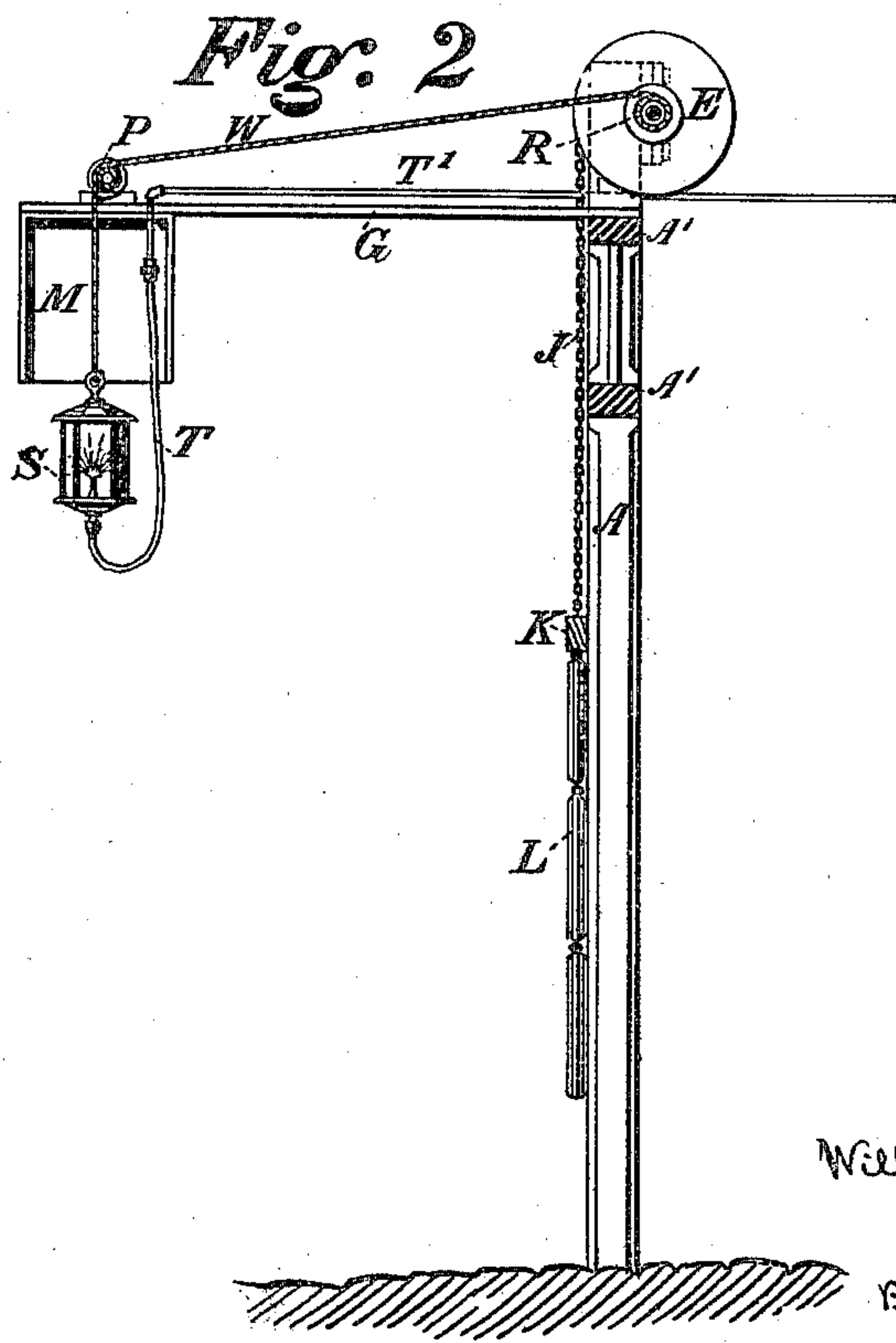
