp or feed plates E E' releasing their grasp on the slide-rod A'. The slide drops and circuit closes at P. This throws battery onto line, and through the circuit-breaker and retracting-spring Q produces a vibrating movement of the armature. This communicates a series of jerks or impulses to the plate E, causing the rod A' to be fed upwardly and the slide A to be raised until contact is broken at P.

The operation of the circuit-breaker is as follows: When the circuit is first completed through the switch P by the dropping of the rod A' the magnet I draws down the armature H. This elevates the forward end of the said armature H, which is pivoted, as shown at S, and draws up the short arm of the pivoted lever N². The longer arm of said lever is thereby depressed and its contact with the spring n is broken. The electric circuit being interrupted, the magnet I loses its energy and the armature H is raised to its normal position by the tension of the spring Q. By the return of

the armature the circuit is again completed through n and the operation repeated.

The dimensions and adjustments of the parts may be so regulated that the time for effecting the entire upward movement of the slide will be that allowed between trains. As the slide ascends it carries with it the pointer which moves over the scale, the numbers of which correspond to minutes. Thus, if the pointer be at 5, it indicates that a train passed five minutes previously; if at 10, that the preceding train passed ten minutes before, and so on.

What I claim as my invention is—

1. The combination, with a vertically-moving signal-slide, of an electro-magnet for operating such slide, and intermediate mechanism, substantially as described, between such magnet and slide, whereby the movement of the slide operates to complete the electric circuit to energize the magnet, as set forth.

2. The combination, with a vertically-moving signal-slide, A, having an extension or rod, A', of the suspended L-shaped plates E E', and operating mechanism, substantially as described, for holding and feeding the same.

3. The combination, with slide-rod A', gripping-plates E E', and armature H, attached to one of said plates, of a tripping device connected to both of said plates, such tripping device being adapted to be operated by a moving train, substantially as described.

4. The combination, with the rod A', passing through the suspended L-shaped feed-plates E E', of draft-chain K and a tripping device, substantially as set forth, for bringing said plates into a horizontal position, as specified.

5. The combination, with rod A' and suspended gripping-plates E E', of armature H, magnet I, and circuit-breaker N, whereby motion is communicated to the armature and the suspended gripping-plates, substantially as described.

6. The combination of a vertically-moving signal, an electro-magnet and armature, and suitable intermediate mechanism, substantially as described, for communicating motion from the armature to the signal, with a pendulum and compensating balance attached to the said armature, whereby the rate of movement of the signal may be regulated, substantially as described.

7. The combination of electro-magnet I, armature H, gripping-plates E E', attached to said armature, and rod A', passing through said plates, with a circuit-breaker operated by the said armature, substantially as described, whereby an intermittent movement is communicated by the magnet to the armature, and through one of said gripping-plates to the rod, as set forth.

8. The combination of a vertically-moving signal-slide carrying a pointer, an exposed scale over which said pointer moves, a rod connected to and extending upwardly from said slide, a feed-movement for drawing said

slide upwardly, an electro-magnet and generator, an armature with an automatic make and break, a contact maker or circuit between the battery or generator and magnet, and a tripping device connected to the feed-movement, whereby a passing train will cause the signal to be dropped, closing circuit on the magnet, thereby causing the armature to be vibrated, the feed-movement to be actuated, the slide to

be raised, and the time since the train passed to be indicated, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 23d day of February, 1882.

WILLIAM VIRGIL WILSON.

Witnesses:

F. L. BUCKELEW,
JOHN D. COURTER.