

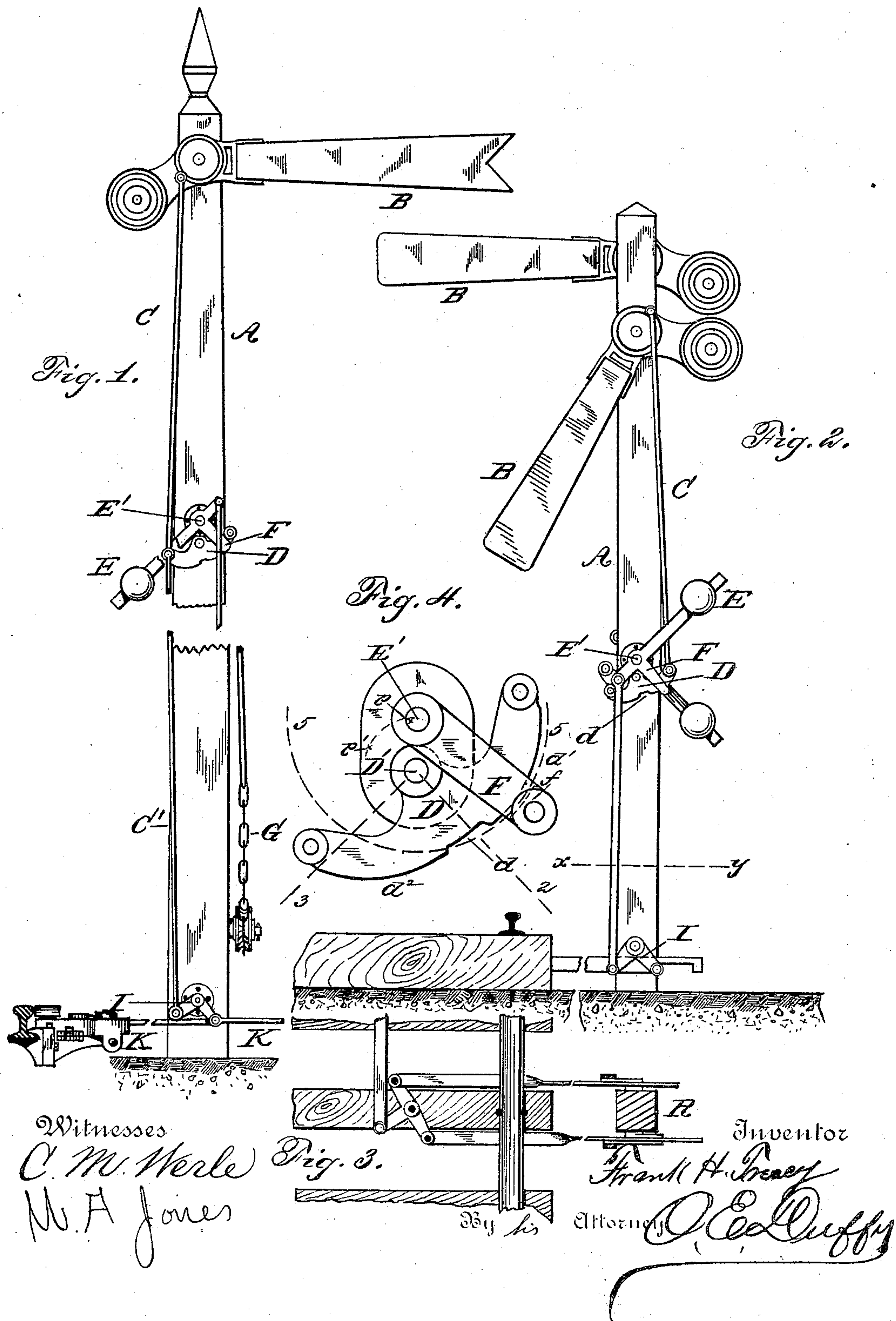
(No Model.)

F. H. TREACY.

DEVICE FOR OPERATING SEMAPHORE BLADES.

No. 369,822.

Patented Sept. 13, 1887.





# UNITED STATES PATENT OFFICE.

FRANK H. TREACY, OF POUGHKEEPSIE, ASSIGNOR TO JAMES H. SWIFT, OF AMENIA, AND EDWIN THORNE, OF MILLBROOK, NEW YORK.

