

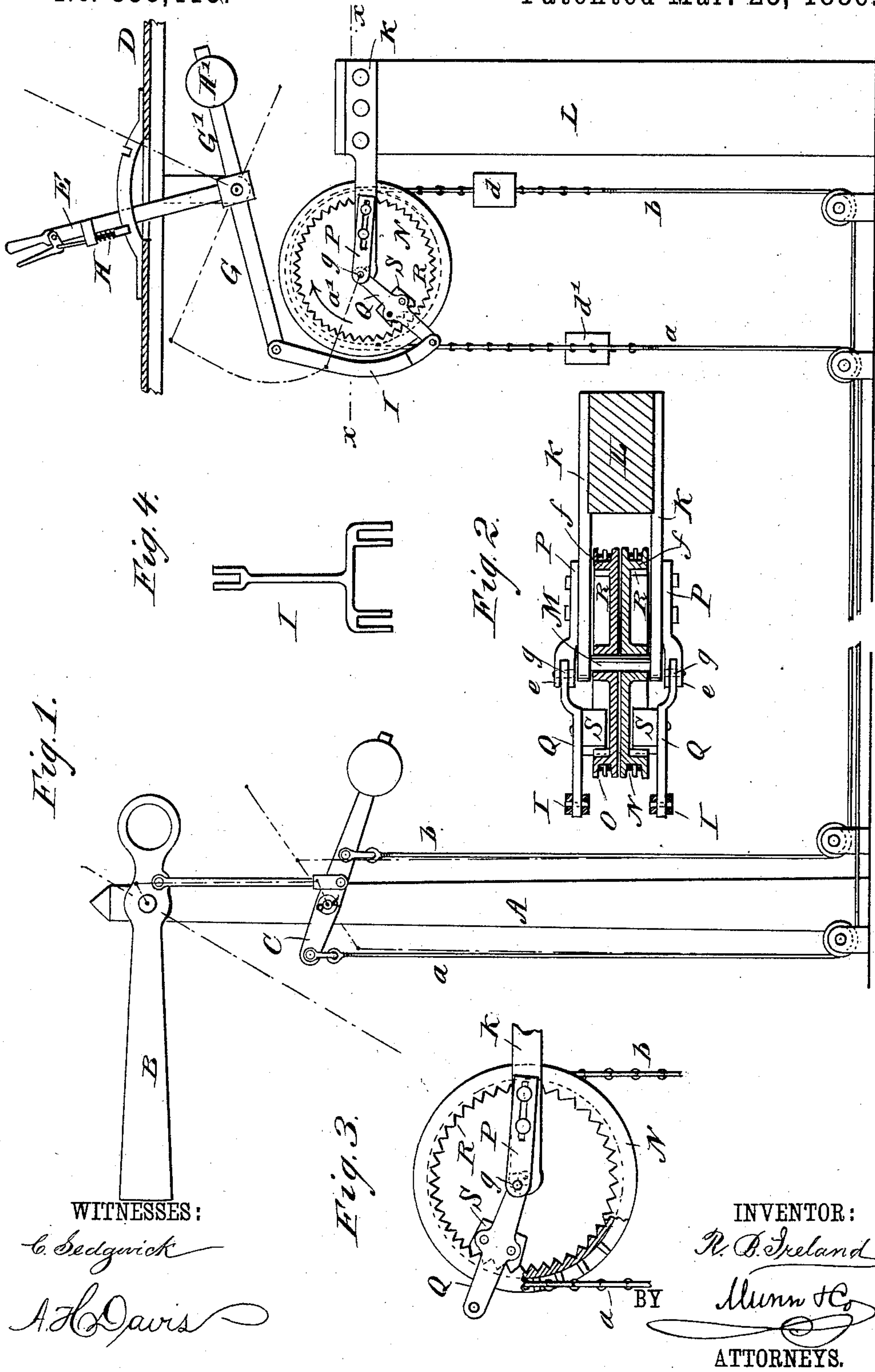
(No Model.)

R. B. IRELAND.

COMPENSATOR FOR WIRE ROPES AND CABLES.

No. 338,415.

Patented Mar. 23, 1886.



WITNESSES:

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RICHARD B. IRELAND, OF TRENTON, NEW JERSEY.

COMPENSATOR FOR WIRE ROPES AND CABLES.

SPECIFICATION forming part of Letters Patent No. 338,415, dated March 23, 1886.

Application filed December 3, 1885. Serial No. 184,596. (No model.)

To all whom it may concern:

Be it known that I, RICHARD B. IRELAND, of the city of Trenton, Mercer county, and State of New Jersey, have invented a new and useful Improvement in Compensators for Wire Ropes and Cables, of which the following is a full, clear, and exact description.

My invention relates to compensators used for taking up the expansion and allowing for the contraction of wire rope or cable used for operating railway-signals and other mechanism at a distance, and is an improvement on the compensator for which Letters Patent of the United States No. 308,673 were granted to me December 2, 1884, the object of the invention being to provide a reliable mechanism in connection with the shifting-lever for positively moving the signal to both the danger and safety positions.

