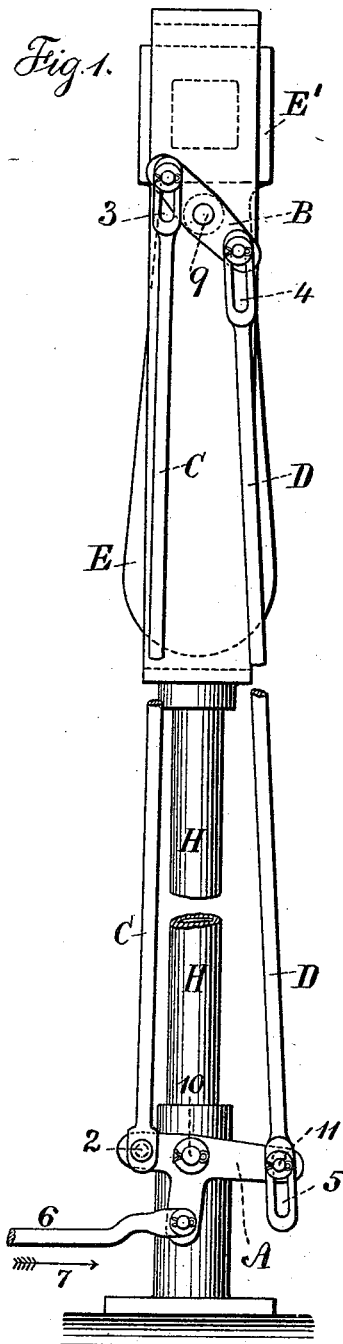


(No Model.)

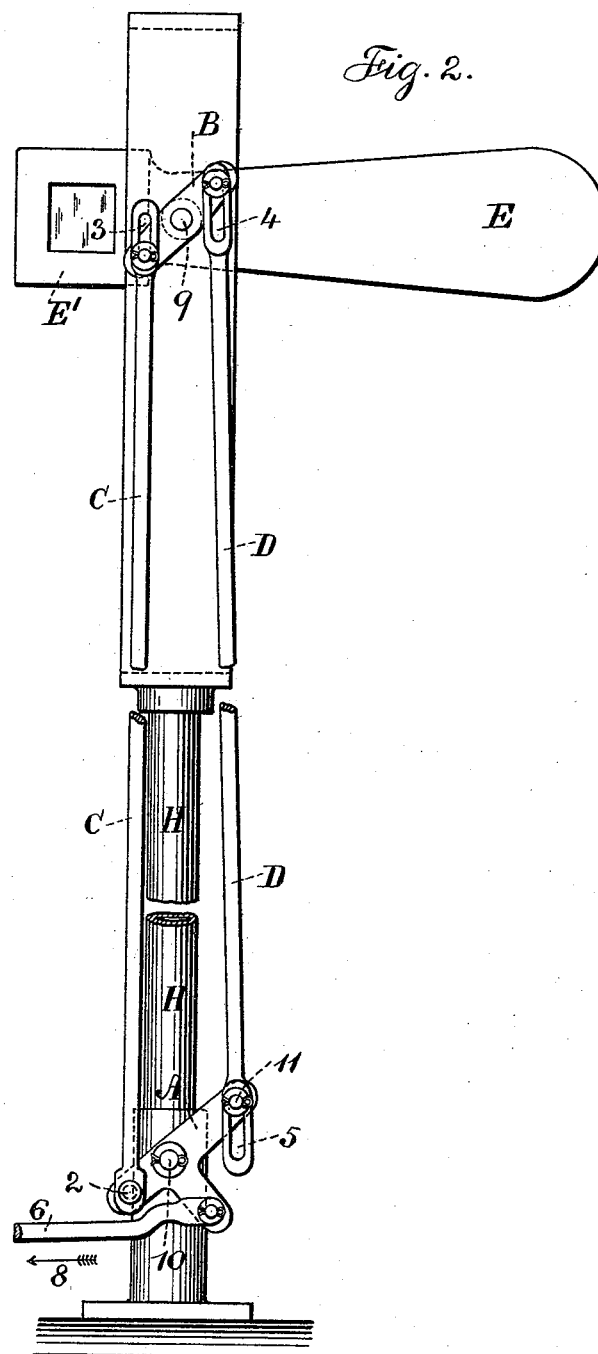
C. M. HAVEY.  
SIGNAL FOR RAILWAYS.

No. 493,211.

Patented Mar. 7, 1893.



Witnesses:  
J. Stait  
Chas. H. Smith



Inventor.  
Cornelius M. Havey  
per Lemuel W. Ferrell  
Atty.

# UNITED STATES PATENT OFFICE.

CORNELIUS M. HAVEY, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND  
ROBERT BLACK, OF SAME PLACE.

## SIGNAL FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 493,211, dated March 7, 1893.

Application filed April 26, 1892. Serial No. 430,682. (No model.)

*To all whom it may concern:*

Be it known that I, CORNELIUS M. HAVEY, a citizen of the United States, residing in the city and State of New York, have invented an  
5 Improvement in Signals for Railways, of which the following is a specification.

Visual or semaphore signals have heretofore been constructed in which the signal is moved by a connection to the switch or by a connection to a rail bar that is acted upon by a passing train. In either instance, especially the latter, the motion that is given to the rail bar and to the connections thereof is sudden and the semaphore is liable to be injured or the  
15 connections thereto bent. In some instances the semaphore has been so weighted that it hangs in a normal position at danger and is only raised up into a position of safety and held in that position so long as the actuating  
20 devices are in order and operate correctly, but the signal falls to danger when left to itself.

