W. M. RUSSELL & O. S. PEASE.

RAILWAY CAR SIGNAL.

No. 104,651. Patented June 21, 1870

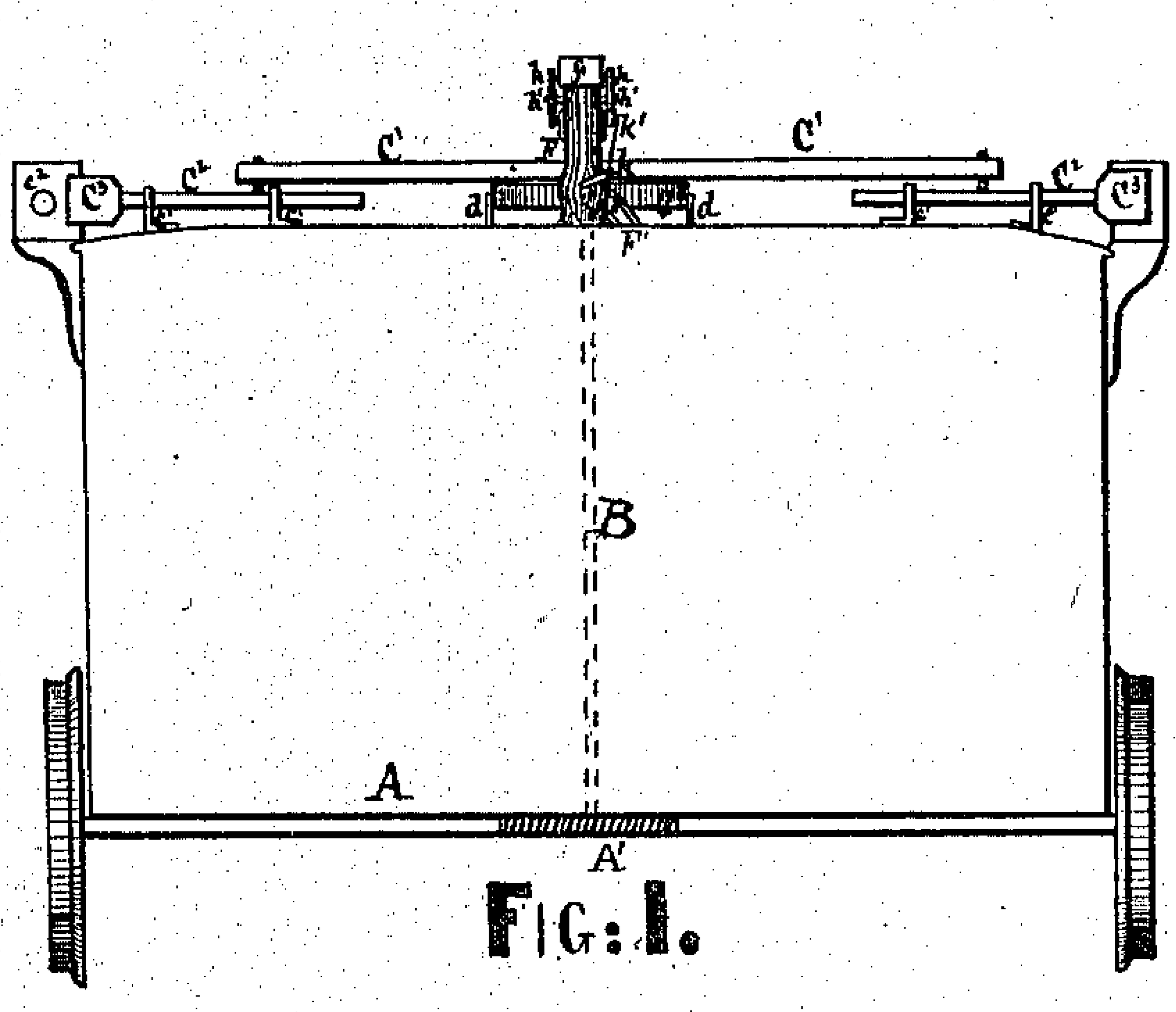

FIG: 1.