The invention consists in the combination, with the operating ropes or cables of a semaphore, the shifting-lever, and two wheels independently journaled side by side, and over which wheels the operating-ropes pass in opposite directions, of eccentrically-pivoted levers engaging the rope-carrying wheels and connected with the operating-lever.

The invention further consists in details of construction and combinations of parts, as will be hereinafter specifically set forth.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is an elevation of a railway-signal and its operating devices provided with my improved compensator. Fig. 2 is a sectional plan view of the compensator on the line $x-x$ in Fig. 1. Fig. 3 is a side view of the same, in part, parts being broken away; and Fig. 4 is a detail view of the connecting-rod.

The post A, with its swinging signal-arm B, the weighted lever C, the connecting-rod c , and ropes a b , connected to lever C at opposite sides of its pivot and extending to the operating-stand, are of the usual construction and arrangement. The shifting-lever E is suitably pivoted to or beneath the platform D of the signal-stand, and is provided with the locking device H. Arms G and G' extend in opposite directions from the pivot-point of the lever

E, the arms G' carrying a counterbalance-weight, H', and the arm G being connected by the forked rod I with the operating-lever of the compensating device, to be presently described.

Beneath the platform D, in bracket-arms K, extending from the post L, is held the shaft M, upon which are loosely mounted the two similar-flanged wheels N and O, which wheels may be plain flanged wheels for carrying a wire rope, or sprocket-wheels for a chain, as shown. The rope a , for turning the signal to "safety," passes around the wheel N in the direction of the arrow a' , and has at its free end the weight d , as in my before-mentioned patent, and the rope b , for turning the signal to the danger position, passes over the wheel O in the direction opposite to that of the rope a over wheel N, and is provided with the weight d' , by which arrangement the ropes a and b are at all times, regardless of the condition of the atmosphere, kept at uniform tension, and if the wheels N and O are revolved together the signal-arm B will have a positive movement corresponding to the movement of said wheels. For securing this movement of the wheels N and O, I provide the following-described mechanism:

To the outer side of each of the arms K is adjustably secured a bar, P, having at its outer end a fork, e , and in the fork e is pivoted the inner end of a lever, Q, the free end of which lever is pivoted to one member of the forked lower end of the connecting-rod I. The inner faces of the outwardly-extending flanges f of each of the wheels N and O are provided with the internal gear R, and on the inner side of each of levers Q is secured a gear-segment, S. The arms P are adjusted on the brackets K in such position that the pivot-points g of the levers Q are above and in advance of the axis of the shaft M, and the segments S are secured upon the levers Q in such position that when the lever E is thrown to "danger" the teeth of the segments S are out of engagement with the gear R, and the wheels N and O are free to be revolved by the ropes a and b to compensate for shrinkage or expansion of the said ropes. When the lever E is thrown to "safety," the levers Q, through the arms G and connection I, are raised, whereby

the segments S are thrown into engagement with the gears R, and the wheels N and O are revolved synchronously, and the signal B is moved to "safety." When the lever is thrown back to "danger," the gear-segments S give the wheels N O the reverse movement, owing to the constant tension maintained in the ropes a and b. These movements are positive and always of the same extent.

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

1. A compensating device for wire ropes, consisting of an internally-gear wheel over which the rope passes, a lever carrying a gear-segment pivoted eccentrically to the axis of the said wheel, and a hand-lever connected to the free end of the lever carrying the gear-segment, substantially as herein shown and described.

2. A compensating device for operating the ropes of a semaphore, consisting of two loosely and independently-mounted wheels over which the operating-ropes pass in opposite directions, an operating-lever, two levers pivoted eccentrically to the axis of and normally disengaged from said wheels, and a suitable connection between said operating-lever and the eccentrically-mounted levers, substantially as set forth.

3. The compensating device for the operating-ropes of a semaphore, consisting of two wheels mounted side by side loosely and independently, and provided each with an in-

ternal gear, and over which wheels the said ropes pass in opposite directions, levers pivoted eccentrically to the axis of said wheels, and a gear-segment secured to each of said levers, substantially as shown and described.

4. The combination, with the rope a of a semaphore, of the wheel N, provided with internal gear, R, and carrying the end of said rope, the lever Q, pivoted eccentrically to the axis of said wheel, the segment S, secured to lever Q adjacent to the gear R, the levers E G, and the connecting-rod I, substantially as shown and described.

5. The combination, with the wheel N, mounted in brackets K and provided with the internal gear, R, of segment S, lever Q, carrying said segment, and pivoted eccentrically to axis of said wheel N, and the adjustable arm P, secured to one of the brackets K, substantially as shown and described.

6. The combination, with the operating-ropes of a semaphore, of the wheels N and O, provided each with an internal gear, R, and over which wheels the said ropes pass in opposite directions, the shaft M, mounted in the brackets K, the adjustable arms P, the levers Q, the segments S, the levers E G, and the forked connecting-rod I, substantially as shown and described.

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Witnesses:

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