## DEVICE FOR OPERATING SEMAPHORE-BLADES.

SPECIFICATION forming part of Letters Patent No. 369,822, dated September 13, 1887.

Application filed December 10, 1886. Serial No. 221,220. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK H. TREACY, of Poughkeepsie, in the county of Dutchess and State of New York, have invented certain  
5 new and useful Improvements in a Device for Operating Semaphore-Blades; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it  
10 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to signals, and more  
15 particularly to semaphore-signals for railways. In operating these signals it is desirable that the blade should be moved through a certain number of degrees (usually ninety) in order that the blade may stand squarely at right  
20 angles with the post when up, and hang vertically alongside of it when down, so that there may be no doubt as to its position and consequent indication. When these signals are placed at a distance from the station, it  
25 becomes extremely difficult to insure their accuracy of operation, owing to lost motion, expansion, contraction of parts, &c. In order to overcome this disadvantage, I have invented an improved compensating device  
30 which enables a semaphore-blade to be positively moved through any desired arc with invariable precision irrespective of any lost motion in the transmitting devices.

My invention will be better understood upon  
35 reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a distant signal-post equipped with my improvement. Fig. 2 is an elevation of switch signal-post  
40 similarly equipped. Fig. 3 is a plan view of the same with the signal-post on line  $x y$  of Fig. 2. Fig. 4 is a plan view of the cam and arm.

The post A is provided with one or more  
45 semaphore-blades, B, of any desired construction, which are raised and lowered by a rod, C, pivoted thereto. The lower end of this rod is pivoted to a T-shaped cam, D, which is journaled on the post A. The arms of this  
50 cam are curved, being arcs of circles struck from centers  $p p'$  in the rear of and equidis-

tant from the pivot D' of the cam, as shown in Fig. 4. At the center of the cam is a notch,  $d$ , with which engages a lug,  $f$ , on the arm F, which is a part of or is attached to the weighted  
55 lever E, pivoted to the post at E', eccentrically to the cam D.

When the arm F is moved either way from a central line drawn through the pivots D' E', the lug  $f$ , bearing against the side of the notch  
60  $d$ , turns the cam D on its pivot until the curved face  $d'$  or  $d''$  has been brought into coincidence with the circle 5 5, along which the lug  $f$  moves. The lug then leaves the notch and glides along the curved face  $d'$  or  $d''$ , as  
65 shown in Fig. 4, without turning the cam any farther. The range of movement of the cam is then limited to the arc 2 3 irrespective of any excess of movement of the arm F. If, then, the arm is so connected with a distant  
70 station or a switch as to be moved more than enough to throw the cam the full length of its stroke, any change of position of the lug  $f$  along the curved face  $d'$  or  $d''$ , due to the lost motion or otherwise, will not affect the cam,  
75 whose movement will be precisely the same in spite of these disturbing influences. The stroke of rod C and the movement of the blade B will therefore be invariably the same  
80 at all times.

The weighted lever E, carrying the arm F, may be connected with a distant station by means of a chain, G, or any other suitable means, as shown in Fig. 1; or said lever may be connected with a bell-crank lever, H, operated  
85 upon by the mechanism of a switch, as in Figs. 2 and 3, where two blades are shown to indicate the condition of the main track and a siding, both being supported by the same post, A, and each having a compensating device, D,  
90 to insure accuracy of motion.

In Fig. 1 the cam D is shown as connected, also, through a rod, C', and bell-crank lever I with a rod, K, for operating a torpedo-machine in conjunction with the signal-blade B.  
95

I do not herein make any claim to the compensating cam, *per se*, as that has been made the subject-matter of another application, Serial No. 221,218.

Having thus fully described my invention,  
100 what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, with post A, of blade B, rod C, cam D, lever E, arm F, and means for operating the lever.

5 2. The combination, with post A, of blade B, rod C, cam D, lever E, provided with arm F, rod C', bell-crank-lever I, rod K, attached to a suitable signaling device, and means for operating the lever E.

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

FRANK H. TREACY.

Witnesses:

O. E. DUFFY,  
C. M. WERLE.