

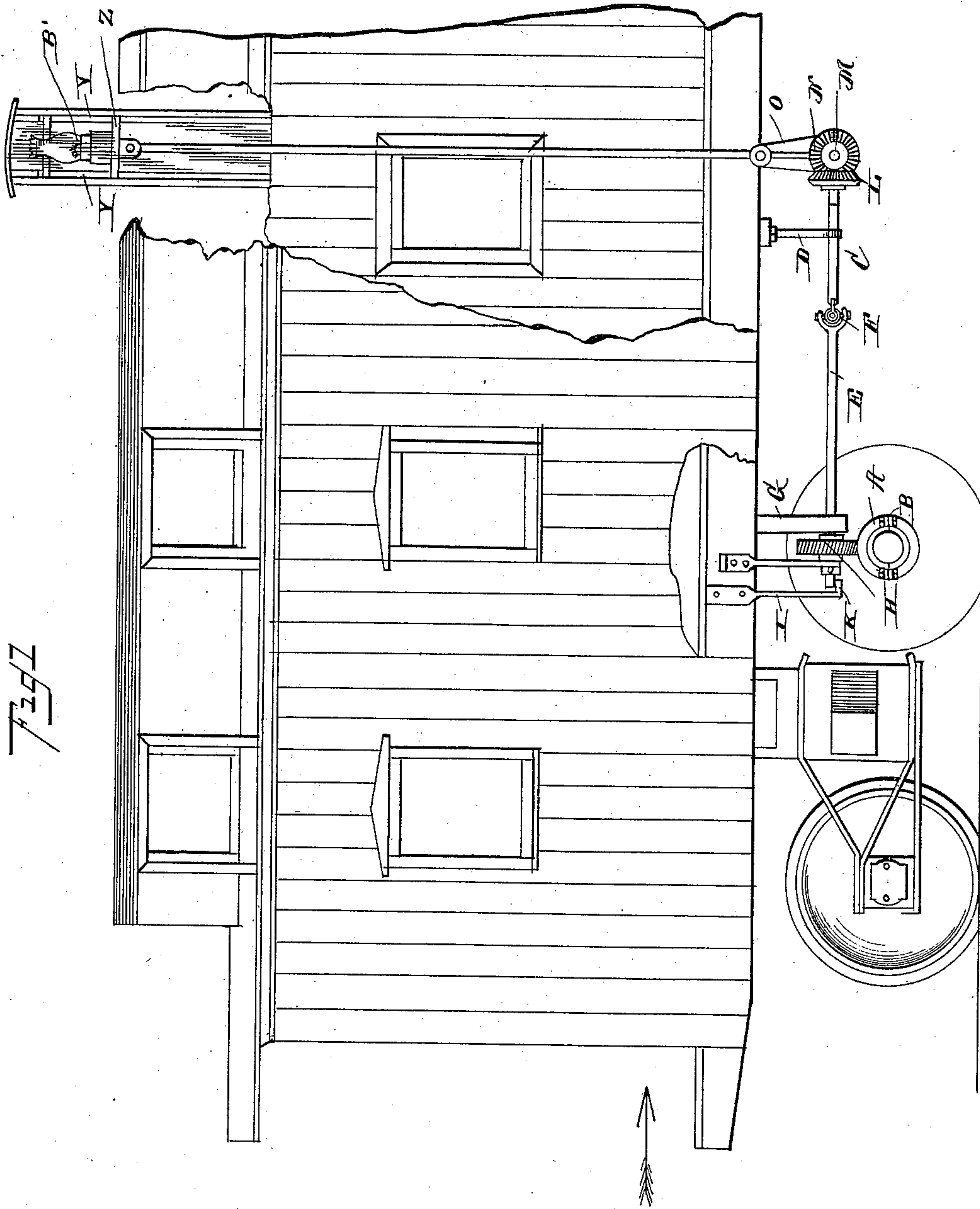
(No Model.)

2 Sheets—Sheet 1.

A. A. ROBINSON.  
SIGNAL FOR RAILWAY CARS.

No. 408,672.

Patented Aug. 6, 1889.