In my present improvements the signal remains automatically in an elevated position to indicate danger and it is drawn down to  
25 the position of safety by the weight of the connection that is allowed to hang upon the same, and when the rail bar and connections to the semaphore are operated by a passing train there is no sudden movement of the  
30 semaphore or the parts therewith connected, hence the sudden strain heretofore usual in this class of signals is avoided, but a positive motion is given as hereinafter described that insures the proper starting of the signal in  
35 the intended direction so as to prevent risk of the signal remaining in an incorrect position by ice that may freeze upon the connections.

In the drawings Figure 1 is an elevation  
40 illustrating the connections to the improved signal when in the position of safety, and Fig. 2 is a similar view illustrating the parts in the position of danger.

It is usual to provide, especially in elevated  
45 railways, a stand or post H firmly secured at the lower end and carrying the semaphore or signal at the upper end, and such post usually is provided with a head adapted to receive a lamp at night to be covered or uncovered according to the prearranged signal, and this  
50

well-known device may or may not be used with my improved signal.

At the base of the post H the bell crank lever A is pivoted, and to the lower member of this lever a rod 6 is connected that leads to the rail bar, switch, switch stand or other device that is made use of in changing the signal, either by hand or by the action of a passing train, these devices being well-known; and it is to be understood that when the rod 6 is  
55 moved in the direction of the arrow 7 the signal is set to danger, and when moved in the direction of the arrow 8 the signal returns to safety.

The semaphore or signal E is made with a  
65 blade of any desired shape, size and color, and it is connected to the axis 9 at the top of the post H, so that the axis and the signal can be partially rotated together, and the counterpoise E' upon an arm extending out from the  
70 axis 9 is sufficient to raise the signal E horizontally to a position of danger when not otherwise acted upon, and upon the axis 9 is a lever B permanently fastened to and moving  
75 with the axis, and from the ends of this lever B the rods C and D hang and are connected at their lower ends to the horizontal arms of the bell crank lever A.

The joint 2 between the lever A and the rod C is a close joint, but the joint at the upper  
80 end of the rod C to the lever B is provided with a short slot 3, and the rod D is provided with a slot 4 where it is joined to the lever B and a long slot 5 where the lower end of the rod D is joined to the lever A. If the rod 6 is now  
85 moved in the direction of the arrow 7 to change the signal from safety to danger, the rod C pulls upon the lever B, but in consequence of the joint 2 being near the pivot 10 of the lever A there is but a slight motion  
90 given to the lever B and semaphore E which starts the same and breaks any ice that might otherwise prevent the motion of the parts, and the long arm of the lever A lifts the rod D the proper distance and the weight E' continues  
95 to turn the semaphore until it assumes the horizontal position shown in Fig. 2, the joints of the lever B moving in the slots 3 and 4 respectively. If now the rod 6 is moved in the direction of the arrow 8 to return the signal  
100

from danger to safety, the weight of the rod D is allowed to hang upon the lever B in consequence of the pin 11 moving downwardly in the slot 5, and the weight of this rod D is sufficient to overcome the action of the counterpoise E' and bring the semaphore down to the position of safety, and it will be noticed that there is a positive action to commence to turn the semaphore as the rod 6 commences its movement in the direction of the arrow 8, at which moment the bottom of the slot 3 acts upon the joint pin of the lever B to turn the same, the weight of the rod D hanging from the lever B continues and completes the movement. Hence by this mode of construction a small movement is given to the signal when it is started from the position of safety to that of danger and the counterweight raises the signal to its horizontal or danger position and the motion is stopped by the joint pin of the lever B coming to the upper end of the slot 4, thus preventing a sudden movement being given to the semaphore during its entire swing and lessening the risk of injury to the respective parts, and upon the return movement, from the horizontal to the vertical position, the semaphore is allowed to swing simply by the weight of the rod D unless there has been some obstruction that causes the rod C to give a positive movement to commence to turn the axis 9, the remainder of the movement being effected by the weight of the rod D. These parts are very simple and not liable to be injured or get out of order, and have been found in practice to overcome difficulties heretofore experienced by me.

I claim as my invention—

1. The combination with a swinging signal and its counterweight and an actuating rod

connecting to a rail bar, switch or switch stand, of the lever B upon the axis of the semaphore, the bell crank lever A to one arm of which the actuating rod is connected and the rod C connected to lever A, and having a rod D having slots at the connections to both the lever A and lever B, the parts being arranged substantially as specified, so that the semaphore is turned in one direction by the weight of the rod D and is allowed to turn in the opposite direction after the rod D has been lifted, substantially as set forth.

2. The combination with the post H and semaphore E, of the axis 9, the counterweight E', the lever B permanently connected to the axis, the bell crank lever A and actuating rod therewith connected, the rod C connected to the short arm of the lever A and slotted at its upper end for the joint pin of the lever B, the rod D slotted at both ends and receiving the joint pin of the lever B and the joint pin at the longer arm of the lever A, the parts being arranged substantially as specified, so that the rod C gives a slight positive movement to start the semaphore in one direction when relieved from the weight of the rod D, the counterpoise continuing the movement and the rod D turns the semaphore in the other direction when allowed to hang thereon, the starting of the semaphore being insured by the action of the rod C, substantially as set forth.

Signed by me this 14th day of April, 1892.

CORNELIUS M. HAVEY.

Witnesses:

HENRY A. COX,  
PATRICK T. GRIFFIN.