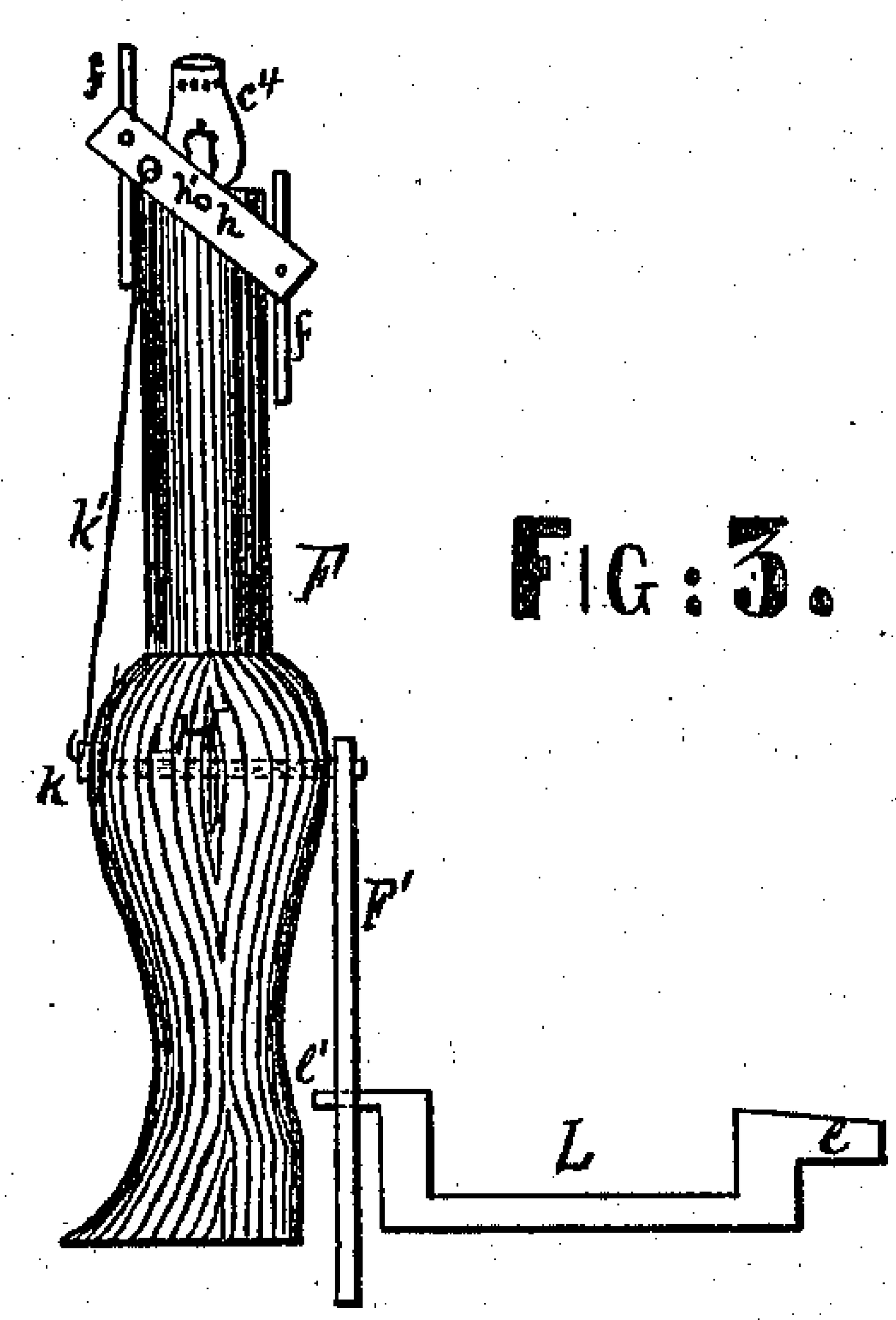

FIG: 3.

