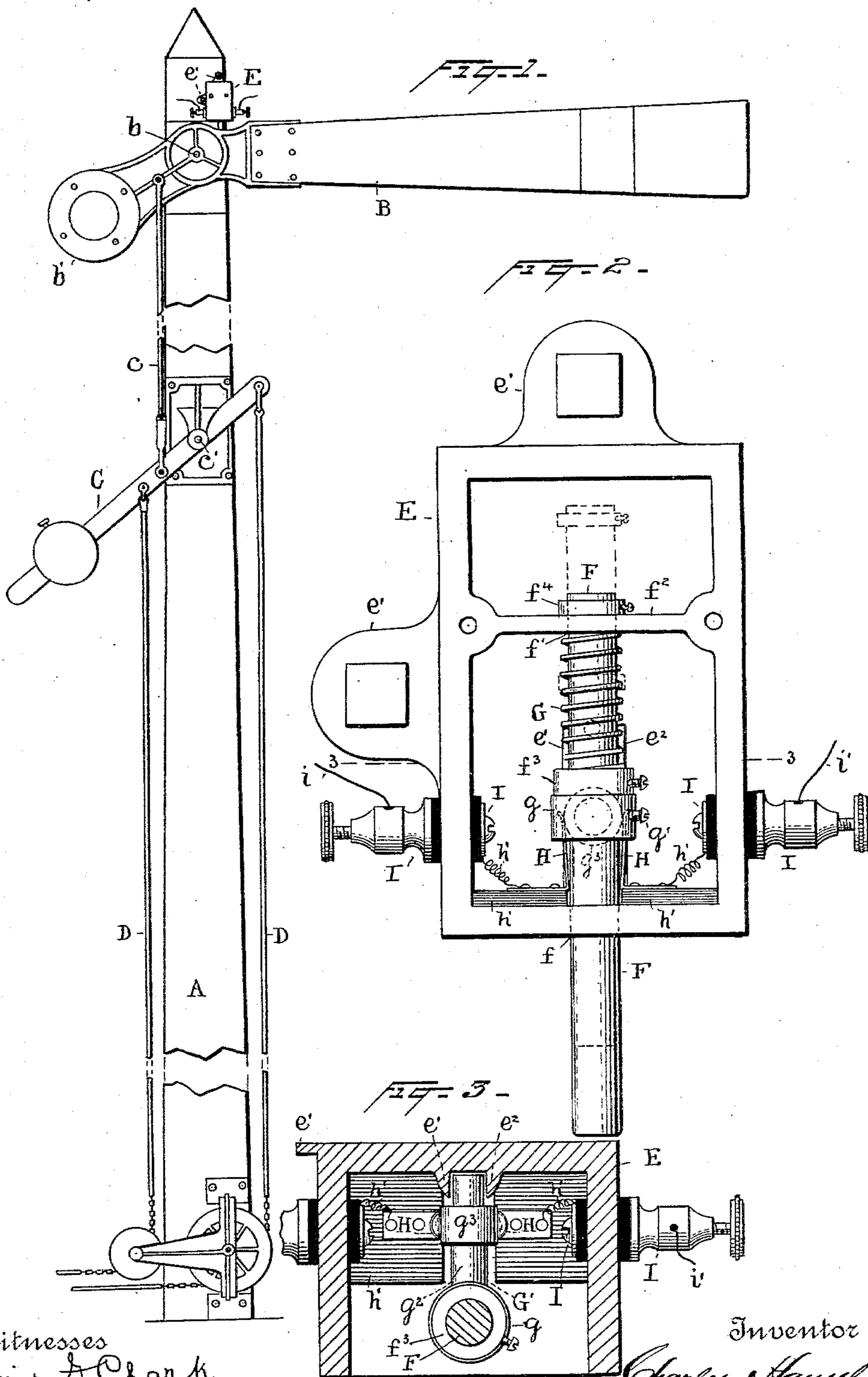


(No Model.)

C. HANSEL.  
RAILWAY SIGNAL.

No. 563,924.

Patented July 14, 1896.



Witnesses  
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# UNITED STATES PATENT OFFICE.

CHARLES HANSEL, OF EASTON, PENNSYLVANIA.

## RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 563,924, dated July 14, 1896.

Application filed December 4, 1895. Serial No. 571,038. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES HANSEL, a citizen of the United States, residing at Easton, in the county of Northampton, State of Pennsylvania, have invented a certain new and useful Improvement in Railway-Signals, of which the following is a specification.

My invention relates to an improvement in signals adapted for use in connection with railways; and it consists particularly in the provision of means, located at the signal and electrically connected with a distant signal tower or station, for indicating at the latter place the position of the signal-blade. Thus, as is frequently the case, the signal may be so located as not to be visible at the signal-tower, and unless means are provided for indicating at that point the position of the blade, the attendant is uninformed as to whether the signal has responded to the actuating device in the tower.

It is the design of the present invention to coact with the blade of the signal so as to indicate in any suitable manner, as, for instance, by the use of a miniature signal, an annunciator, &c., the position into which the blade of the signal has been moved by the actuating medium. To this end the switch-pole and signal-blade commonly in use are employed, and combined with the blade and pole is a circuit-breaking device which breaks and closes an electrical circuit communicating with the switch-tower to indicate one or another position of the signal-blade.

