

(No Model.)

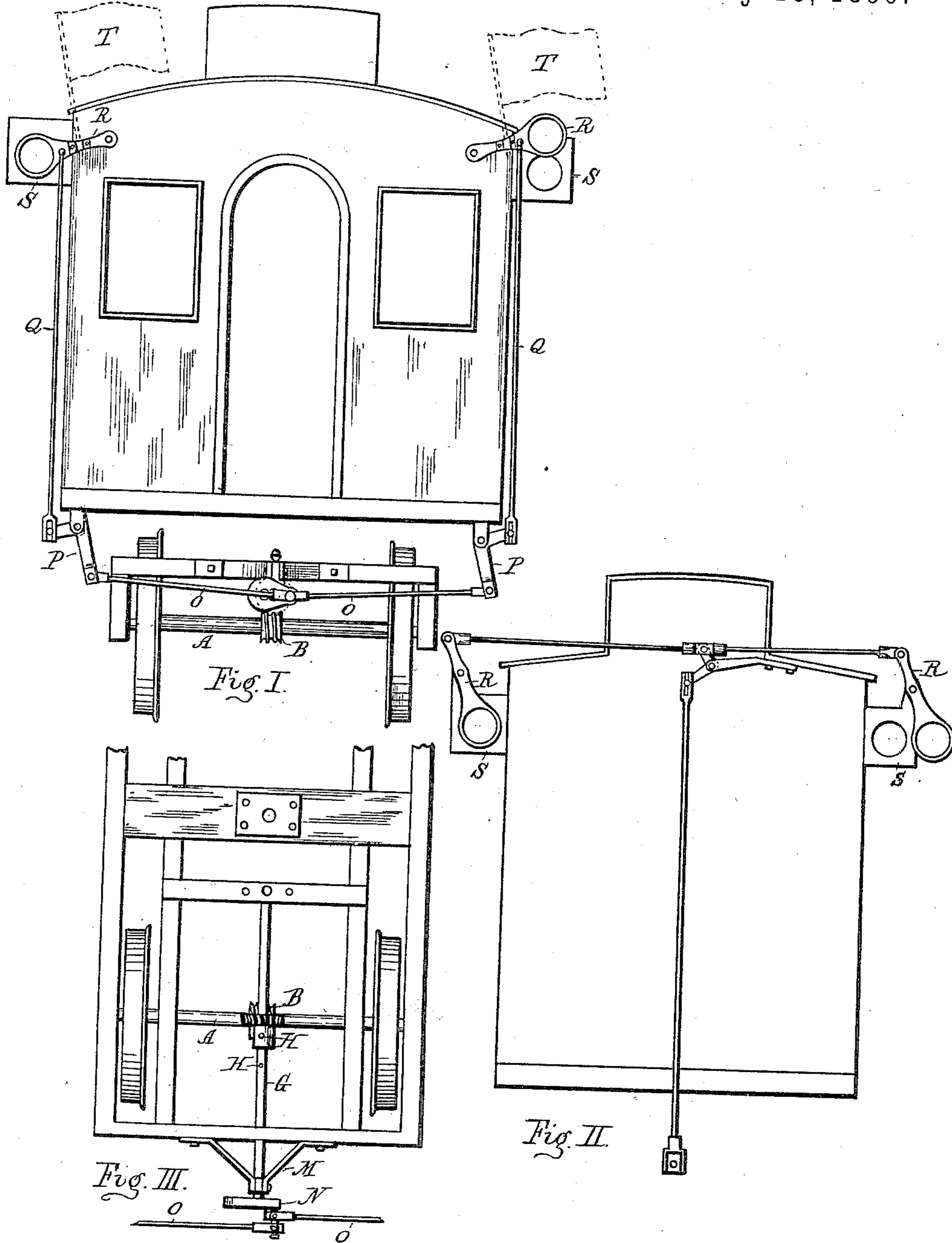
2 Sheets—Sheet 1.

J. A. McNIGHT.

RAILWAY TRAIN SIGNAL AND SPEED INDICATOR.

No. 427,788.

Patented May 13, 1890.



