F. CULHAM.

Signal Operating Device.

No. 164,719. Patented June 22, 1875.

Fig 1

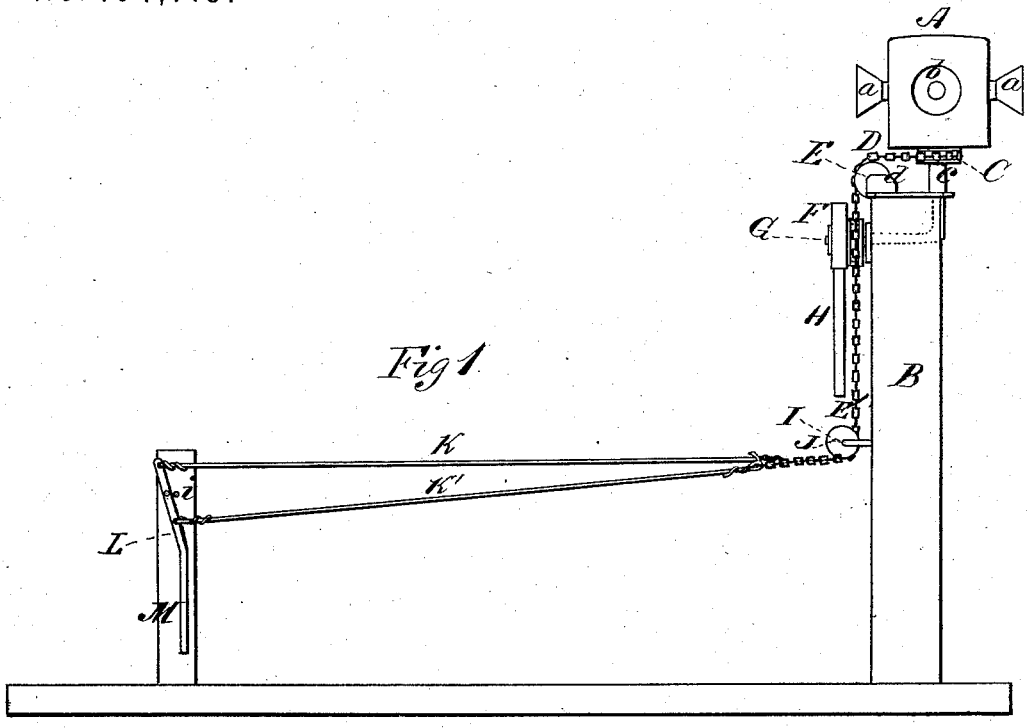


Fig 2

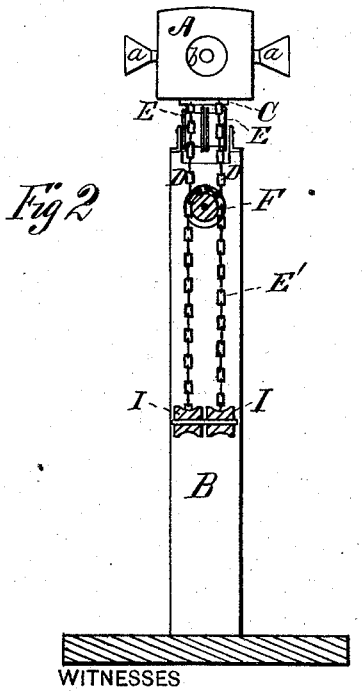
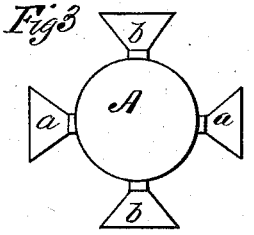


Fig 3



WITNESSES

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UNITED STATES PATENT OFFICE.

FRANCIS CULHAM, OF THEDFORD, CANADA, ASSIGNOR OF ONE-HALF HIS RIGHT TO RICHARD A. ROUNDS, OF GRAND RAPIDS, MICHIGAN.

IMPROVEMENT IN SIGNAL-OPERATING DEVICES.

Specification forming part of Letters Patent No. **164,719**, dated June 22, 1875; application filed March 13, 1875.

To all whom it may concern:

Be it known that I, FRANCIS CULHAM, of village of Thedford, in the county of Lambton and Province of Ontario, Canada, have invented a new and valuable Improvement in a Railroad-Signal; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a side view of my signal; and Fig. 2 is a front view, part sectional, of the same. Fig. 3 is a detail view.

This invention has relation to improvements in railroad-signals. The object of the invention is to devise a means whereby the engine-driver of a train may be informed that a switch is in proper position for allowing his train to pass, or that further progress would be dangerous, a sufficient time before he reaches the spot where a misplaced switch might be apprehended to permit the train to be stopped, and thus avoid danger. To this end the nature of the invention consists in the novel construction and arrangement of the parts, as will be hereafter more fully set forth.

In the annexed drawings, A designates a preferably cylindrical close lantern, having a number of funnel-shaped outlets, *a b*, those *a* being of different and of strongly contrasting colors from those *b*. This lantern has a stem on the vertical shaft *c*, which is a continuation of the horizontal shaft C, having its bearings in the upper end of an elevated post, B, upon which it has free horizontal vibration, the said shank having a grooved pulley-wheel, C, horizontally keyed thereon, as shown in Fig. 1. D indicates a chain or rope passing around the said pulley-wheel; thence over vertically rotating and arranged pulley-wheels E, having their bearings in standards *d*, erected upon the upper end of post B. Chain D is rigidly secured as to its two ends in any suitable manner to a second chain, E′, which passes over a grooved pulley-wheel, F, vertically arranged and keyed upon a horizontal shaft, G, forming a part of the vertical shaft *c*, having its bearings in the post B. Shaft G has upon its outer end a weighted lever, H, which is rigidly keyed thereon, so that by its natural gravitation to a vertical position it shall hold the lantern in position for signaling "safe" either up or down track. Chain E′ extends downward a certain distance, and each of its ends passes over pulley-wheels I, arranged side by side upon a horizontal staple, J, rigidly driven into post B, as shown in Fig. 1. It is then rigidly secured as to each of its ends to two metallic rods, K K′, which extend horizontally a certain distance, when they are rigidly secured, the one above and the other below the fulcrum *i* of a vertically-vibrating lever, L, pivoted to an upright post, M. Lever H will hold the lantern in proper position, as above described, for signaling "safe" both up and down track, and lever L, when operated by a switchman, will actuate the said lantern through the medium of rods K K′, pulley-wheel I, chains E′ and D, and turn it with the lights indicating "danger" up or down track, so that long before the switchman's stand is reached the engineer will have notice of danger ahead, and by blowing "down brakes" will be enabled to stop the train. The inner surfaces ot funnels *a b* are differently colored, funnels *a* being of one color, those *b* of another, so that during the day they take the place of the ordinary flag, and signal "safe" or "danger," as the case may be. These funnels may be of any size, and they are in practice provided with glass covers of the desired colors, preferably green and red, passing through which the lights will be of corresponding shades, and will produce a signal visible at a distance proportionate to the height of the lantern from the ground.

What I claim as new, and desire to secure by Letters Patent, is—

The shaft G *c*, having keyed thereon the lantern *a*, grooved wheel C, grooved pulley F, and weighted lever H, in combination with the chains D, E, and E′, the rods K and K′, and actuating-lever L.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

FRANCIS CULHAM.

Witnesses:

JAMES DOBIE,

T. KIRKPATRICK.