

(No Model.)

T. J. COPE.  
AUTOMATIC RAILWAY SIGNAL.

No. 495,308.

Patented Apr. 11, 1893.

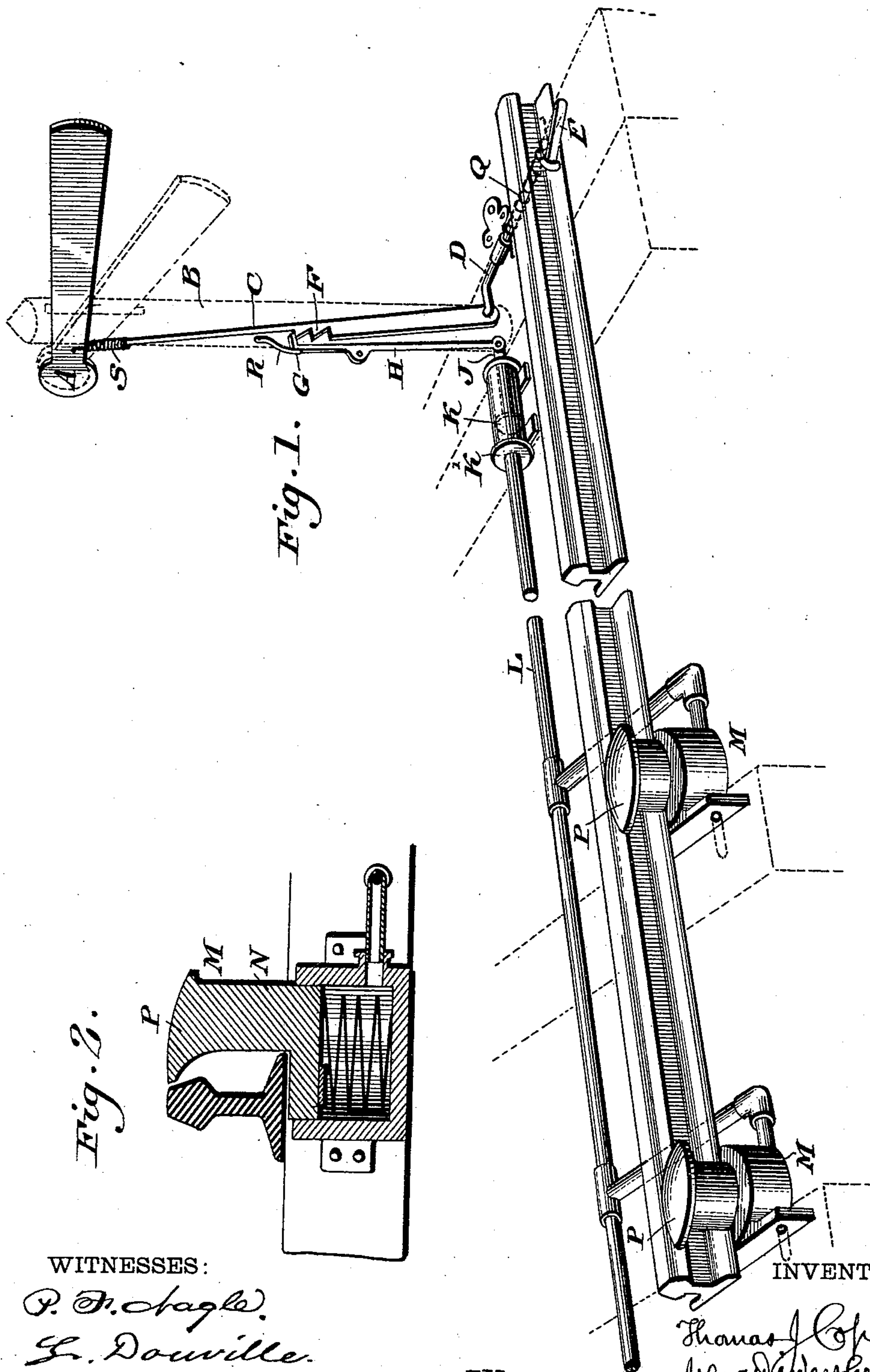


Fig. 2.