WITNESSES:

*R. P. Millar*  
*L. M. Adams*

INVENTOR:

*John A. McNight*

By

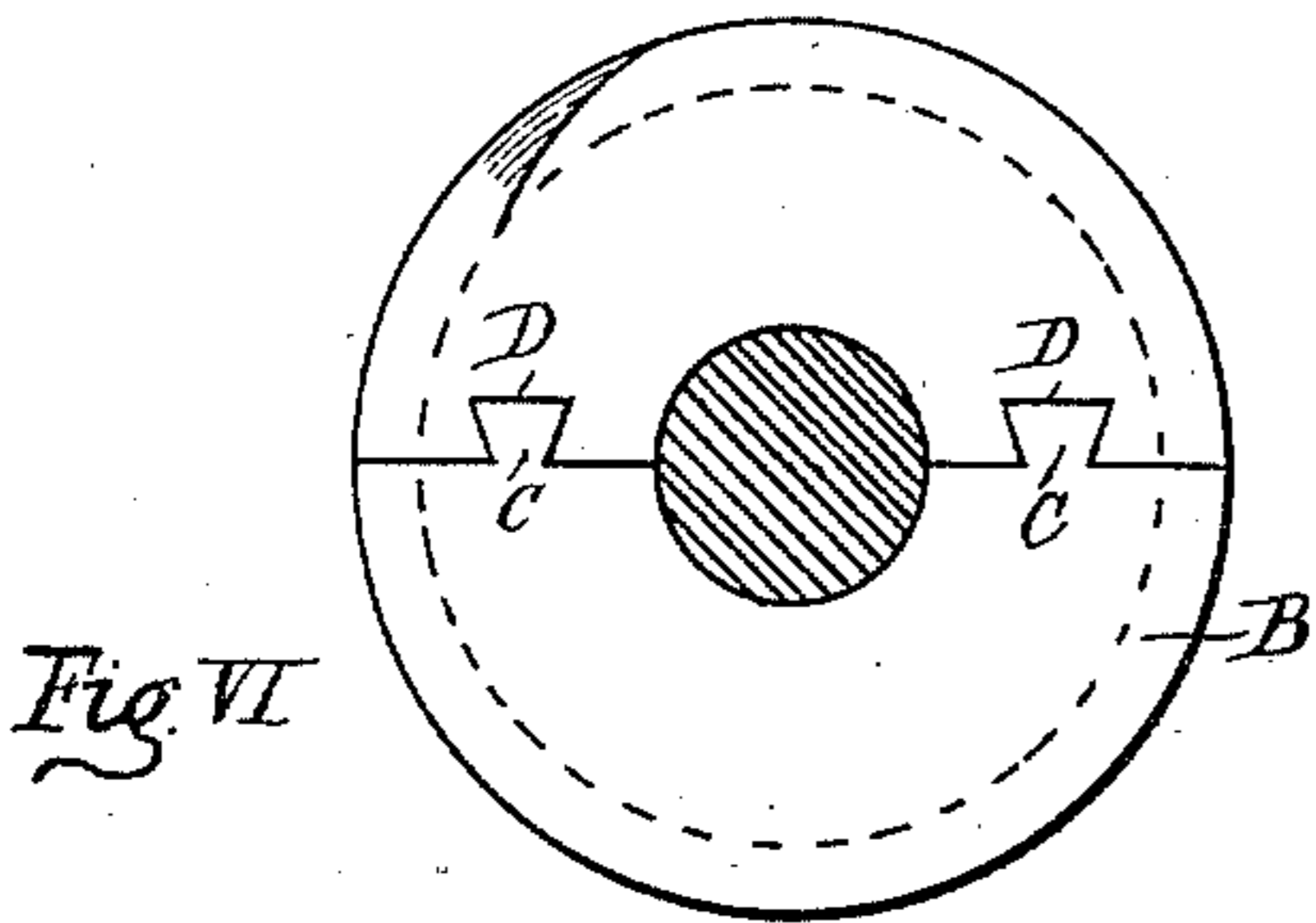
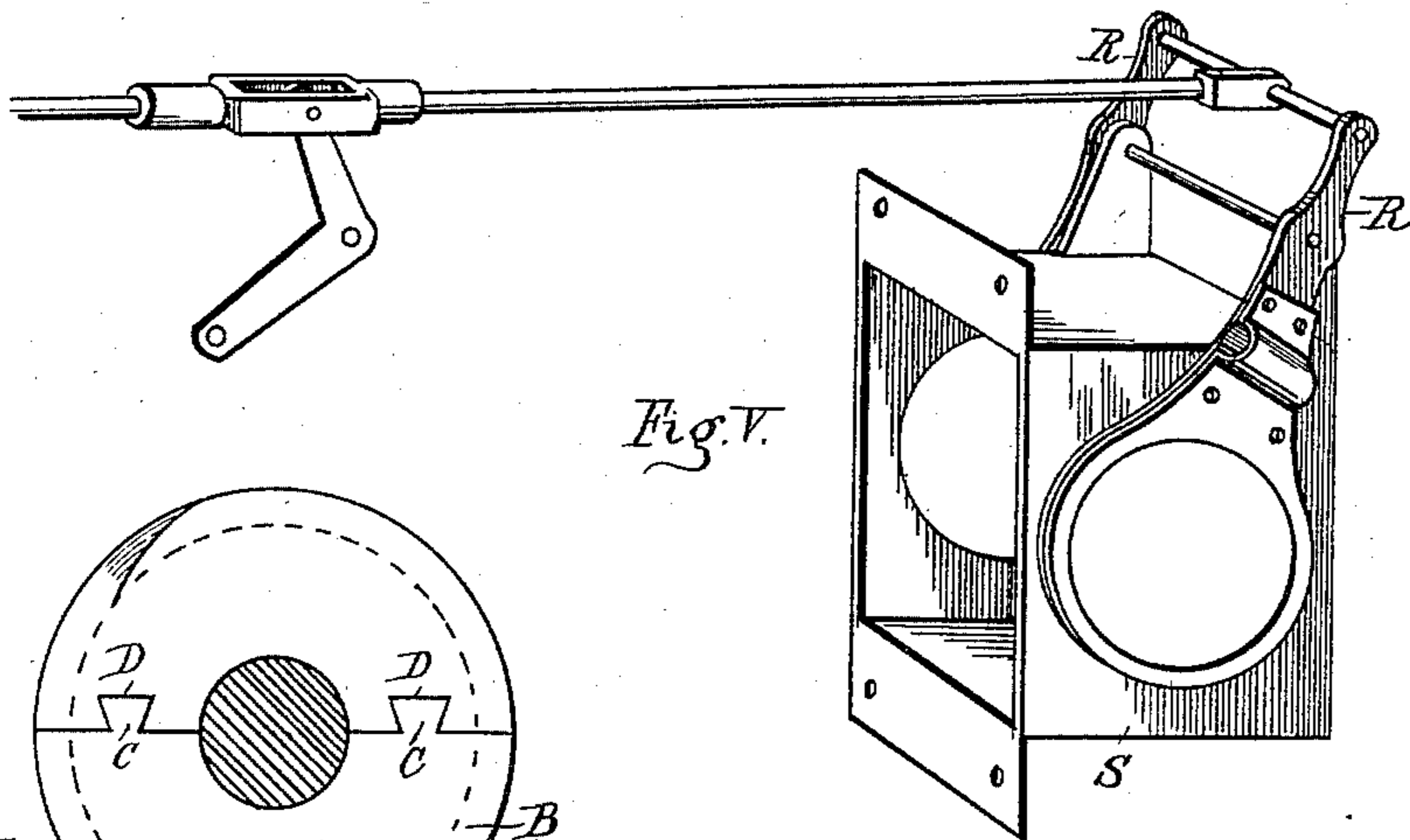
