

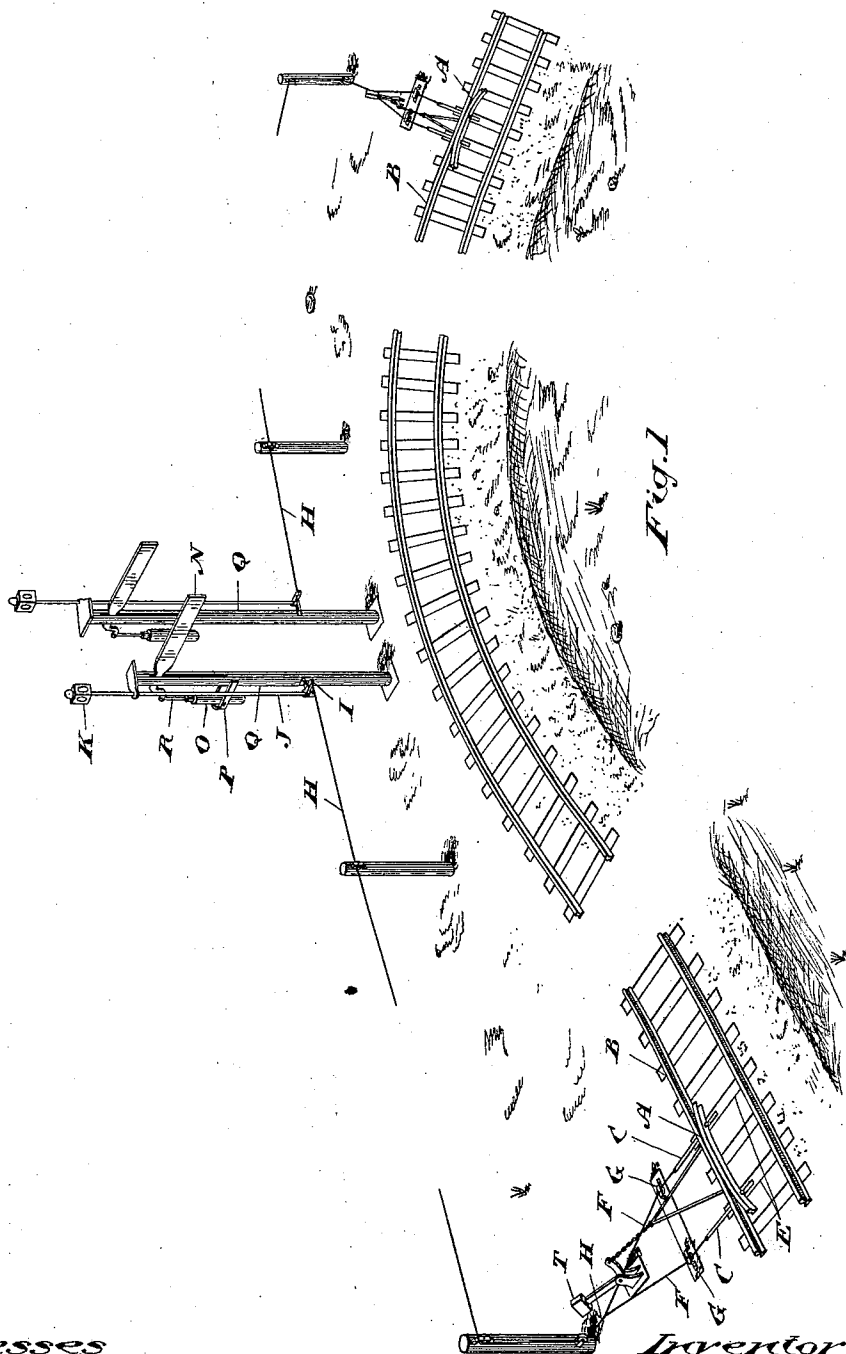
(No Model.)

2 Sheets—Sheet 1.

A. C. SCARR.  
RAILWAY TIME SIGNAL.

No. 469,066.

Patented Feb. 16, 1892.