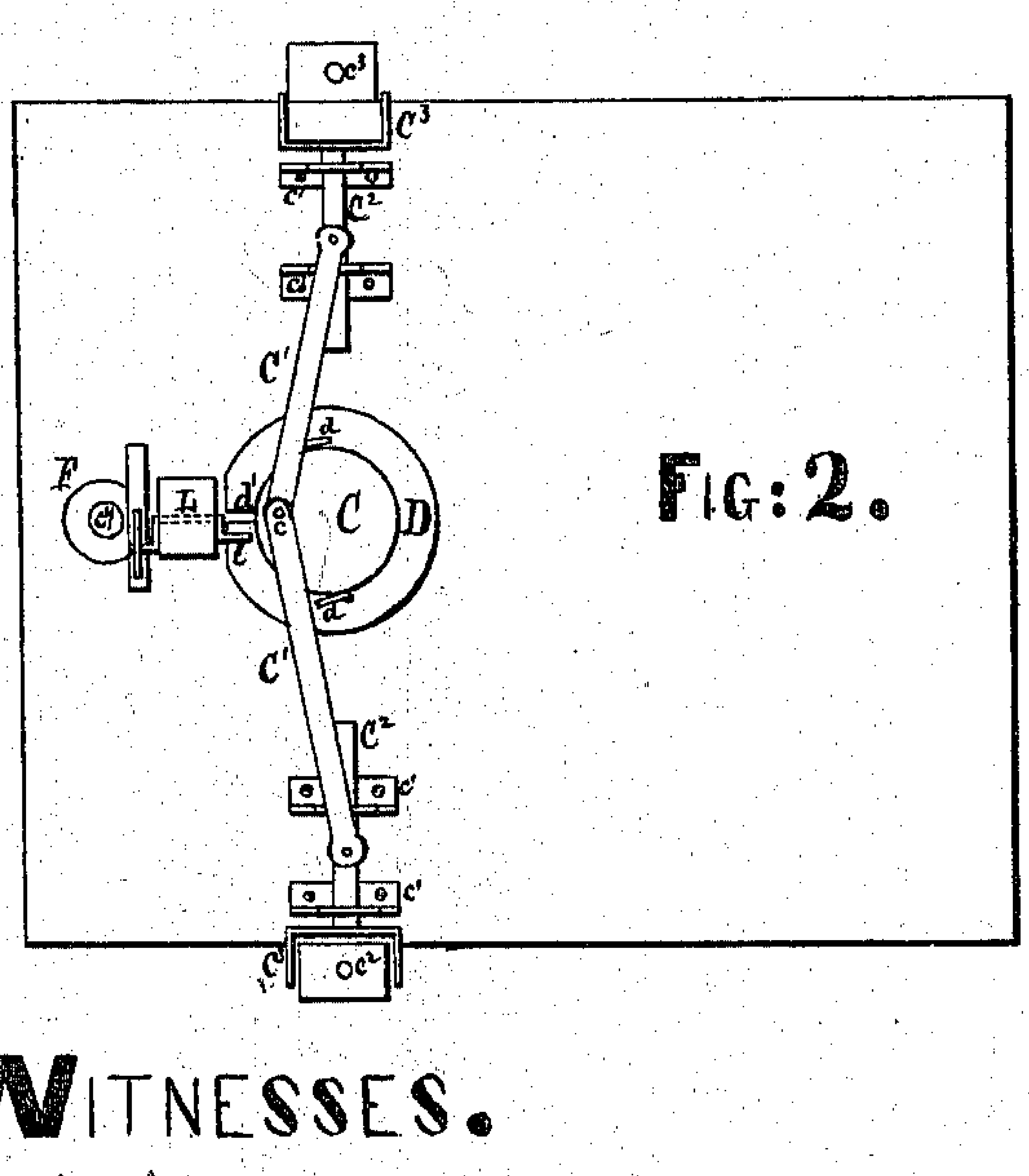

FIG: 2.