Witnesses  
*John Irvine*  
*W. Garner*

Inventor  
*A. A. Robinson.*

By his Attorneys

*C. A. Snow*

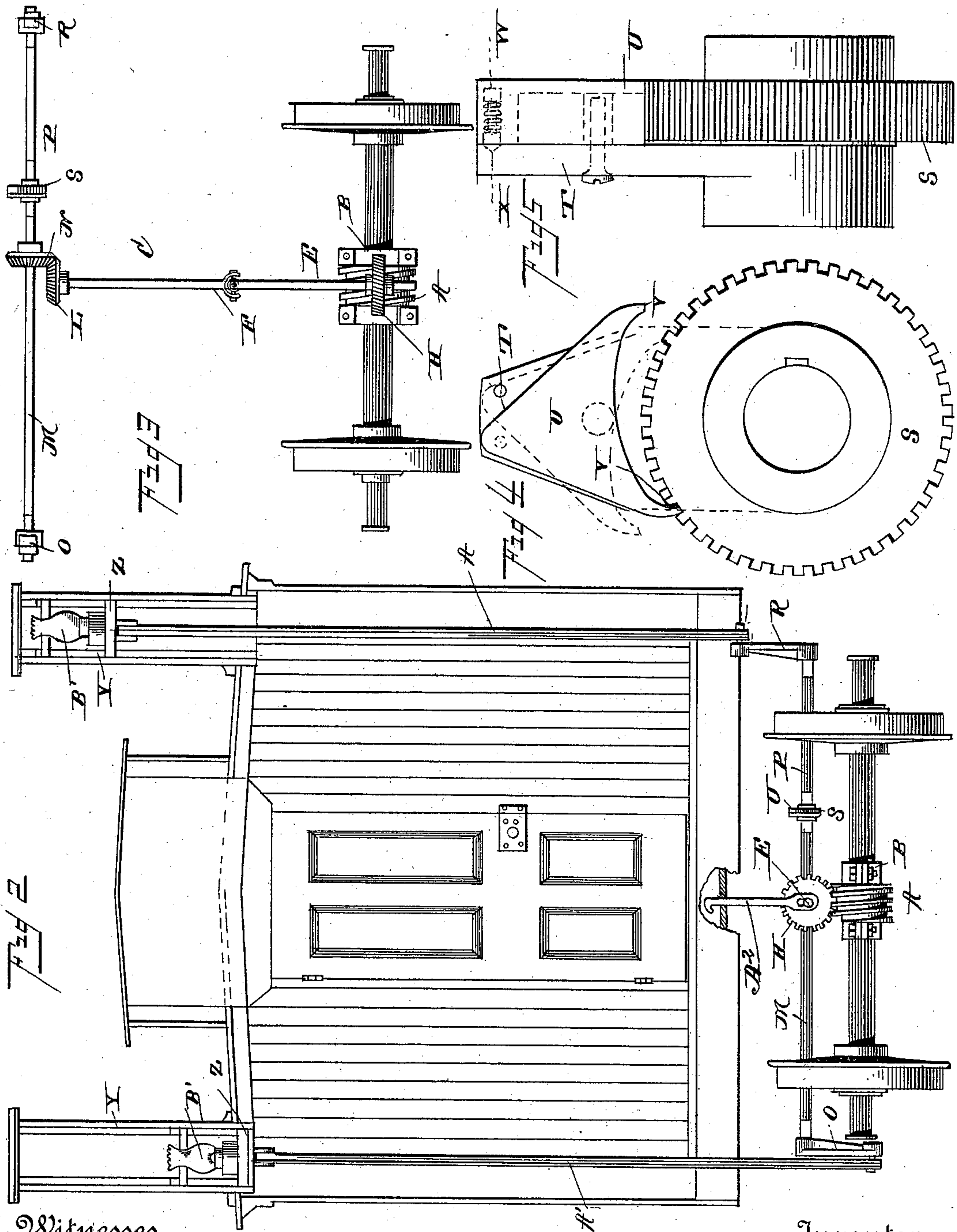
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*C. A. Snowdon*



# UNITED STATES PATENT OFFICE.

ALFRED ALEXANDER ROBINSON, OF LYNCHBURG, VIRGINIA, ASSIGNOR OF  
TWO-THIRDS TO JOHN R. PARROTT, OF SAME PLACE.

## SIGNAL FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 408,672, dated August 6, 1889.

Application filed January 11, 1889. Serial No. 296,095. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED ALEXANDER ROBINSON, a citizen of the United States, residing at Lynchburg, in the county of Campbell and State of Virginia, have invented a new and useful Improvement in Signals for Railway-Cars, of which the following is a specification.

My invention relates to an improvement in signals for railway-cars; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

The object of my invention is to provide signal-lamps and operating mechanism for the rear cars of railroad-trains, whereby the lamps will be kept in constant vertical motion when the train is advancing, whereby one only of the lamps will be kept in motion as the train is backing, and whereby both lamps will be stationary when the train is at rest, and thus indicate the condition of the train to trains approaching it from the rear, and thereby prevent collisions.

In the drawings, Figure 1 is an elevation, with parts removed, of a caboose provided with signal-lamps and operating mechanism embodying my improvements. Fig. 2 is an end elevation of the same. Fig. 3 is a plan view of the operating mechanism. Figs. 4 and 5 are detail views.

On the center of one of the axles is secured a worm A, composed of a pair of semi-cylindrical sections secured together by bolts B.