Witnesses

J. Edw. Mayhew  
H. G. McMillan.

Inventor

Abraham C. Scarr  
by Donald C. Ridout & Co  
Attys

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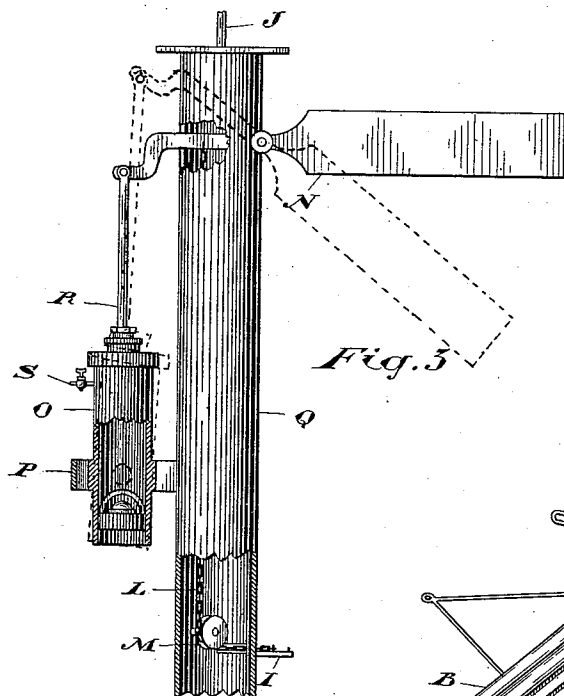


Fig. 3

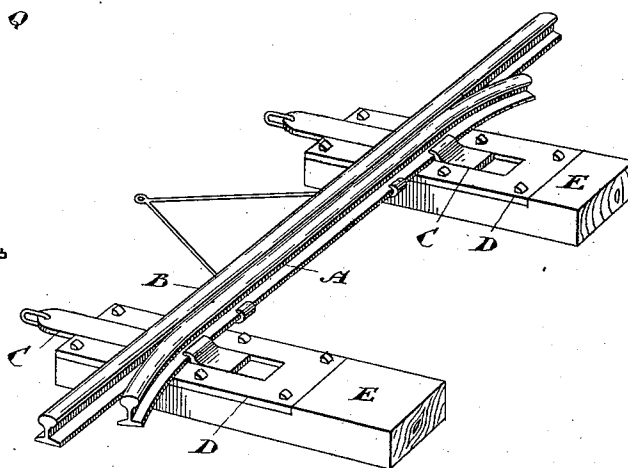


Fig. 2

Witnesses

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# UNITED STATES PATENT OFFICE.

ABRAHAM C. SCARR, OF HARRISTON, CANADA, ASSIGNOR TO THE SCARR  
RAILWAY SIGNAL COMPANY OF HARRISTON, LIMITED.

## RAILWAY TIME-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 469,066, dated February 16, 1892.

Application filed March 5, 1891. Renewed January 16, 1892. Serial No. 418,243. (No model.)

*To all whom it may concern:*

Be it known that I, ABRAHAM CALVERT SCARR, of the Town of Harriston, in the county of Wellington, in the Province of Ontario, Canada, have invented a certain new and Improved System for Operating Railroad-Signals, of which the following is a specification.

The object of the invention is to arrange a device or series of devices by which semaphores or other signals on a railroad may be operated by the wheels of an approaching train in such a manner as to give notice at any desired distance from the said train and thereby prevent collisions; and it consists, essentially, of a short rail movably held in contact with one of the rails of the track and connected by a cable or other means to a semaphore or other signal located in proximity to the track at the required distance from the signaling spot, the connections between the movable rail and its signal being such that when the said rail is pushed from the rail of the track by the wheels of a passing train the semaphore or other signal is instantly operated, so as to give notice of the approaching train at a sufficient distance to avoid the possibility of collision.

Figure 1 is a perspective view showing the application of my improved signaling device to a curve on a railroad. Fig. 2 is a detail showing the means of holding the adjustable rail to the track. Fig. 3 is a detail showing the construction of the air-cushion used in connection with the semaphore.

It has long been known to all railroad-men, and indeed to many others, that the majority of accidental collisions could be prevented were it possible to provide simple and reliable mechanism by which the drivers of two approaching trains might be notified in time to stop their trains. This knowledge turned my attention to the subject, and after considerable study and careful consideration of the matter I have succeeded in producing a system for operating signals which is both simple in construction and reliable in its operation.

In the drawings, A represents a short rail located, as indicated, against one of the rails of the track B. A bar C is connected one at

each end of the rail A, which bar is fitted into a grooved plate D, rigidly secured to the tie or sleeper E.