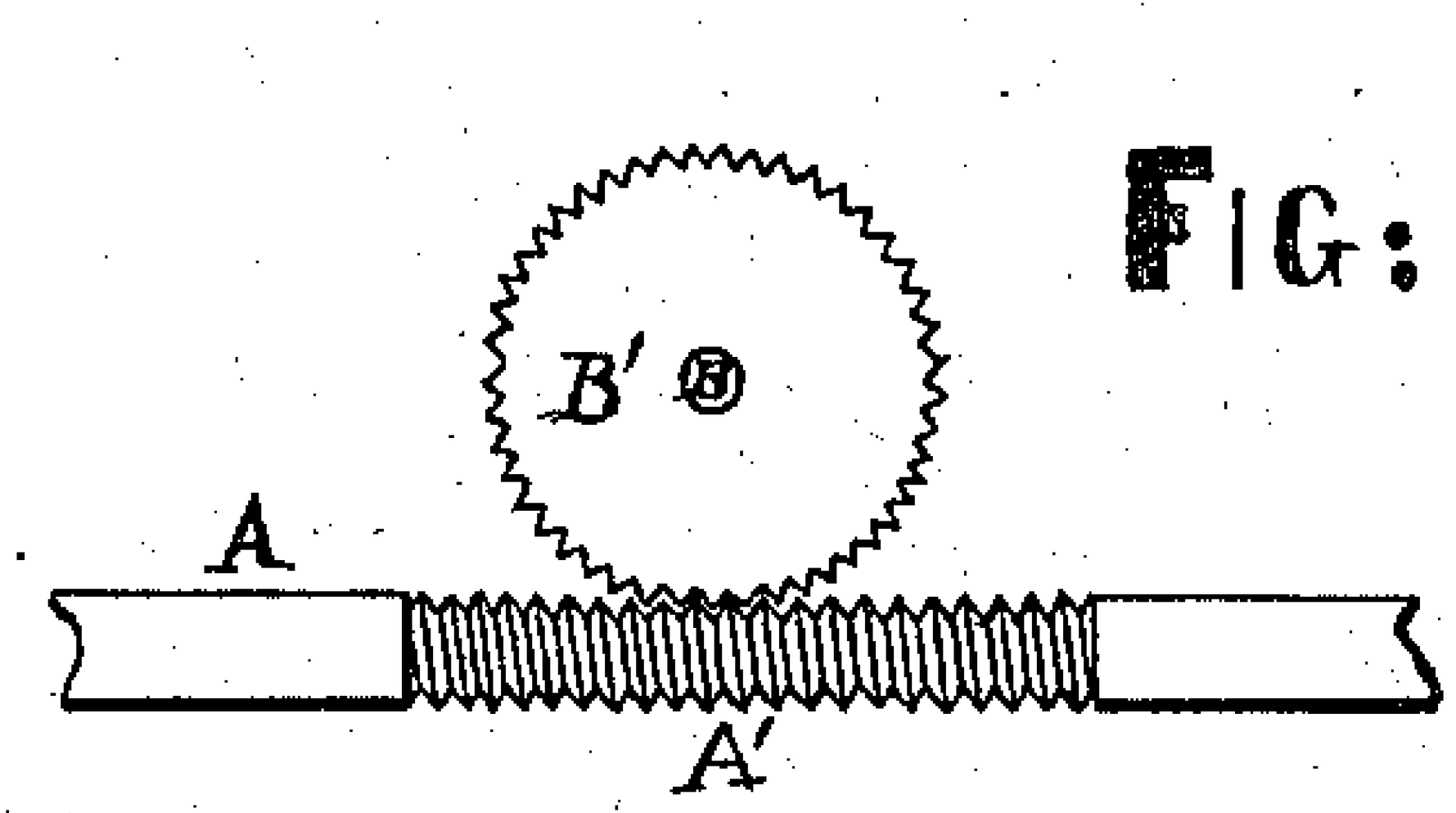

FIG: 4.

