(No Model.)

S. H. HARRINGTON.

COMPENSATOR FOR WIRE ROPE SIGNAL CONNECTIONS.

No. 344,042. Patented June 22, 1886.

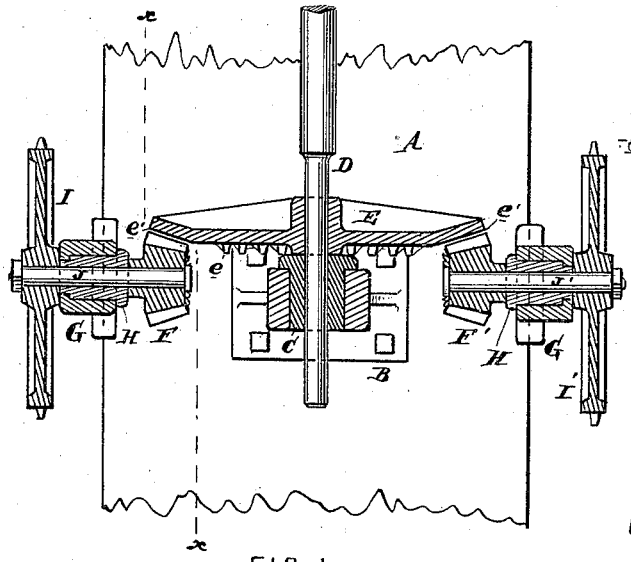

FIG. 1

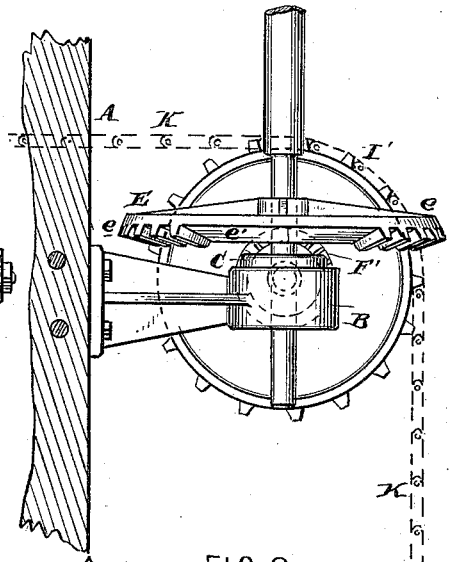

FIG. 2

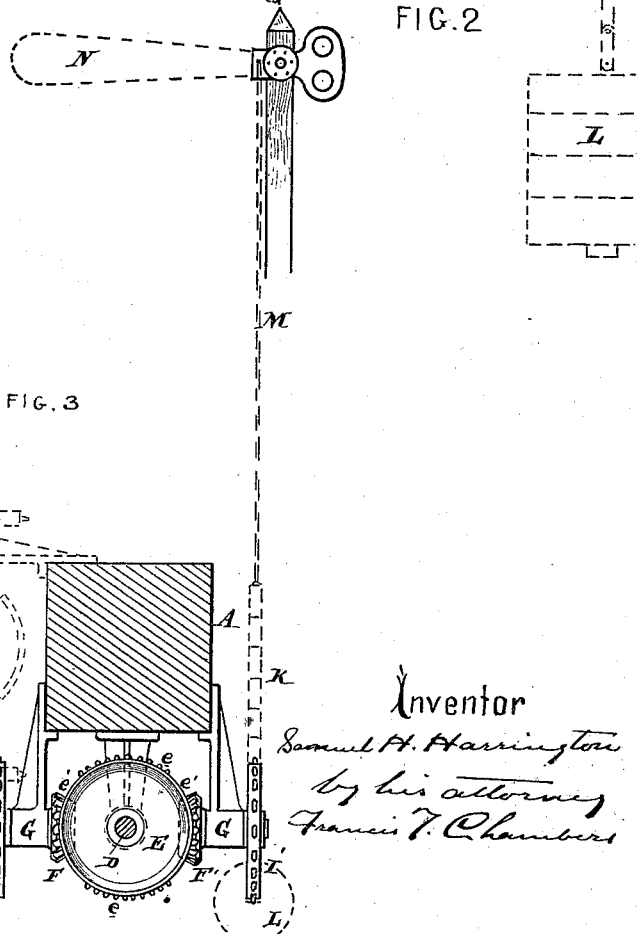

FIG. 3

Attest

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SAMUEL H. HARRINGTON, OF COLUMBUS, OHIO.

COMPENSATOR FOR WIRE-ROPE SIGNAL-CONNECTIONS.

SPECIFICATION forming part of Letters Patent No. 344,042, dated June 22, 1886.