WITNESSES:

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THOMAS J. COPE, OF PHILADELPHIA, PENNSYLVANIA.

## AUTOMATIC RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 495,308, dated April 11, 1893.

Application filed January 19, 1892. Serial No. 418,531. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS J. COPE, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Automatic Railway-Signals, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of novel means for automatically operating a railway signal, whereby the semaphore may be set to indicate danger, and prevent a train from following until the previous train has cleared the block, and the semaphore is again returned to its normal position.

Figure 1 represents a perspective view of a railway signal embodying my invention. Fig. 2 represents a vertical section of pumping mechanism employed, on an enlarged scale.

Similar letters of reference indicate corresponding parts in the two figures.

Referring to the drawings:—A designates a semaphore or signal arm suitably mounted or pivoted on a post or standard B, and having pivoted to it a rod or bar C, whose lower end has attached or pivoted to it a crank-shaft D, which is suitably mounted on the road bed in such manner that the limb E of said shaft is in the path of the flange of a car wheel or other projection or attachment on a car. On the side of said bar C are teeth F, which are adapted to be engaged by the nose G of the dog H, which latter is mounted on the standard B, and has its lower end connected with the stem J of the piston K, the barrel K' which incloses the same being suitably supported on the road bed, and having connected with it an air-conveying pipe L, which is in communication with a pumping apparatus M in the cylinder of which is a plunger or follower N, whose upper end carries a shoe P, which latter is so disposed that it may also be engaged by the flange of the car wheel or other projection or attachment on the car.

The operation is as follows:—When a car reaches the arm E of the crank-shaft D, the flange of the wheel or projection or attachment on the car strikes said arm and thereby

turns the shaft, causing the depression of the bar C, and the elevation of the semaphore to a position of danger, so that a train that may follow is signaled not to proceed. As the bar C descends, the teeth F ride freely on the nose of the dog until the bar is at its lowest point, when the dog engaging with the proper tooth F, prevents the ascent of said bar, and renders the semaphore immovable. After a train has passed the proper distance, say at or about the end of a block, the shoes P are engaged by the flange of the wheel or projection or attachment on the car, so that a blast of air is injected through the pipe L against the piston K, thus operating the dog H, whereby its nose clears the tooth of the bar C, when the latter under the action of a spring Q on the shaft D, elevates the same and lowers the semaphore, as shown by the dotted lines. In order to restore the dog to its normal position, a spring R is connected with the standard B and bears against the dog, so that the nose thereof is in the path of the teeth F, for subsequent engagement therewith. In order to ease the motion of the semaphore, I interpose a spring S between the bar C and the end of the semaphore, thus preventing sudden and injurious operation of the former.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An automatic railway signal having a pivoted semaphore, a bar connected at its upper end to said semaphore, and provided with ratchet teeth on one side, a crank shaft having a limb at one end suitably pivoted to the lower end of said bar, and provided at the other end with a limb adapted to be engaged by a projection on a car, a pivoted dog having a nose engaging said teeth on the bar, a spring for normally keeping said nose in engagement with said teeth, and a spring interposed between the upper end of said bar and said semaphore, said parts being combined substantially as described.

2. An automatic railway signal consisting of a pivoted semaphore, an oscillating crank shaft with a limb adapted to be engaged by a projection on a car, a rod having ratchet

teeth on its side, and connected at its upper end  
to said semaphore by a spring, and its lower  
end to said shaft, a pivoted dog adapted to  
ride over the teeth on the lowering of the  
5 bar, a spring adapted to keep said dog in en-  
gagement with said teeth, and a pneumatic  
device connected with said dog, and having

a shoe adapted to be depressed by contact  
with a projecting part of the car, said parts  
being combined substantially as described.

THOMAS J. COPE.

Witnesses:

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