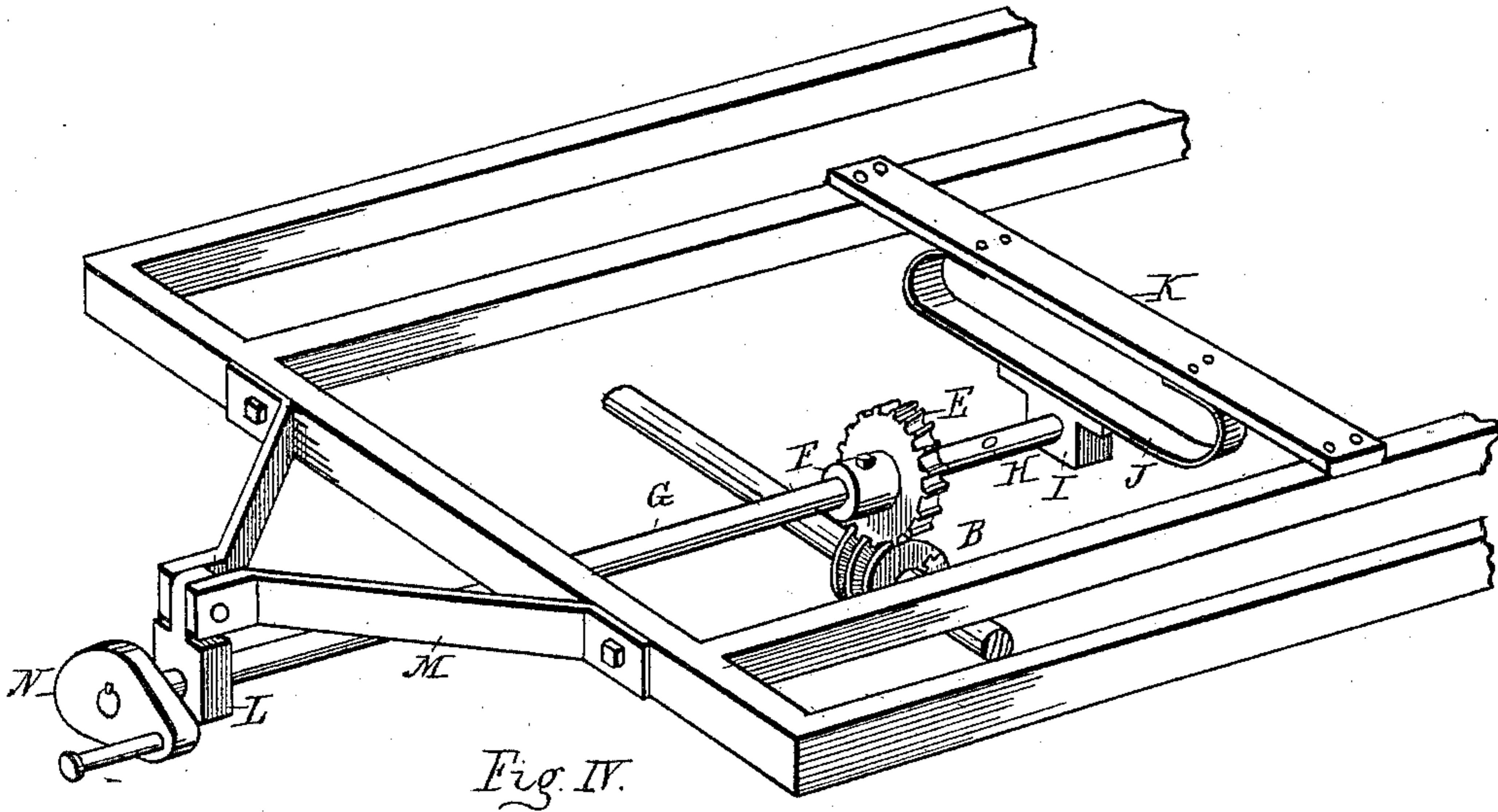
*J. D. Bailey*  
Attorneys.