Application filed April 17, 1886. Serial No. 199,180. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL H. HARRINGTON, of Columbus, Franklin county, State of Ohio, have invented a new and useful Improvement in Compensators for Wire-Rope Signal-Connections, of which the following is a full and true description, reference being had to the accompanying drawings, which form a part of this specification.

The object of my invention is to provide a device whereby the wire-rope connection between a railway-signal and its actuating-lever may be kept taut, and all variations in length, arising either from variations in temperature or from stretching, compensated for; and a further object is to provide a simple and efficient device whereby the compensating action is obtained in two lines of wire, both actuated by the same lever. These objects I accomplish, as hereinafter fully described, and as illustrated in the drawings, which show my invention as applied to the distance-signals actuated from a crossing signal-post, and in which—

Figure 1 is a central sectional elevation; Fig. 2, a side elevation, and Fig. 3 a plan.

A is a post to which my device is attached.

E is a strong bracket secured to the post, and forming a bearing at its outer end, through which passes a shaft, D. This shaft is preferably of square section, bushings C being provided where it passes through its supporting-bearings. The shaft D is turned in its bearings by a lever or any convenient actuating device. Keyed to the shaft D, and preferably resting on the bushing C, is a bevel-wheel, E, having teeth *e e* on segments of its rim, divided by plain segments *e' e'*.

F and F' are bevel-wheels having teeth fitted to engage with the teeth of the segments *e e* of the wheel E.

G and G' are brackets secured to the post A, and having bushings H, forming the bearings for shafts J and J', which, like the shaft D, I prefer to make of square section, upon the inner ends of which are secured the spur-wheels F F', while upon their outer ends are secured sprocket-wheels I and I'.

K is a chain-section adapted to mesh with and be actuated by the teeth of the sprocket-wheels I. To one end of this chain is attached a weight, L, while its other end is secured to the wire or rope M, which actuates the signal N. This signal N, which may be of any convenient kind, is counterweighted, so that it will maintain itself in the "danger" position at all times, save when drawn down to "safety."

The operation of this device will be readily understood. As represented in the drawings, the signal-lever is in its normal or "danger" position, and, as will be observed, the teeth *e* on the wheel E are out of contact with the teeth of the wheels F F', and the shafts J J' are free to turn in their bearings. Consequently, if the wire or rope M becomes elongated, the weight L will fall to an equal extent, or, on the other hand, it will rise if the wire or rope is shortened, the sprocket-wheel I turning freely with any movement of the chain K. In this way the wire or rope is always kept tight and under the same strain when the signal is at its normal position. When it is desired to set the signal to "safety," the shaft D is rotated, generally through an angle of ninety degrees, and the toothed segments *e* of the wheel E engage with the teeth of the wheels F F', causing them, and through them, the shafts J and J' and sprocket-wheels I I', to rotate. The rotation of the wheels I I' draws the signal-arms N down to "safety" by means of the wires or ropes M, where they are securely retained until the shaft D is turned back to its normal position, when they rise by gravity to their "danger" or horizontal position. In moving the shaft D from "danger" to "safety" the weight L is raised and sustained by the sprocket-wheel I, so that the counter-weight on the semaphore-arm, is relieved from the work of raising said weight, which does not exercise any strain on the wire M, until the toothless segments *e'* of the wheel E come above the spur-wheels F.

By actuating the two signals, one in each direction, from the crossing signal-post A by a signal-wheel, E, perfect uniformity and precision of movement are insured, and this is an important feature of my invention, though I do not wish to be understood as limiting myself to this exclusively, as it is evident that my compensating plan may be used for a single signal-line, or that, if necessary, more than two lines may be connected with an actuating-wheel E.

Where, as shown in the drawings, the shafts

J J′ are to be rotated in opposite directions, I do not think the arrangement shown can be modified to any advantage; but where two or more shafts are to be rotated in the same direction, or where but one line is connected with the lever, it is obvious that structural changes may be made—as, for instance, instead of a wheel, E, a straight rack with teeth omitted, or cut away in section, made to mesh with a wheel, F, having ordinary spur-teeth would act in the same way as the device illustrated.

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

1. In combination with a signal wire or rope, the drive-chain K, attached to the wire at one end, and having a weight, L, at the other end, the sprocket-wheel I, having teeth adapted to engage the chain, and secured to a shaft, J, having a spur-wheel, F, at its other end, a wheel, E, or its equivalent, having toothed segments *e* and plain segments *e′*, and means for actuating the same, all substantially as and for the purpose specified.

2. In combination with beveled gear-wheels F F′, arranged together with the sprocket-wheels, drive-chains, and weights to actuate signals, substantially as specified, the wheel E, having toothed segments *e e* and plain segments *e′ e′*.

SAML. H. HARRINGTON.

Witnesses:
C. C. CORNER,
C. B. PUGH.