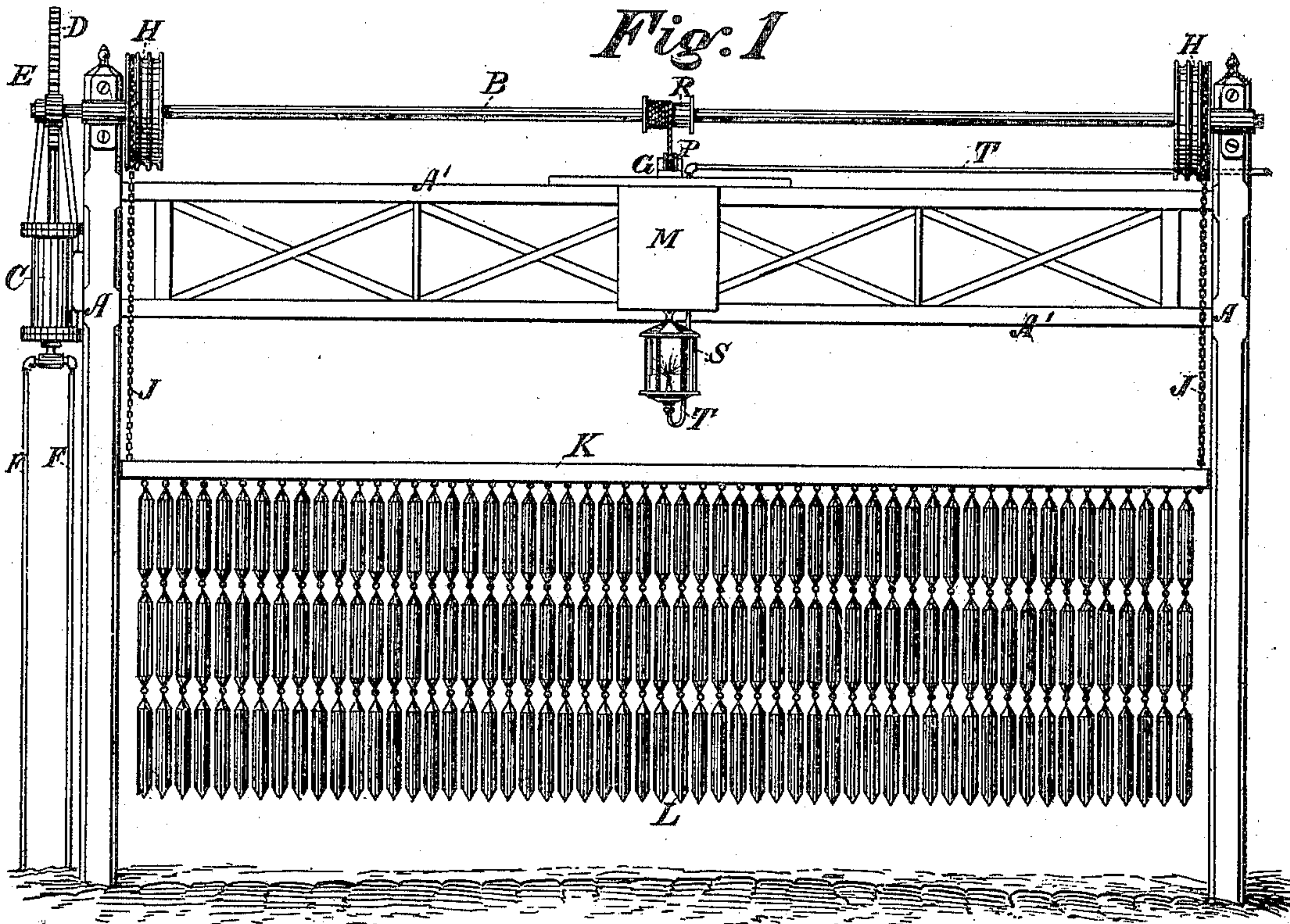