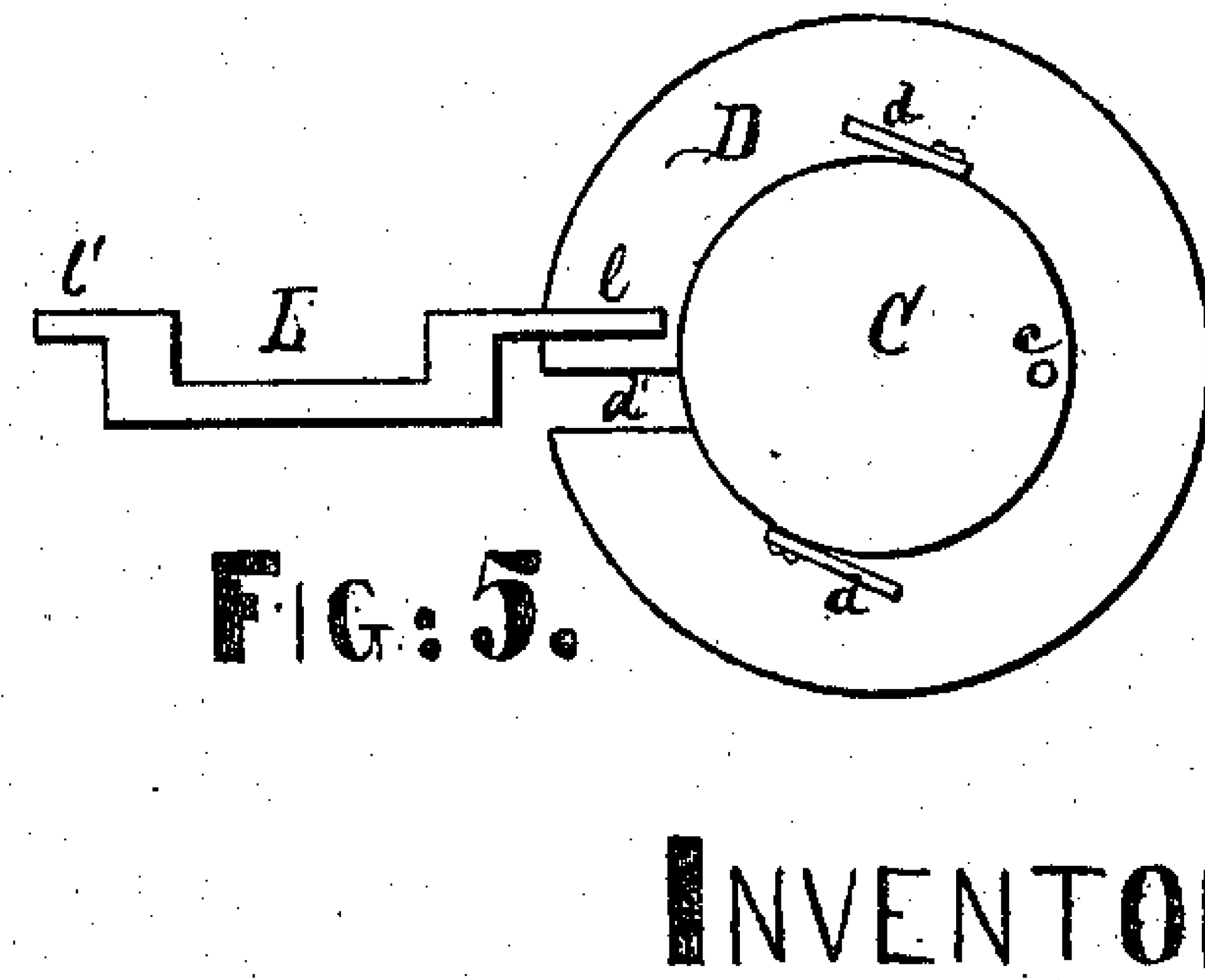

FIG: 5.

WITNESSES.

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Letters Patent No. 104,651, *dated June* 21, 1870.

IMPROVEMENT IN RAILWAY-CAR SIGNALS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, WILLIAM M. RUSSELL, of Cincinnati, in the county of Hamilton, and OSCAR S. PEASE, of Xenia, in the county of Greene, and State of Ohio, have invented certain new and useful Improvements in Railroad-Signals; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon making part of this specification, in which—

Figure 1 is a view of the rear of a car with our improvements attached.

Figure 2 is a top view of a car with our improvements attached.

Figure 3 is a side view of the rear standard and its double crank-lever attachment.

Figure 4 is a sectional view of the axle, showing the screw-threads cut thereon and the cog-wheel.

Figure 5 is a top view of the crank-wheel, its pawls, and the double crank-lever.

Our invention has for its object the arrangement of blinds or blinkers, both in front and in rear of the signal-lights on the top of railroad cars, in such manner that the engineer in charge of the train, as well as the engineer in charge of a following train, can always be informed whether a car has become uncoupled and is moving backward, or whether any accident has happened by which a portion of the train has been stopped. These signal-lights are so secured on the car that a steady and uniform light is always emitted.

The nature of our invention consists in passing, vertically, through the body of the car a spindle, to the lower end of which, and beneath the car, is firmly secured a cog-wheel. This wheel meshes in and gears with a screw-thread cut on the rear axle of the car. On the upper end of this spindle, and on top of the car, is firmly secured a crank-wheel, to which are attached, near its periphery, two crank-arms. The other end of these crank-arms is secured to the handle of the blinds that cover the stationary lights on each side of the car. These arms are so arranged on the crank-wheel that when one blind is opened the other is closed. Or, if preferred, these handles may be dispensed with and the crank-arms attached directly to the blinds or blinkers.