C represents a shaft, which is arranged longitudinally under the car or caboose, has its bearing in the hanger D, and to one end of the said shaft is secured the shaft E by means of a universal joint F. The shaft E is movable vertically in a bearing G and is provided with a worm-wheel H, that engages the worm A. A standard I depends from the car or caboose and has a stop K at its lower end to support the free end of shaft E when the latter is in a horizontal position. To the outer end of the shaft C is secured a miter-wheel L.

M represents a shaft, which is arranged transversely under the car or caboose, is journaled in suitable bearings, and is provided

with a miter-wheel N, that engages the wheel L. The outer end of the said shaft is provided with a crank O.

P P represent a shaft which is arranged in line with the shaft M, and is provided at its outer end with a crank R, and has a rack-wheel S at its inner end. The shaft M is provided at its inner end with an arm or plate, to which is pivoted a detent or pawl U, the latter being provided at opposite corners with engaging-points V, as shown. A spring-pressed stud W is arranged in a recess in the detent U, and is adapted to engage either of a series of recesses X with which the plate T is provided, whereby the detent may be secured with either of its points V in engagement with the rack-wheel S, or with both of said points out of engagement with said rack-wheel, as illustrated in Fig. 4.

Projecting from the roof of the car or caboose, on opposite sides of the same, are a pair of vertical guide-frames Y, which are covered with panes of glass or other suitable transparent material. Brackets Z are fitted in said guide-frame and adapted to reciprocate vertically therein, and the said brackets are connected to the cranks O R by means of pitmen A'. The said brackets Z are adapted to support signal-lamps B' of suitable construction.

A rod A<sup>2</sup> is loosely connected to the shaft E and passes up through an opening in the floor of the car. By means of this rod the free end of the shaft may be raised, so as to disengage the gear H from the worm on the car-axle and thereby throw the signaling apparatus out of gear.

The operation of my invention is as follows: When the detent U is adjusted with one of its points V in engagement with rack-wheel S and the train is advancing in the direction indicated by the arrow in Fig. 1, rotary motion will be conveyed from the geared axle to the shaft E, and from the latter through the shaft C and gears L N to the transverse shaft M. The shaft P, being locked to the shaft M by the engagement of the detent with the rack-wheel, will rotate with the shaft M and the cranks O R, and pitmen A' will impart reciprocating motion to the lamp-brackets, and thereby cause both lamps to move up and



down as long as the train is in motion, thus indicating that fact to a train in rear. When the train stops, the lamps remain stationary, and this will be a signal for a train advancing from the rear to stop or reduce speed. When the train backs or is moving rearward, the detent will be thrown out of engagement with the rack-wheel, as is obvious, and thereby the shaft M will become disconnected from the shaft P, so that said shaft P will remain stationary, together with the lamp attached to and operated thereby, while the shaft M will rotate as before and operate its lamp, thereby signaling to the rear of the train by having one lamp stationary and the other in motion.

By means of signal-lamps and apparatus such as described in the foregoing specification a person in rear of a railroad-train can ascertain at a glance whether the same is advancing, is stationary, or is moving rearward, and thereby the danger of collision and other railway accidents will in a great measure be averted.

Having described my invention, I claim—

1. In a railroad-train signal, the combination, with the vertically-moving signals, of an independent crank-shaft connected to each signal and to the car-axle, and a device for connecting or disconnecting the shafts, whereby one or both signals may be operated, substantially as specified.

2. In a railway-train signal, the combination, with the vertically-moving signals, of independent rotary crank-shafts connected with the car-axle, and of a coupling device adapted to automatically couple the shafts when the train is moving in one direction and to uncouple the same when moving in a reverse direction, substantially as specified.

3. The combination, in a railway-car signal, of the shafts M P, having the cranks, the vertically-movable lamp-brackets, the pitmen connecting the same to the cranks, and the gears connecting the shaft M to one of the car-axles, for the purpose set forth, one of said shafts being provided with a ratchet-wheel and the other with a double pawl for operating in the teeth of the ratchet, substantially as described.

4. In a car-signal, the combination of the movable lamp, the crank-shaft connected to and vertically operating the lamp, the shaft C, geared thereto, and the shaft E, flexibly jointed to shaft C and having the worm-wheel H and the worm B secured to one of the car-axles and engaged by the wheel H, substantially as described.

5. The combination, in railway-car signals, of the vertically-movable signal-lamp, the crank-shaft M, connected to and rotated by one of the car-axles, connections between said shaft and lamp, the plate T, secured to said shaft, the shaft P, in line with shaft M and carrying the rack-wheel S, and the detent U, pivoted to plate T and having the engaging-points V, adapted to engage the rack-wheel S and to disengage the same, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

ALFRED ALEXANDER ROBINSON.

Witnesses:

T. J. INGRAM,  
J. D. TANNER.