W. E. PRALL.

COMBINED SIGNAL-LAMP AND GATE.

No. 172,494.

Patented Jan. 18, 1876.



WITNESSES:

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IMPROVEMENT IN COMBINED SIGNAL-LAMPS AND GATES.

Specification forming part of Letters Patent No. **172,494**, dated January 18, 1876; application filed December 8, 1875.

CASE K.

To all whom it may concern:

Be it known that I, WILLIAM E. PRALL, of Washington city, in the District of Columbia, have invented a new and useful Improvement in Railway Signal-Lamp and Gate, which is fully described in the following specification, reference being had to the accompanying drawings.

The nature of my invention consists in so combining a movable lamp, or a lamp concealed by a movable screen, with the revolving shaft or drum and pneumatic piston carrying and actuating a gate or danger-guard at the street or road crossing of a railway as that, when air is admitted to the piston by an approaching train to close the gate, the lamp shall become visible both along the line of the railway and also of the cross-road, but shall otherwise, when the gate is open and the road clear and free from danger, be and remain concealed from view.

In the accompanying drawing, Figure 1 is an elevation of my improved signal when supported upon the frame-work of my patented gate for railway-crossings; Fig. 2, a central vertical section, illustrating one mode of combining the signal-lantern with its shaft or drum.

A A is the frame-work of a gate protecting the street or road crossing of a railway, and which serves also as the supporting-frame for my improved illuminated signal; B, a shaft, supported in suitable bearings upon the upper part of the frame A A; C, a cylinder, containing a piston, operating a rack, D, which engages a pinion, E, fixed upon the shaft B, so that the reciprocating movements of the piston will cause the necessary revolution and counter-revolution of the shaft B; F F, pipes for conveying compressed air to the piston, to actuate it as required; G, an arm, projecting at right angles from a point at or near the middle of the upper cross-beam A' of the frame-work far enough to be seen clearly in both directions along the line of the railway and of the cross-road. M is a box or casing, open at top and bottom, and secured to the outer end of the arm G; P, a friction wheel or pulley, secured centrally to a cross-bar at

top of the box M; and R, a drum, secured centrally upon the shaft B; S, a suitable lantern, suspended by a cord, W, passing over the pulley P, and extending to the drum R; T, a flexible tube for conveying illuminating-gas to the lantern from a fixed pipe, T', which extends from a suitable main up the frame-work and along the arm. One end of the cord W is wound a few turns about the drum R, and the lantern S is then secured to the other end of the cord within the casing M, so as to be wholly concealed by the latter, the length of the cord and the diameter of the drum being so proportioned, respectively, as that when the shaft F and drum R revolve under the influence of the charge of air admitted to the cylinder C by an approaching train, the revolution will operate to unwind the cord from the drum, and thus allow the lantern to drop from the casing sufficiently to become clearly visible in all directions. H H are large pulleys secured to the shaft B; J J, cords, which wind thereon; K, a cross-bar, suspended by said cords, and from which a flexible gate, L, depends. The cords J J are so wound upon the pulleys H H as that when a charge of air is admitted by an approaching train to the piston-cylinder C, and produces a revolution of the shaft B, the gate will be lowered in like manner as the lantern M is lowered, and simultaneously therewith, while a counter-revolution of the shaft will elevate them both.

I contemplate causing the supporting-arm to project at an angle of about forty-five degrees toward the central point of intersection of the roads from the one post or the other of the frame-work, or from a post planted at one side of the roads, instead of from the middle of a cross-beam, A', as illustrated, the drum R in such case being placed at or near the post, and additional friction-pulleys used to direct the course of the cord W, extending thence to the lantern.

The operation of my said apparatus is as follows: When the railway is clear, and there are no trains approaching to make the crossing dangerous, the lantern S is drawn up, so as to be concealed within the shade-box M. So soon, however, as an approaching train admits a

charge of compressed air from a suitable reservoir or main into the cylinder C through one of the pipes F, in manner as described in certain applications for Letters Patent which I have heretofore filed in the United States Patent Office, or otherwise, the movement of the piston within said cylinder under the influence of the pressure of the air will cause a movement of the rack D, and a consequent revolution of the shaft B and drum R, which will operate to unwind and slacken the cord W, and allow the lantern to drop from its box, and be thus fully displayed to indicate danger. A reverse movement of the piston, which may be produced either by the action of a weight, or by direct pressure of a second charge of air admitted from the opposite direction after the air which first moved it has been exhausted, will, by causing the cord to wind up upon the drum, withdraw and conceal the lantern within its shade-box. The movements which thus operate to exhibit and conceal the lantern S serve also to close and open the gate L by means of the cords and pulleys J J H H.

I contemplate arranging the lantern so that it shall move longitudinally to and from the case which conceals it, the lantern in such case being automatically returned to its case, when

the cord W slackens, by means of a weight or spring; or the weight or spring may be applied to produce an exhibition of the light when the cord slackens, the winding up of the cord operating in such case (as it does when the lantern drops by its own weight and is uncovered, as illustrated in the drawings) to cause a concealment of the light; or the lantern may be made stationary, and the casing, or any form of shade or colored glass, be made to move so as to cover and uncover it by means of the cord W and shaft B, operated, as described, by means of a pneumatic piston, C.

It is evident that the cord may be made to wind and unwind directly upon the shaft B, if made of proper diameter, as upon a drum, R, secured thereto.

I claim as my invention—

A light, S, and screen M, combined with the shaft B and pneumatic piston C of a railway gate or guard, L, to be operated in unison with the gate, substantially as and for the purpose herein set forth.

W. E. PRALL.

In the presence of—

A. H. NORRIS,
DAVID A. BURR.