Our invention also consists in pivoting to the circumference of the crank-wheel, and on opposite sides of the same, two pawls. These pawls are so arranged that, when the car moves backward, they will catch in and lift one arm of a double crank-lever. The other arm of this double crank-lever works in a slot cut in a lever which is pivoted to the front of the rear standard. This slotted lever is so connected, with a short lever on the rear side of the standard, that, when the car moves backward, the short lever, through its connections, causes the blind or blinker to be thrown in front of the rear light; when the car is moving forward, the blind or blinker is always in the rear of this light, and will be shown to the engineer pulling the train only.

To enable others skilled in the art to make and use our invention, we will now proceed to describe its construction and operation.

A is the rear axle, which has cut upon it, at or near its center, a screw-thread, A′.

B is a spindle, passing vertically through the body of the car. To the lower end of this spindle is attached a cog-wheel, B′, which meshes in and gears with the screw-thread A′. To the upper end of this spindle B is attached a crank-wheel, C. On this crank-wheel, and near its periphery, is a pin, *c*, on which are pivoted two crank-arms, C^1 C^1. The other ends of these crank-arms are secured to the handles C^2 C^2 of the blinds or blinkers C^3 C^3. These handles C^2 C^2 are supported by and work in slotted guide-plates c^1 c^1, secured to the top of the car; or, if preferred, these handles C^2 C^2 may be dispensed with, and the crank-arms C^1 C^1 may be secured directly to the blinds or blinkers C^3 C^3.

The blinds or blinkers C^3 C^3 are so formed that they pass both in front and in rear of the stationary lights c^2 c^3 on the sides of the car. These lights c^2 c^3 are secured in proper cases, so that the light emitted from them shall be steady and uniform.

To the circumference of the crank-wheel C are pivoted, on opposite sides, two pawls, *d d*.

F is a standard secured on the rear end of the car. On the top of this standard is secured a third light, c^4.

f f are two blinds or blinkers, one in front and the other in the rear of the light c^4. These blinds or blinkers are pivoted to two plates, *h h*, said plates being pivoted on a pin, *h′*, which passes through the top of the standard F, as clearly shown in fig. 3.

Through the top of the lower section of the standard F passes a pin, H. To the rear end of this pin is fastened a short lever, *k*, which is connected by a wire, *k′*, with one of the plates *h*. To the other end of this pin H is fastened a slotted lever, F′.

L is a double crank-lever, which has its fulcrum in a suitable plate fastened on the top of the car; and between the standard F and the circular plate D, through which passes the spindle B. This circular plate D has a slot, *d′*, cut in it, said slot being opposite the fulcrum of the double crank-lever L. One arm, *l′*, of the double crank-lever works in the slot of the lever F′, while the other arm, *l*, extends sufficiently far over the circular plate D to be operated upon by the pawls *d d*.

The operation is as follows:

When the car is moving forward, the screw-thread A′ causes the cog-wheel B′ to turn, which, through the spindle B, causes the crank-wheel C to revolve. This revolution of the crank-wheel carries with it the crank-arms C^1 C^1, which are so arranged that when one of the blinds or blinkers covering the stationary side-lights is opened the other is closed. As long as the car moves forward, the pawls *d d* pass over the arm *l* of the double crank-lever L without disturbing the same. When the car moves backward, the blinds or blinkers covering the side-lights still move alternately back and forth, but as soon as the pawl *d* reaches the arm *l* it passes under and lifts the same. This movement, through the arm *l*′, causes the slotted lever F′ to change its position, and, by means of the lever *k*, causes the blind or blinker to be thrown in front of the rear light, thus giving warning to the engineer of the following train, that the train ahead, or a portion of the same, has stopped.

Having thus fully described our invention,

What we claim therein as new, and desire to secure by Letters Patent of the United States, is—

1. The cog-wheel B′, spindle B, crank-wheel C, crank-arms C^1 C^1, and blinds or blinkers C^3 C^3, with or without their handles C^2 C^2, when the whole is so arranged as to operate substantially as described.

2. The cog-wheel B′, spindle B, crank-wheel C, pawls *d d*, double crank-lever L, slotted lever F′, lever *k*, and blinds or blinkers *f f*, when the whole is so arranged as to operate substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM M. RUSSELL.
OSCAR S. PEASE.

Witnesses as to Wm. M. Russell:
FREDK. KOONES,
EDWIN JAMES.

Witnesses as to O. S. Pease:
L. S. COTTON,
E. M. LIVINGSTON.