In the drawings, Figure 1 is a side elevation of the standard signal-pole and signal arm or blade, combined with the circuit-controlling device of the present invention. Fig. 2 is an enlarged detail view of the circuit-controlling device; and Fig. 3 is a section on the line 3 3, Fig. 2.

Referring to the drawings, in which similar letters of reference denote corresponding parts, A indicates the switch-pole. This is commonly planted firmly in the ground by the side of a railway-track. It is provided near the top with a signal-blade B, pivoted to the pole at *b* and provided with a counterpoise *b'*.

C designates a weighted lever, pivoted at *c'* and connected with the signal-blade B.

D D indicate connections running com-

monly to a signal-tower, by means of which the lever C is actuated, the movement of the lever being communicated to the signal-blade 55 by means of the connection *c* between them.

The circuit-closing device of the present invention is secured upon the pole in juxtaposition to the blade B. Referring particularly to this device, E designates a box or case 60 provided, in this embodiment of the invention, with outwardly-extending perforate ears *e'*, by means of which the box or case is secured to the pole.

F designates a circuit-controlling plunger, 65 having vertical movement through a perforation *f* in the case E, and through a similar perforation *f'* in the partition *f*<sup>2</sup>, which is preferably formed integral with the case E. The plunger is provided with stops *f*<sup>3</sup> *f*<sup>4</sup> to 70 determine the vertical movement thereof. These stops are preferably adjustable, the stop *f*<sup>4</sup> being located adjacent to the upper end of the plunger and above the partition *f*<sup>2</sup>, and the stop *f*<sup>3</sup> being adjustably secured 75 upon the plunger at a point considerably below said partition.

G designates a coil-spring encircling a portion of the plunger and extending from the stop *f*<sup>3</sup> on the plunger to the under side of 80 the partition *f*<sup>2</sup>. This spring exerts downward pressure upon the plunger, and holds it normally in the position shown in Fig. 2.

G' designates a contact member projecting at right angles to the plunger F, and shown 85 in this instance as connected thereto by means of a collar *g*, the latter being adjustable vertically upon the plunger F by means of a screw *g'*.

The contact member G' comprises a short 90 outwardly-projecting arm *g*<sup>2</sup>, having near its end a contact-sleeve *g*<sup>3</sup>, insulated from said arm. The end of the arm is received between two projections *e'* *e*<sup>2</sup>, preferably integral with the box or case E, said projections 95 forming a track for the end of said arm to prevent the plunger from turning.

H H designate contact-springs, each secured upon a plate or other body of insulating material *h*, and each electrically connected by 100 means of a conductor *h'* with a binding-screw I, secured to the exterior of the case E. The contact-springs H H are here shown as consisting of two resilient strips, bent in the form

of a right angle and the free end inclined outwardly. The ends of these contact-springs are placed at such a distance apart as to permit of the reception of the sleeve  $g^2$  between them to complete the circuit from one spring to the other.

It being contemplated that the operation of the circuit-closer described shall operate a drop, miniature signal, or analogous device located at the signal-tower, it will be understood that the binding-posts I may be connected with such device in a signal-tower by means of conductors  $i i$ , or, if desired, one conductor may be run from one binding-post to the tower, the conductor running from the other binding-post to the ground.

The operation of the device is as follows: It is commonly the practice to keep the signal-blade in the position in which it is shown in Fig. 1, thus indicating "danger." As the blade is raised to this position it bears upwardly upon the plunger F, elevating the same so as to raise the contact-sleeve  $g^2$  above the contact-spring H H and thereby break the circuit. This may, in case an annunciator is employed at the tower, operate a drop in such annunciator, or, in case a miniature signal-blade is employed, may operate to alter the position of such miniature signal-blade, the position of the signal-blade B and that of the miniature signal-blade being synchronized. When the signal-blade B is lowered to a position indicating "safety," the plunger is forced downwardly by means of the spring G, so that the contact-sleeve  $g^2$ , by making contact between the springs H H, shall complete the circuit. This may operate in the signal-tower to reset the drop of the annunciator or to again change the position of the miniature signal-blade to indicate "safety."

I claim—

1. A circuit-controlling device for railway-

signals, comprising a spring-pressed plunger actuated by a signal-blade, an adjustable collar on said plunger for determining the movement of the same in its supports, and a circuit making and breaking device adjustably mounted upon said plunger and coacting with contacts located in the electrical circuit, substantially as described.

2. A circuit-controlling device for railway-signals, comprising a spring-pressed plunger actuated by the signal-blade, an adjustable collar for determining the movement of said plunger in its supports, a contact member carried by said plunger, and contacts located in an electrical circuit and making and breaking contact with said contact member, substantially as described.

3. A circuit-controlling device for railway-signals, comprising a spring-pressed vertically-operating plunger operated by the signal-blade, a horizontally-arranged contact member carried by said plunger, a sleeve on said contact member but insulated from the same, and contacts located in an electrical circuit and making and breaking contact with said sleeve, substantially as described.

4. A circuit-breaking device for railway-signals, comprising a casing, a vertically-arranged spring-pressed plunger mounted in said casing and actuated by the signal-blade, a horizontally-arranged contact member carried by said plunger, guides formed in the end wall of said casing for receiving the free end of said contact member, a contact located in the electrical circuit and making and breaking contact with said contact member, substantially as described.

This specification signed and witnessed this 30th day of November, 1895.

CHARLES HANSEL.

Witnesses:

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