J. A. McNIGHT.

RAILWAY TRAIN SIGNAL AND SPEED INDICATOR.

No. 427,788.

Patented May 13, 1890.



WITNESSES:

*A. S. Millar*  
*L. W. Adams*

INVENTOR:

*John A. McNight.*

By

*O. Bailey*

Attorneys.

# UNITED STATES PATENT OFFICE.

JOHN A. McNIGHT, OF BERKLEY, VIRGINIA.

## RAILWAY-TRAIN SIGNAL AND SPEED-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 427,788, dated May 13, 1890.

Application filed January 24, 1890. Serial No. 338,039. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. McNIGHT, of Berkley, in the county of Norfolk and State of Virginia, have invented a new and useful Improvement in Railway-Train Signals and Speed-Indicators, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure I is a rear view of a passenger-car equipped with my improved railway-train signal and speed-indicator; Fig. II, the same device modified and applied to a caboose-car; Figs. III and IV, plan views of the same; Fig. V, a detail view of a caboose-lantern, showing the operation of the oscillating arms in front and rear of the same; and Fig. VI, an end view of the worm.

My invention relates to improvements in railway-train signals; and its object is to provide a simple, practical, and reliable device whereby trains may automatically exhibit and exchange signals, and thereby avoid collisions.

Locomotive-engineers will testify that when one train is following another the greatest danger involved is due to the fact that it is often difficult in day-time, and impossible at night, to discern whether the preceding train is at a stand or in motion, and if in motion whether it is moving fast or slow. This invention is designed to obviate all such uncertainty and to render it easy at all times for train-men to foresee every condition and to guard in time against danger to life, limb, and valuable property.

My invention consists of a simple arrangement of cranks and connecting-rods operated by worm-gearing attached to the axle of a car. Assuming as a basis that a thirty-inch car-wheel revolves about six hundred times in a mile, it will be readily understood that a worm-wheel having ten cogs and driven by a worm on the axle of said car will revolve once while the car-wheel revolves ten times. By making this reduced motion plainly visible at all times, which is accomplished by automatically moving flags during the day and intermittently-displayed colored lights at night, engineers are enabled to discover not only whether other trains in sight are at a stand or in motion, but also to determine the speed at which they may be running. They can also consult their own train-signals at the

same time and be prepared to regulate their speed and position accordingly. It will also be observed that in addition to the absolute safety thus assured much valuable time may be saved by the adoption of this device.

The construction and application of my invention will be understood by referring to the accompanying drawings, in which A designates a car-axle provided with a worm B. In order to facilitate attaching or removing the worm when desired, it is made in two sections, one of which is provided with dovetail lugs C, which engage corresponding slots D in the other section. Key-wedges or other suitable means may be employed to fasten the worm to the axle. The worm drives a worm-wheel E, having an extension or hub F, which is attached to the shaft G by a bolt passing through orifices H, said shaft G running lengthwise of the car and at right angles with the axle. In this way the worm-wheel may be ungeared, when desired, and secured in a different position on the shaft. The forward end of the shaft is journaled in the boxing I, which is attached to the transverse spring J. This spring is suspended beneath the cross-beam K. Rearwardly the shaft is journaled in the boxing L, which is pivoted between the jaws of the bracket M. A universal joint is thus provided, which sufficiently compensates not only for any vertical motion of the car while passing over a rough track or other casual obstruction, but also for any possible lateral variation of position between the trucks and the body of the car. The rear end of the shaft carries a counter-balanced crank N, which, in conjunction with the reciprocating rods O, bell-crank levers P, and vertical connecting-rods Q, operates the levers R, which oscillate in front of the lanterns S. For daylight use the oscillating levers are provided with threaded sockets, into which the staves of signal-flags T are fastened. The movement of the levers is thus communicated to the flags.

A great variety of automatic signals, easily seen and understood, are produced by this device. The lanterns may have a white light, which may be varied by lenses of colored glass in the swinging ends of the levers; or the lanterns may be provided with lenses of any desired color and the levers made opaque, so

that they may perform as shutters, alternately exposing and shutting off the lantern-lights.

It being customary to hang cabooses-lanterns so that they may be seen both in front and rear, the oscillating arms should be made in pairs and operate as shown in Fig. V. It will also be found convenient to attach the device to cabooses in the method shown in Fig. II, making the connection direct from the crank through the vertical rod and a single bell-crank lever to the reciprocating rods which actuate the oscillating levers.

What I claim as new is—

1. In a railway-train signal and speed-indicator, the combination, with the car, of the worm upon the axle, the worm-wheel E on the longitudinal shaft L and driven by said worm, the counterbalanced crank N at the end of said shaft, the reciprocating rods O,

connected therewith and operated by the rods Q, and levers R, substantially as specified.

2. In a railway-train signal and speed-indicator, the herein-described worm on the car-axle, the worm-wheel on the longitudinal shaft, the suspended boxes in which the shaft is journaled, the counterbalanced crank N, reciprocating rods O, bell-crank levers P, vertical connecting-rods Q, and oscillating levers R, in combination with the lanterns and flags, substantially as and for the purposes herein specified.

In testimony that I claim the foregoing I have hereunto set my hand, this 13th day of January, 1890, in the presence of two witnesses.

JOHN A. McNIGHT.

Witnesses:

A. S. FOREMAN,  
SAMUEL BROTHERS.