To the end of each bar C, I attach a chain or cable F, which cables are carried around suitably-arranged grooved guiding-pulleys G and are connected together or to a single cable H. This cable H is suitably supported and carried to a semaphore or other signal located in proximity to the track at a point sufficiently far from the signaling-point to notify the driver of a train approaching from the opposite direction to enable him to stop his train in time to avoid collision with a train which in passing over the rail A has operated the semaphore or signal in the following manner: It will be observed that the cable H is connected to an arm I, attached to the rod J, on which the signal-lamp K is fixed. To this arm I a cable L is also attached, and, after being carried over suitably-arranged grooved pulleys M, is connected to the tail of the pivoted semaphore-arm N. When the train before referred to passes over the rail A, the flanges of its wheels pass between the rail A and the rail of the track B, against which it is held by a weight or spring. In passing between these rails the flanges of the wheels push the rail A inwardly, and as this rail is connected, as before described, by suitably-arranged cables to the lamp-rod J and the semaphore-arm N the said arm is thrown up to signal "danger," and the red light of the lamp is likewise set, thus giving the desired notice to any train which may be approaching from the opposite direction.

As it is desirable that the semaphore and danger-signal should remain set to danger-point for a short time after the train has passed the rail A, I provide the following simple device, by which the desired end is accomplished: A small cylinder O is pivoted upon a bracket P, fixed to the semaphore-post Q so as to oscillate, as shown in dotted lines in Fig. 3. A piston is fitted into this cylinder, and is connected by the piston-rod R to the tail of the semaphore-arm N. When this semaphore-arm is raised, as before described, the piston in the cylinder O is pushed down, and through a valve in the piston, or other-

wise, a supply of air is admitted above the said piston. When the train has passed the rail A, the weight or spring draws the said rail into its initial position, thereby slackening the cables which connect it to the semaphore-arm, leaving the said arm free to fall by its own weight. As it is not desirable that this fall should be instantaneous, the device just described is provided. The falling of the semaphore-arm N of course throws its tail up, which, being connected, as described, to the piston in the cylinder O, is held by the said piston, which cushions against the air above it and will not permit the semaphore to fall until all the air above the piston has been pressed out of the cylinder. With the view of regulating the time in which the semaphore should fall I place in the top of the cylinder O an air-cock S, by which the size of the aperture in the cylinder through which the air escapes may be increased or decreased to let the air out of the cylinder slowly or quickly, according to the time in which it is desired that the semaphore should take in falling.

It will of course be understood that I do not confine myself to the exact position shown for the air-cushioning cylinder, and I may add that the lamp-rod J may also be provided with similar means for preventing it changing its signal too quickly.

It will be observed in the drawings that at the center of the curve I show two semaphores located together. The signaling-points are located on each side of these semaphores at the required distance from them. A train approaching from one side operates one of the semaphores, while a train approaching from the other side operates the other signal. Should both trains pass their respective signaling-points simultaneously, both signals will be operated and both drivers will be simultaneously notified that they are in dangerous proximity to a train approaching from the opposite direction.

It will of course be understood that I do not confine myself to any particular number of signals nor to their exact location, as of course they may be located at all dangerous

points, and the distance of the signaling-point will be regulated to suit the location of the signal.

I do not restrict myself to any particular means of holding the rail A against the rail of the track B, as either springs or weights may be used. In the drawings I show a weighted lever T, connected to the rail A, as shown. I may also mention that a single bar C, located in the center of the rail A, will probably be found sufficient, in which case the said rail may be made so short as to be considered simply a block. I therefore do not wish to be confined by the term "rail," as it is not necessary that it should be made the exact shape of a rail.

What I claim as my invention is—

1. The rail B, a supplemental rail A, having bars C connected to it at its opposite ends and resting in the grooved plates D, said bars C and plates D being arranged under rail B, and the weighted pivoted lever L, arranged to hold the said rail against one of the rails of the track B, in combination with a chain or cable connected to the said bars C and to the lamp-rod J and semaphore-arm N, substantially as and for the purpose specified.

2. A pivoted semaphore-arm N and a support for the same, in combination with an oscillating cylinder O, pivoted on a bracket P, attached to the semaphore-support and provided with a piston, and a piston-rod R, connected directly to the said semaphore-arm, substantially as and for the purpose specified.

3. A pivoted semaphore-arm N and a support for the same, in combination with an oscillating cylinder O, having a cock S and pivoted on a bracket P, attached to the semaphore-support and provided with a piston, and a piston-rod R, connected directly to the said semaphore-arm, all substantially as shown and described.

Toronto, January 31, 1891.

ABRAHAM C. SCARR.

In presence of—

CHARLES C. BALDWIN,  
JOHN E. CAMERON.