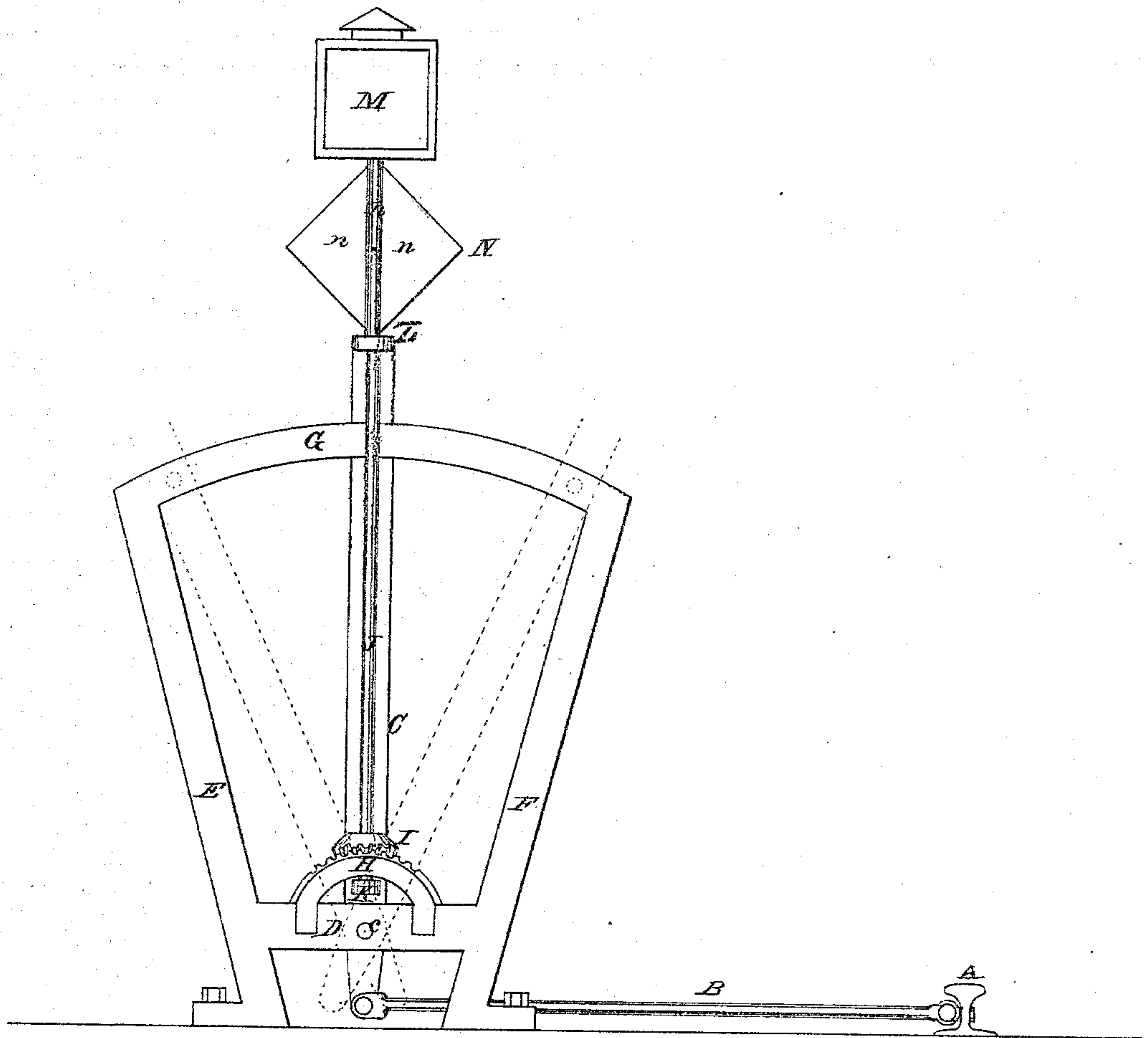


A. W. CRAM.

Improvement in Railway-Switch Signals.

No. 115,936.

Patented June 13, 1871.



Attest
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UNITED STATES PATENT OFFICE.

ALONZO W. CRAM, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN RAILWAY-SWITCH SIGNALS.

Specification forming part of Letters Patent No. 115,936, dated June 13, 1871.

I, ALONZO W. CRAM, of St. Louis, in the county of St. Louis and State of Missouri, have invented a certain Improvement in Railway-Switch Signals, of which the following is a specification:

Nature and Object of the Invention.

My invention consists in attaching the switch signal-lantern or other signals to the top of a spindle, which is turned automatically in journal-bearings attached to the switch-lever as the said lever is swung over to operate the switch. The object is to both change the position of and partly rotate the light or other signal without any rotation of the lever.

The drawing shows an elevation of my improvement.

General Description.

A is the free end of a switch-rail. B is a rod connecting the said rail to the lower end of the switch-lever C, which is fulcrumed at c to the cross-bar D of the frame, which consists of two standards, E F, and curved guide-bars G. H is a toothed rack attached to the cross-bar D and engaging a bevel-pinion, I, upon the spindle J, whose lower end turns in a step, K, attached to the lever C, and whose upper end turns in a socket, L, at the upper end of the said lever. Attached to the upper end of the spindle J are the lantern M and colored signal N, which, as the lever is swung to the right or left, partake of the oscillatory movement of the said lever, and also of the rotary motion of the spindle J, which latter is caused by the action of the fixed rack H upon the pinion I. The lantern has variously-colored glass upon the different sides, so that the position of the switch will be indicated both by the color shown and the position of the signal. The signal N has four leaves, *n*, at right angles to each other, and so colored that a different color will be shown, according to the position of the switch. The lantern may be dispensed with where the running of trains takes place only in daylight, and the signal N alone used.

I am aware that rotary or partly-rotating signals have been before used, and that the signal has been fixed to the top of the lever, and also that the lever, with the signal attached thereto, has been made both to oscillate and rotate so as to change the position

as well as to partially rotate the signal; but neither of these provisions accomplishes the objects attained by my switch, viz.: First, a switch-lever confined to a simple oscillatory movement in a plane parallel with its guide-bars, so as to permit the firm grasp of the hand, and to admit of easy and secure locking of the guide-bars in any position. Second, both changing the location of the signal and the side presented to the view of the engineer, according to the position of the switch.

In cases where the signal is merely made to turn the engineer must depend on his memory, to determine the position of the switch, by associating a certain shape or color with a certain position.

When the signal is merely made to change its location it indicates plainly the position of the switch in daylight and when the observer is near at hand, so that the relative positions of the parts of the apparatus can be seen; but a mere change of position without change of color is inadequate at a distance or in darkness.

The combined oscillatory and rotary motions of the signal have heretofore been attained by securing the signal to the lever and causing the latter to turn while being thrown over to the right or left. This turning of the lever is objectionable as allowing no firm grasp to the hand of the operator, and changing the sides presented to the guide-bars so as to prevent the application of a simple lock to engage the lever with the guide-bars in any position.

The positions of the switch-lever, when thrown over to the right or left, are shown by dotted outlines.

Claim.

I claim as my invention—

The spindle J, provided at its upper end with the signal N and colored lantern M, and having on its lower end the pinion I, said spindle J being attached to the switch-lever C, as shown, in combination with the lever C, rack H, and guide-bars G, all constructed, arranged, and operated as set forth.

In testimony of which invention I hereunto set my hand.

Witnesses: ALONZO W. CRAM.
SAML. KNIGHT,
T. D. WILLIAMS.